

22-OCT-2019 15:20  
 S:\Contracts\Resurfacing Projects\Division 10\I-5769 Mecklenburg Jan 2020\Title Sheet.dgn  
 p:\port AT\_CSD-292592

**CONTRACT: C204511**      **TIP PROJECT: I-5769**

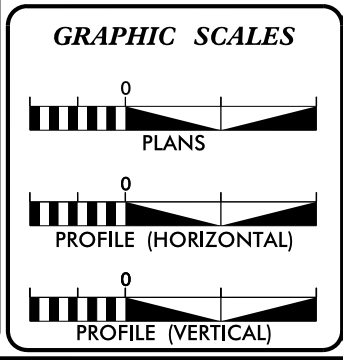
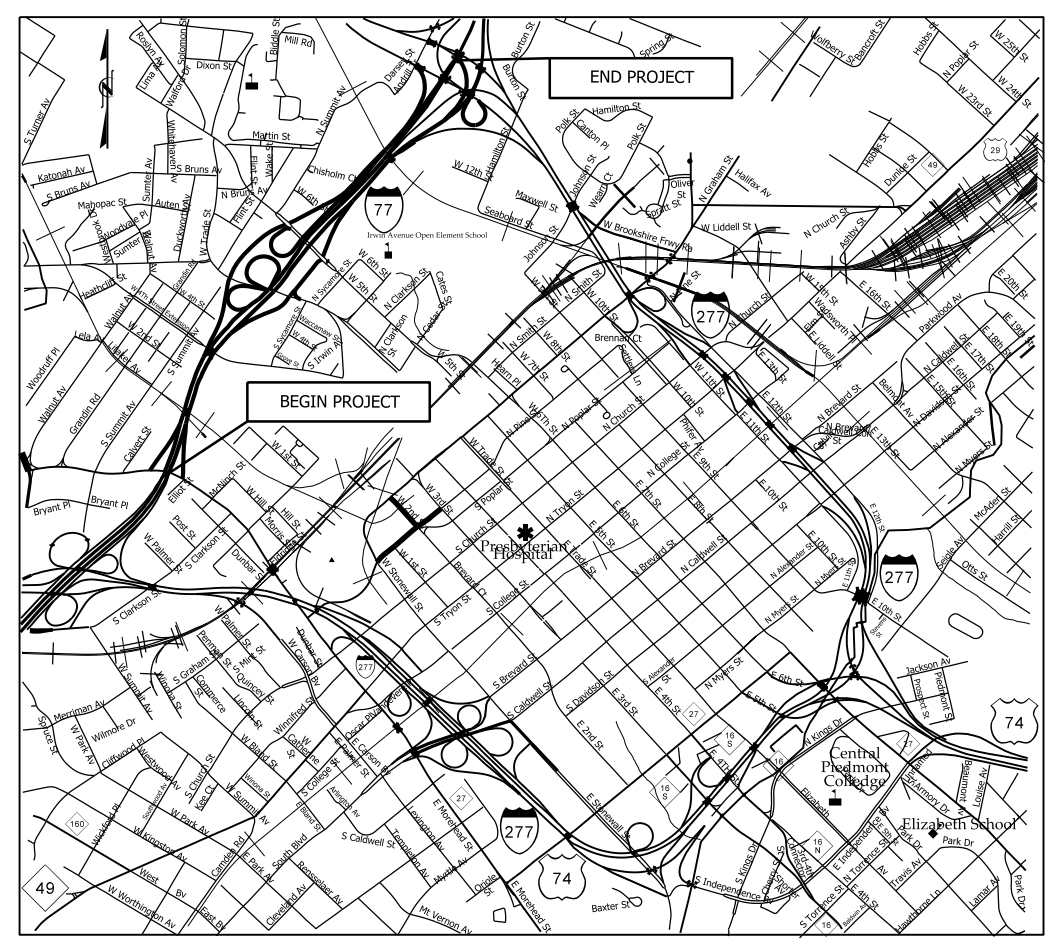
STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

**LOCATION:**    *I-77 INTERSTATE PAVEMENT REHABILITATION FROM  
 WEST MOREHEAD STREET TO NC 16 BROOKSHIRE FREEWAY  
 MILEPOST 9.55 TO MILEPOST 10.91*

**TYPE OF WORK:**    *MILLING AND PAVING WITH HOT MIX ASPHALT  
 DIAMOND GRINDING, PAVEMENT MARKINGS  
 SNOWPLOWABLE PAVEMENT MARKERS*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
53019.3.GV1	0077022		



**DESIGN DATA**

ADT 2018	=	134,000
ADT	=	
K	=	%
D	=	%
T	=	% *
V	=	55 MPH
* TTST	=	DUAL

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT    53019.3.GV1 = 1.36 MILES  
 TOTAL LENGTH OF STATE PROJECT 53019.3.GV1 = 1.36 MILES

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
 DIVISION 10

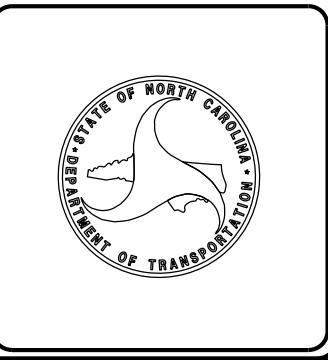
2018 STANDARD SPECIFICATIONS  RIGHT OF WAY DATE: N/A  LETTING DATE: JANUARY 21, 2020	JOHN H. EDMONDS PROJECT ENGINEER  MIKE D. WALDEN PROJECT DESIGN ENGINEER
--	--

HYDRAULICS ENGINEER

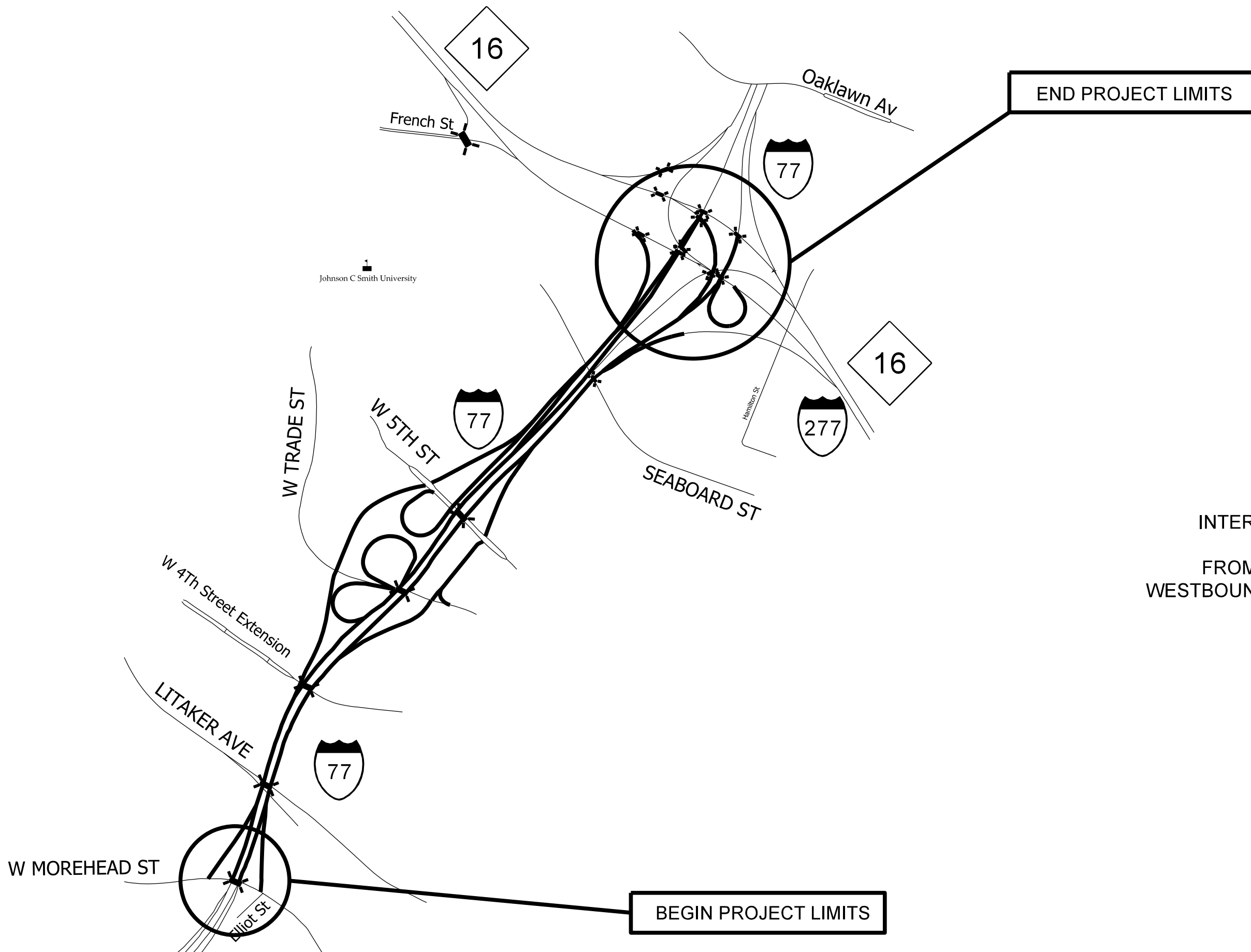
SIGNATURE: \_\_\_\_\_ P.E.

ROADWAY DESIGN ENGINEER


SIGNATURE: \_\_\_\_\_ P.E.



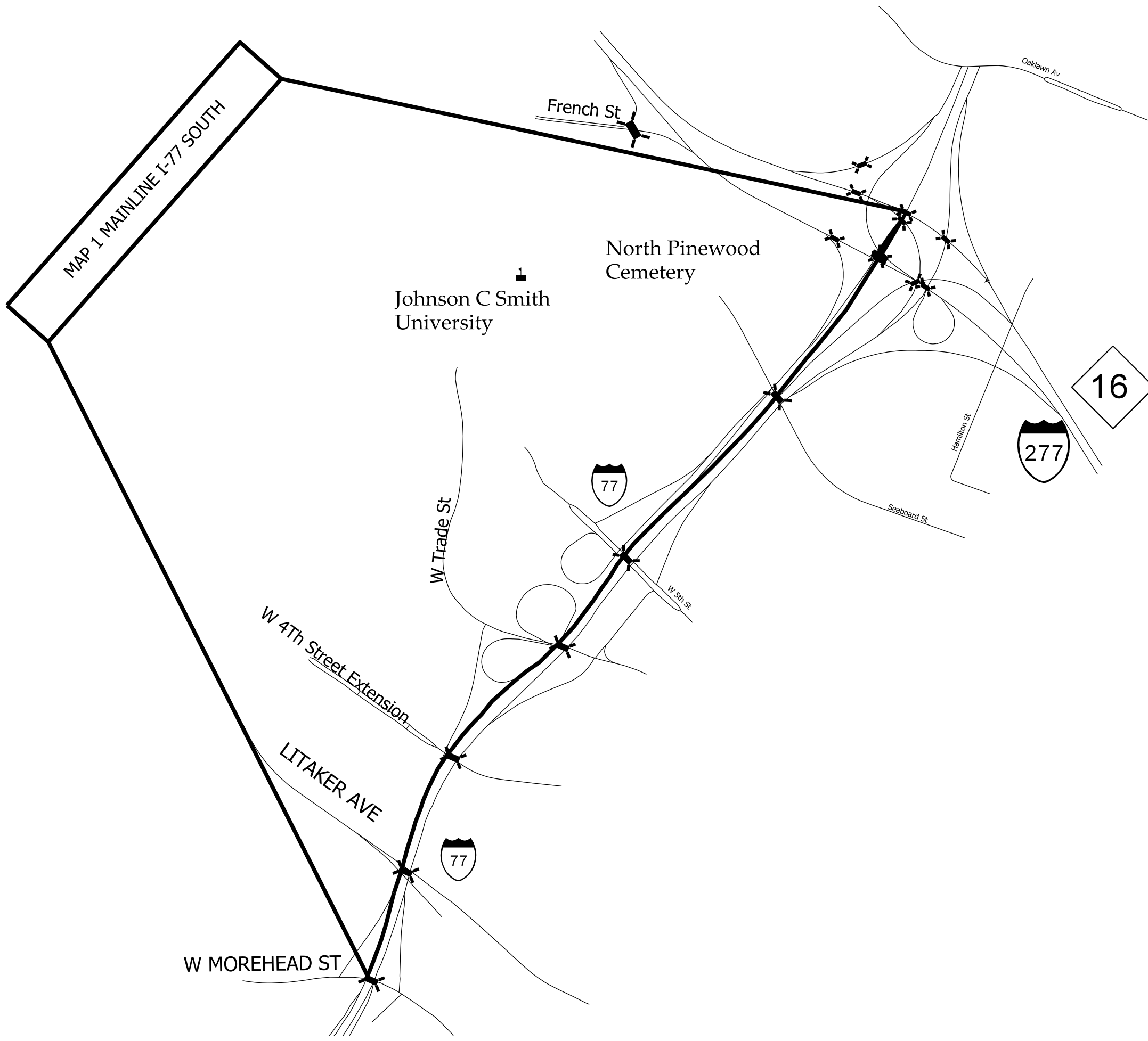
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	<b>2</b>	
WBS NO. 53019.3.GVI			



INTERSTATE 77 PROJECT LIMITS:  
 FROM WEST MOREHEAD ST TO  
 WESTBOUND NC 16 BROOKSHIRE FREEWAY

I-5769 INTERSTATE I-77 PAVEMENT REHABILITATION MECKLENBURG COUNTY			REVISIONS
SCALE	-NA-		
DATE			
DWG. BY	MJ		
DESIGN BY	DMW		
APPROVED	JHE		

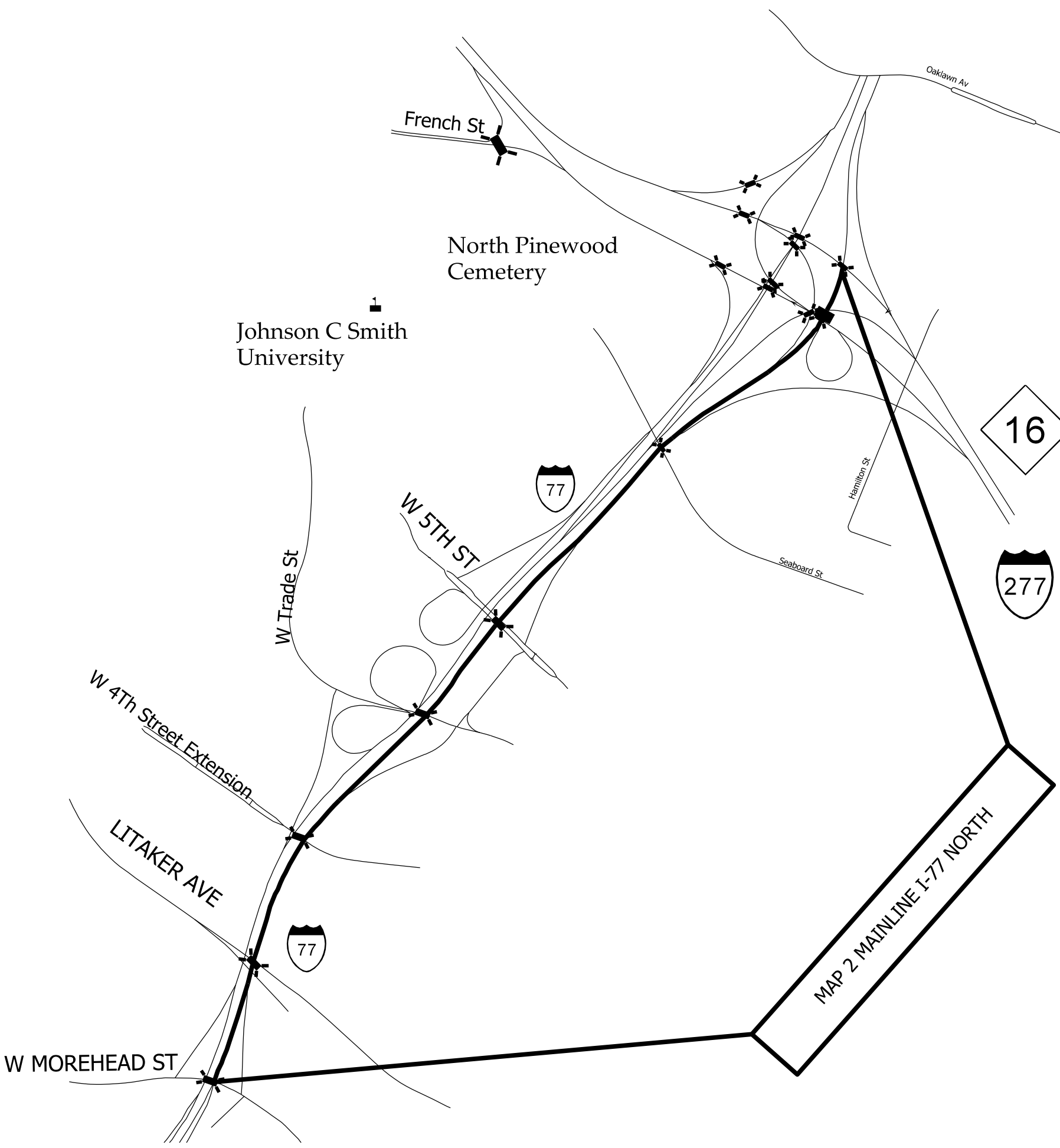
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	<b>3</b>	
WBS NO. 53019.3.GVI			



MAP 1 SOUTHBOUND I-77  
FROM WESTBOUND BROOKSHIRE FREEWAY  
TO WEST MOREHEAD STREET

I-5769 INTERSTATE I-77 PAVEMENT REHABILITATION MECKLENBURG COUNTY		
SCALE	-NA-	REVISIONS
DATE		
DWG. BY	MJ	
DESIGN BY	DMW	
APPROVED	JHE	

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	<b>4</b>	
WBS NO. 53019.3.GVI			

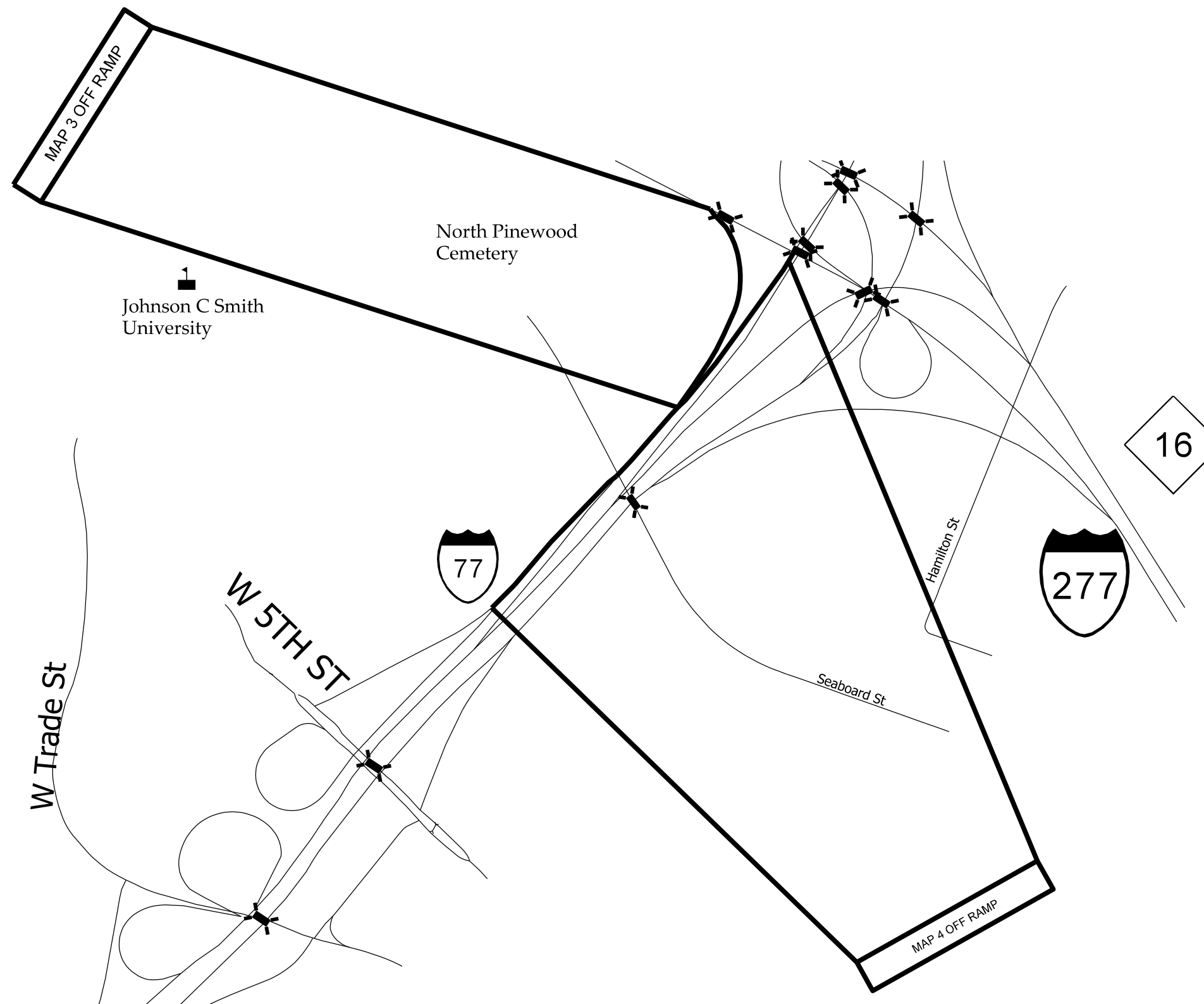


MAP 2 NORTHBOUND I-77  
 FROM WEST MOREHEAD STREET  
 TO WESTBOUND NC 16 BROOKSHIRE FREEWAY

I-5769 INTERSTATE I-77 PAVEMENT REHABILITATION MECKLENBURG COUNTY		
SCALE	-NA-	REVISIONS
DATE		
DWG. BY	MJ	
DESIGN BY	DMW	
APPROVED	JHE	




STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	<b>5</b>	
WBS NO. 53019.3.GVI			

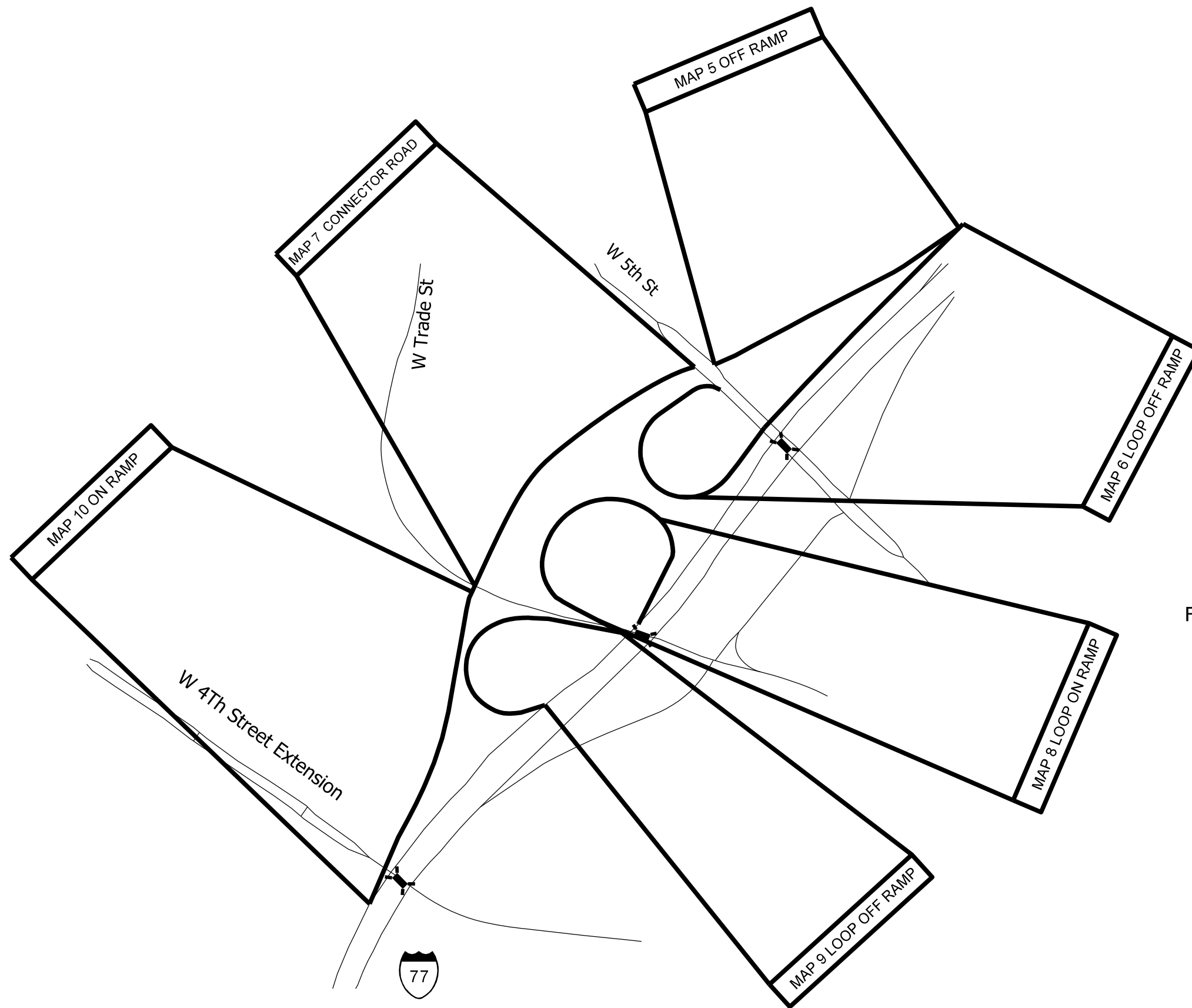


MAP 3 OFF RAMP  
FROM CONCRETE JOINT TO PHYSICAL GORE

MAP 4 OFF RAMP  
FROM EASTBOUND BROOKSHIRE BRIDGE  
TO PHYSICAL GORE AT MAP 5

I-5769 INTERSTATE I-77 PAVEMENT REHABILITATION MECKLENBURG COUNTY			REVISIONS	
SCALE	-NA-			
DATE				
DWG. BY	MJ			
DESIGN BY	DMW			
APPROVED	JHE			

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	<b>6</b>	
WBS NO. 53019.3.GVI			



MAP 5 OFF RAMP  
FROM PHYSICAL GORE TO WEST 5TH STREET

MAP 6 LOOP OFF RAMP  
FROM PHYSICAL GORE TO TOP LOOP OFF RAMP AT 5TH STREET

MAP 7 CONNECTOR ROAD  
FROM WEST 5TH STREET TO WEST TRADE STREET

MAP 8 LOOP ON RAMP  
FROM WEST TRADE STREET TO PHYSICAL GORE

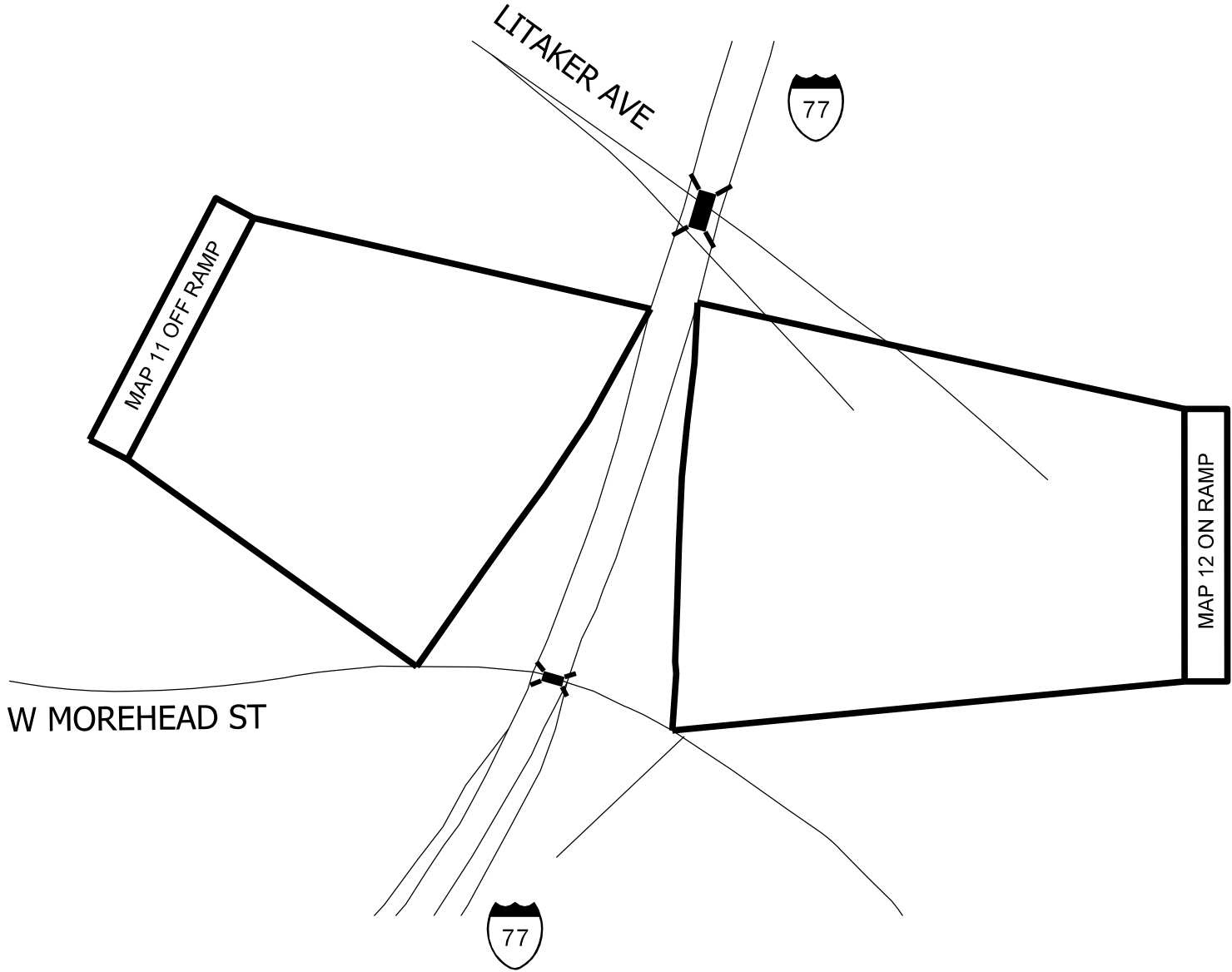
MAP 9 LOOP OFF RAMP  
FROM PHYSICAL GORE TO ASPHALT PAVEMENT JOINT

MAP 10 ON RAMP  
FROM WEST TRADE STREET TO PHYSICAL GORE

I-5769 INTERSTATE I-77  
PAVEMENT REHABILITATION  
MECKLENBURG COUNTY

SCALE	-NA-		REVISIONS
DATE			
DWG. BY	MJ		
DESIGN BY	DM		
APPROVED	JME		

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	<b>7</b>	
WBS NO. 53019.3.GVI			



MAP 11 SOUTHBOUND OFF RAMP  
FROM PHYSICAL GORE TO WEST MOREHEAD STREET

MAP 12 NORTHBOUND ON RAMP  
FROM WEST MOREHEAD STREET TO PHYSICAL GORE

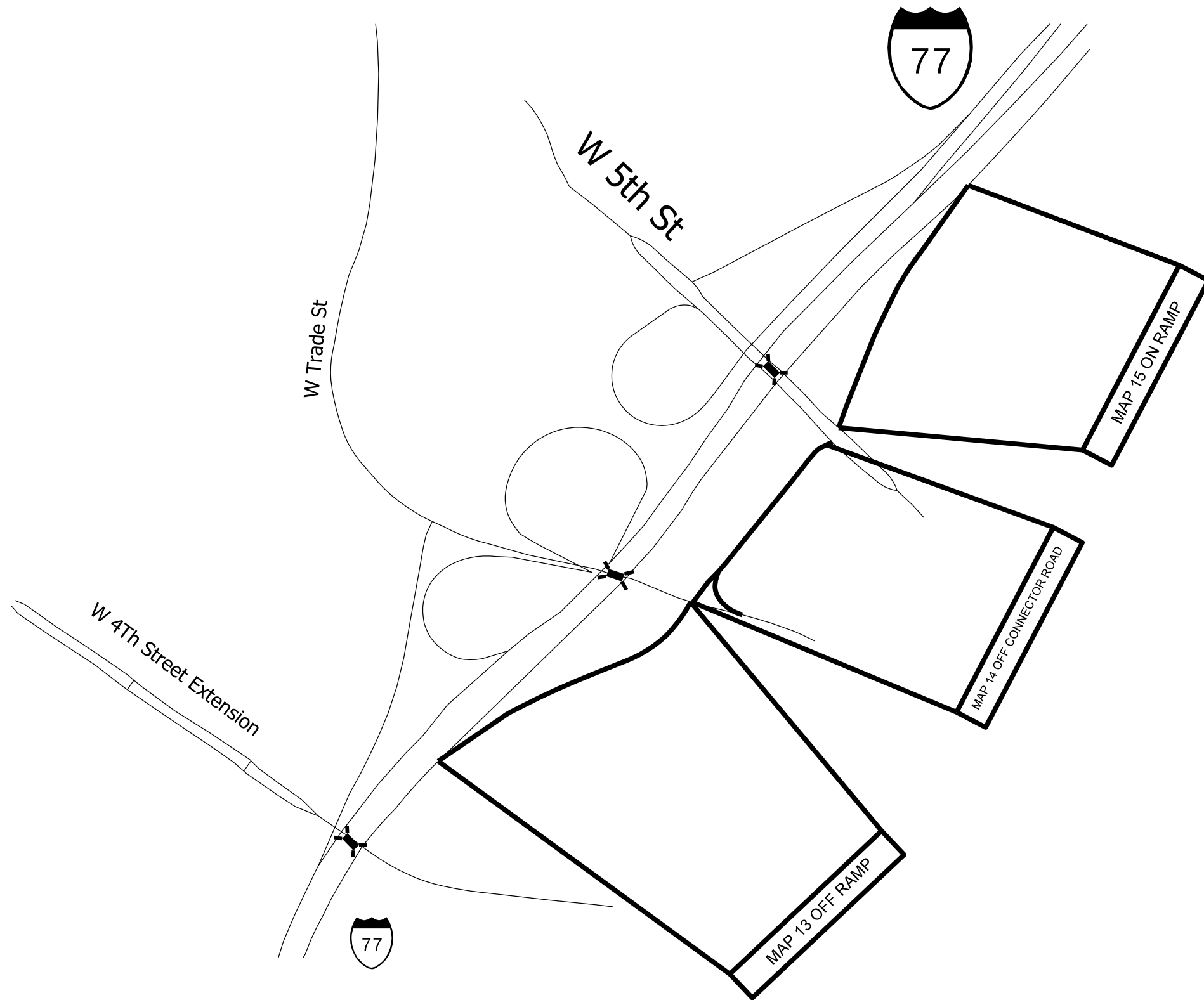
I-5769 INTERSTATE I-77  
PAVEMENT REHABILITATION  
MECKLENBURG COUNTY

SCALE	-NA-
DATE	
DWG. BY	MJ
DESIGN BY	DMW
APPROVED	JHE



REVISIONS	

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	<b>8</b>	
WBS NO. 53019.3.GVI			



MAP 13 OFF RAMP  
FROM PHYSICAL GORE TO WEST TRADE STREET

MAP 14 CONNECTOR ROAD  
FROM WEST TRADE STREET TO WEST 5TH STREET

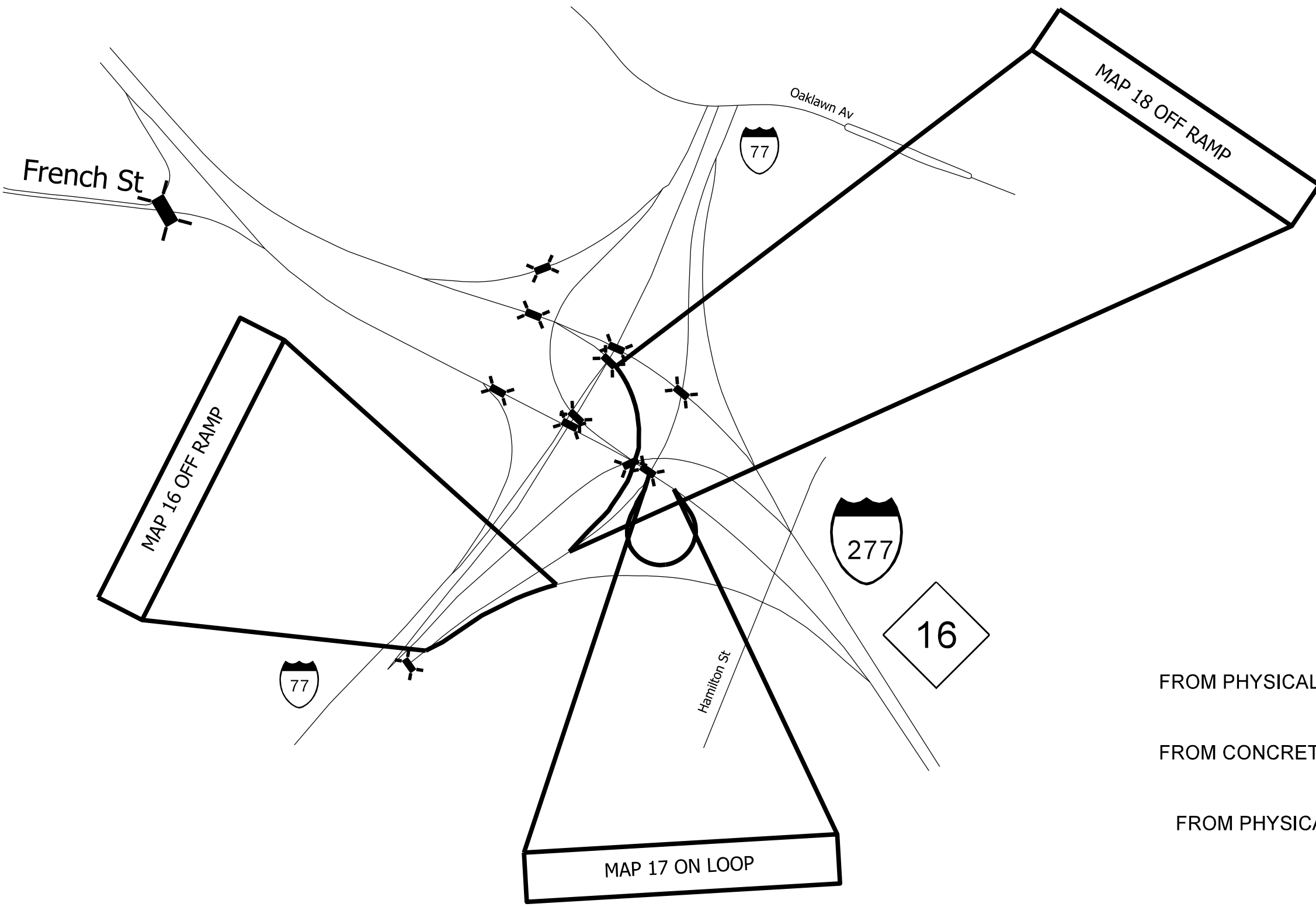
MAP 15 ON RAMP  
FROM WEST 5TH STREET TO PHYSICAL GORE

I-5769 INTERSTATE I-77  
PAVEMENT REHABILITATION  
MECKLENBURG COUNTY

SCALE	-NA-		REVISIONS
DATE			
DWG. BY	MJ		
DESIGN BY	DMW		
APPROVED	JHE		



STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	<b>9</b>	
WBS NO. 53019.3.GVI			




MAP 16 OFF RAMP  
FROM PHYSICAL GORE TO CONCRETE PAVEMENT JOINT

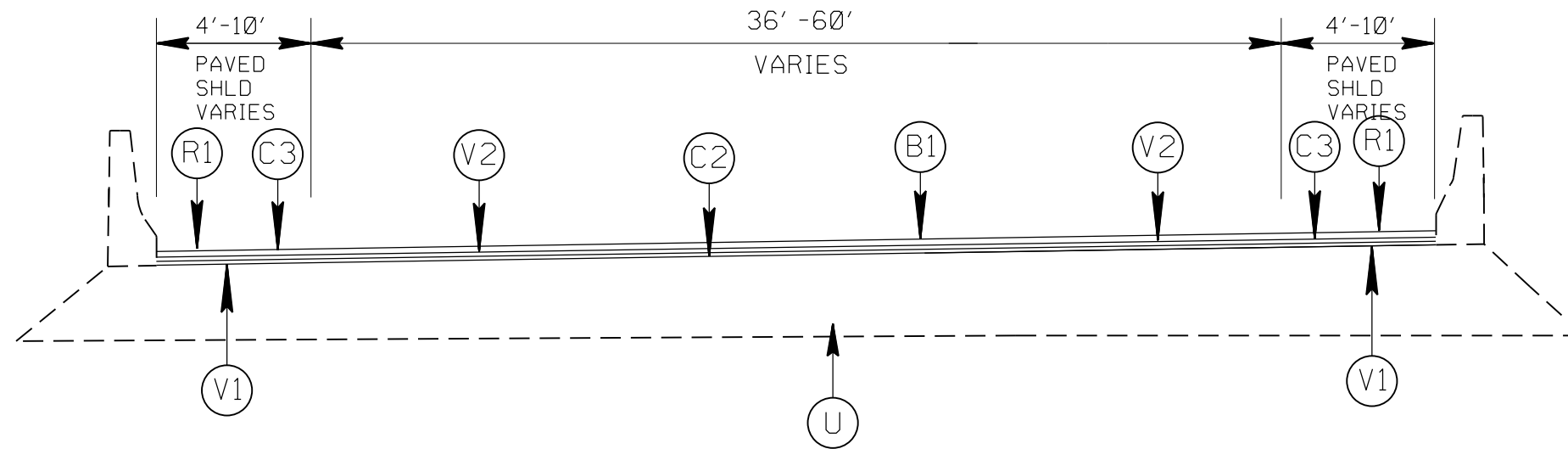
MAP 17 ON LOOP  
FROM CONCRETE PAVEMENT JOINT TO PHYSICAL GORE

MAP 18 OFF RAMP  
FROM PHYSICAL GORE TO CONCRETE BRIDGE DECK

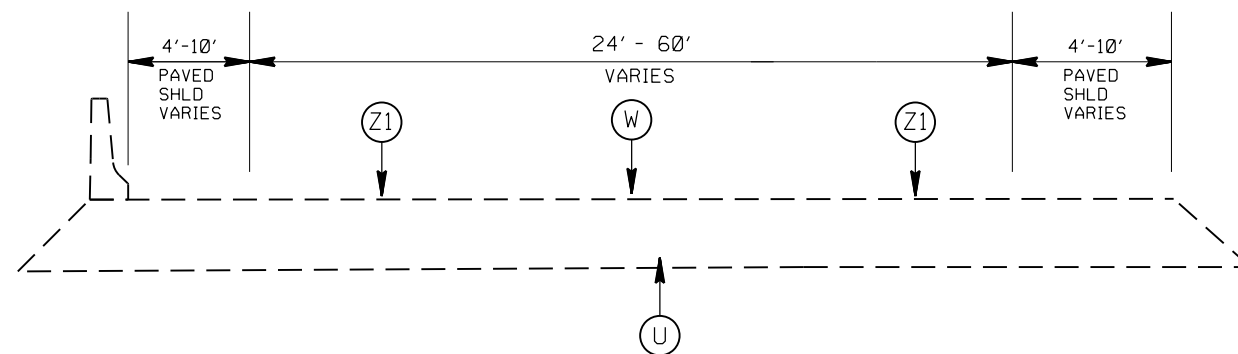
I-5769 INTERSTATE I-77 PAVEMENT REHABILITATION MECKLENBURG COUNTY		
SCALE	-WA-	REVISIONS
DATE		
DWG. BY	MJ	
DESIGN BY	DMM	
APPROVED	JME	



STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	<b>10</b>	
WBS NO. 53019.3.GVI			

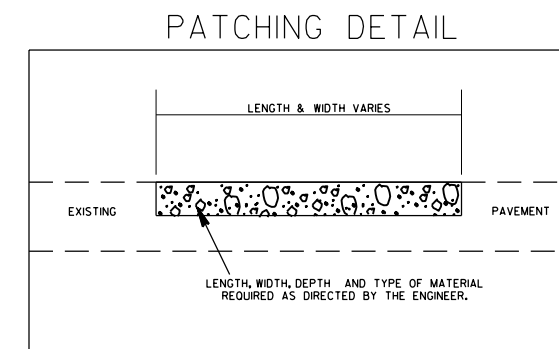


TYPICAL SECTION NO.1  
I-77 SOUTH (MAP 1)  
I-77 NORTH (MAP 2)




TYPICAL SECTION NO.2  
I-77 SOUTH (MAP 1)  
I-77 NORTH (MAP 2)

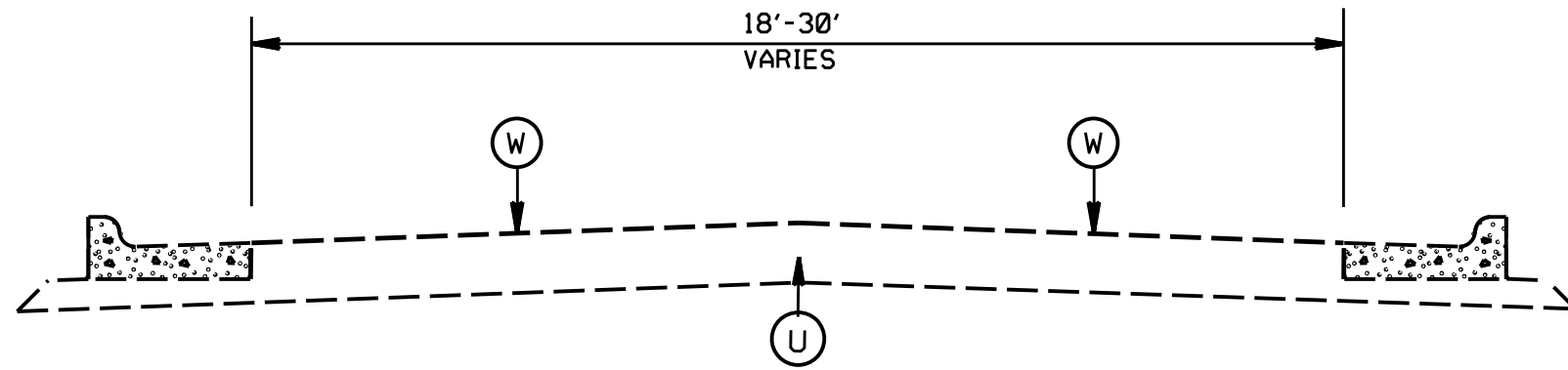
PAVEMENT SCHEDULE	
B1	PROP. APPROX. 5/8" ULTRA-THIN BONDED WEARING COURSE, AT AN AVERAGE RATE OF 70 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C3	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
R1	RUMBLE STRIPS
V1	MILLING 1.5" DEPTH
V2	MILLING, 2.0" DEPTH
W	CONCRETE SLAB, SPALL, AND JOINT REPAIR
U	EXISTING PAVEMENT
Z1	DIAMOND GRINDING CONCRETE PAVEMENT



- \* ULTRA-THIN BONDED WEARING COURSE SHALL EXTEND A MINIMUM OF 1 FOOT OUTSIDE OF LANE.
- \* RUMBLE STRIPS SHALL BE LOCATED 1 FOOT OUTSIDE OF ULTRA-THIN BONDED WEARING COURSE ON EITHER SIDE.

I-5769 INTERSTATE I-77 PAVEMENT REHABILITATION MECKLENBURG COUNTY			REVISIONS
SCALE -NA-	DATE		
DWG. BY MJ	DESIGN BY MW	APPROVED	

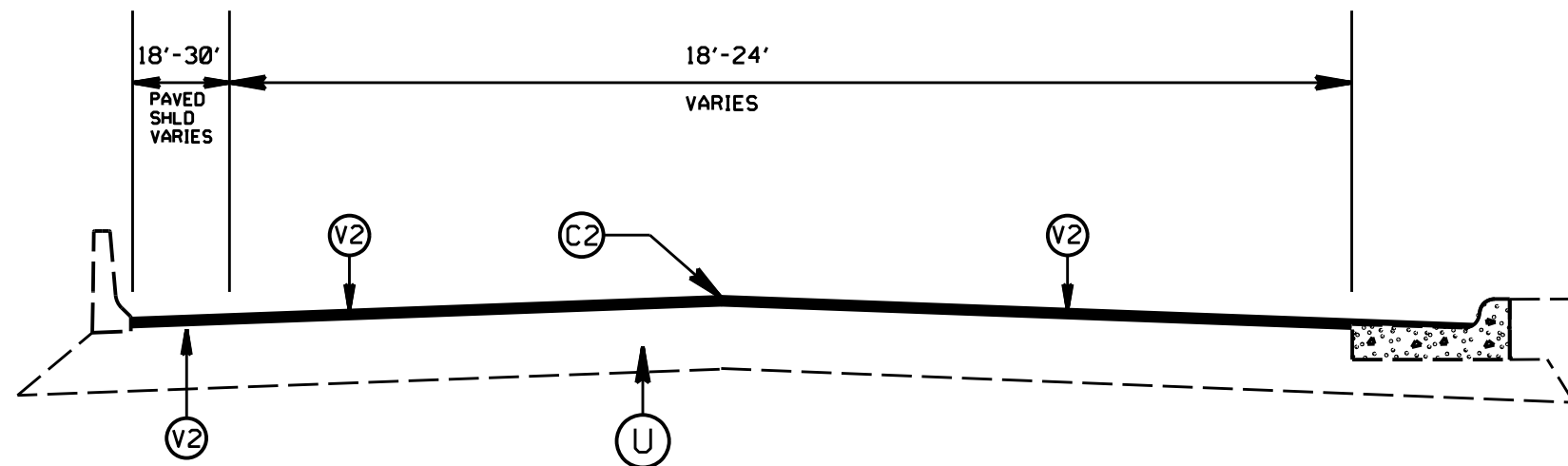
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	<b>11</b>	
WBS NO. 53019.3.GVI			



TYPICAL SECTION NO. 3

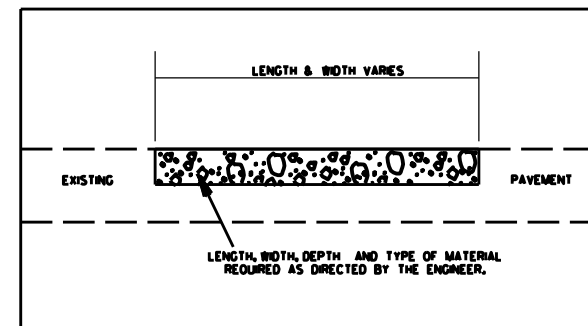
- RAMP 3692 (MAP 9)
- RAMP 3693 (MAP 10)
- RAMP 4301 (MAP 11)
- RAMP 4300 (MAP 12)
- RAMP 3688 (MAP 13)

PAVEMENT SCHEDULE	
B1	PROP. APPROX. 5/8" ULTRA-THIN BONDED WEARING COURSE, AT AN AVERAGE RATE OF 70 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C3	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
R1	RUMBLE STRIPS
V1	MILLING 1.5" DEPTH
V2	MILLING, 2.0" DEPTH
W	CONCRETE SLAB, SPALL, AND JOINT REPAIR
U	EXISTING PAVEMENT
Z1	DIAMOND GRINDING CONCRETE PAVEMENT



TYPICAL SECTION NO. 4  
RAMP 3687 (MAP 4)

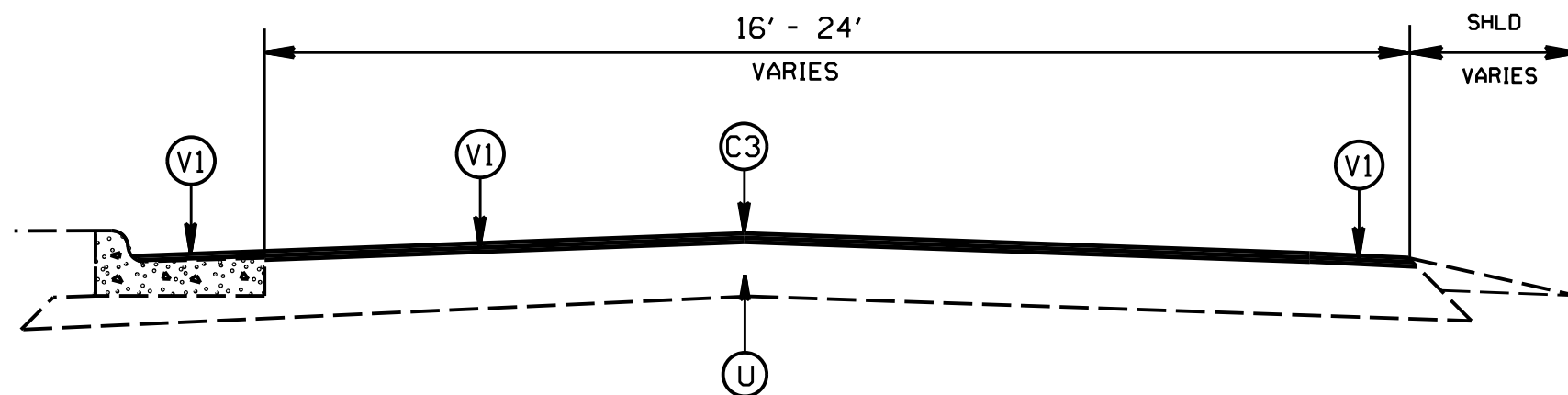
PATCHING DETAIL



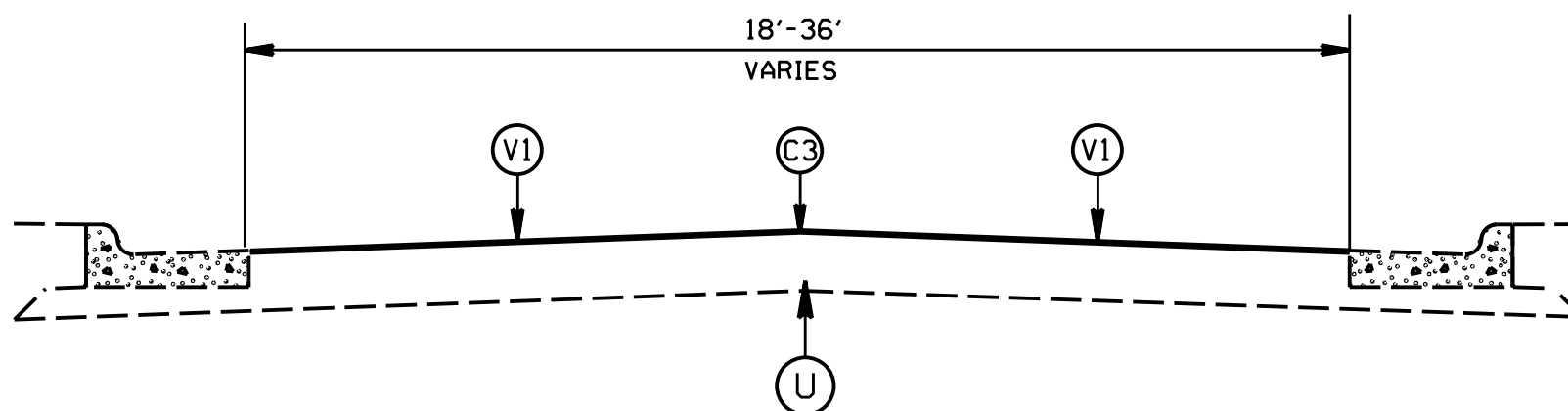
I-5769 INTERSTATE I-77  
PAVEMENT REHABILITATION  
MECKLENBURG COUNTY

SCALE	-NA-		REVISIONS
DATE			
DWG. BY	MJ		
DESIGN BY	MM		
APPROVED			

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	<b>12</b>	
WBS NO. 53019.3.GVI			



TYPICAL SECTION NO. 5  
RAMP 3686 (MAP 3)

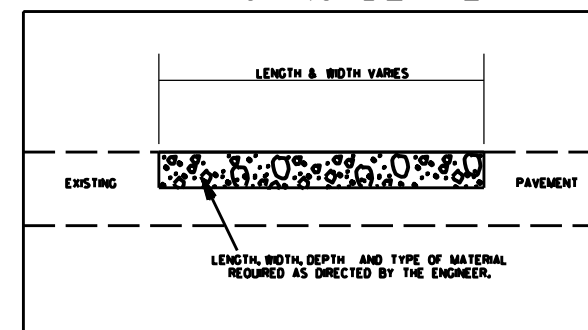


TYPICAL SECTION NO. 6

- RAMP 3694 (MAP 5)
- RAMP 3687 (MAP 6)
- SOUTH CONNECTOR (MAP 7)
- RAMP 3691 (MAP 8)
- NORTH CONNECTOR (MAP 14)
- RAMP 3689 (MAP 15)
- RAMP 3682 (MAP 16)
- LOOP 3689 (MAP 17)
- RAMP 3685 (MAP 18)

PAVEMENT SCHEDULE	
B1	PROP. APPROX. 5/8" ULTRA-THIN BONDED WEARING COURSE, AT AN AVERAGE RATE OF 70 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C3	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
R1	RUMBLE STRIPS
V1	MILLING 1.5" DEPTH
V2	MILLING, 2.0" DEPTH
W	CONCRETE SLAB, SPALL, AND JOINT REPAIR
U	EXISTING PAVEMENT
Z1	DIAMOND GRINDING CONCRETE PAVEMENT

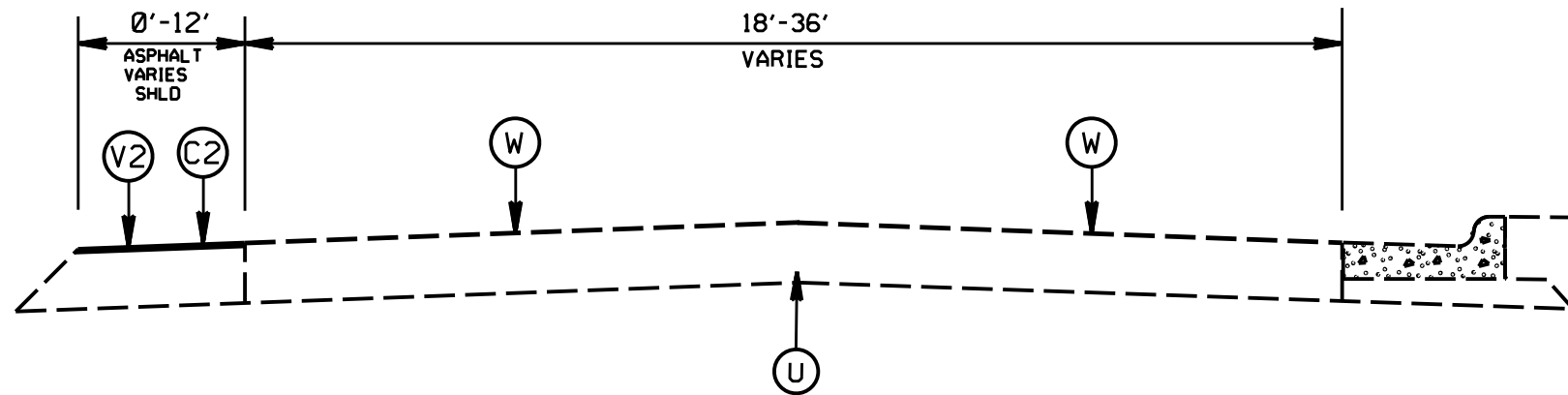
PATCHING DETAIL



I-5769 INTERSTATE I-77  
PAVEMENT REHABILITATION  
MECKLENBURG COUNTY

SCALE	-NA-		REVISIONS
DATE			
DWG. BY	MJ		
DESIGN BY	MW		
APPROVED			

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	<b>13</b>	
WBS NO. 53019.3.GVI			

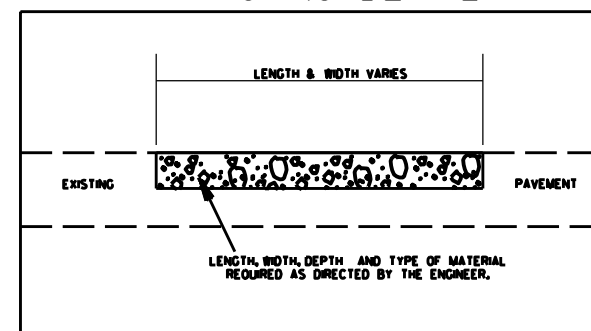


TYPICAL SECTION NO. 7

RAMP 3693 ASPHALT SHOULDERS (MAP 10)  
RAMP 3688 ASPHALT SHOULDERS (MAP 13)

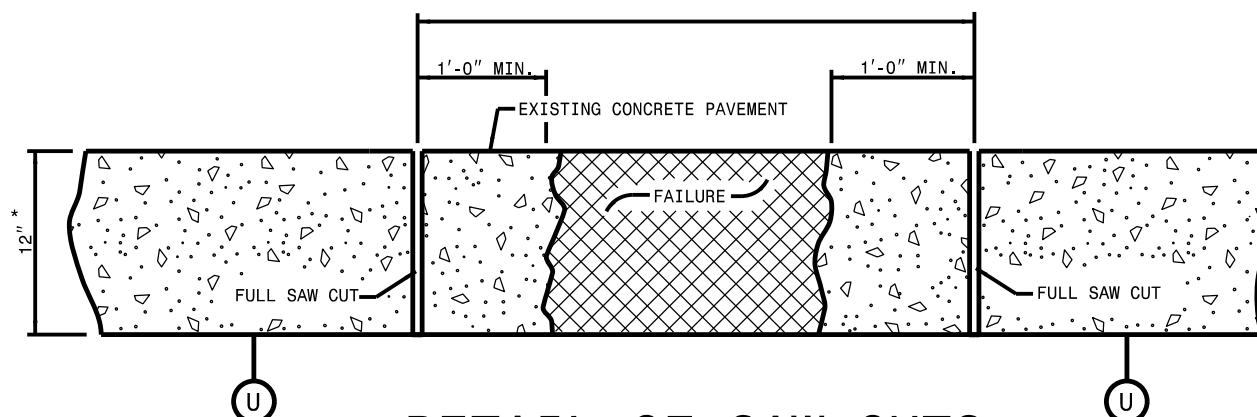
PAVEMENT SCHEDULE	
B1	PROP. APPROX. 5/8" ULTRA-THIN BONDED WEARING COURSE, AT AN AVERAGE RATE OF 70 LBS. PER SQ. YD.
C2	PROP. APPROX. 2.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C3	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
R1	RUMBLE STRIPS
V1	MILLING 1.5" DEPTH
V2	MILLING, 2.0" DEPTH
W	CONCRETE SLAB, SPALL, AND JOINT REPAIR
U	EXISTING PAVEMENT
Z1	DIAMOND GRINDING CONCRETE PAVEMENT

PATCHING DETAIL



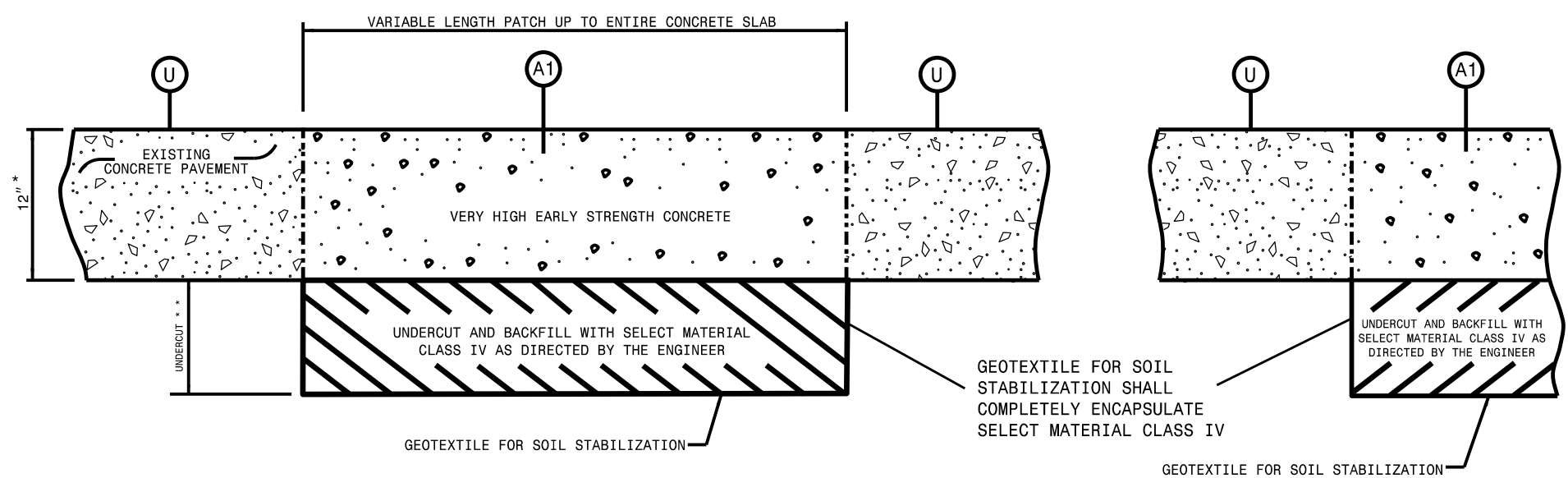
I-5769 INTERSTATE I-77  
PAVEMENT REHABILITATION  
MECKLENBURG COUNTY

SCALE	-NA-		REVISIONS
DATE			
DWG. BY	ML		
DESIGN BY	MM		
APPROVED			



**DETAIL OF SAW CUTS**

PAVEMENT SCHEDULE	
A1	APPROX. 12" PCC SLAB REPAIR - VERY HIGH EARLY STRENGTH
U	EXISTING PAVEMENT



**DETAIL OF CONCRETE PAVEMENT REPAIR**

\* DIMENSIONS ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED  
 \*\* UNDERCUT REQUIRED IN AREAS AS DIRECTED BY THE ENGINEER

Refer to the North Carolina Department of Transportation  
 "Partial and Full Depth Repair Manual" when Replacing Slabs  
 and when Repairing Concrete Pavement.

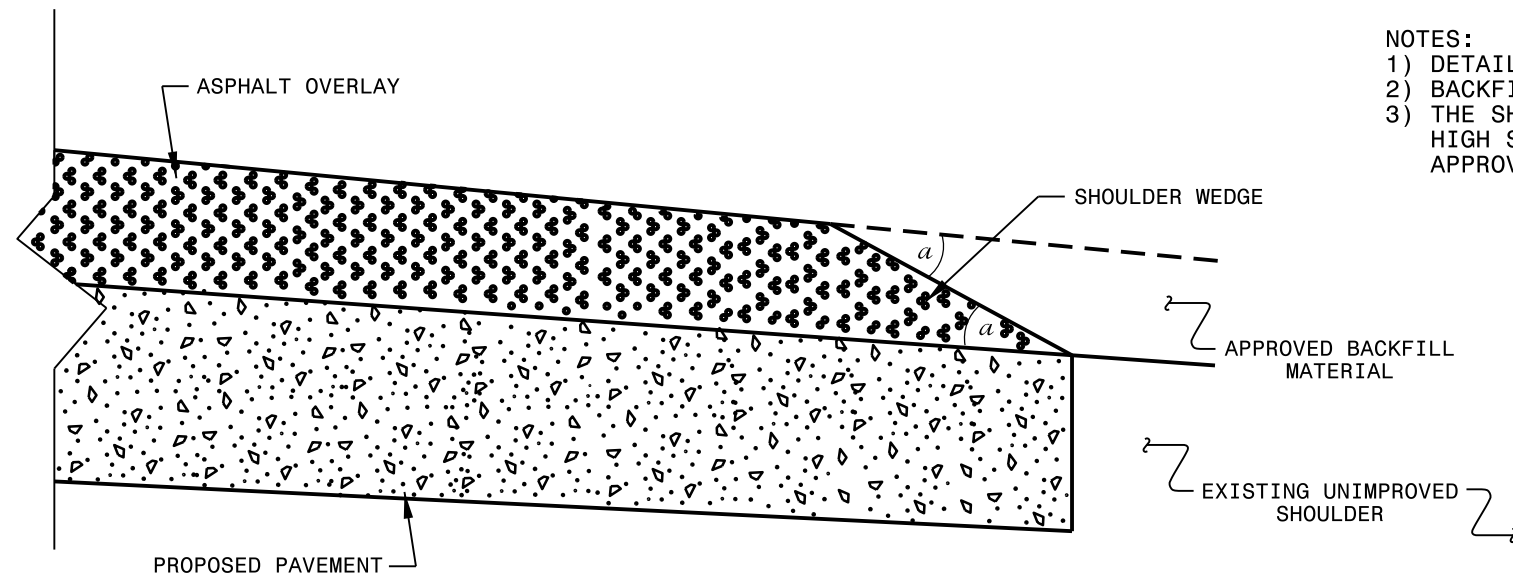
**DETAIL FOR REPAIR OF  
 CONCRETE PAVEMENT**

I-5769 INTERSTATE I-77  
 PAVEMENT REHABILITATION  
 MECKLENBURG COUNTY

SCALE	-NA-		REVISIONS
DATE			
DWG. BY			
DESIGN BY			
APPROVED			

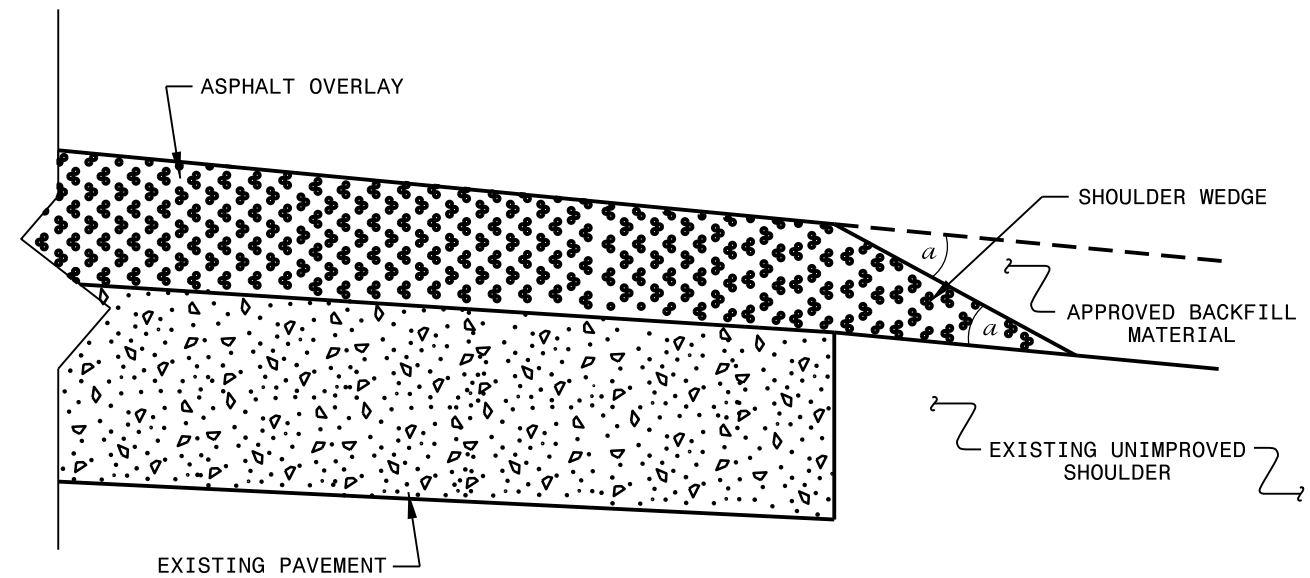
**NOTES:**

- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
- 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
- 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



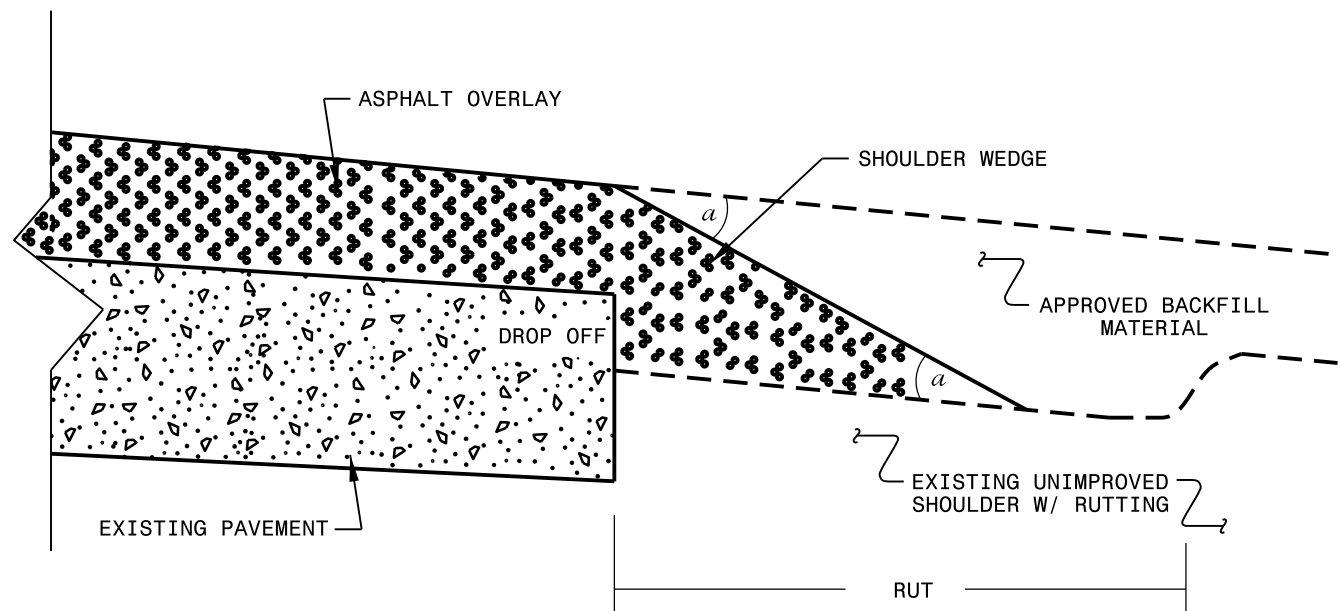
**SHOULDER WEDGE DETAIL**

(Resurfacing Projects w/ Widening or with Existing Paved Shoulder having no dropoffs)



**SHOULDER WEDGE DETAIL**

(Resurfacing Projects w/ NO Widening)



**SHOULDER WEDGE DETAIL**

(Resurfacing Adjacent to Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>		
Office 919-707-6950 FAX 919-250-4119		
<b>SHOULDER WEDGE DETAILS</b>		
ORIGINAL BY: T.SPELL	DATE: 7-19-11	
MODIFIED BY:	DATE: 2/2/16	
CHECKED BY:	DATE:	
FILE SPEC.: szusr/details/stand/shoulderwedgedetail.dgn		



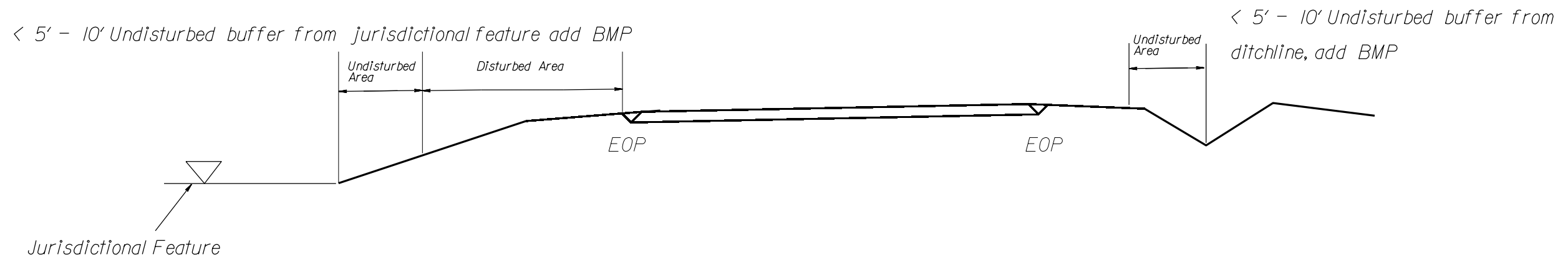
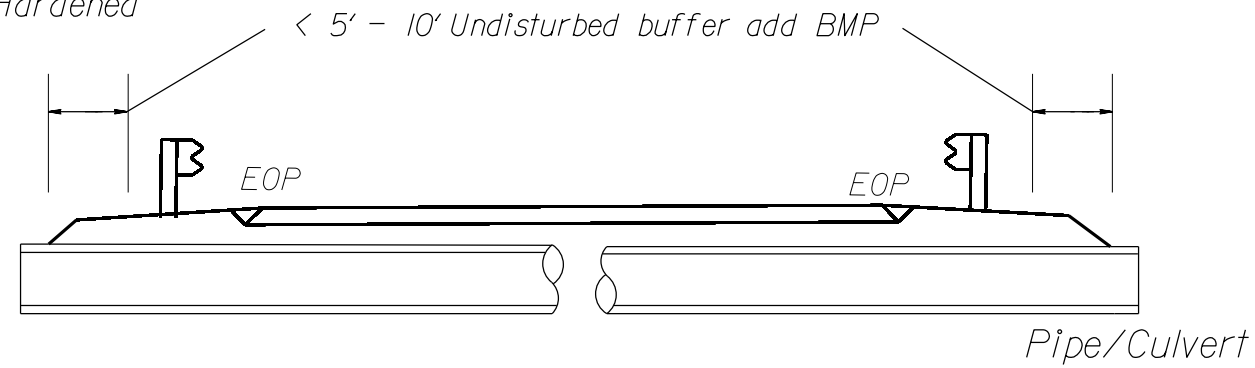




NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

BMP Options: Wattle, Silt Fence or Hardened Aggregate.

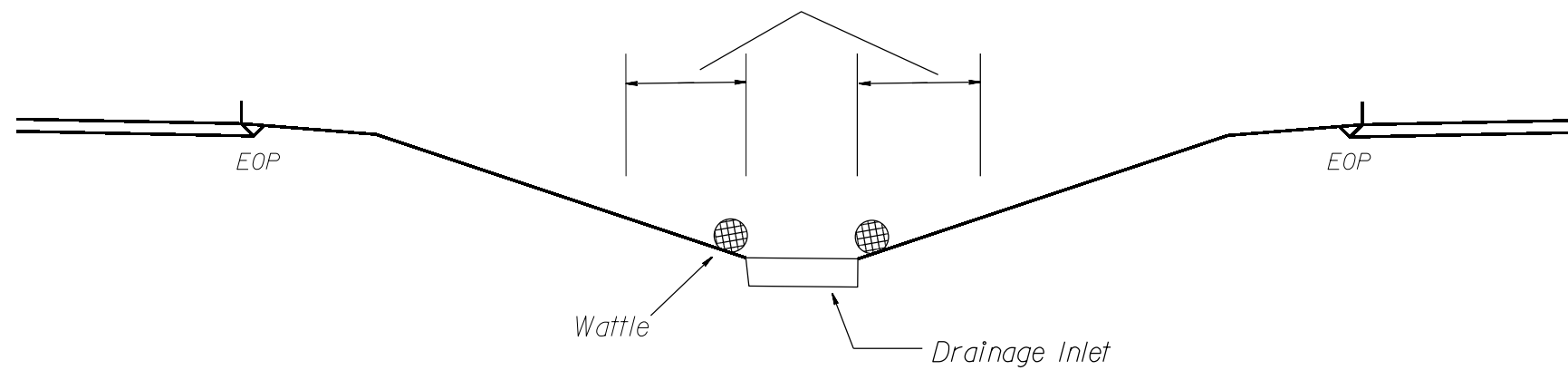
# EROSION CONTROL DETAIL



Use BMP's if shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed

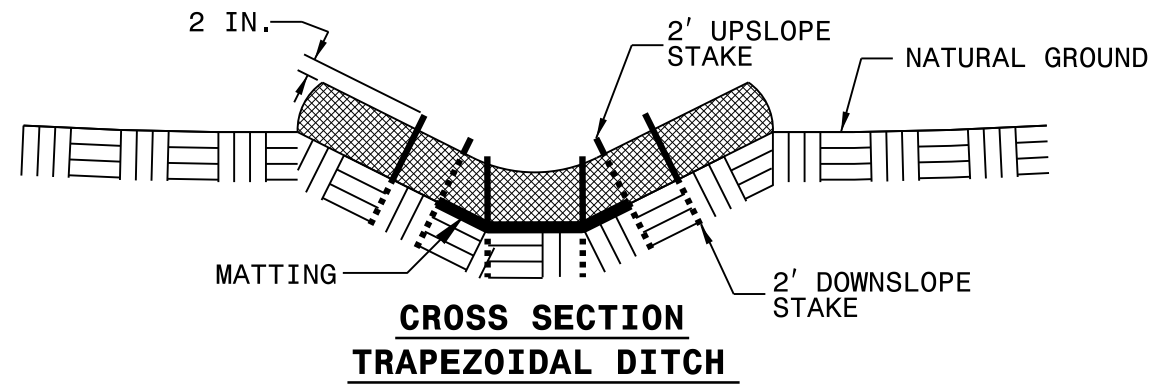
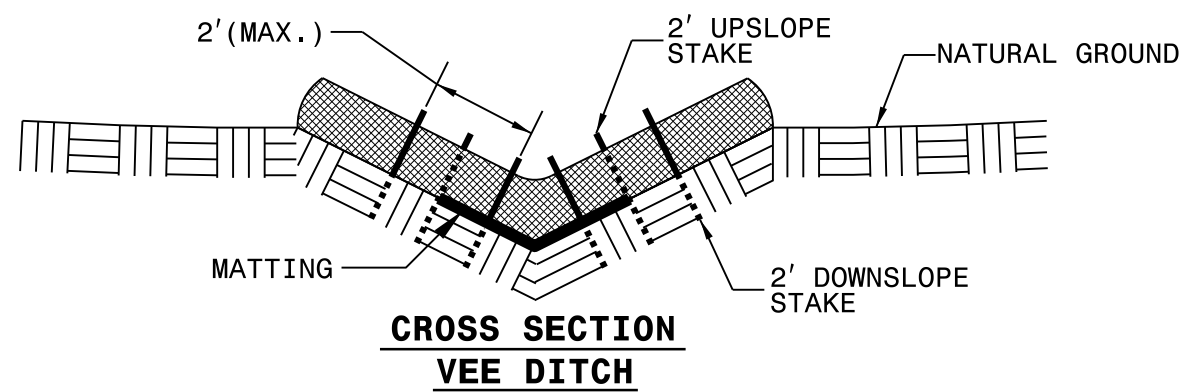
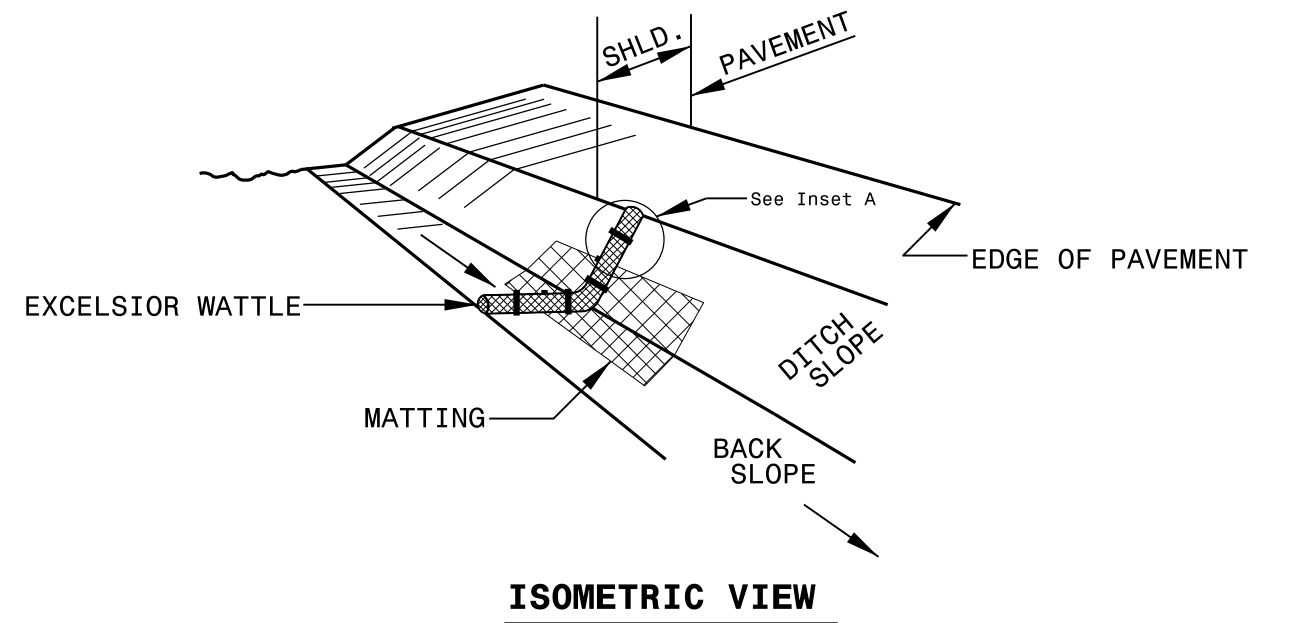


< 5' - 10' Undisturbed buffer from inlet, add wattle



NOT TO SCALE

# WATTLE DETAIL



**NOTES:**

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

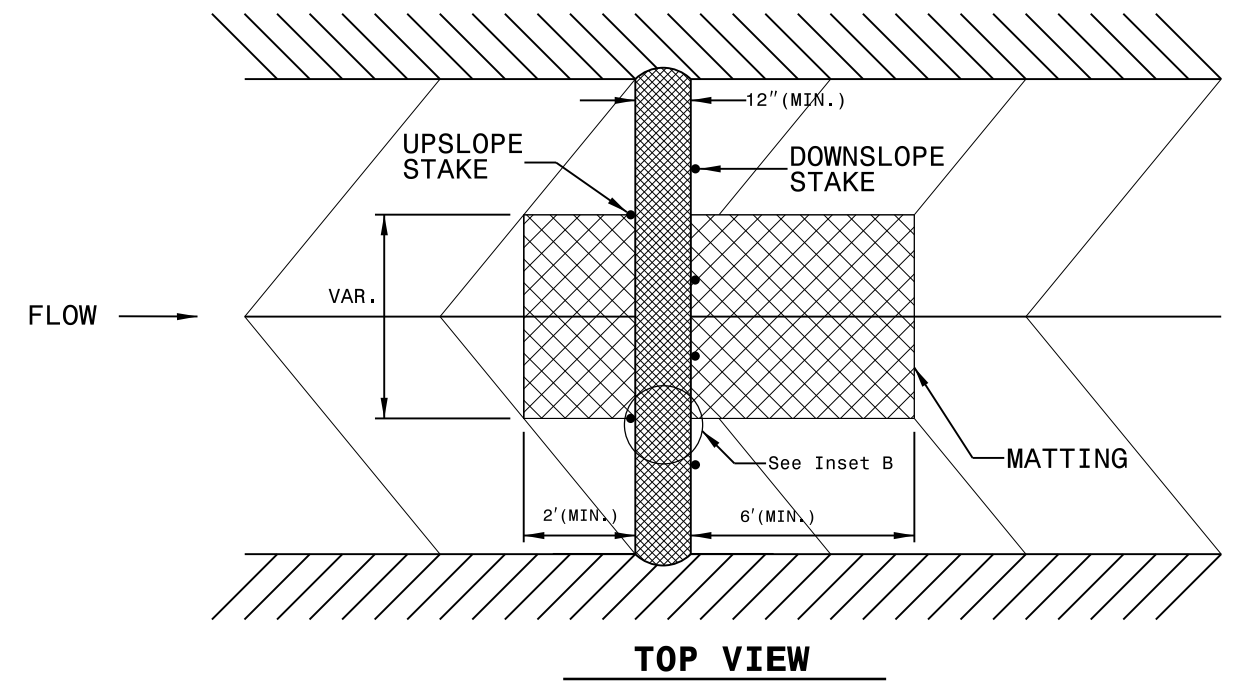
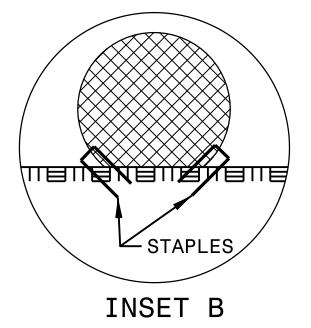
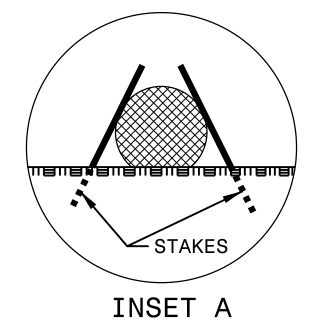
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

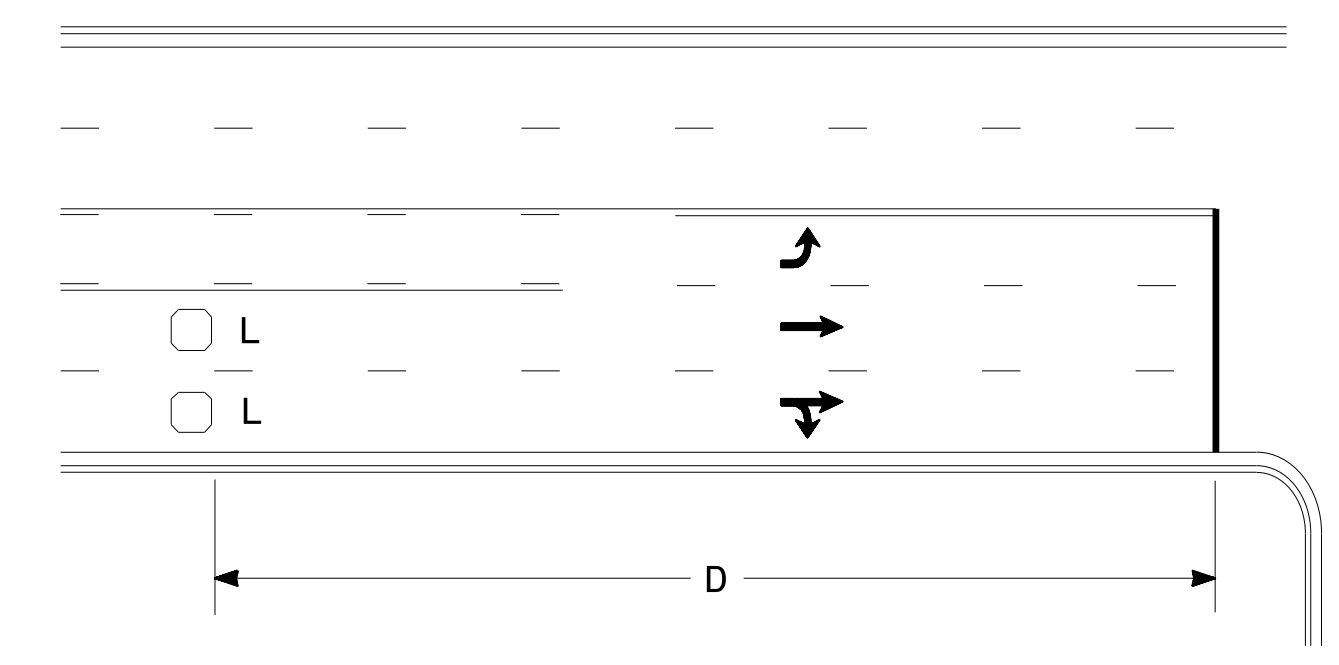
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



### High Speed Detection (≥40 mph)

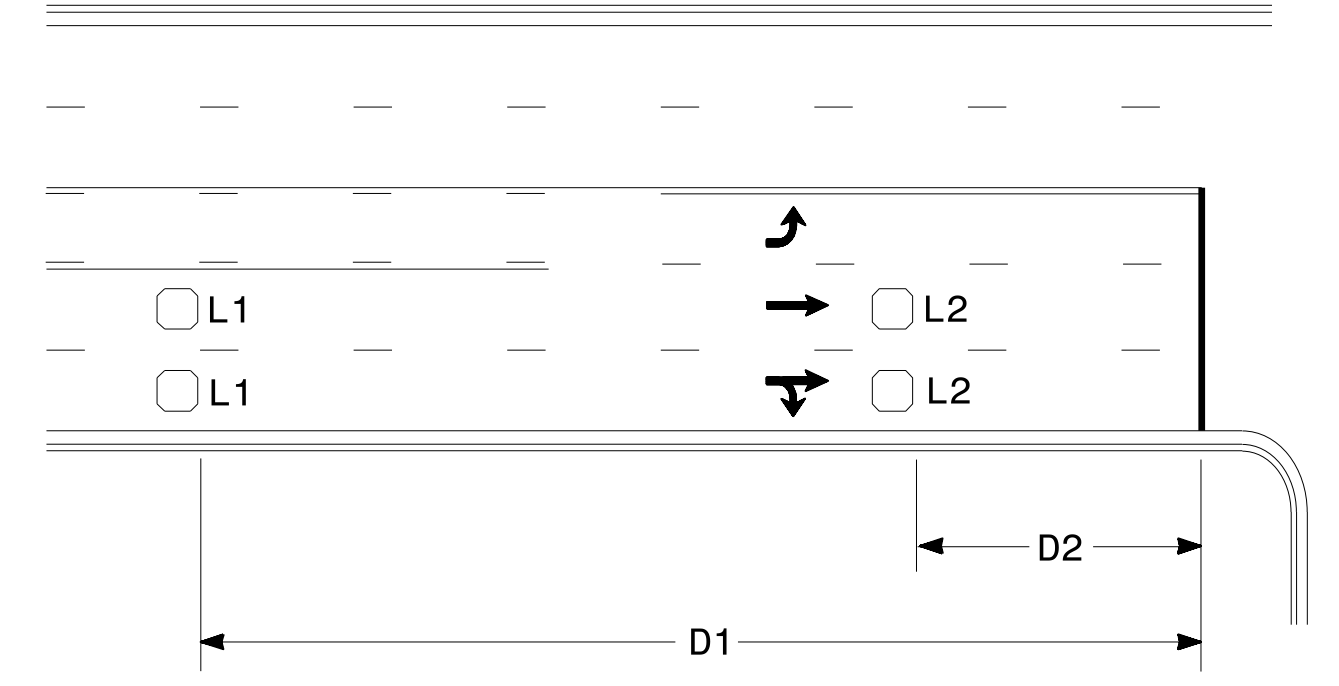


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

L = 6ft X 6ft  
Wired in series for TS1  
Controllers  
Wired separately for TS2,  
170, and 2070L Controllers

Volume Density Operation

OR

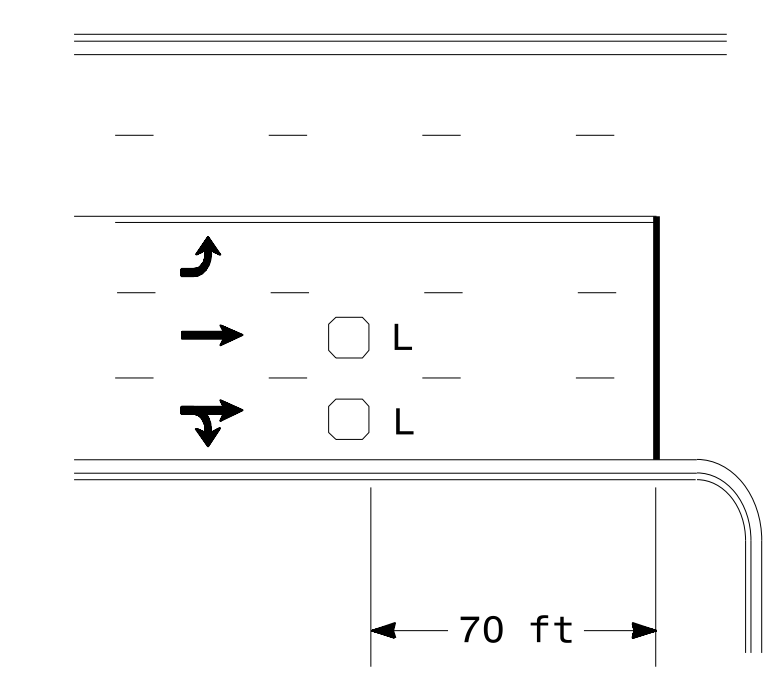


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

L1 = 6ft X 6ft  
Wired in series  
L2 = 6ft X 6ft  
Wired in series

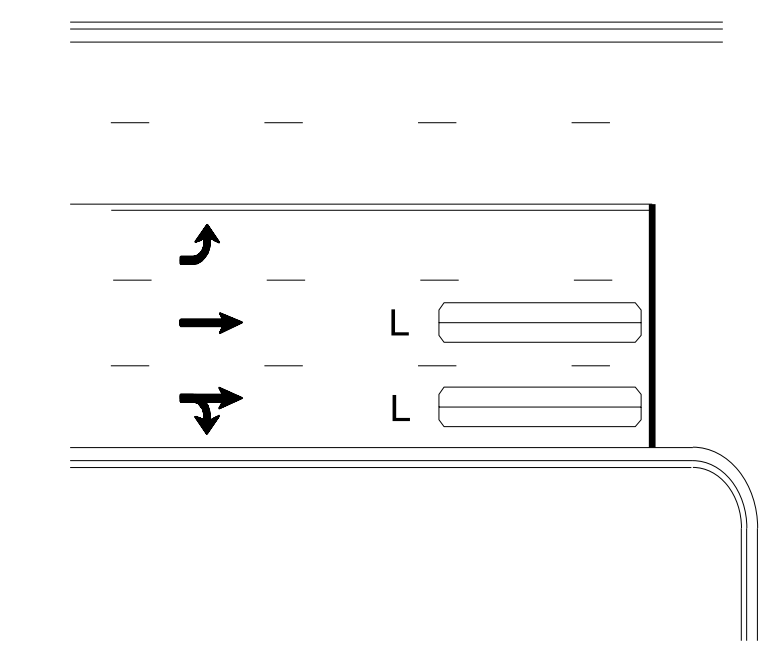
"Stretch" Operation

### Low Speed Detection (≤35 mph)



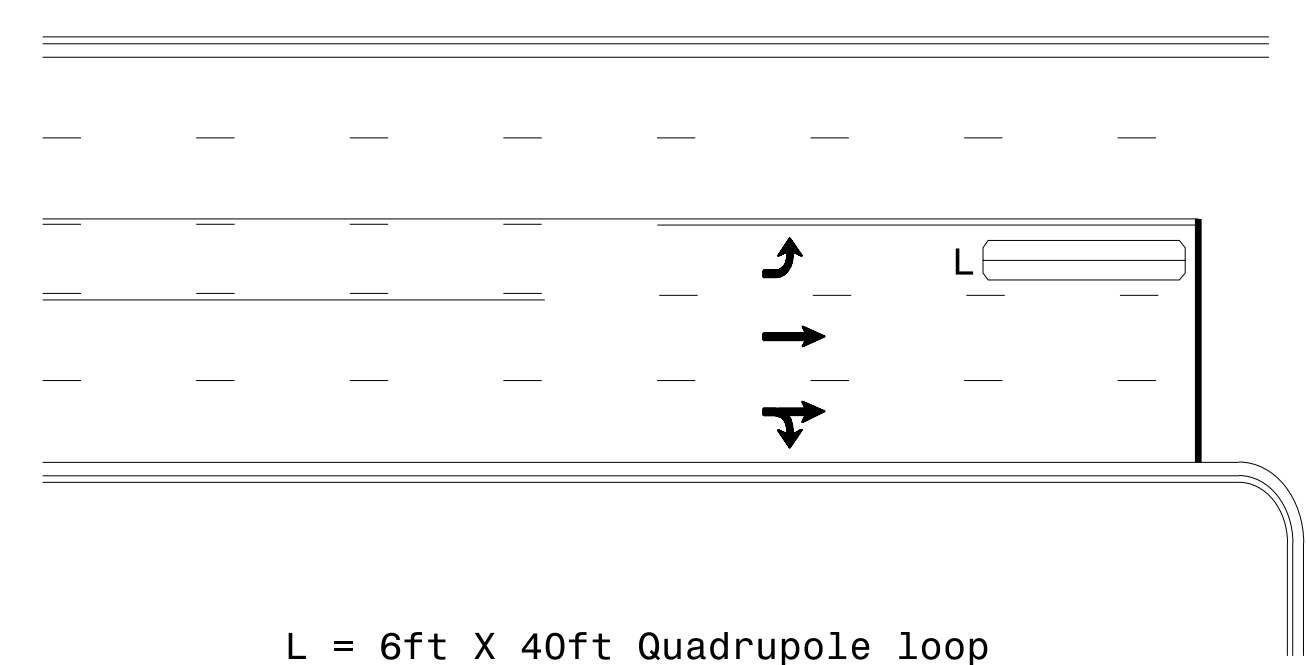
L = 6ft X 6ft  
Wired in series

OR



L = 6ft X 40ft  
Quadrupole loop, wired separately

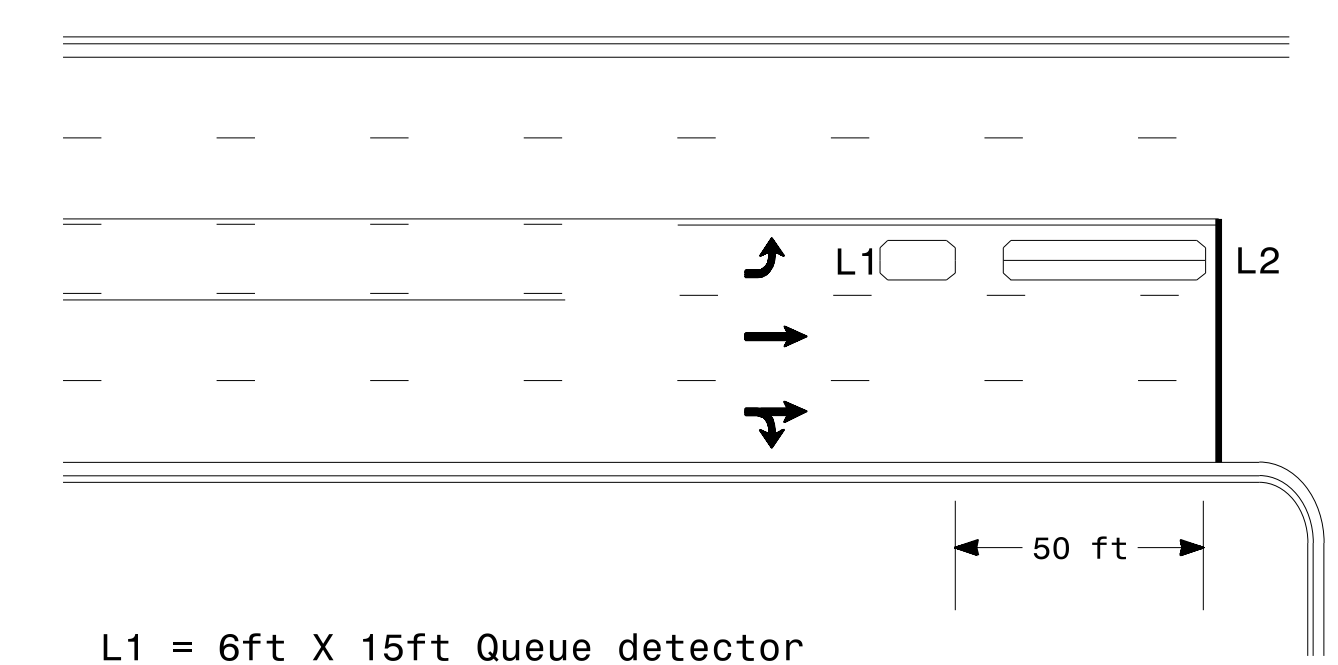
### Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

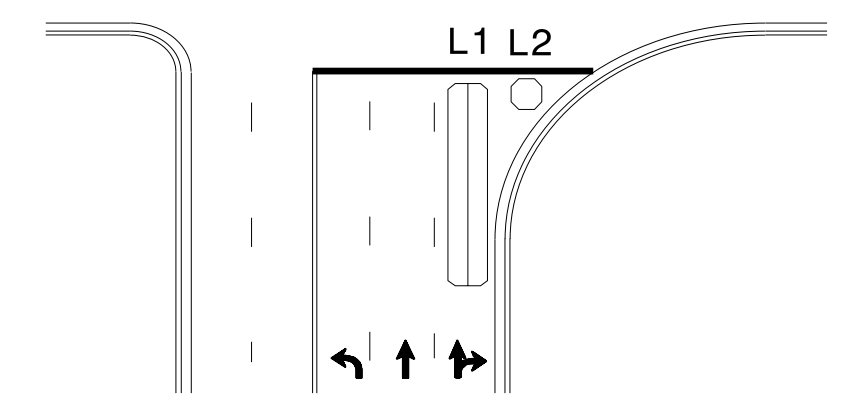
OR



L1 = 6ft X 15ft Queue detector  
L2 = 6ft X 40ft Quadrupole loop

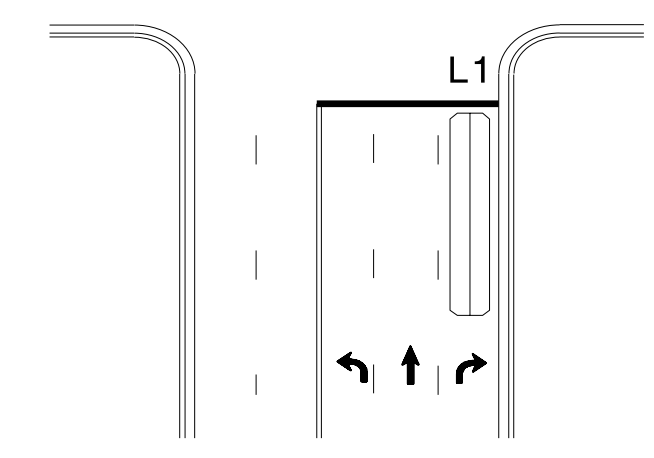
Queue Loop Detection

### Right Turn Lane Detection

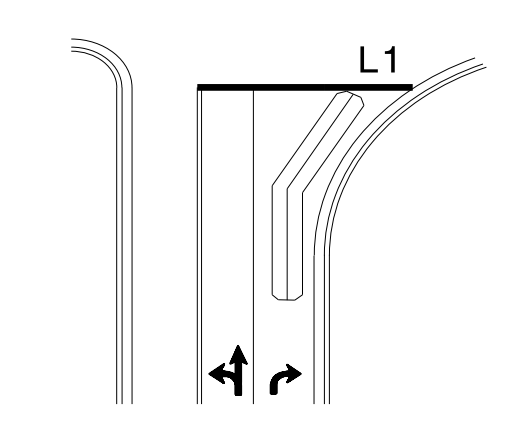


Shared Lane/  
Wide Radius Turn

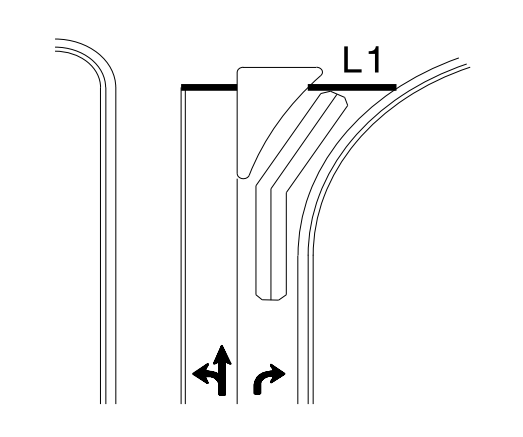
L1 = 6ft X 40ft Quadrupole loop  
L2 = 6ft X 6ft [Minimum] Presence loop  
Wired separately



Standard Turn

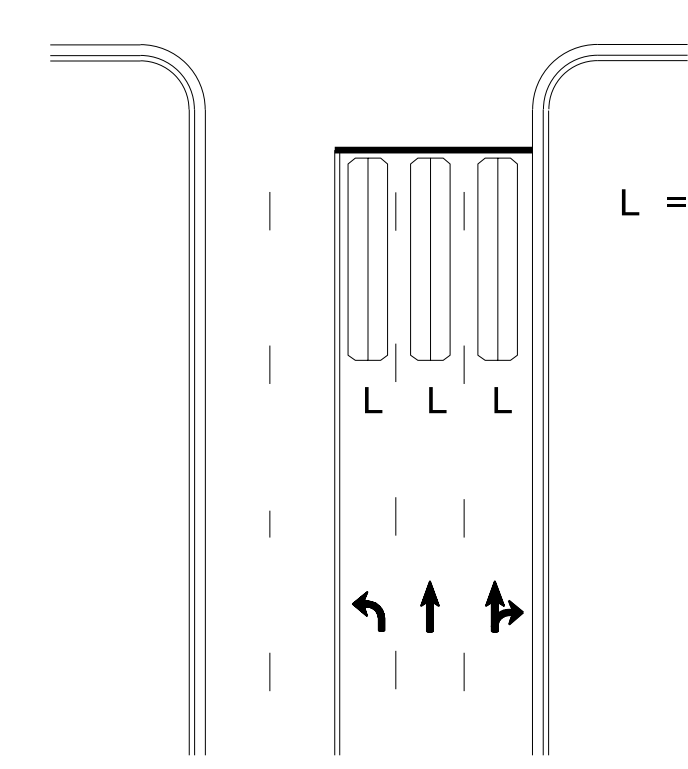


Wide Radius Turn



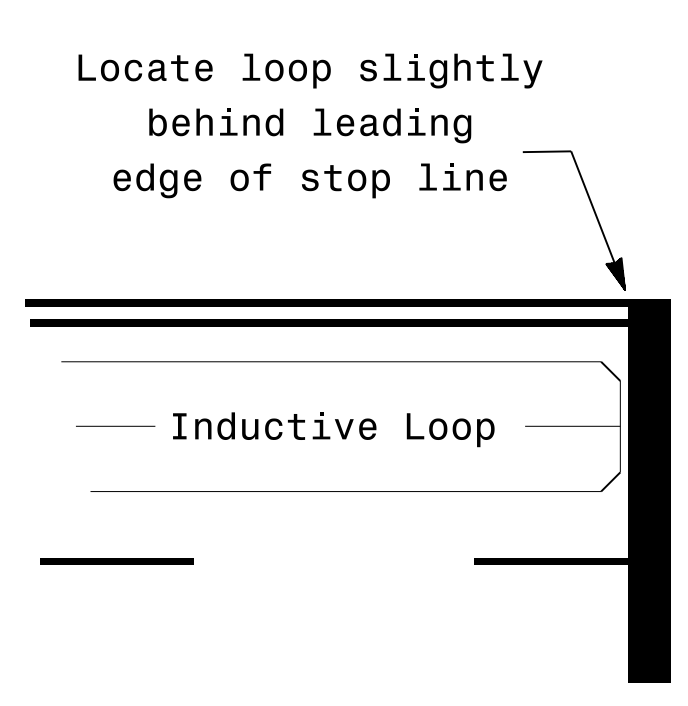
Channelized Turn

### Side Street Detection



L = 6ft X 40ft  
Quadrupole loop  
Wired to separate  
detectors/channels

### Presence Loop Placement at Stop Lines



Locate loop slightly  
behind leading  
edge of stop line

Note:  
Loop may be located in advance  
of stop line under any of the  
following conditions:  
1) stop line is greater than 15'  
from edge of intersecting  
roadway  
2) loop detects a permissive or  
protected/permissive left turn  
3) for an exclusive right turn  
lane

### Recommended Number of Turns

Single 6' X 6' loop  
(when wired separately):

Length of Lead-in ft	Number of Turns
< 250	3
250-375	4
375-525	5
> 525	6

Quadrupole loops: Use 2-4-2 turns  
6' X 15' Loops:  
Lead-in < 150', use 2 turns  
Lead-in > 150', use 3 turns

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE  
N/A

#### Typical Signal Loop Locations

PLAN DATE: January 2015	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:
REVISIONS	INIT. DATE

SEAL

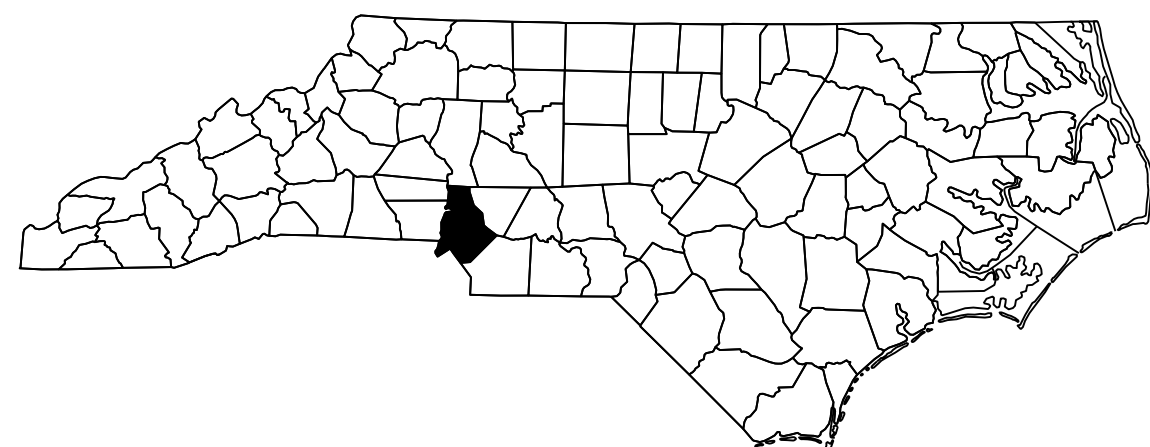
1/30/2015

SIG. INVENTORY NO.

3D:\4146-2015-12-29  
 S:\4146\4146-2015-12-29\Signal Design\Section\Eastern\Region\loop\ypj\ca\2015.dgn  
 pa alexander

**PROJECT: I-5769**

**CONTRACT NO: C204511**



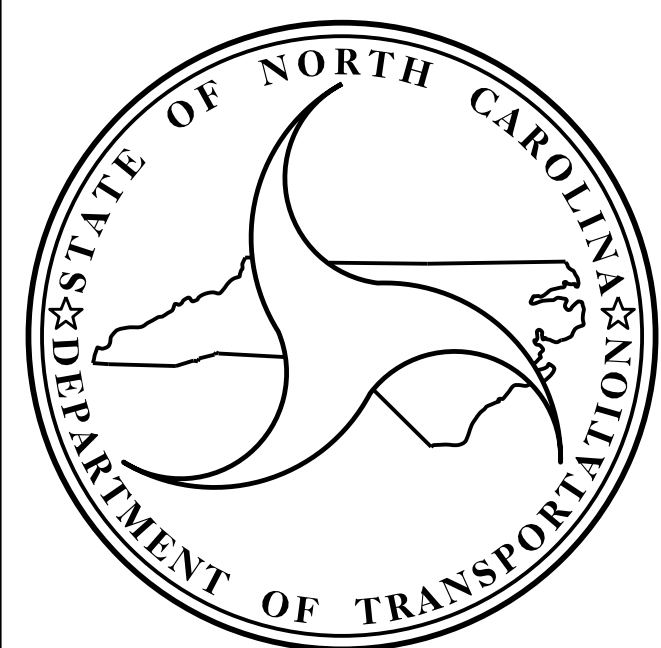
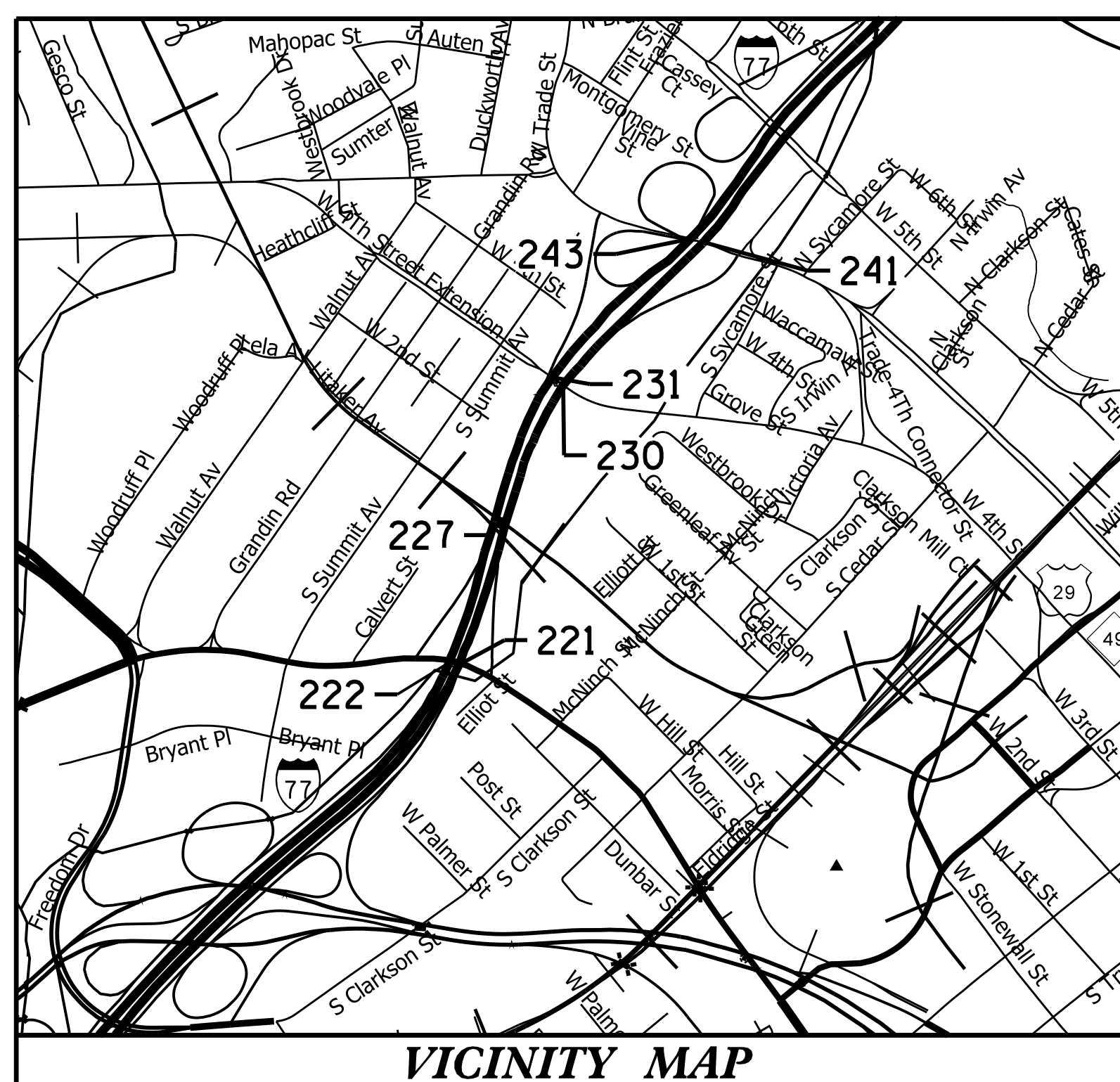
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**MECKLENBURG COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
53019.1.1		P.E.	
53019.3.GV1	---	CONST.	

**LOCATION:** BRIDGE #590221 ON I-77 NBL OVER US 29/NC 27 (W. MOREHEAD ST.)  
 BRIDGE #590222 ON I-77 SBL OVER US 29/NC 27 (W. MOREHEAD ST.)  
 BRIDGE #590227 ON I-77 NBL/SBL OVER IRWIN CREEK & STEWART CREEK GREENWAY  
 BRIDGE #590230 ON I-77 NBL OVER WEST 4TH ST.  
 BRIDGE #590231 ON I-77 SBL OVER WEST 4TH ST.  
 BRIDGE #590241 ON I-77 NBL OVER WEST TRADE ST.  
 BRIDGE #590243 ON I-77 SBL OVER WEST TRADE ST.

**TYPE OF WORK:** BRIDGE PRESERVATION - POLYESTER POLYMER CONCRETE OVERLAY,  
 FOAM JOINT REPLACEMENT, CLEANING & REPAINTING OF BRIDGE,  
 SHOTCRETE REPAIRS, EPOXY COATING SUBSTRUCTURE CAPS, AND  
 SLOPE REPAIR



**DESIGN DATA**

BRIDGE #590221 - ADT 2015 - 67,000  
 BRIDGE #590222 - ADT 2015 - 67,000  
 BRIDGE #590227 - ADT 2015 - 152,000  
 BRIDGE #590230 - ADT 2015 - 75,500  
 BRIDGE #590231 - ADT 2015 - 75,500  
 BRIDGE #590241 - ADT 2015 - 74,000  
 BRIDGE #590243 - ADT 2015 - 74,000

**PROJECT LENGTH**

BRIDGE #590221 - .04 MILE  
 BRIDGE #590222 - .04 MILE  
 BRIDGE #590227 - .05 MILE  
 BRIDGE #590230 - .03 MILE  
 BRIDGE #590231 - .03 MILE  
 BRIDGE #590241 - .04 MILE  
 BRIDGE #590243 - .04 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 :

JANUARY 21, 2020

A. KEITH PASCHAL, PE  
 PROJECT ENGINEER

ADAM A. COLE, PE  
 PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**MECKLENBURG COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5769	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
53019.1.1		P.E.	
53019.3.GV1	—	CONST.	

**LOCATION:** BRIDGE #590221 ON I-77 NBL OVER US 29/NC 27 (W. MOREHEAD ST.)  
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 BRIDGE #590230 ON I-77 NBL OVER WEST 4TH ST.  
 BRIDGE #590231 ON I-77 SBL OVER WEST 4TH ST.  
 BRIDGE #590241 ON I-77 NBL OVER WEST TRADE ST.  
 BRIDGE #590243 ON I-77 SBL OVER WEST TRADE ST.

**INDEX OF STRUCTURES SHEETS**

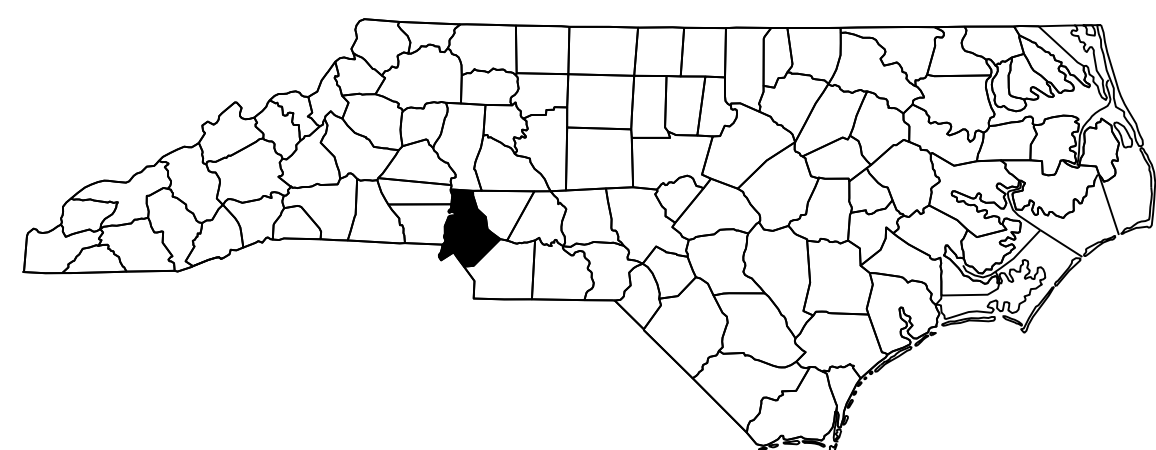
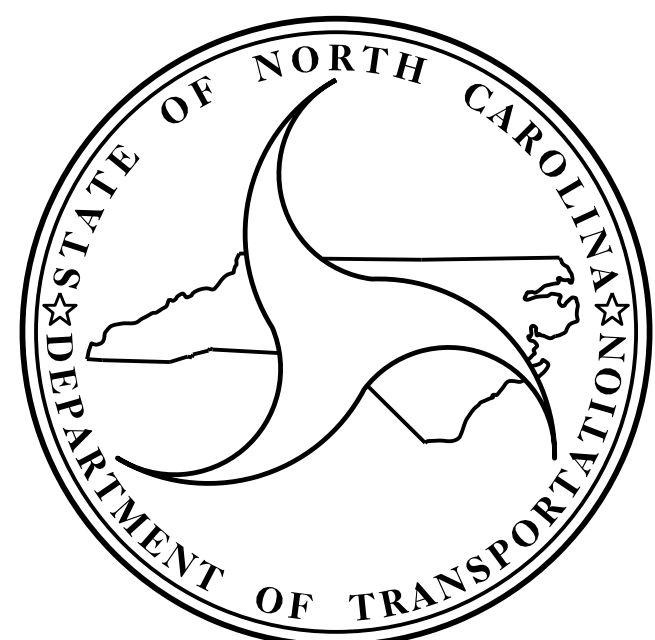
<u>SHEET No.</u>	<u>DESCRIPTION</u>	<u>SHEET No.</u>	<u>DESCRIPTION</u>	<u>SHEET No.</u>	<u>DESCRIPTION</u>	<u>SHEET No.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET	STRUCTURE No. 590227		S4-08	END BENT 2	S7-03	PLAN OF SPANS
1A	INDEX OF SHEETS	S3-01	GENERAL DRAWING	STRUCTURE No. 590231		S7-04	JOINT DETAILS
S-1	LOCATION SKETCHES	S3-02	TYPICAL SECTION	S5-01	GENERAL DRAWING	S7-05	END BENT 1
S-2	TOTAL BILL OF MATERIALS	S3-03	PLAN OF SPANS	S5-02	TYPICAL SECTION	S7-06	BENT 1
STRUCTURE No. 590221		S3-04	JOINT DETAILS	S5-03	PLAN OF SPANS	S7-07	BENT 2
S1-01	GENERAL DRAWING	S3-05	END BENT 1	S5-04	JOINT DETAILS	S7-08	END BENT 2
S1-02	TYPICAL SECTION	S3-06	BENT 1 - LEFT SIDE	S5-05	END BENT 1	STANDARD SHEETS	
S1-03	PLAN OF SPANS	S3-07	BENT 1 - MIDDLE	S5-06	BENT 1	SD-01	DECK REPAIR DETAILS
S1-04	JOINT DETAILS	S3-08	BENT 1 - RIGHT SIDE	S5-07	BENT 2	SD-02	CAP AND COLUMN REPAIR DETAILS
S1-05	END BENT 1	S3-09	BENT 2 - LEFT SIDE	S5-08	END BENT 2	SD-03	BRIDGE JACKING
S1-06	BENT 1	S3-10	BENT 2 - MIDDLE	STRUCTURE No. 590241		SN	NOTES
S1-07	BENT 2	S3-11	BENT 2 - RIGHT SIDE	S6-01	GENERAL DRAWING		
S1-08	END BENT 2	S3-12	END BENT 2	S6-02	TYPICAL SECTION		
STRUCTURE No. 590222		S3-13	SLOPE PROTECTION	S6-03	PLAN OF SPANS		
S2-01	GENERAL DRAWING	STRUCTURE No. 590230		S6-04	JOINT DETAILS		
S2-02	TYPICAL SECTION	S4-01	GENERAL DRAWING	S6-05	END BENT 1		
S2-03	PLAN OF SPANS	S4-02	TYPICAL SECTION	S6-06	BENT 1		
S2-04	JOINT DETAILS	S4-03	PLAN OF SPANS	S6-07	BENT 2		
S2-05	END BENT 1	S4-04	JOINT DETAILS	S6-08	END BENT 2		
S2-06	BENT 1	S4-05	END BENT 1	STRUCTURE No. 590243			
S2-07	BENT 2	S4-06	BENT 1	S7-01	GENERAL DRAWING		
S2-08	END BENT 2	S4-07	BENT 2	S7-02	TYPICAL SECTION		

**TYPE OF WORK:**

BRIDGE PRESERVATION - POLYESTER POLYMER  
 CONCRETE OVERLAY, FOAM JOINT REPLACEMENT,  
 CLEAN & REPAINTING OF BRIDGE, CLEANING &  
 PAINTING EXISTING BEARINGS, SHOTCRETE  
 REPAIRS, EPOXY COAT TOP OF SUBSTRUCTURE  
 CAPS, AND SLOPE REPAIR

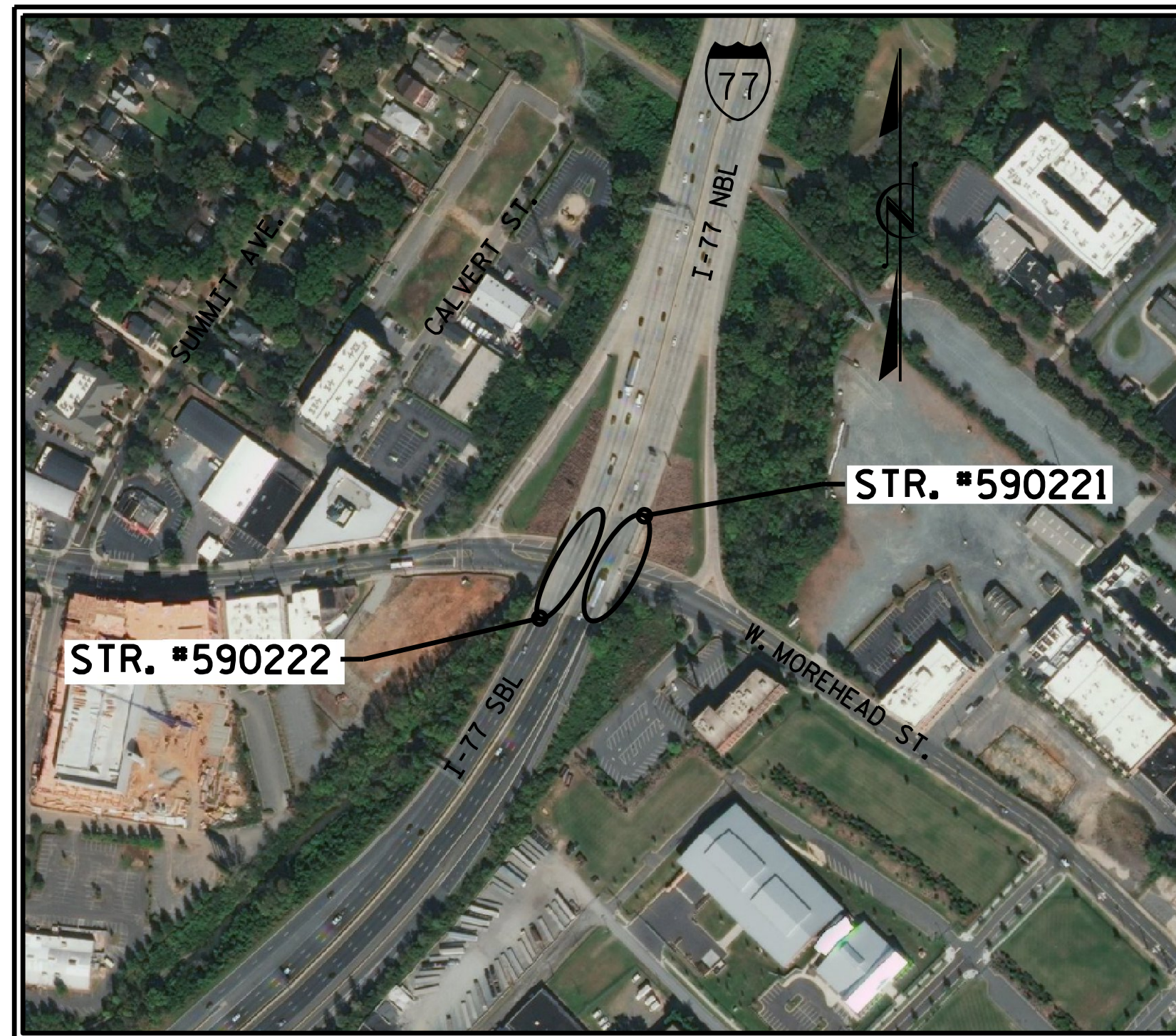
PROJECT: I-5769

CONTRACT NO: C204511



**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.

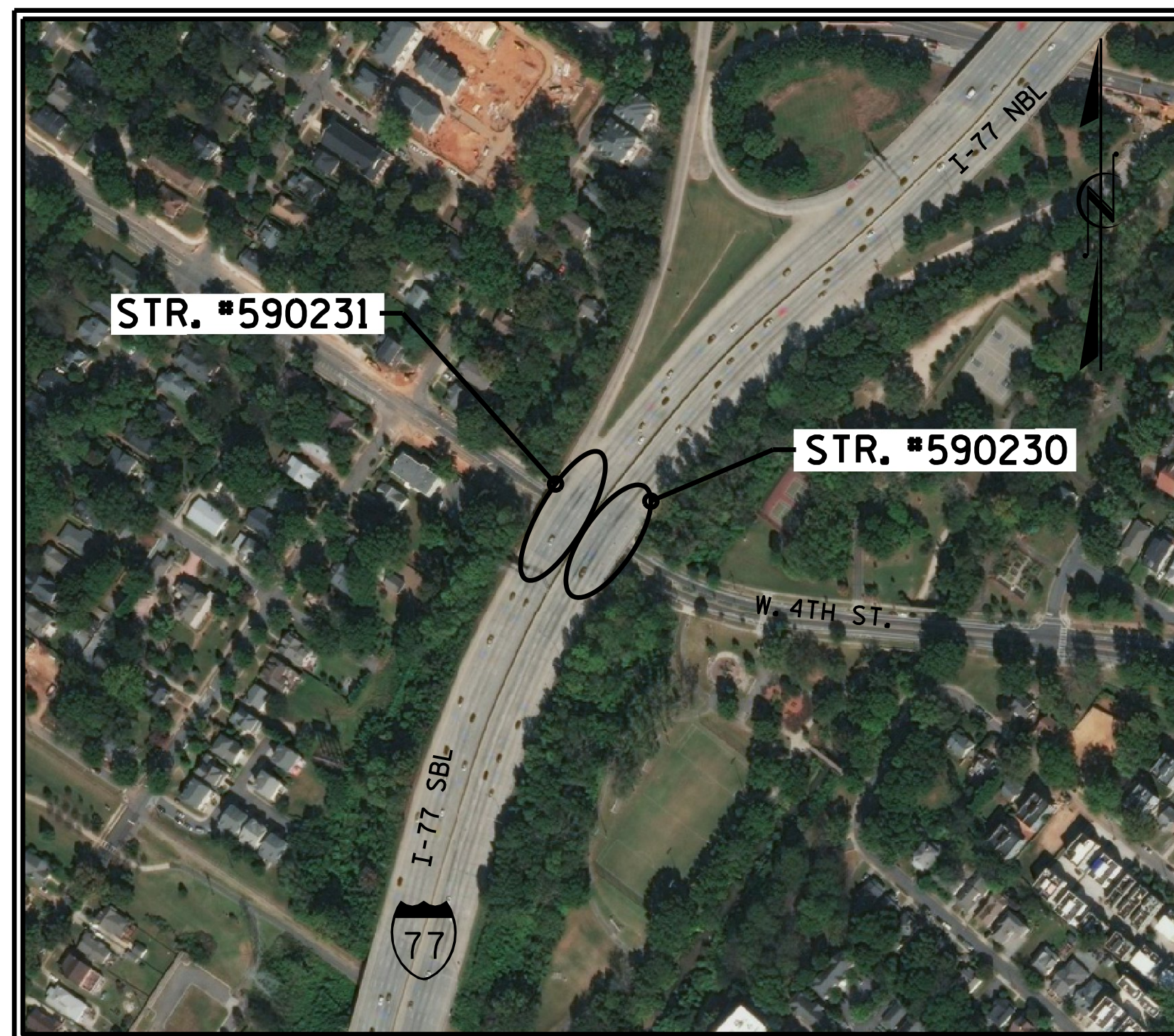


**BRIDGES 590221 & 590222 LOCATION SKETCH**

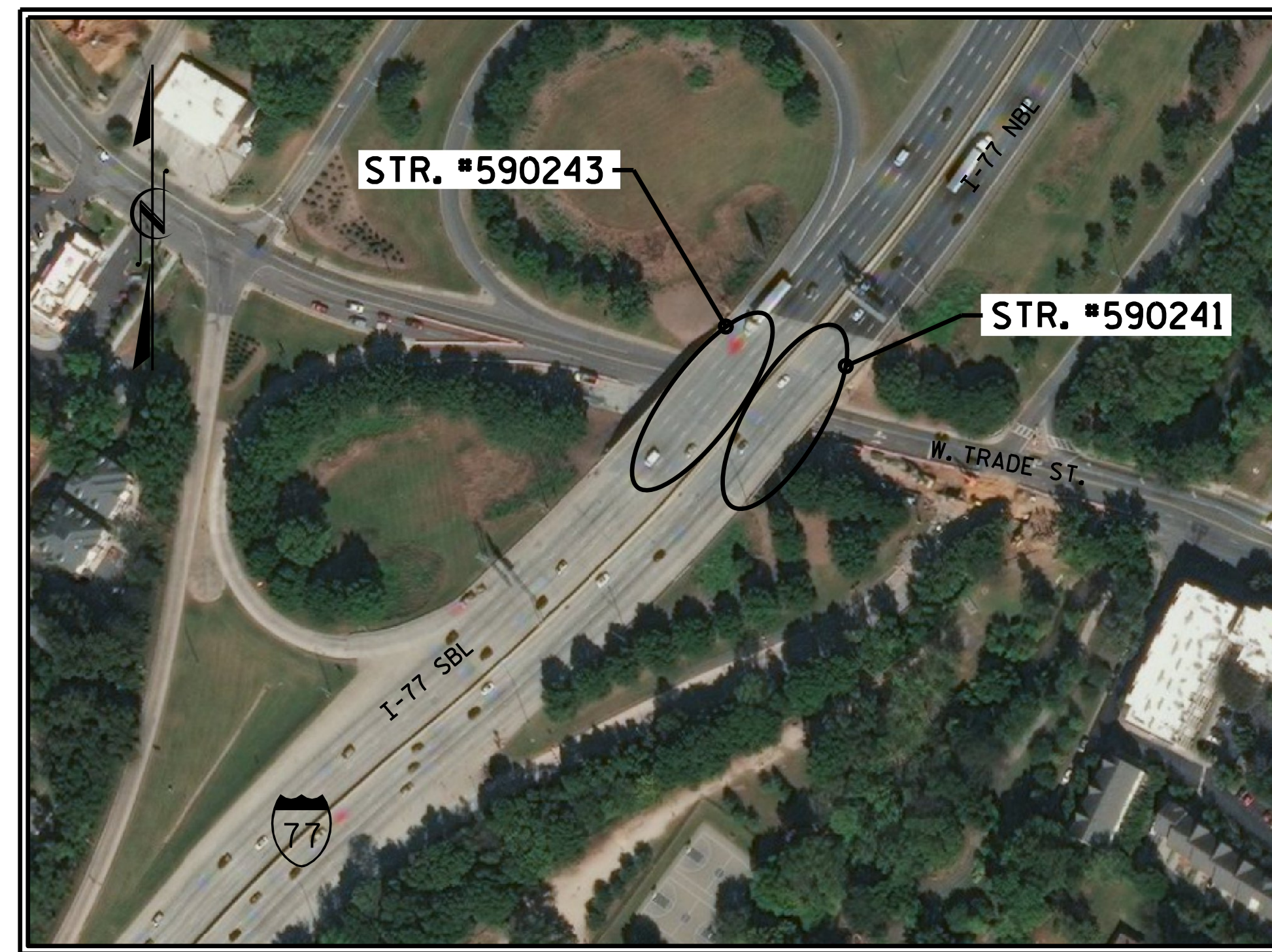


**BRIDGE 590227 LOCATION SKETCH**

<b>BRIDGE COORDINATES</b>		
BRIDGE No.	LATITUDE	LONGITUDE
590221	35°-13'-44.52"	80°-51'-37.5"
590222	35°-13'-44.69"	80°-51'-38.23"
590227	35°-13'-52.33"	80°-51'-34.52"
590230	35°-14'-00.93"	80°-51'-30.48"
590231	35°-14'-01.38"	80°-51'-31.29"
590241	35°-14'-09.32"	80°-51'-20.81"
590243	35°-14'-09.54"	80°-51'-21.73"

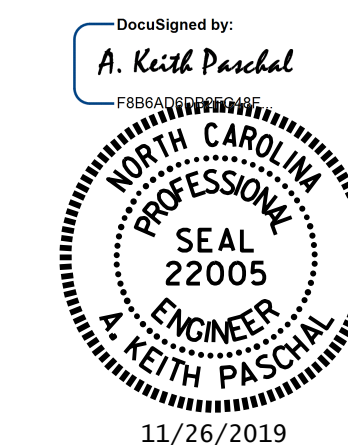
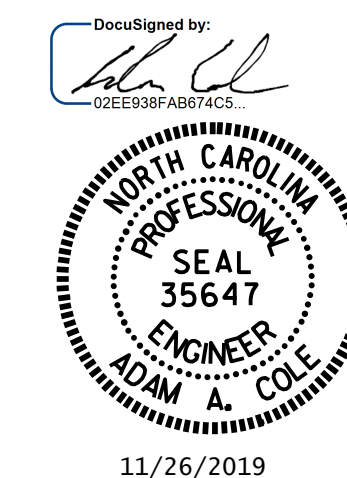


**BRIDGES 590230 & 590231 LOCATION SKETCH**



**BRIDGES 590241 & 590243 LOCATION SKETCH**

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590221, 590222, 590227  
590230, 590231, 590241, 590243



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**LOCATION SKETCHES**

DRAWN BY : N.A. PIERCE DATE : 07/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

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

**TOTAL BILL OF MATERIAL**

BRIDGE NO.	CHAIN LINK FENCE, 72" FABRIC	METAL LINE POSTS FOR 72" CHAIN LINK FENCE	METAL TERMINAL POSTS FOR 72" CHAIN LINK FENCE	#57 STONE	GROOVING BRIDGE FLOOR	CLASS A CONCRETE	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	RIP RAP CLASS B	GEOTEXTILE FOR DRAINAGE	CONCRETE REPAIRS	SHOTCRETE REPAIRS	CLEANING AND REPAINTING OF BRIDGE	PAINTING CONTAINMENT FOR BRIDGE	FOAM JOINT SEALS FOR PRESERVATION	POLYESTER POLYMER CONCRETE MATERIALS	EPOXY COATING	CONCRETE DECK REPAIR FOR POLYESTER POLYMER CONCRETE OVERLAY	GABION MATTRESS (1'-0" THICK)	PLACING & FINISHING POLYESTER POLYMER CONCRETE OVERLAY	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	REPLACING MISSING UTILITY COVERS	TYPE I BRIDGE JACKING BRIDGE
	LIN. FT.	EACH	EACH	TONS	SO. FT.	CU. YDS.	LUMP SUM	SO. YDS.	TONS	SO. YDS.	CU. FT.	CU. FT.	LUMP SUM	LUMP SUM	LIN. FT.	CU. YDS.	SO. FT.	SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	SO. YDS.	LUMP SUM	EACH
590221	-	-	-	-	12,667	-	LUMP SUM	4.1	-	-	5.6	28.2	LUMP SUM	LUMP SUM	279	72.7	648	4.1	-	1,489	1,489	1,489	LUMP SUM	1
590222	-	-	-	-	11,851	-	LUMP SUM	5.8	-	-	0.9	24.8	LUMP SUM	LUMP SUM	252	68.3	620	5.8	-	1,399	1,399	1,399	LUMP SUM	-
590227	310.0	28	24	72.0	34,277	2.3	LUMP SUM	20.8	1,643	3,651	0.6	23.2	LUMP SUM	LUMP SUM	698	196.8	2,158	20.8	3,651	4,050	4,050	4,050	LUMP SUM	-
590230	-	-	-	-	11,131	-	LUMP SUM	1.4	-	-	4.0	23.2	LUMP SUM	LUMP SUM	309	64.8	776	1.4	-	1,331	1,331	1,331		1
590231	-	-	-	-	12,811	-	LUMP SUM	0.0	-	-	7.9	6.2	LUMP SUM	LUMP SUM	351	73.8	864	0.0	-	1,514	1,514	1,514	LUMP SUM	1
590241	-	-	-	-	13,517	-	LUMP SUM	0.0	-	-	21.6	17.2	LUMP SUM	LUMP SUM	289	78.7	821	0.0	-	1,615	1,615	1,615		-
590243	-	-	-	-	18,211	-	LUMP SUM	2.0	-	-	2.0	22.9	LUMP SUM	LUMP SUM	380	104.1	1,048	2.0	-	2,137	2,137	2,137		-
TOTALS	310.0	28	24	72.0	114,465	2.3	LUMP SUM	34.1	1,643	3,651	42.6	145.7	LUMP SUM	LUMP SUM	2,558	659.2	6,935	34.1	3,651	13,535	13,535	13,535	LUMP SUM	3

**NOTES**

REPAIR LOCATIONS AND ESTIMATES OF QUANTITIES ARE GIVEN WITH 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.

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 FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN WHAT IS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

INASMUCH AS THE PAINT SYSTEMS ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICES FOR ITEMS ASSOCIATED WITH THE CLEANING AND REPAINTING OF BRIDGES.

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

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATIONS OF THE BRIDGE DECK. THE CONTRACTOR SHALL TAKE CARE THAT ANY CONSTRUCTION DEBRIS THAT COLLECTS IN THE DRAINS 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.

WORK ON THE BRIDGES 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.

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

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.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THERE ARE HIGH VOLTAGE POWER LINES AND DECORATIVE LIGHTING FIXTURES ATTACHED TO THE STRUCTURES.

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

**UNANTICIPATED ITEMS:**

ITEM NO	DESCRIPTION	UNIT
1	EPOXY RESIN INJECTION	LIN. FT.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR 72" CHAIN LINK FENCE, SEE STANDARD SPECIFICATIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING STRUCTURES, SEE SPECIAL PROVISIONS.

FOR POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR GABION MATTRESS, SEE SPECIAL PROVISIONS.

FOR REPLACING MISSING UTILITY COVERS, SEE SPECIAL PROVISIONS.

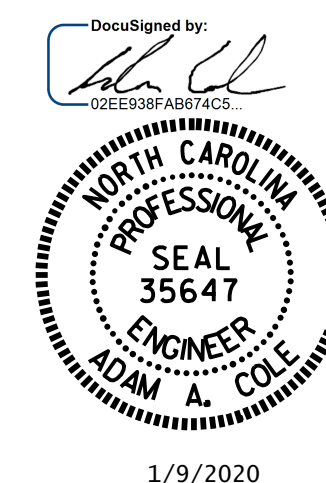
FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY

BRIDGE NO. 590221, 590222, 590227  
590230, 590231, 590241, 590243



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

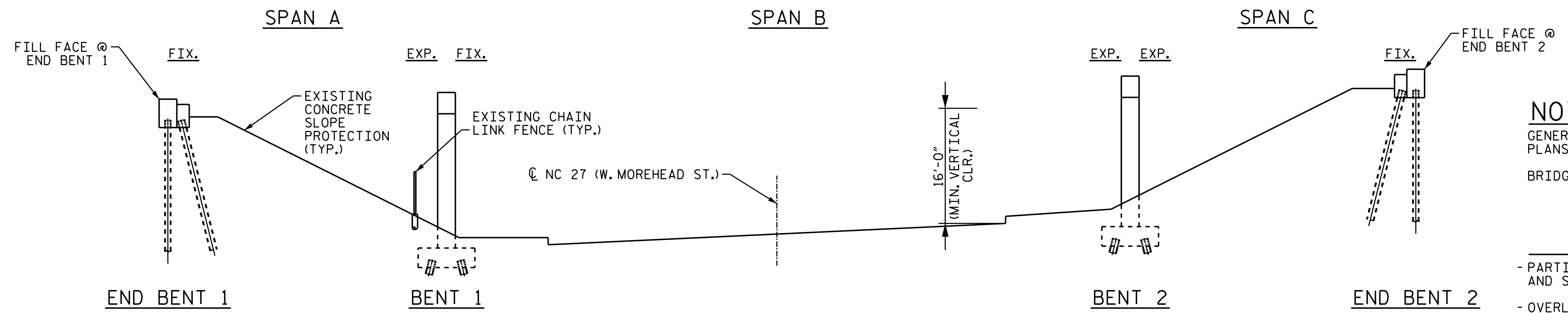
**GENERAL NOTES  
AND TOTAL BILL  
OF MATERIAL**

DRAWN BY : N.A. PIERCE DATE : 07/2018  
CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

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



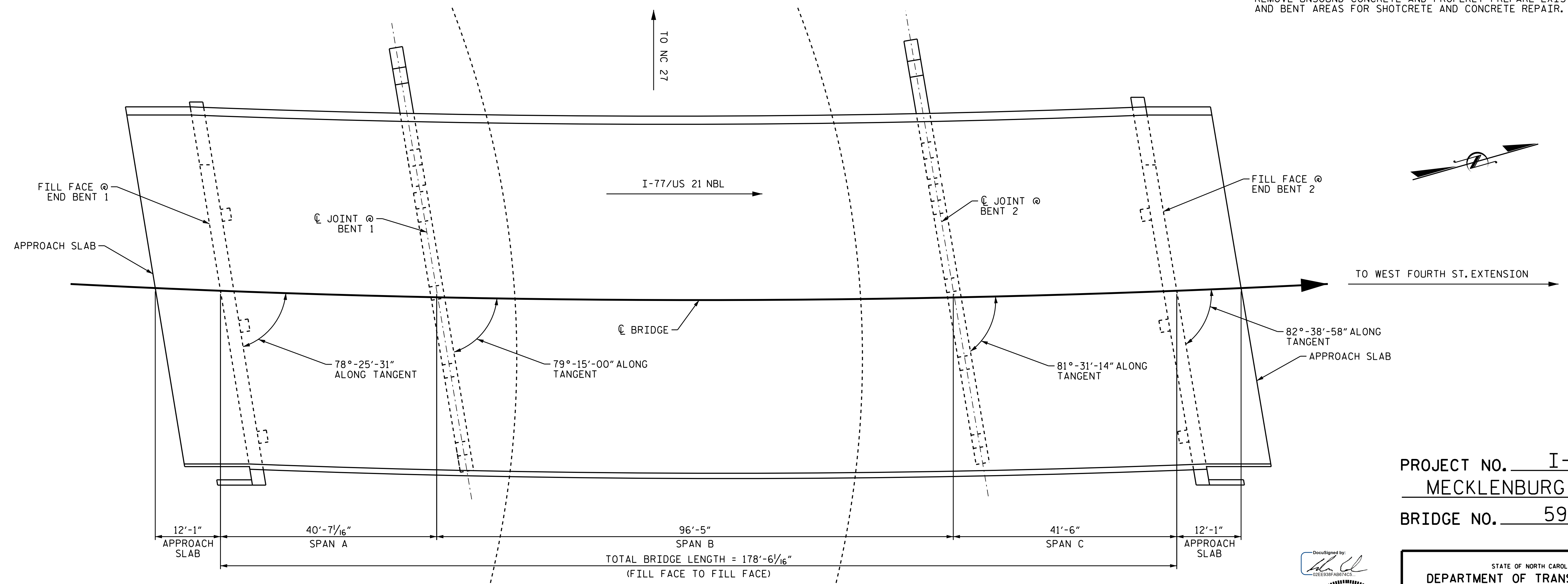


SECTION ALONG C OF BRIDGE

**NOTES**  
 GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 9/5/2018.  
 BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

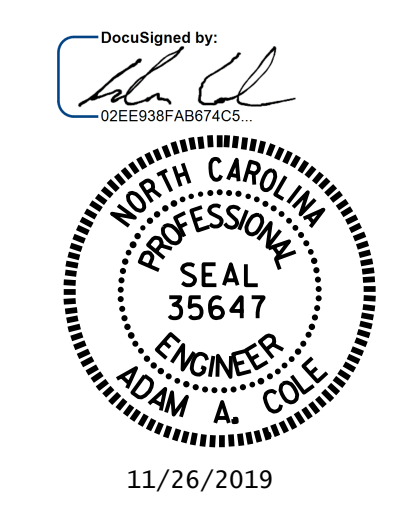
**SCOPE OF WORK**

- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC).
- REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
- GROOVE PPC BRIDGE DECK.
- CLEAN AND REPAINT EXISTING STRUCTURAL STEEL.
- REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS, AND APPLY EPOXY COATING.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIR.



PLAN  
 (FOUNDATIONS NOT SHOWN FOR CLARITY)

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590221

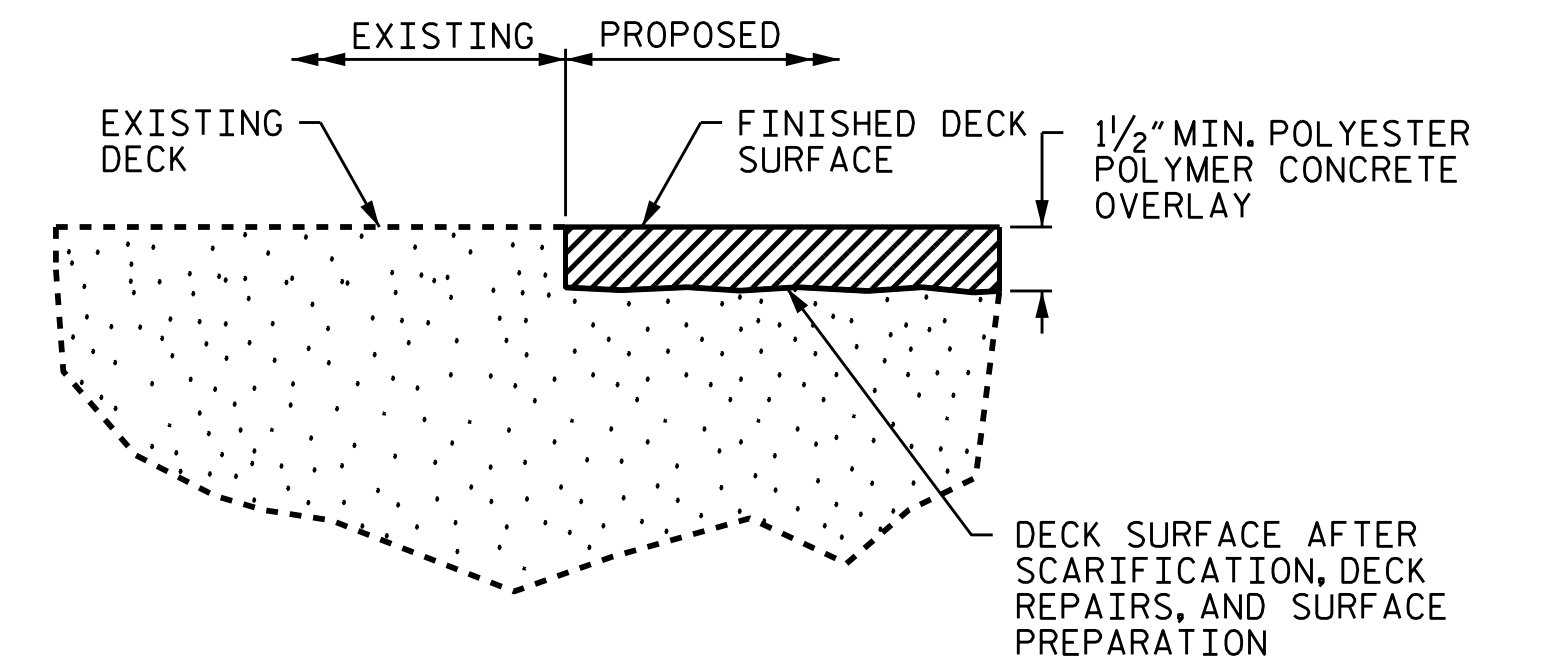
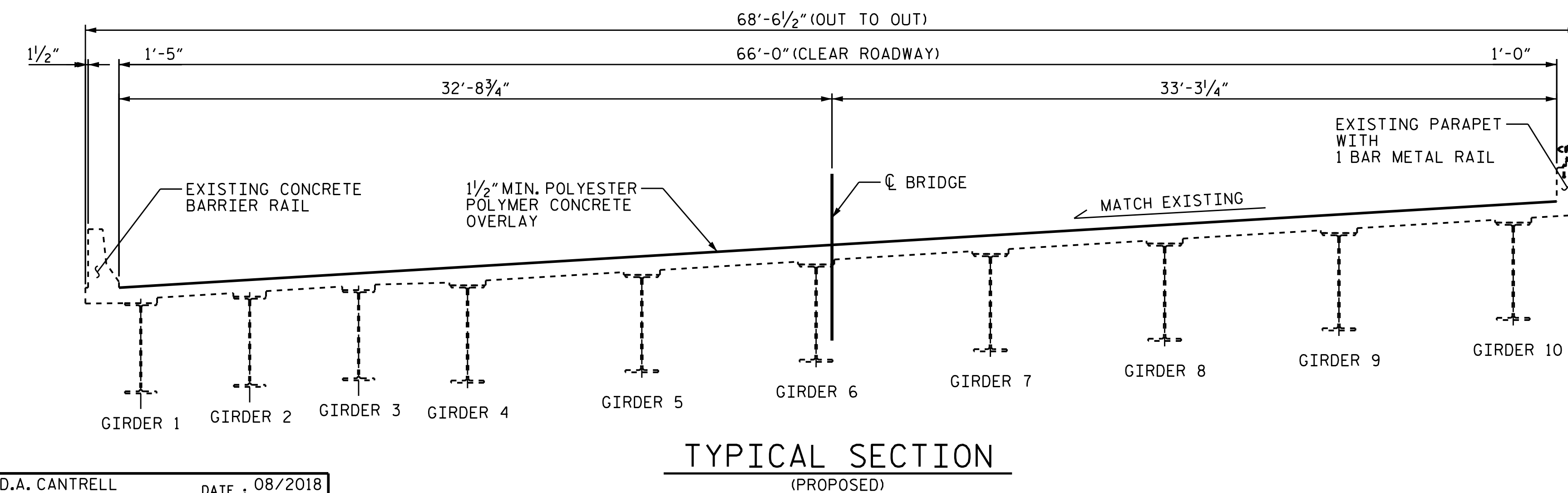
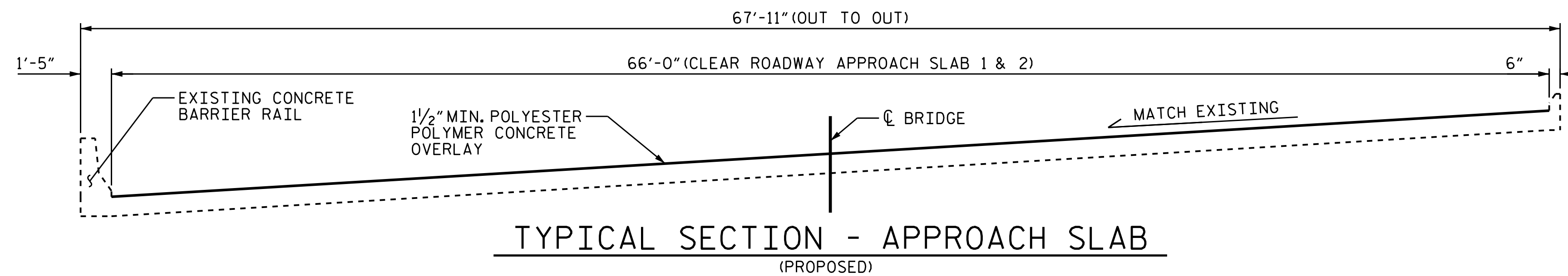
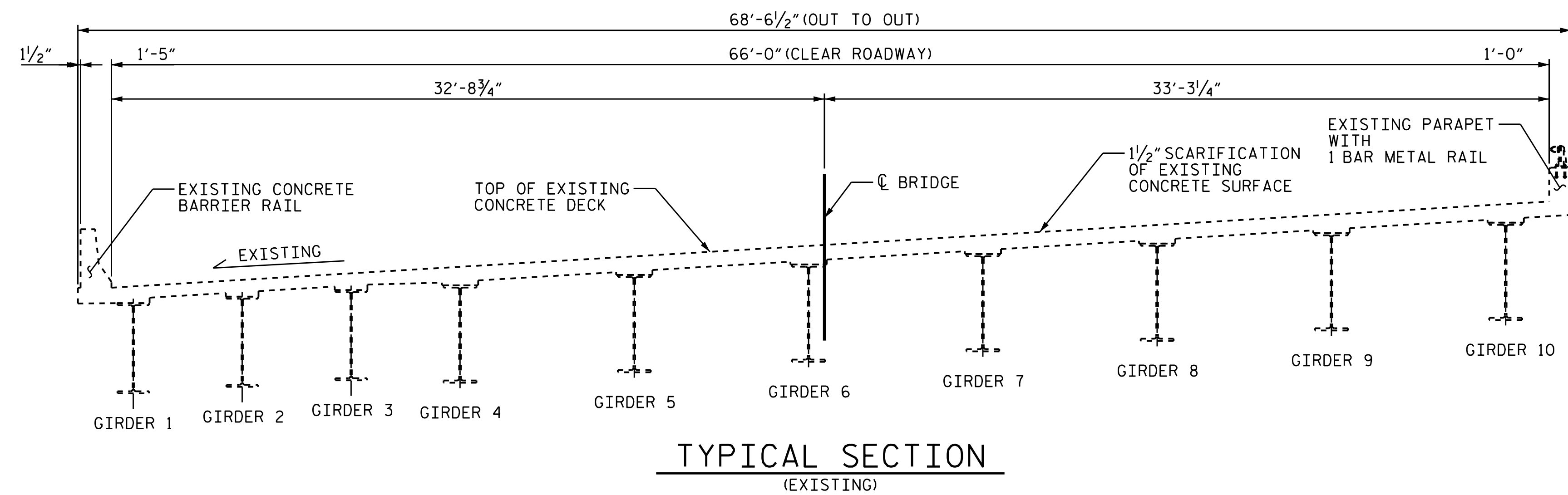
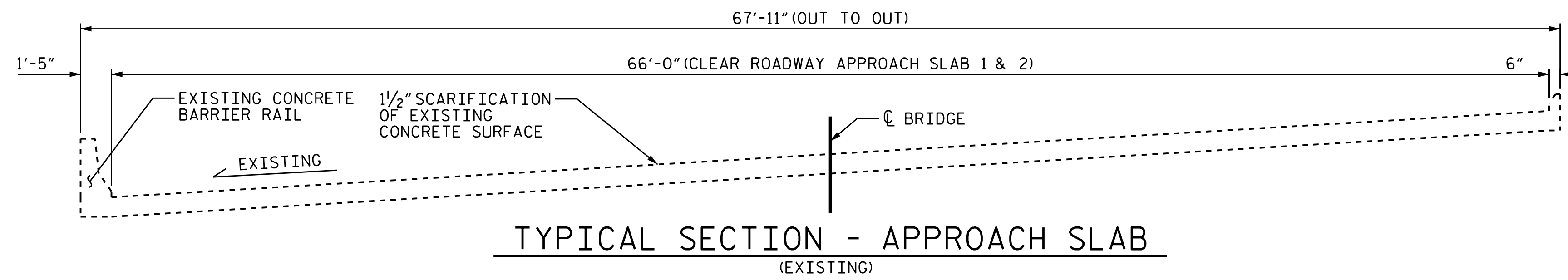


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON I-77 NBL  
 OVER US 29/NC 27  
 (W. MOREHEAD ST.)

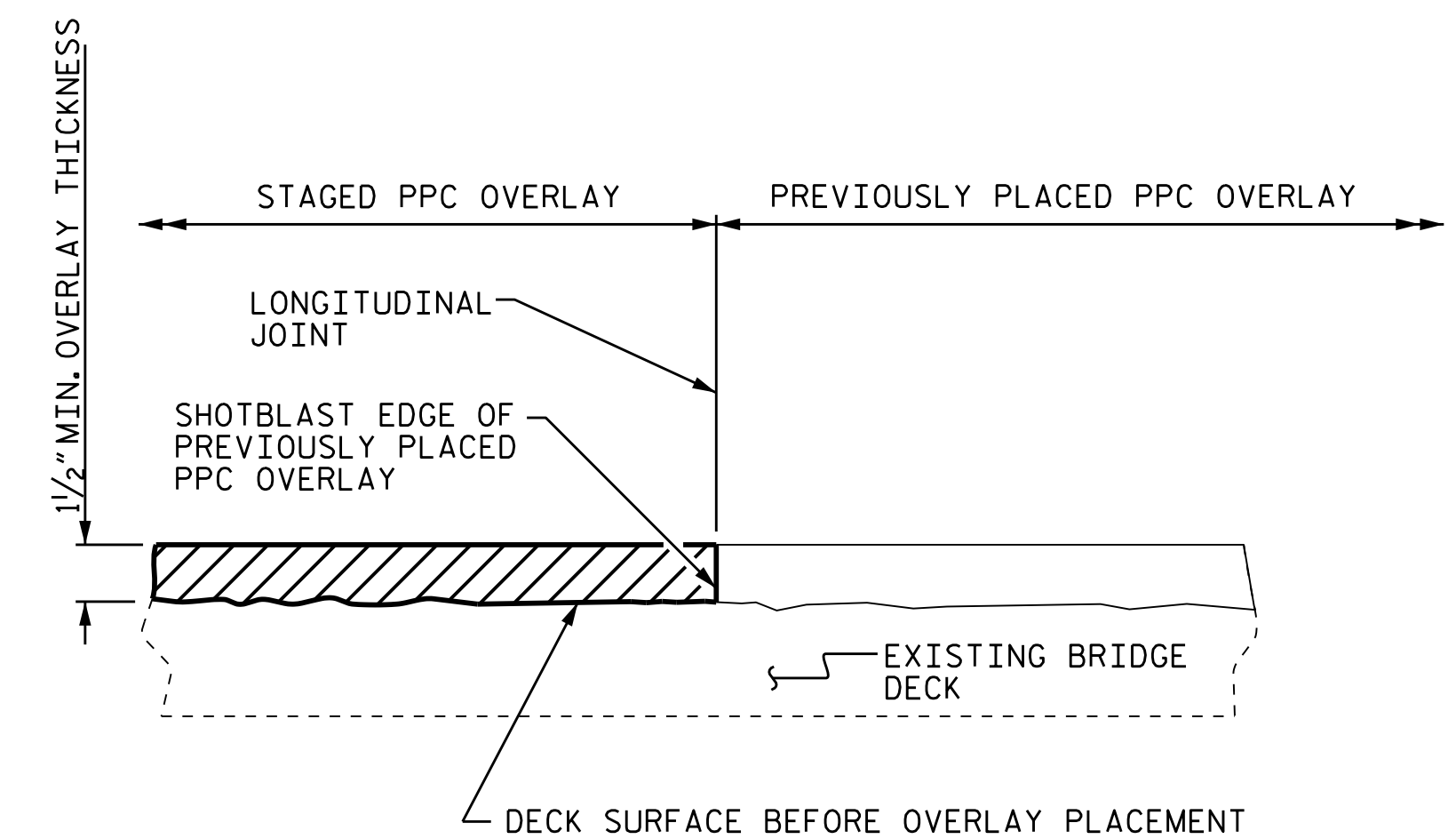
I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.  
 RESIDENT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY : D.A. CANTRELL DATE : 08/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

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NO.	BY:	DATE:	NO.	BY:	DATE:	S1-01
1			3			TOTAL SHEETS
2			4			8

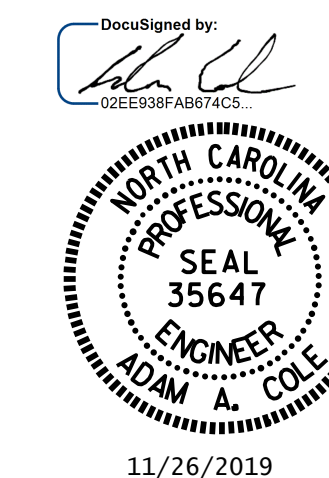


**DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY**  
 FINISHED SURFACE ELEVATION SHALL MATCH EXISTING CONCRETE SURFACE ELEVATION. ACTUAL THICKNESS OF PPC OVERLAY MAY VARY.



**STAGED PPC OVERLAY JOINT**  
 (AS NEEDED)

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590221



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

DRAWN BY : D.A. CANTRELL DATE : 08/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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# AS-BUILT REPAIR QUANTITY TABLE

## TOP OF DECK REPAIRS

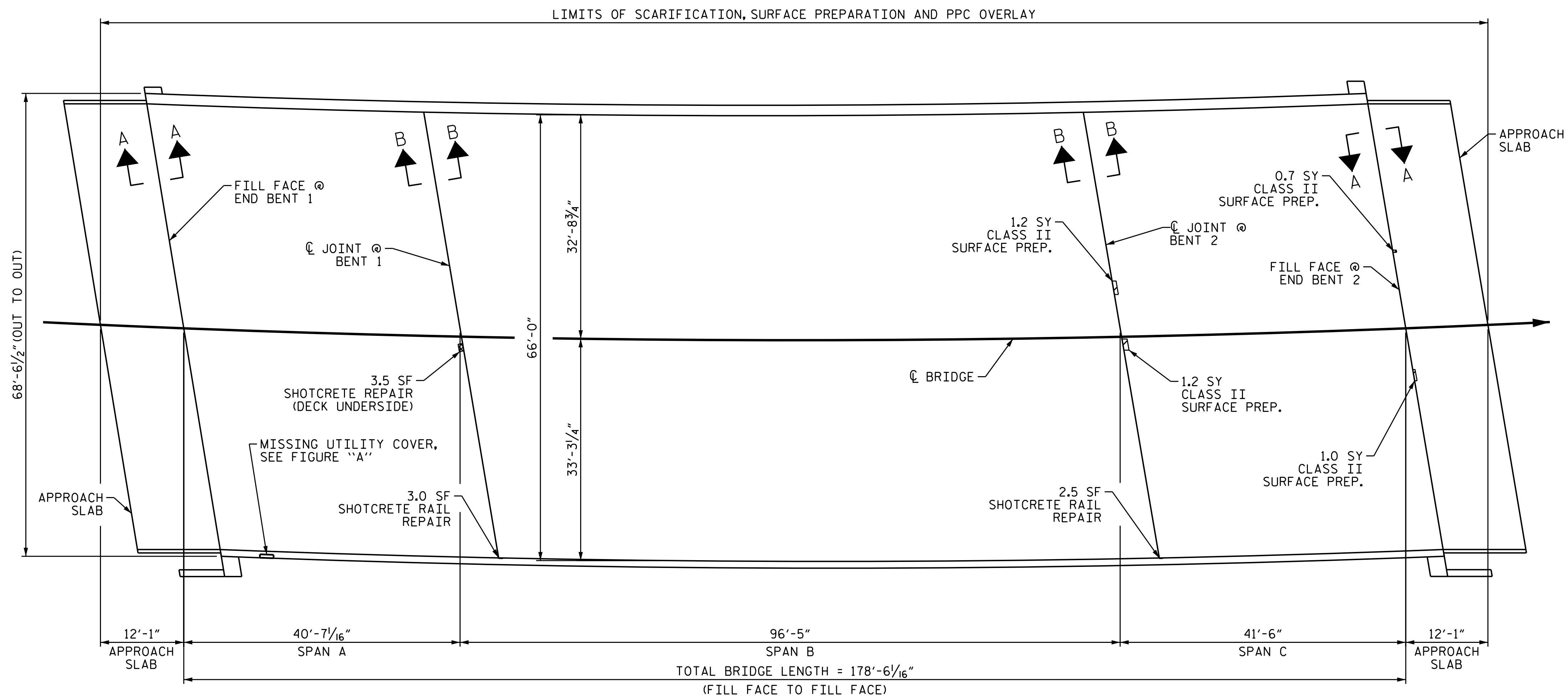
	ESTIMATE	ACTUAL
<b>SCARIFYING BRIDGE DECK</b>		
APPROACH SLAB 1	89 SQ. YDS.	
SPAN A	298 SQ. YDS.	
SPAN B	708 SQ. YDS.	
SPAN C	305 SQ. YDS.	
APPROACH SLAB 2	89 SQ. YDS.	
<b>CLASS II SURFACE PREPARATION</b>		
APPROACH SLAB 1	0.0 SQ. YDS.	
SPAN A	0.0 SQ. YDS.	
SPAN B	0.0 SQ. YDS.	
SPAN C	2.4 SQ. YDS.	
APPROACH SLAB 2	1.7 SQ. YDS.	
<b>CONCRETE DECK REPAIR FOR PPC OVERLAY</b>		
APPROACH SLAB 1	0.0 SQ. YDS.	
SPAN A	0.0 SQ. YDS.	
SPAN B	0.0 SQ. YDS.	
SPAN C	2.4 SQ. YDS.	
APPROACH SLAB 2	1.7 SQ. YDS.	
<b>SHOTBLASTING BRIDGE DECK</b>		
APPROACH SLAB 1	89 SQ. YDS.	
SPAN A	298 SQ. YDS.	
SPAN B	708 SQ. YDS.	
SPAN C	305 SQ. YDS.	
APPROACH SLAB 2	89 SQ. YDS.	
<b>PPC MATERIALS</b>		
APPROACH SLAB 1	4.4 CU. YDS.	
SPAN A	14.5 CU. YDS.	
SPAN B	34.5 CU. YDS.	
SPAN C	14.9 CU. YDS.	
APPROACH SLAB 2	4.4 CU. YDS.	
<b>PLACING AND FINISHING PPC OVERLAY</b>		
APPROACH SLAB 1	89 SQ. YDS.	
SPAN A	298 SQ. YDS.	
SPAN B	708 SQ. YDS.	
SPAN C	305 SQ. YDS.	
APPROACH SLAB 2	89 SQ. YDS.	
<b>GROOVING BRIDGE FLOORS</b>		
APPROACH SLAB 1	741 SQ. FT.	
SPAN A	2537 SQ. FT.	
SPAN B	6054 SQ. FT.	
SPAN C	2594 SQ. FT.	
APPROACH SLAB 2	741 SQ. FT.	

## SHOTCRETE REPAIRS

	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
<b>CONCRETE BARRIER RAIL</b>				
	5.5	1.9		
<b>UNDERSIDE OF DECK</b>				
APPROACH SLAB 1	0	0		
SPAN A	3.5	1.2		
SPAN B	0	0		
SPAN C	0	0		
APPROACH SLAB 2	0	0		

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.

DRAWN BY : D.A. CANTRELL DATE : 08/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019



## PLAN

## 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 SECTION B-B, SEE "JOINT DETAILS" SHEET.

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

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

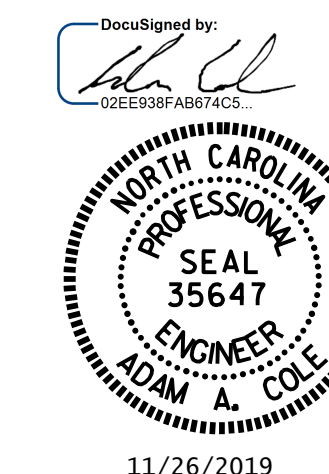
CONTRACTOR TO DETERMINE SIZE OF MISSING UTILITY COVER PLATE, SEE FIGURE A.

- APPROX. CLASS II SURFACE PREPARATION
- SHOTCRETE RAIL REPAIR
- SHOTCRETE REPAIRS FOR DECK UNDERSIDE



FIGURE A

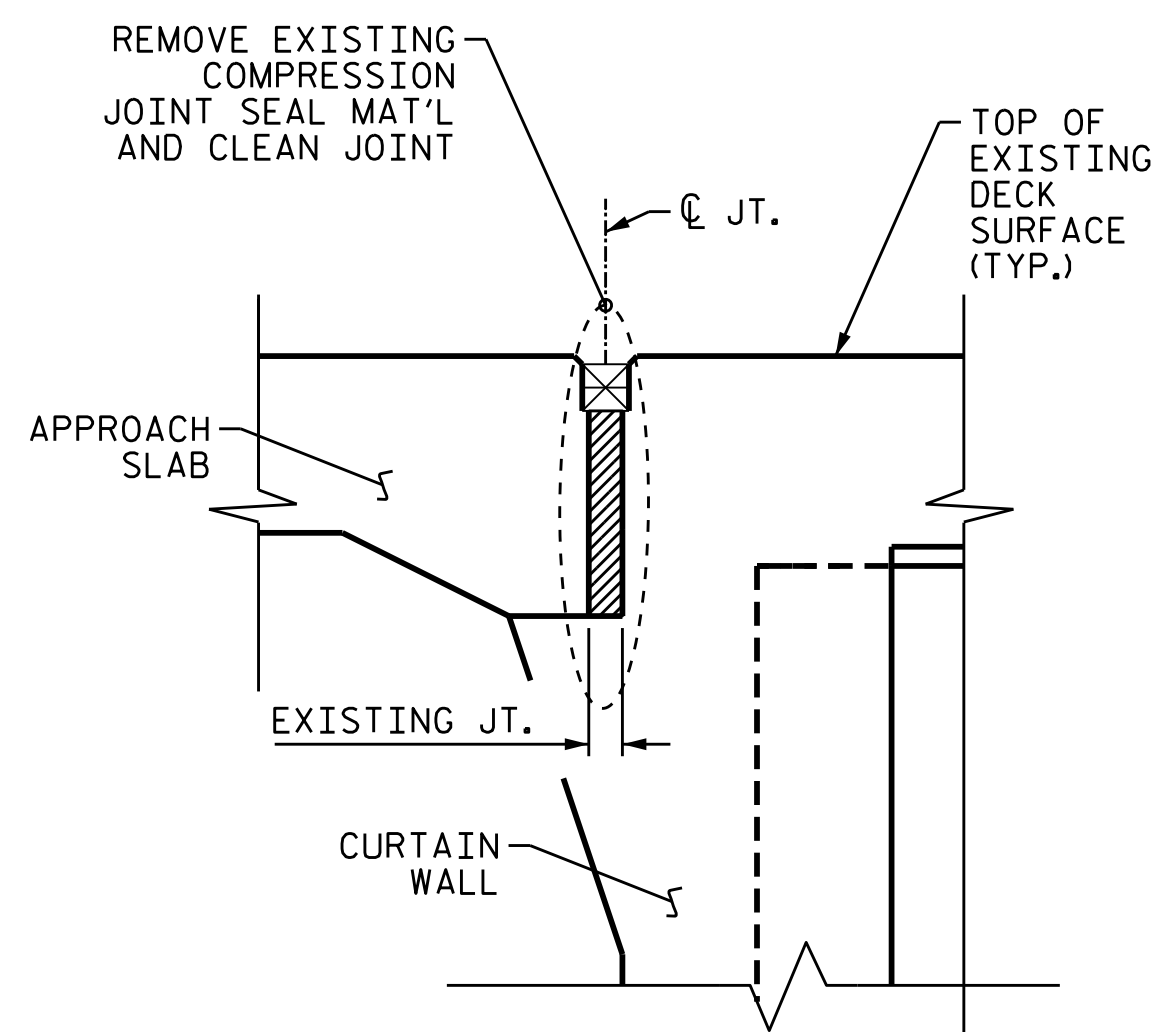
PROJECT NO. I-5769  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590221



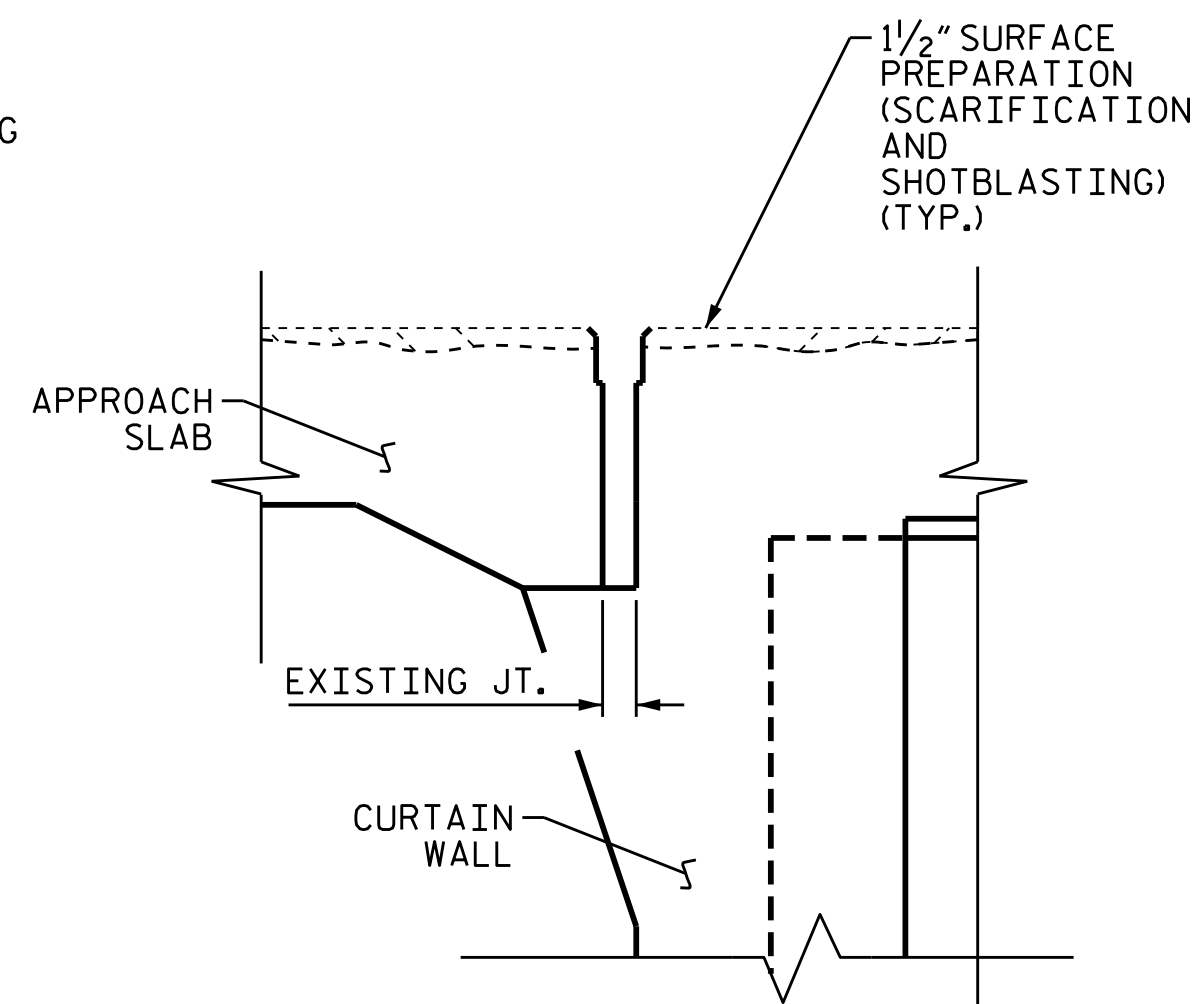
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS

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2			4			TOTAL SHEETS 8

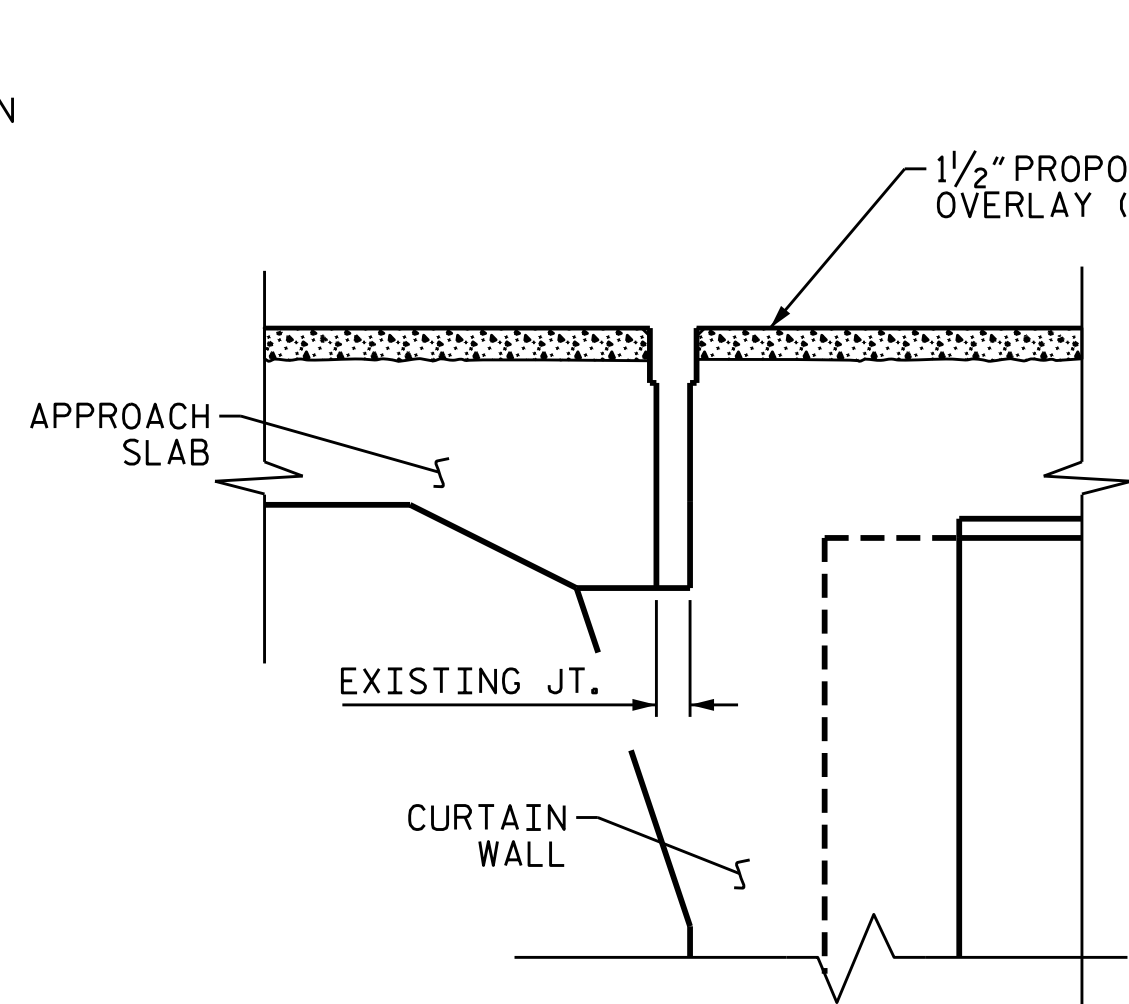
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



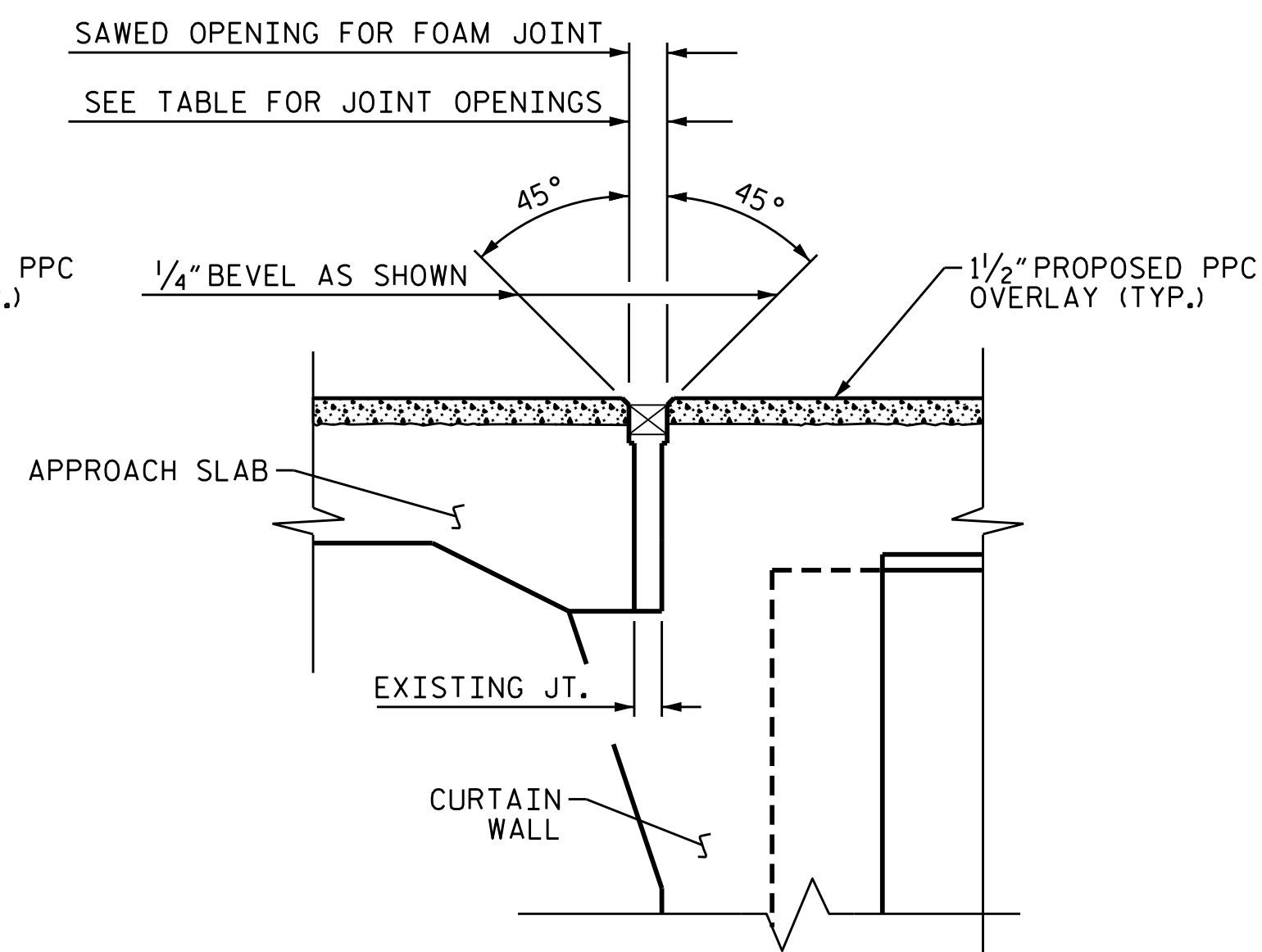
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

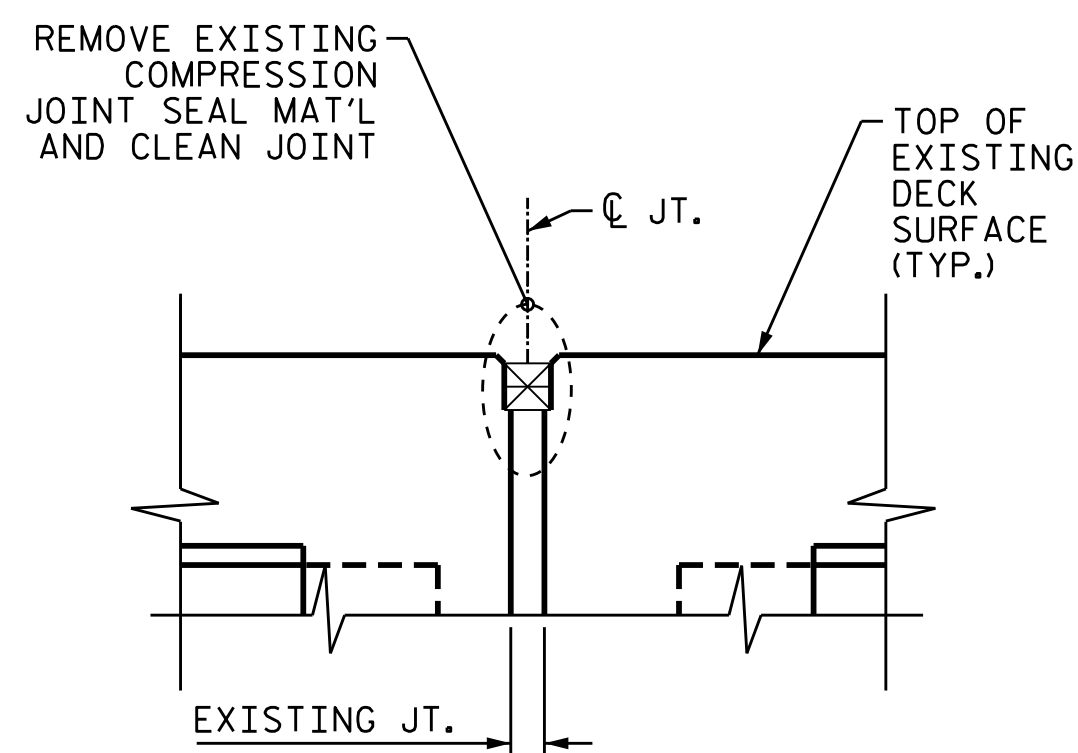


PROPOSED JOINT PRE-SAWED

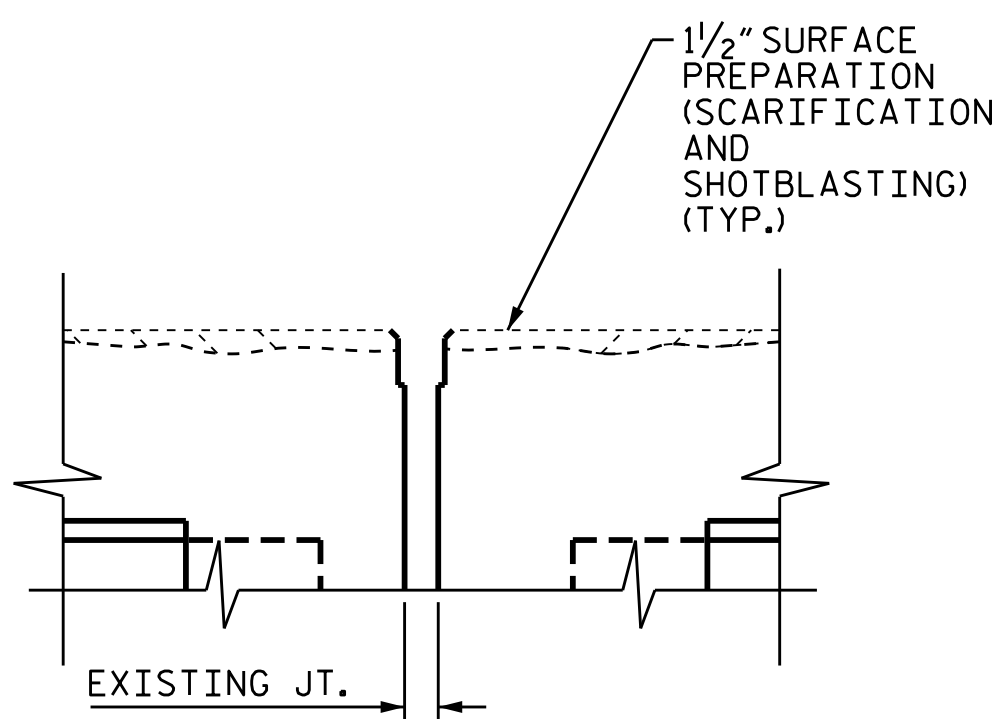


PROPOSED FOAM JOINT SEAL

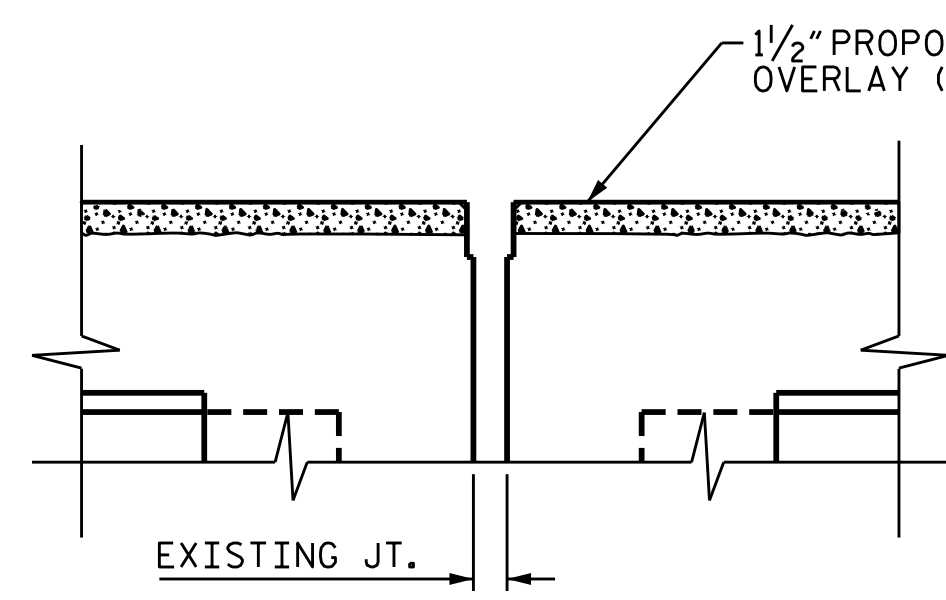
SECTION A-A  
(TYP. AT END BENTS)



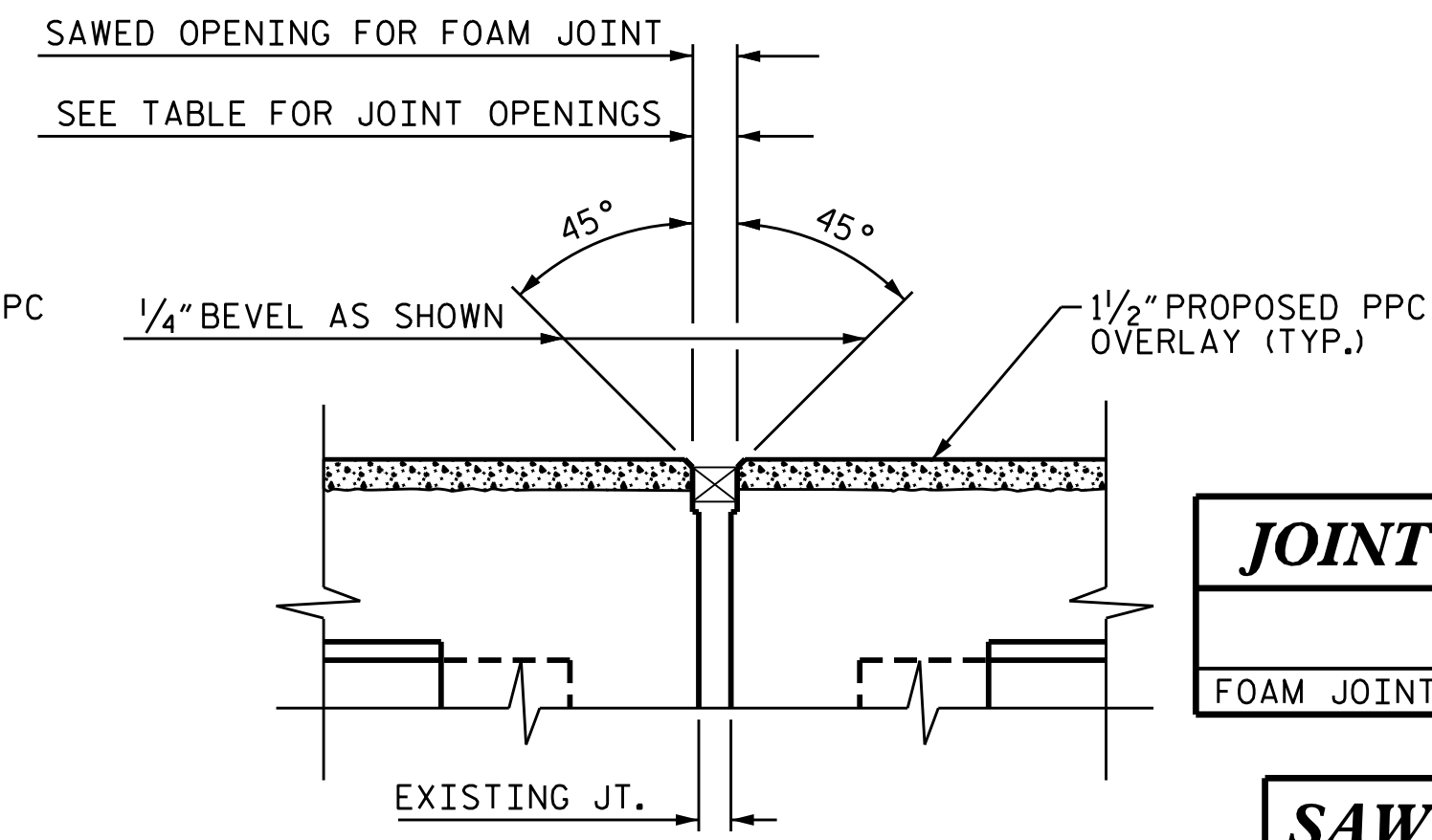
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

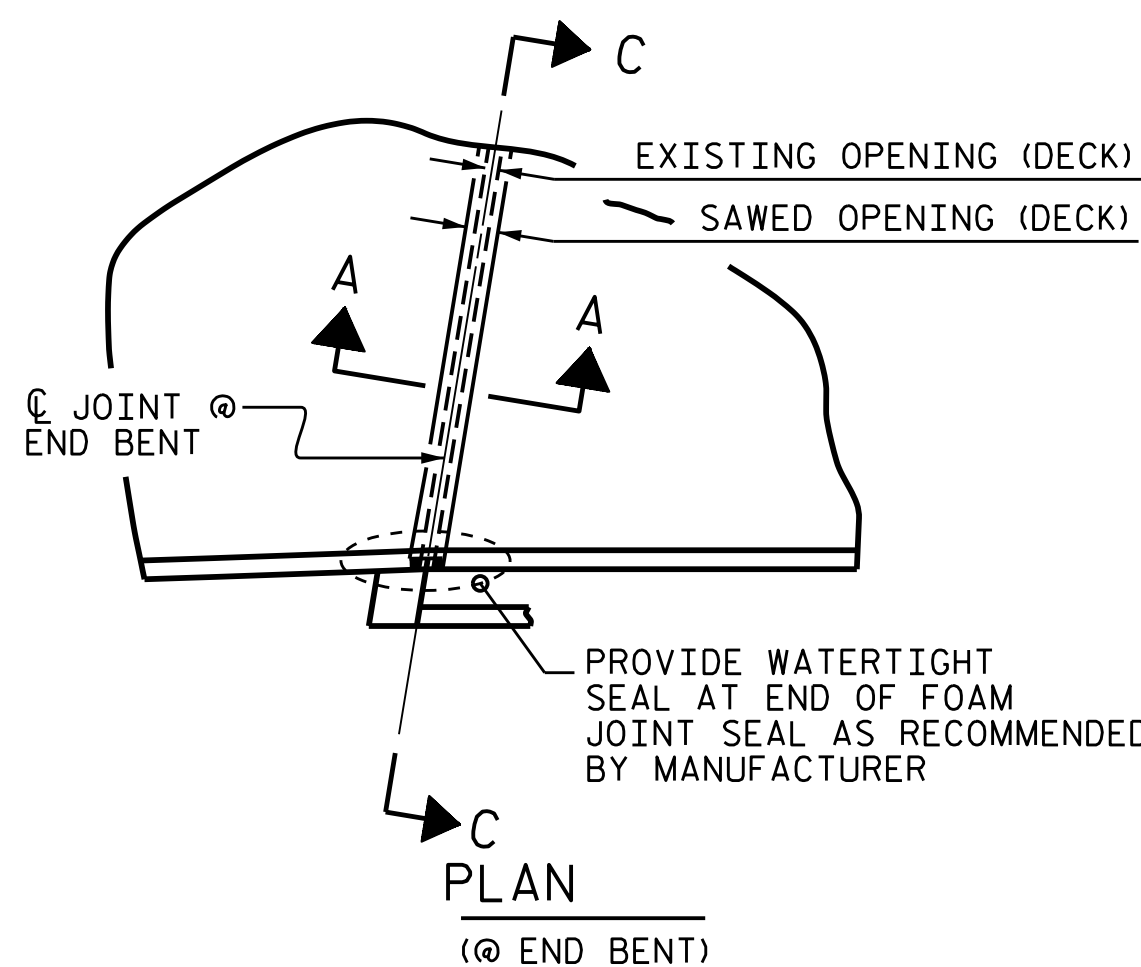


PROPOSED JOINT PRE-SAWED

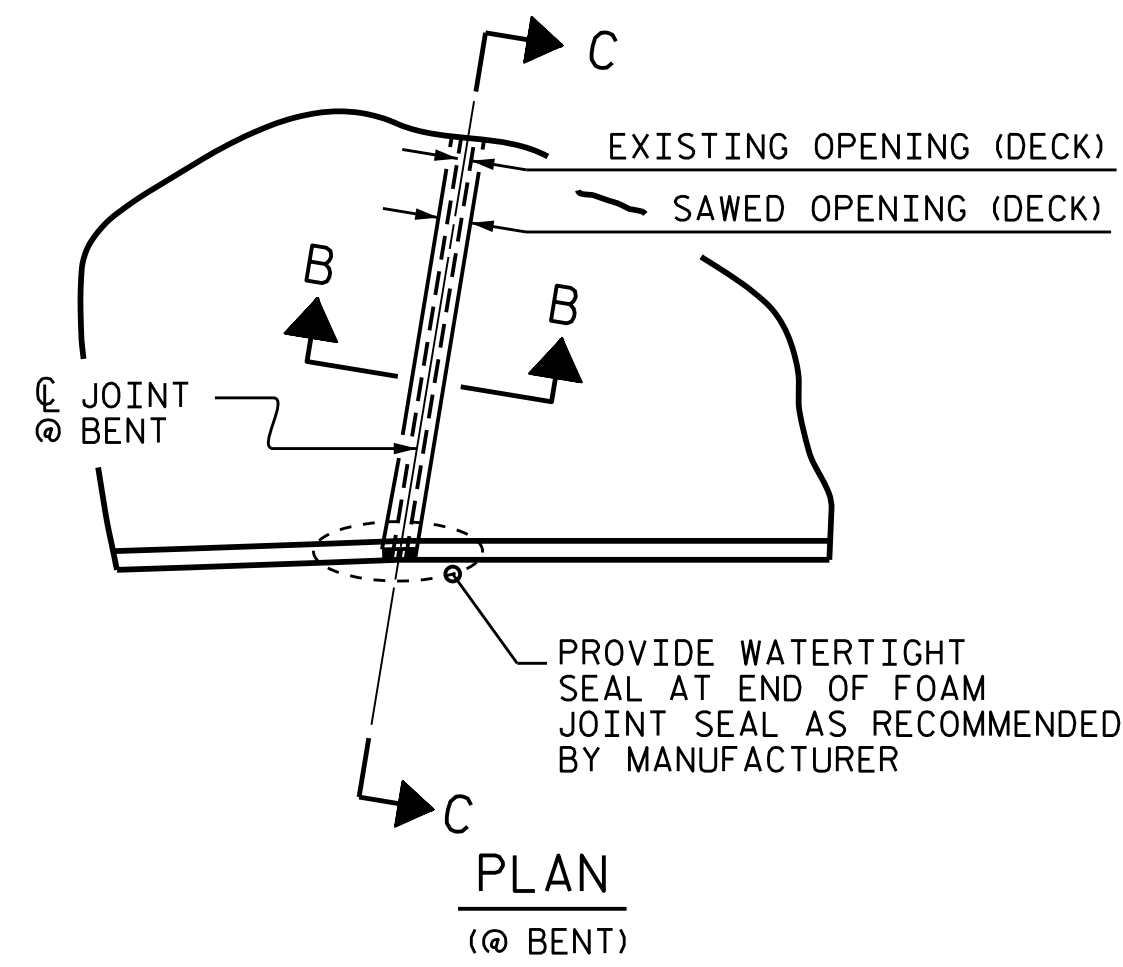


PROPOSED FOAM JOINT SEAL

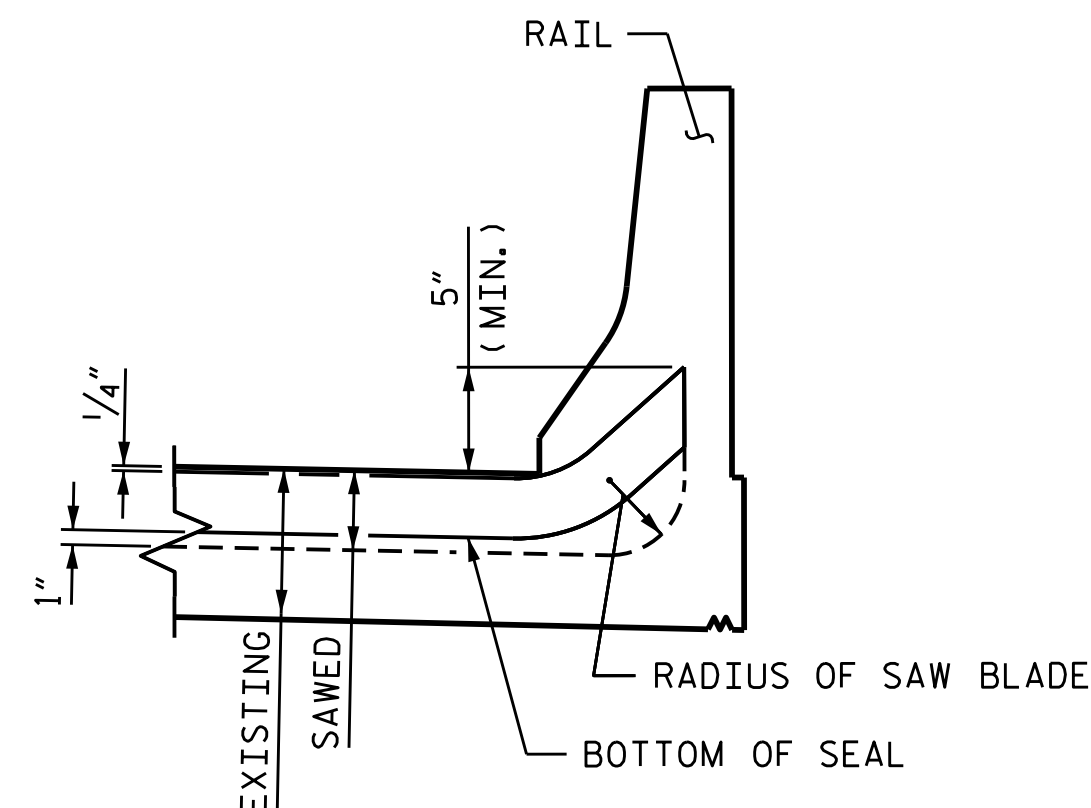
SECTION B-B  
(TYP. AT BENTS)



PLAN  
(@ END BENT)



PLAN  
(@ BENT)



SECTION C-C

NOTES

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

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

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

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

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

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

THE INSTALLED FOAM JOINTS SHALL BE WATER TIGHT.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

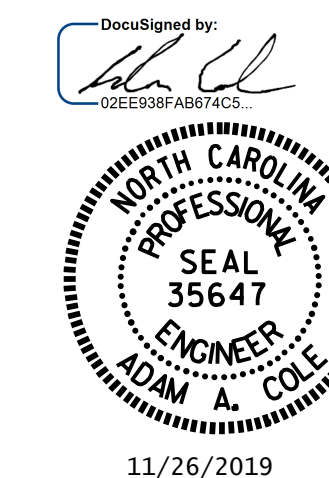
JOINT REPAIR QUANTITY TABLE

	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	279 LF	

SAWED JOINT OPENING TABLE

LOCATION	TOTAL MOVEMENT (ALONG C.R.D.)	SAWED JT. OPENING (PERPENDICULAR TO JT.)		
		AT 30°	AT 60°	AT 90°
END BENT 1			2"	
BENT 1	1/2"	1 5/16"	1 1/2"	1 1/16"
BENT 2	1 5/8"	2 5/8"	2 5/16"	2"
END BENT 2			2"	

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
BRIDGE NO. 590221

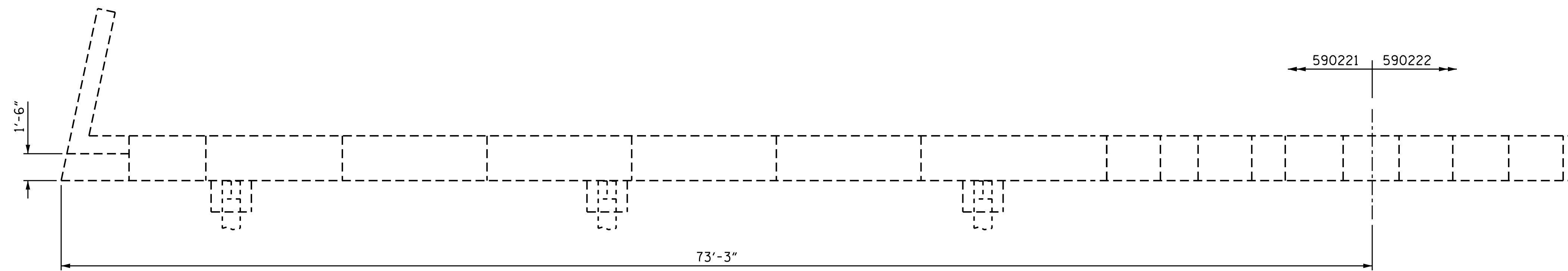


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARDS  
FOAM JOINT SEAL  
DETAILS FOR PPC  
OVERLAY

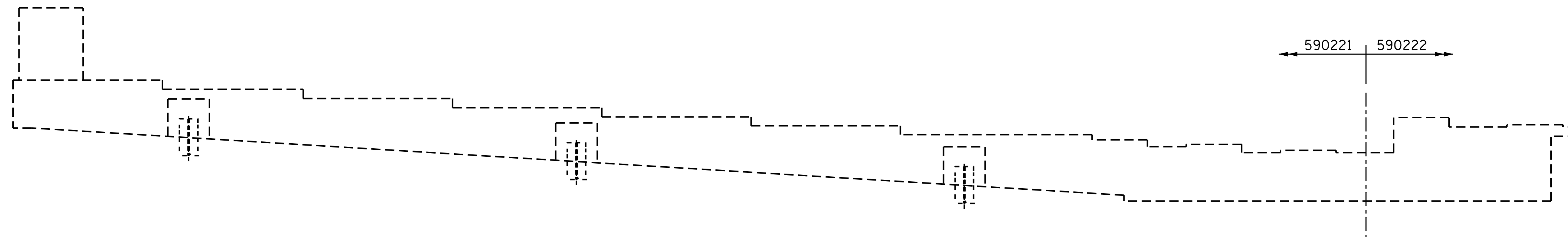
DRAWN BY : D.A. CANTRELL DATE : 11/2018  
CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

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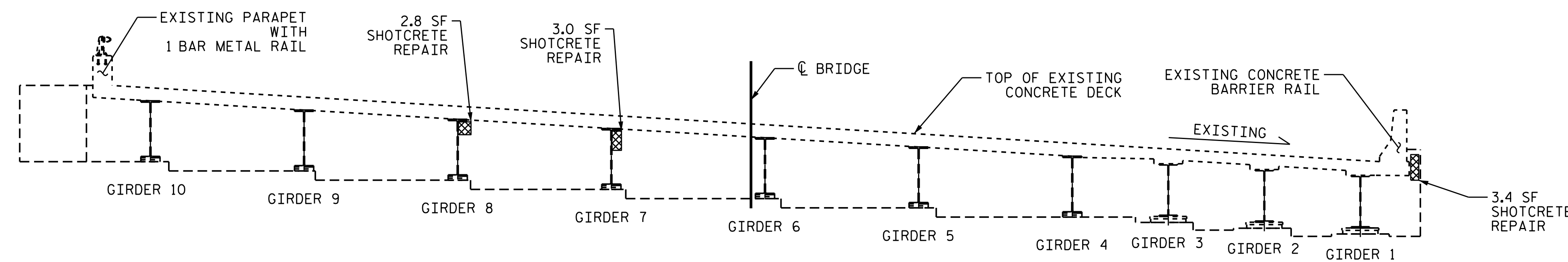
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NO.	BY:	DATE:	NO.	BY:	DATE:	S1-04
1			3			TOTAL SHEETS
2			4			8



PLAN



ELEVATION



TYPICAL SECTION

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	9.2	4.6		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	131			

NOTES

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

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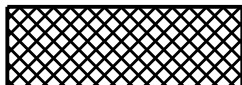
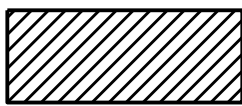

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

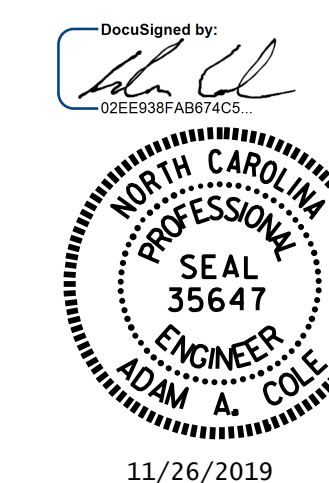
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590221



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

DRAWN BY : D.A. CANTRELL DATE : 08/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
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1				3			S1-05	
2				4			TOTAL SHEETS 8	

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AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	16.2	8.1		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	2.1	1.1		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	193			

**NOTES**

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT UTILITY LINES AND LIGHTING ARE ATTACHED TO THE STRUCTURE.

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

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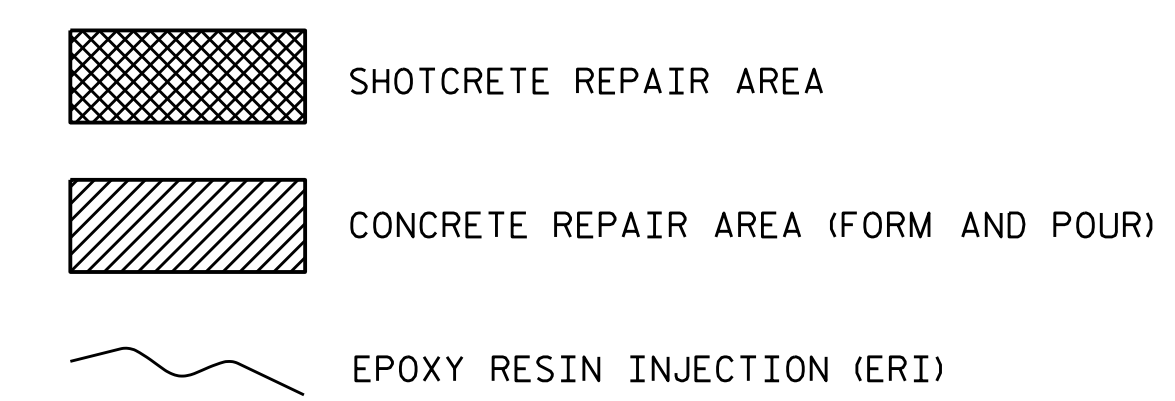
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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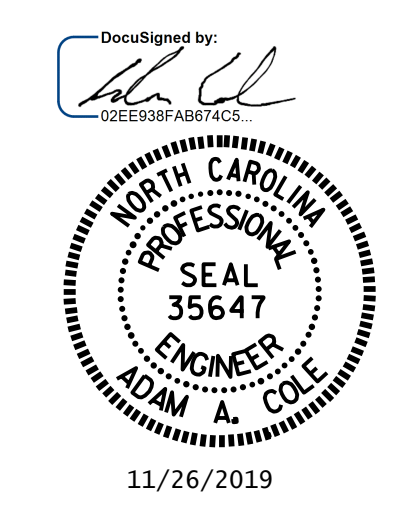
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

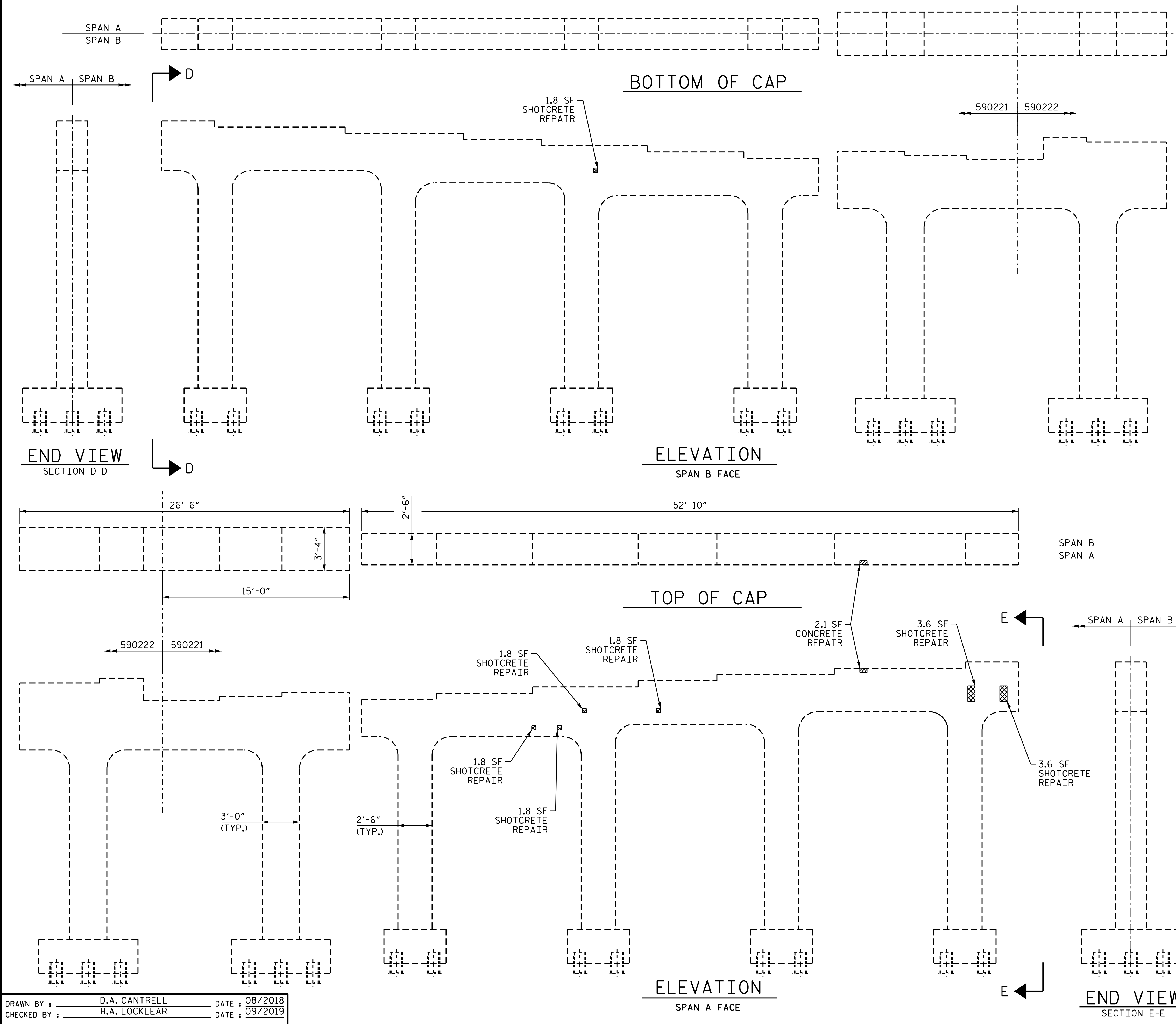
FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.



PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590221



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1



DRAWN BY : D.A. CANTRELL DATE : 08/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

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1			3			S1-06
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AS-BUILT REPAIR QUANTITY TABLE				
BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	4.8	2.4		
COLUMN	7.0	3.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	9.0	4.5		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	193			

**NOTES**

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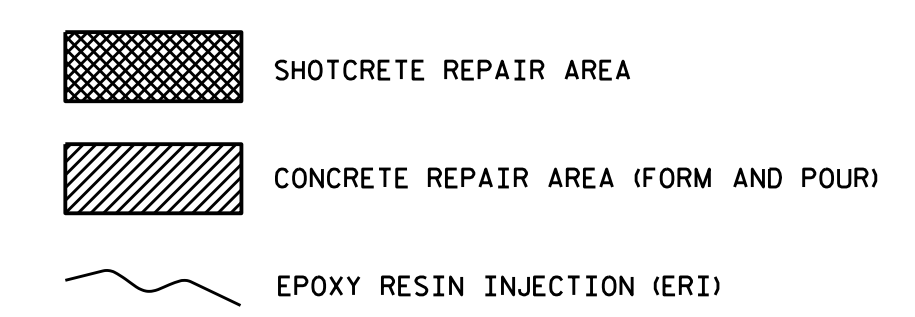
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

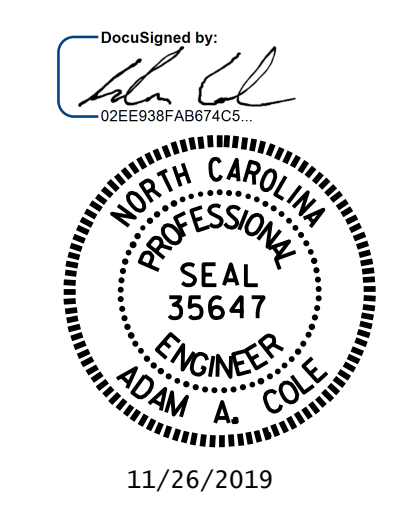
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

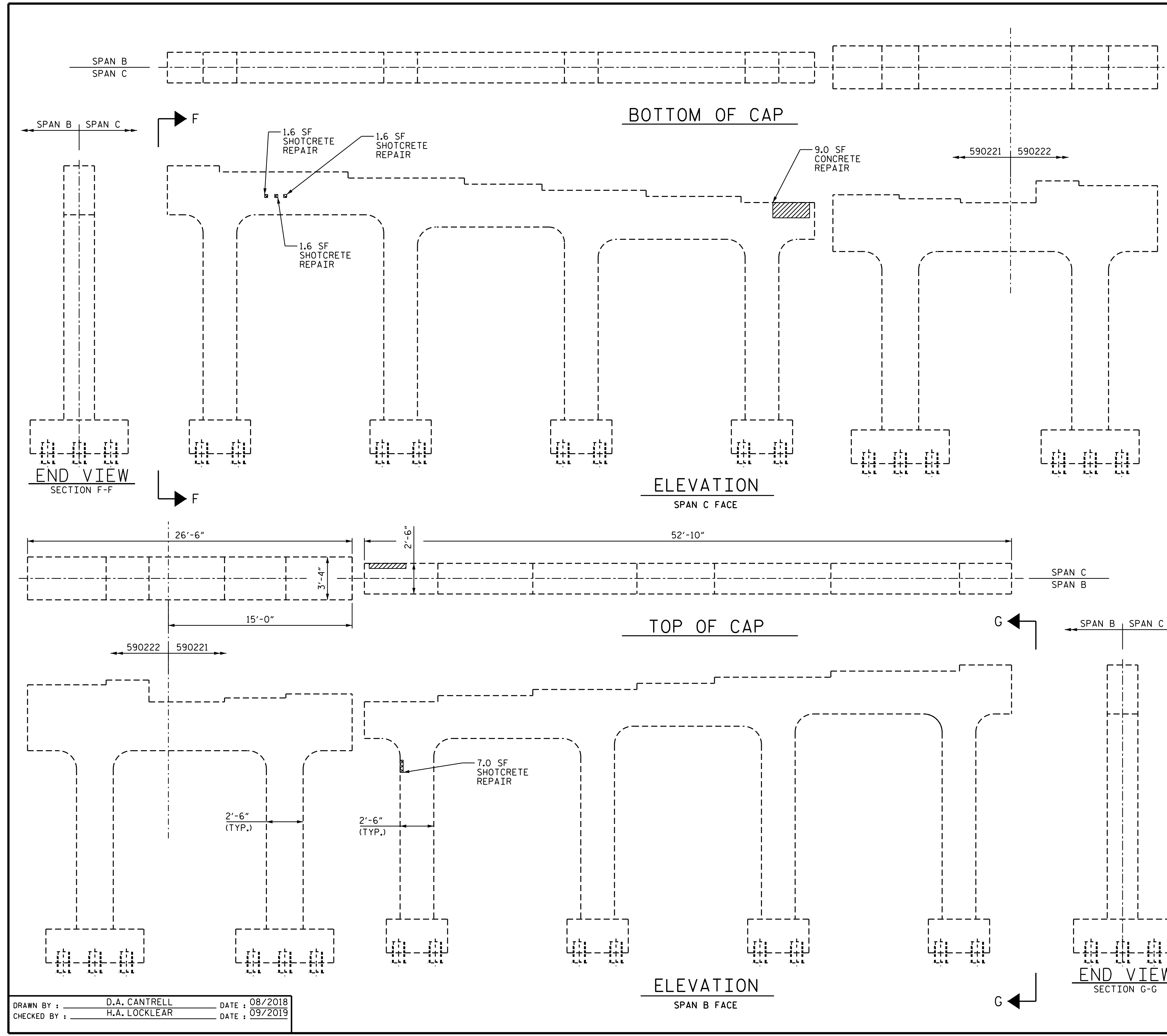


PROJECT NO. I-5769  
MECKLENBURG COUNTY  
BRIDGE NO. 590221



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 2

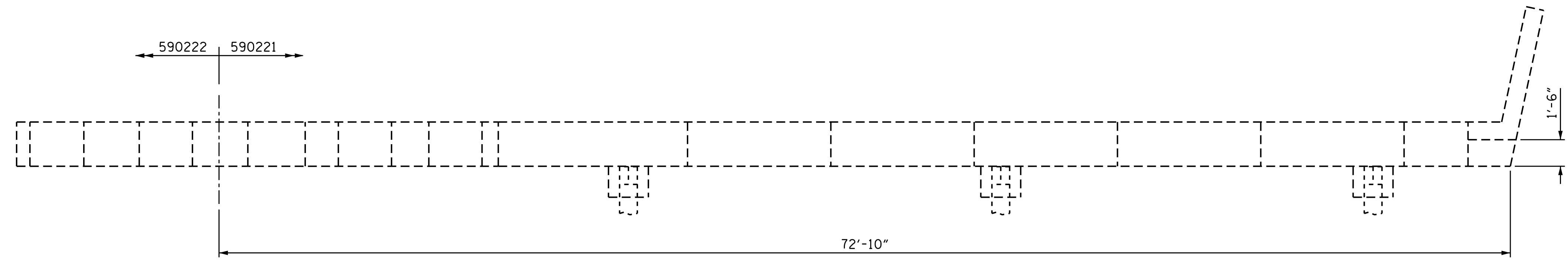
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NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S1-07
2			4			TOTAL SHEETS 8



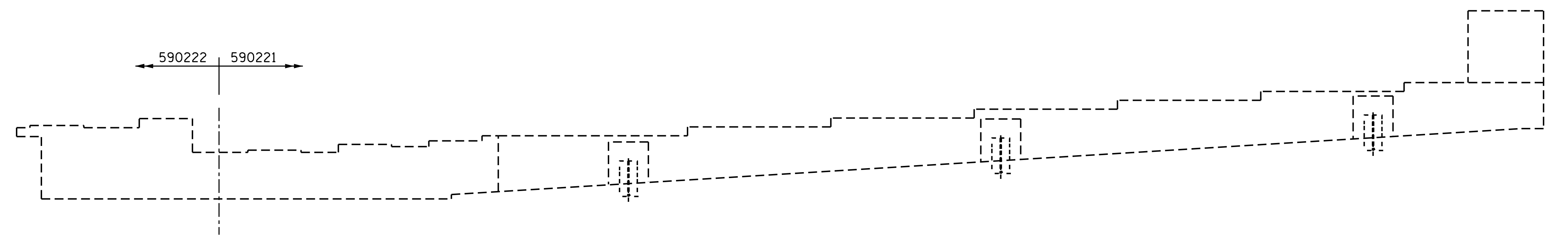
DRAWN BY : D.A. CANTRELL DATE : 08/2018  
CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	12.9	6.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	131			



PLAN



ELEVATION

**NOTES**

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

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

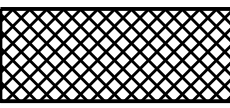
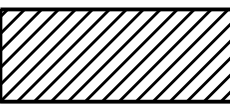

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

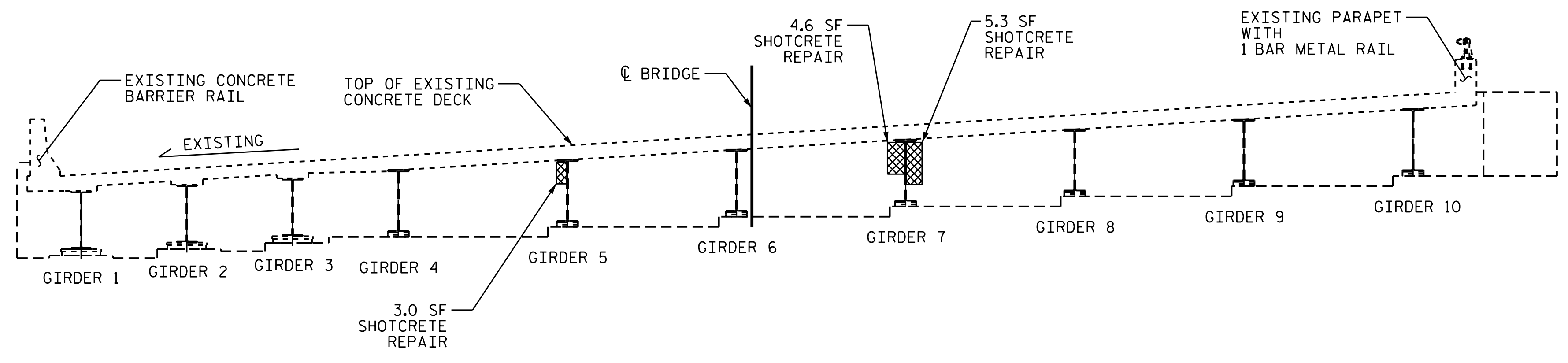
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

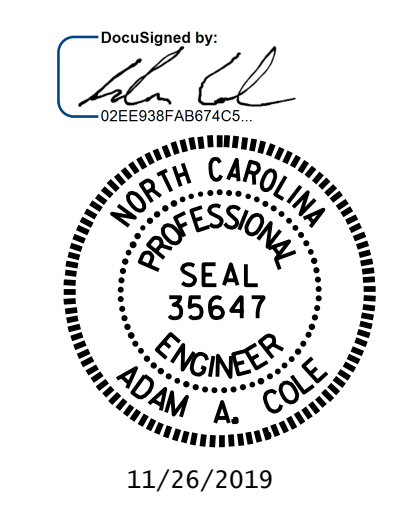
FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

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



TYPICAL SECTION

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590221



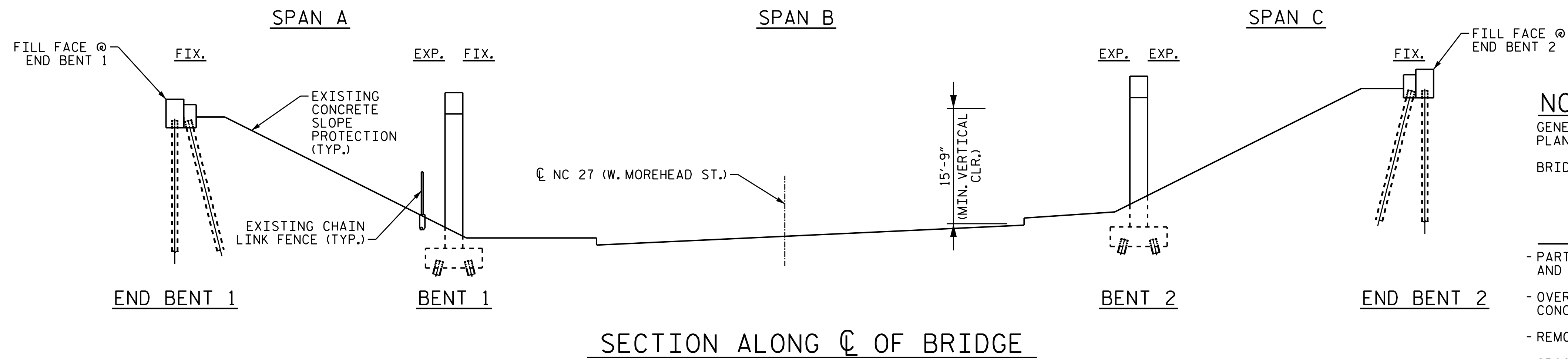
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 2

DRAWN BY : D.A. CANTRELL DATE : 08/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
	BY:	DATE:			BY:	DATE:		
1				3			S1-08	
2				4			TOTAL SHEETS 8	

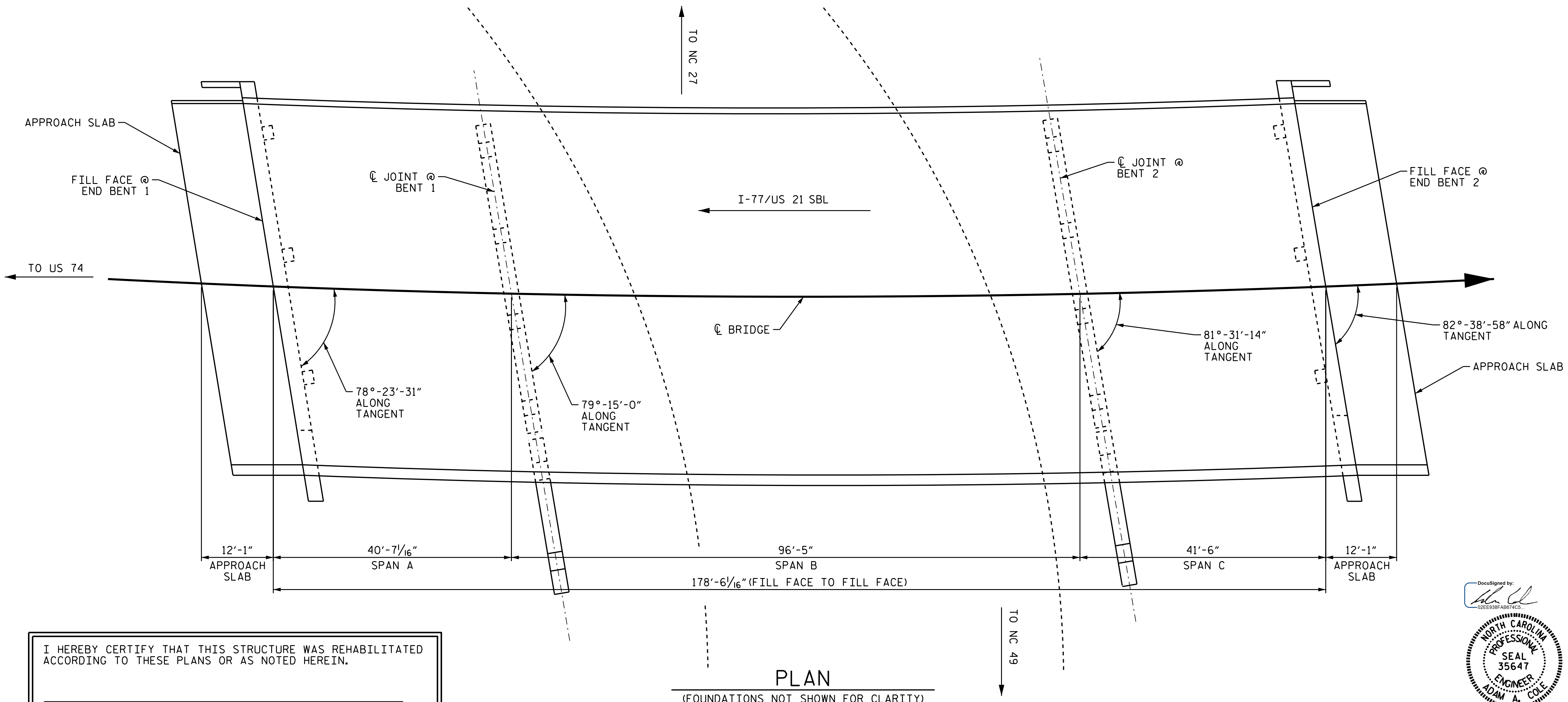
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



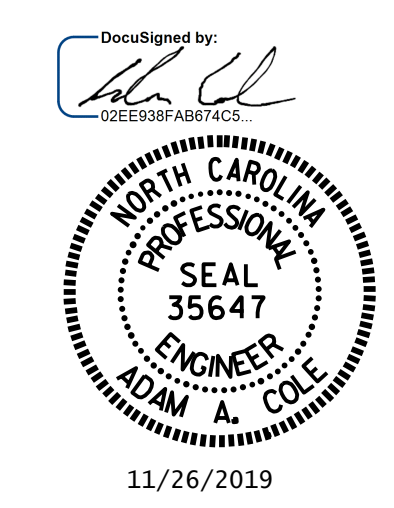


**NOTES**  
 GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 9/6/2018.  
 BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

- SCOPE OF WORK**
- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
  - OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC).
  - REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
  - GROOVE PPC BRIDGE DECK.
  - CLEAN AND REPAINT EXISTING STRUCTURAL STEEL.
  - REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS, AND APPLY EPOXY COATING.
  - REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIR.



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



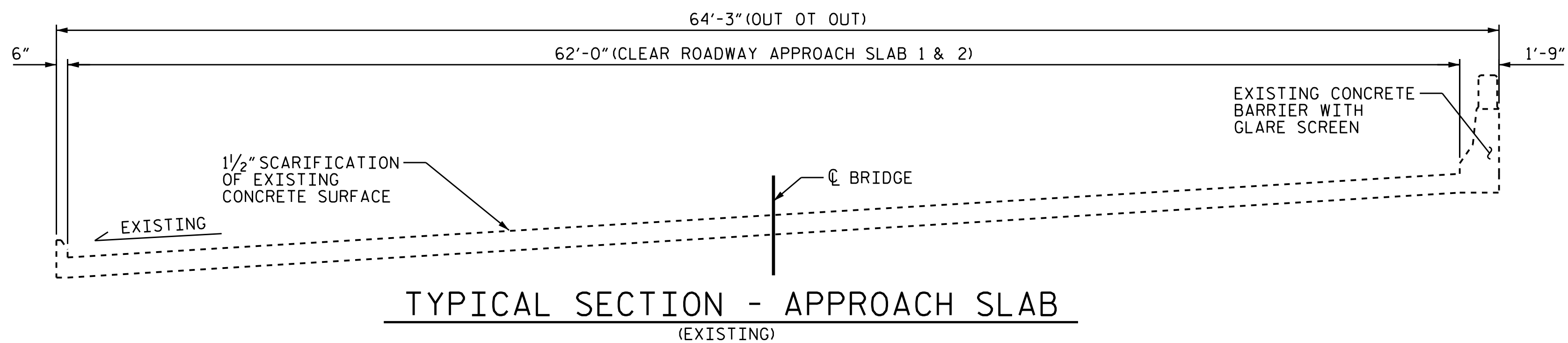
PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590222

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON I-77 SBL  
 OVER US 29/NC 27  
 (W. MOREHEAD ST.)

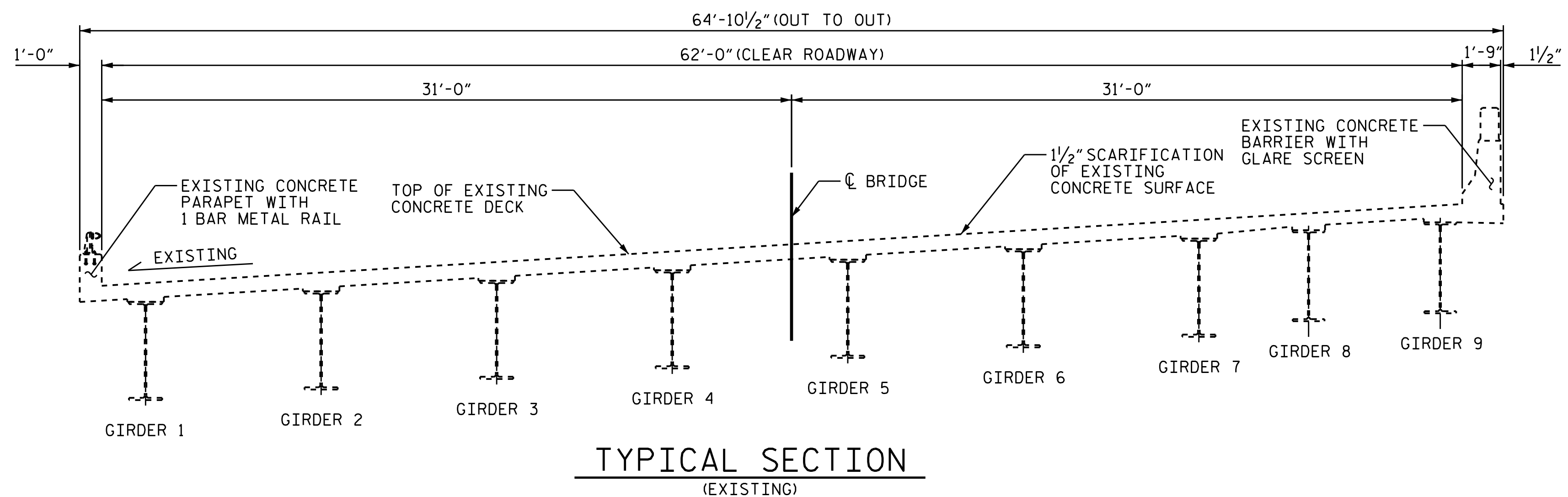
DRAWN BY : D.A. CANTRELL DATE : 08/2018  
 CHECKED BY : A. SORENGINH DATE : 02/2019

REVISIONS						SHEET NO. S2-01
NO.	BY:	DATE:	NO.	BY:	DATE:	
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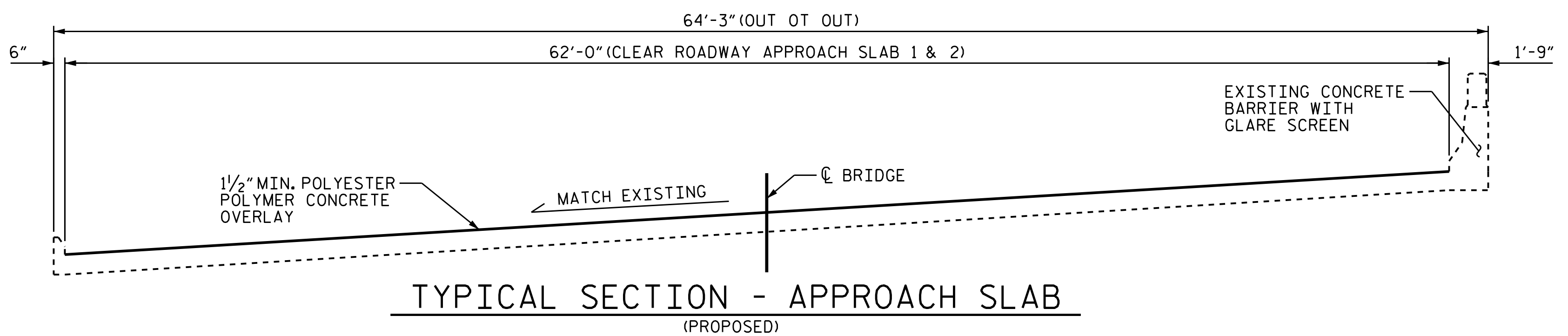
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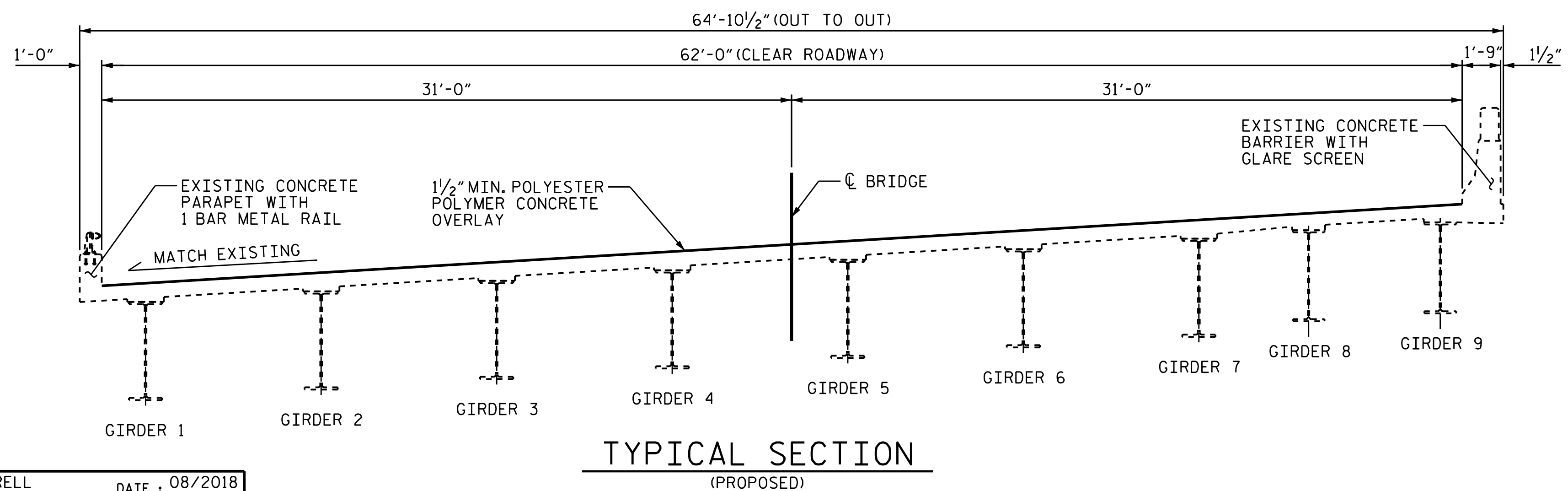
TYPICAL SECTION - APPROACH SLAB  
(EXISTING)



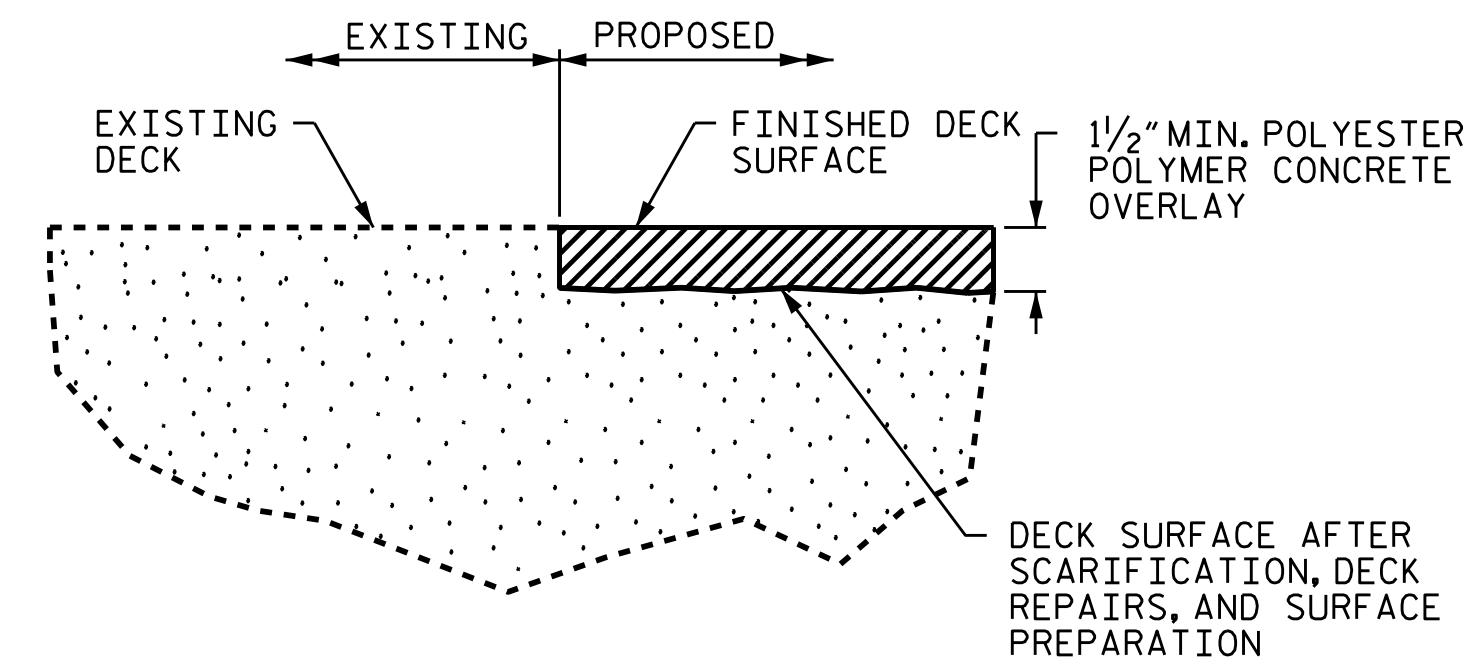
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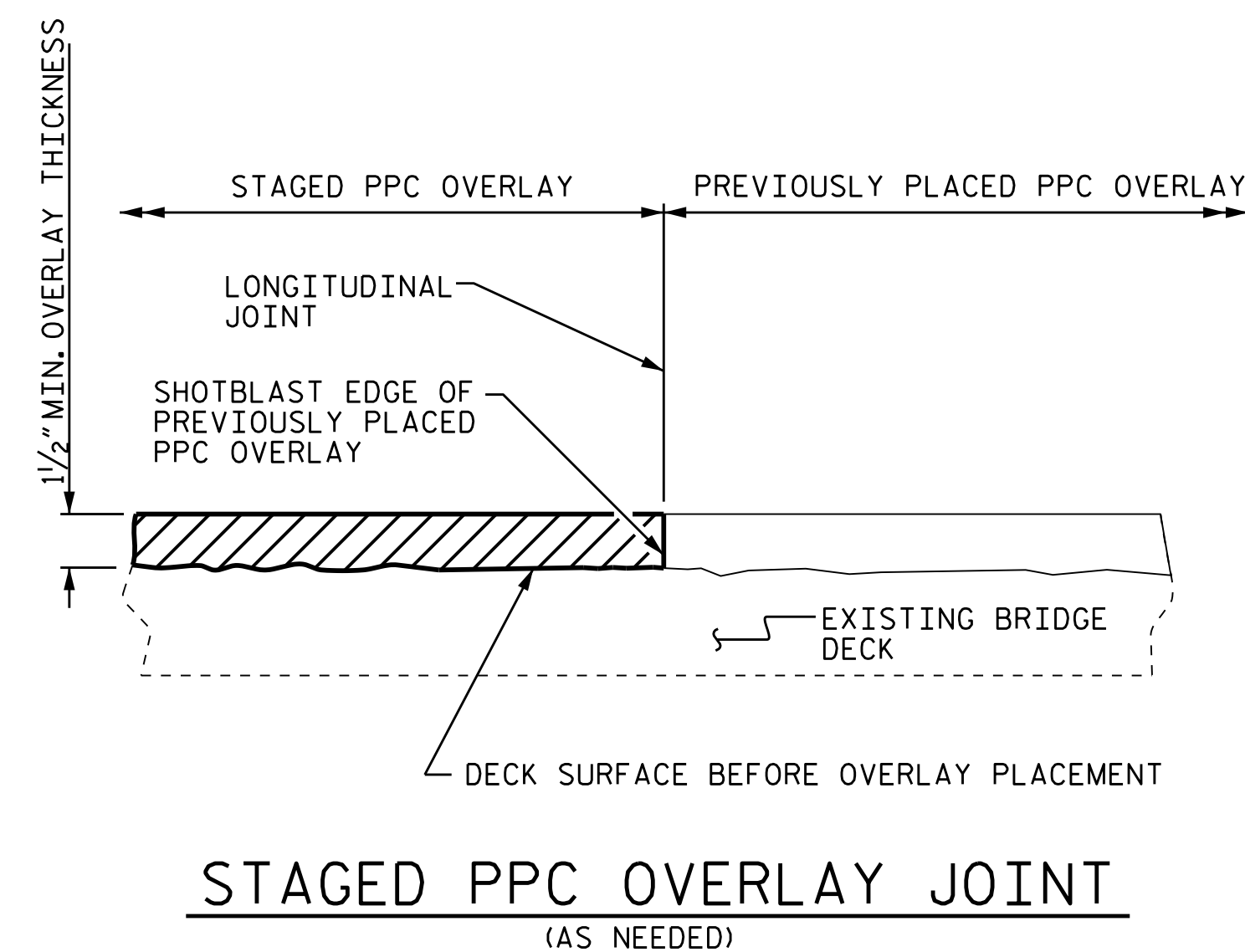
TYPICAL SECTION - APPROACH SLAB  
(PROPOSED)



TYPICAL SECTION  
(PROPOSED)

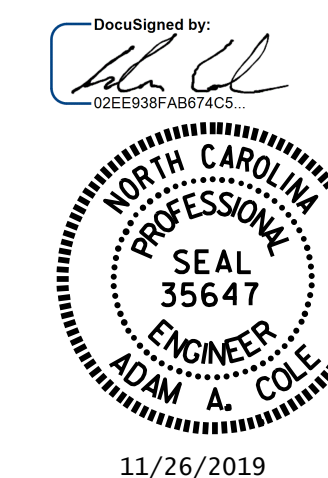


DETAIL FOR POLYESTER  
POLYMER CONCRETE OVERLAY



STAGED PPC OVERLAY JOINT  
(AS NEEDED)

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590222



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

DRAWN BY : D.A. CANTRELL DATE : 08/2018  
 CHECKED BY : A. SORENGINH DATE : 02/2019

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-02
1			3			TOTAL SHEETS
2			4			8

# AS-BUILT REPAIR QUANTITY TABLE

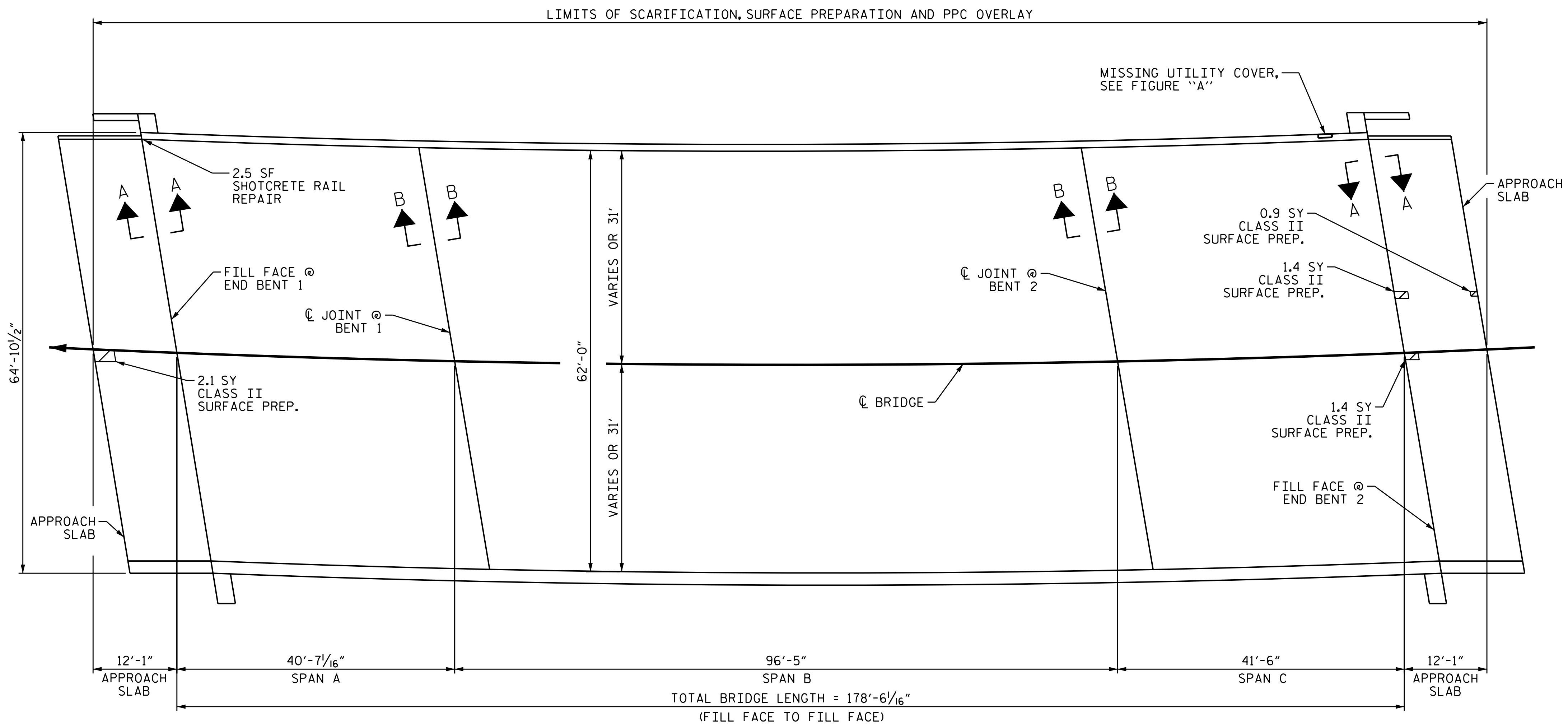
## TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
<b>SCARIFYING BRIDGE DECK</b>		
APPROACH SLAB 1	84 SQ. YDS.	
SPAN A	280 SQ. YDS.	
SPAN B	665 SQ. YDS.	
SPAN C	286 SQ. YDS.	
APPROACH SLAB 2	84 SQ. YDS.	
<b>CLASS II SURFACE PREPARATION</b>		
APPROACH SLAB 1	2.1 SQ. YDS.	
SPAN A	0.0 SQ. YDS.	
SPAN B	0.0 SQ. YDS.	
SPAN C	0.0 SQ. YDS.	
APPROACH SLAB 2	3.7 SQ. YDS.	
<b>CONCRETE DECK REPAIR FOR PPC OVERLAY</b>		
APPROACH SLAB 1	2.1 SQ. YDS.	
SPAN A	0.0 SQ. YDS.	
SPAN B	0.0 SQ. YDS.	
SPAN C	0.0 SQ. YDS.	
APPROACH SLAB 2	3.7 SQ. YDS.	
<b>SHOTBLASTING BRIDGE DECK</b>		
APPROACH SLAB 1	84 SQ. YDS.	
SPAN A	280 SQ. YDS.	
SPAN B	665 SQ. YDS.	
SPAN C	286 SQ. YDS.	
APPROACH SLAB 2	84 SQ. YDS.	
<b>PPC MATERIALS</b>		
APPROACH SLAB 1	4.1 CU. YDS.	
SPAN A	13.7 CU. YDS.	
SPAN B	32.4 CU. YDS.	
SPAN C	14.0 CU. YDS.	
APPROACH SLAB 2	4.1 CU. YDS.	
<b>PLACING AND FINISHING PPC OVERLAY</b>		
APPROACH SLAB 1	84 SQ. YDS.	
SPAN A	280 SQ. YDS.	
SPAN B	665 SQ. YDS.	
SPAN C	286 SQ. YDS.	
APPROACH SLAB 2	84 SQ. YDS.	
<b>GROOVING BRIDGE FLOORS</b>		
APPROACH SLAB 1	702 SQ. FT.	
SPAN A	2366 SQ. FT.	
SPAN B	5661 SQ. FT.	
SPAN C	2420 SQ. FT.	
APPROACH SLAB 2	702 SQ. FT.	

## SHOTCRETE REPAIRS

	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CONCRETE BARRIER RAIL	2.5	0.9		

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.



## PLAN

## 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 SECTION B-B, SEE "JOINT DETAILS" SHEET.

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

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

CONTRACTOR TO DETERMINE SIZE OF MISSING UTILITY COVER PLATE, SEE FIGURE A.

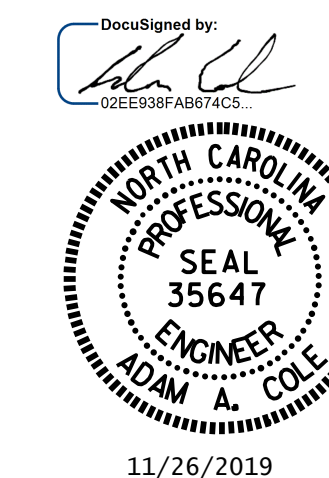
/// APPROX. CLASS II SURFACE PREPARATION

■ SHOTCRETE RAIL REPAIR



FIGURE A

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590222



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS

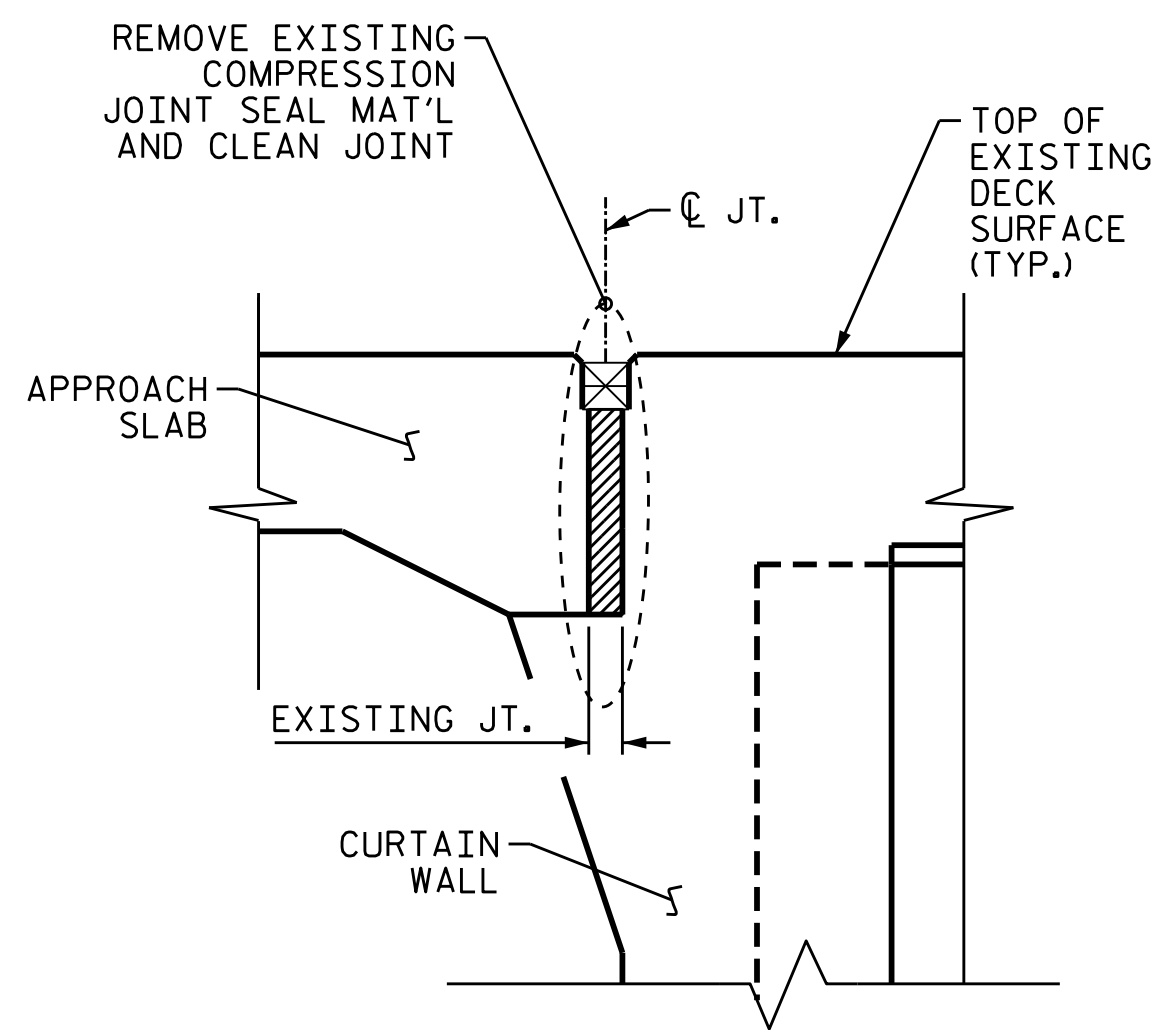
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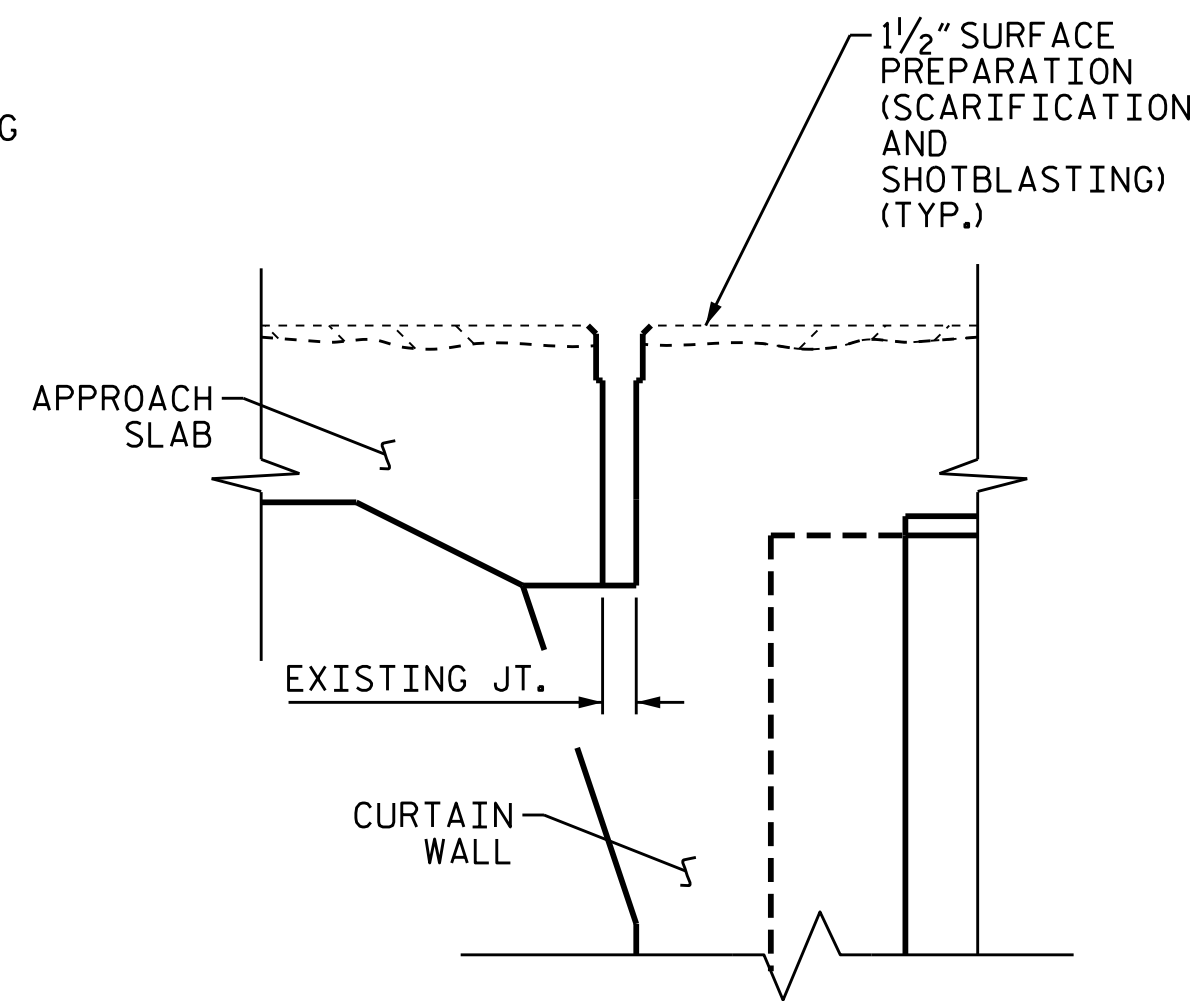
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S2-03  
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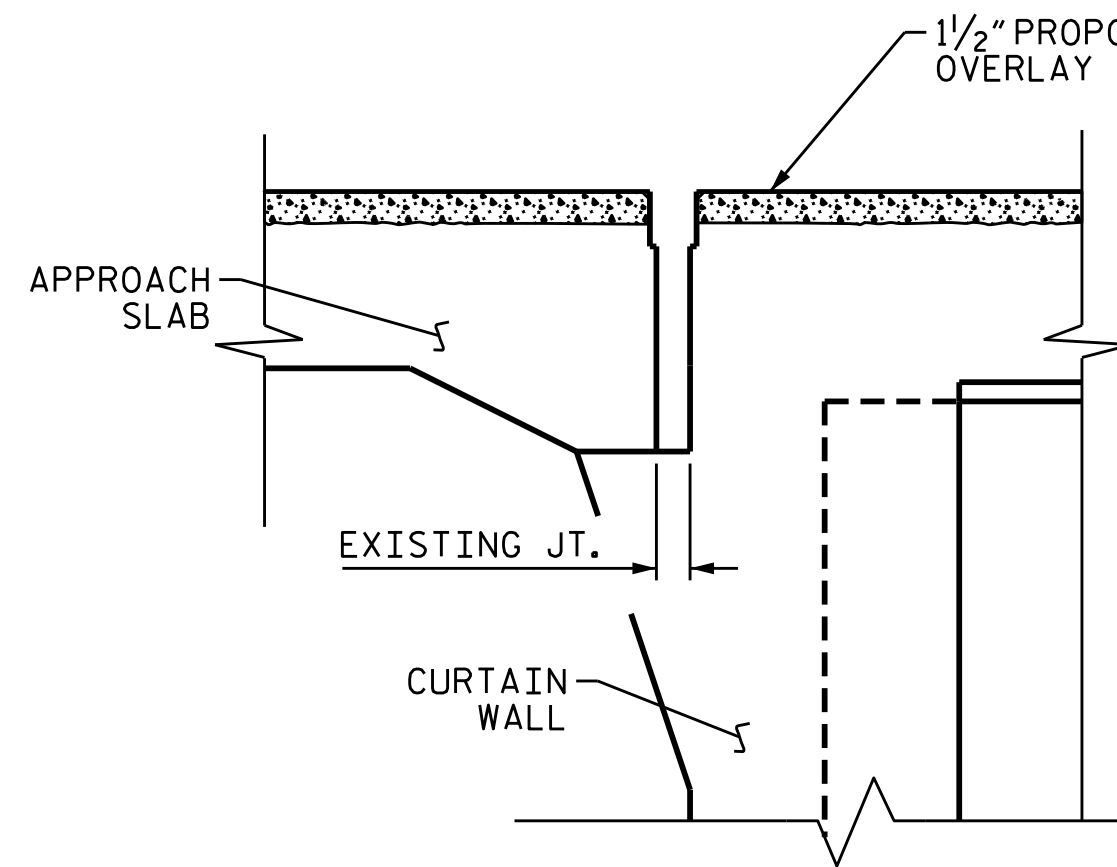
DRAWN BY : D.A. CANTRELL DATE : 08/2018  
 CHECKED BY : A. SORENGINH DATE : 02/2019



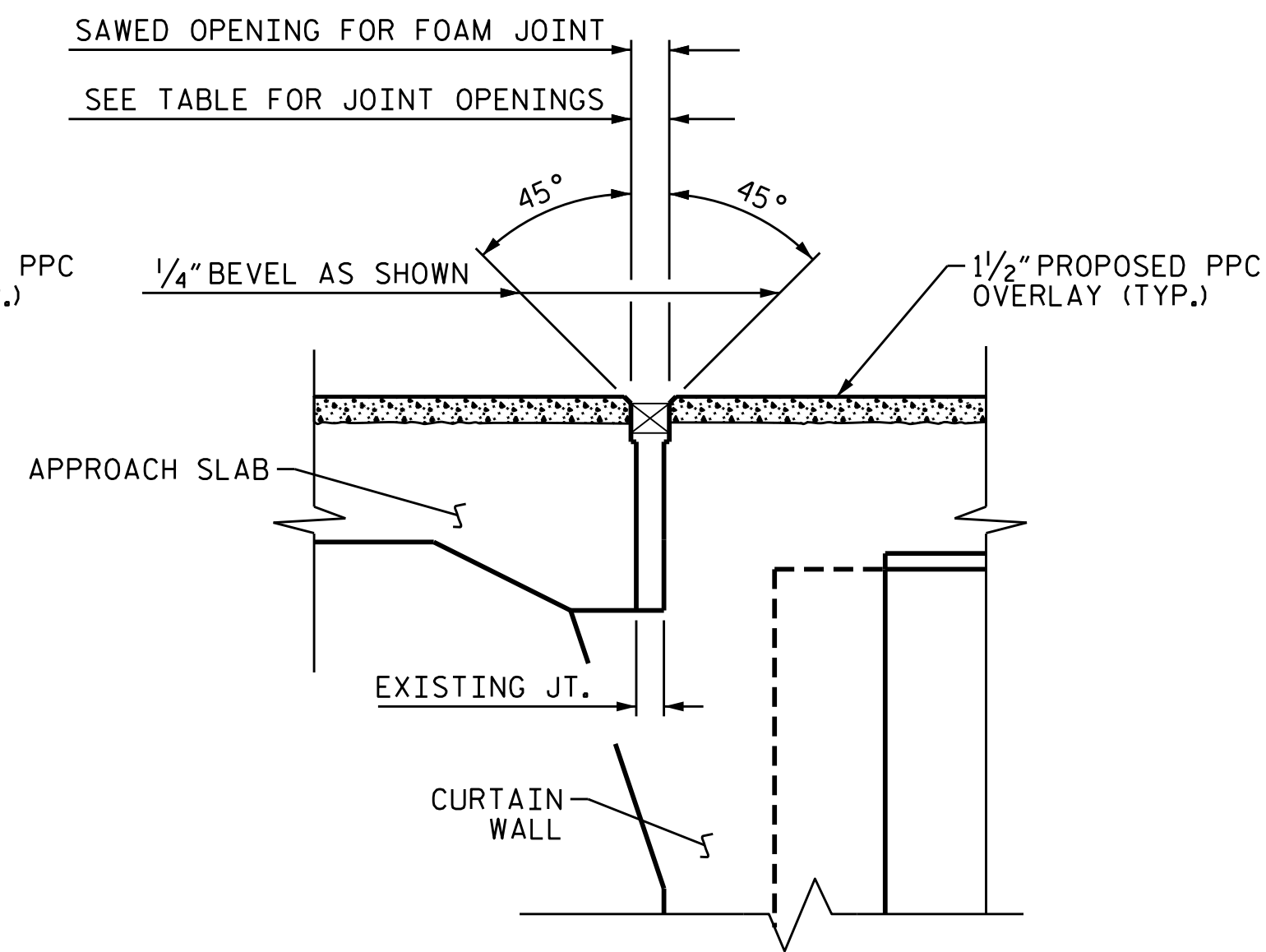
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

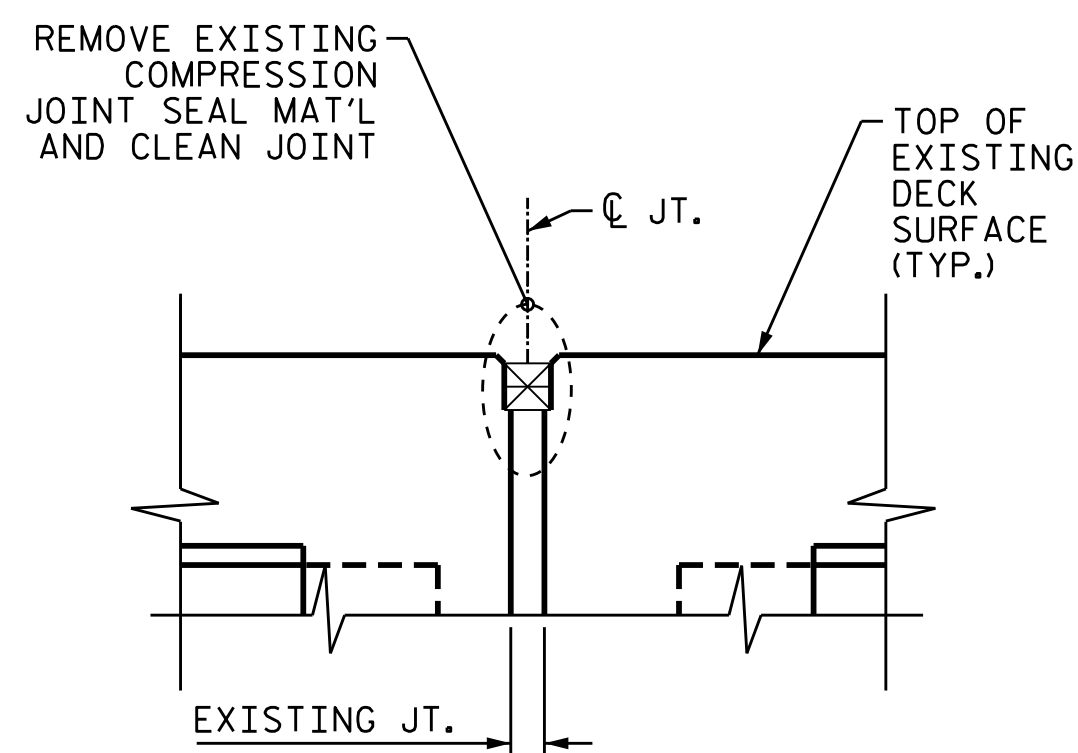


PROPOSED JOINT PRE-SAWED

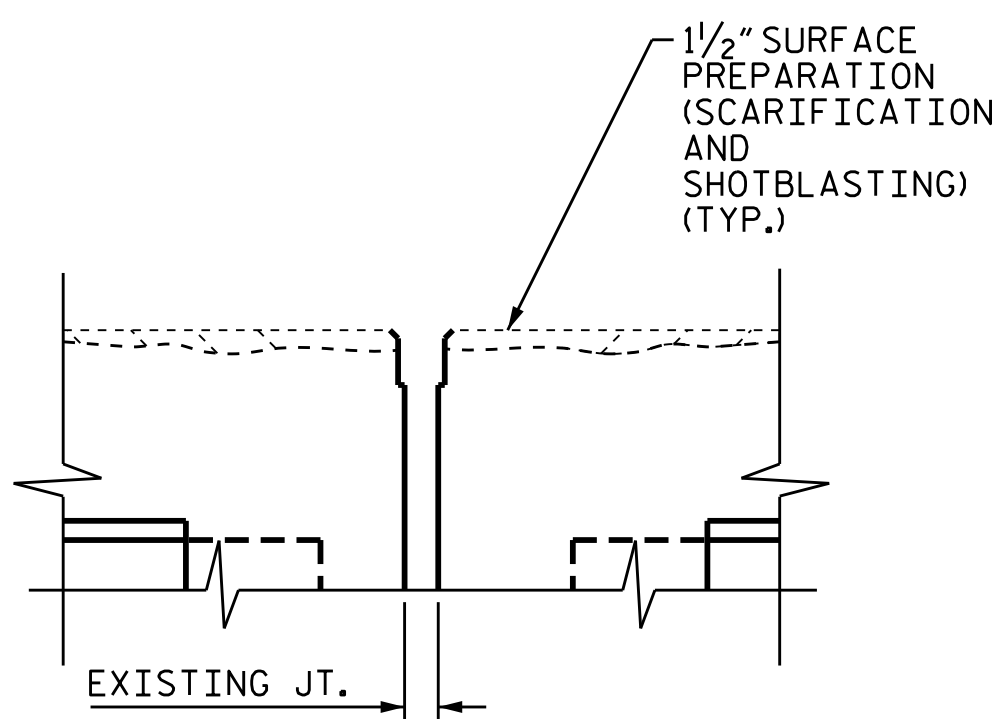


PROPOSED FOAM JOINT SEAL

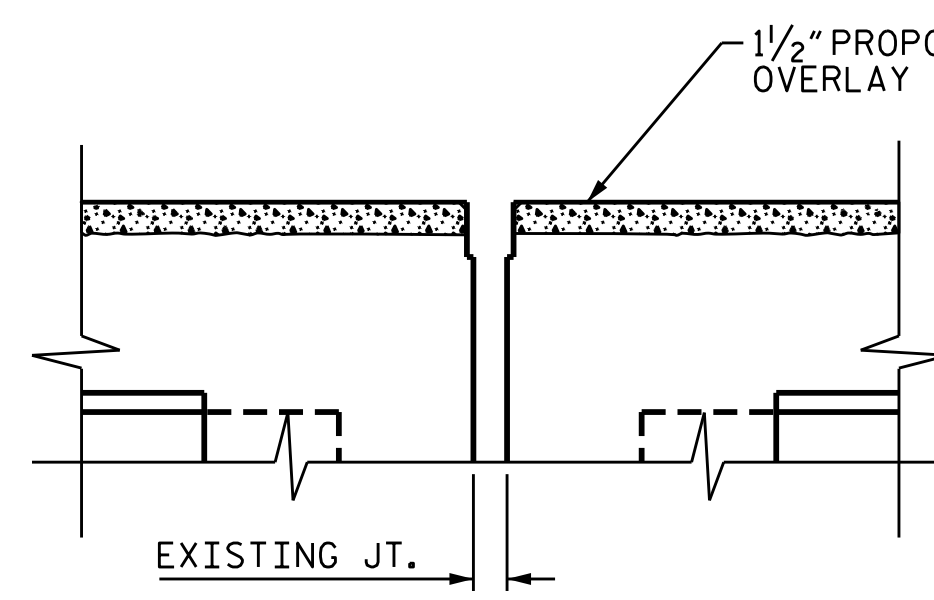
SECTION A-A  
(TYP. AT END BENTS)



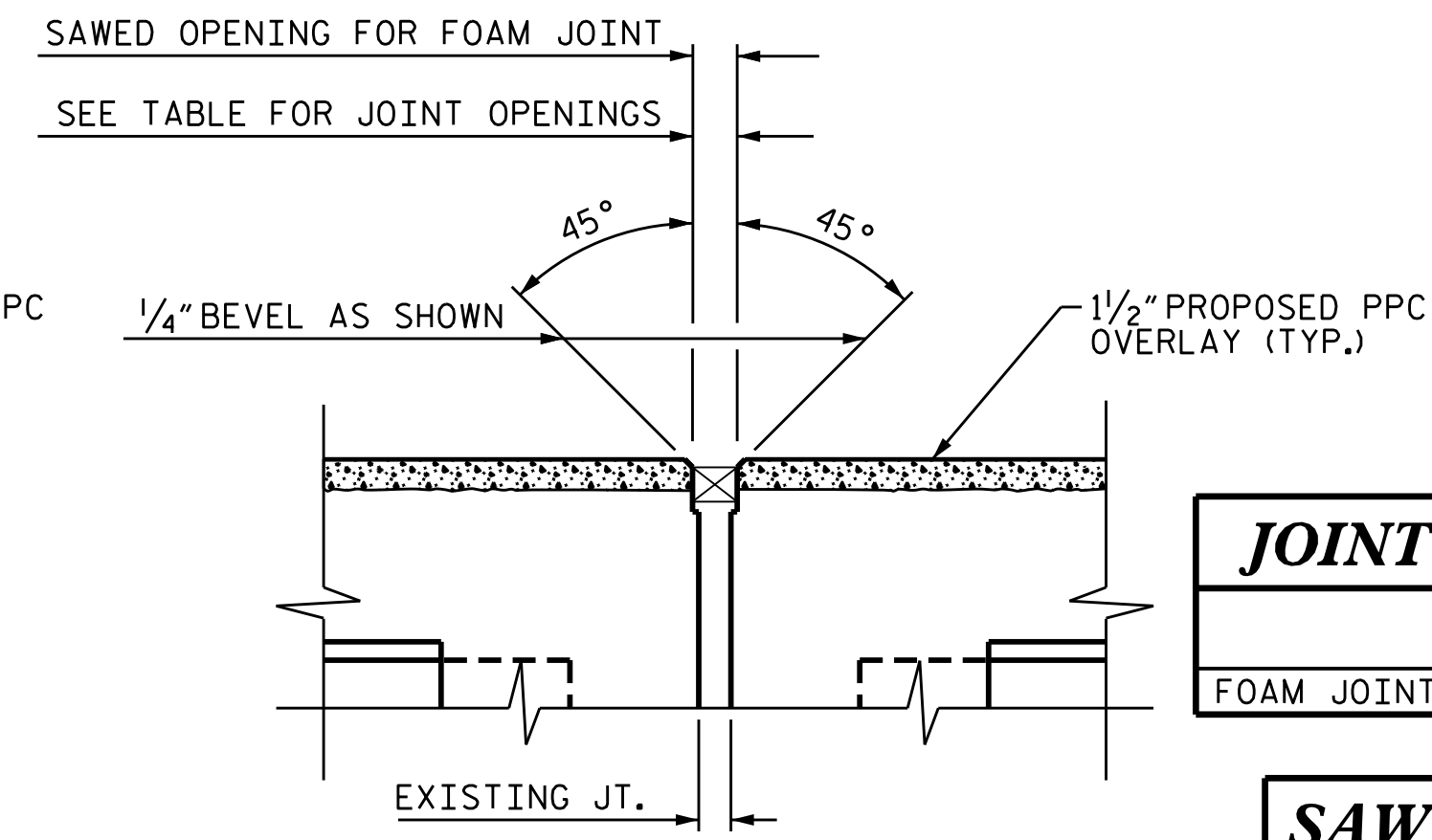
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

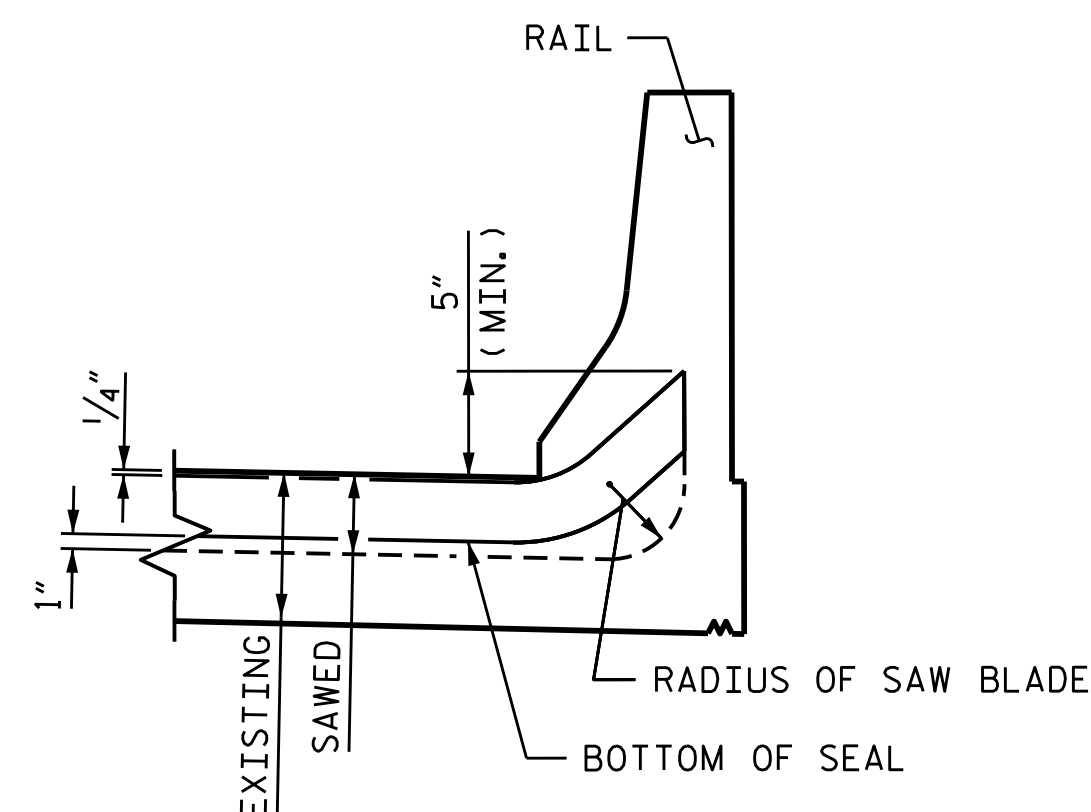
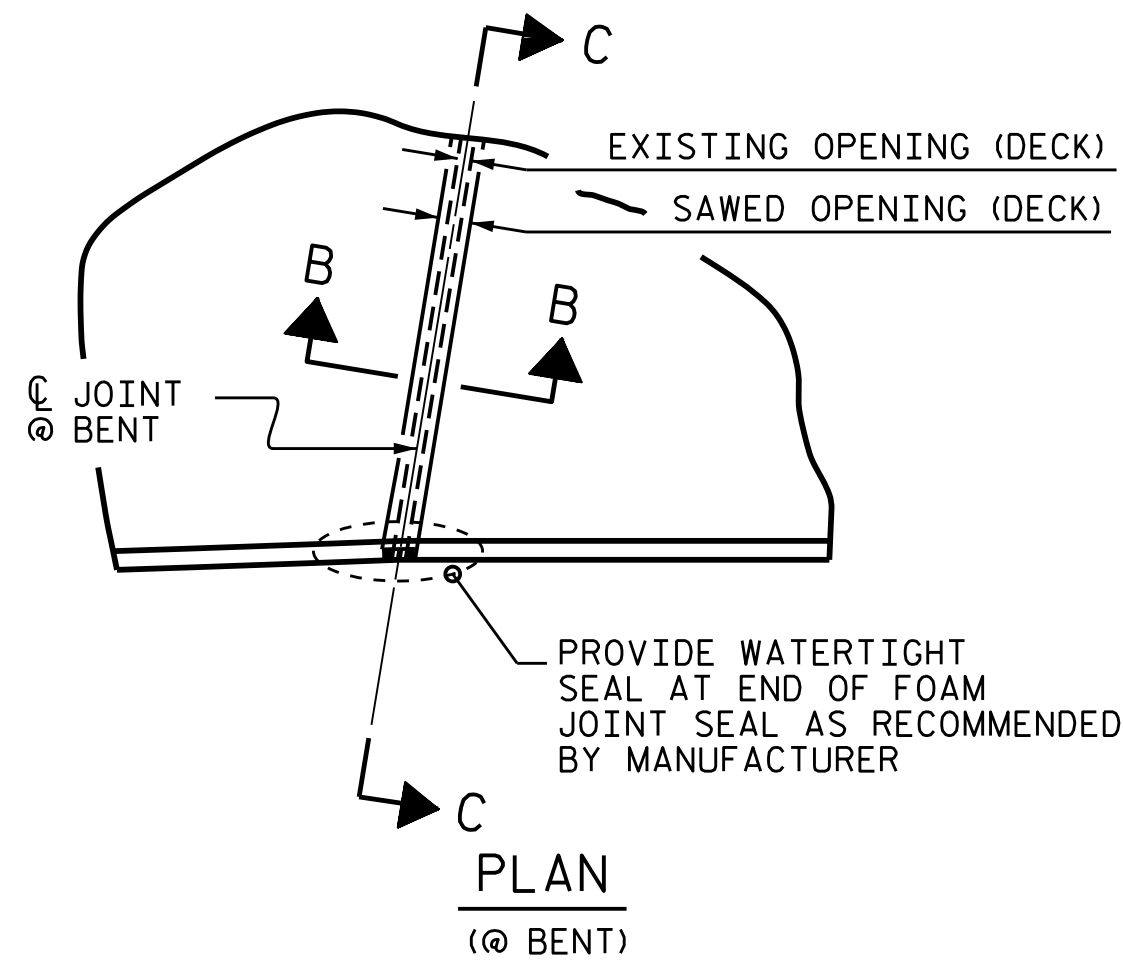
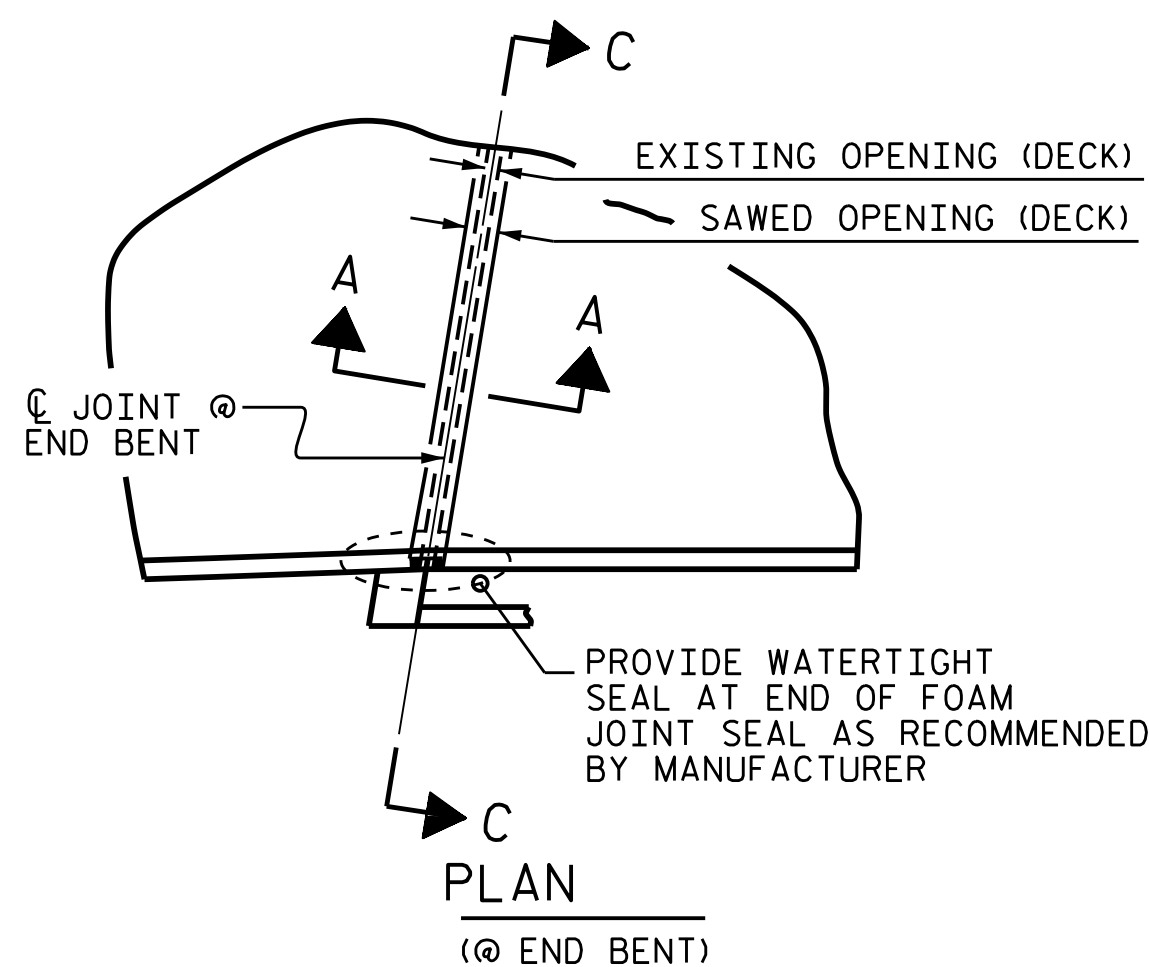


PROPOSED JOINT PRE-SAWED



PROPOSED FOAM JOINT SEAL

SECTION B-B  
(TYP. AT BENTS)



SECTION C-C

NOTES

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

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

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

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

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

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

THE INSTALLED FOAM JOINTS SHALL BE WATER TIGHT.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

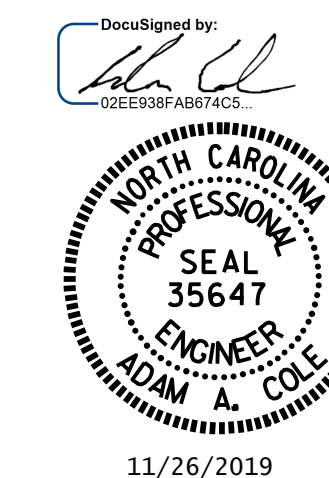
JOINT REPAIR QUANTITY TABLE

	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	252 LF	

SAWED JOINT OPENING TABLE

LOCATION	TOTAL MOVEMENT (ALONG CL RDY)	SAWED JT. OPENING (PERPENDICULAR TO JT.)		
		AT 45°	AT 60°	AT 90°
END BENT 1			2"	
BENT 1	5/16"	1 5/8"	1 9/16"	1 1/2"
BENT 2	1 1/16"	2 1/2"	1 9/16"	2"
END BENT 2			2"	

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
BRIDGE NO. 590222



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARDS

FOAM JOINT SEAL  
DETAILS FOR PPC  
OVERLAY

DRAWN BY : D.A. CANTRELL DATE : 11/2018  
CHECKED BY : A. SORENGINH DATE : 02/2019

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SIGNATURES COMPLETED

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1			3			TOTAL SHEETS
2			4			8

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	13.2	6.6		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	124			

**NOTES**

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

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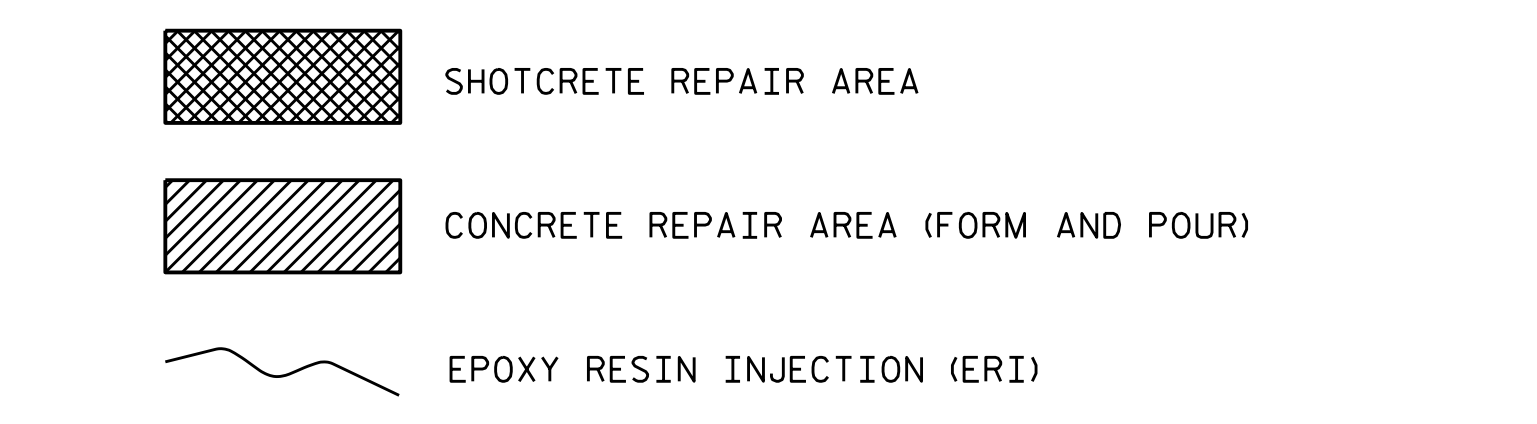
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

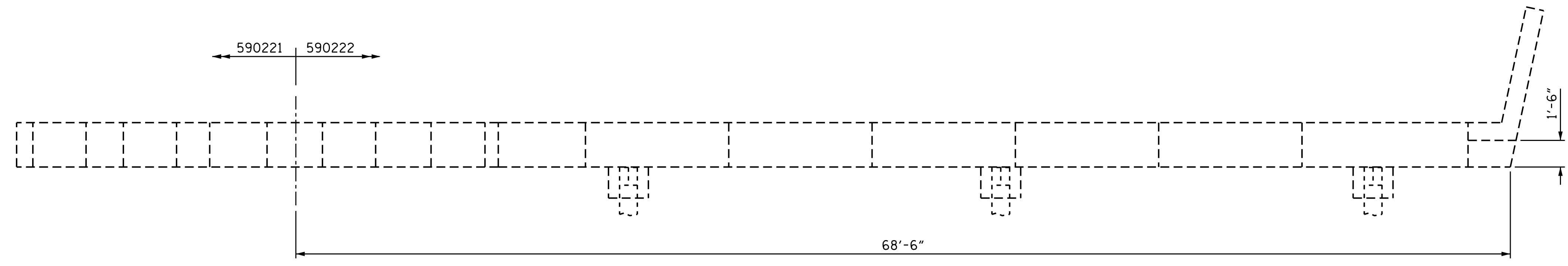


PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590222

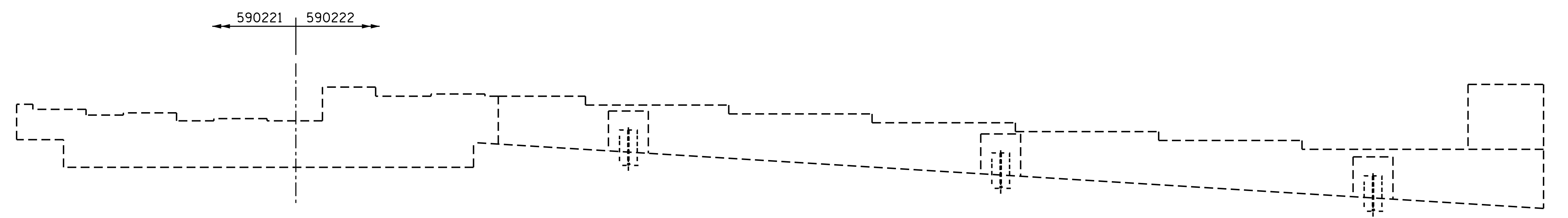
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 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 1

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			8

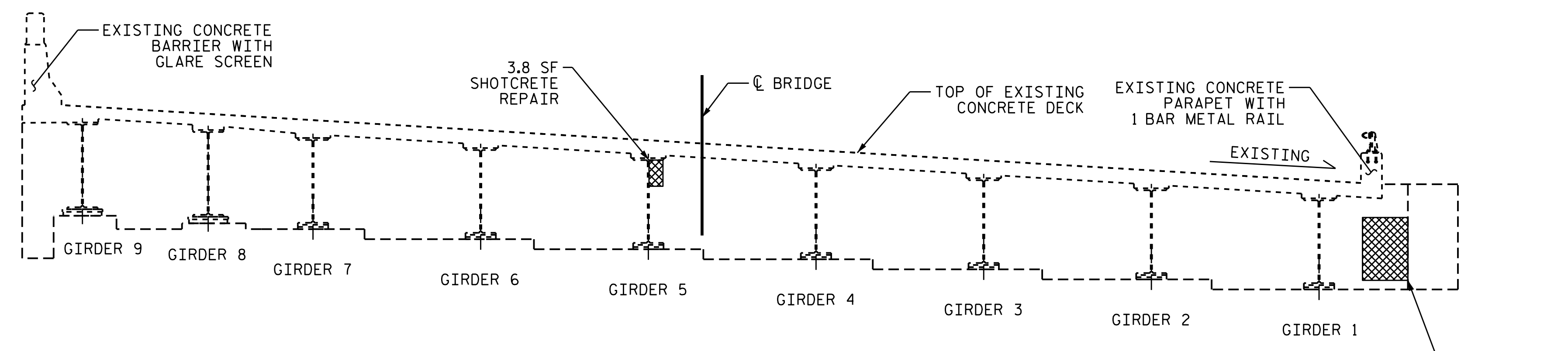
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PLAN



ELEVATION



TYPICAL SECTION

DRAWN BY : D.A. CANTRELL DATE : 09/2018  
 CHECKED BY : A. SORENGINH DATE : 02/2019

AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	14.7	7.4		
COLUMN	6.4	3.2		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	1.8	0.9		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	186			

**NOTES**

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT UTILITY LINES AND LIGHTING ARE ATTACHED TO THE STRUCTURE.

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

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

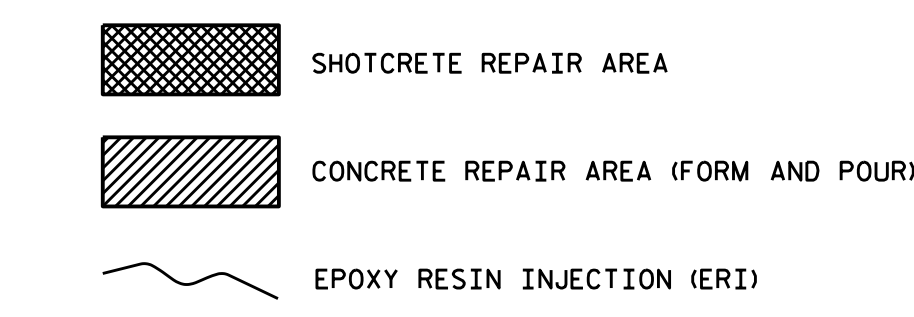
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

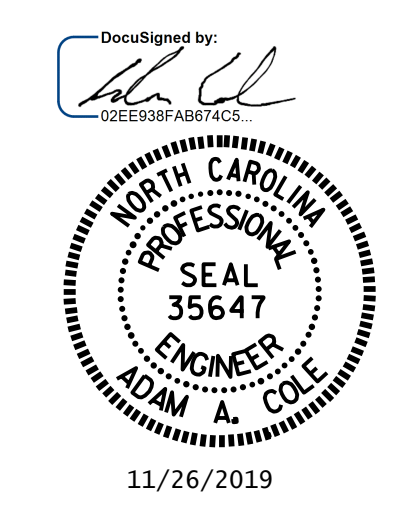
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

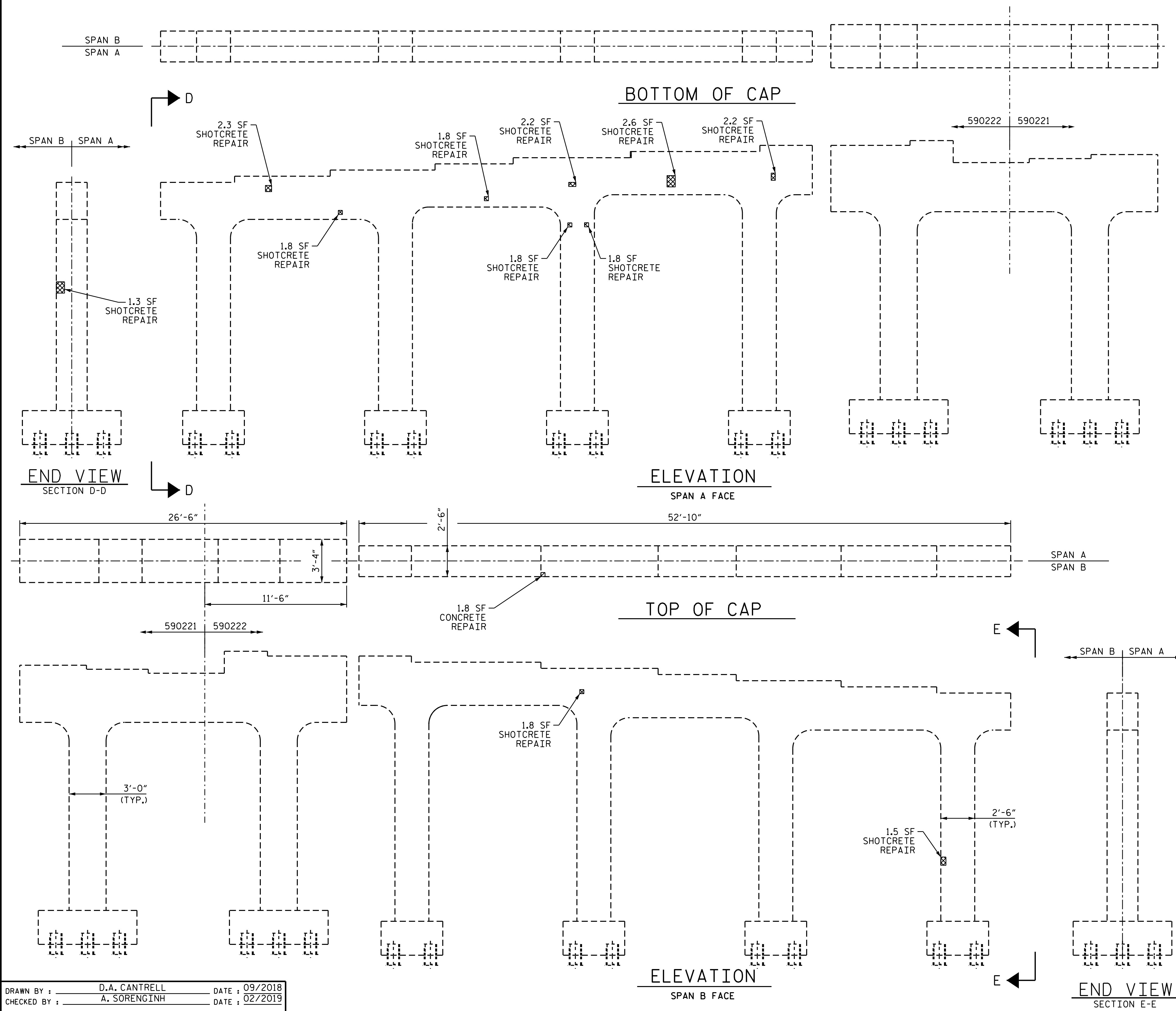


PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590222



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-06
1			3			TOTAL SHEETS
2			4			8



DRAWN BY : D.A. CANTRELL DATE : 09/2018  
 CHECKED BY : A. SORENGINH DATE : 02/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE				
BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	4.5	2.3		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	186			

**NOTES**

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT UTILITY LINES AND LIGHTING ARE ATTACHED TO THE STRUCTURE.

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

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

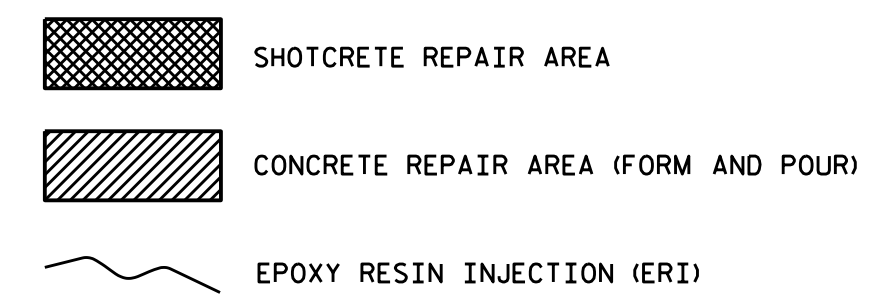
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

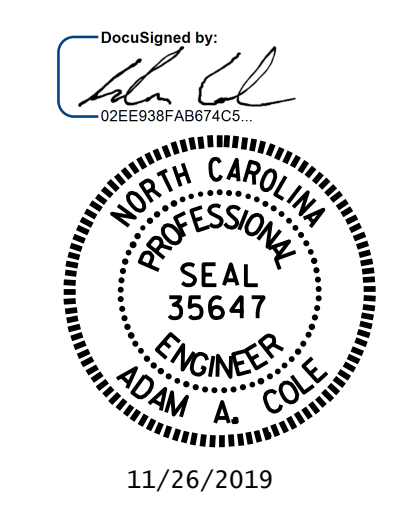
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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



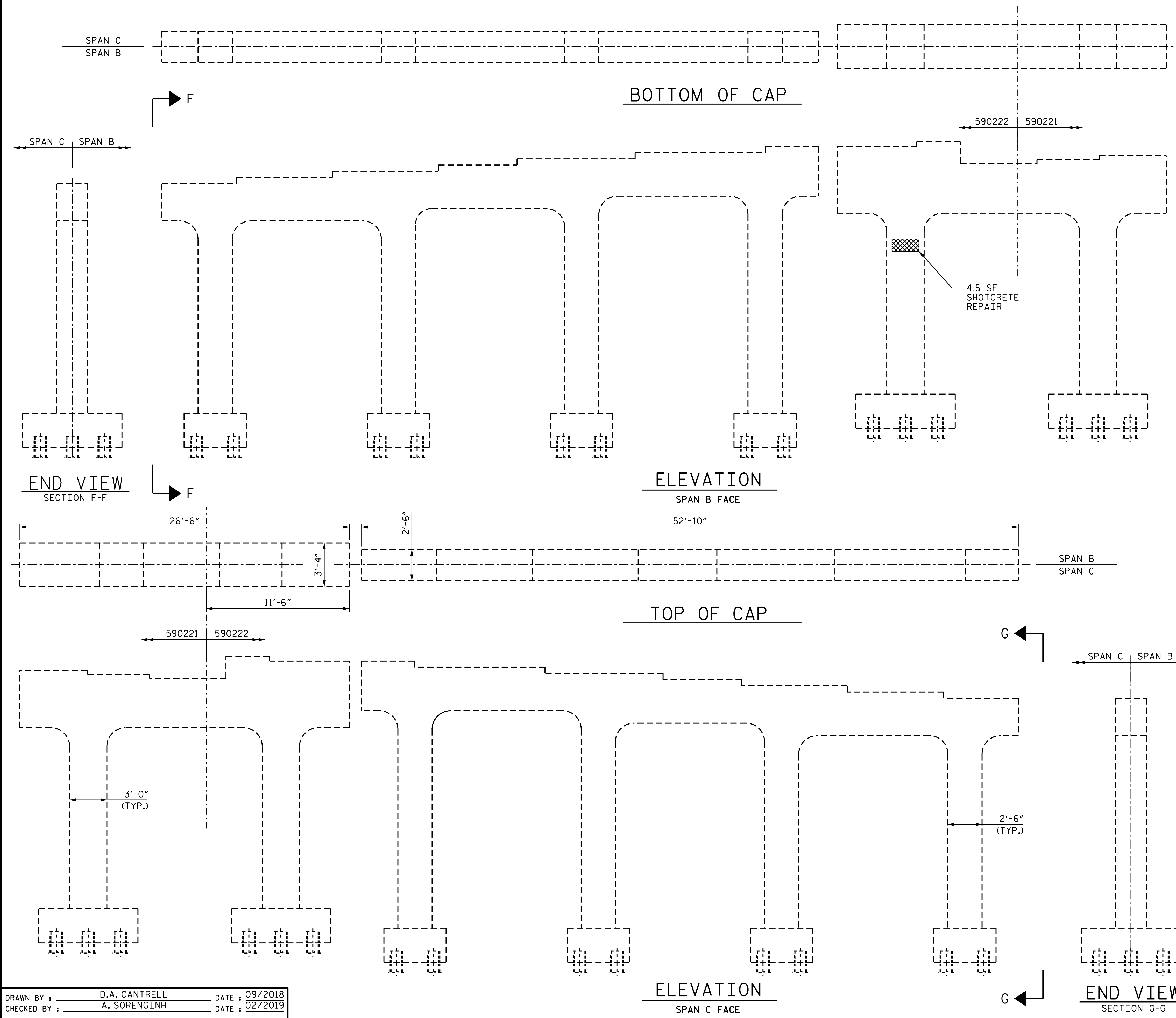
PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590222



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 2

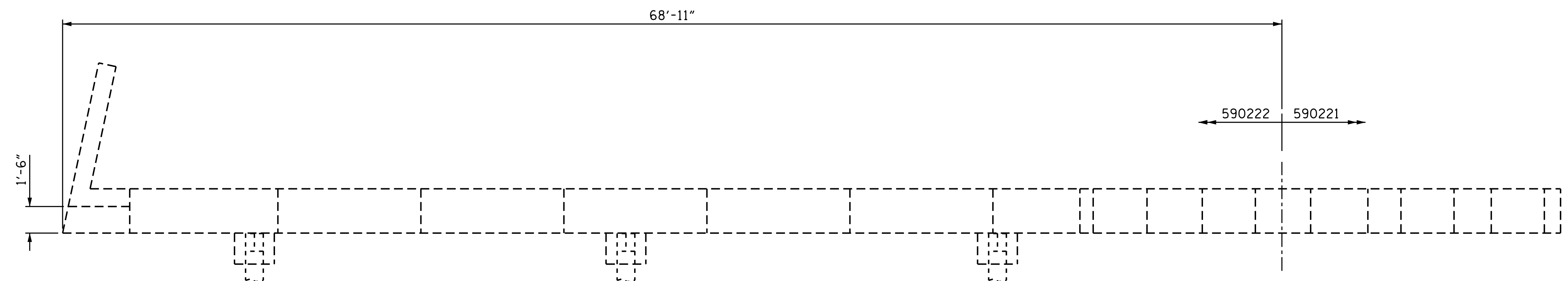
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-07
1			3			TOTAL SHEETS
2			4			8

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

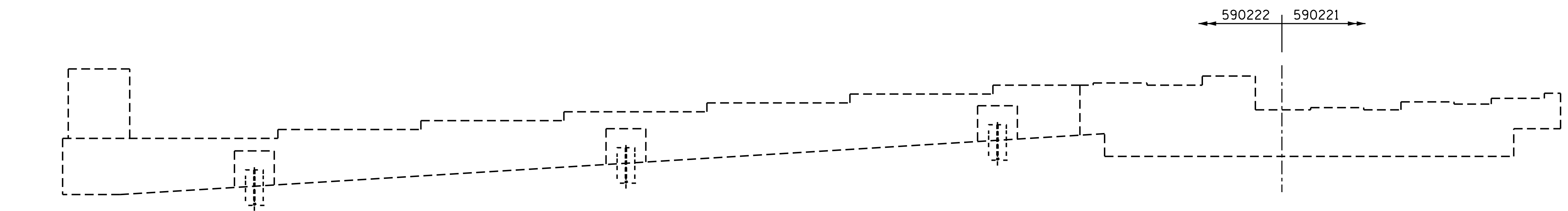


DRAWN BY : D.A. CANTRELL DATE : 09/2018  
 CHECKED BY : A. SORENGINH DATE : 02/2019

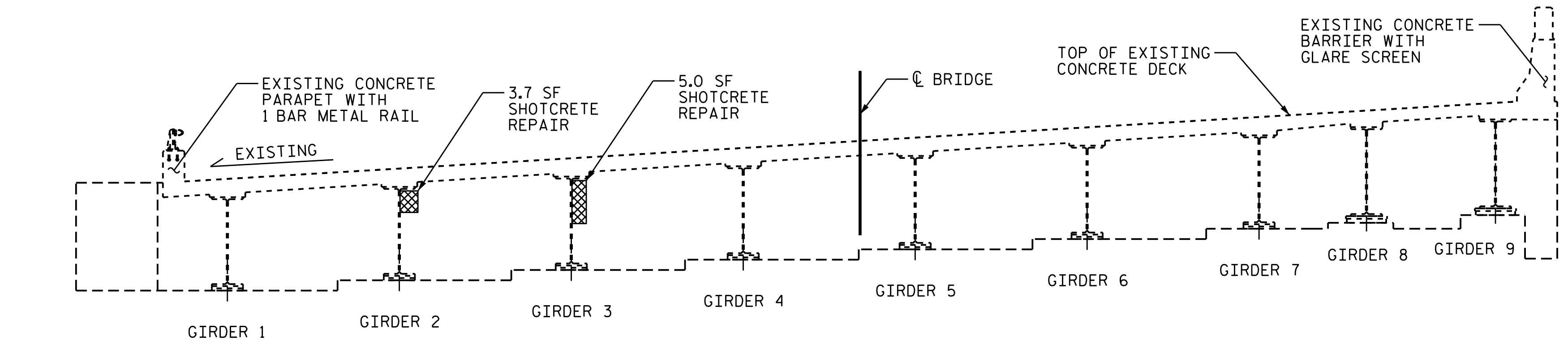
AS-BUILT REPAIR QUANTITY TABLE				
END BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	8.7	4.4		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	124			



PLAN



ELEVATION



TYPICAL SECTION

**NOTES**

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

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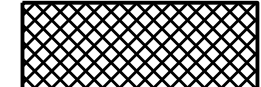
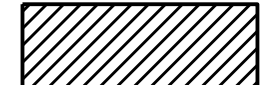

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

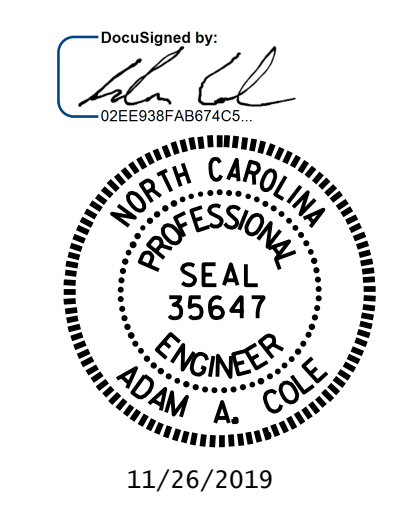
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590222



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

DRAWN BY : D.A. CANTRELL DATE : 09/2018  
 CHECKED BY : A. SORENGINH DATE : 02/2019

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
	BY:	DATE:			BY:	DATE:		
1				3			S2-08	
2				4			TOTAL SHEETS 8	

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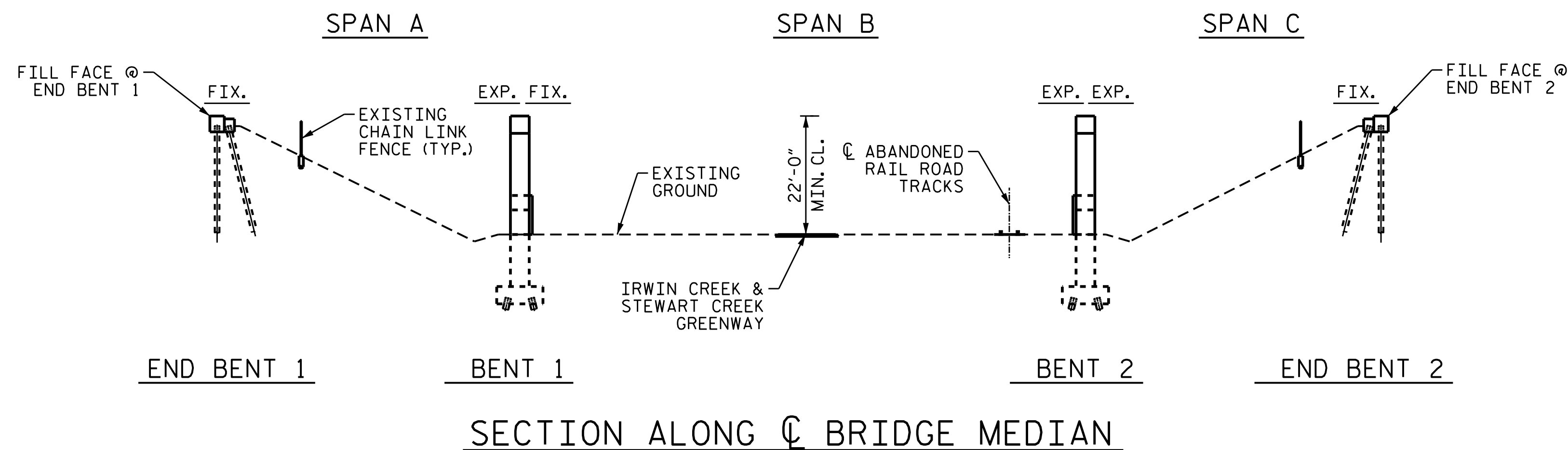
**NOTES**

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 09/18/2018.

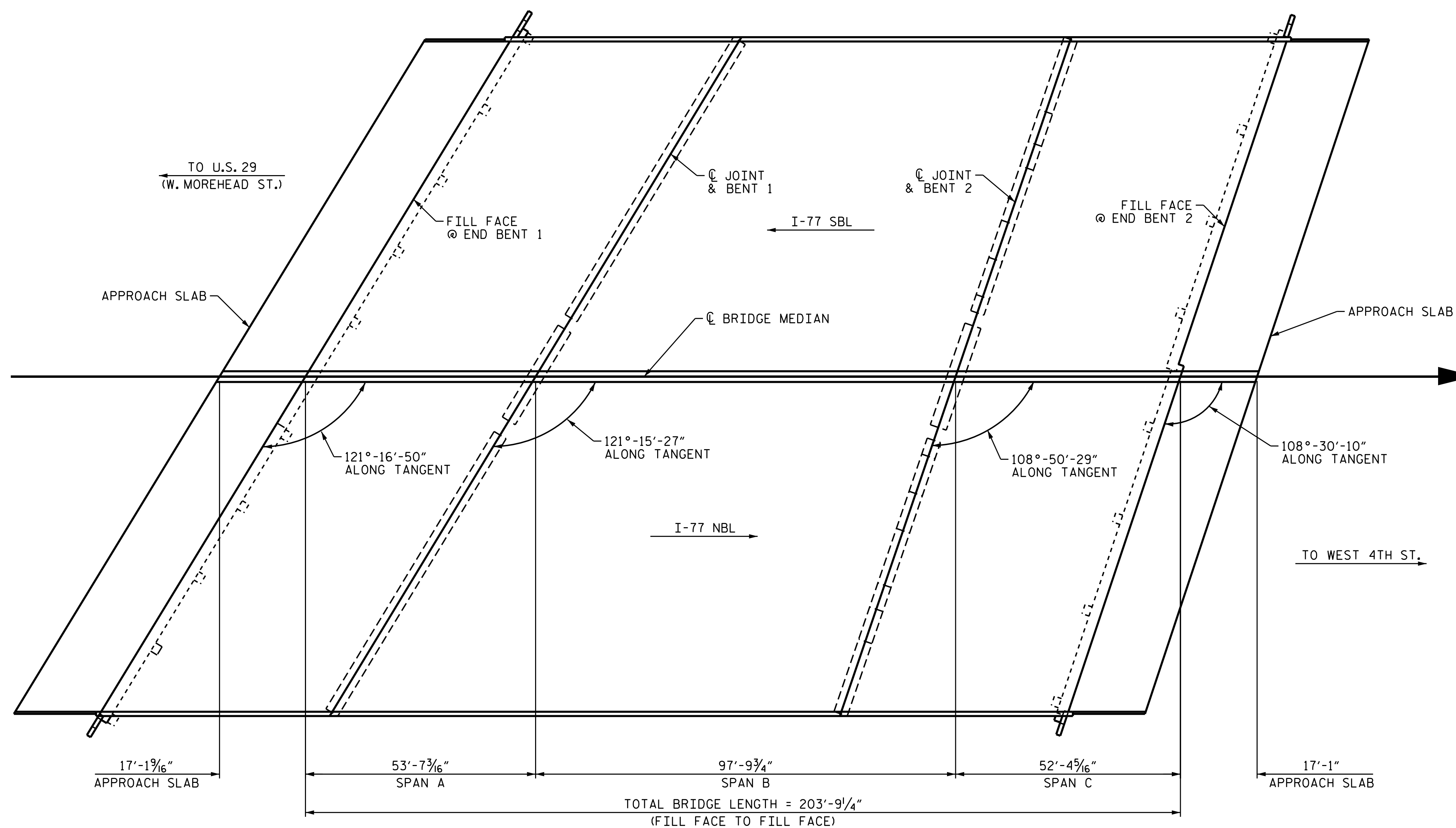
BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

**SCOPE OF WORK**

- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC).
- REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
- GROOVE PPC BRIDGE DECK.
- CLEAN AND REPAINT EXISTING STRUCTURAL STEEL.
- REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS, AND APPLY EPOXY COATING.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIR.
- REPAIR EXISTING SLOPES AND PLACE SLOPE PROTECTION MATERIALS.



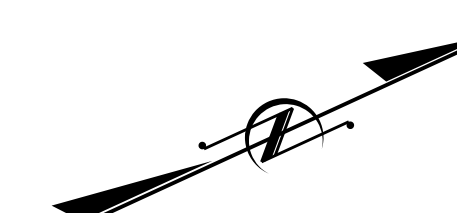
**SECTION ALONG Q BRIDGE MEDIAN**



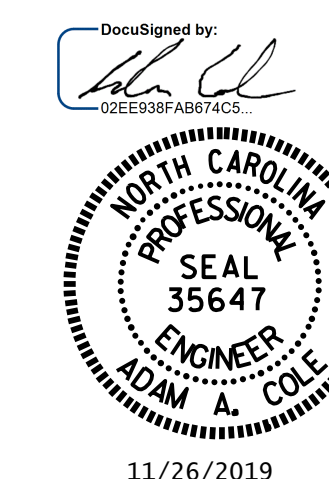
**PLAN**  
(FOUNDATIONS NOT SHOWN FOR CLARITY)

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

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



PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590227



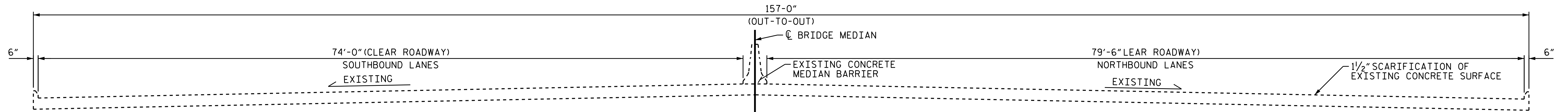
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**  
 BRIDGE ON I-77 OVER  
 GREENWAY TRAIL BETWEEN  
 U.S. 29 (W. MOREHEAD ST.)  
 AND WEST 4TH STREET

DRAWN BY : N.A. PIERCE DATE : 8/2018  
 CHECKED BY : D.A. CANTRELL DATE : 12/2018

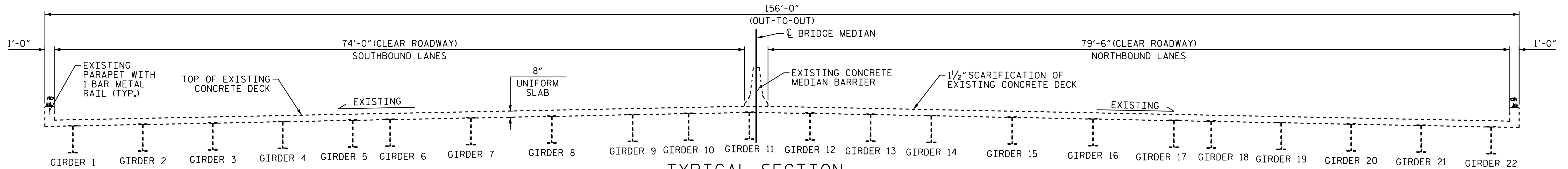
DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-01
1			3			TOTAL SHEETS
2			4			13



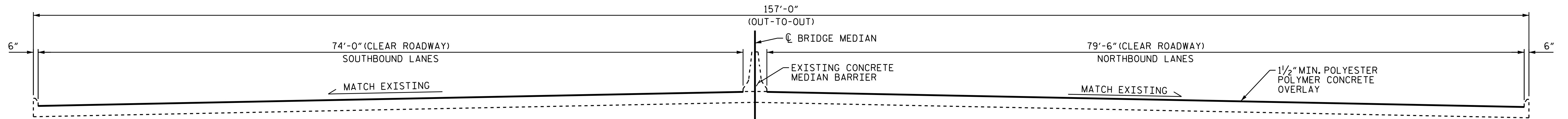
TYPICAL SECTION - APPROACH SLAB

(EXISTING)



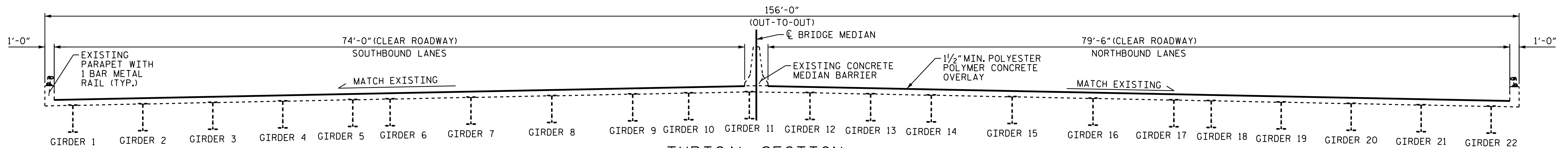
TYPICAL SECTION

(EXISTING)



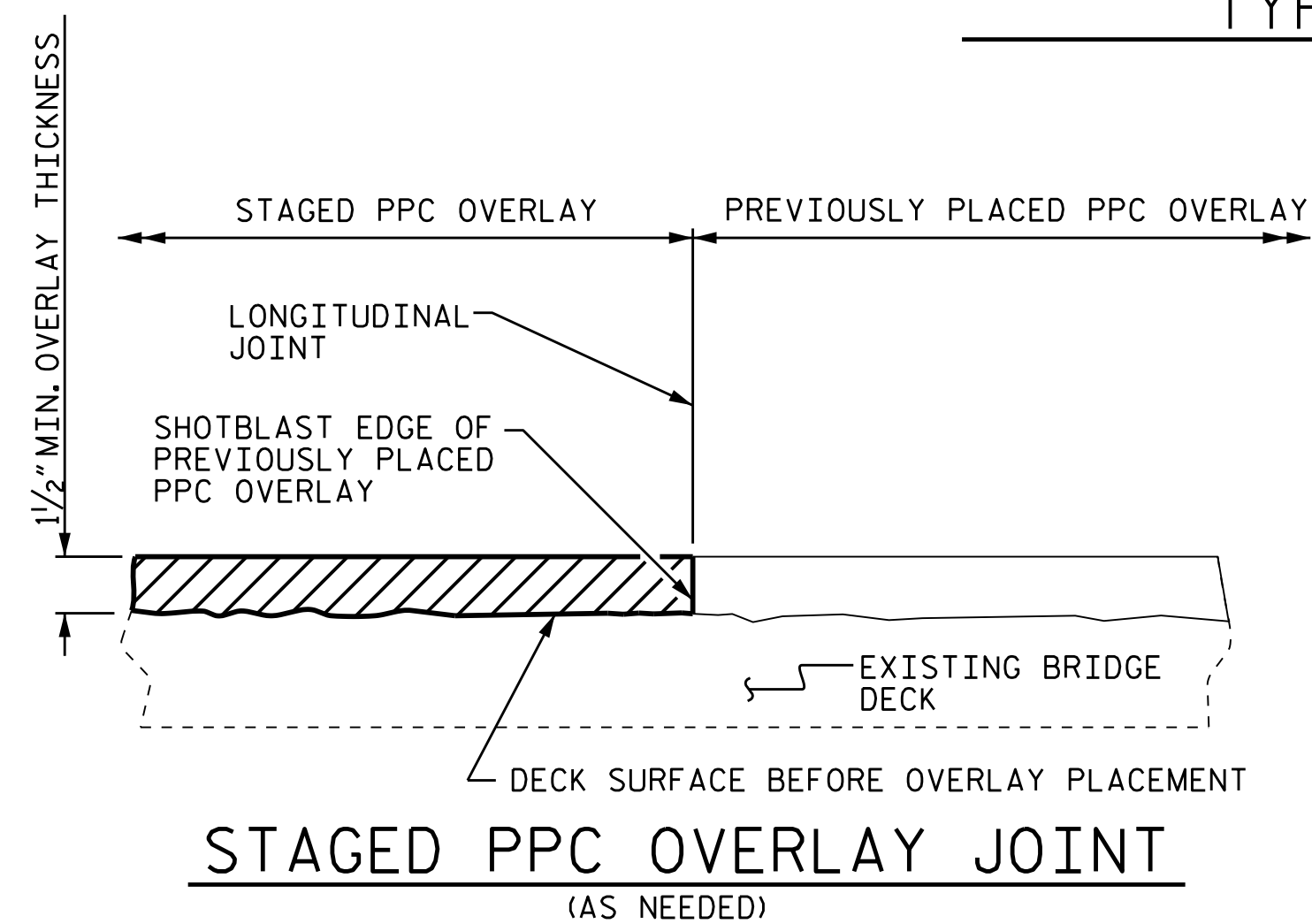
TYPICAL SECTION - APPROACH SLAB

(PROPOSED)



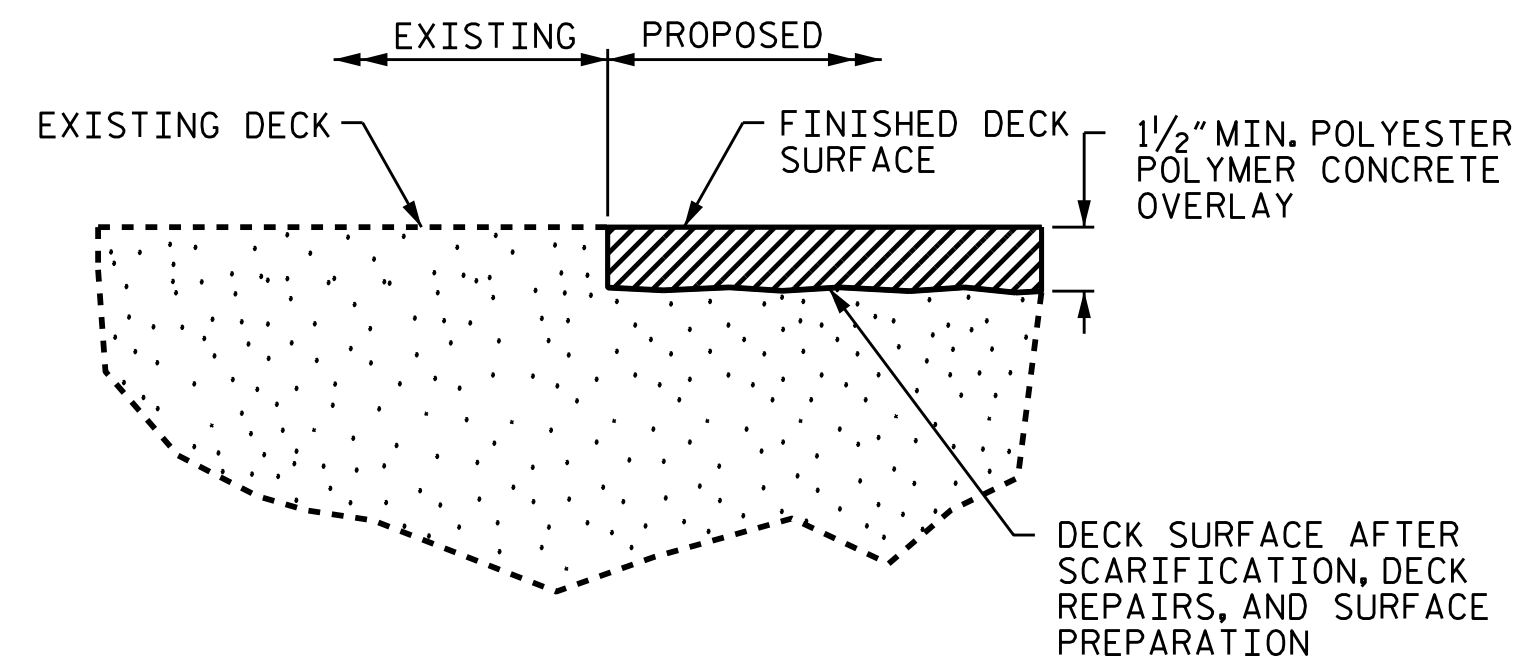
TYPICAL SECTION

(PROPOSED)



STAGED PPC OVERLAY JOINT

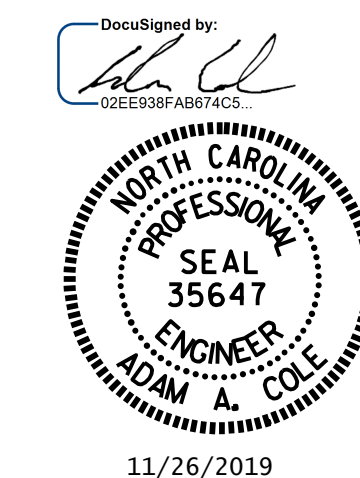
(AS NEEDED)



DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

FINISHED SURFACE ELEVATION SHALL MATCH EXISTING CONCRETE SURFACE ELEVATION. ACTUAL THICKNESS OF PPC OVERLAY MAY VARY.

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590227



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

DRAWN BY : N.A. PIERCE DATE : 08/2018  
 CHECKED BY : C.A. CANTRELL DATE : 12/2018

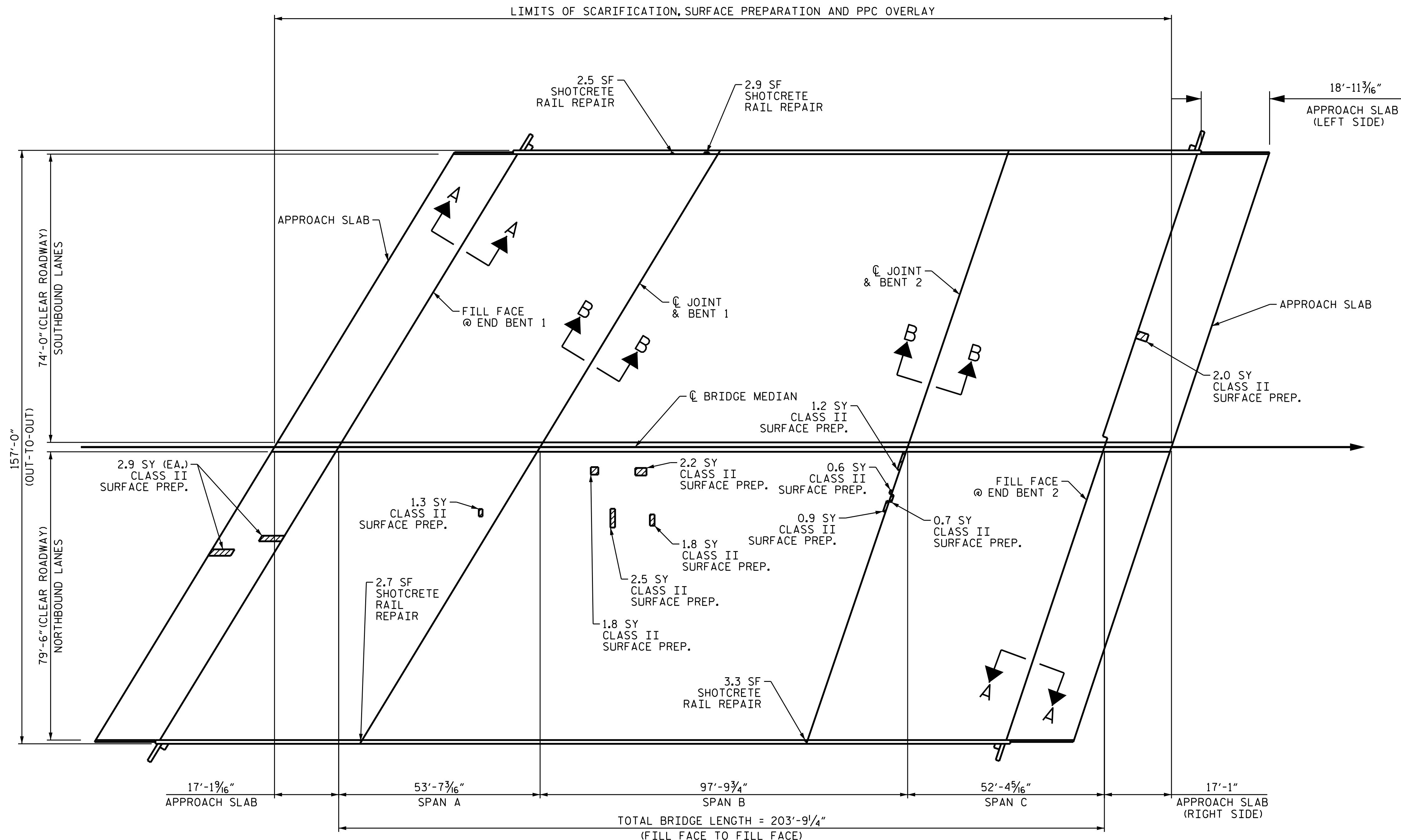
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 FINAL UNLESS ALL  
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REVISIONS						SHEET NO. S3-02
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 13
2			4			

# AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
<b>SCARIFYING BRIDGE DECK</b>				
APPROACH SLAB 1	290 SQ. YDS.			
SPAN A	909 SQ. YDS.			
SPAN B	1671 SQ. YDS.			
SPAN C	875 SQ. YDS.			
APPROACH SLAB 2	305 SQ. YDS.			
<b>CLASS II SURFACE PREPARATION</b>				
APPROACH SLAB 1	5.8 SQ. YDS.			
SPAN A	1.3 SQ. YDS.			
SPAN B	11.0 SQ. YDS.			
SPAN C	0.7 SQ. YDS.			
APPROACH SLAB 2	2.0 SQ. YDS.			
<b>CONCRETE DECK REPAIR FOR PPC OVERLAY</b>				
APPROACH SLAB 1	5.8 SQ. YDS.			
SPAN A	1.3 SQ. YDS.			
SPAN B	11.0 SQ. YDS.			
SPAN C	0.7 SQ. YDS.			
APPROACH SLAB 2	2.0 SQ. YDS.			
<b>SHOTBLASTING BRIDGE DECK</b>				
APPROACH SLAB 1	290 SQ. YDS.			
SPAN A	909 SQ. YDS.			
SPAN B	1671 SQ. YDS.			
SPAN C	875 SQ. YDS.			
APPROACH SLAB 2	305 SQ. YDS.			
<b>PPC MATERIALS</b>				
APPROACH SLAB 1	14.1 CU. YDS.			
SPAN A	44.2 CU. YDS.			
SPAN B	81.2 CU. YDS.			
SPAN C	42.5 CU. YDS.			
APPROACH SLAB 2	14.8 CU. YDS.			
<b>PLACING AND FINISHING PPC OVERLAY</b>				
APPROACH SLAB 1	290 SQ. YDS.			
SPAN A	909 SQ. YDS.			
SPAN B	1671 SQ. YDS.			
SPAN C	875 SQ. YDS.			
APPROACH SLAB 2	305 SQ. YDS.			
<b>GROOVING BRIDGE FLOORS</b>				
APPROACH SLAB 1	2382 SQ. FT.			
SPAN A	7684 SQ. FT.			
SPAN B	14285 SQ. FT.			
SPAN C	7404 SQ. FT.			
APPROACH SLAB 2	2522 SQ. FT.			
<b>SHOTCRETE REPAIRS</b>				
	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CONCRETE BARRIER RAIL	11.4	3.8		

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.



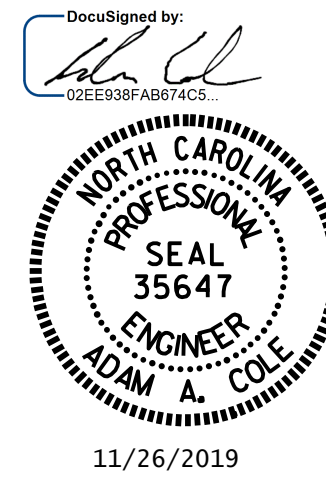
PLAN

## 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 SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.
- FOR CONCRETE DECK REPAIR FOR PPC OVERLAY, PPC MATERIALS, AND PLACING AND FINISHING PPC OVERLAY, SEE POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

- APPROX. CLASS II SURFACE PREPARATION
- SHOTCRETE RAIL REPAIR

PROJECT NO. I-5769  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590227

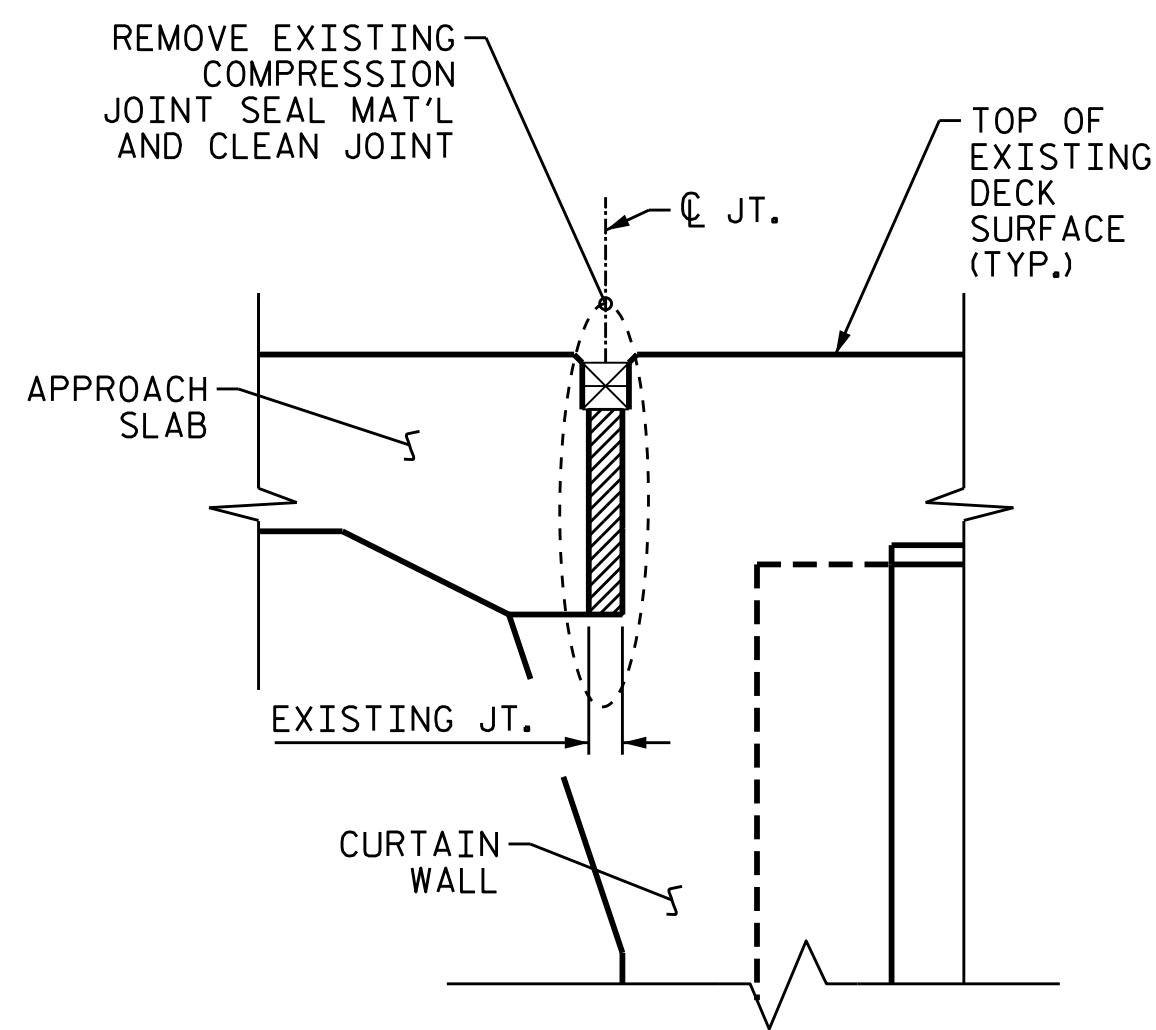


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS

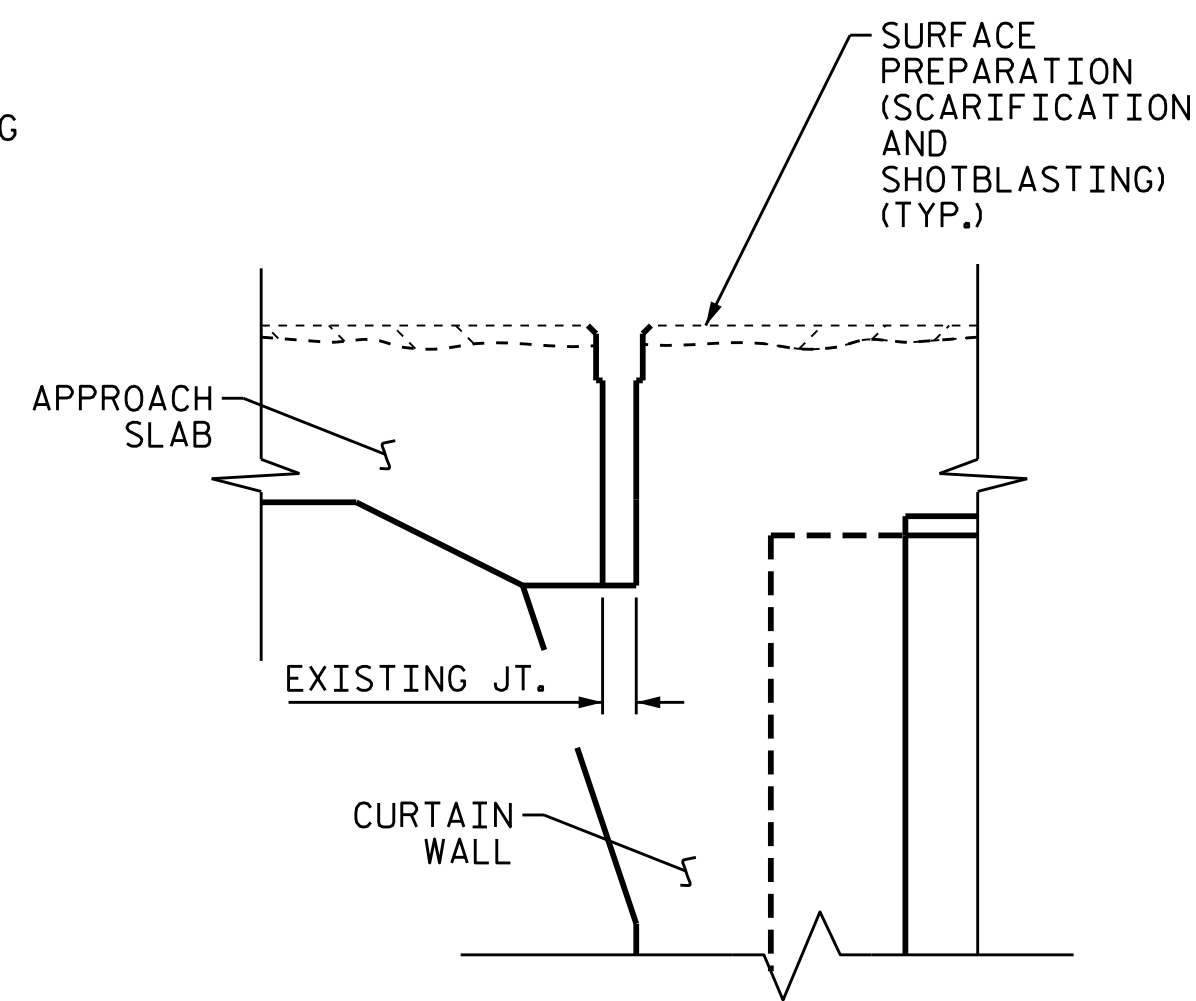
DRAWN BY : N.A. PIERCE DATE : 08/2018  
 CHECKED BY : C.A. CANTRELL DATE : 12/2018

REVISIONS						SHEET NO. S3-03 TOTAL SHEETS 13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

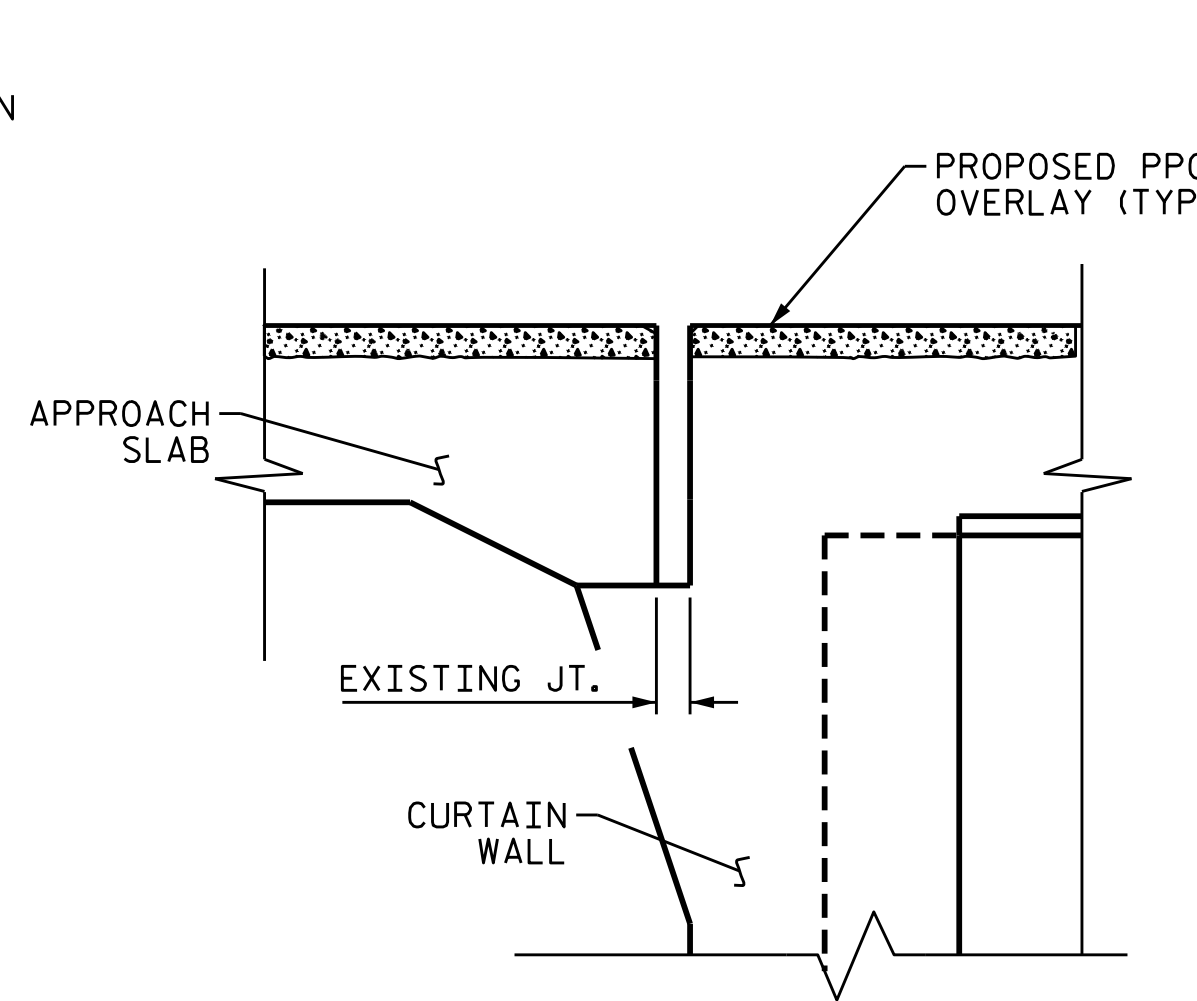
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



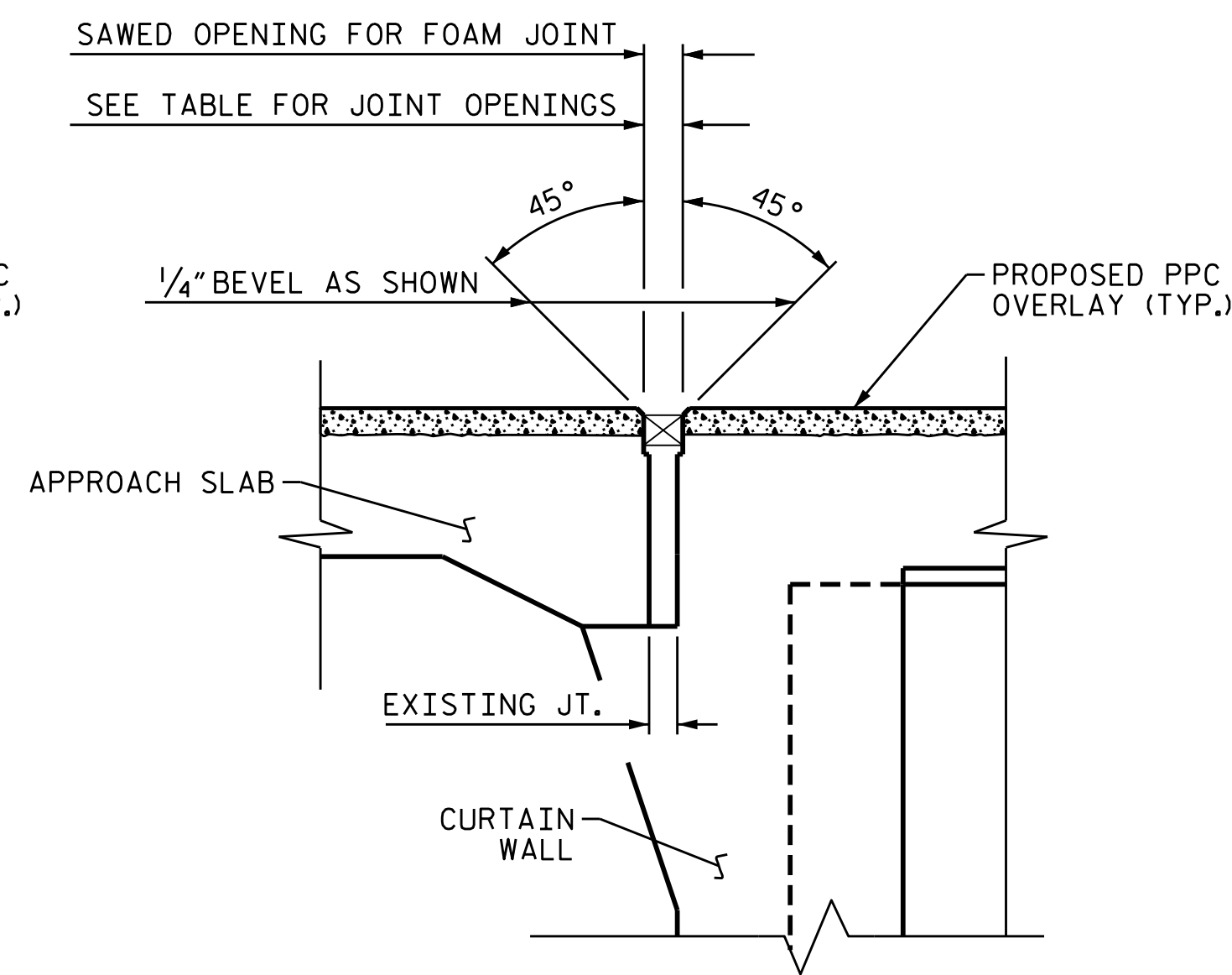
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

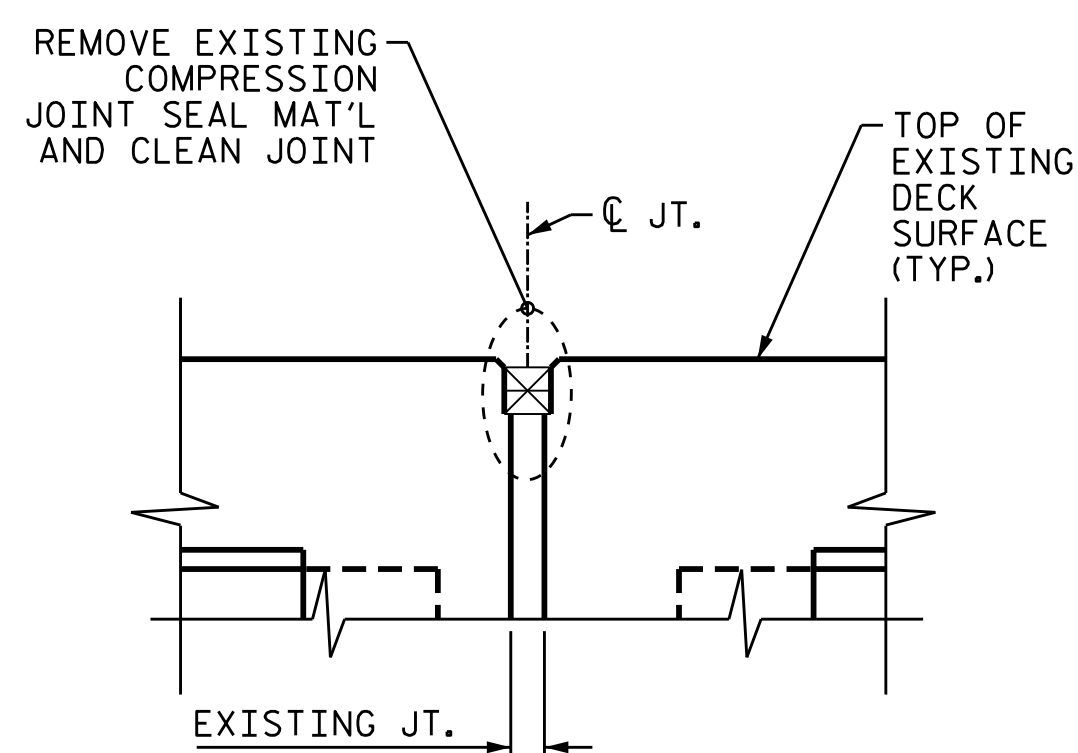


PROPOSED JOINT PRE-SAWED

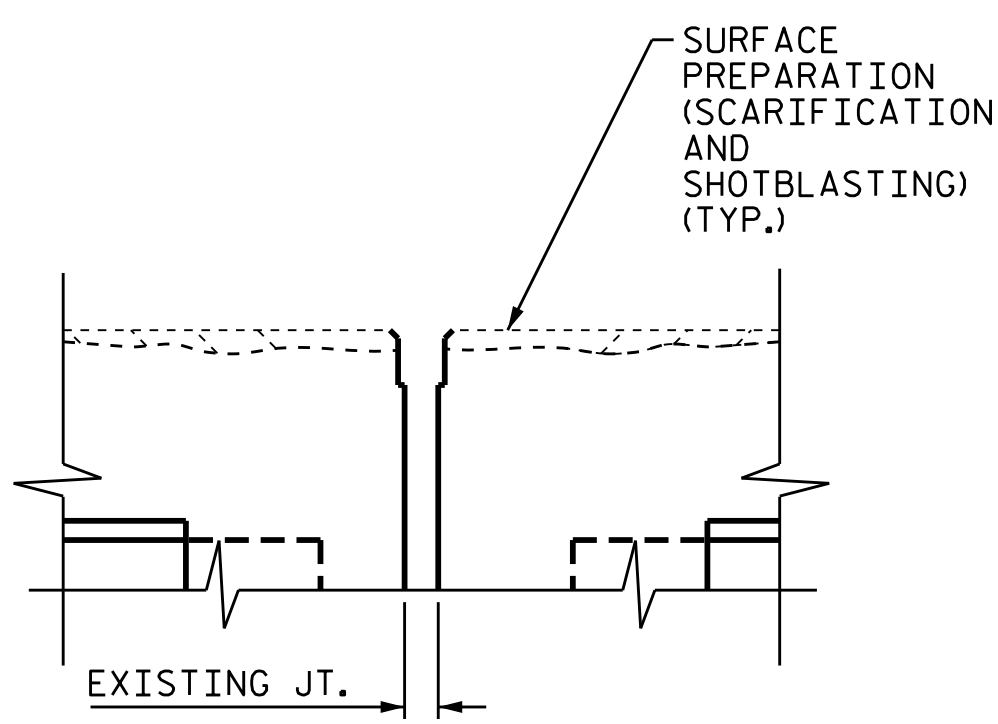


PROPOSED FOAM JOINT SEAL

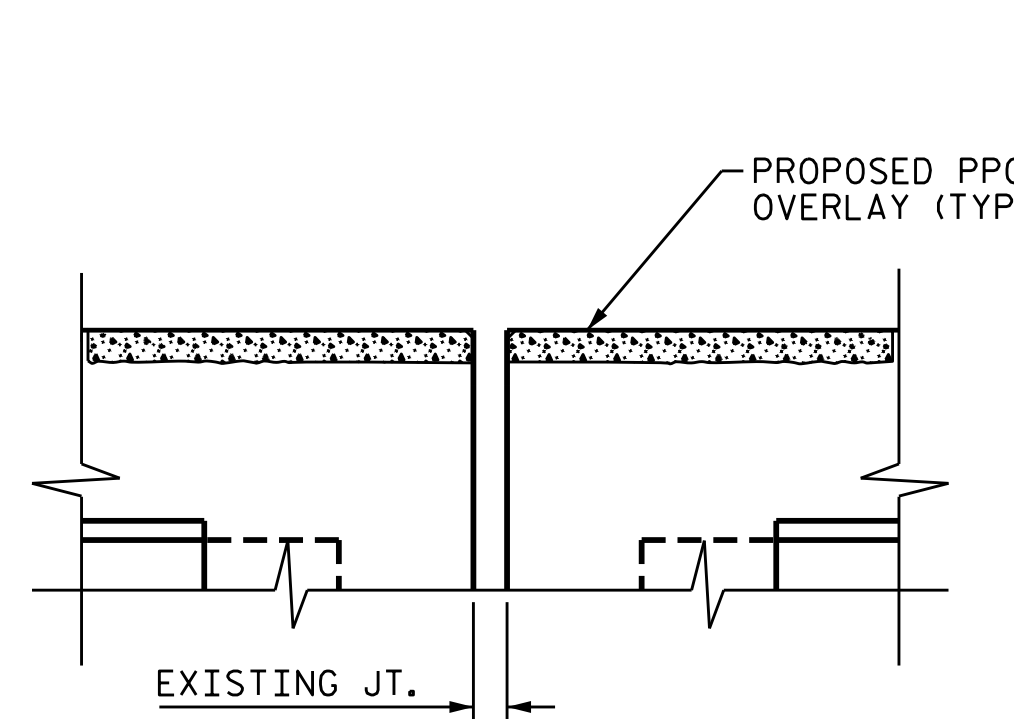
SECTION A-A  
(TYP. AT END BENTS)



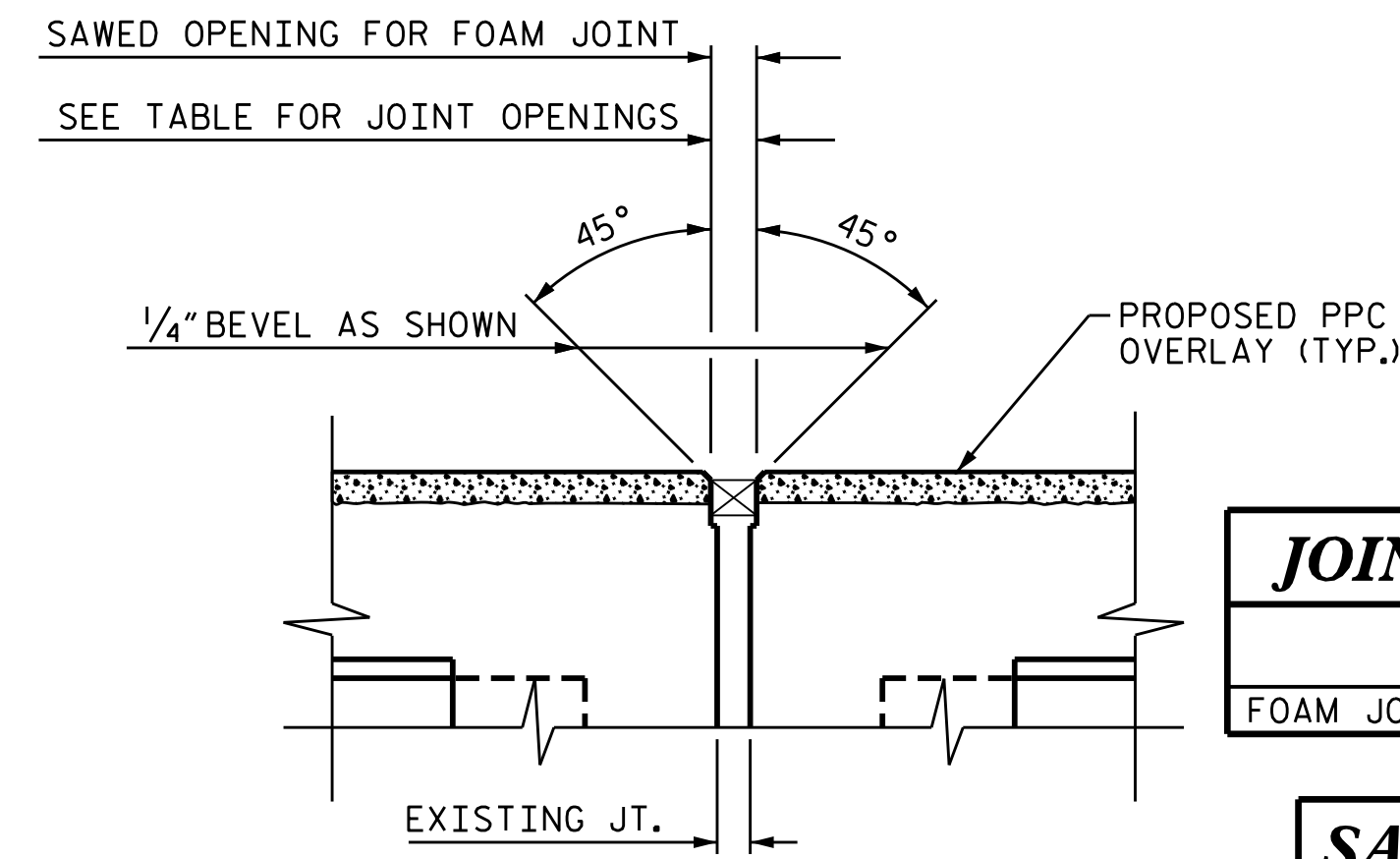
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

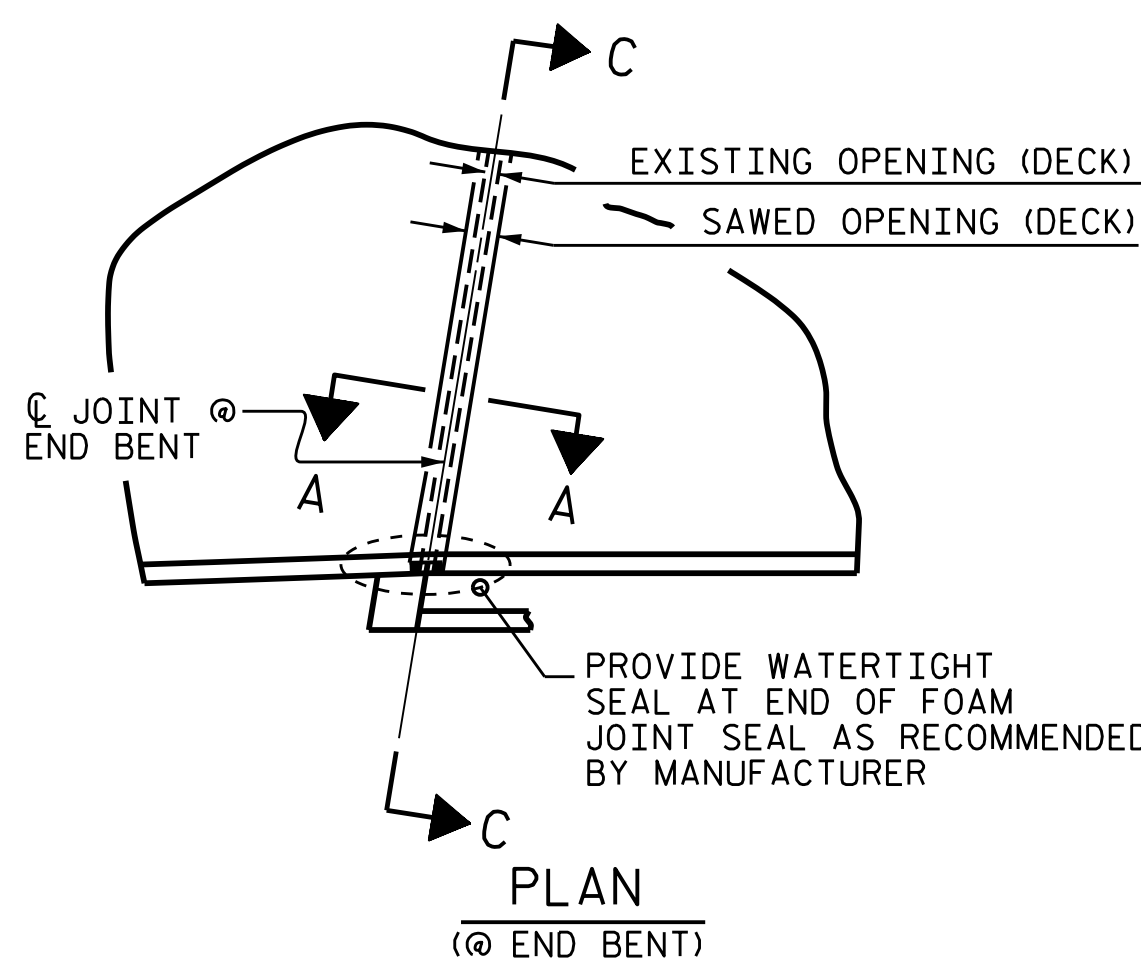


PROPOSED JOINT PRE-SAWED

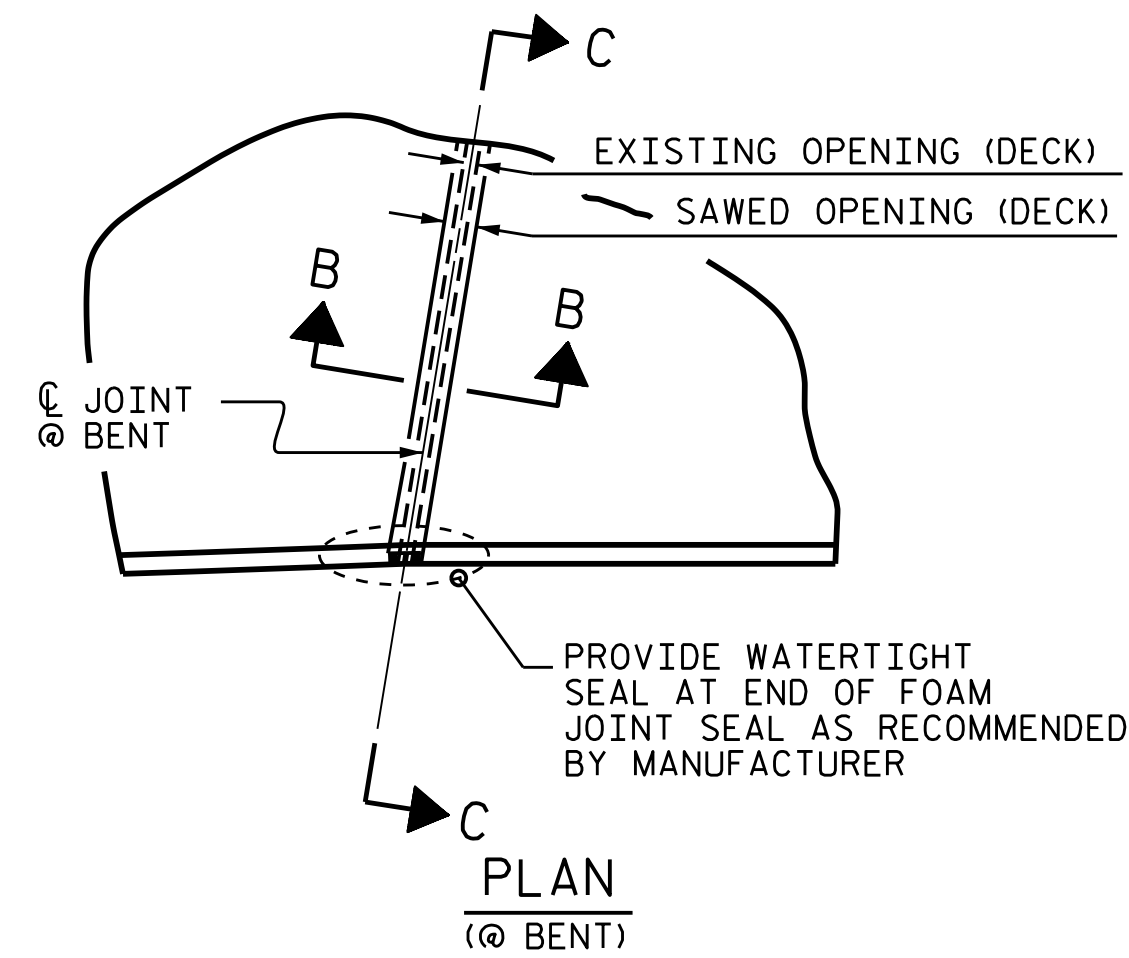


PROPOSED FOAM JOINT SEAL

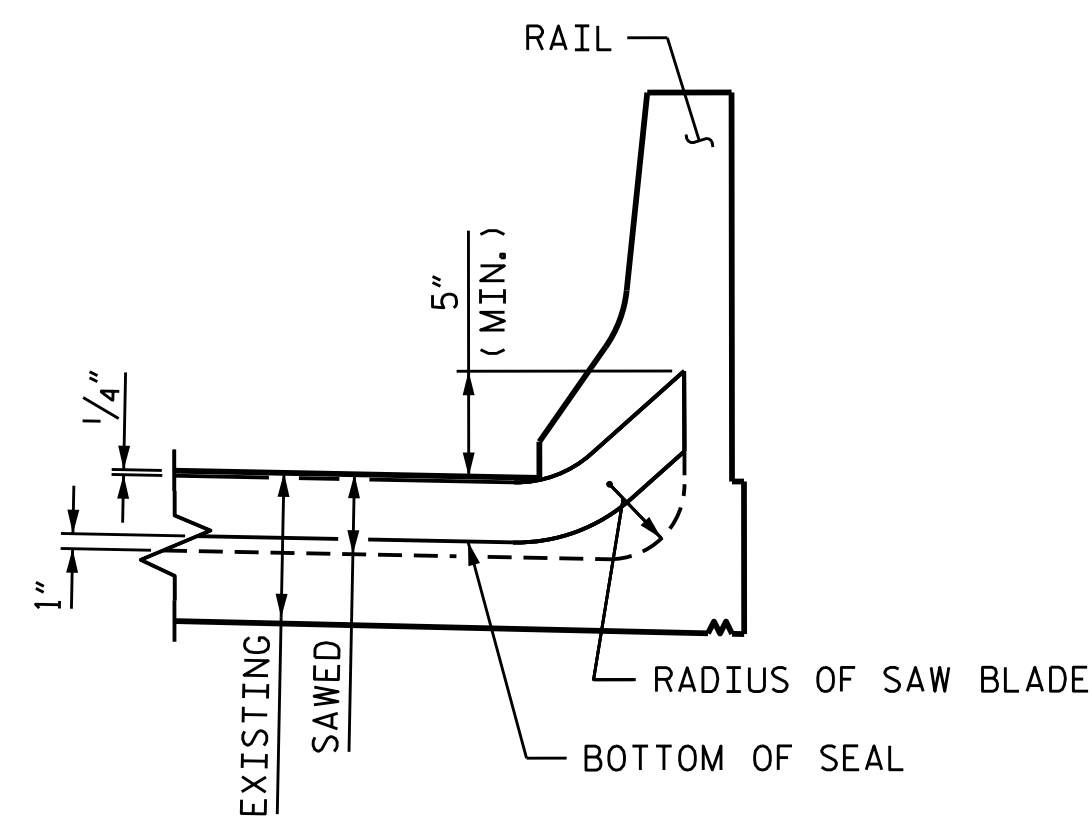
SECTION B-B  
(TYP. AT BENTS)



PLAN  
(@ END BENT)



PLAN  
(@ BENT)



SECTION C-C

NOTES

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

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

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

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

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

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

THE INSTALLED FOAM JOINTS SHALL BE WATER TIGHT.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

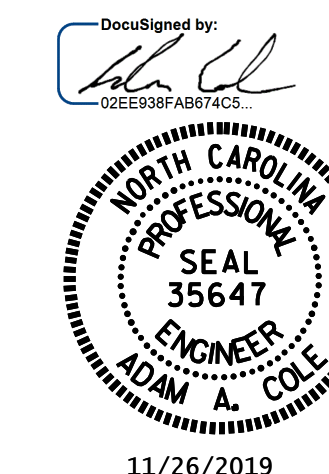
JOINT REPAIR QUANTITY TABLE

	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	698 LF	

SAWED JOINT OPENING TABLE

LOCATION	TOTAL MOVEMENT (ALONG C.R.DY)	SAWED JT. OPENING (PERPENDICULAR TO JT.)		
		AT 30°	AT 60°	AT 90°
END BENT 1			2"	
BENT 1	5/8"	2 3/8"	2 1/4"	2 1/8"
BENT 2	2"	3 1/8"	2 3/4"	2 1/16"
END BENT 2			2"	

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
BRIDGE NO. 590227



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARDS  
FOAM JOINT SEAL  
DETAILS FOR PPC  
OVERLAY

DRAWN BY : N.A. PIERCE DATE : 11/2018  
CHECKED BY : D.A. CANTRELL DATE : 12/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-04
1			3			TOTAL SHEETS
2			4			13

### NOTES

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

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE 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 AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

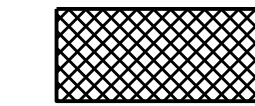
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

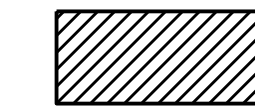
FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

### AS-BUILT REPAIR QUANTITY TABLE

END BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	5.7	2.9		
CURTAIN WALL	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	483			



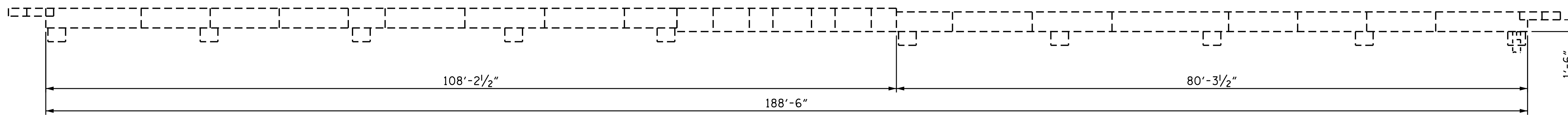
SHOTCRETE REPAIR AREA



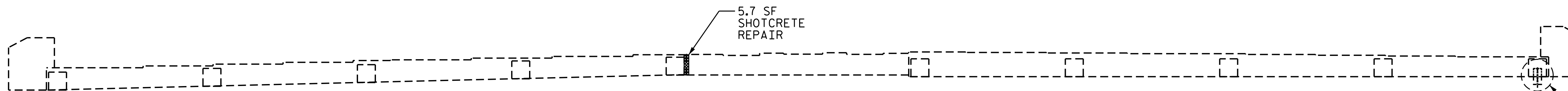
CONCRETE REPAIR AREA (FORM AND POUR)



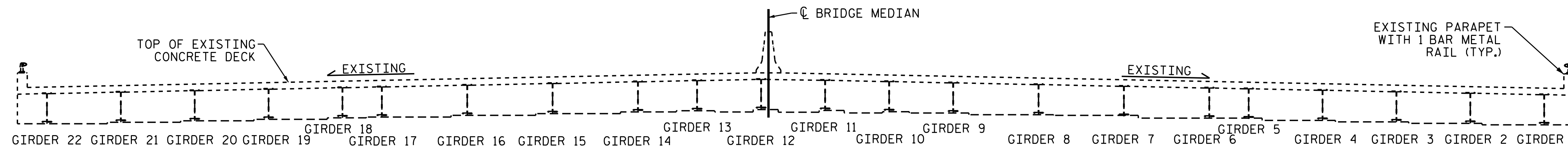
EPOXY RESIN INJECTION (ERI)



PLAN

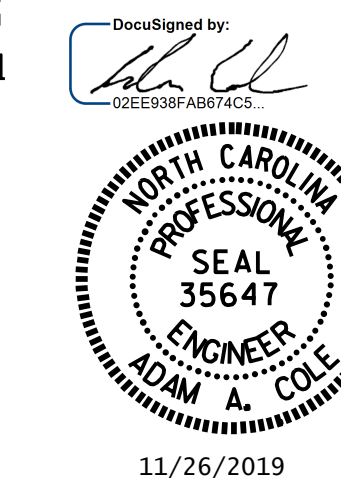


ELEVATION



TYPICAL SECTION

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590227

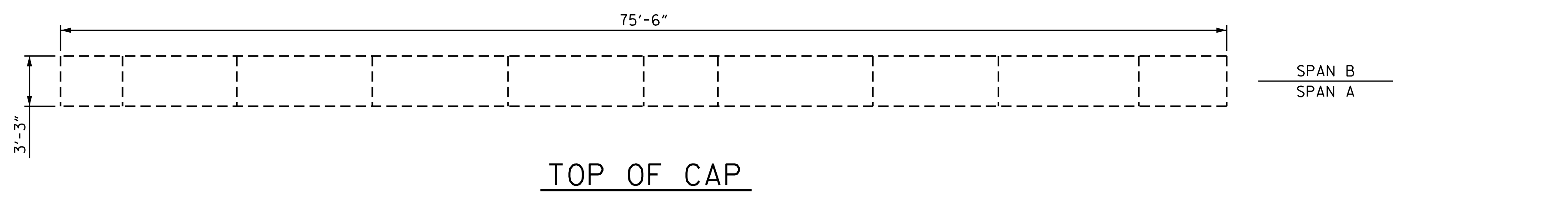


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 1

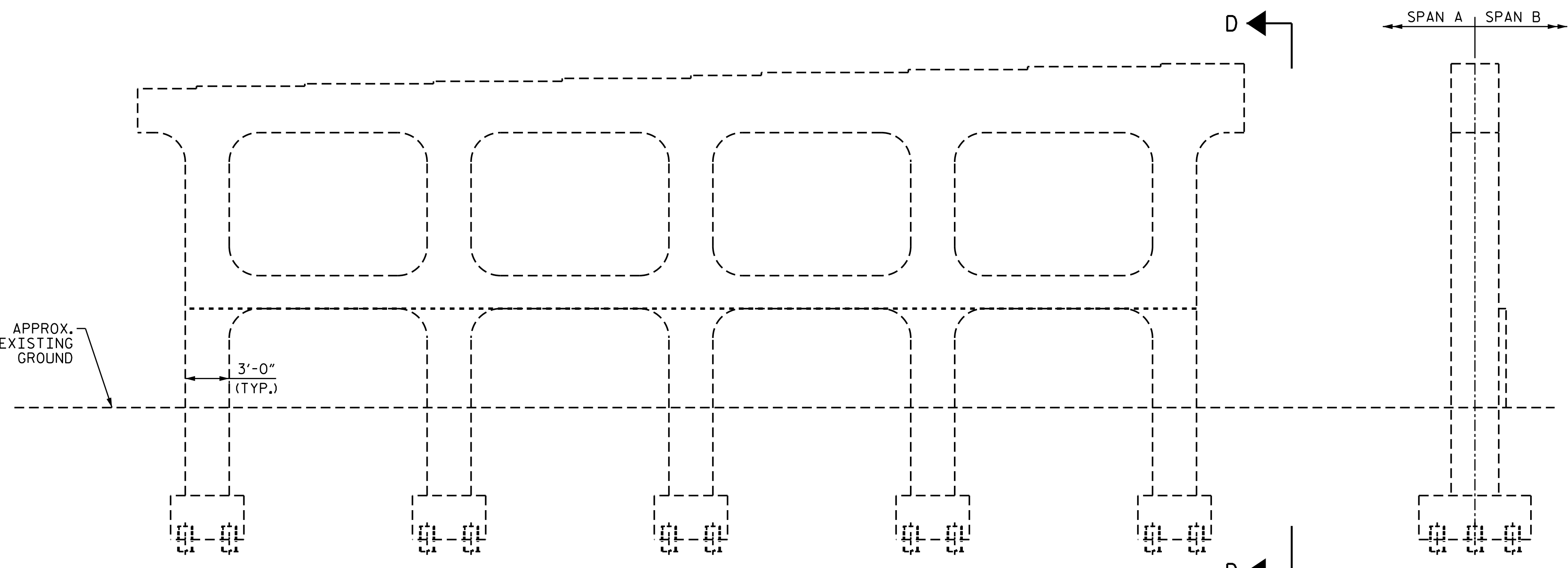
DRAWN BY : N.A. PIERCE DATE : 08/2018  
 CHECKED BY : D.A. CANTRELL DATE : 12/2018

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

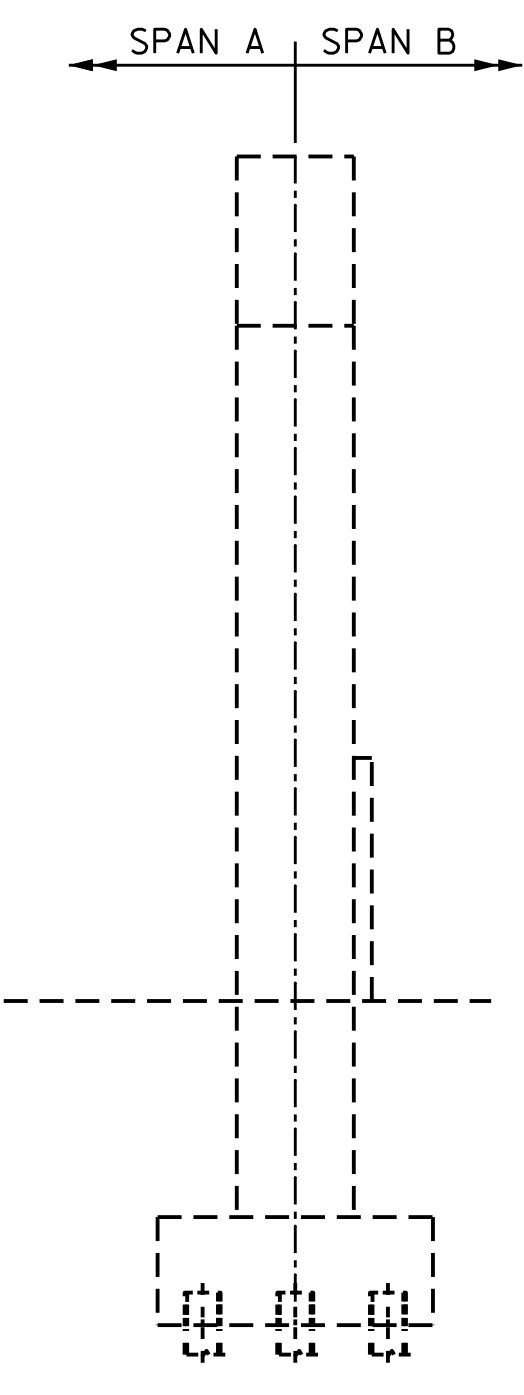
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-05
1			3			TOTAL SHEETS
2			4			13



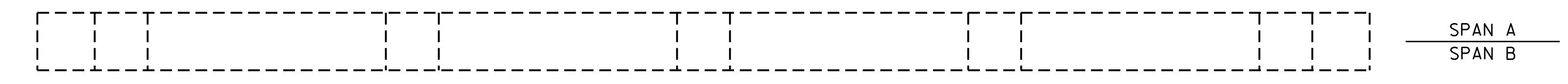
TOP OF CAP



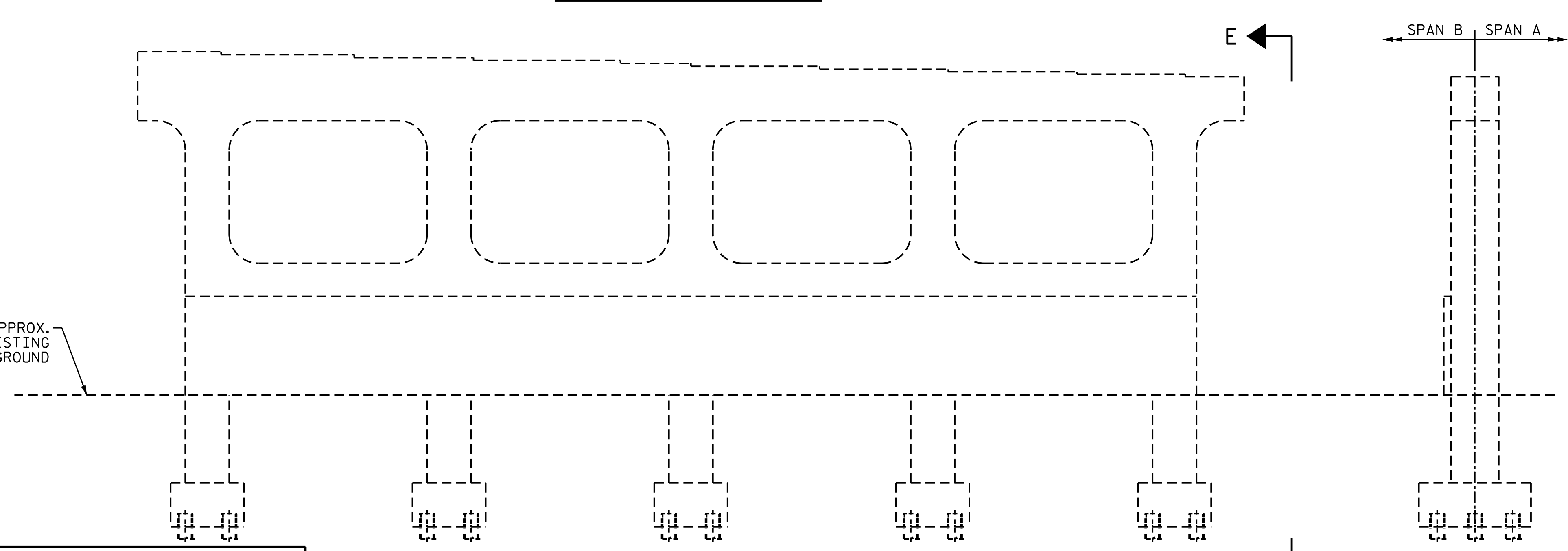
ELEVATION  
SPAN A FACE



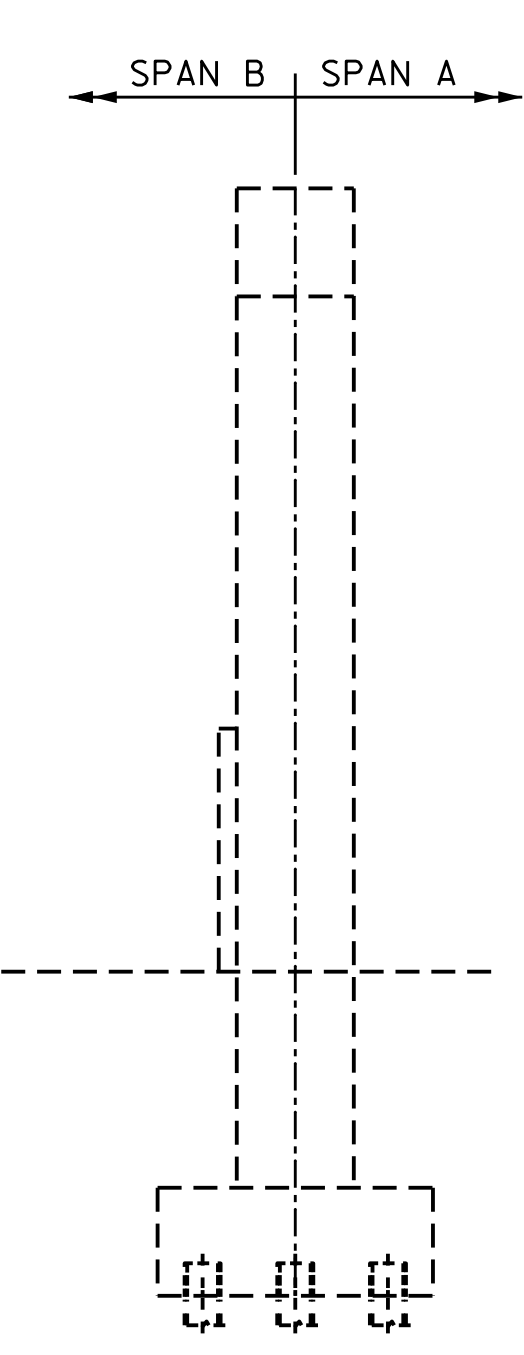
END VIEW  
SECTION D-D



BOTTOM OF CAP



ELEVATION  
SPAN B FACE



END VIEW  
SECTION E-E

AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	252			

**NOTES**

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

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE 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 MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

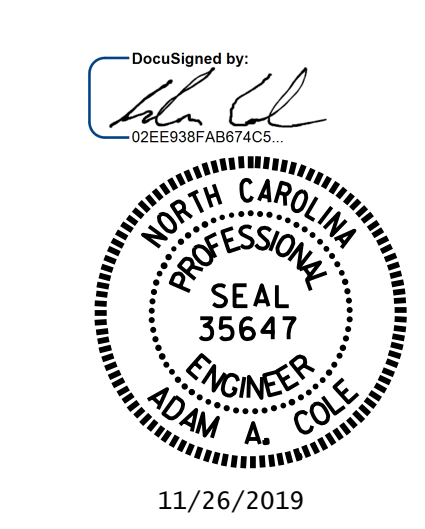
FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590227

SHEET 1 OF 3

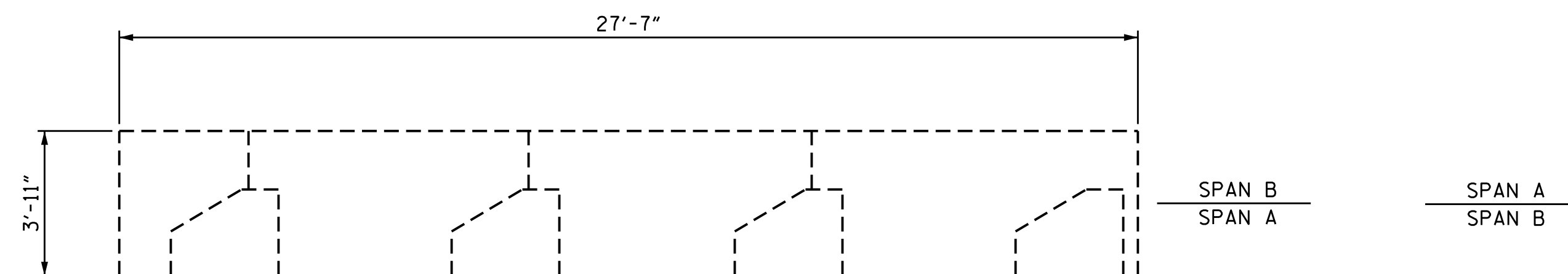
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1  
 LEFT SIDE



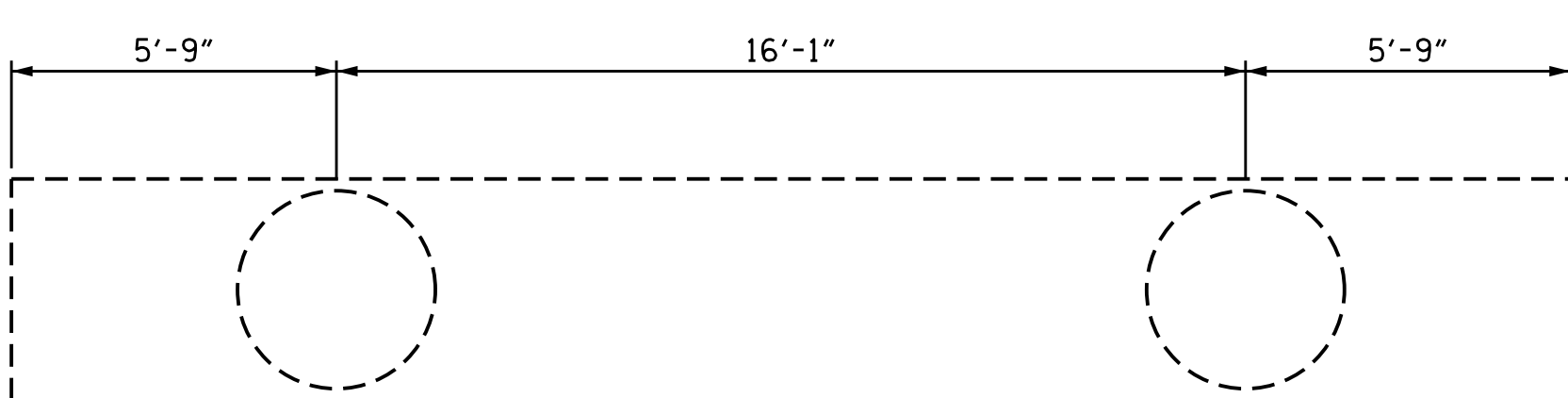
DRAWN BY : N.A. PIERCE DATE : 08/2018  
 CHECKED BY : D.A. CANTRELL DATE : 12/2018

NO.	REVISIONS			SHEET NO.
	BY:	DATE:	NO.	
1			3	S3-06
2			4	TOTAL SHEETS 13

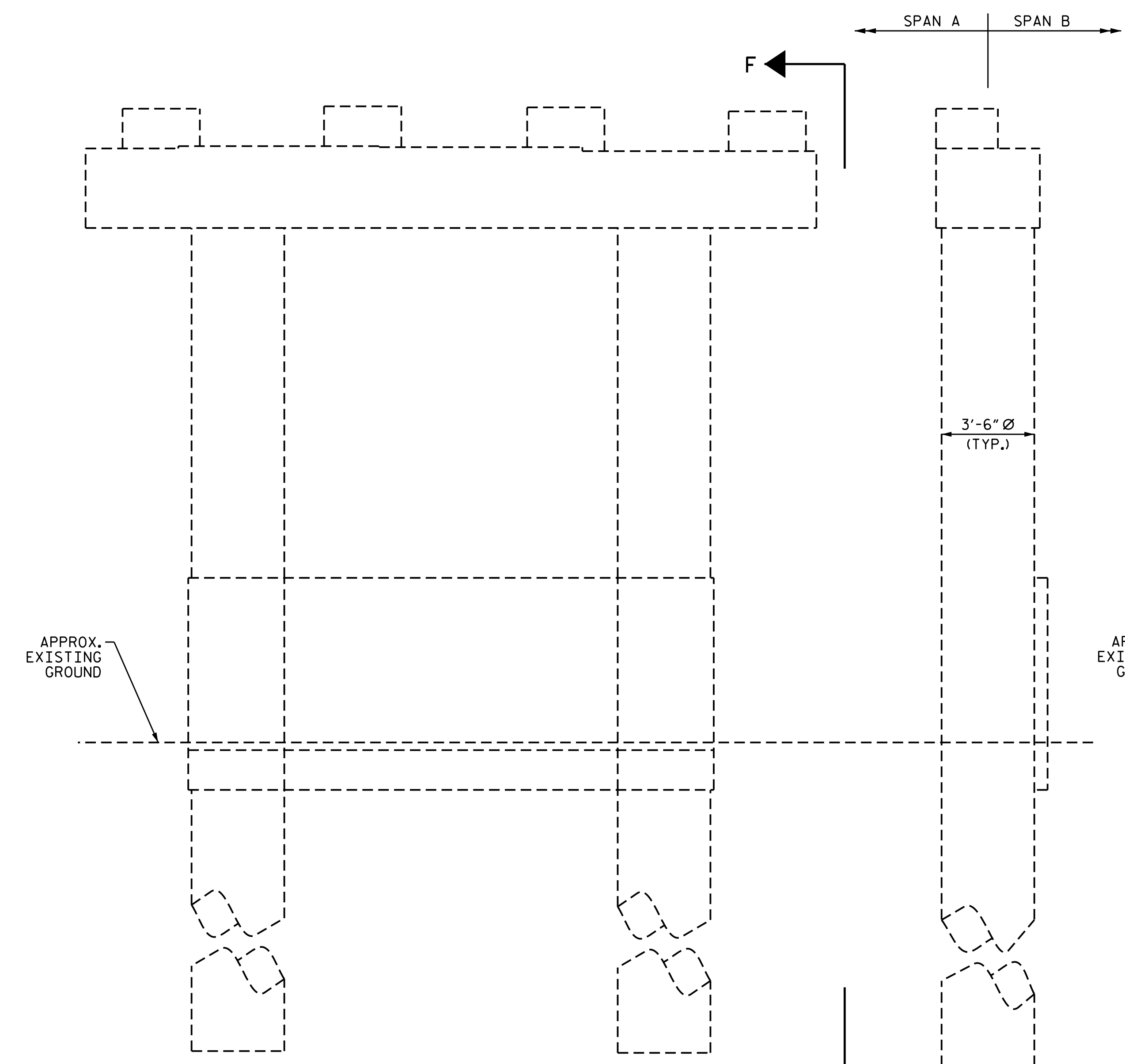
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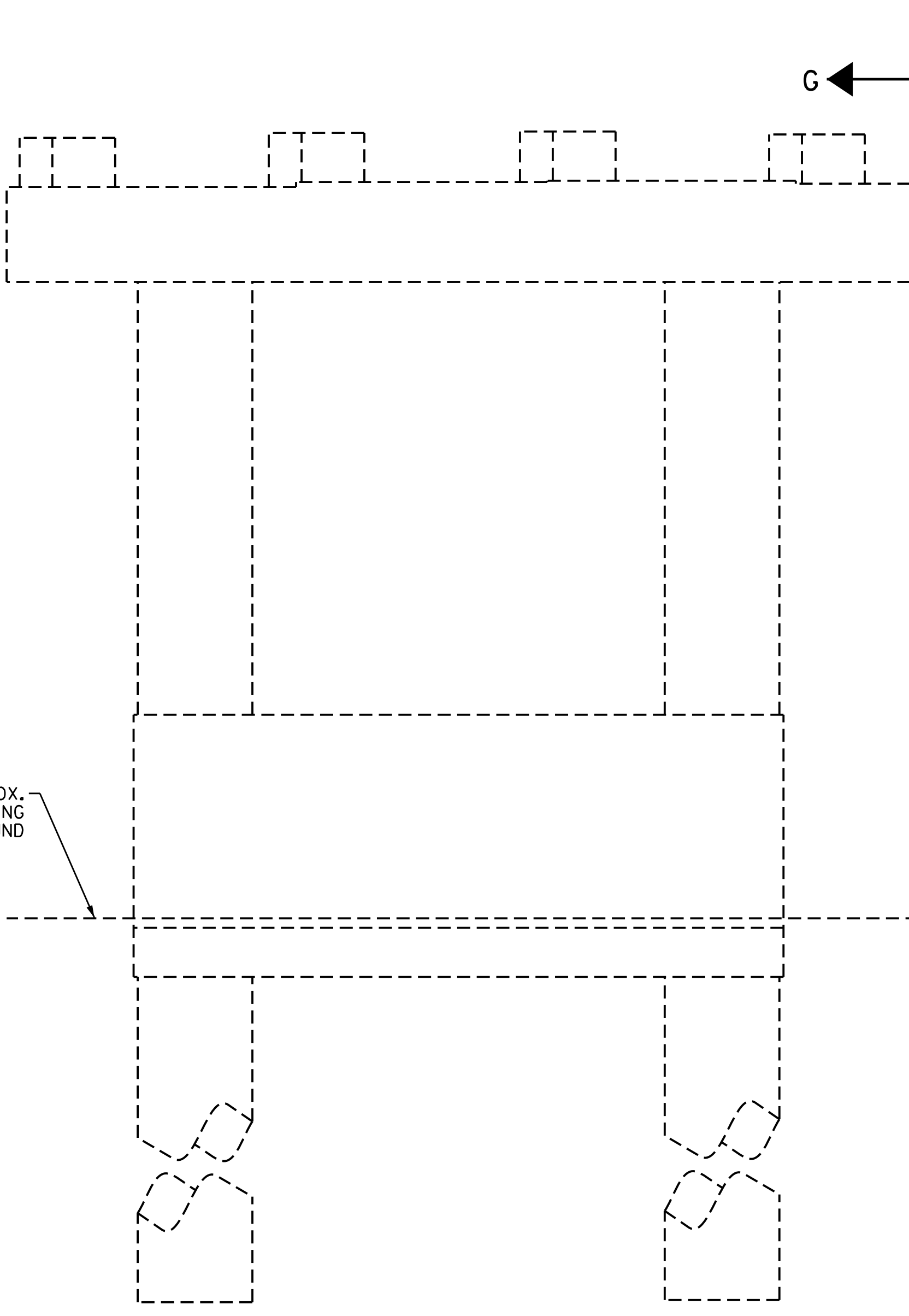
TOP OF CAP



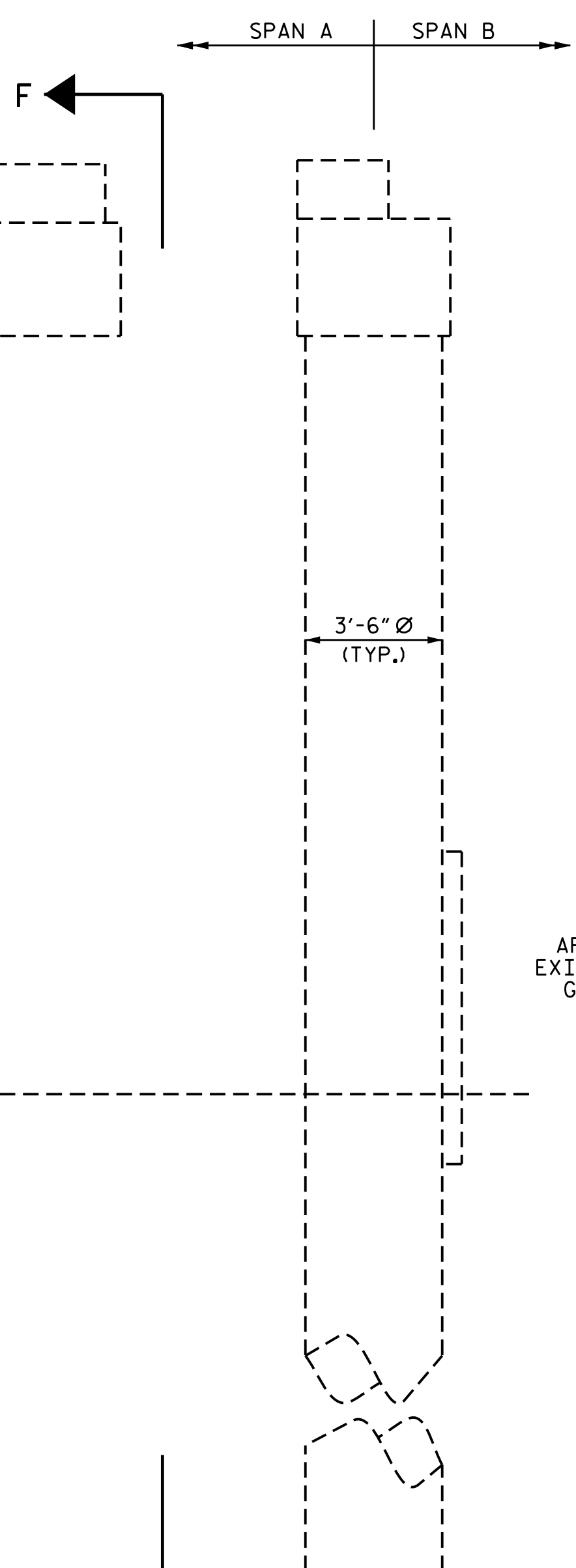
BOTTOM OF CAP



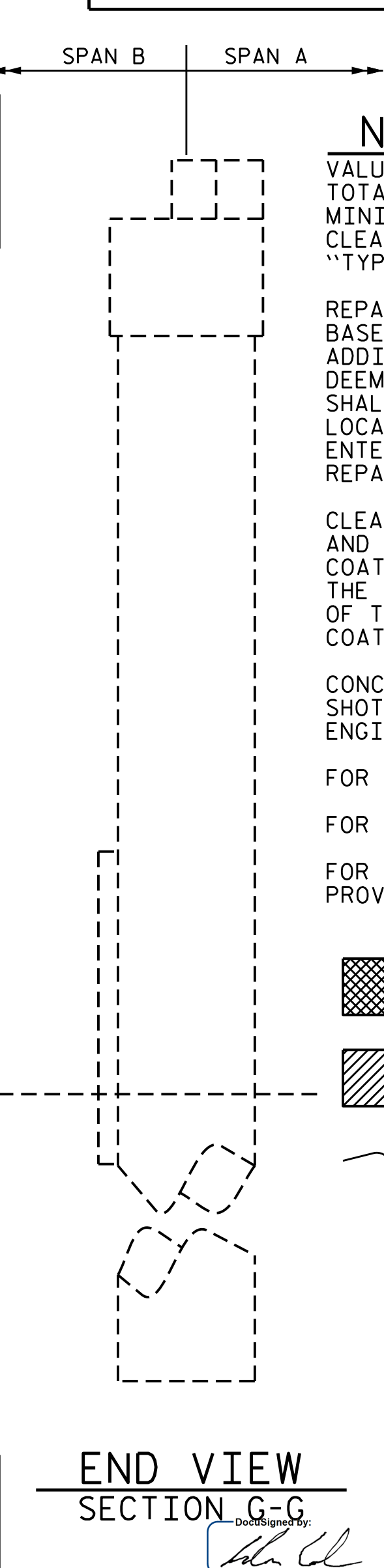
ELEVATION  
SPAN A FACE



ELEVATION  
SPAN B FACE



END VIEW  
SECTION F-F



END VIEW  
SECTION G-G

AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	189			

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

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FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

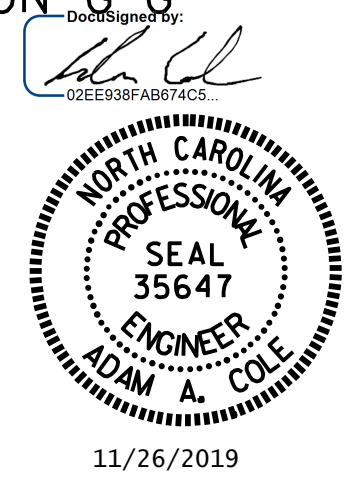
FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590227

SHEET 2 OF 3

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



DRAWN BY : N.A. PIERCE DATE : 08/2018  
 CHECKED BY : D.A. CANTRELL DATE : 12/2018

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
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1				3			S3-07	
2				4			TOTAL SHEETS 13	

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# AS-BUILT REPAIR QUANTITY TABLE

BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	30.0	15.0		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	252			

## NOTES

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

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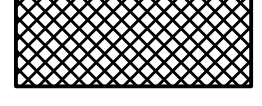
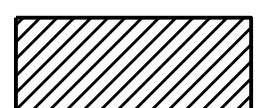

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

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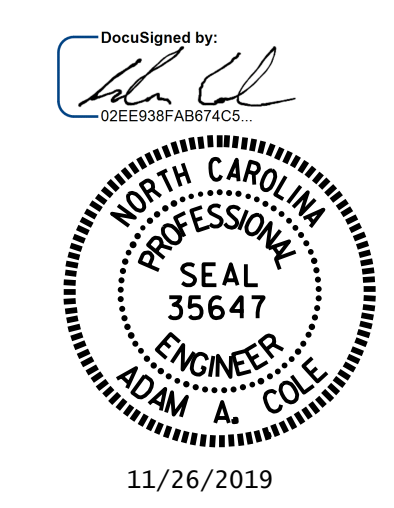
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590227

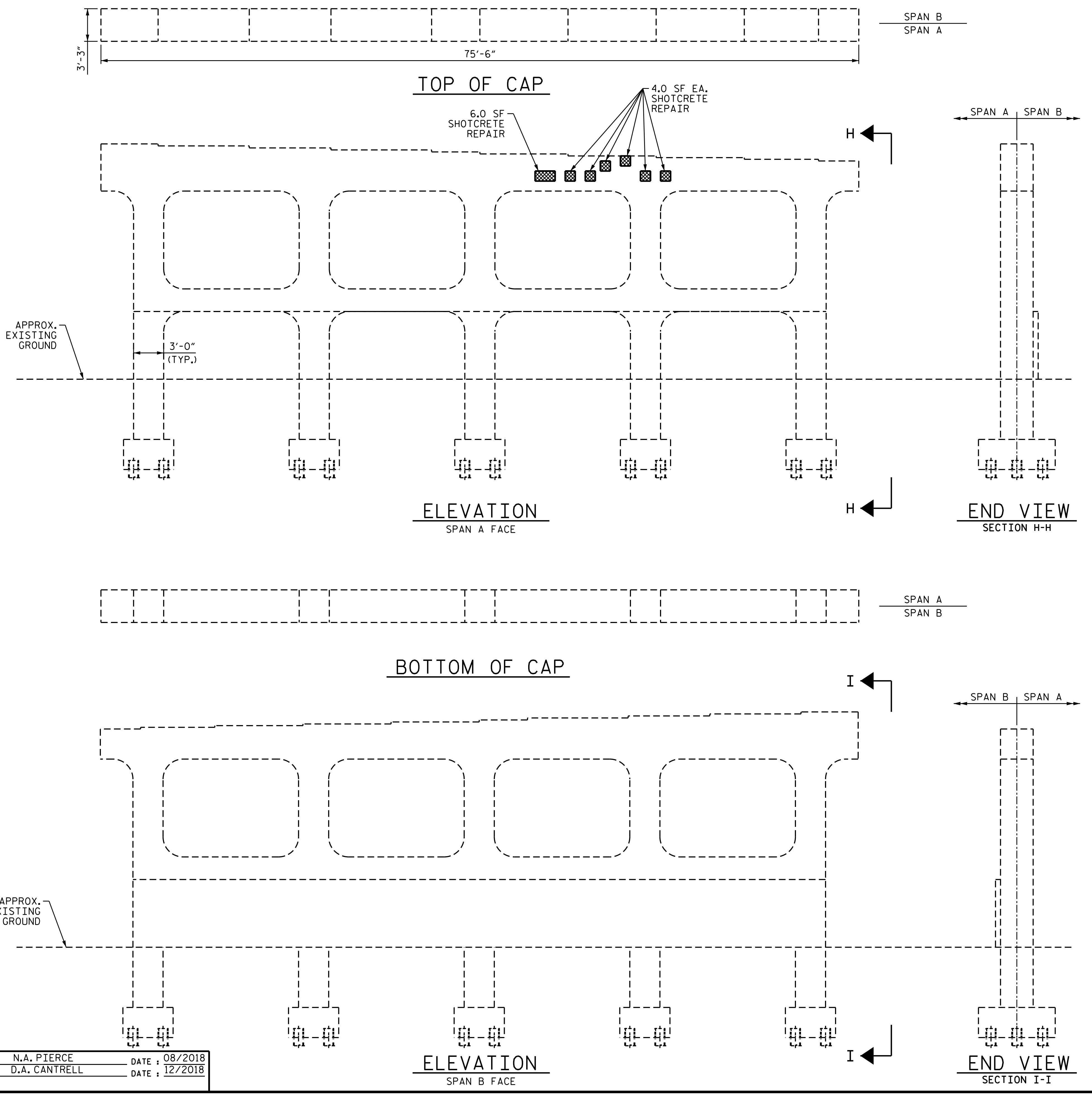
SHEET 3 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1  
 RIGHT SIDE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-08
1			3			TOTAL SHEETS
2			4			13

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DRAWN BY : N.A. PIERCE DATE : 08/2018  
 CHECKED BY : D.A. CANTRELL DATE : 12/2018



# AS-BUILT REPAIR QUANTITY TABLE

BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	222			

## NOTES

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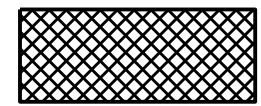
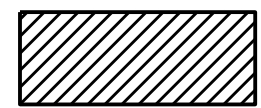

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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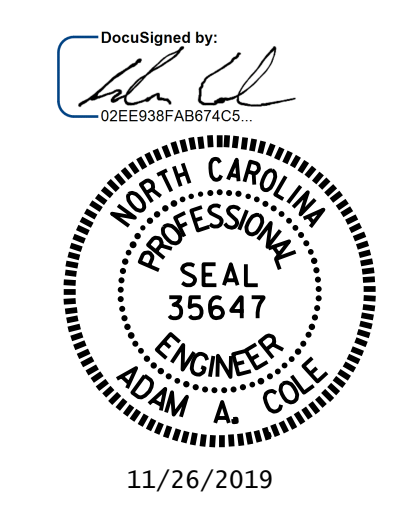
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590227

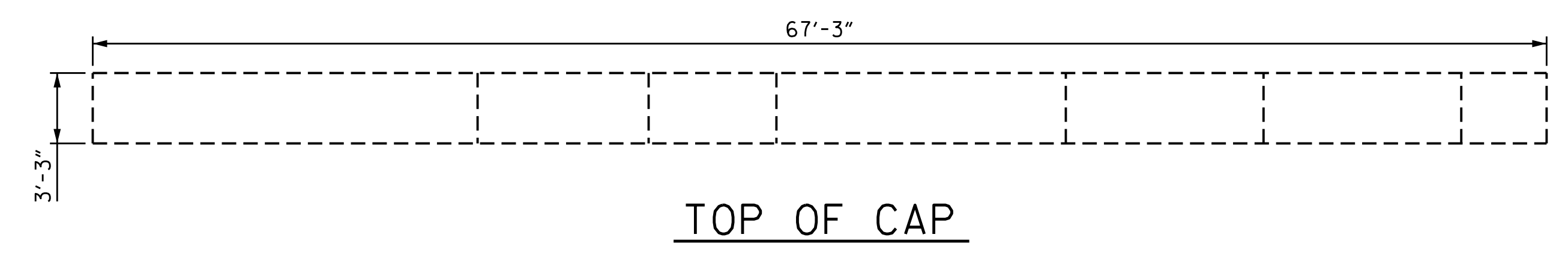
SHEET 1 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 2  
 LEFT SIDE

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

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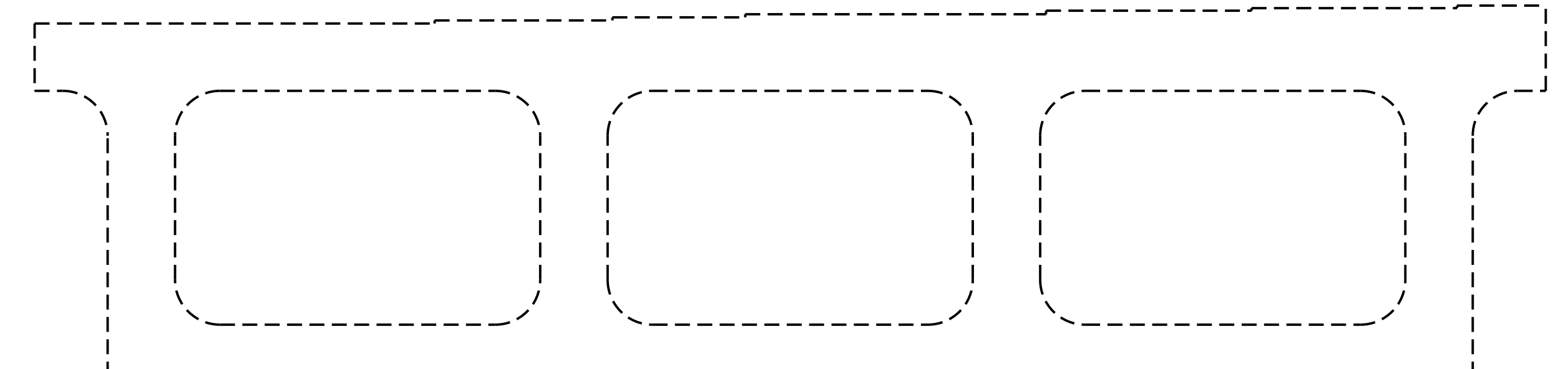


TOP OF CAP

SPAN C  
SPAN B

SPAN B SPAN C

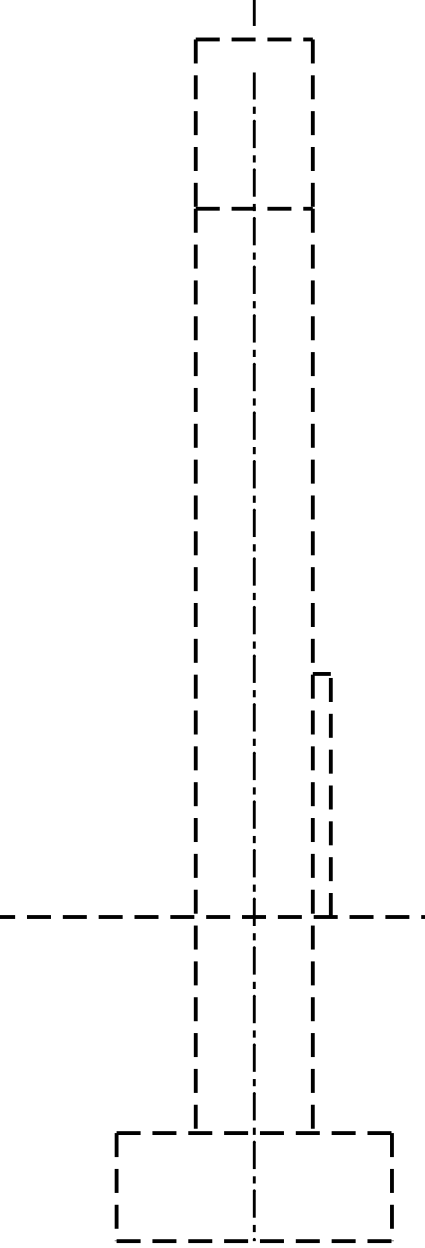
APPROX. EXISTING GROUND



ELEVATION  
SPAN B FACE

J ←

← SPAN B SPAN C



END VIEW  
SECTION J-J

J ←

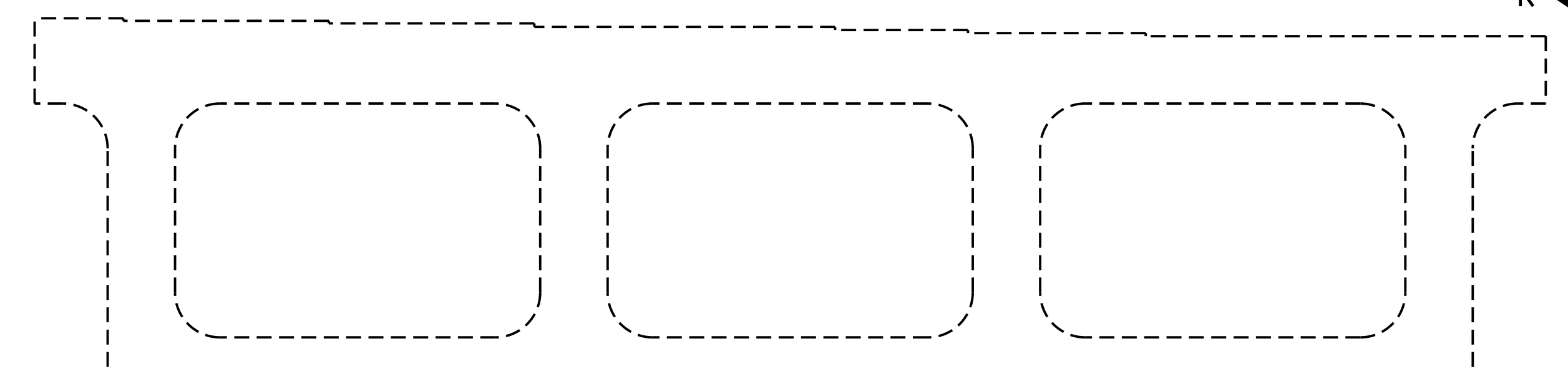


BOTTOM OF CAP

SPAN B  
SPAN C

SPAN C SPAN B

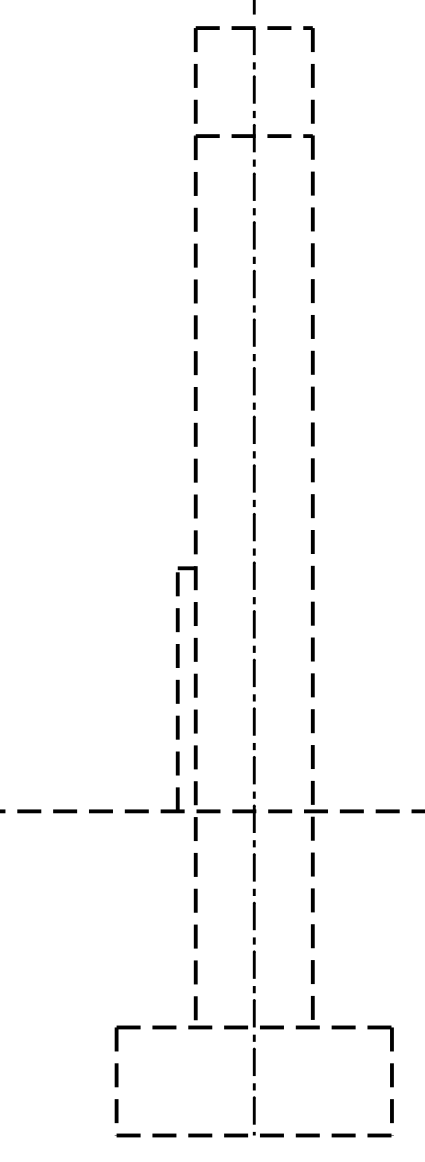
APPROX. EXISTING GROUND



ELEVATION  
SPAN C FACE

K ←

← SPAN C SPAN B

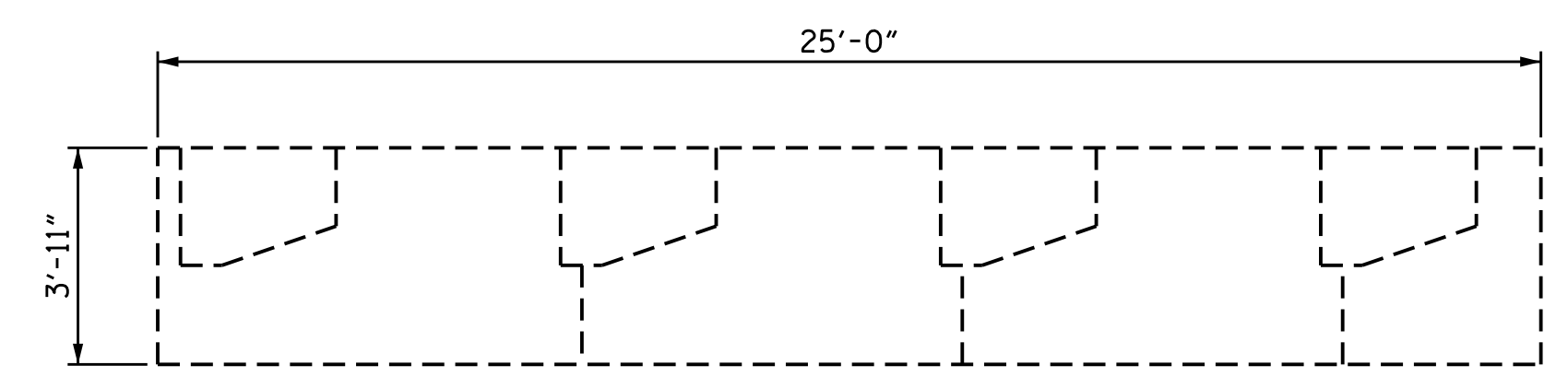


END VIEW  
SECTION K-K

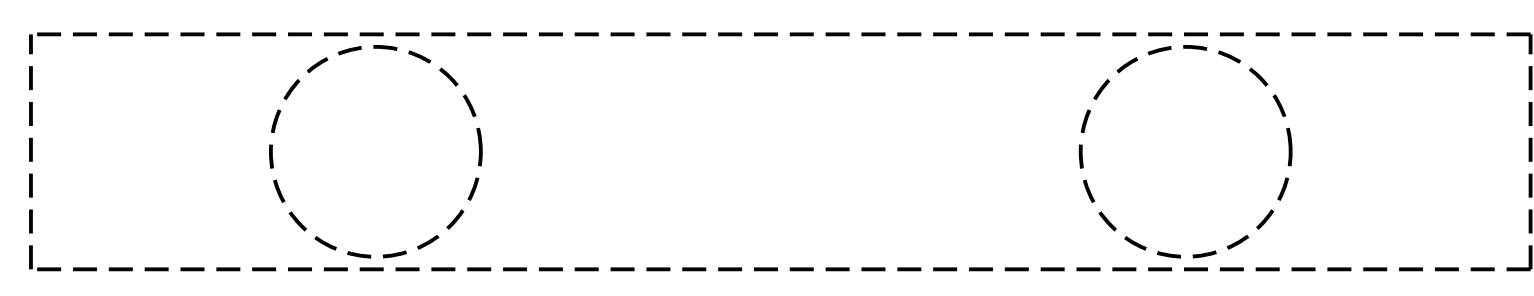
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DRAWN BY : N.A. PIERCE DATE : 08/2018  
 CHECKED BY : D.A. CANTRELL DATE : 12/2018

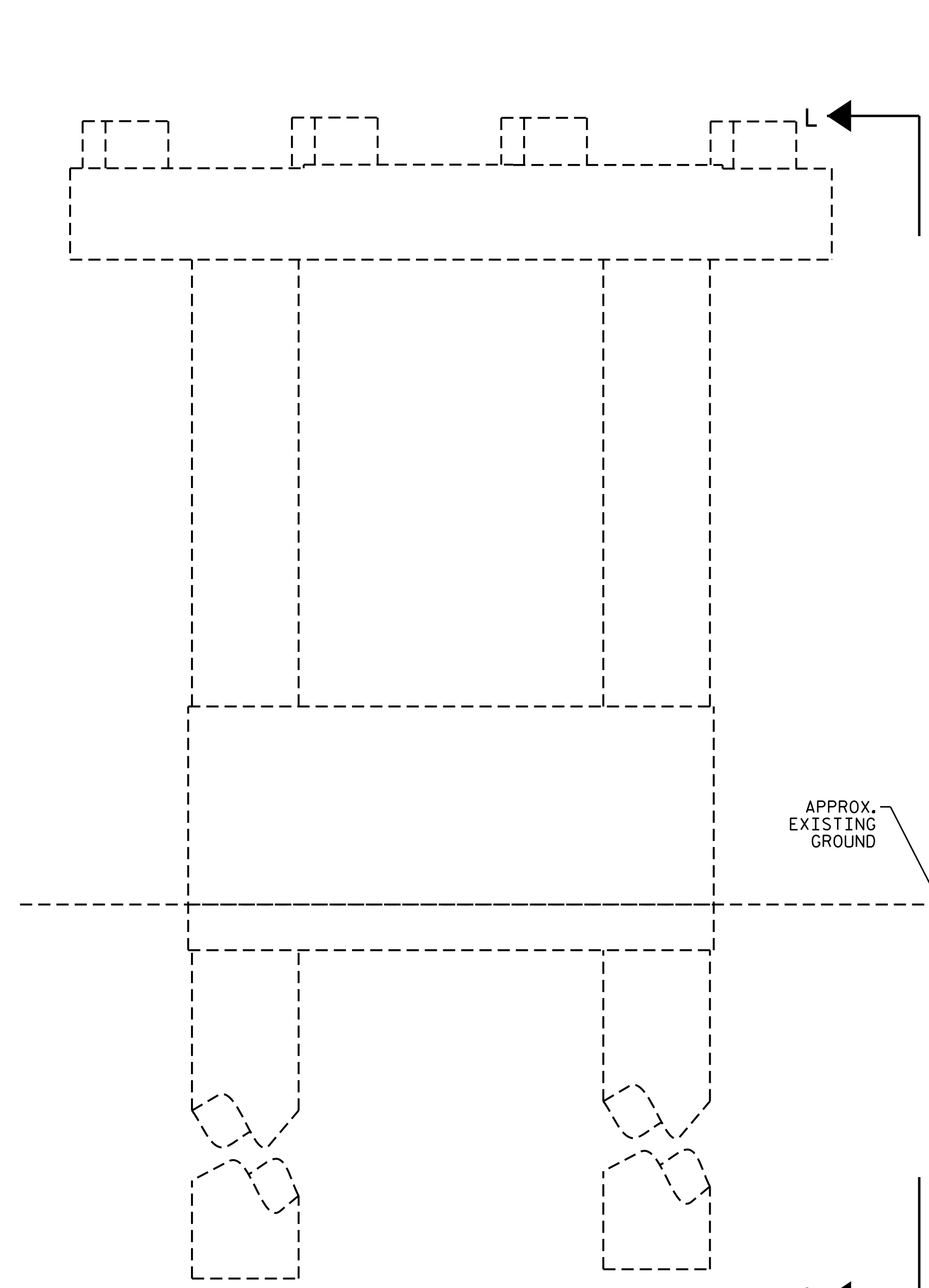
AS-BUILT REPAIR QUANTITY TABLE				
BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	96			



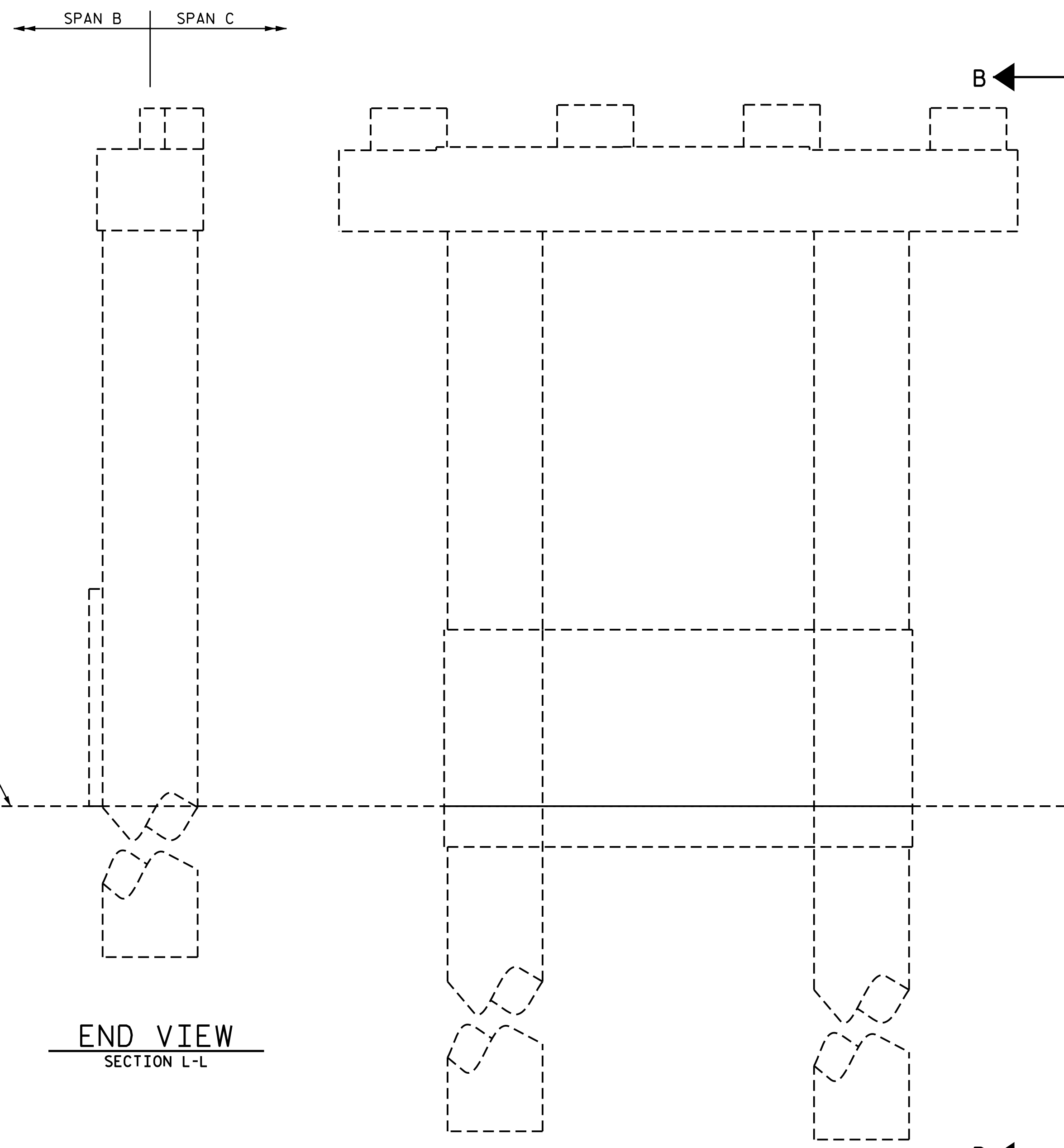
TOP OF CAP



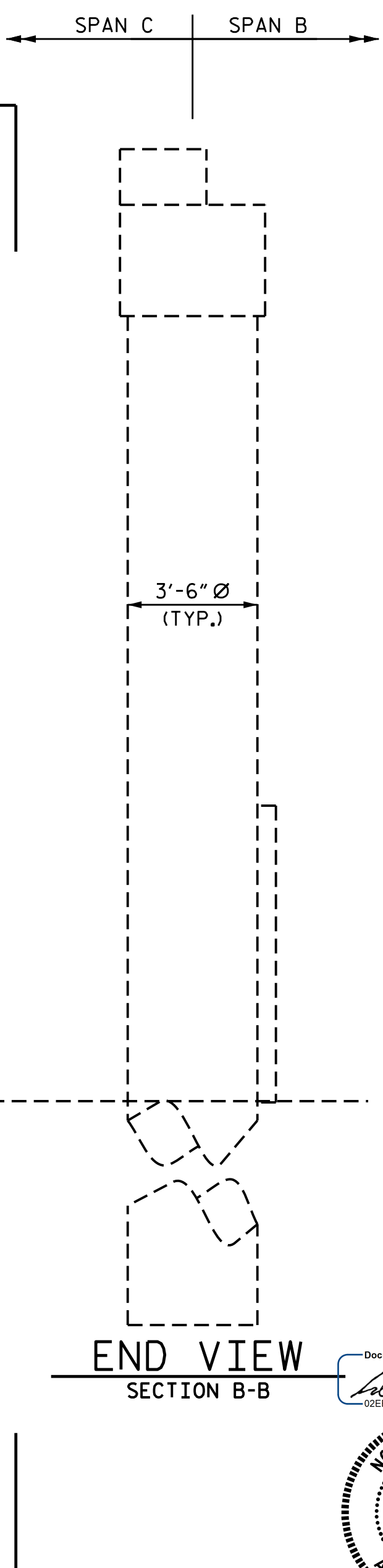
BOTTOM OF CAP



ELEVATION  
SPAN B FACE



ELEVATION  
SPAN C FACE



END VIEW  
SECTION B-B

NOTES

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

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE 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 MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

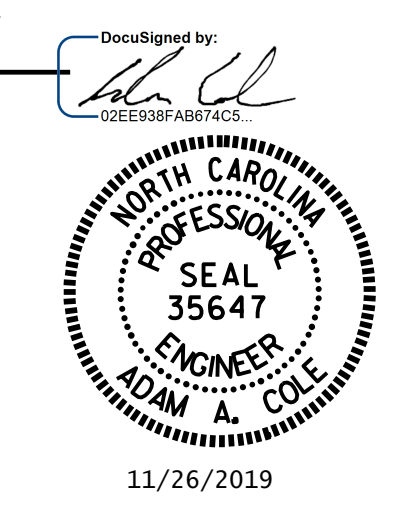
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590227

SHEET 2 OF 3



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

DRAWN BY : N.A. PIERCE DATE : 08/2018  
 CHECKED BY : D.A. CANTRELL DATE : 12/2018

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 SIGNATURES COMPLETED

REVISIONS						SHEET NO. S3-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 13
2			4			

# AS-BUILT REPAIR QUANTITY TABLE

BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	222			

## NOTES

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

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE 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 MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

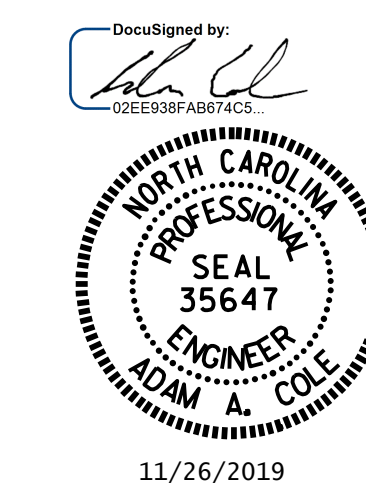
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590227

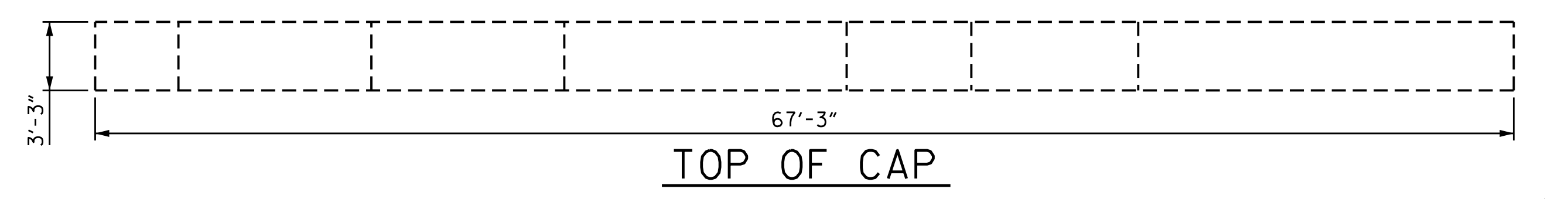
SHEET 3 OF 3



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 2  
 RIGHT SIDE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-11
1			3			TOTAL SHEETS
2			4			13

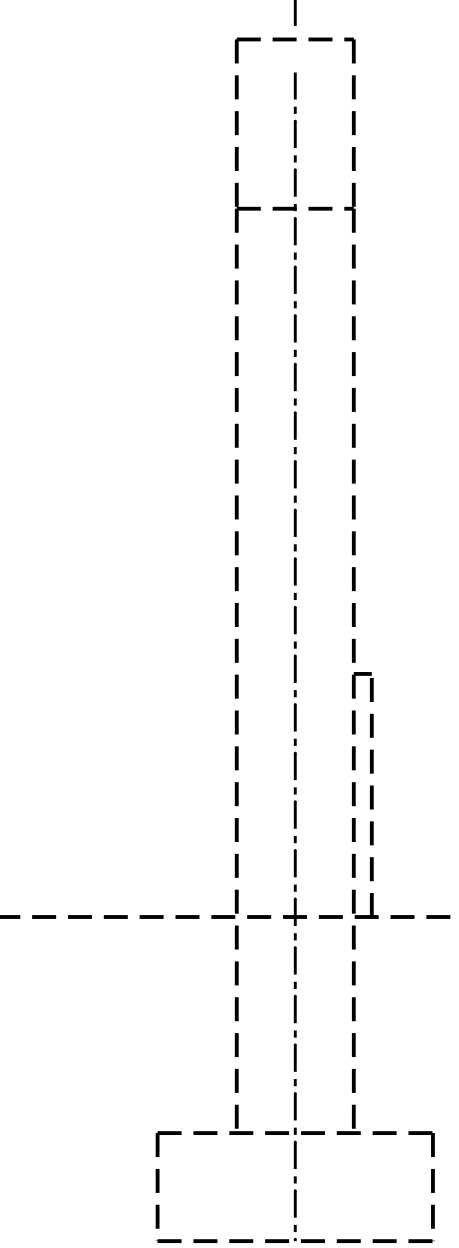
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TOP OF CAP

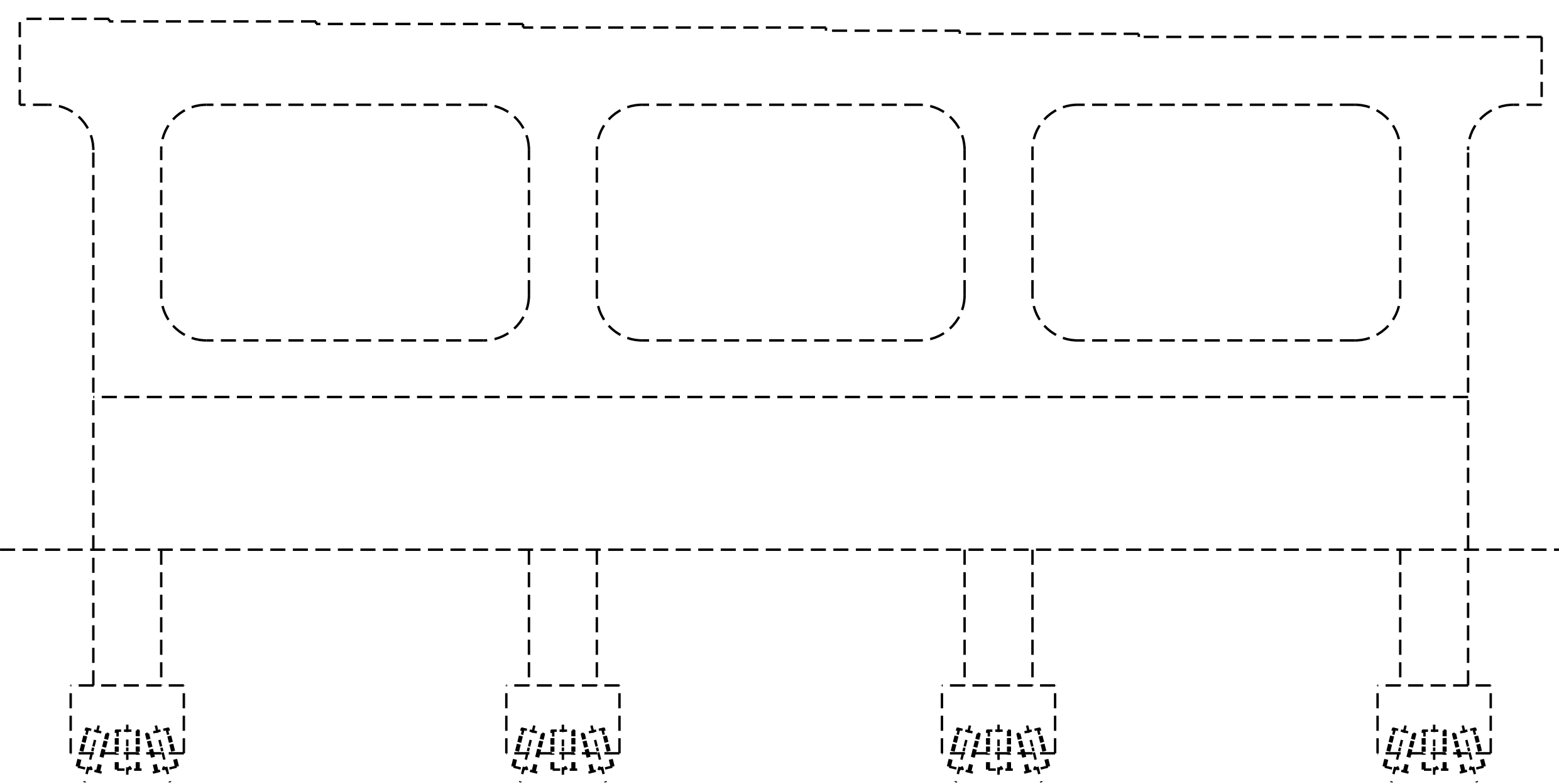
SPAN C  
SPAN B

SPAN B SPAN C



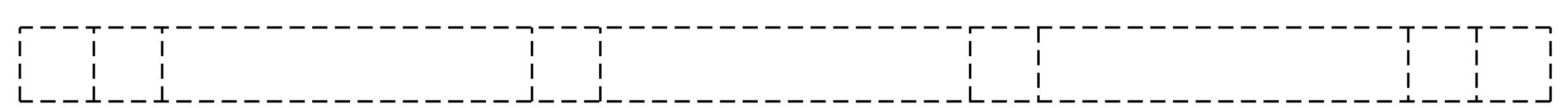
END VIEW SECTION N-N

APPROX. EXISTING GROUND



ELEVATION SPAN B FACE

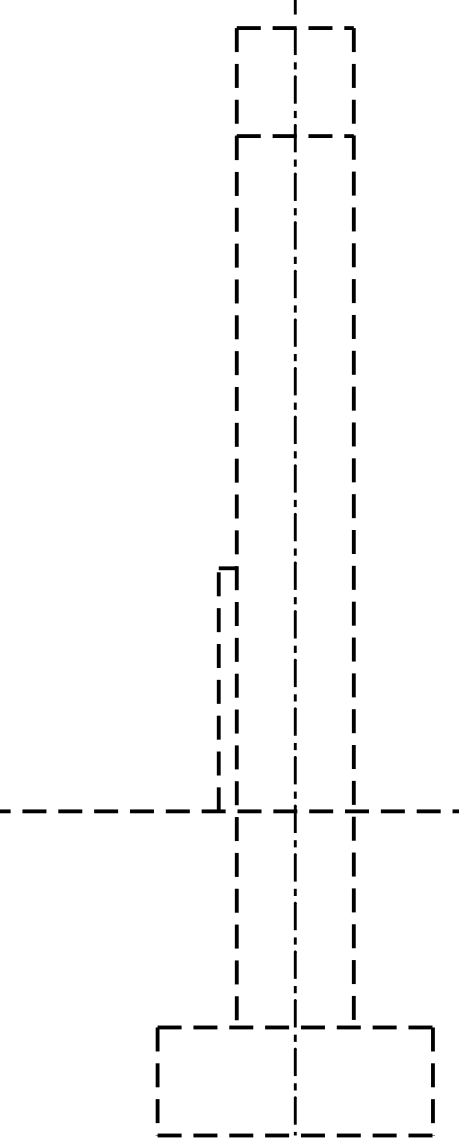
N



BOTTOM OF CAP

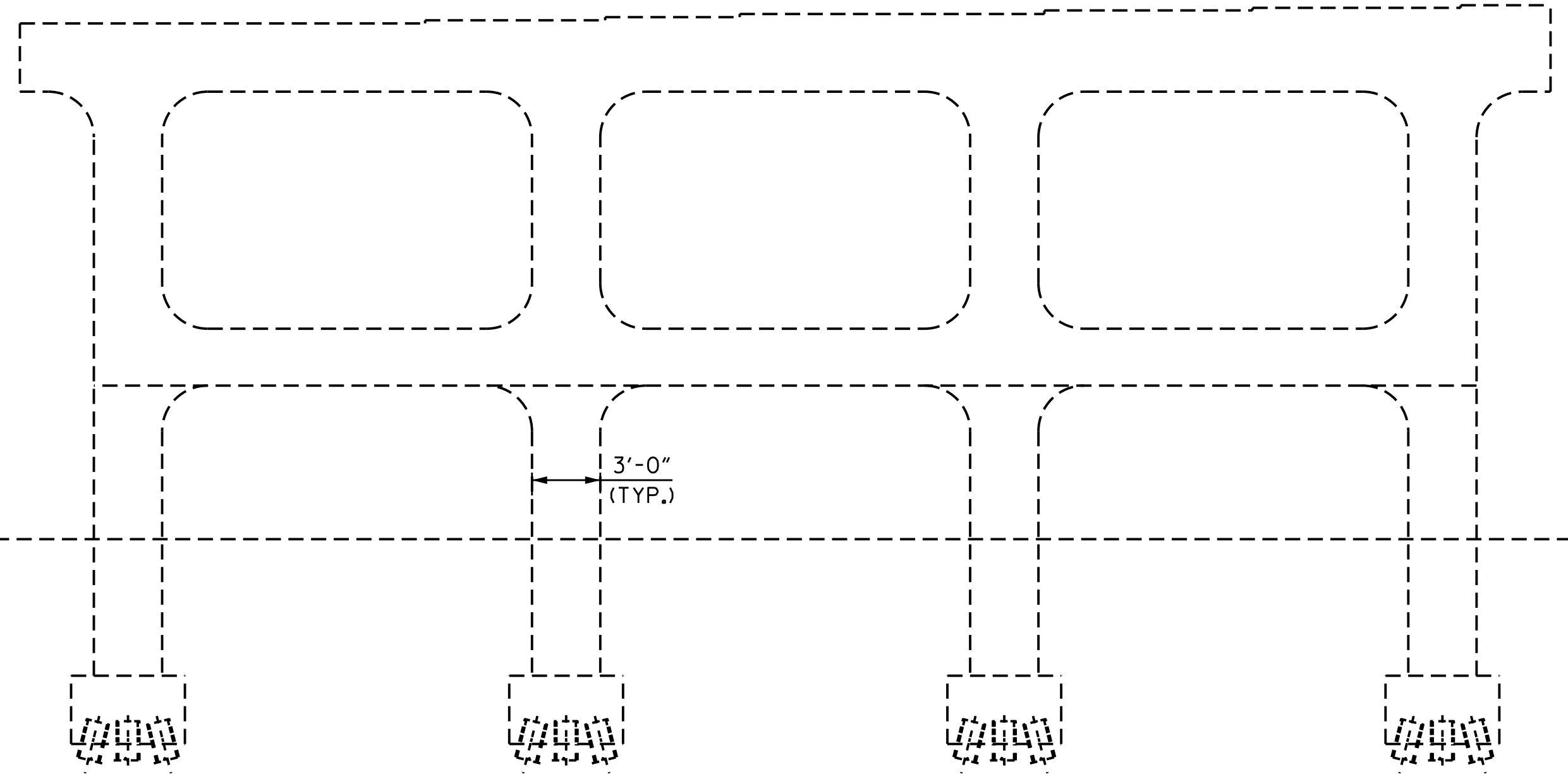
SPAN B  
SPAN C

SPAN C SPAN B



END VIEW SECTION O-O

APPROX. EXISTING GROUND



ELEVATION SPAN C FACE

O

DRAWN BY : N.A. PIERCE DATE : 08/2018  
 CHECKED BY : D.A. CANTRELL DATE : 12/2018

# AS-BUILT REPAIR QUANTITY TABLE

END BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
<b>SHOTCRETE REPAIRS</b>	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAINWALL	3.0	1.5		
WINGS	0	0		
<b>CONCRETE REPAIRS</b>	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAINWALL	0	0		
WINGS	1.2	0.6		
<b>EPOXY COATING</b>	AREA SF		AREA SF	
CAP	442			

## NOTES

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

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE 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 AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

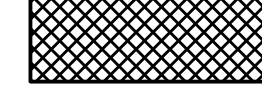
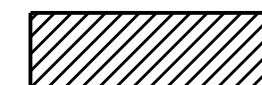

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

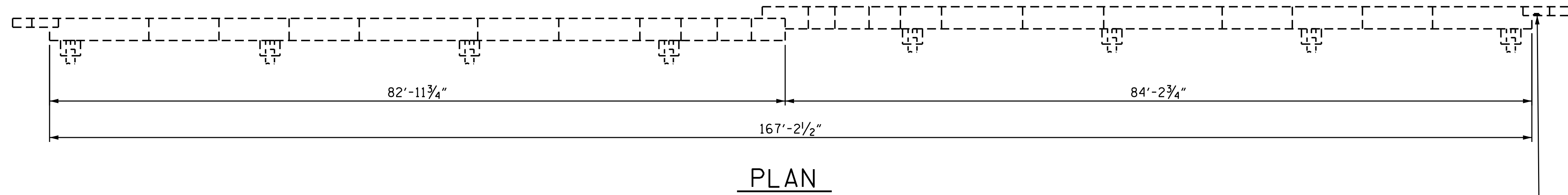
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

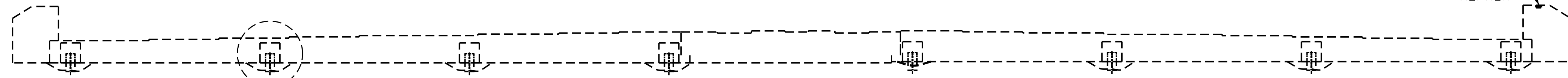
FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

CONTRACTOR TO DETERMINE SIZE OF MISSING UTILITY COVER PLATE, SEE FIGURE A.

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



PLAN



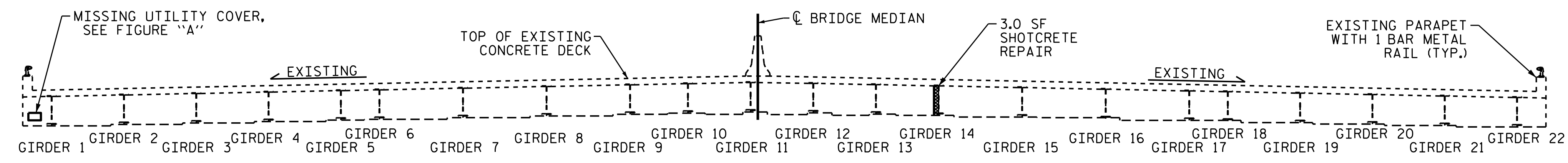
ELEVATION



TYPICAL EXPOSED PILE END BENT 1 & 2  
SEE SLOPE PROTECTION REPAIR DETAILS  
FOR LOCATION AND QUANTITIES

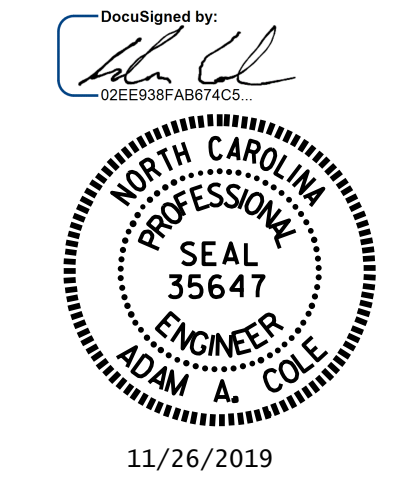


FIGURE A



TYPICAL SECTION

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590227



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

DRAWN BY : N.A. PIERCE DATE : 08/2018  
 CHECKED BY : D.A. CANTRELL DATE : 12/2018

NO.	REVISIONS			SHEET NO.
	BY:	DATE:	NO.	
1			3	S3-12
2			4	TOTAL SHEETS 13

**NOTES**

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING SLOPE AREAS AND SUBMIT TO THE ENGINEER FOR APPROVAL WORKING DRAWINGS WITH EXACT DIMENSIONS AND QUANTITIES OF GABION MATTRESSES AND RIP RAP PRIOR TO PURCHASING MATERIALS.

PRIOR TO PLACING GEOTEXTILE FOR DRAINAGE, GABION MATTRESSES, RIP RAP, AND #57 STONE, ALL WORK TO END BENT PILES MUST BE COMPLETED AND APPROVED BY THE ENGINEER.

ALL VOIDED AREAS UNDER THE END BENT CAPS SHALL BE FILLED AND COMPACTED WITH #57 STONE.

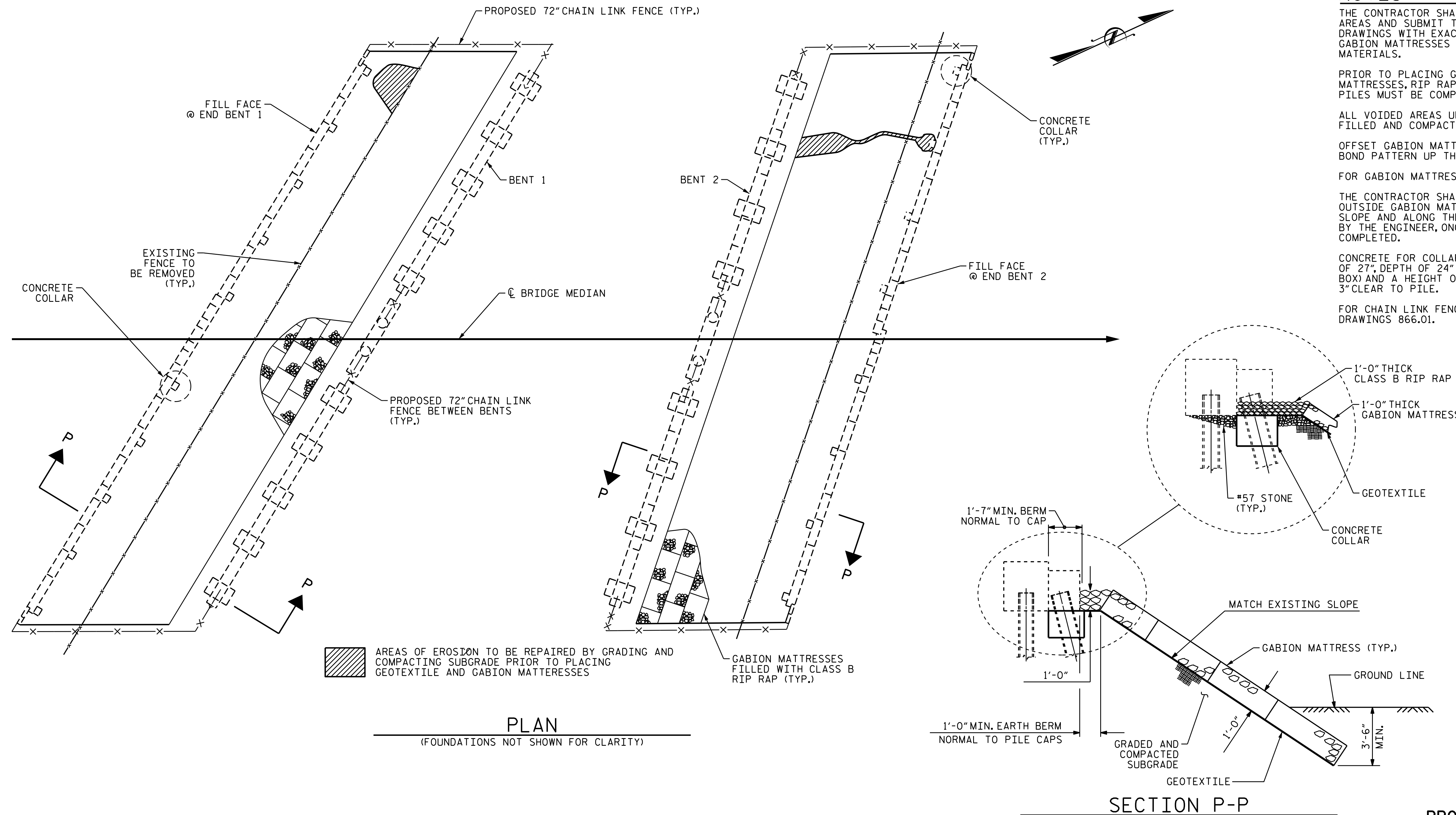
OFFSET GABION MATTRESSES EACH ROW CREATING A RUNNING BOND PATTERN UP THE SLOPE.

FOR GABION MATTRESSES, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL INSTALL PROPOSED FENCING 2FT MIN. OUTSIDE GABION MATTRESS SLOPE PROTECTION GOING UP THE SLOPE AND ALONG THE CENTER OF THE BENTS, OR AS DIRECTED BY THE ENGINEER, ONCE THE SLOPE PROTECTION IS COMPLETED.

CONCRETE FOR COLLARS WAS CALCULATED USING BOX WIDTH OF 27", DEPTH OF 24" (ASSUMED 3" IN FRONT OF BRACE PILE BOX) AND A HEIGHT OF 18". WITH FORM WORK A MINIMUM OF 3" CLEAR TO PILE.

FOR CHAIN LINK FENCE, 72" DETAILS, SEE ROADWAY STANDARD DRAWINGS 866.01.



AREAS OF EROSION TO BE REPAIRED BY GRADING AND COMPACTING SUBGRADE PRIOR TO PLACING GEOTEXTILE AND GABION MATTRESSES

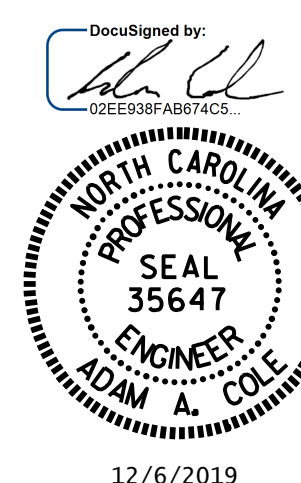
**PLAN**  
(FOUNDATIONS NOT SHOWN FOR CLARITY)

**SECTION P-P**

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590227

**AS-BUILT REPAIR QUANTITIES TABLE**

BRIDGE No. 590227	#57 STONE		CHAIN LINK FENCE, 72" FABRIC		METAL LINE POSTS FOR 72" CHAIN LINK FENCE		METAL TERMINAL POSTS FOR 72" CHAIN LINK FENCE		RIP RAP CLASS B (1'-0" THICK)		GEOTEXTILE FOR DRAINAGE		GABION MATTRESSES (1'-0" THICK)		CLASS A CONCRETE	
	ESTIMATED	ACTUAL	ESTIMATED	ACTUAL	ESTIMATED	ACTUAL	ESTIMATED	ACTUAL	ESTIMATED	ACTUAL	ESTIMATED	ACTUAL	ESTIMATED	ACTUAL	ESTIMATED	ACTUAL
	TON	TON	LIN. FT.	LIN. FT.	EACH	EACH	EACH	EACH	TON	TON	SQUARE YARDS	SQUARE YARDS	SO. YDS.	SO. YDS.	CU. FT.	CU. FT.
END BENT 1	38		155		14		12		848		1,766		1,766			6.8
END BENT 2	34		155		14		12		795		1,885		1,885			54.0
TOTAL	72		310		28		24		1,643		3,651		3,651			60.8

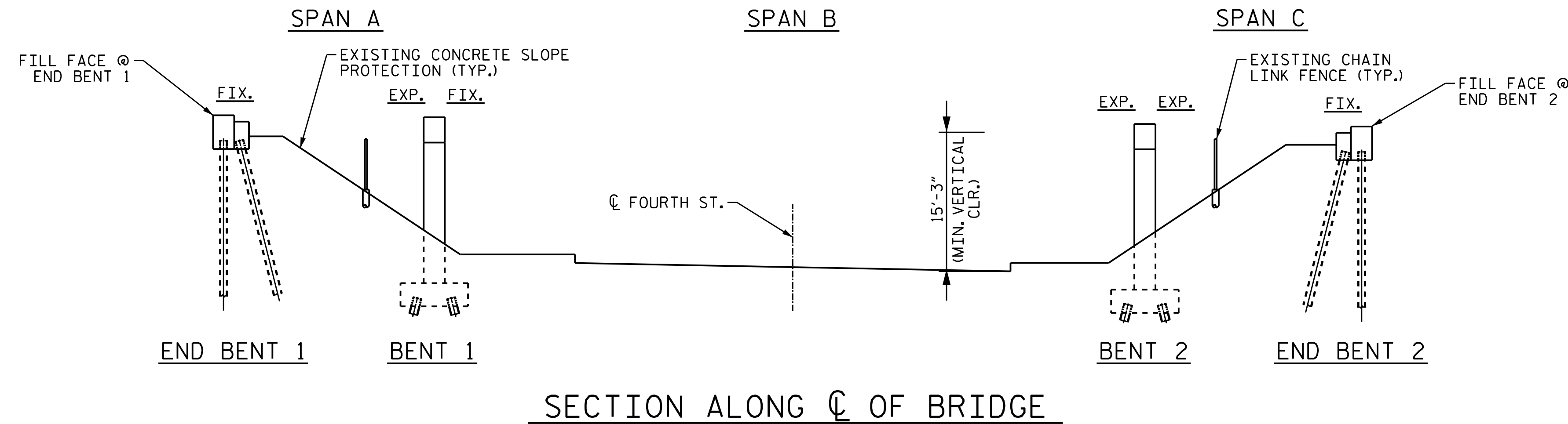


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SLOPE PROTECTION  
 REPAIR DETAILS**

DRAWN BY : N.A. PIERCE DATE : 08/2018  
 CHECKED BY : D.A. CANTRELL DATE : 12/2018

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-13
1			3			TOTAL SHEETS
2			4			13

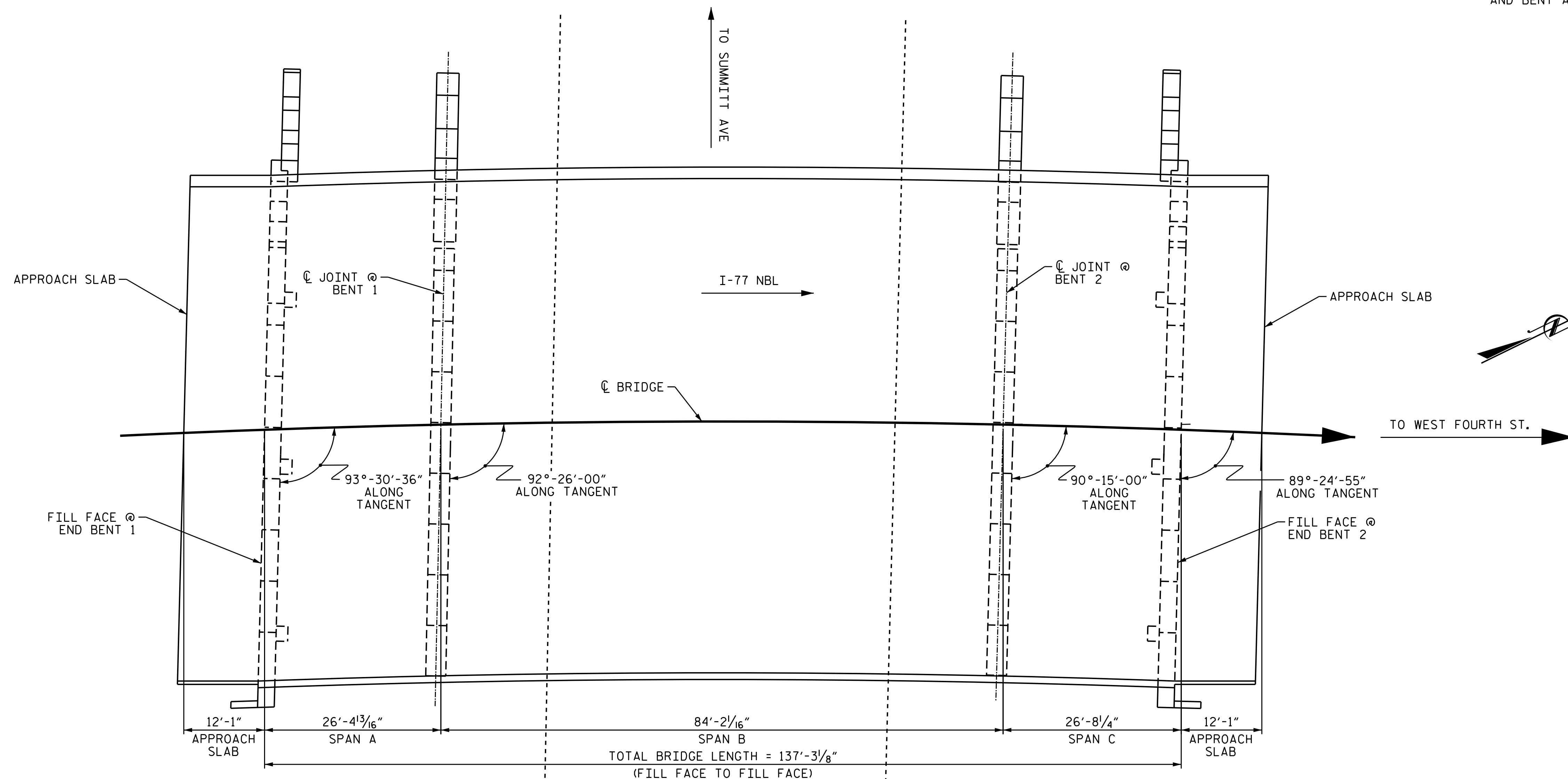


**NOTES**

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 8/1/2018.  
BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

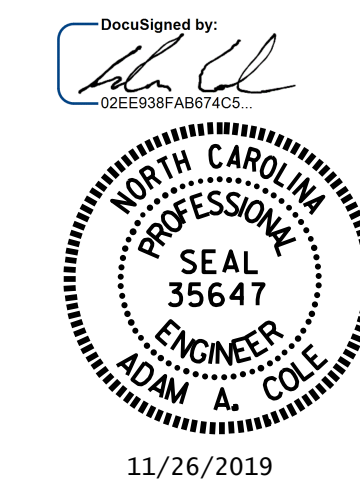
**SCOPE OF WORK**

- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC).
- REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
- GROOVE PPC BRIDGE DECK.
- CLEAN AND REPAINT EXISTING STRUCTURAL STEEL.
- REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS, AND APPLY EPOXY COATING.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIR.



**PLAN**  
FOUNDATIONS NOT SHOWN FOR CLARITY

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



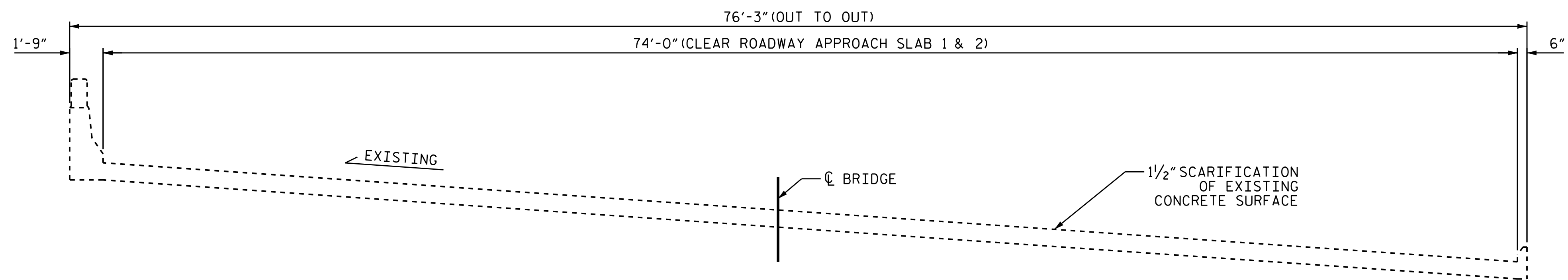
PROJECT NO. I-5769  
MECKLENBURG COUNTY  
BRIDGE NO. 590230

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**GENERAL DRAWING**  
FOR BRIDGE ON I-77 NBL  
OVER FOURTH ST.

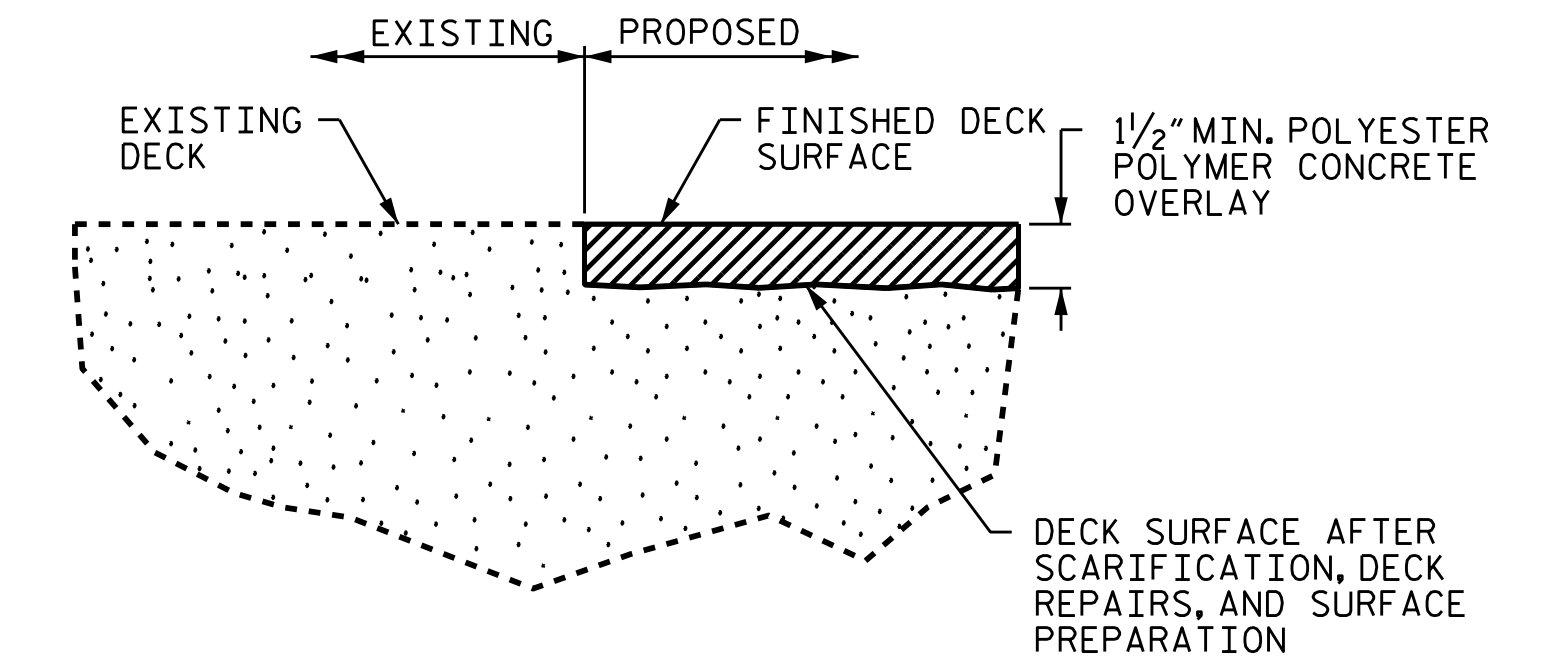
DRAWN BY : D.A. CANTRELL DATE : 09/2018  
CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S4-01
2			4			8

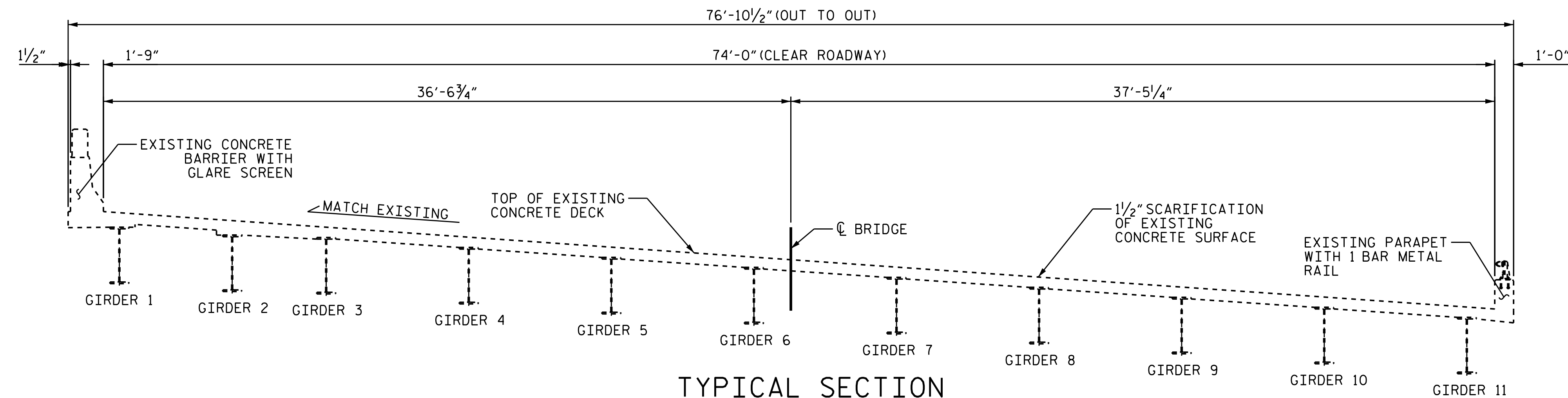


TYPICAL SECTION - APPROACH SLAB  
(EXISTING)

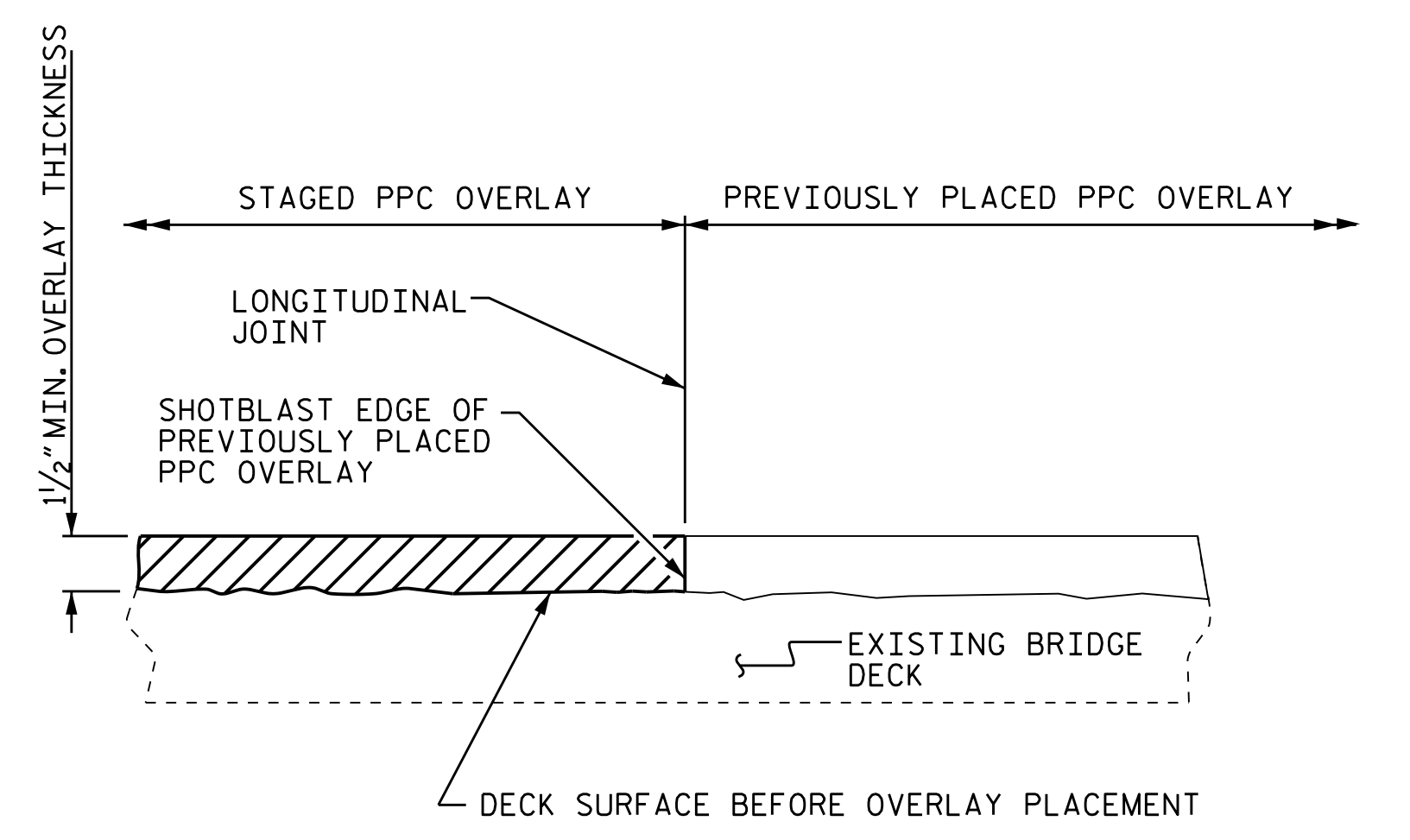


DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

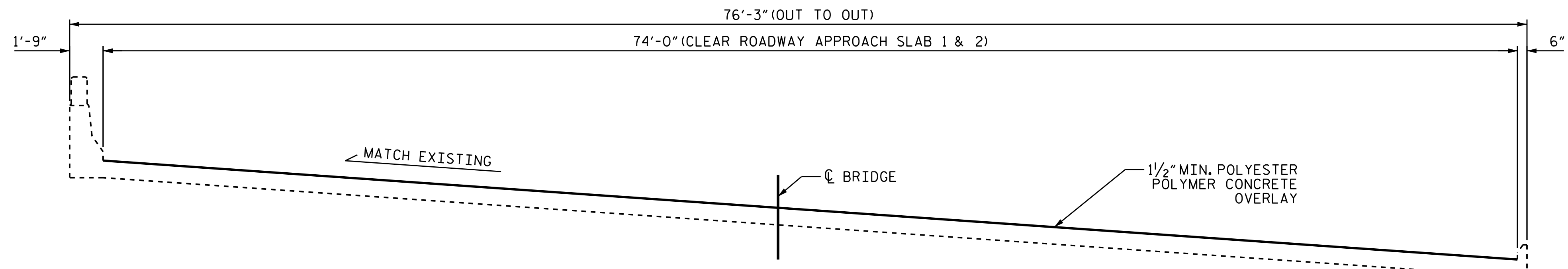
FINISHED SURFACE ELEVATION SHALL MATCH EXISTING CONCRETE SURFACE ELEVATION. ACTUAL THICKNESS OF PPC OVERLAY MAY VARY.



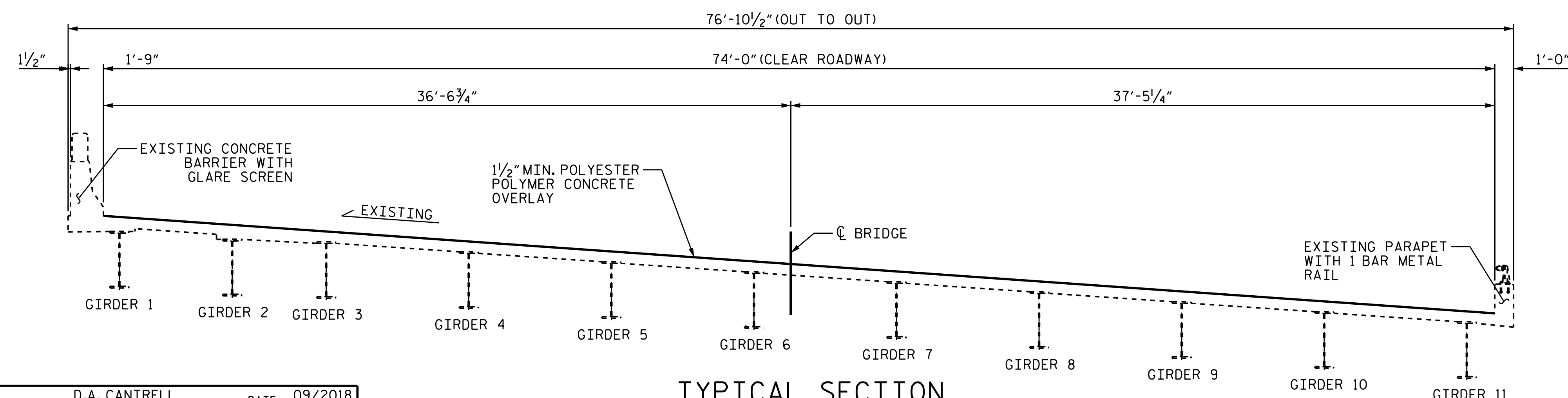
TYPICAL SECTION  
(EXISTING)



STAGED PPC OVERLAY JOINT  
(AS NEEDED)

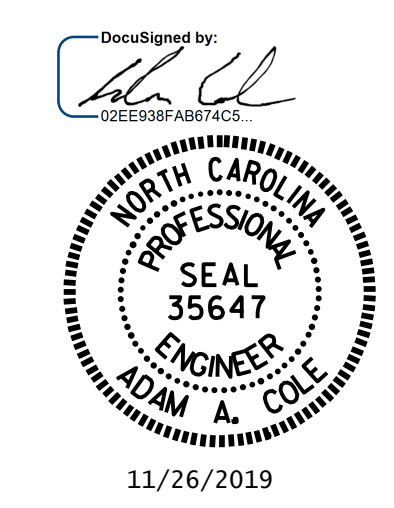


TYPICAL SECTION - APPROACH SLAB  
(PROPOSED)



TYPICAL SECTION  
(PROPOSED)

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
BRIDGE NO. 590230



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

DRAWN BY : D.A. CANTRELL DATE : 09/2018  
CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-02
1			3			TOTAL SHEETS
2			4			8

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

# AS-BUILT REPAIR QUANTITY TABLE

## TOP OF DECK REPAIRS

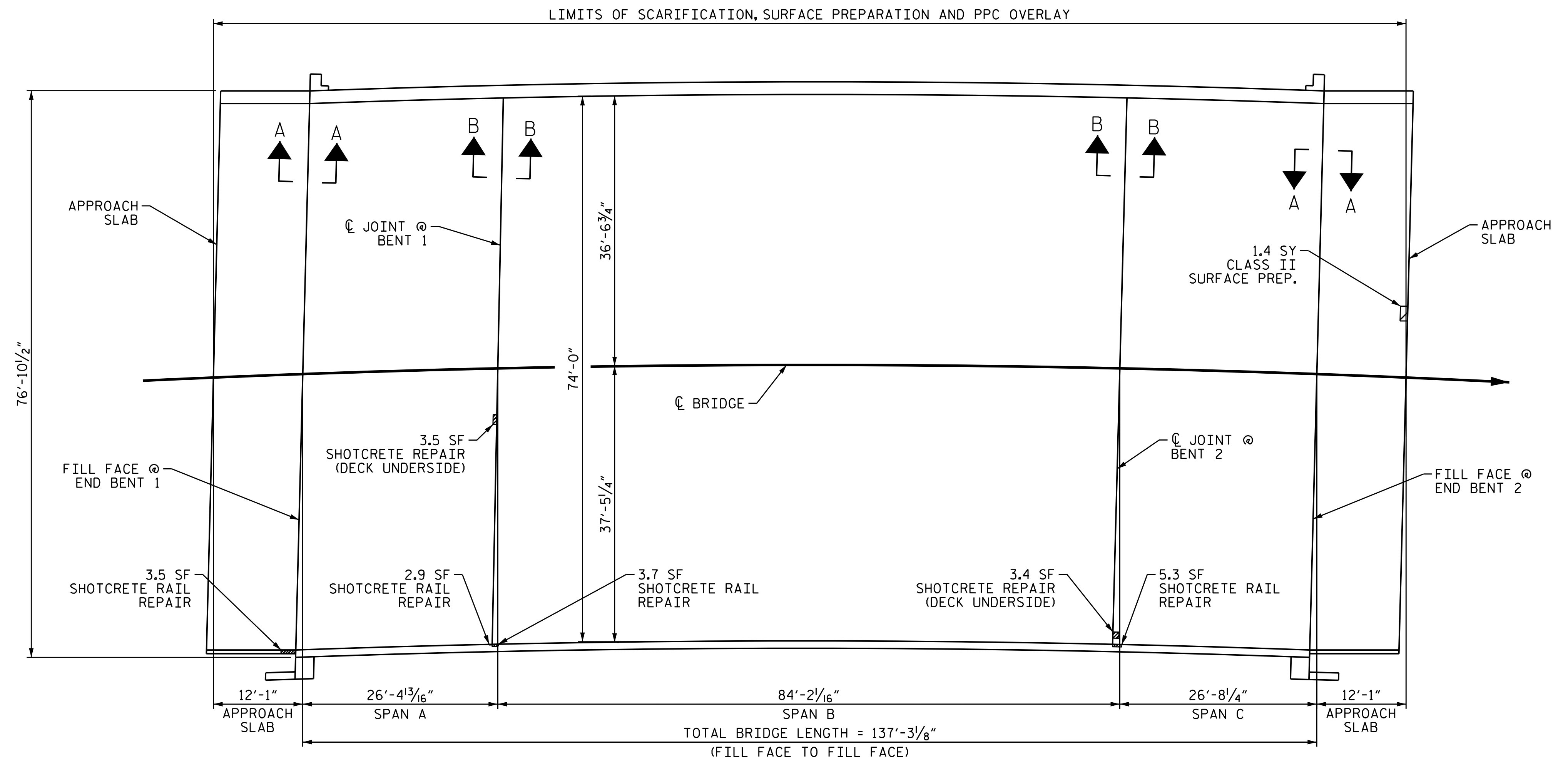
	ESTIMATE	ACTUAL
<b>SCARIFYING BRIDGE DECK</b>		
APPROACH SLAB 1	100 SQ. YDS.	
SPAN A	218 SQ. YDS.	
SPAN B	693 SQ. YDS.	
SPAN C	220 SQ. YDS.	
APPROACH SLAB 2	100 SQ. YDS.	
<b>CLASS II SURFACE PREPARATION</b>		
APPROACH SLAB 1	0.0 SQ. YDS.	
SPAN A	0.0 SQ. YDS.	
SPAN B	0.0 SQ. YDS.	
SPAN C	0.0 SQ. YDS.	
APPROACH SLAB 2	1.4 SQ. YDS.	
<b>CONCRETE DECK REPAIR FOR PPC OVERLAY</b>		
APPROACH SLAB 1	0.0 SQ. YDS.	
SPAN A	0.0 SQ. YDS.	
SPAN B	0.0 SQ. YDS.	
SPAN C	0.0 SQ. YDS.	
APPROACH SLAB 2	1.4 SQ. YDS.	
<b>SHOTBLASTING BRIDGE DECK</b>		
APPROACH SLAB 1	100 SQ. YDS.	
SPAN A	218 SQ. YDS.	
SPAN B	693 SQ. YDS.	
SPAN C	220 SQ. YDS.	
APPROACH SLAB 2	100 SQ. YDS.	
<b>PPC MATERIALS</b>		
APPROACH SLAB 1	4.9 CU. YDS.	
SPAN A	10.6 CU. YDS.	
SPAN B	33.7 CU. YDS.	
SPAN C	10.7 CU. YDS.	
APPROACH SLAB 2	4.9 CU. YDS.	
<b>PLACING AND FINISHING PPC OVERLAY</b>		
APPROACH SLAB 1	100 SQ. YDS.	
SPAN A	218 SQ. YDS.	
SPAN B	693 SQ. YDS.	
SPAN C	220 SQ. YDS.	
APPROACH SLAB 2	100 SQ. YDS.	
<b>GROOVING BRIDGE FLOORS</b>		
APPROACH SLAB 1	794 SQ. FT.	
SPAN A	1818 SQ. FT.	
SPAN B	5888 SQ. FT.	
SPAN C	1826 SQ. FT.	
APPROACH SLAB 2	805 SQ. FT.	

## SHOTCRETE REPAIRS

	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
<b>CONCRETE BARRIER RAIL</b>				
	15.4	5.2		
<b>UNDERSIDE OF DECK</b>				
APPROACH SLAB 1	0	0		
SPAN A	3.5	1.2		
SPAN B	0	0		
SPAN C	3.4	1.2		
APPROACH SLAB 2	0	0		

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.

DRAWN BY : D.A. CANTRELL DATE : 09/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019



## 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 SECTION B-B, SEE "JOINT DETAILS" SHEET.

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

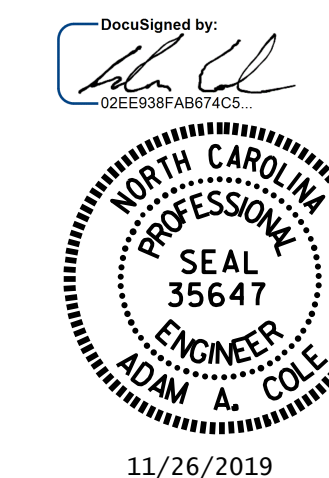
FOR CONCRETE DECK REPAIR FOR PPC OVERLAY, PPC MATERIALS, AND PLACING AND FINISHING PPC OVERLAY SEE POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

APPROX. CLASS II SURFACE PREPARATION

SHOTCRETE RAIL REPAIR

SHOTCRETE REPAIRS FOR DECK UNDERSIDE

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590230



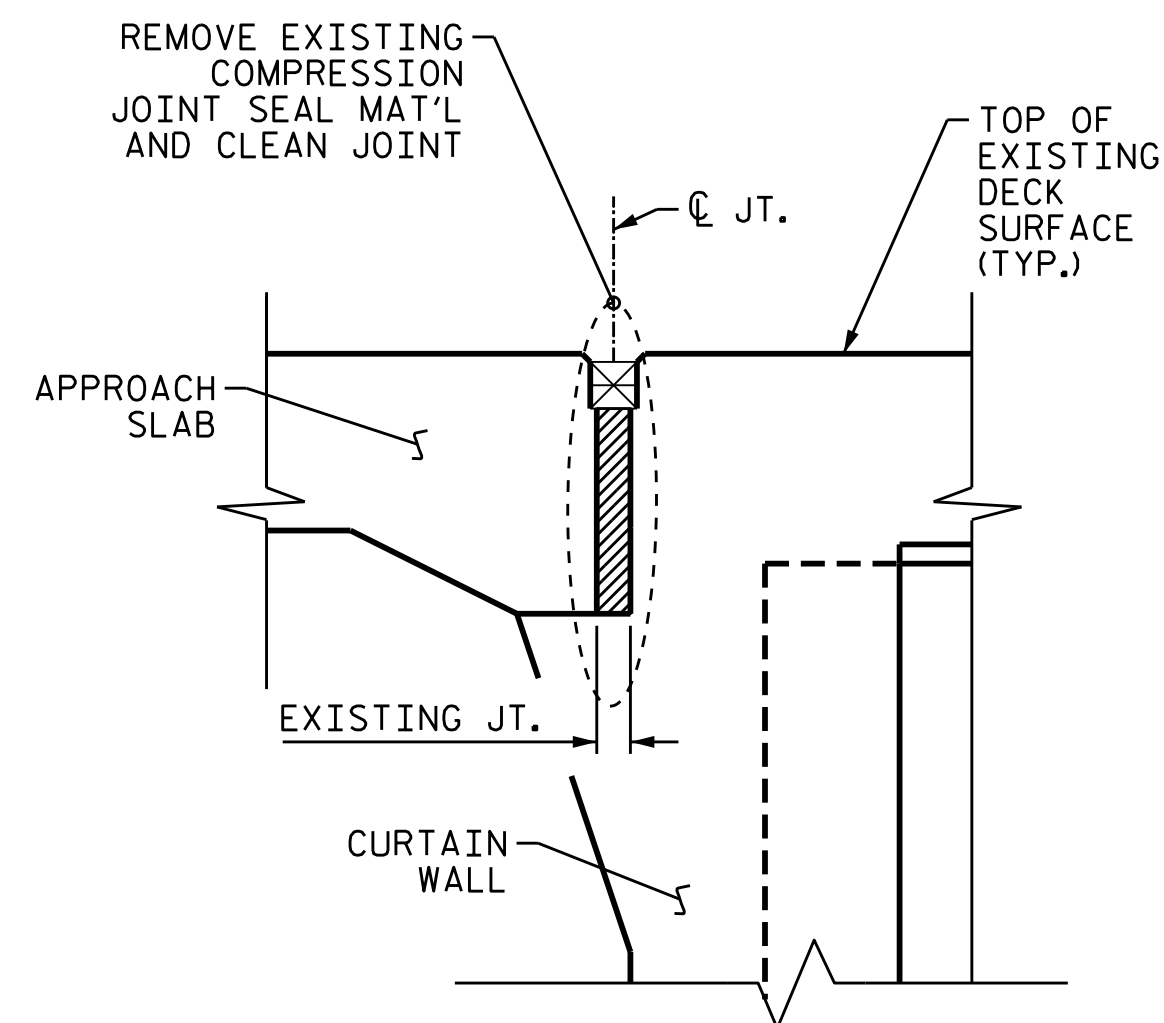
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 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 PLAN OF SPANS

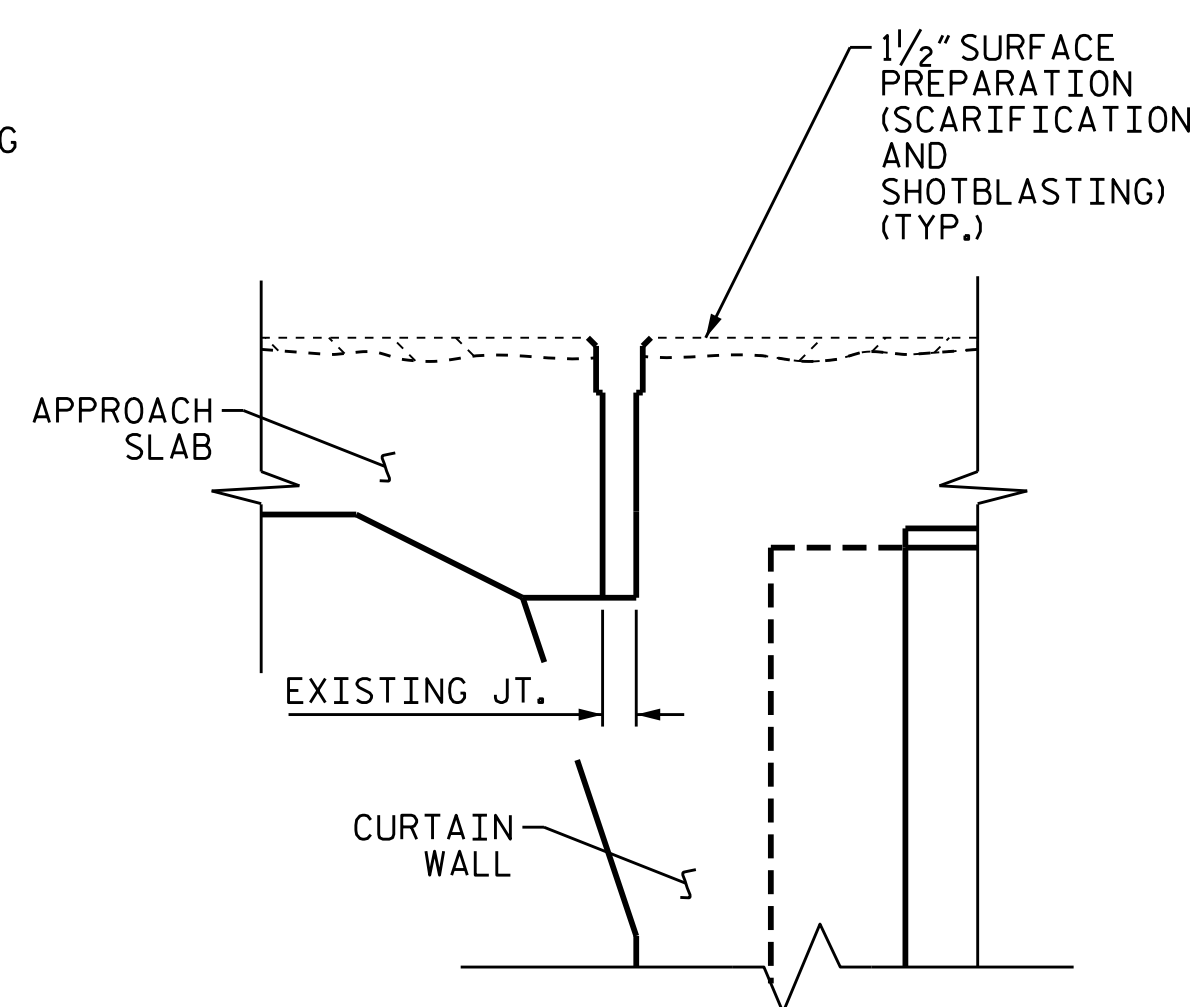
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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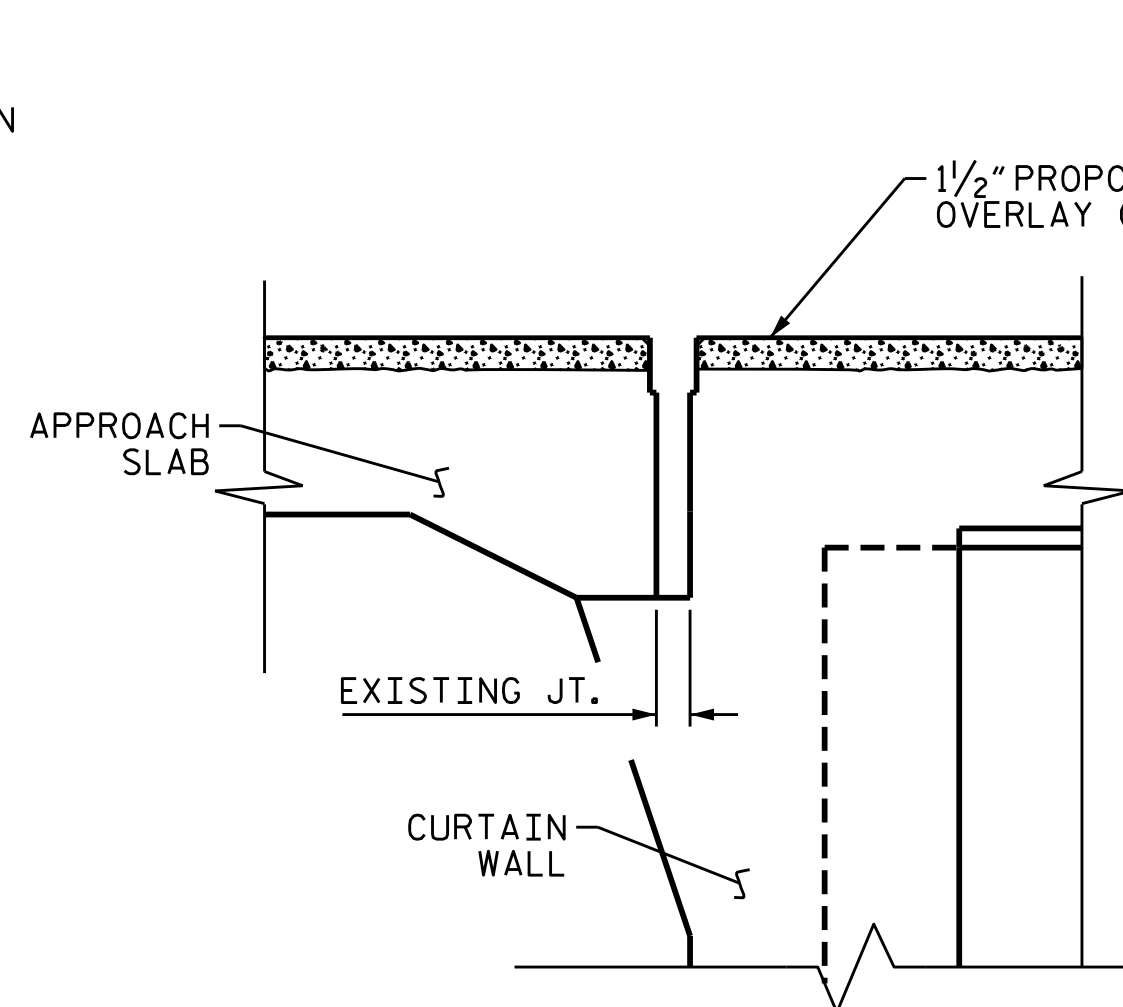




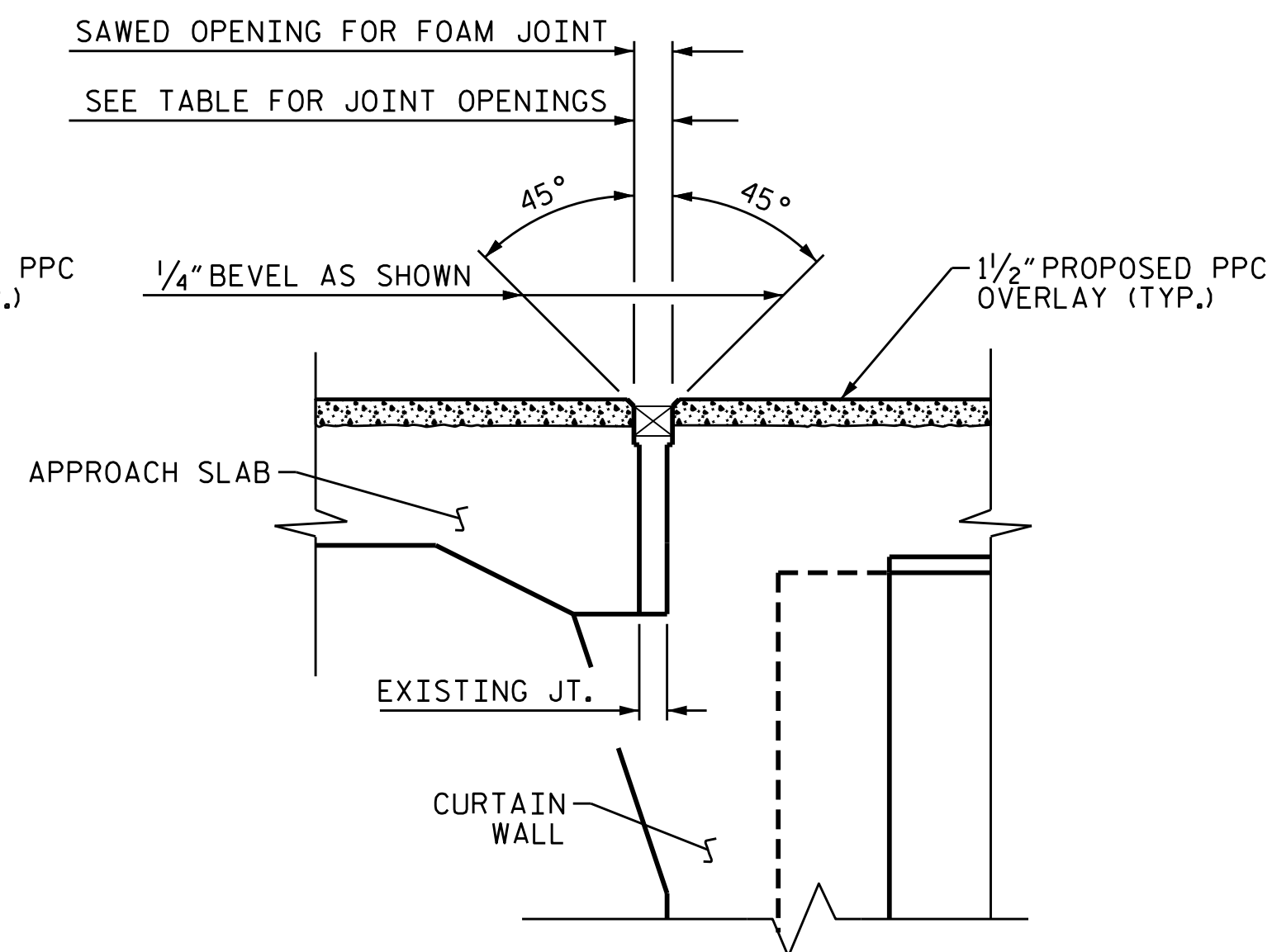
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

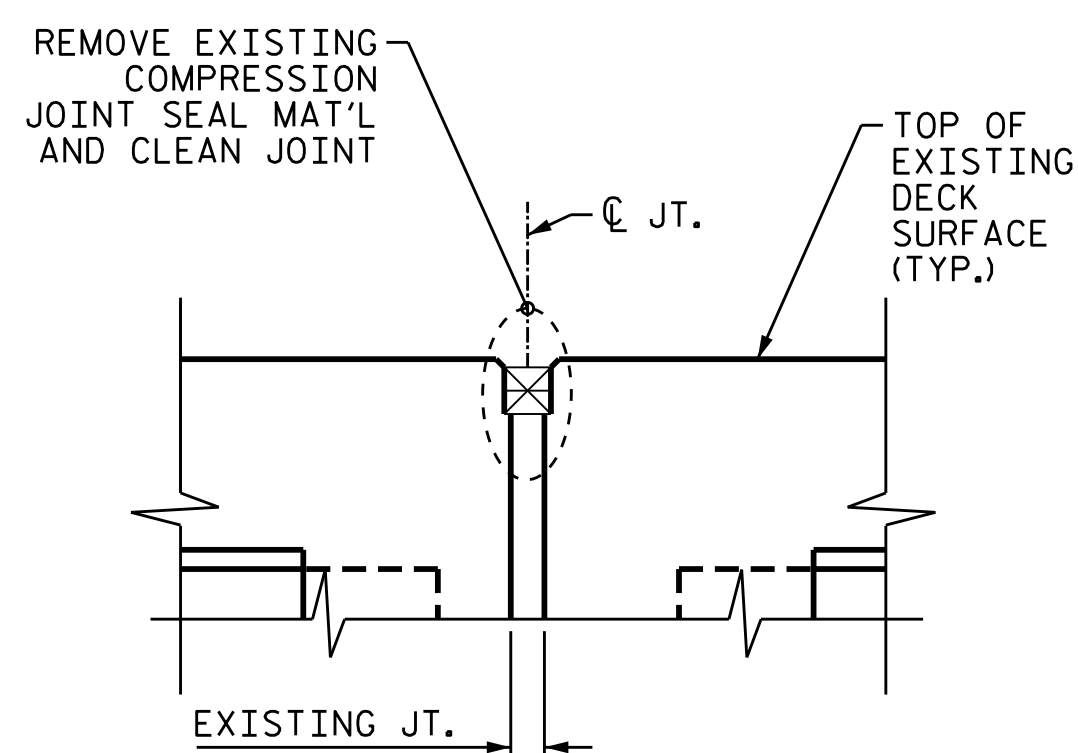


PROPOSED JOINT PRE-SAWED

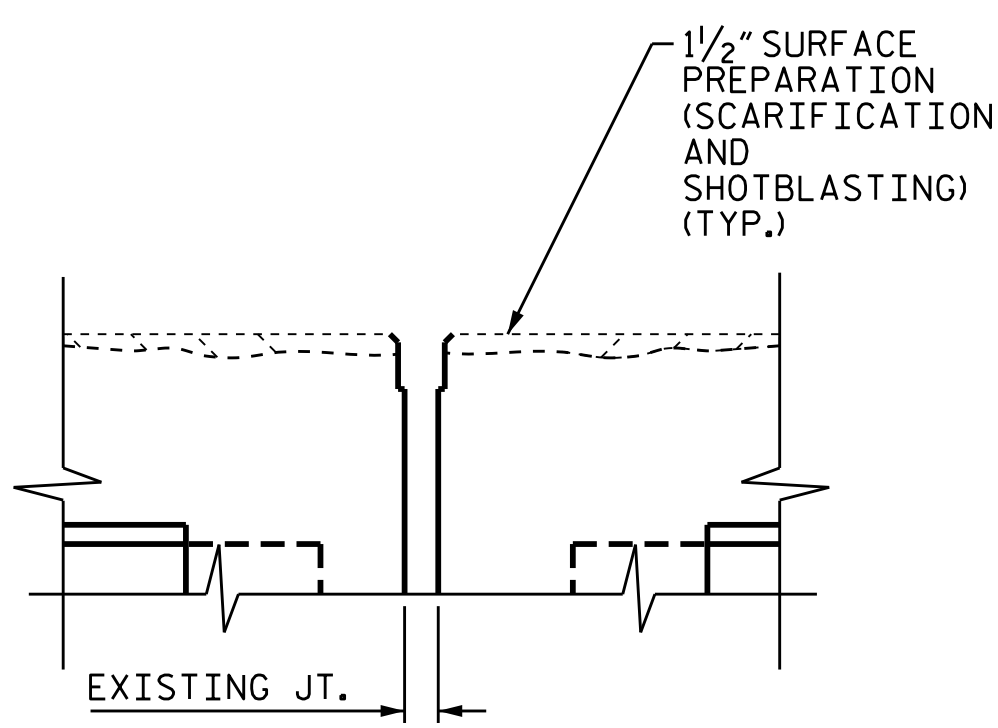


PROPOSED FOAM JOINT SEAL

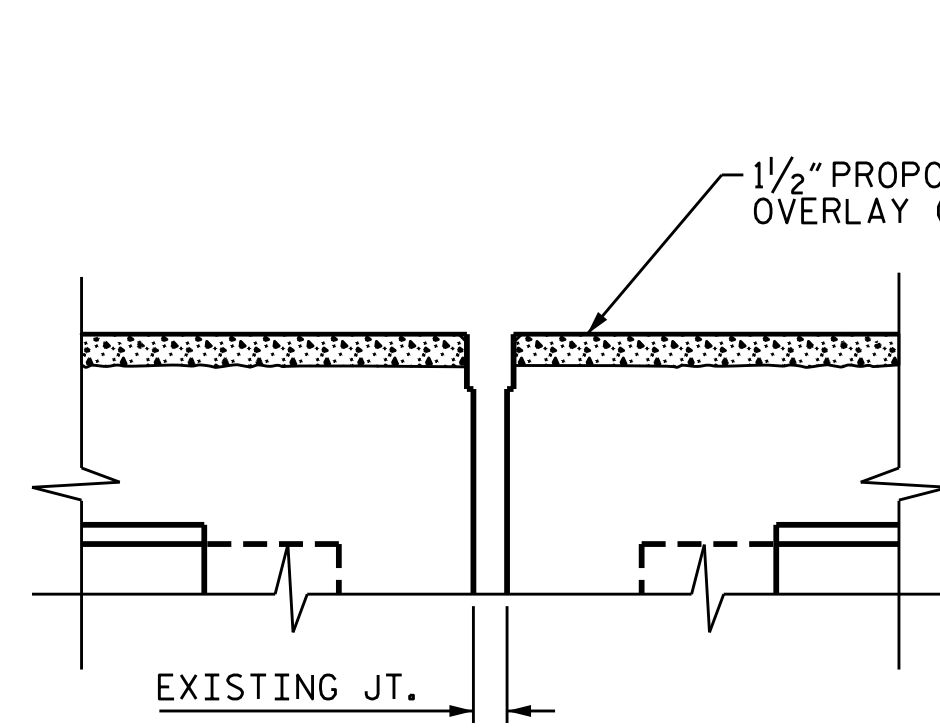
SECTION A-A  
(TYP. AT END BENTS)



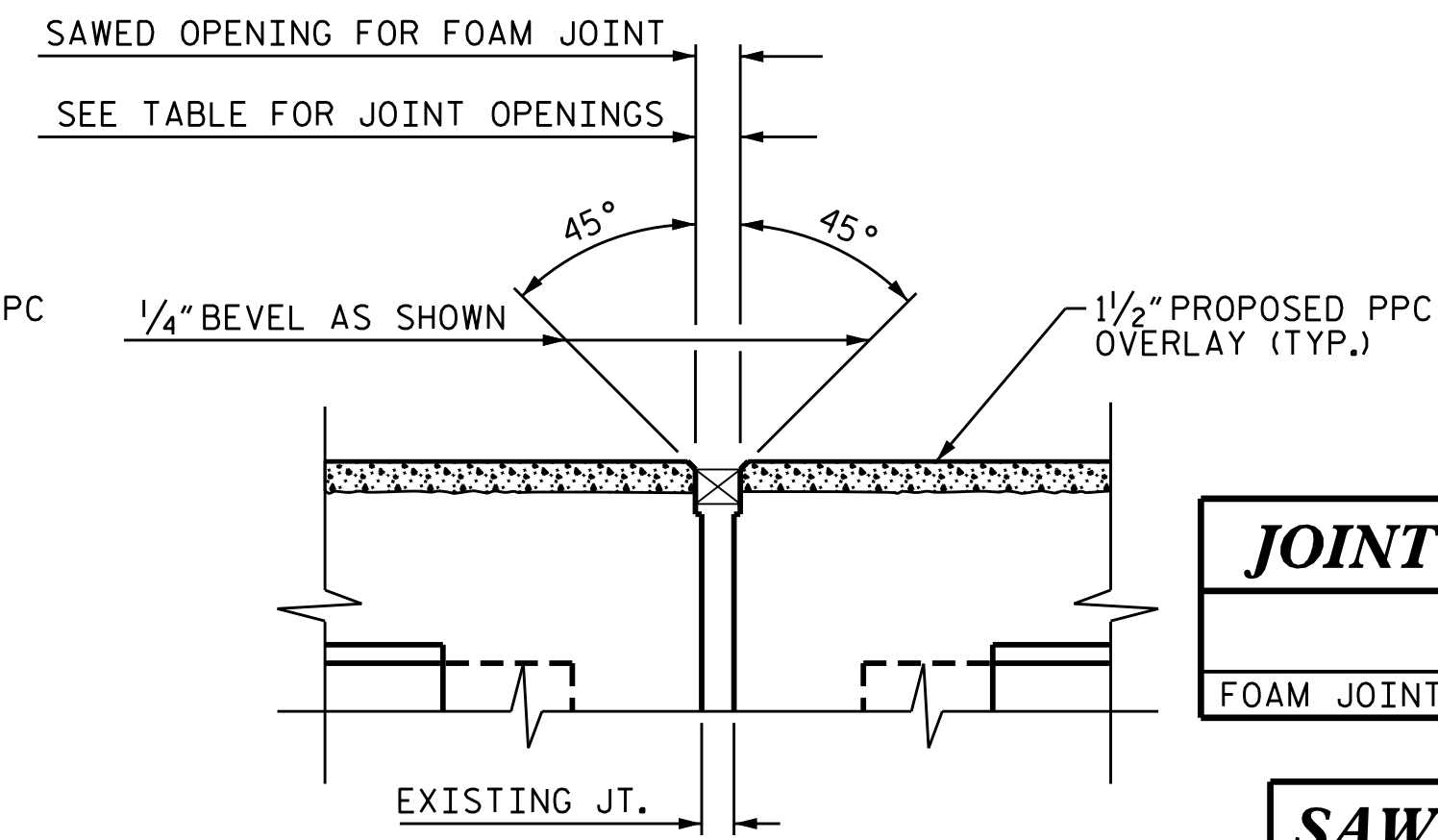
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

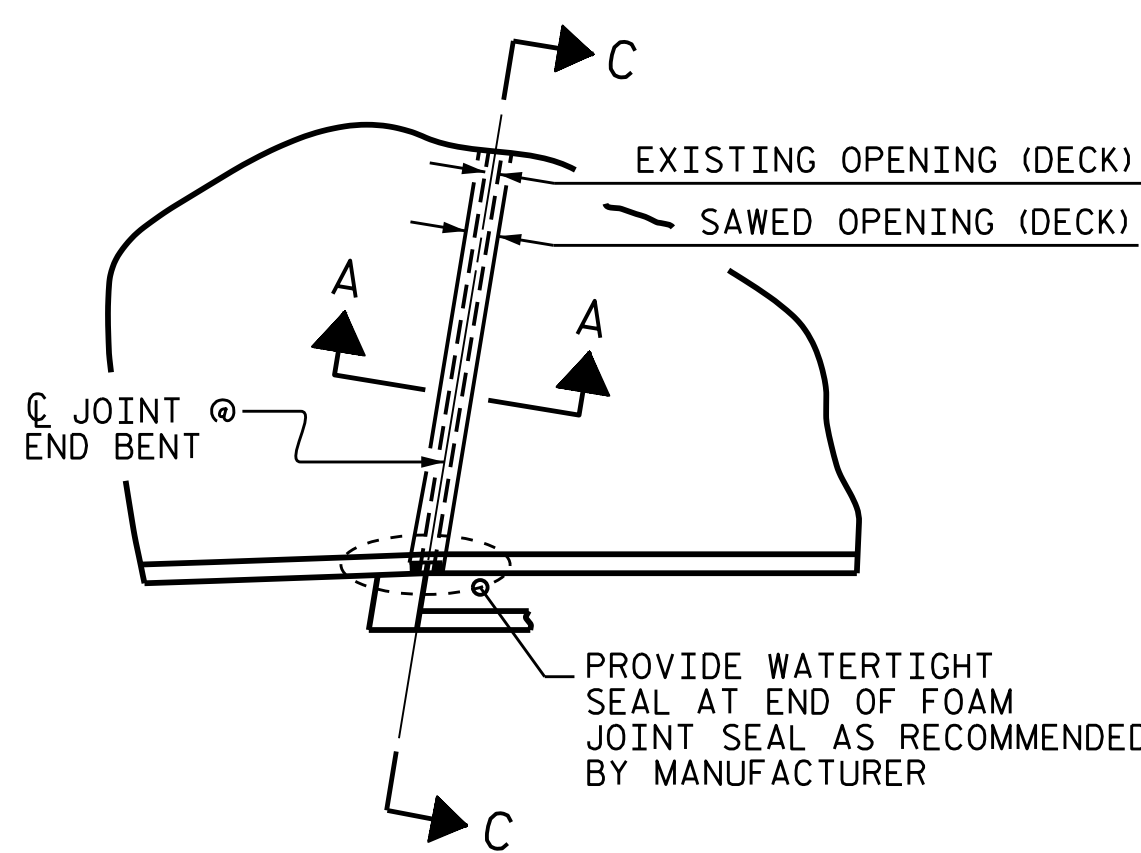


PROPOSED JOINT PRE-SAWED

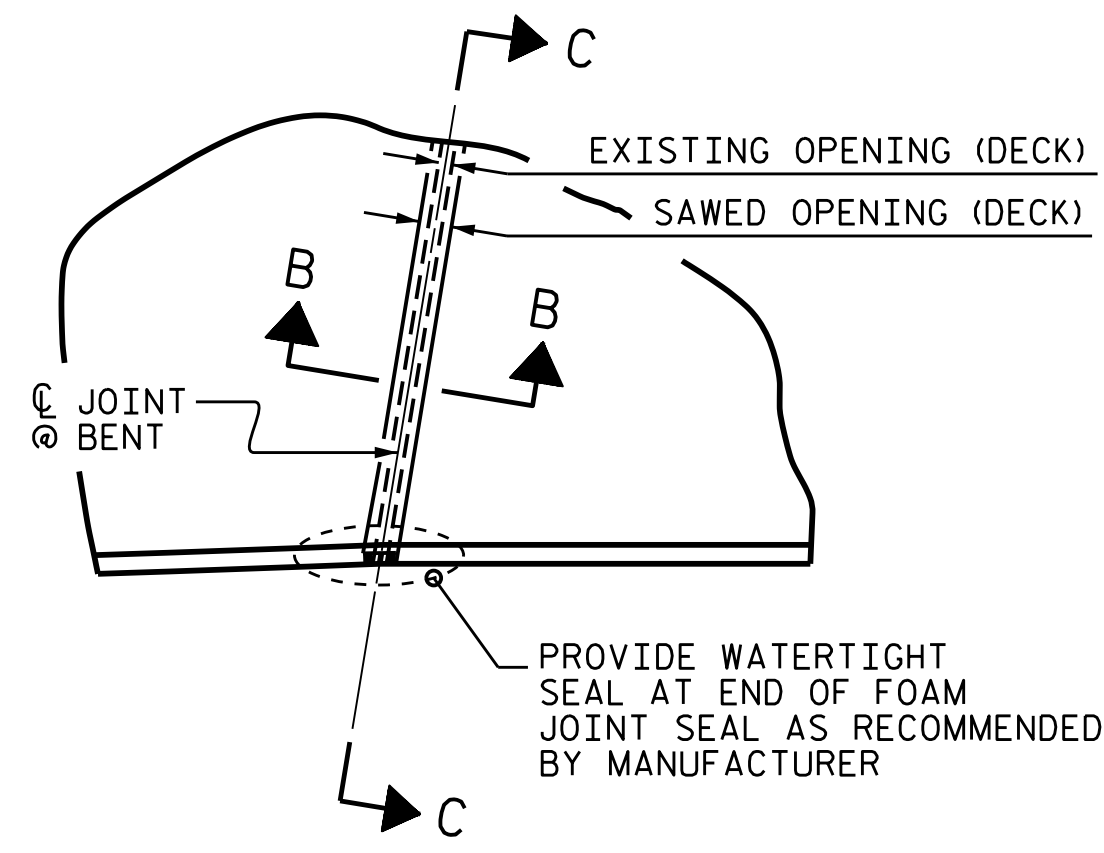


PROPOSED FOAM JOINT SEAL

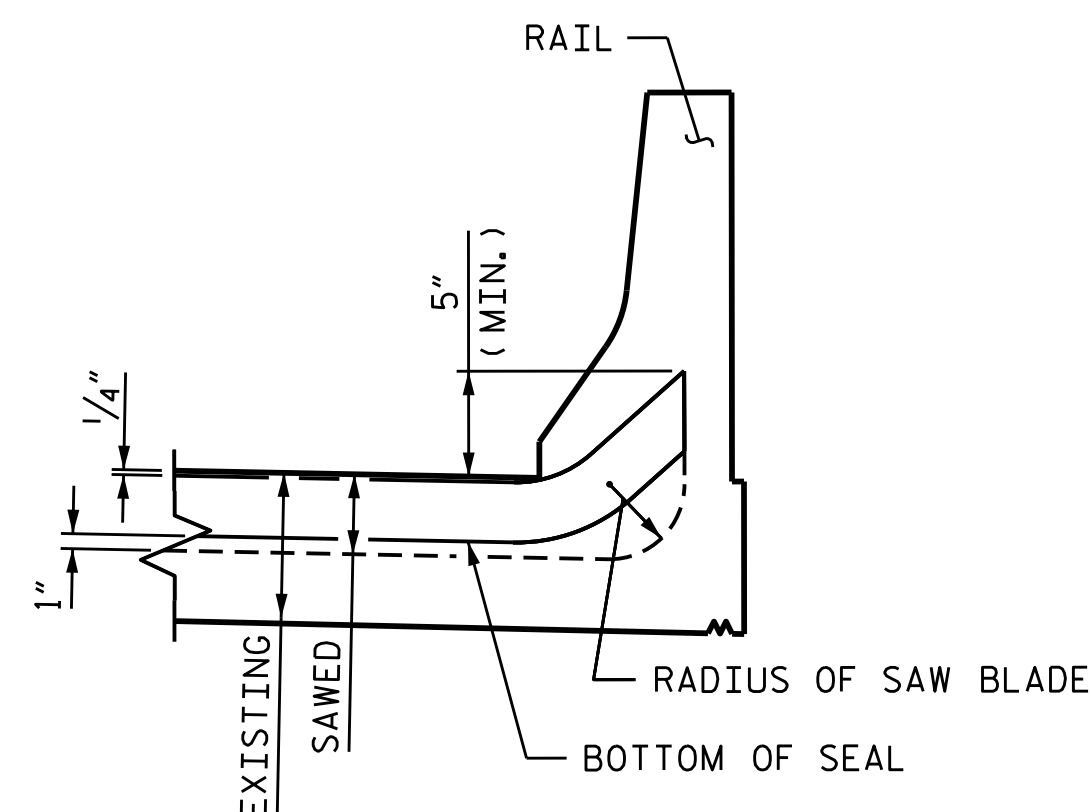
SECTION B-B  
(TYP. AT BENTS)



PLAN  
(@ END BENT)



PLAN  
(@ BENT)



SECTION C-C

NOTES

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

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

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

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

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

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

THE INSTALLED FOAM JOINTS SHALL BE WATER TIGHT.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

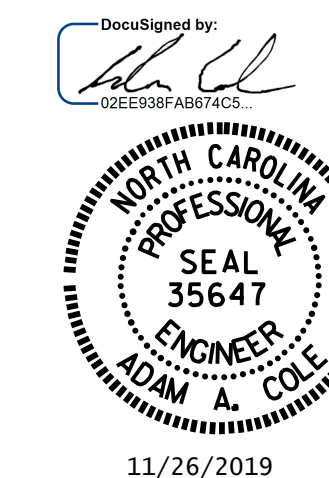
JOINT REPAIR QUANTITY TABLE

	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	309 LF	

SAWED JOINT OPENING TABLE

LOCATION	TOTAL MOVEMENT (ALONG C.R.DY)	SAWED JT. OPENING (PERPENDICULAR TO JT.)		
		AT 30°	AT 60°	AT 90°
END BENT 1			2"	
BENT 1	5/16"	1 1/16"	1 3/8"	1 9/16"
BENT 2	1 3/16"	2 3/8"	2 1/8"	1 7/8"
END BENT 2			2"	

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
BRIDGE NO. 590230



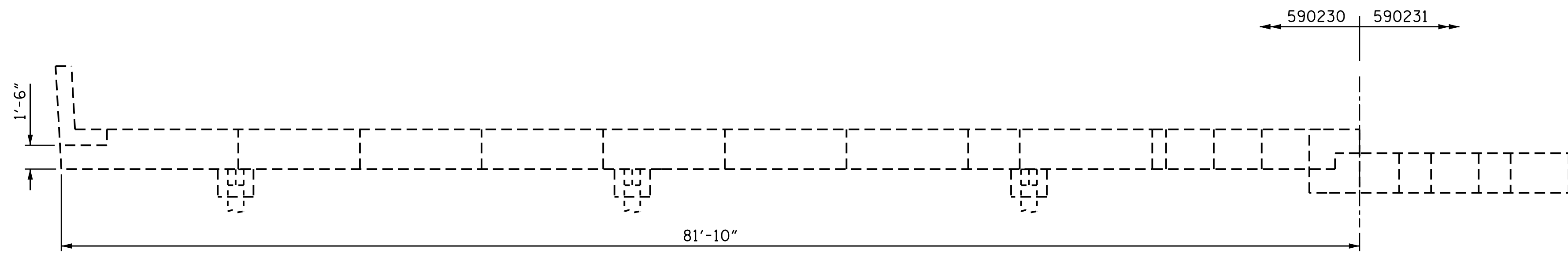
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARDS

FOAM JOINT SEAL  
DETAILS FOR PPC  
OVERLAY

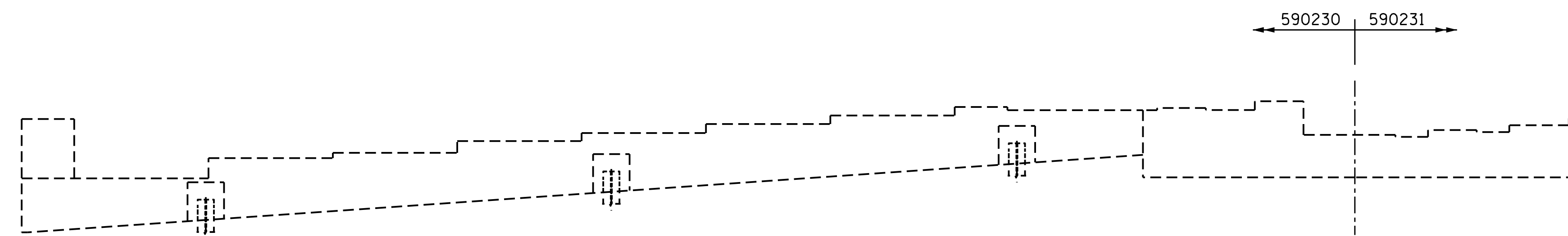
DRAWN BY : D.A. CANTRELL DATE : 11/2018  
CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

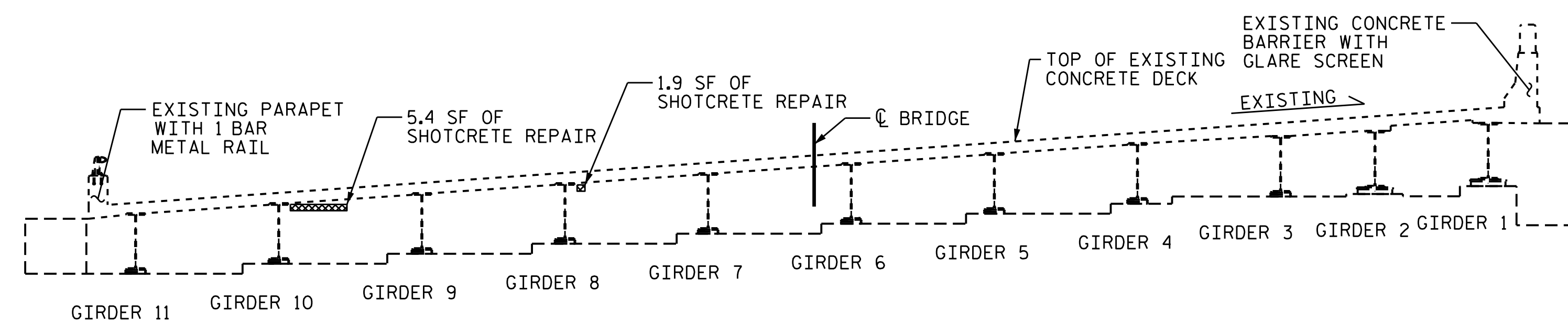
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NO.	BY:	DATE:	NO.	BY:	DATE:	S4-04
1			3			TOTAL SHEETS
2			4			8



PLAN



ELEVATION



TYPICAL SECTION

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	7.3	3.7		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	146			

NOTES

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

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

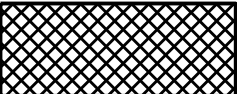
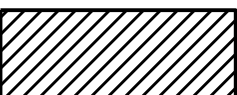

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

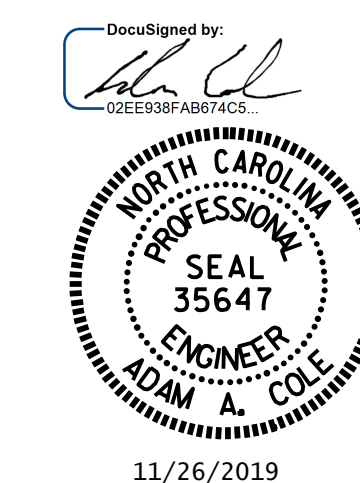
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590230

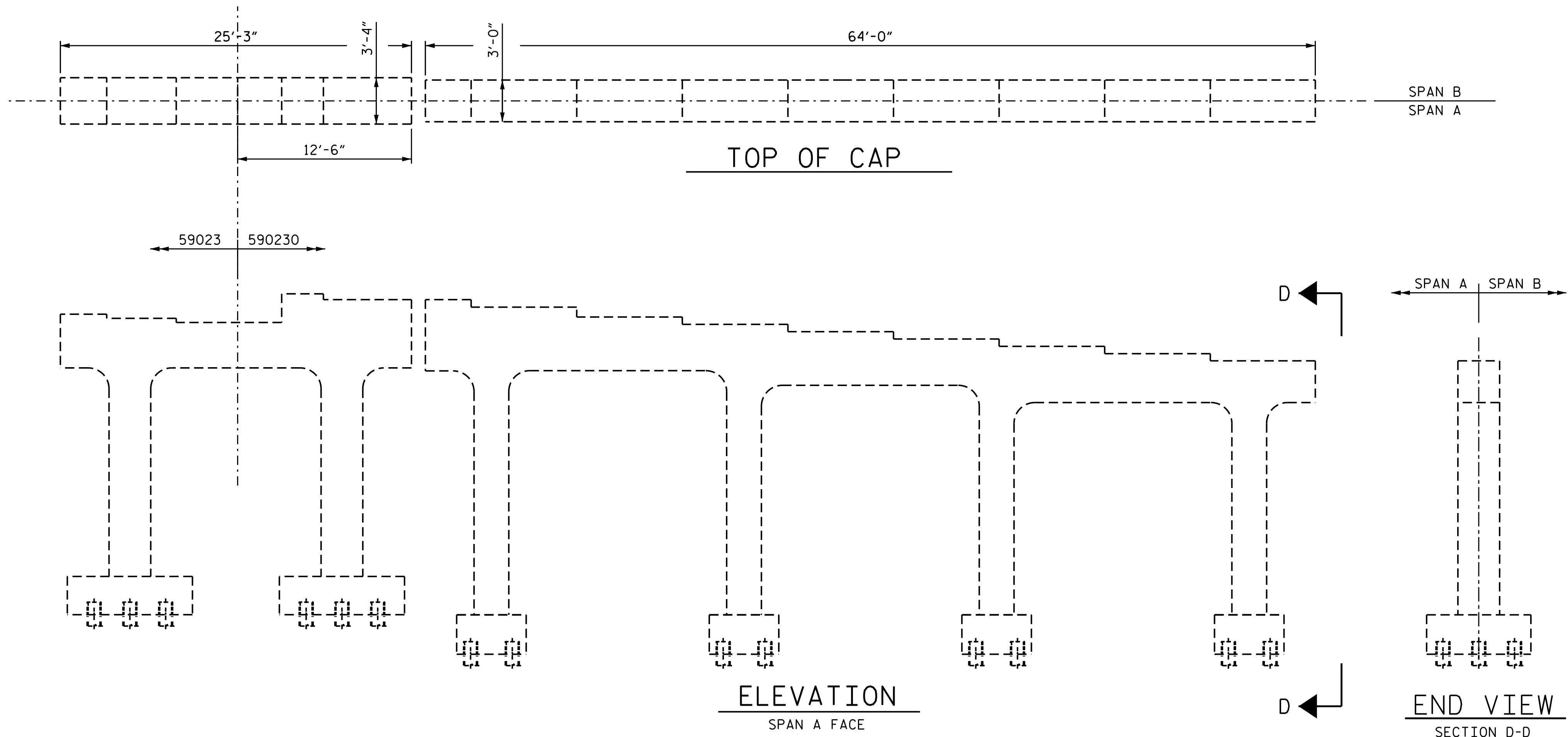


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 1

DRAWN BY : D.A. CANTRELL DATE : 09/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

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2			4			TOTAL SHEETS 8



AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	8.0	4.0		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	242			

**NOTES**

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT UTILITY LINES AND LIGHTING ARE ATTACHED TO THE STRUCTURE.

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, 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 MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

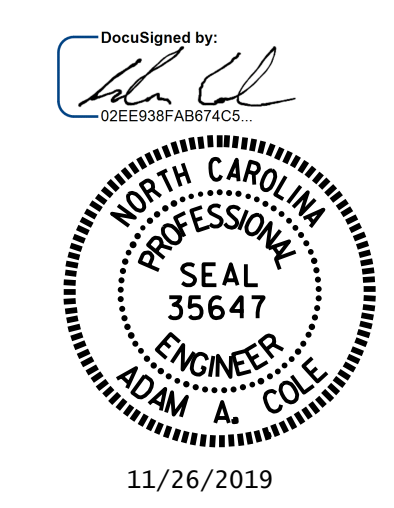
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

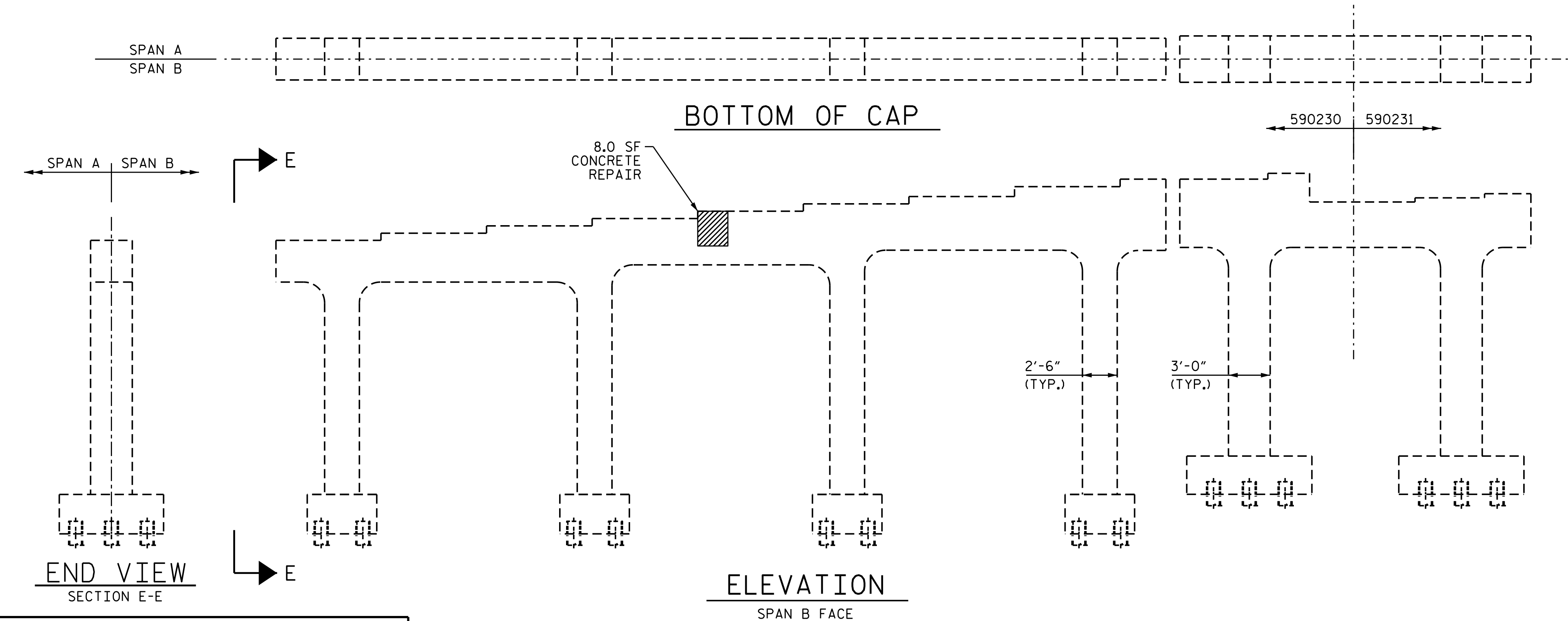
FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590230



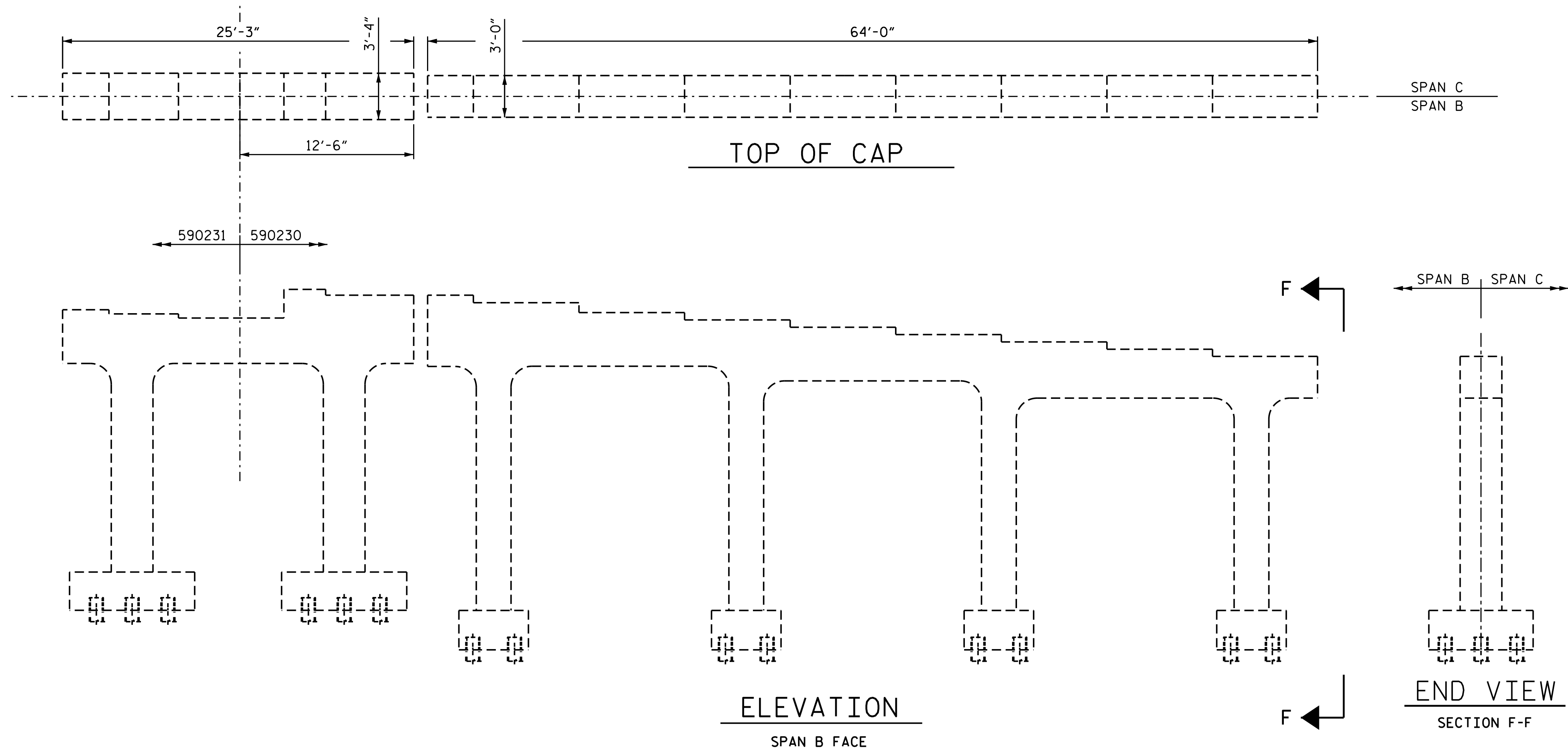
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 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1



DRAWN BY : D.A. CANTRELL DATE : 9/2018  
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SPAN C  
SPAN B

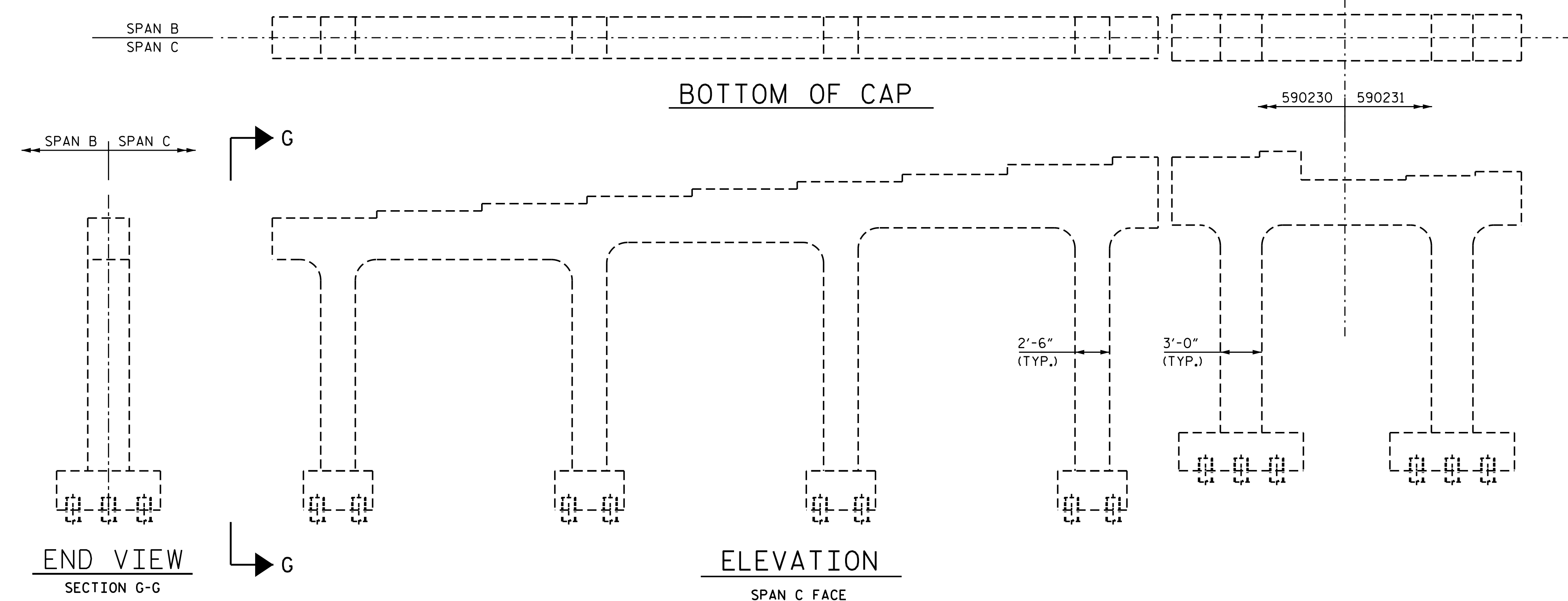
TOP OF CAP

ELEVATION

SPAN B FACE

END VIEW

SECTION F-F



SPAN B  
SPAN C

BOTTOM OF CAP

ELEVATION

SPAN C FACE

END VIEW

SECTION G-G

AS-BUILT REPAIR QUANTITY TABLE				
BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	242			

**NOTES**

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT UTILITY LINES AND LIGHTING ARE ATTACHED TO THE STRUCTURE.

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

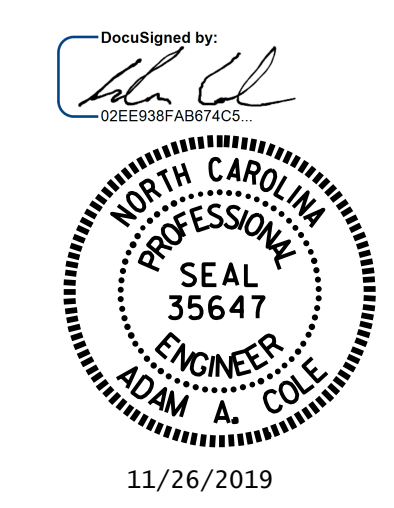
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLEBURG COUNTY  
 BRIDGE NO. 590230

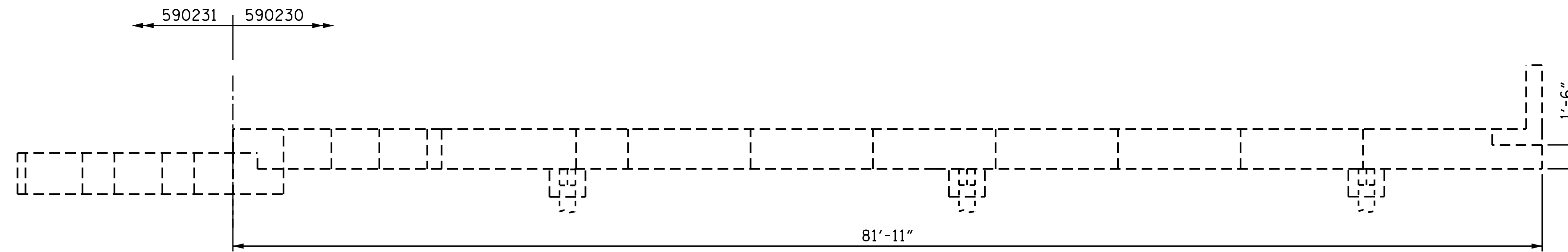


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 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 2

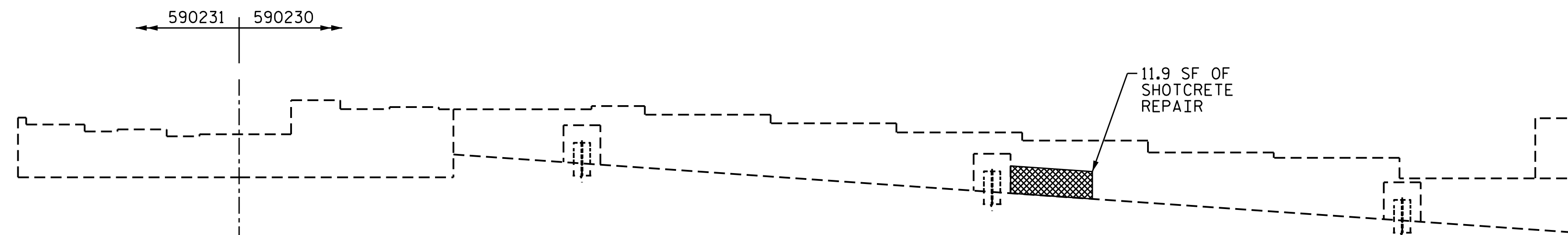
DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

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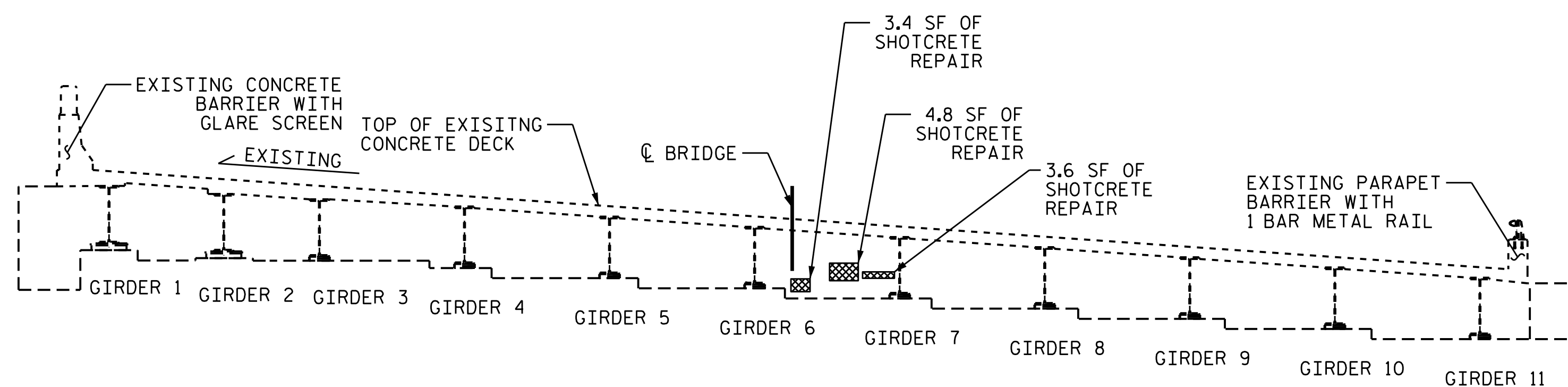
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PLAN



ELEVATION



TYPICAL SECTION

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	11.9	6.0		
CURTAIN WALL	11.8	5.9		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	146			

NOTES

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

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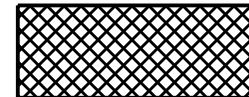
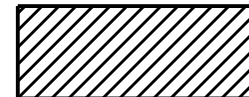

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590230

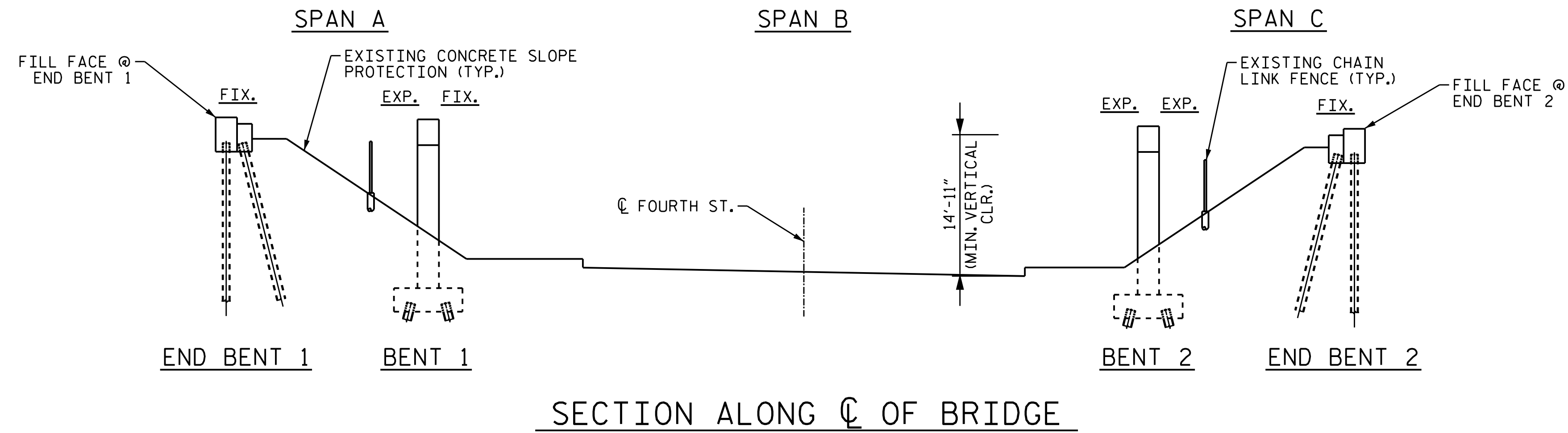


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
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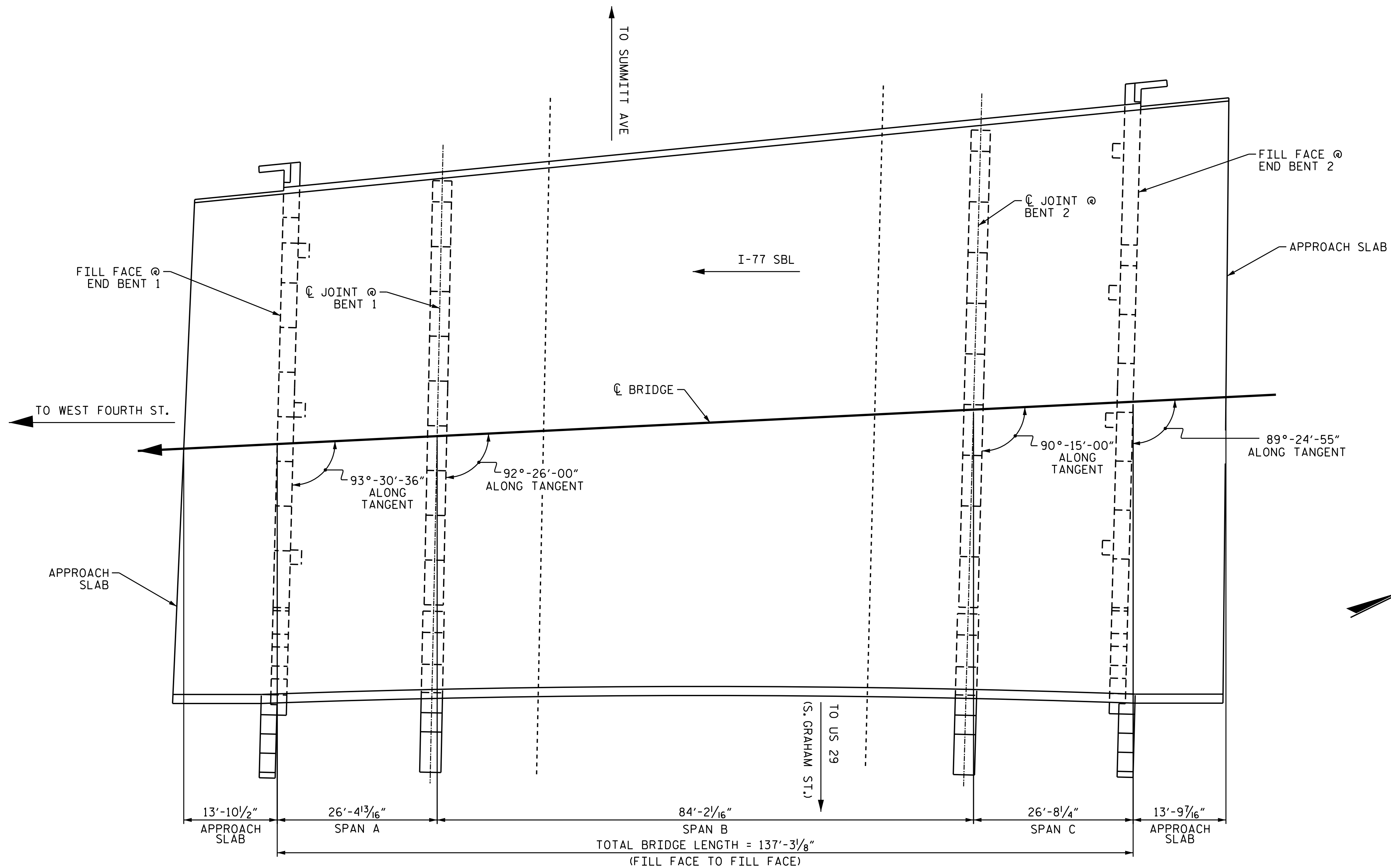
DRAWN BY : D.A. CANTRELL DATE : 10/2018  
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1			3			S4-08 TOTAL SHEETS 8
2			4			

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SECTION ALONG C OF BRIDGE



PLAN

FOUNDATIONS NOT SHOWN FOR CLARITY

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

26-NOV-2019 08:05  
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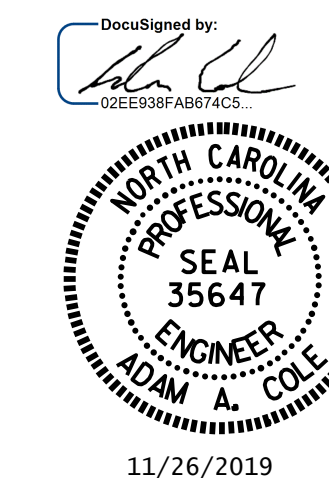
NOTES

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 8/6/2018.  
 BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

SCOPE OF WORK

- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC).
- REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
- GROOVE PPC BRIDGE DECK.
- CLEAN AND REPAINT EXISTING STRUCTURAL STEEL.
- REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS, AND APPLY EPOXY COATING.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIR.

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



PROJECT NO. I-5769  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590231

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

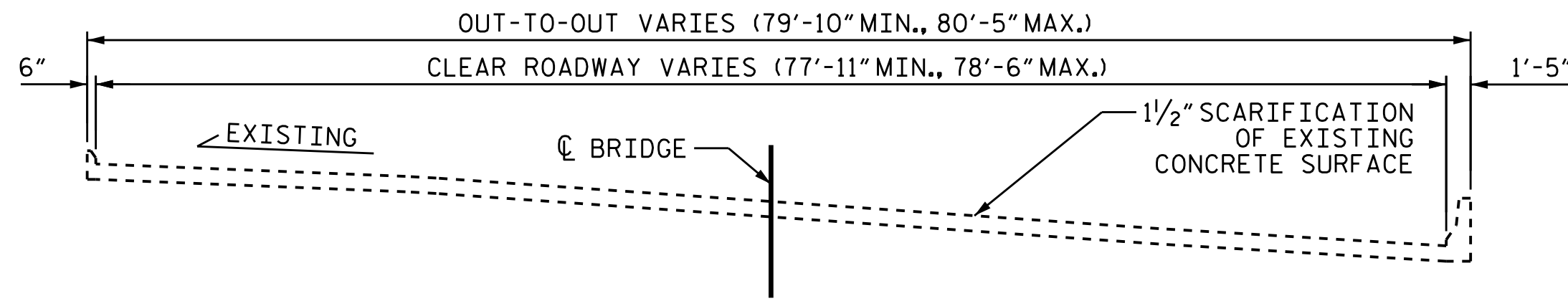
GENERAL DRAWING  
 FOR BRIDGE ON I-77 SBL  
 OVER FOURTH ST.

REVISIONS						SHEET NO.
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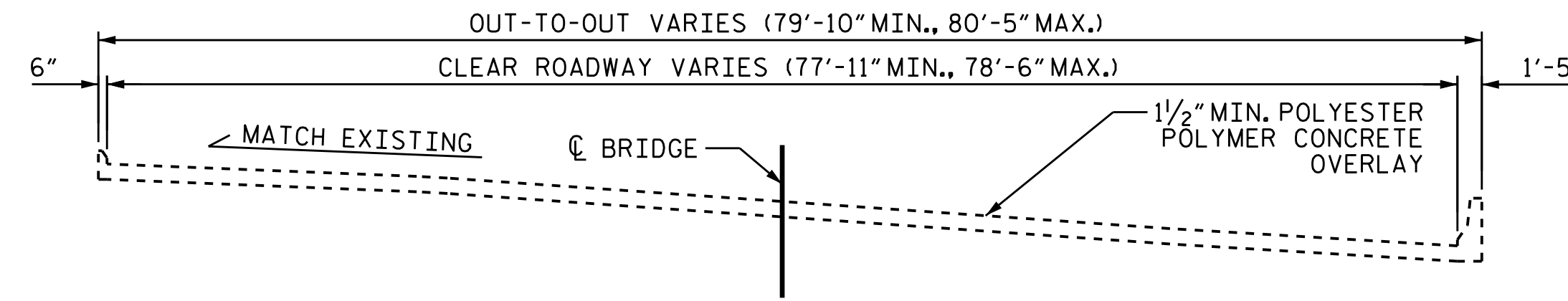
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**NOTES**

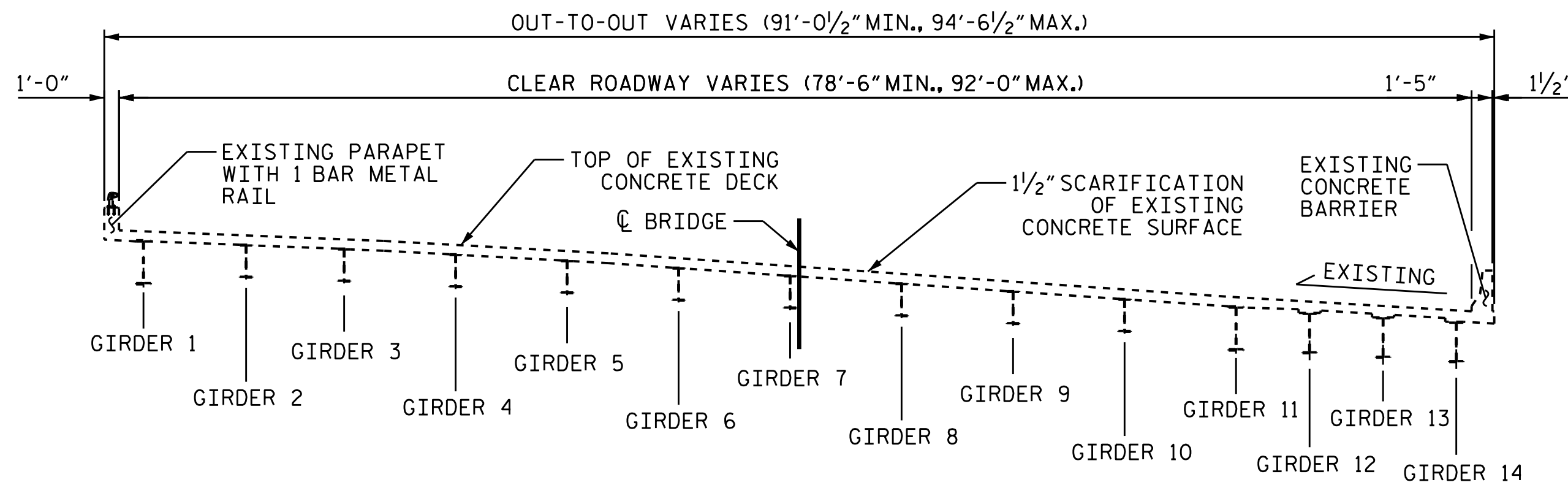
\* TYPICAL SECTION SHOWN IS FOR SPAN C. SPANS A & B HAVE 13 BEAMS IN THE TYPICAL SECTION. THE SIZE AND SPACING OF THE BEAMS VARY ON EACH SPAN.



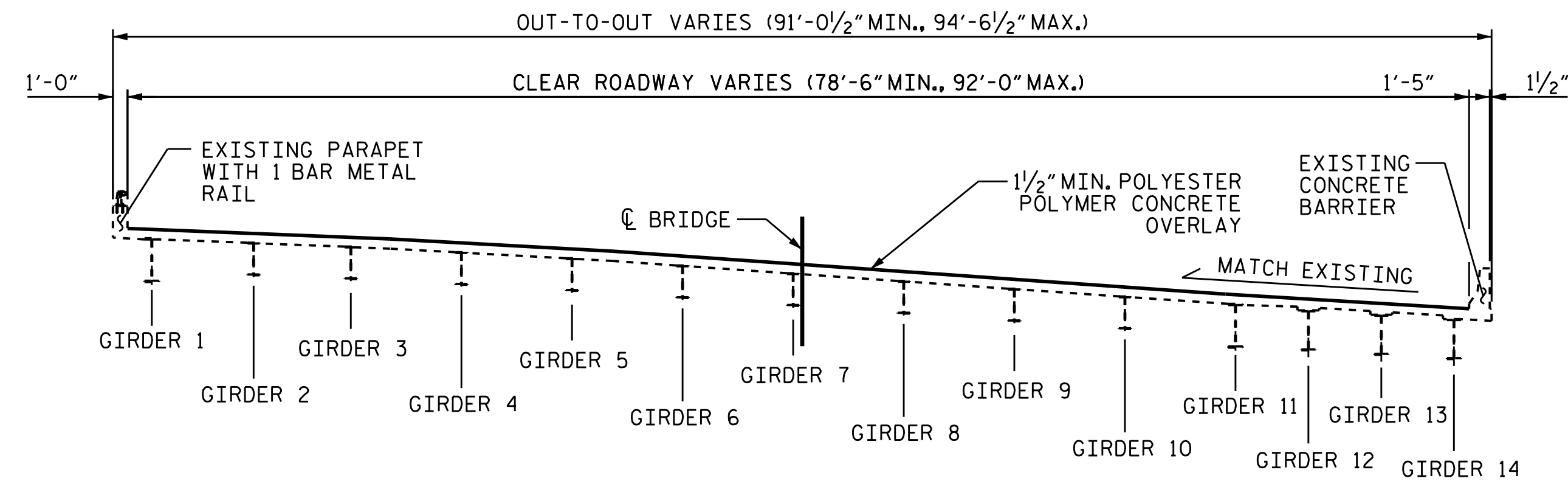
**TYPICAL SECTION - APPROACH SLAB 1**  
(EXISTING)



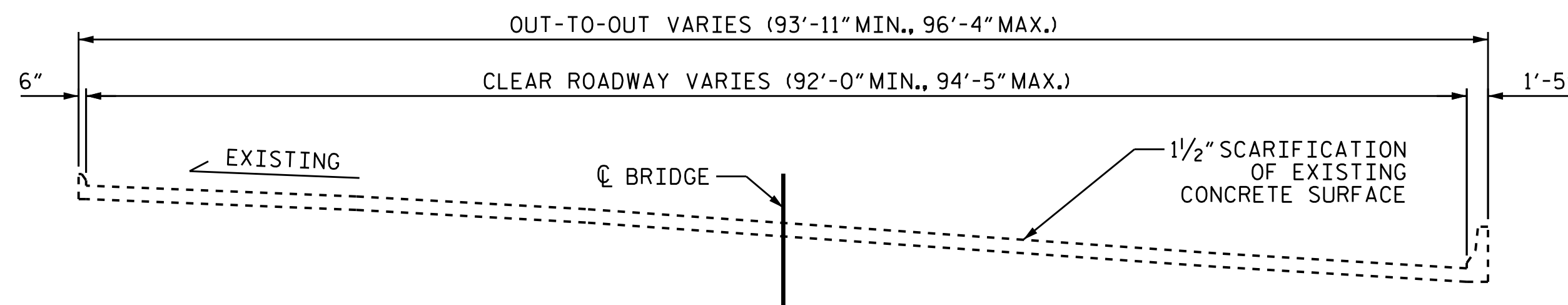
**TYPICAL SECTION - APPROACH SLAB 1**  
(PROPOSED)



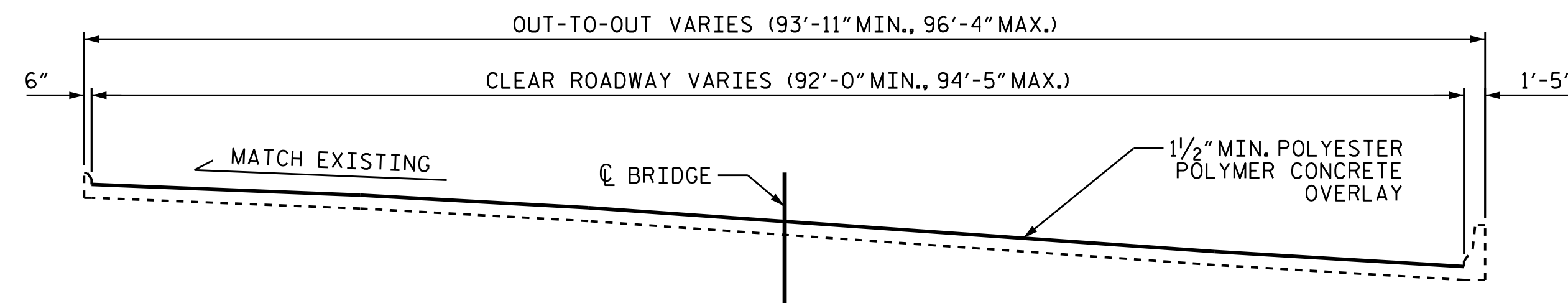
**TYPICAL SECTION \***  
(EXISTING)



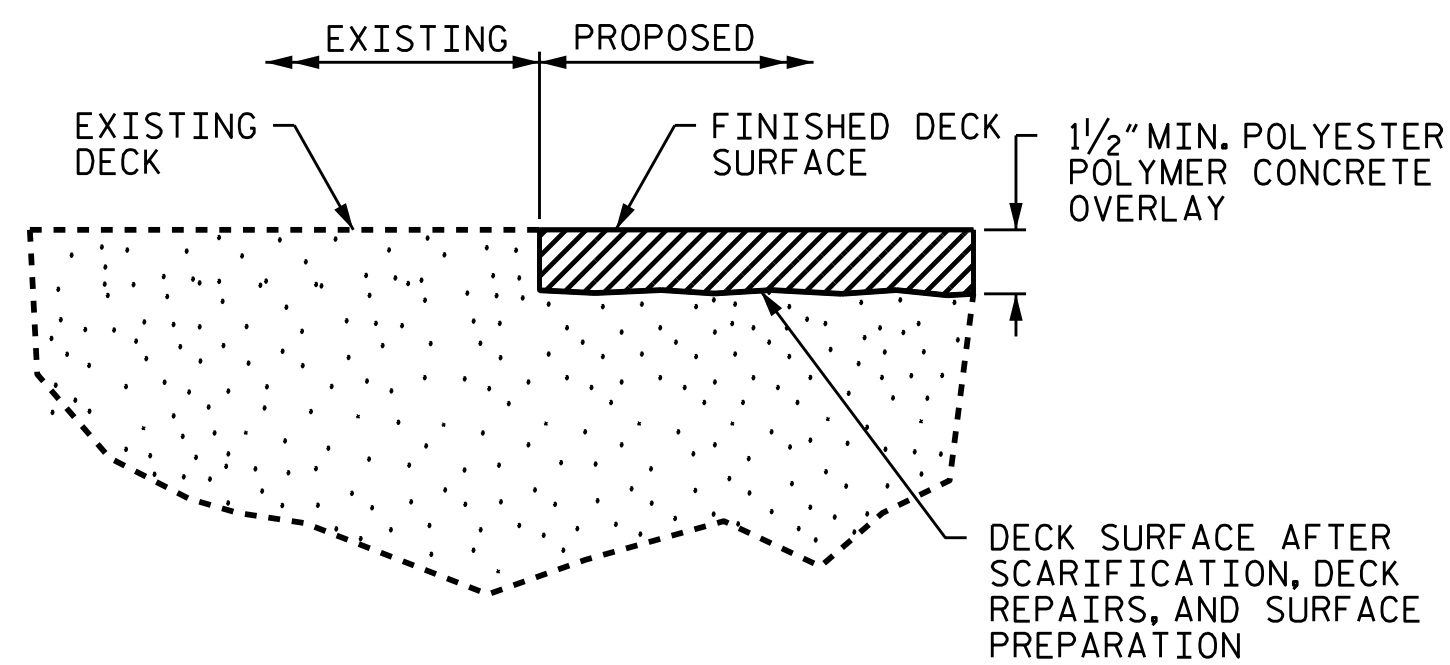
**TYPICAL SECTION \***  
(PROPOSED)



**TYPICAL SECTION - APPROACH SLAB 2**  
(EXISTING)

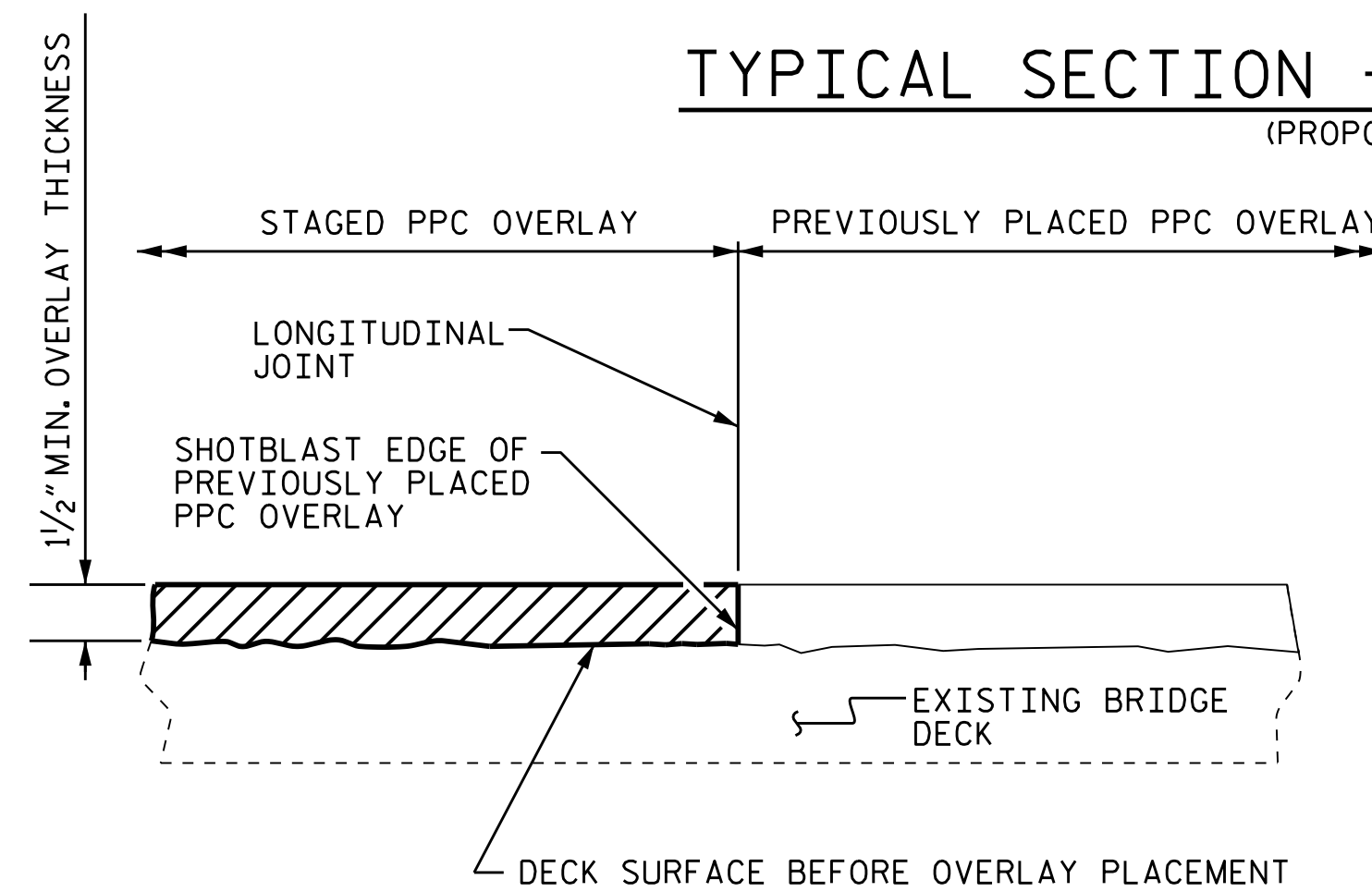


**TYPICAL SECTION - APPROACH SLAB 2**  
(PROPOSED)



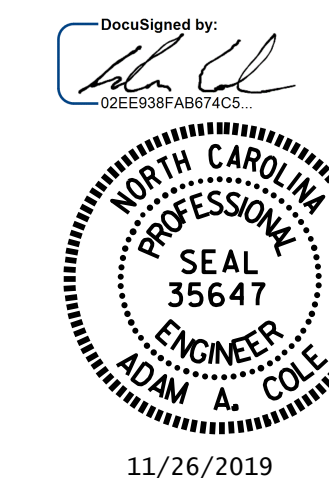
**DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY**

FINISHED SURFACE ELEVATION SHALL MATCH EXISTING CONCRETE SURFACE ELEVATION. ACTUAL THICKNESS OF PPC OVERLAY MAY VARY.



**STAGED PPC OVERLAY JOINT**  
(AS NEEDED)

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
BRIDGE NO. 590231



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

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

DOCUMENT NOT CONSIDERED  
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1			3			55-02
2			4			8

# AS-BUILT REPAIR QUANTITY TABLE

## TOP OF DECK REPAIRS

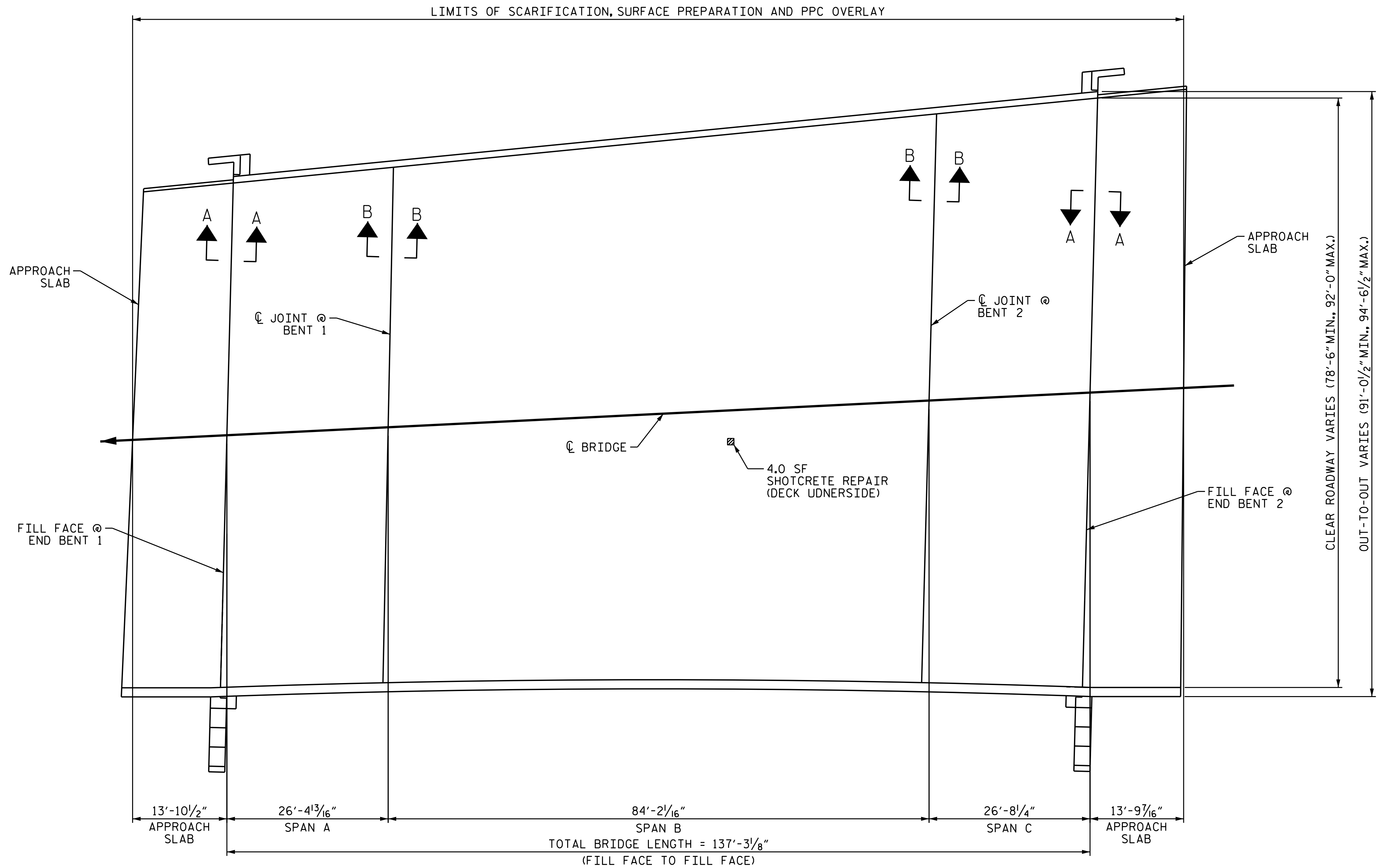
	ESTIMATE	ACTUAL
<b>SCARIFYING BRIDGE DECK</b>		
APPROACH SLAB 1	106 SQ. YDS.	
SPAN A	233 SQ. YDS.	
SPAN B	789 SQ. YDS.	
SPAN C	261 SQ. YDS.	
APPROACH SLAB 2	125 SQ. YDS.	
<b>CLASS II SURFACE PREPARATION</b>		
APPROACH SLAB 1	0.0 SQ. YDS.	
SPAN A	0.0 SQ. YDS.	
SPAN B	0.0 SQ. YDS.	
SPAN C	0.0 SQ. YDS.	
APPROACH SLAB 2	0.0 SQ. YDS.	
<b>CONCRETE DECK REPAIR FOR PPC OVERLAY</b>		
APPROACH SLAB 1	0.0 SQ. YDS.	
SPAN A	0.0 SQ. YDS.	
SPAN B	0.0 SQ. YDS.	
SPAN C	0.0 SQ. YDS.	
APPROACH SLAB 2	0.0 SQ. YDS.	
<b>SHOTBLASTING BRIDGE DECK</b>		
APPROACH SLAB 1	106 SQ. YDS.	
SPAN A	233 SQ. YDS.	
SPAN B	789 SQ. YDS.	
SPAN C	261 SQ. YDS.	
APPROACH SLAB 2	125 SQ. YDS.	
<b>PPC MATERIALS</b>		
APPROACH SLAB 1	5.2 CU. YDS.	
SPAN A	11.4 CU. YDS.	
SPAN B	38.4 CU. YDS.	
SPAN C	12.7 CU. YDS.	
APPROACH SLAB 2	6.1 CU. YDS.	
<b>PLACING AND FINISHING PPC OVERLAY</b>		
APPROACH SLAB 1	106 SQ. YDS.	
SPAN A	233 SQ. YDS.	
SPAN B	789 SQ. YDS.	
SPAN C	261 SQ. YDS.	
APPROACH SLAB 2	125 SQ. YDS.	
<b>GROOVING BRIDGE FLOORS</b>		
APPROACH SLAB 1	862 SQ. YDS.	
SPAN A	1922 SQ. FT.	
SPAN B	6765 SQ. FT.	
SPAN C	2240 SQ. FT.	
APPROACH SLAB 2	1022 SQ. FT.	

## SHOTCRETE REPAIRS

	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
<b>UNDERSIDE OF DECK</b>				
APPROACH SLAB 1	0	0		
SPAN A	4.0	1.4		
SPAN B	0	0		
SPAN C	0	0		
APPROACH SLAB 2	0	0		

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.

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019



## PLAN

## 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.

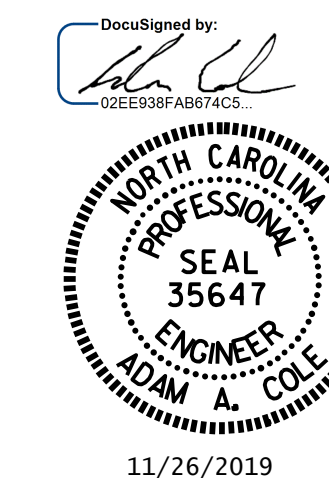
FOR SECTION A-A AND SECTION B-B, SEE "JOINT DETAILS" SHEET.

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

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

SHOTCRETE REPAIRS FOR DECK UNDERSIDE

PROJECT NO. I-5769  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590231

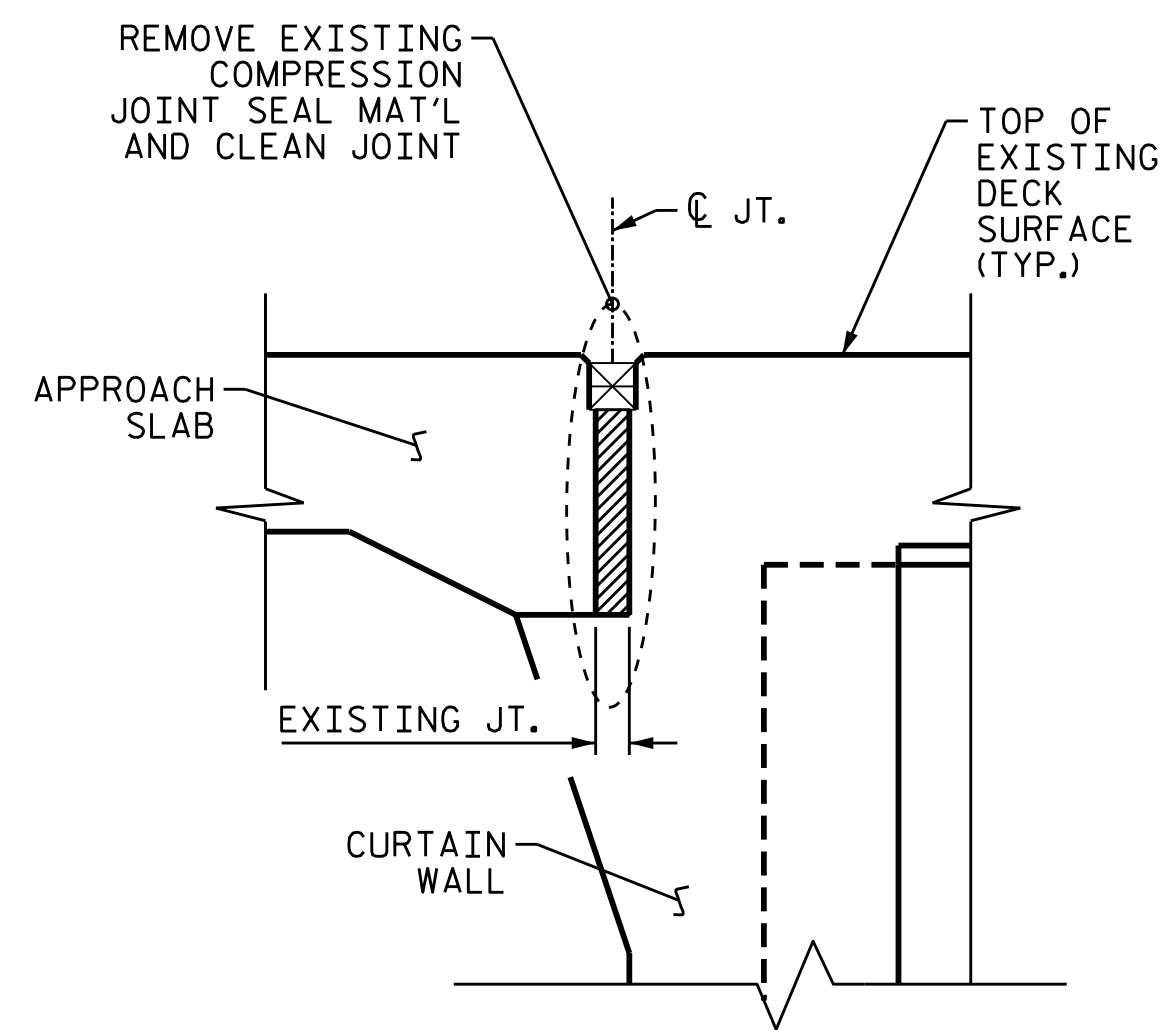


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS

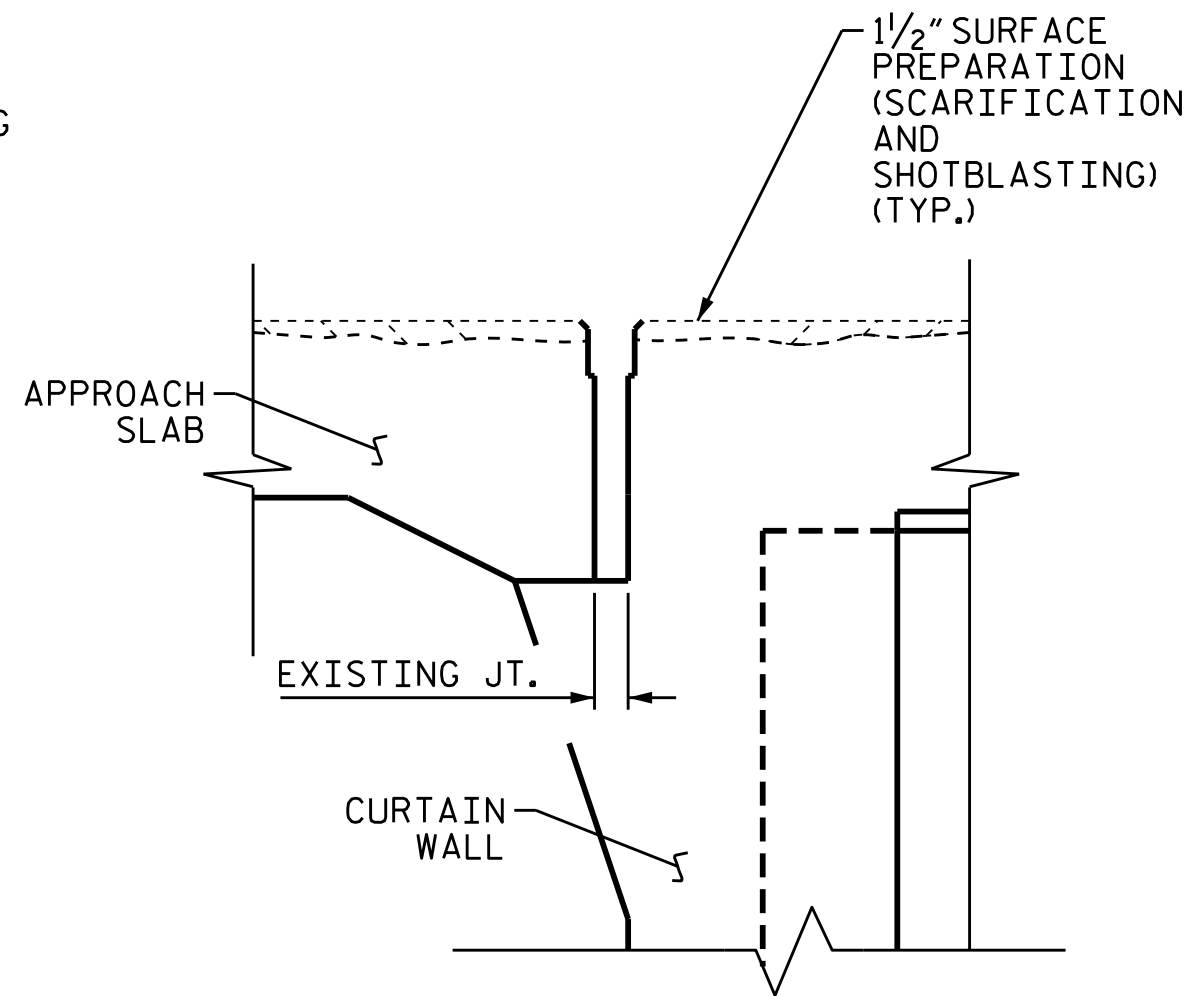
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			TOTAL SHEETS 8

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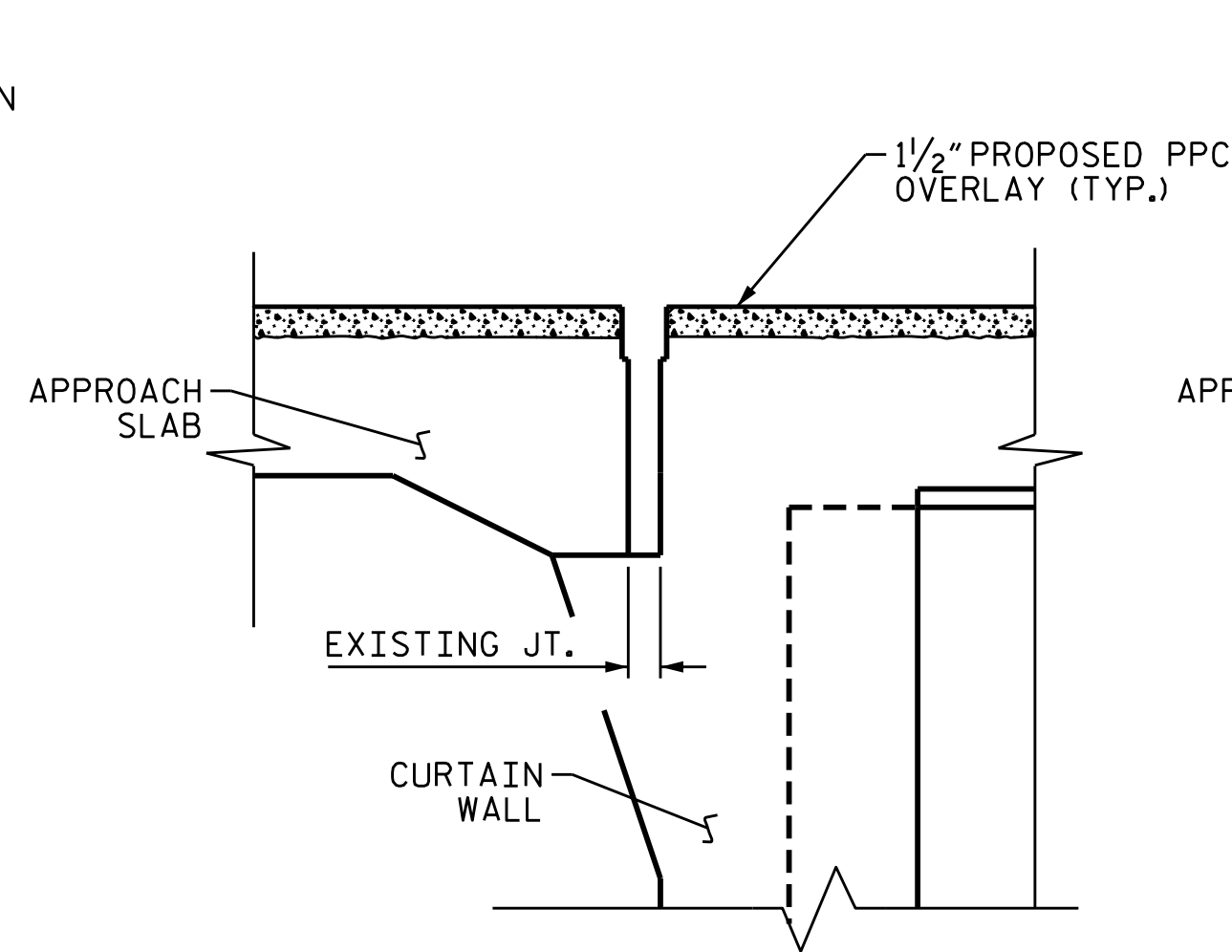




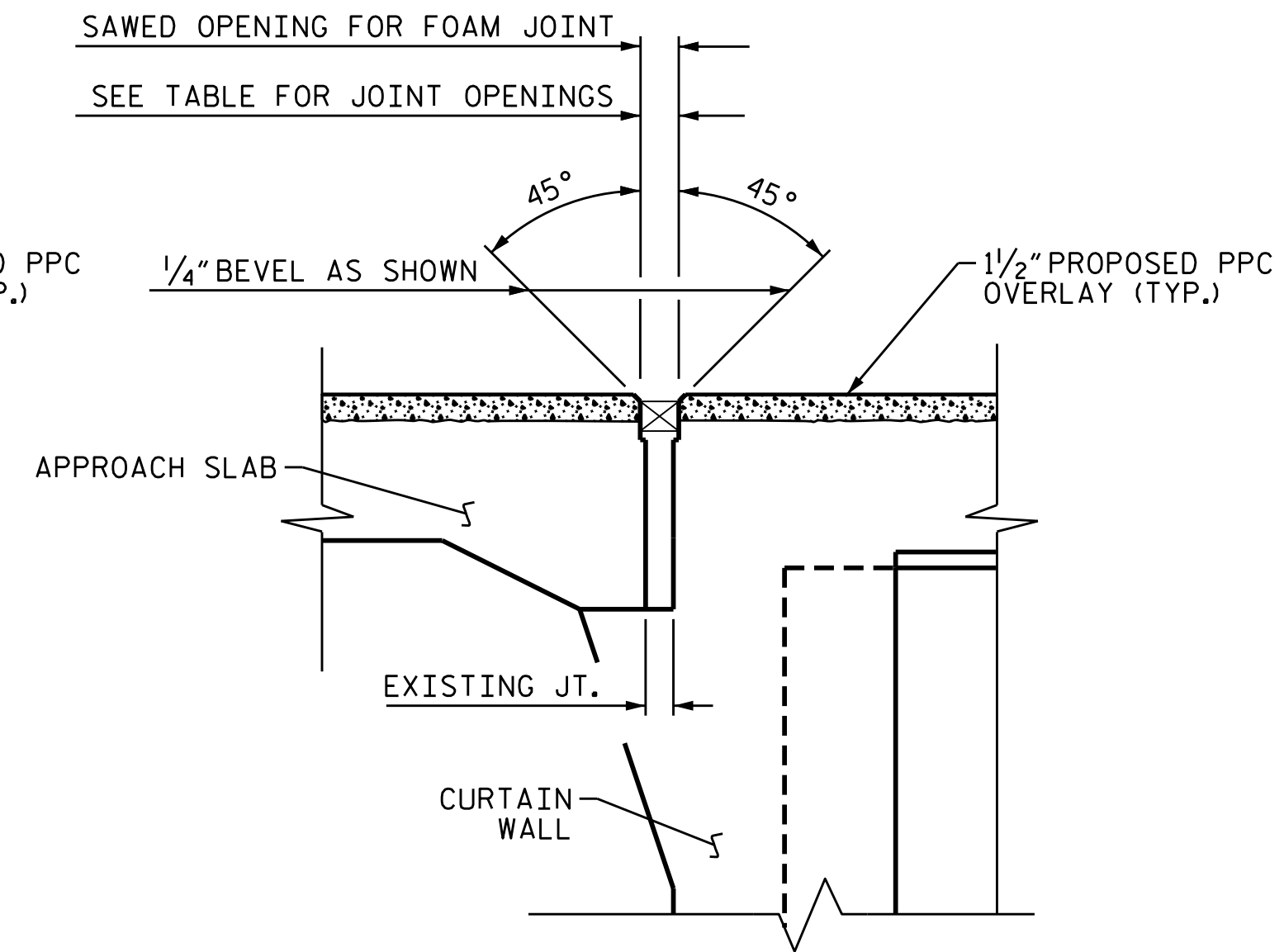
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

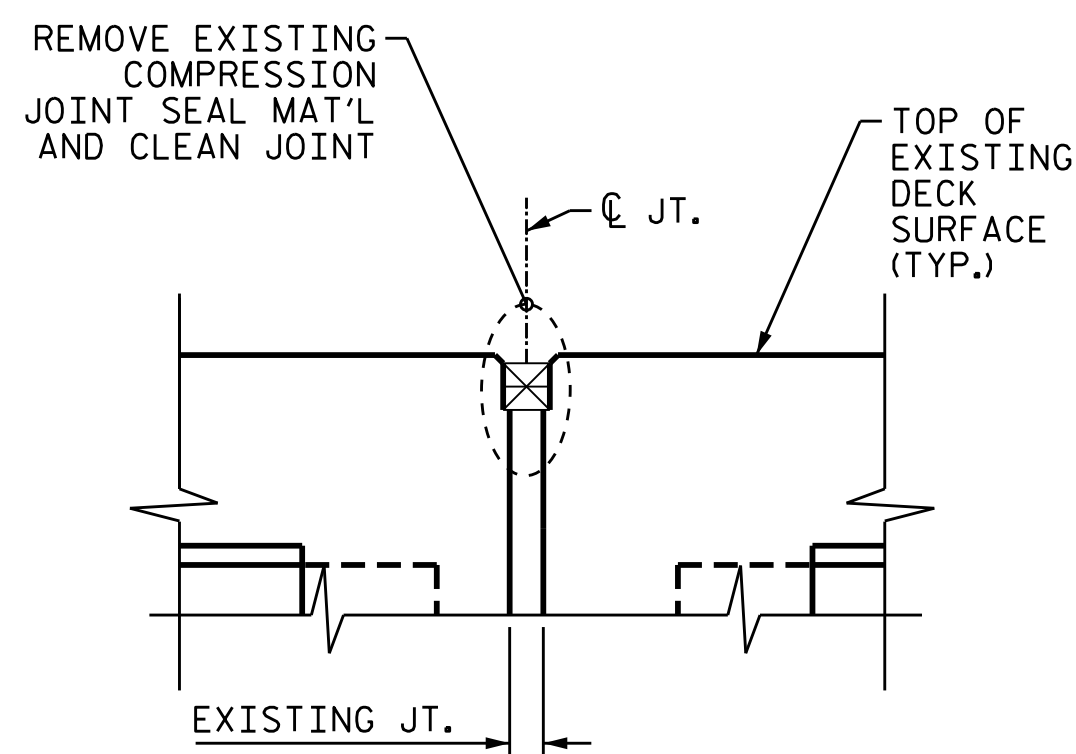


PROPOSED JOINT PRE-SAWED

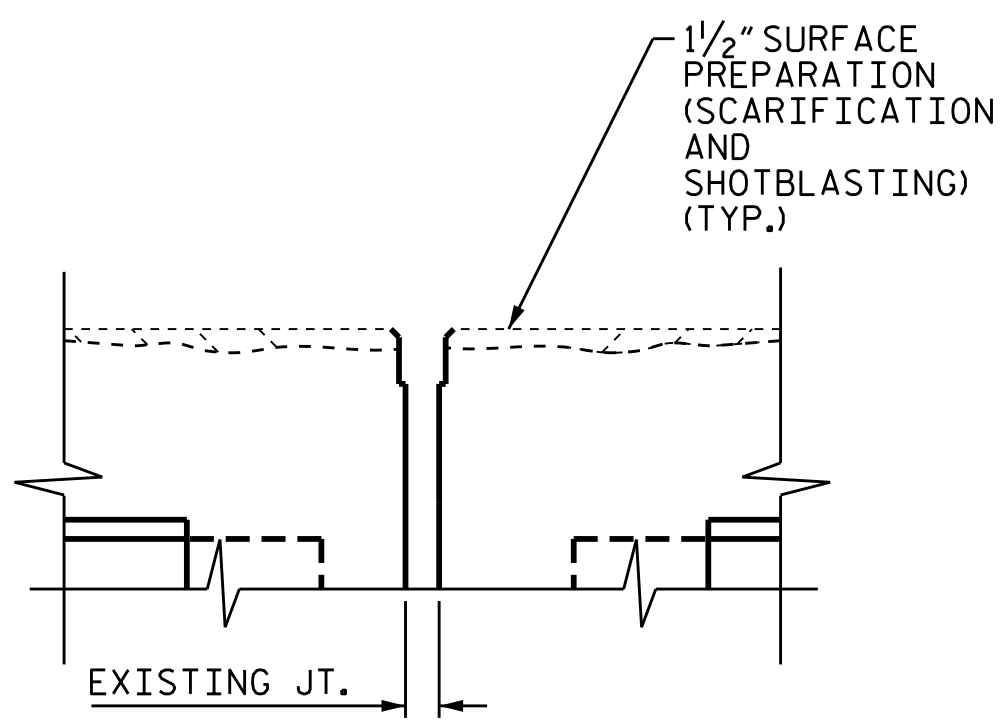


PROPOSED FOAM JOINT SEAL

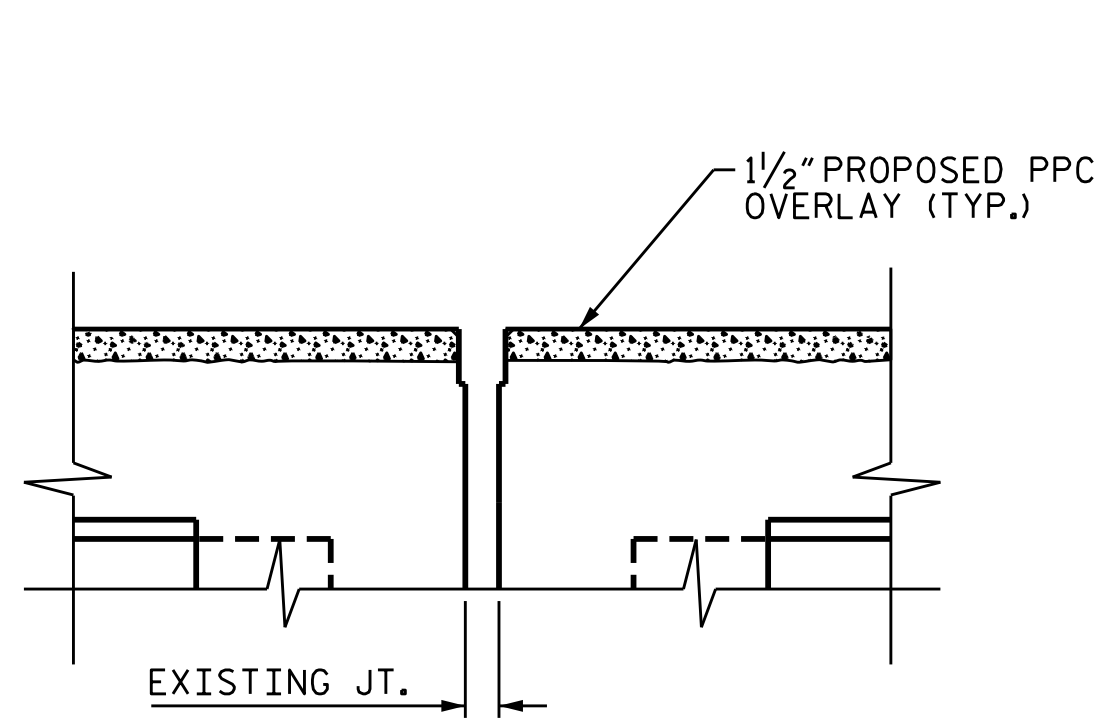
SECTION A-A  
(TYP. AT END BENTS)



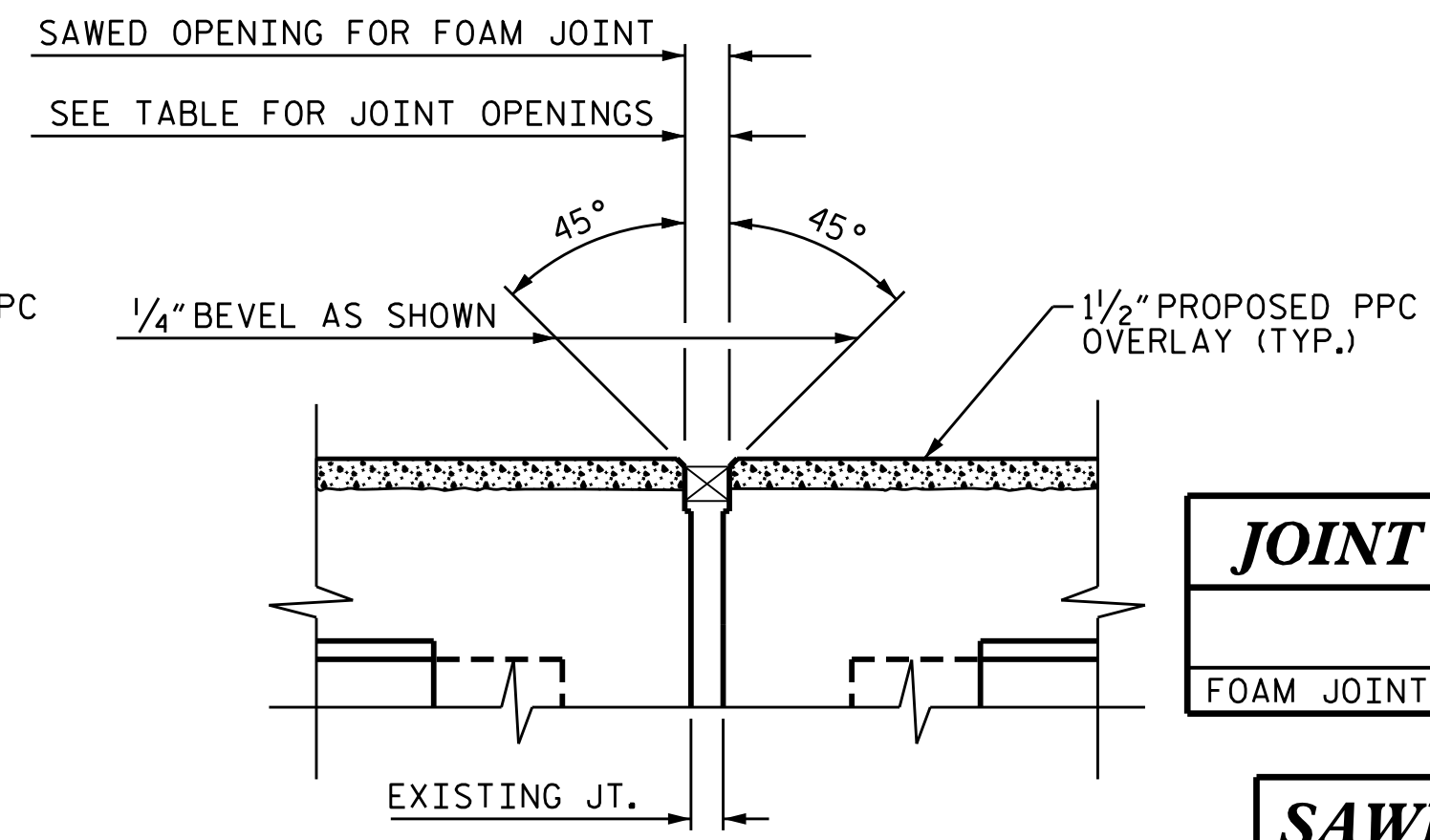
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

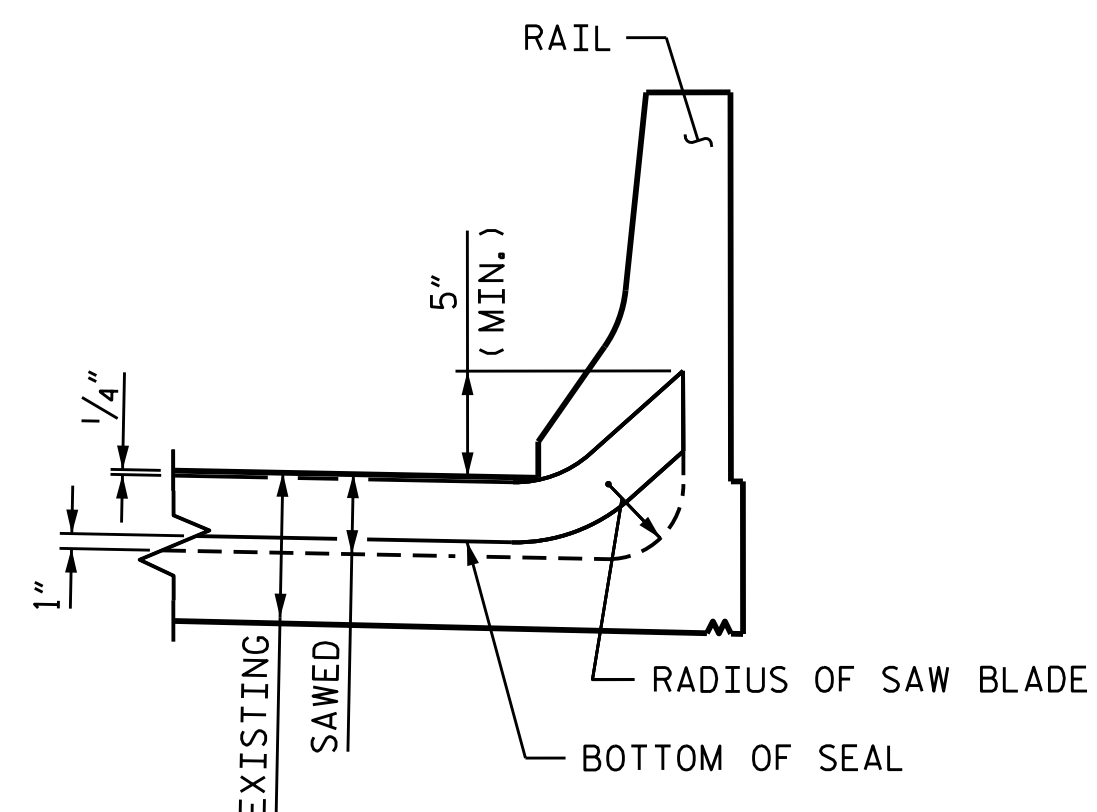
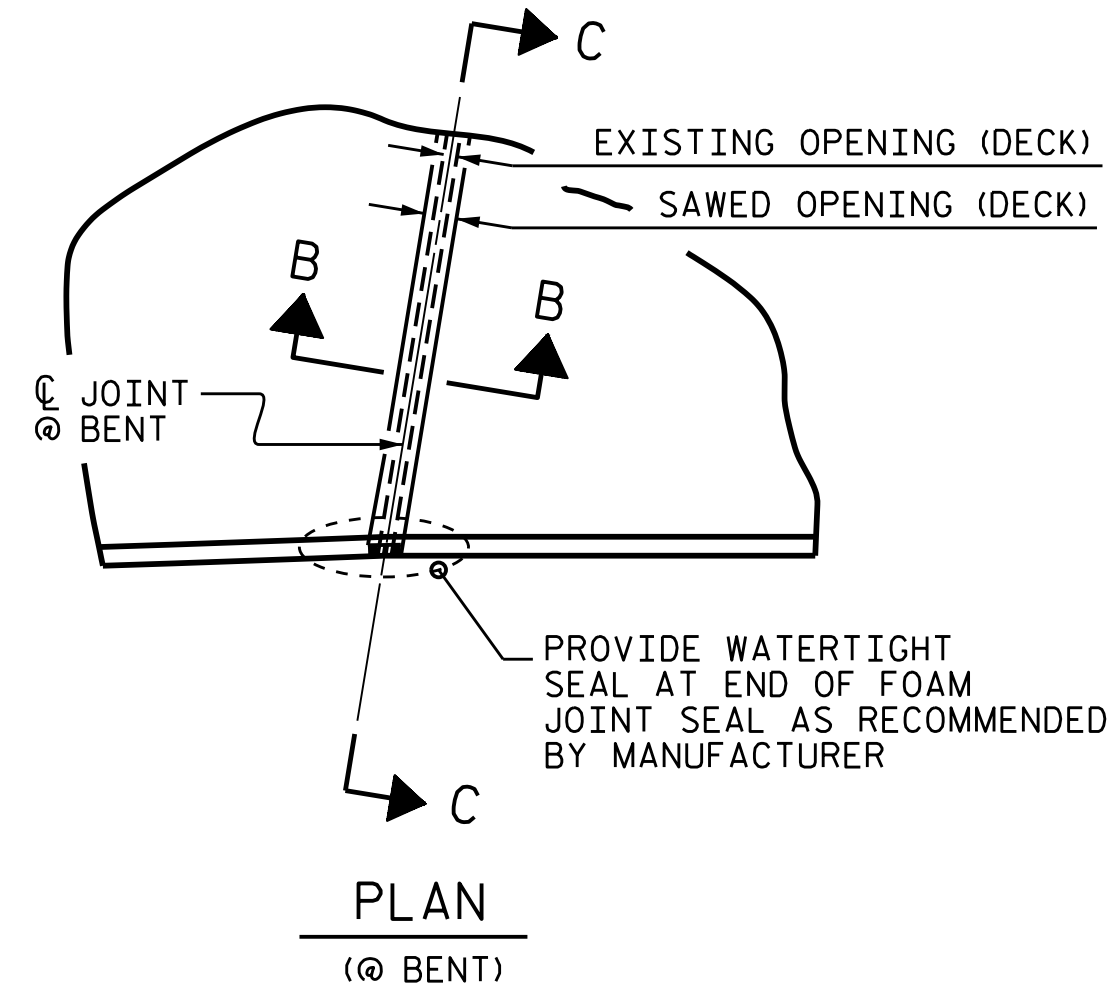
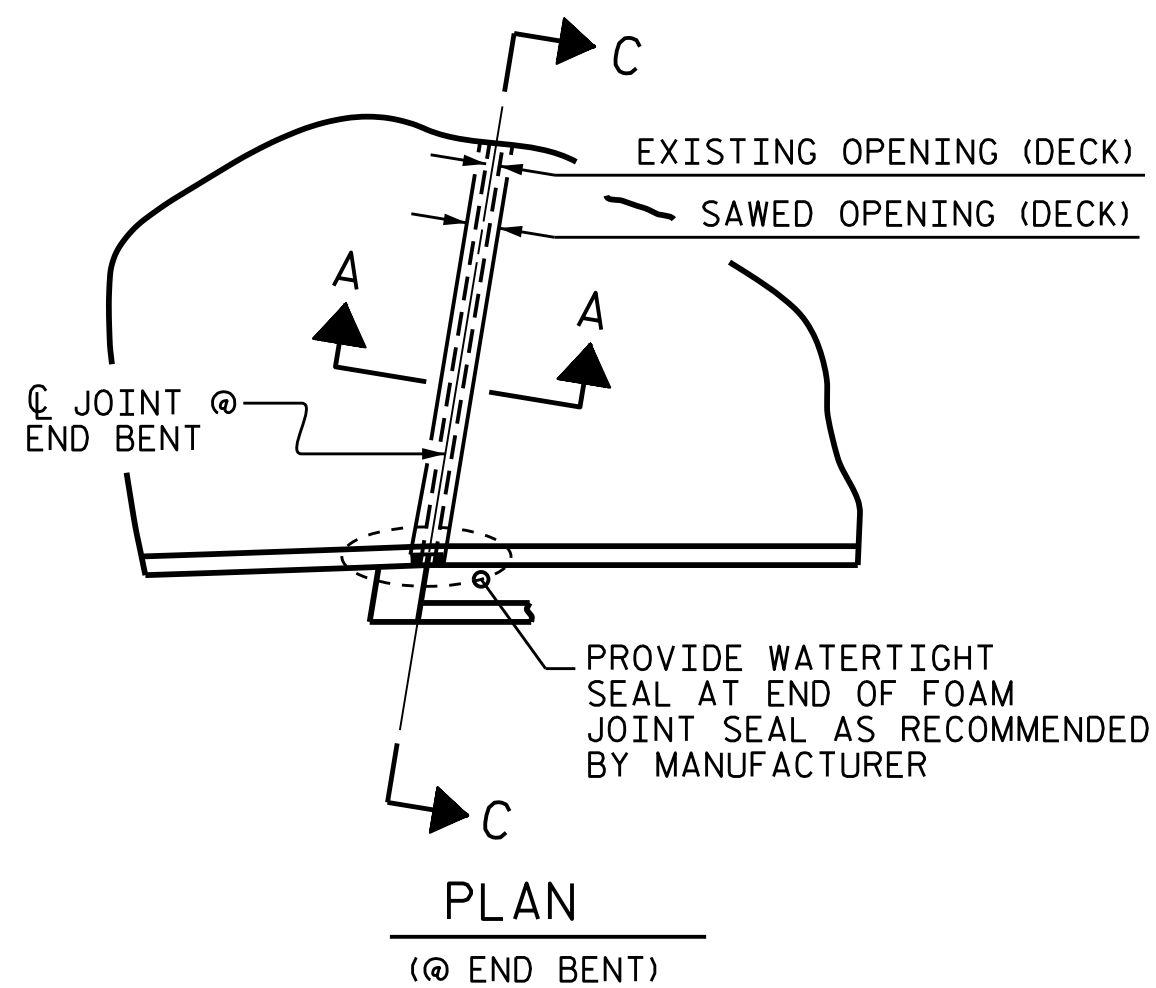


PROPOSED JOINT PRE-SAWED



PROPOSED FOAM JOINT SEAL

SECTION B-B  
(TYP. AT BENTS)



SECTION C-C

NOTES

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

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

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

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

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

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

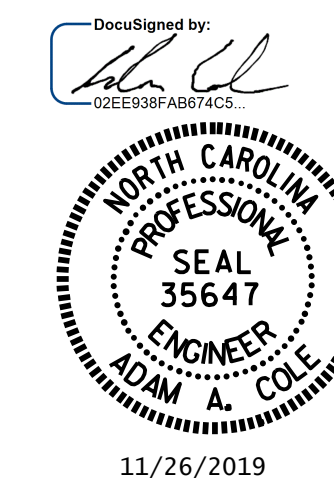
THE INSTALLED FOAM JOINTS SHALL BE WATER TIGHT.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

JOINT REPAIR QUANTITY TABLE		
	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	351 LF	

SAWED JOINT OPENING TABLE				
LOCATION	TOTAL MOVEMENT (ALONG C RDY)	SAWED JT. OPENING (PERPENDICULAR TO JT.)		
		AT 30°	AT 60°	AT 90°
END BENT 1			2"	
BENT 1	5/16"	1 1/16"	1 5/8"	1 9/16"
BENT 2	1/4"	2 3/8"	2 1/8"	1 7/8"
END BENT 2			2"	

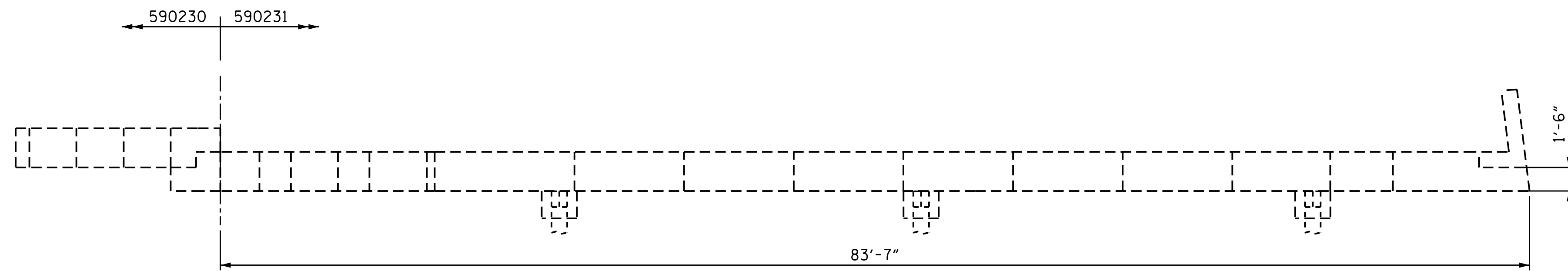
PROJECT NO. I-5769  
MECKLENBURG COUNTY  
BRIDGE NO. 590231



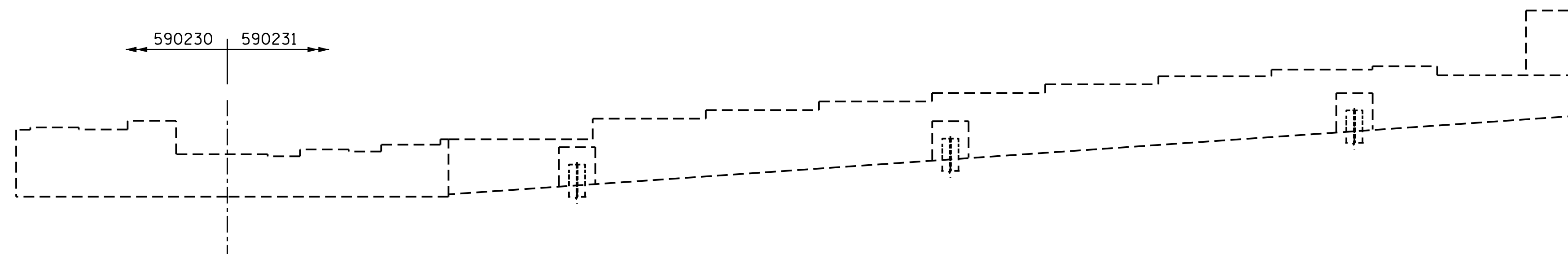
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARDS  
FOAM JOINT SEAL  
DETAILS FOR PPC  
OVERLAY

DRAWN BY : D.A. CANTRELL DATE : 11/2018  
CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

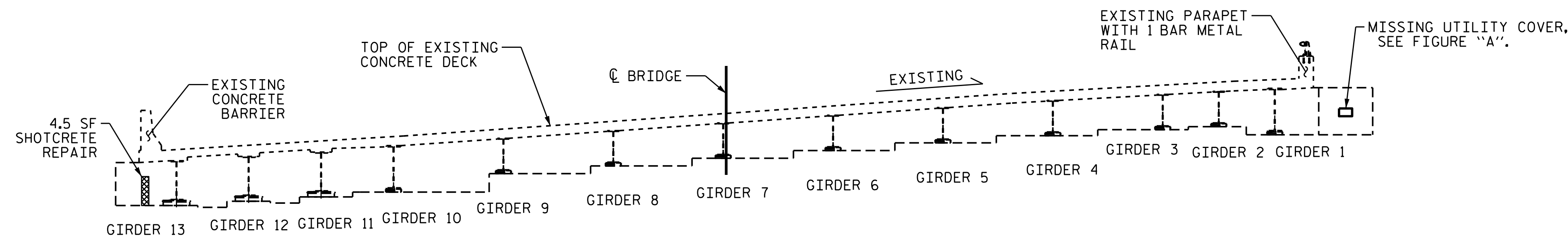
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S5-04
2			4			TOTAL SHEETS 8



PLAN



ELEVATION



TYPICAL SECTION



FIGURE A

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	4.5	2.3		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	149			

NOTES

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

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE 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 AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

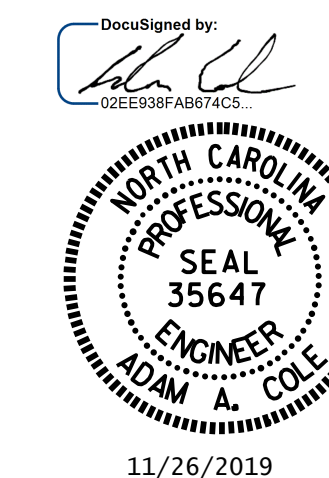
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

CONTRACTOR TO DETERMINE SIZE OF MISSING UTILITY COVER PLATE, SEE FIGURE A.

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590231

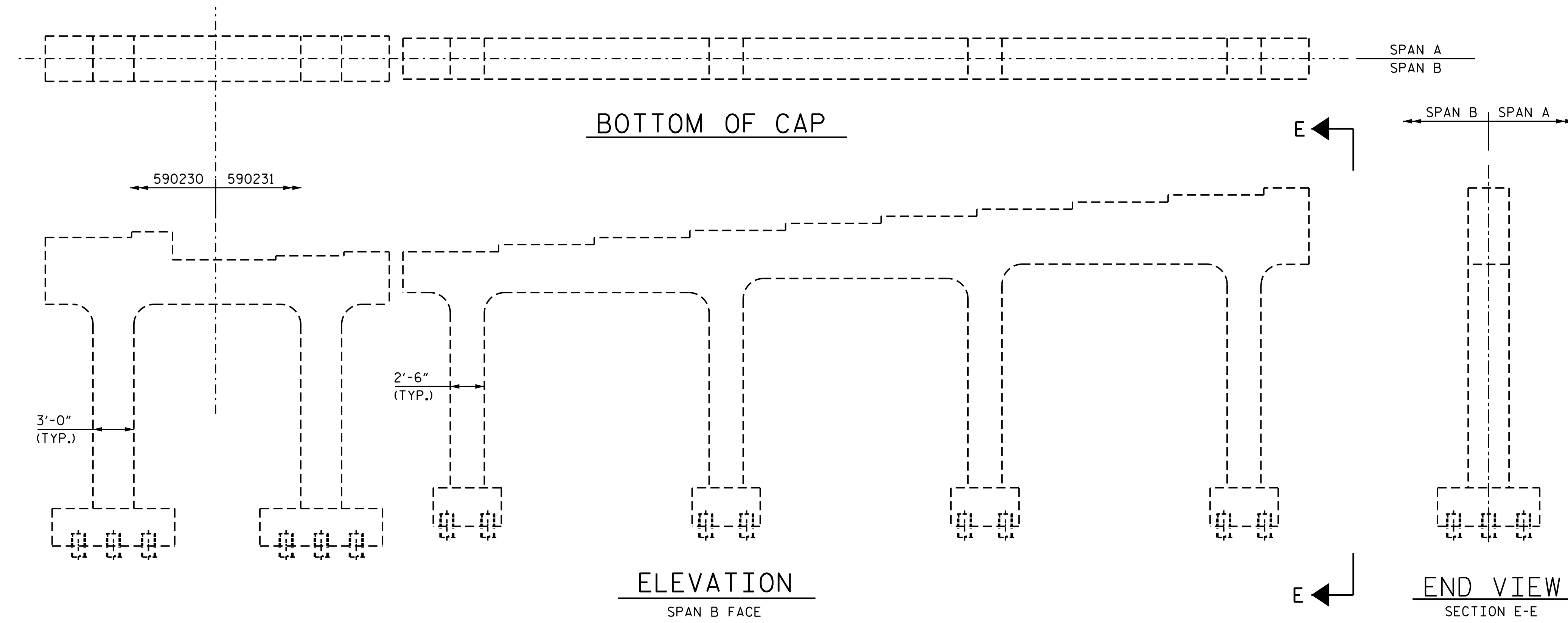
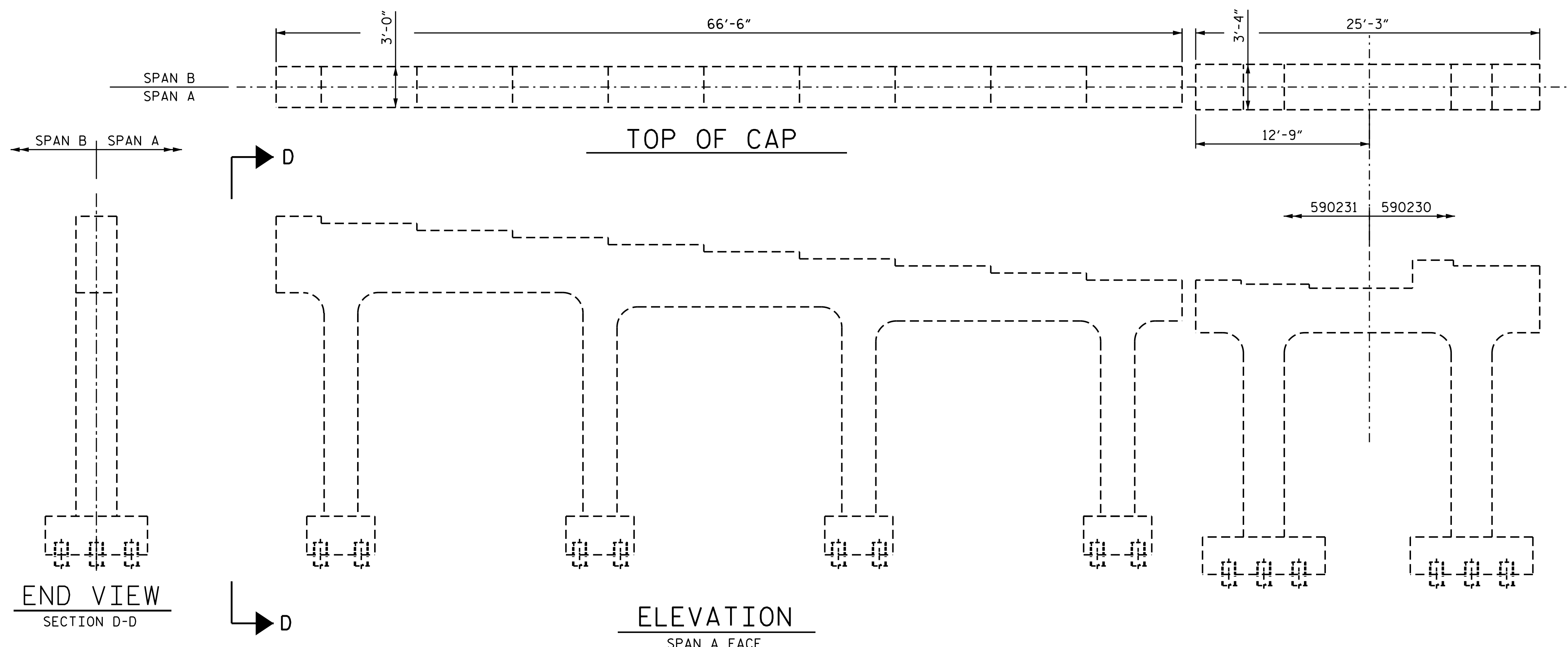


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 1

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

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1			3			S5-05
2			4			TOTAL SHEETS 8



### AS-BUILT REPAIR QUANTITY TABLE

BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	258			

### NOTES

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT UTILITY LINES AND LIGHTING ARE ATTACHED TO THE STRUCTURE.

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

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE 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 MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

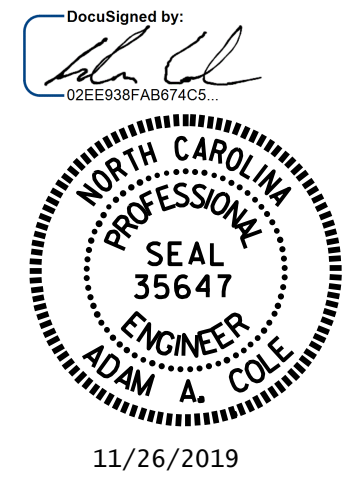
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590231

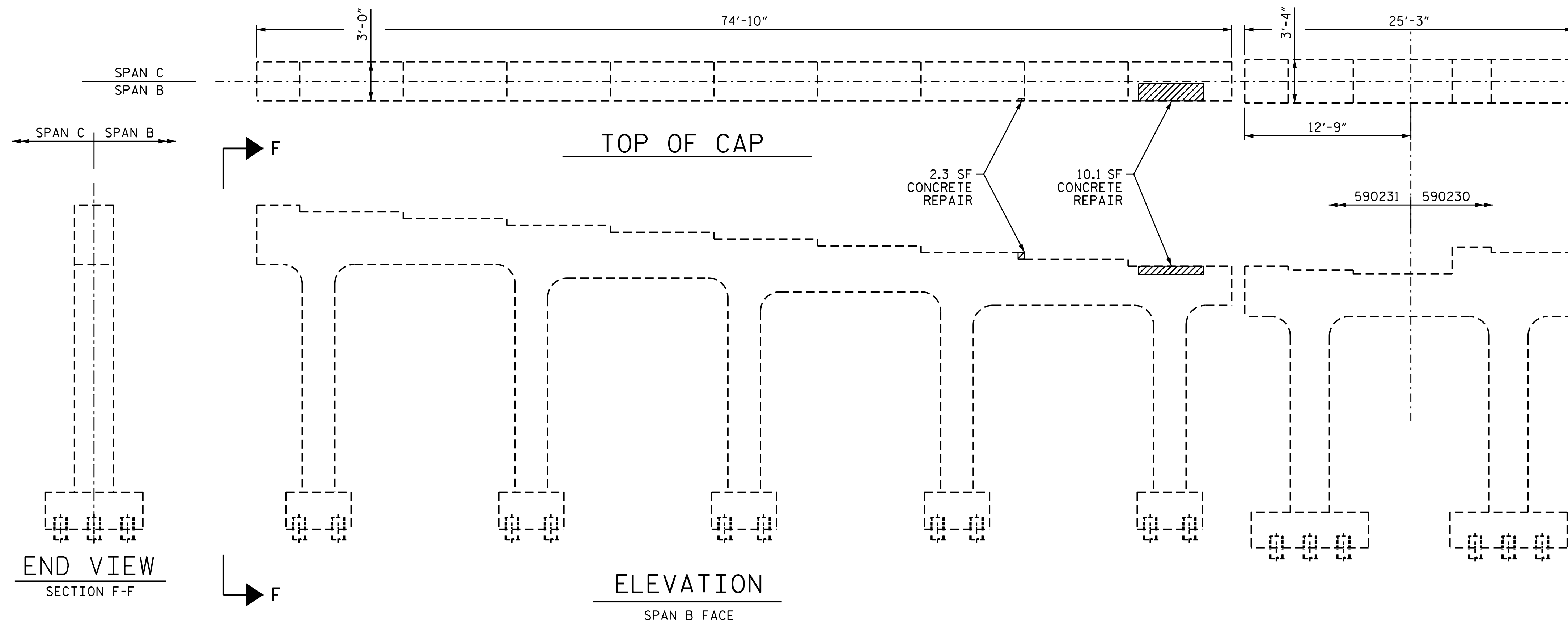


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
	BY:	DATE:			BY:	DATE:		
1				3				S5-06 TOTAL SHEETS 8
2				4				

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### AS-BUILT REPAIR QUANTITY TABLE

BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	12.4	7.9		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	284			

### NOTES

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT UTILITY LINES AND LIGHTING ARE ATTACHED TO THE STRUCTURE.

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

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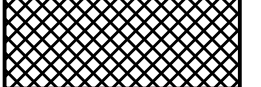
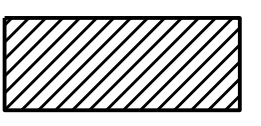

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

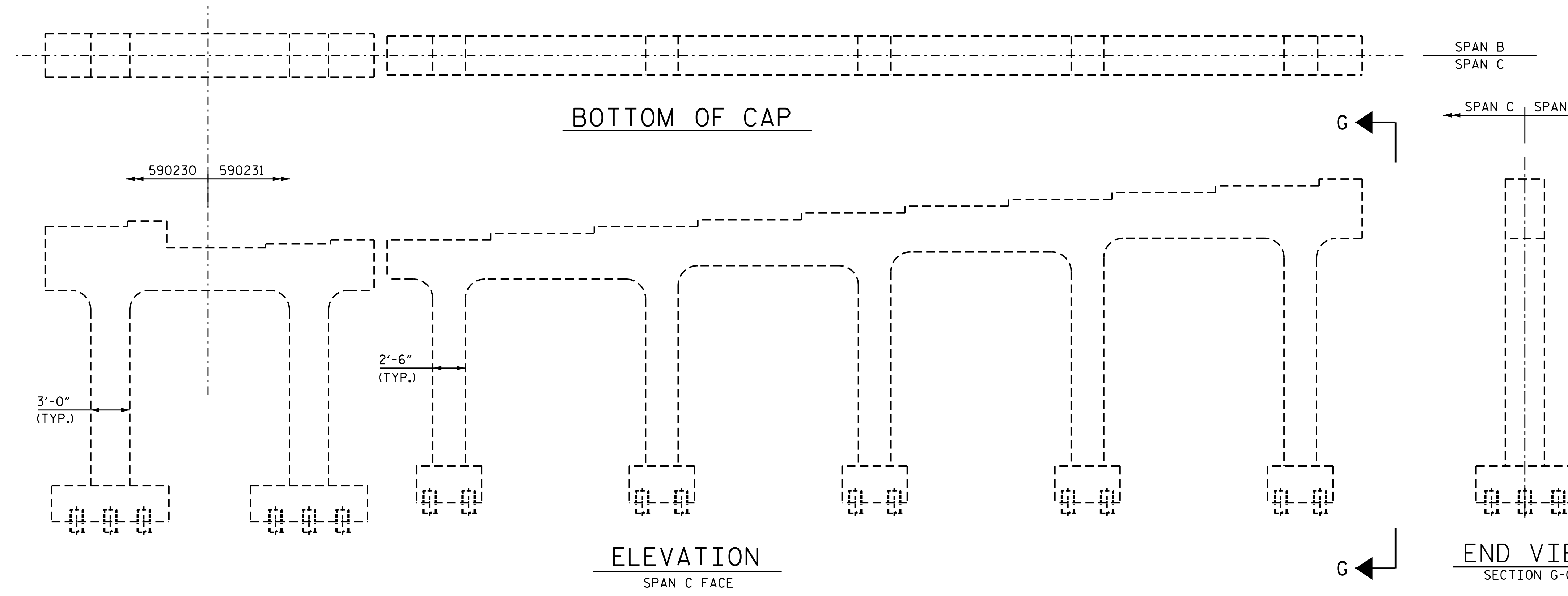
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

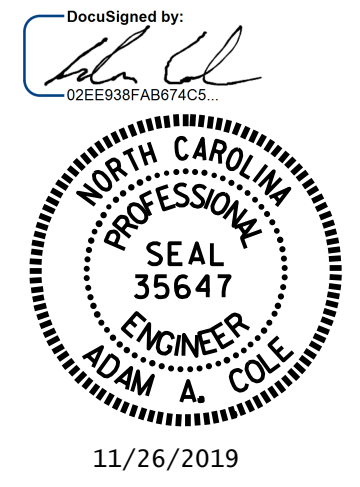
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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



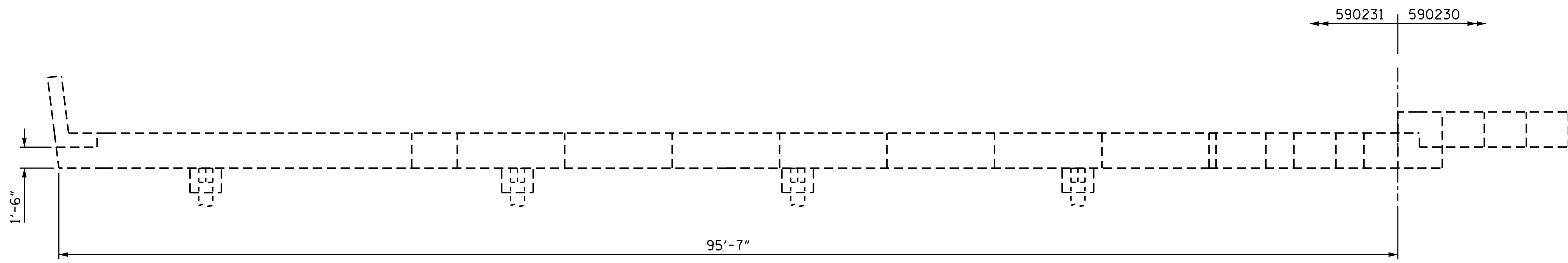
PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590231



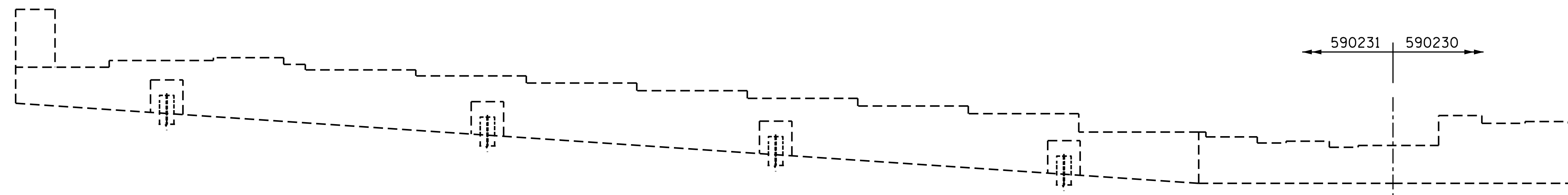
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 2

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

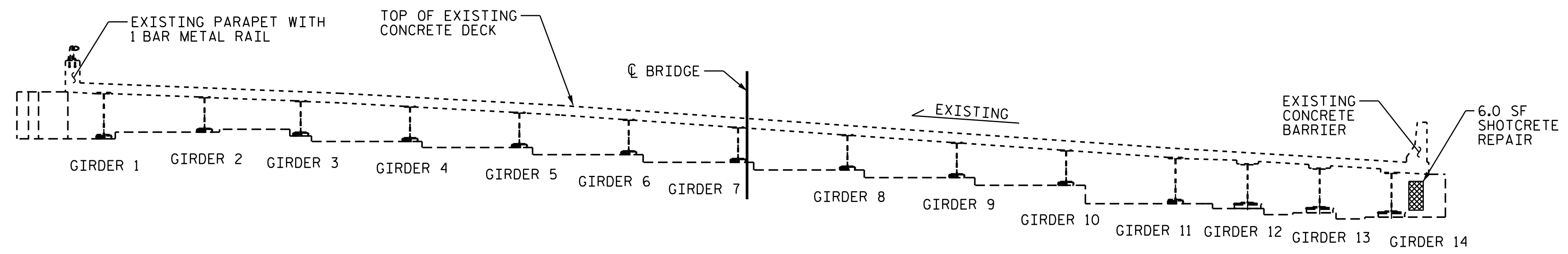
NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
	BY:	DATE:			BY:	DATE:		
1				3				55-07 TOTAL SHEETS 8
2				4				



PLAN



ELEVATION



TYPICAL SECTION

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	6.0	2.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	173			

NOTES

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

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE 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 AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

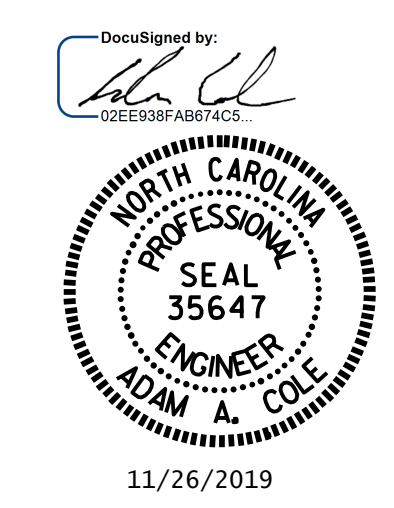
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590231

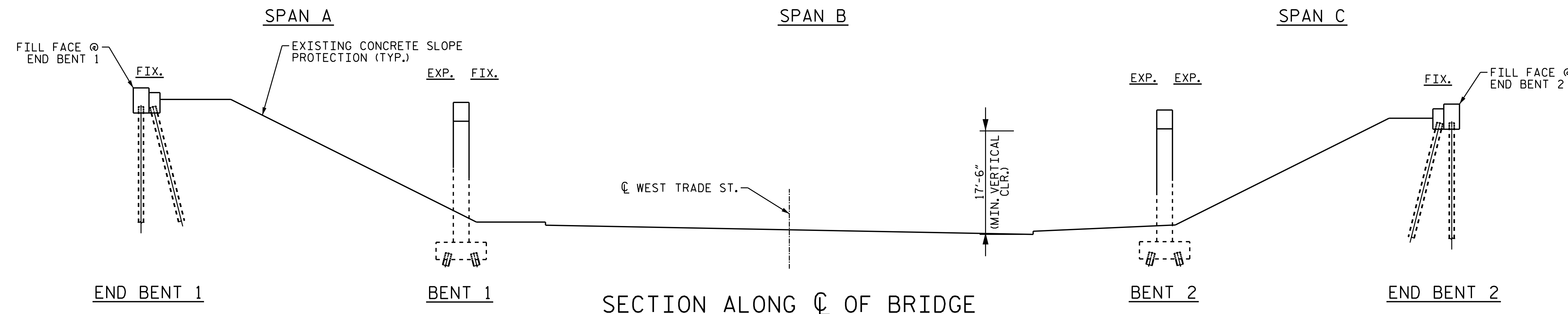


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 2

DRAWN BY : D.A. CANTREEL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

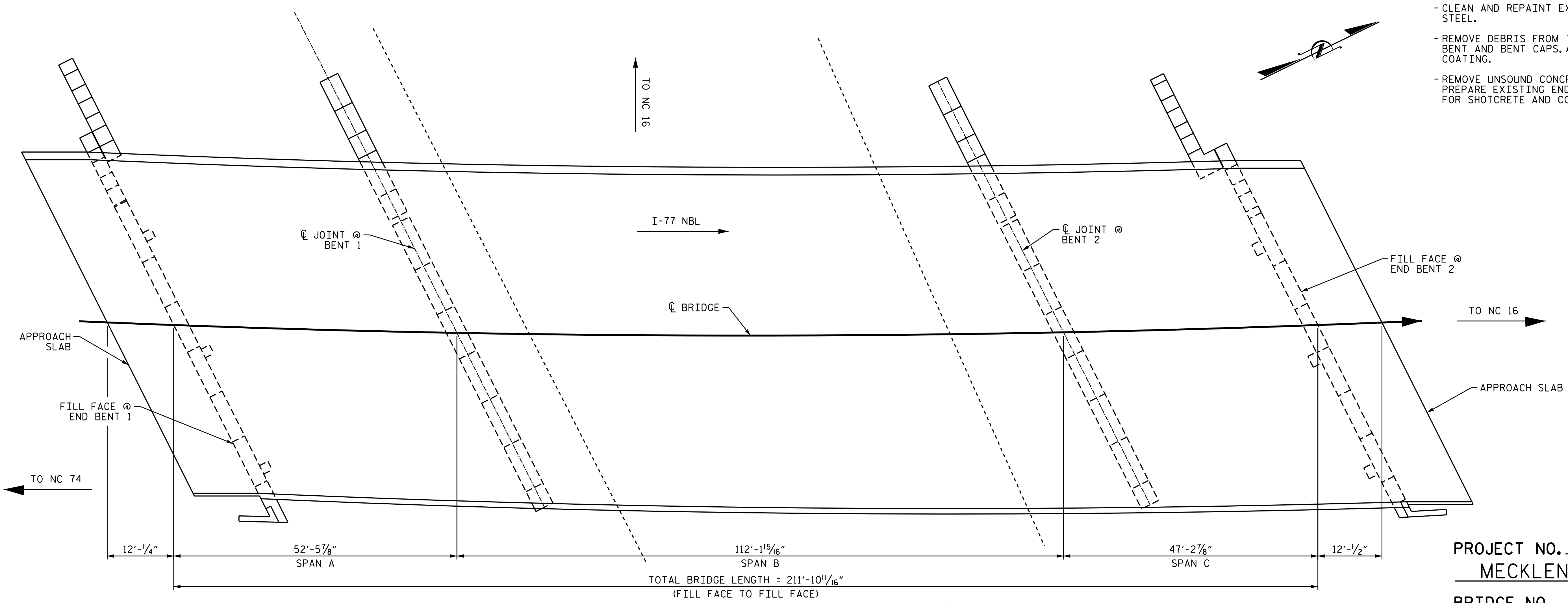
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1			3			S5-08 TOTAL SHEETS 8
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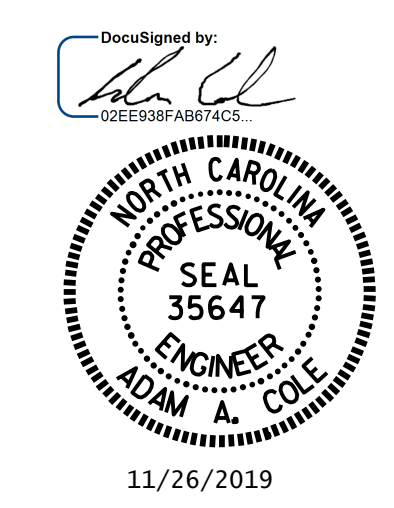
**NOTES**  
 GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 9/5/2018.  
 BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

- SCOPE OF WORK**
- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
  - OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC).
  - REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
  - GROOVE PPC BRIDGE DECK.
  - CLEAN AND REPAINT EXISTING STRUCTURAL STEEL.
  - REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS, AND APPLY EPOXY COATING.
  - REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIR.



**PLAN**  
 FOUNDATIONS NOT SHOWN FOR CLARITY

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590241



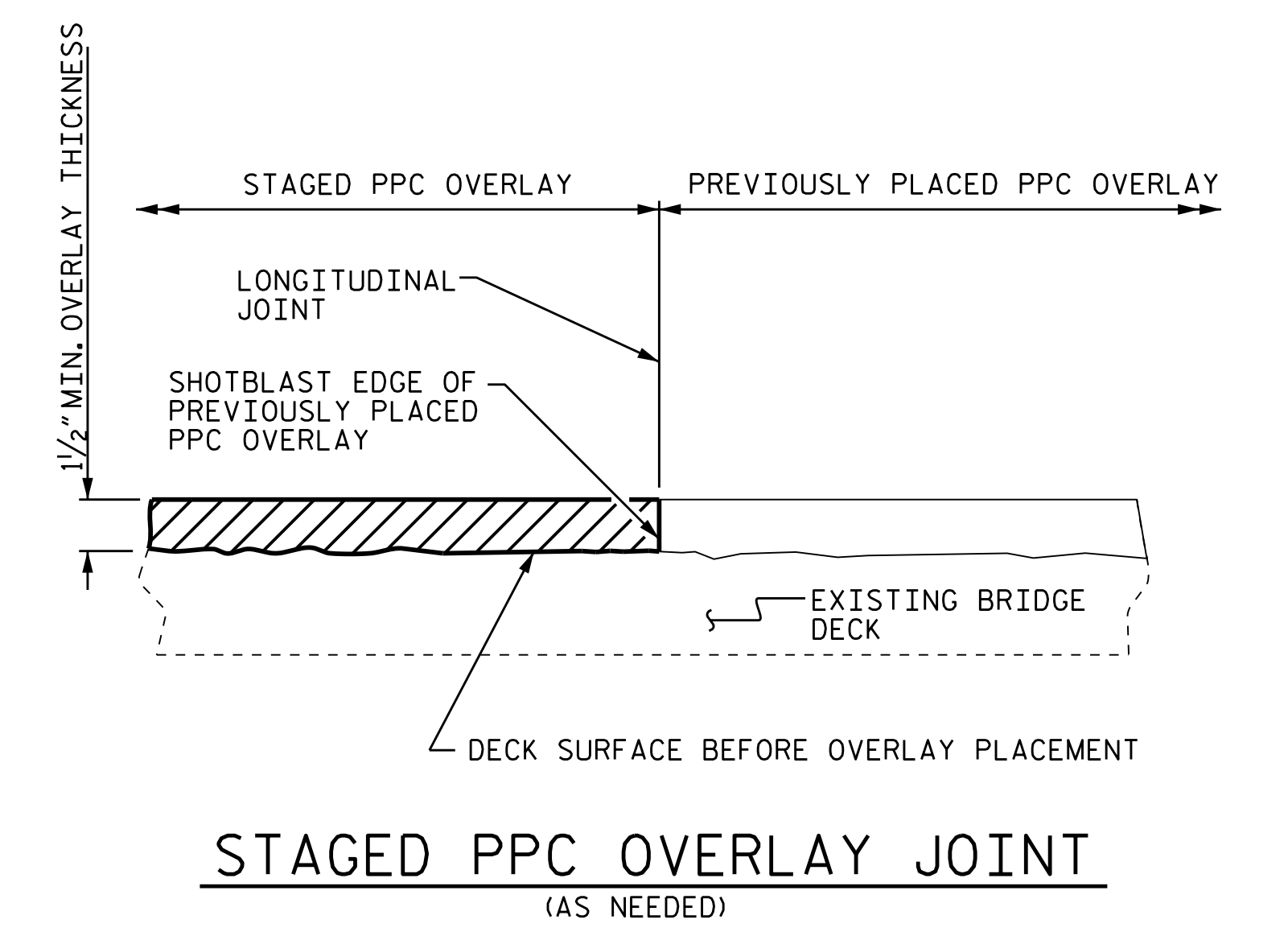
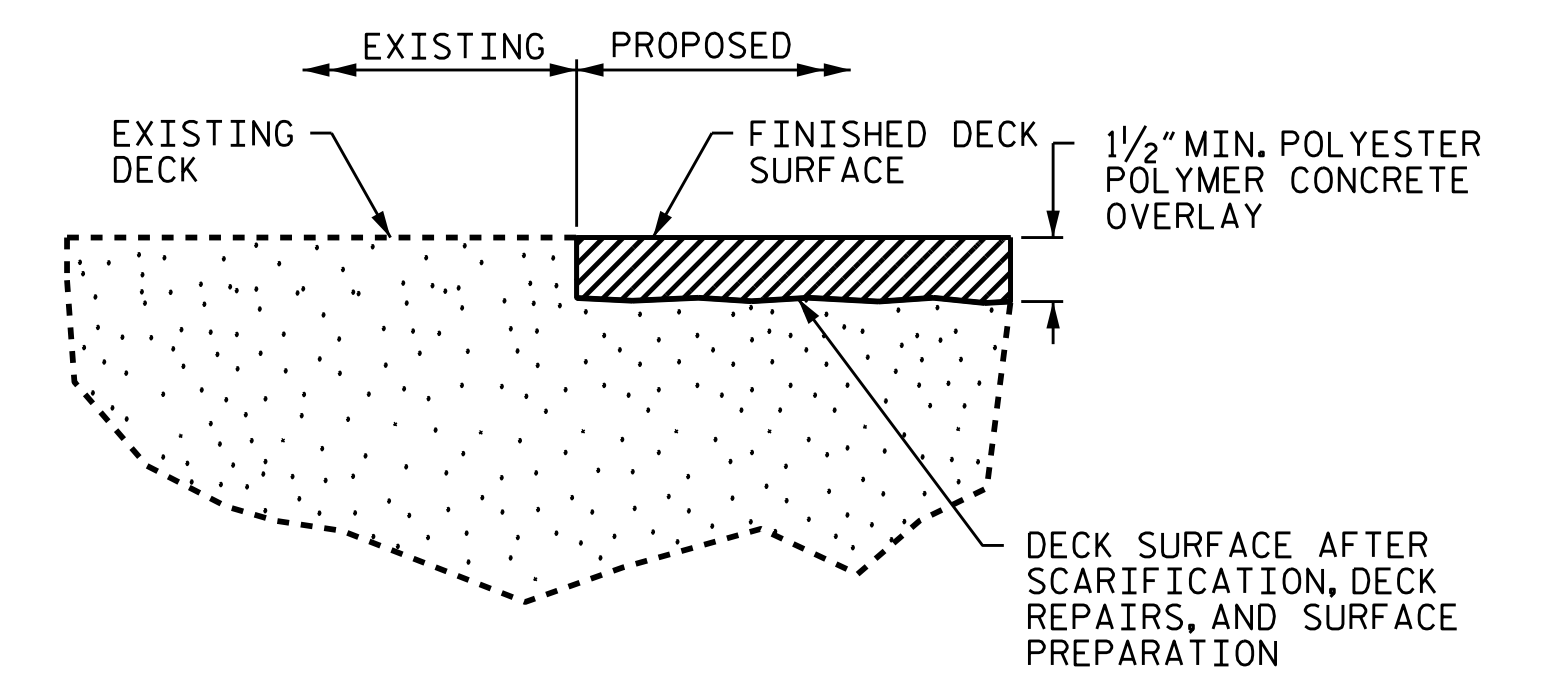
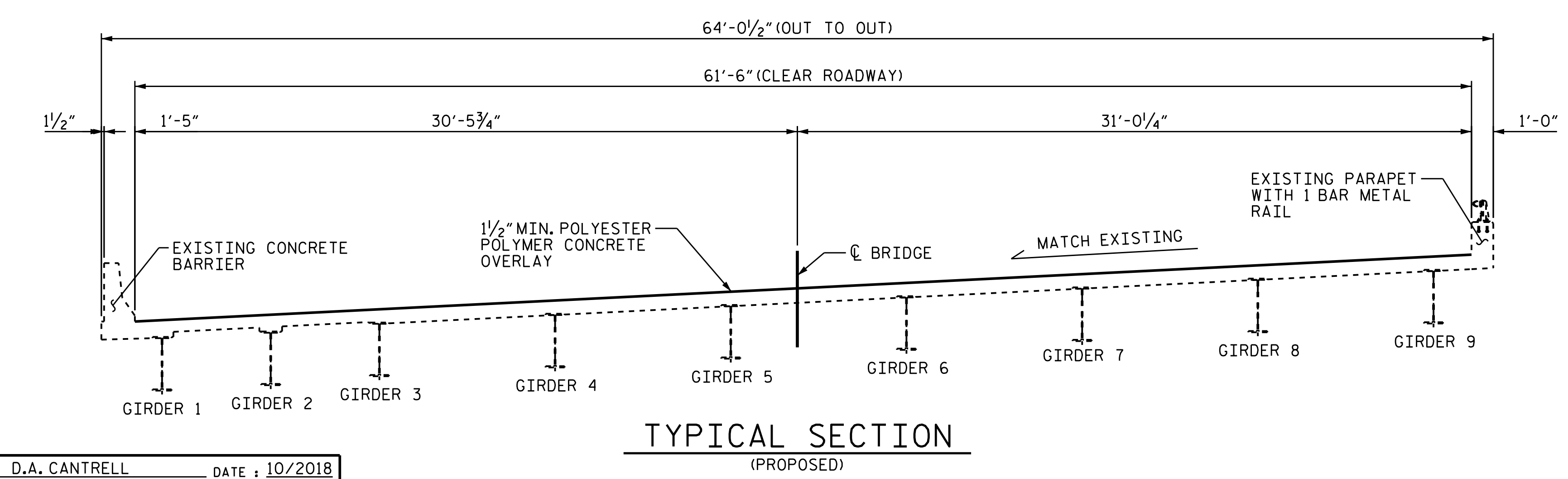
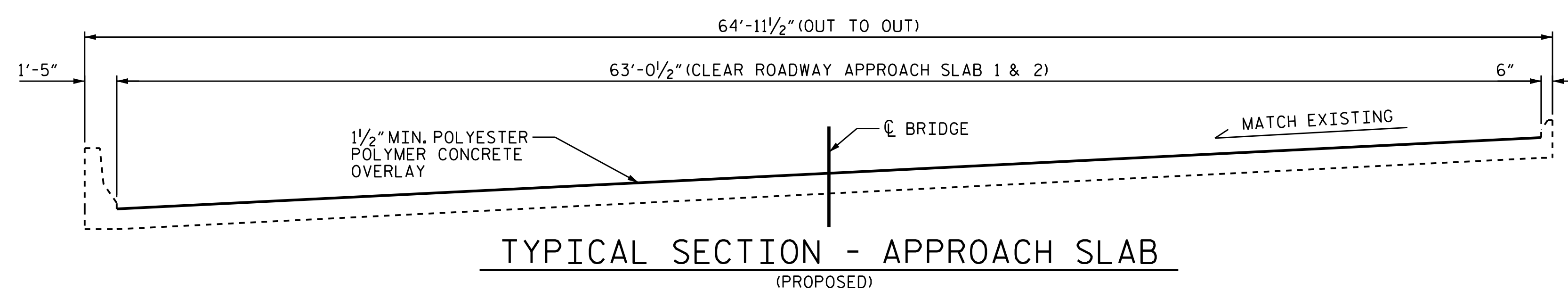
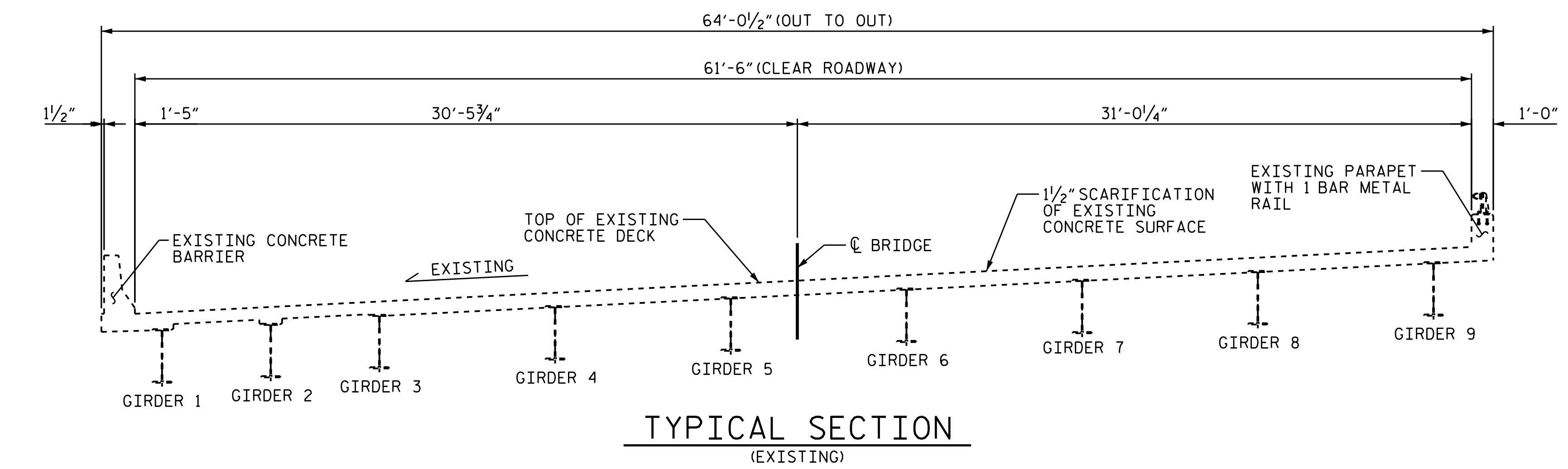
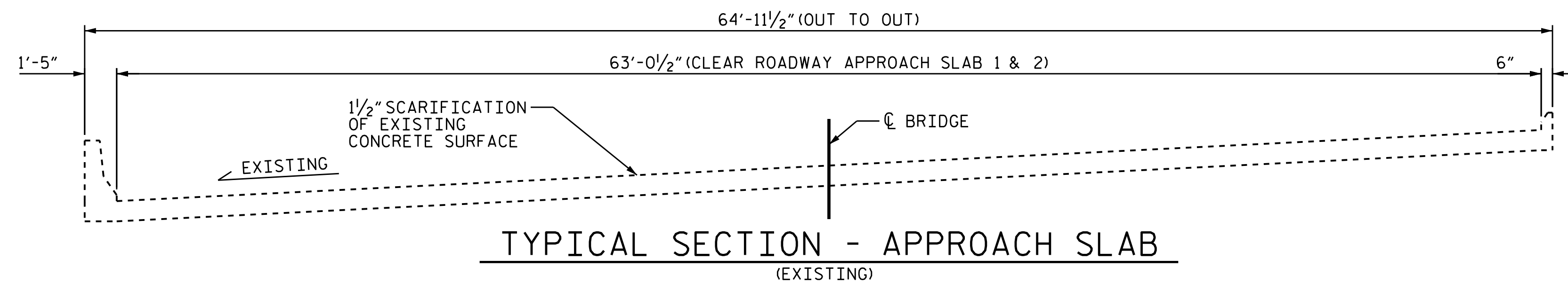
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON I-77 NBL  
 OVER WEST TRADE ST.

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

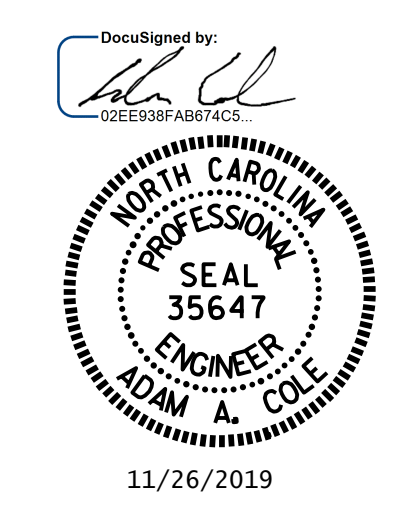
DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

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PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590241



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

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS 8
2			4			

# AS-BUILT REPAIR QUANTITY TABLE

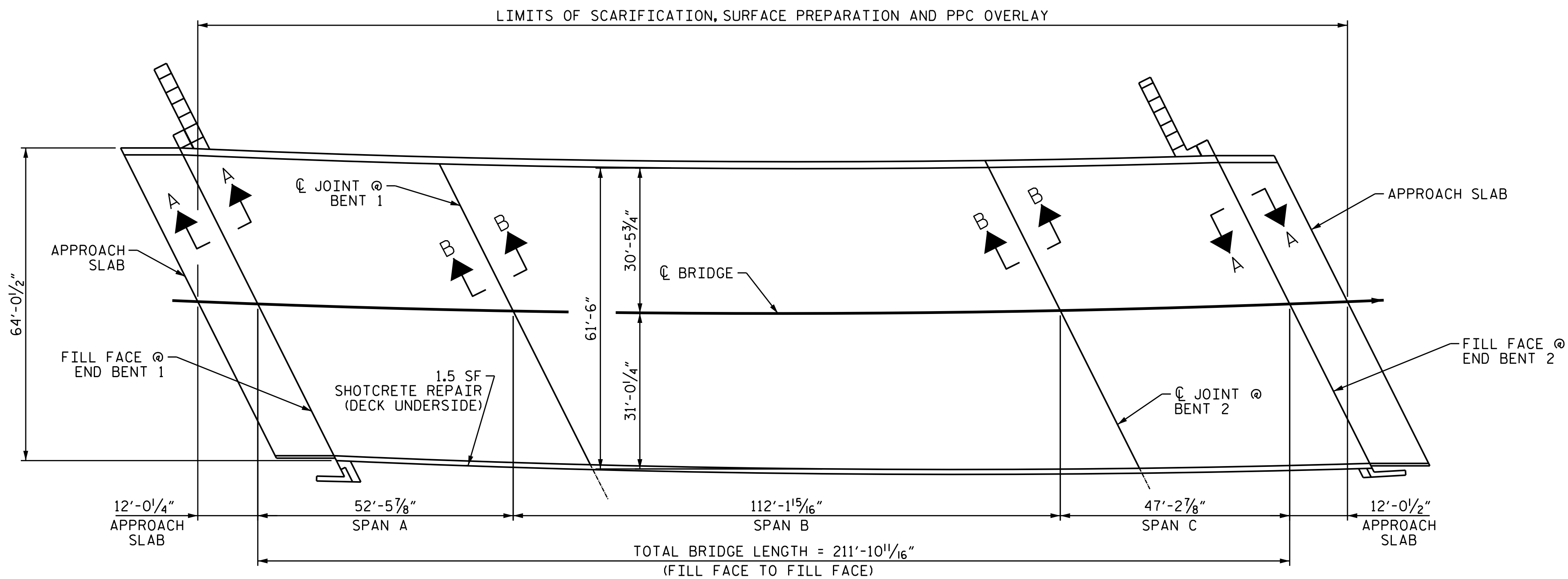
## TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
<b>SCARIFYING BRIDGE DECK</b>		
APPROACH SLAB 1	83 SQ. YDS.	
SPAN A	359 SQ. YDS.	
SPAN B	767 SQ. YDS.	
SPAN C	323 SQ. YDS.	
APPROACH SLAB 2	83 SQ. YDS.	
<b>CLASS II SURFACE PREPARATION</b>		
APPROACH SLAB 1	0.0 SQ. YDS.	
SPAN A	0.0 SQ. YDS.	
SPAN B	0.0 SQ. YDS.	
SPAN C	0.0 SQ. YDS.	
APPROACH SLAB 2	0.0 SQ. YDS.	
<b>CONCRETE DECK REPAIR FOR PPC OVERLAY</b>		
APPROACH SLAB 1	0.0 SQ. YDS.	
SPAN A	0.0 SQ. YDS.	
SPAN B	0.0 SQ. YDS.	
SPAN C	0.0 SQ. YDS.	
APPROACH SLAB 2	0.0 SQ. YDS.	
<b>SHOTBLASTING BRIDGE DECK</b>		
APPROACH SLAB 1	83 SQ. YDS.	
SPAN A	359 SQ. YDS.	
SPAN B	767 SQ. YDS.	
SPAN C	323 SQ. YDS.	
APPROACH SLAB 2	83 SQ. YDS.	
<b>PPC MATERIALS</b>		
APPROACH SLAB 1	4.1 CU. YDS.	
SPAN A	17.5 CU. YDS.	
SPAN B	37.3 CU. YDS.	
SPAN C	15.7 CU. YDS.	
APPROACH SLAB 2	4.1 CU. YDS.	
<b>PLACING AND FINISHING PPC OVERLAY</b>		
APPROACH SLAB 1	83 SQ. YDS.	
SPAN A	359 SQ. YDS.	
SPAN B	767 SQ. YDS.	
SPAN C	323 SQ. YDS.	
APPROACH SLAB 2	83 SQ. YDS.	
<b>GROOVING BRIDGE FLOORS</b>		
APPROACH SLAB 1	655 SQ. FT.	
SPAN A	3006 SQ. FT.	
SPAN B	6498 SQ. FT.	
SPAN C	2700 SQ. FT.	
APPROACH SLAB 2	658 SQ. FT.	

## SHOTCRETE REPAIRS

	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
<b>UNDERSIDE OF DECK</b>				
APPROACH SLAB 1	0	0		
SPAN A	1.5	0.5		
SPAN B	0	0		
SPAN C	0	0		
APPROACH SLAB 2	0	0		

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.



## 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.

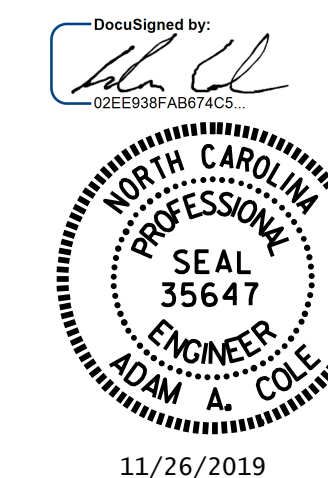
FOR SECTION A-A AND SECTION B-B, SEE "JOINT DETAILS" SHEET.

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

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

SHOTCRETE REPAIRS FOR DECK UNDERSIDE

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590241



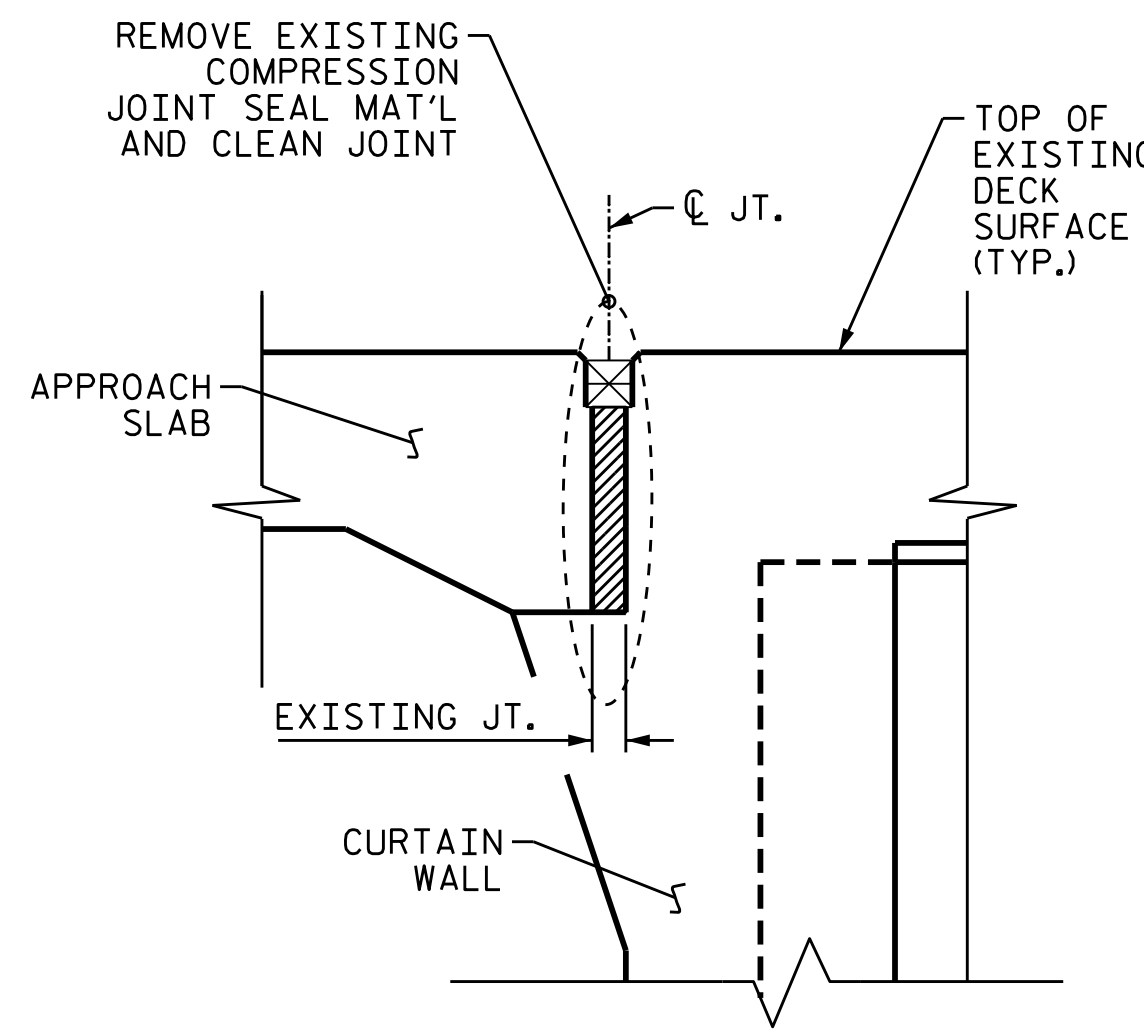
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

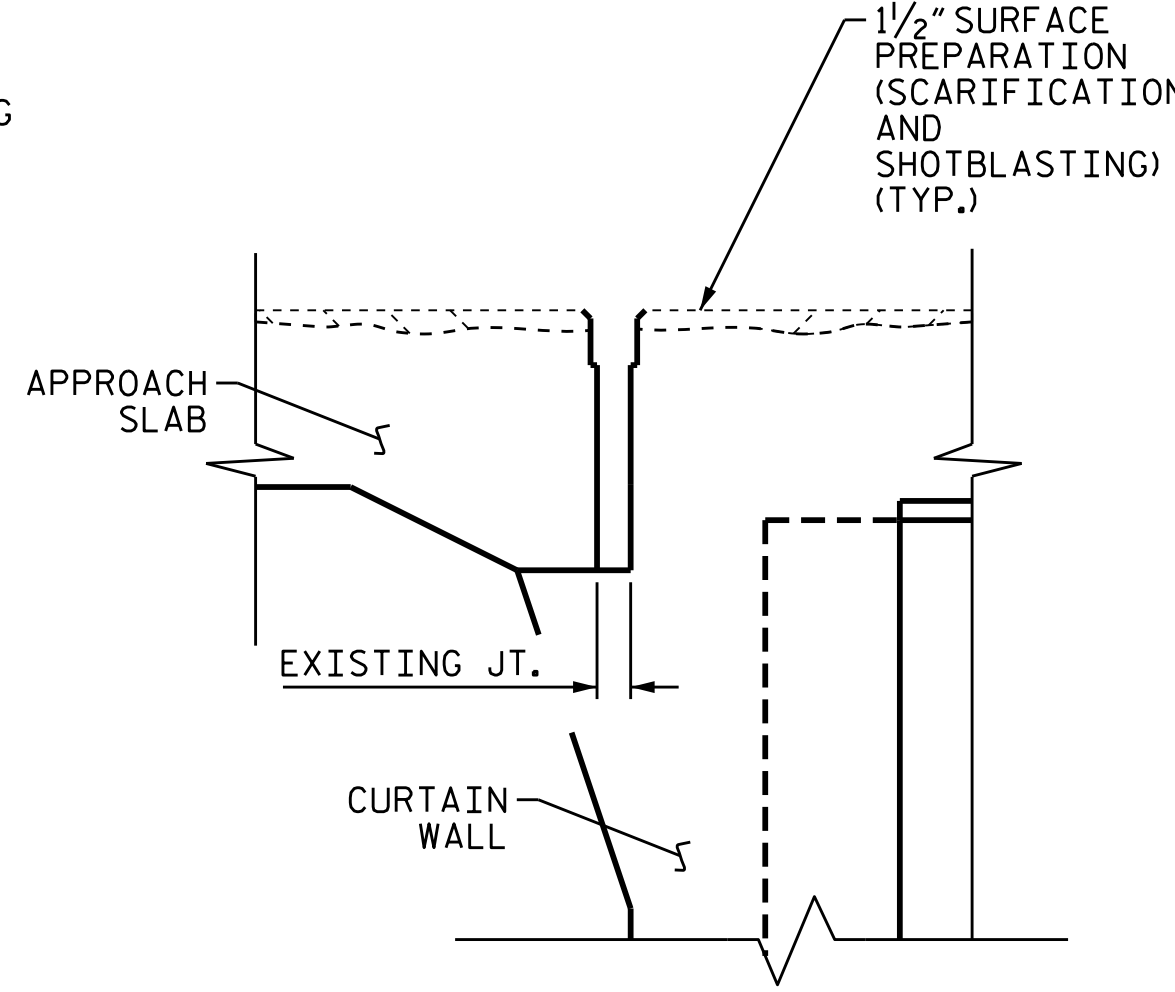
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S6-03
2			4			TOTAL SHEETS 8

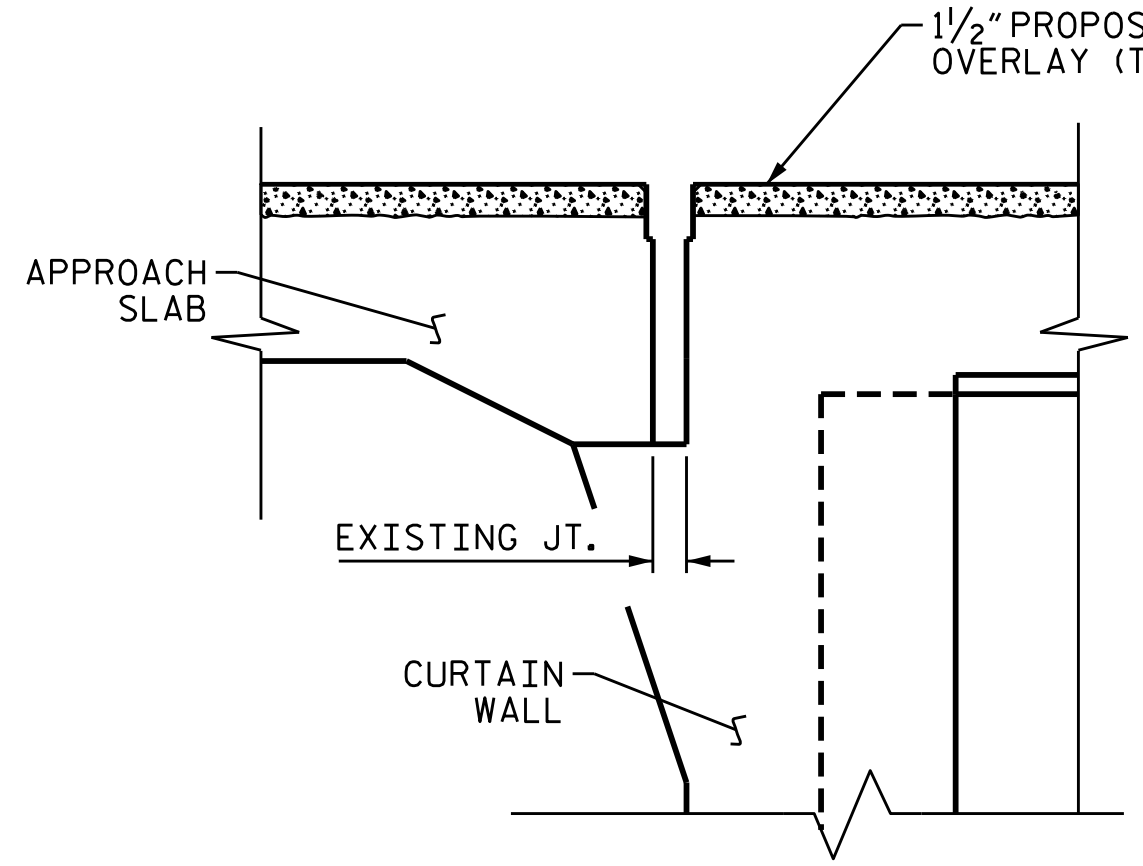




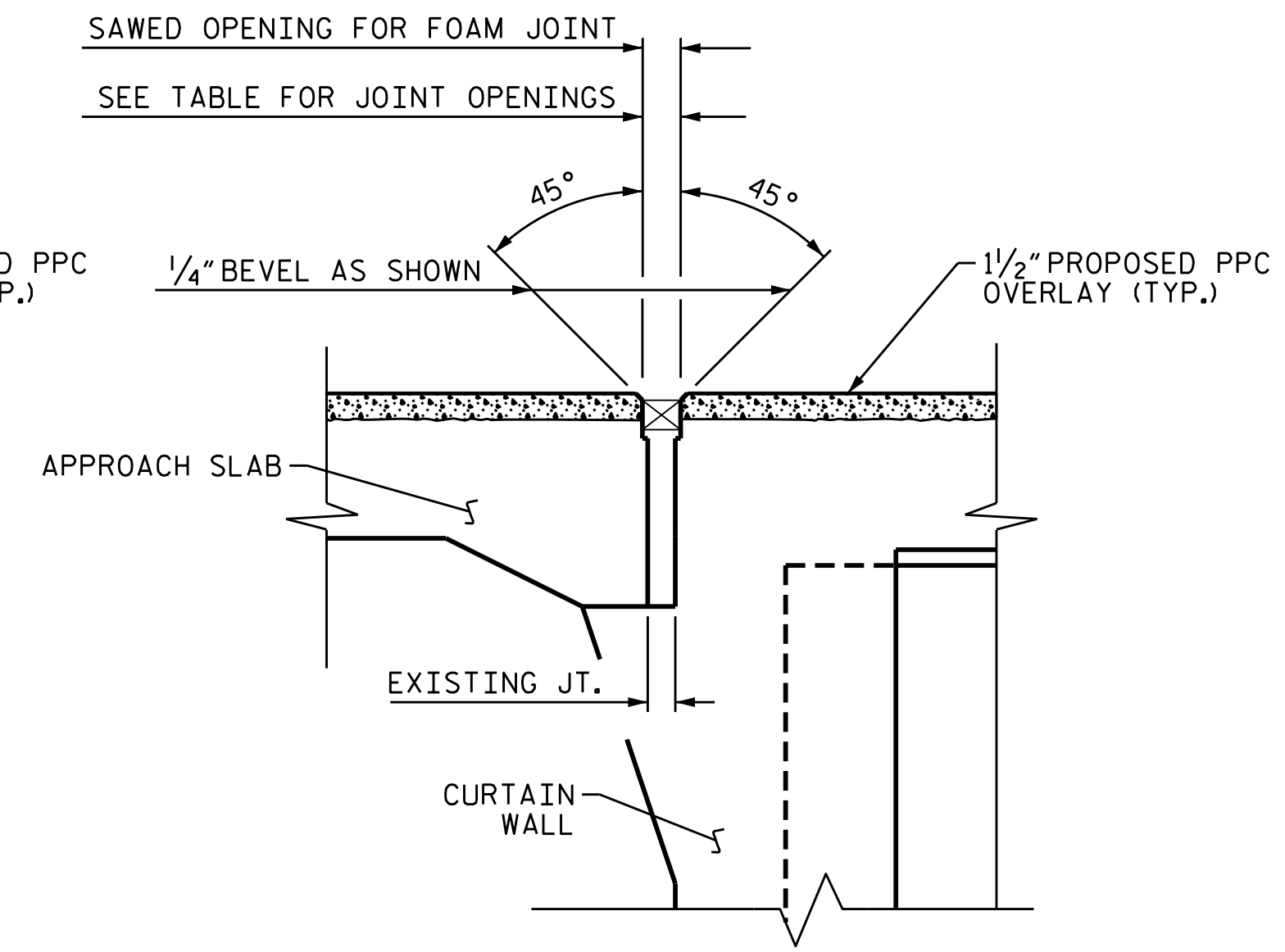
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

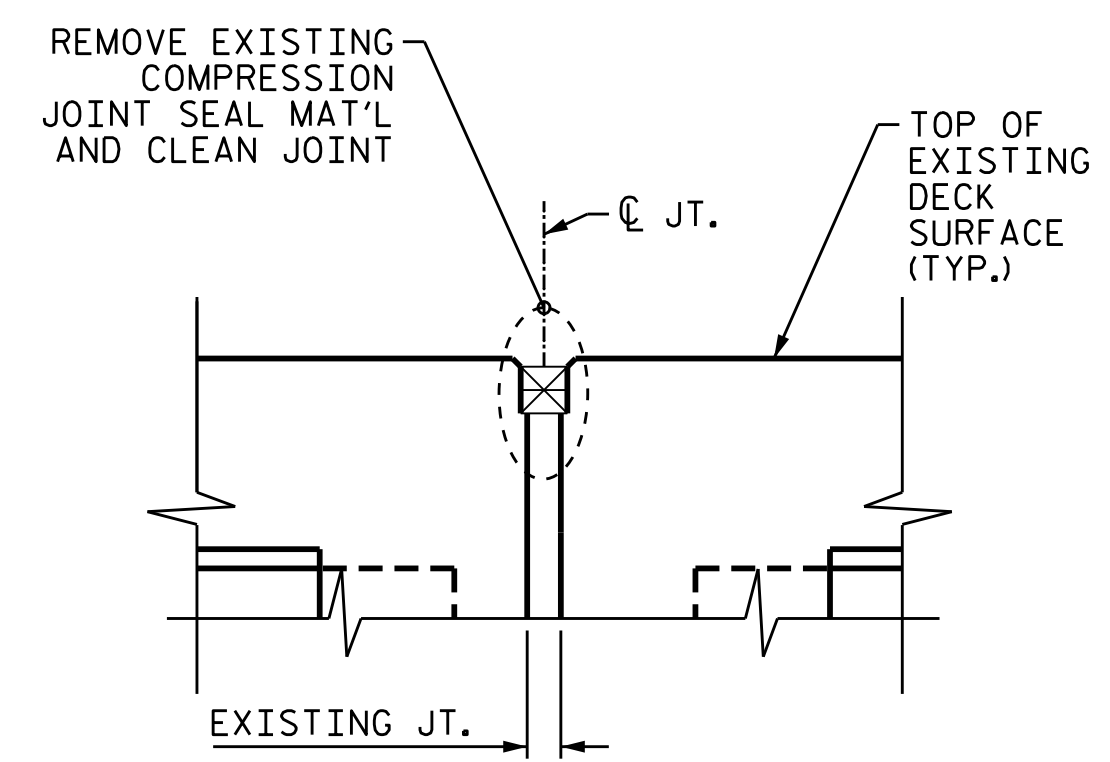


PROPOSED JOINT PRE-SAWED

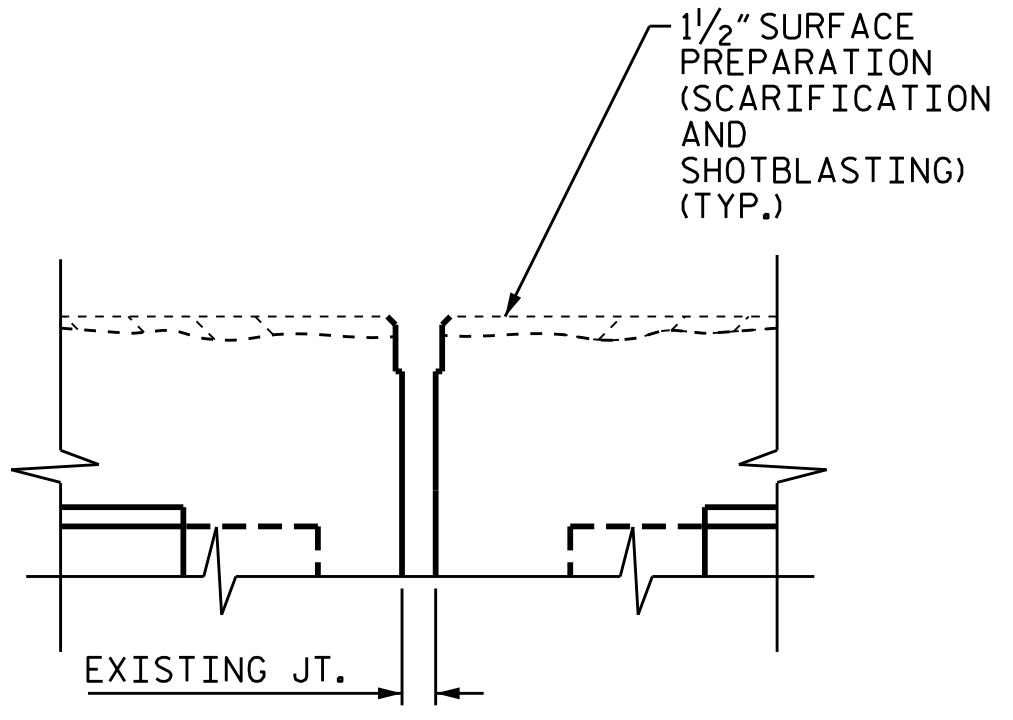


PROPOSED FOAM JOINT SEAL

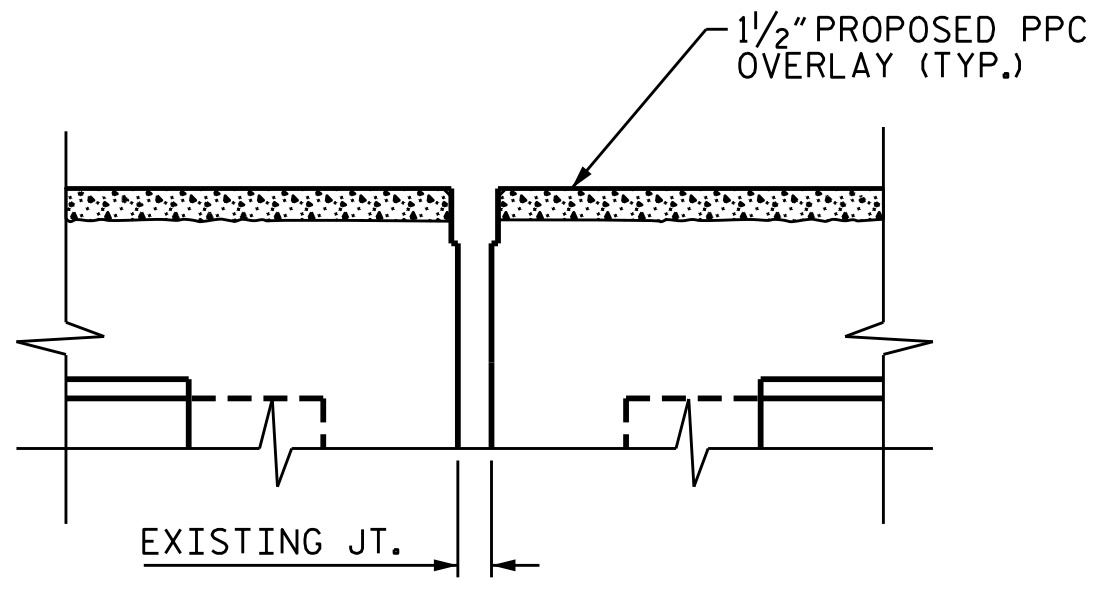
**SECTION A-A**  
(TYP. AT END BENTS)



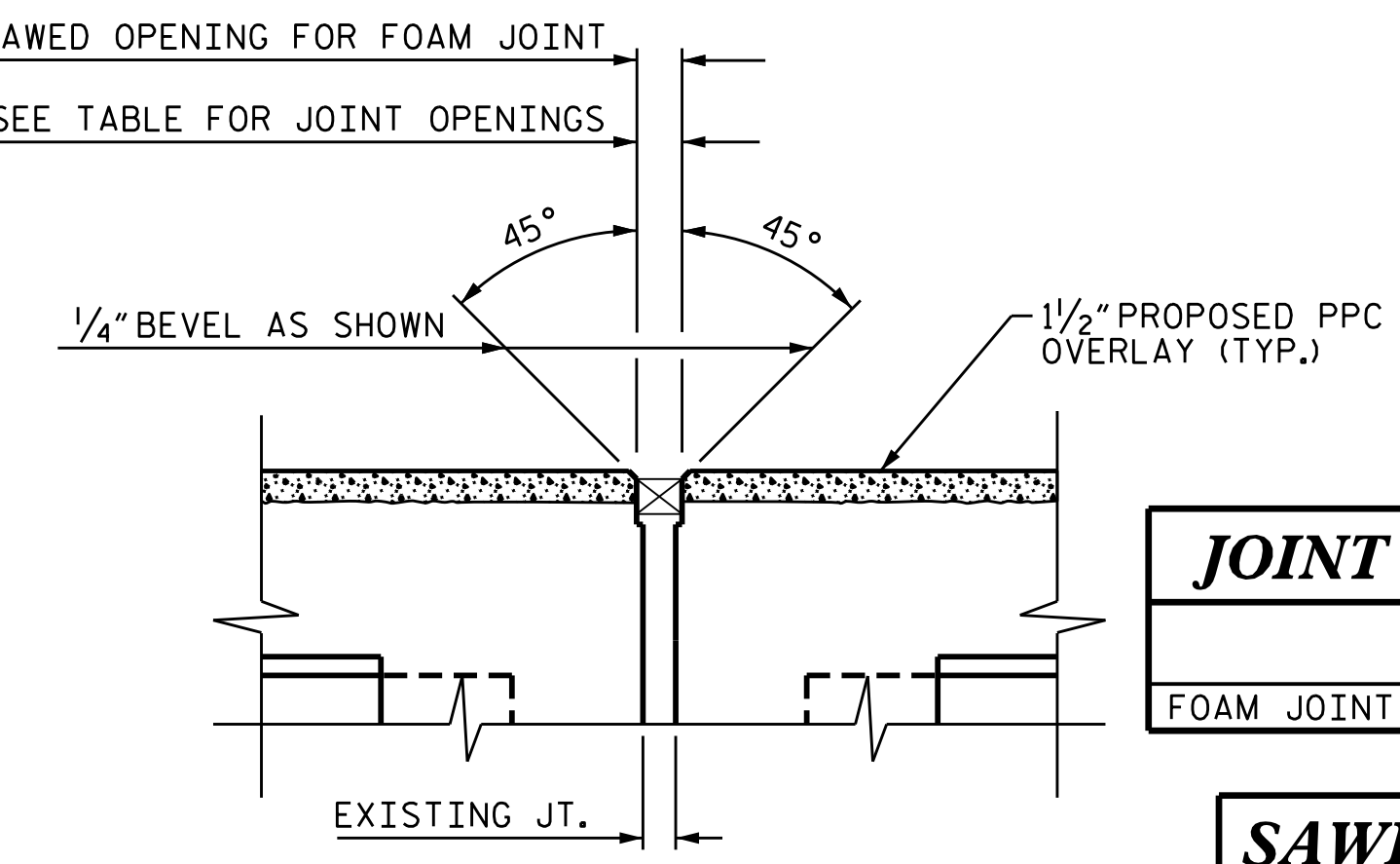
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

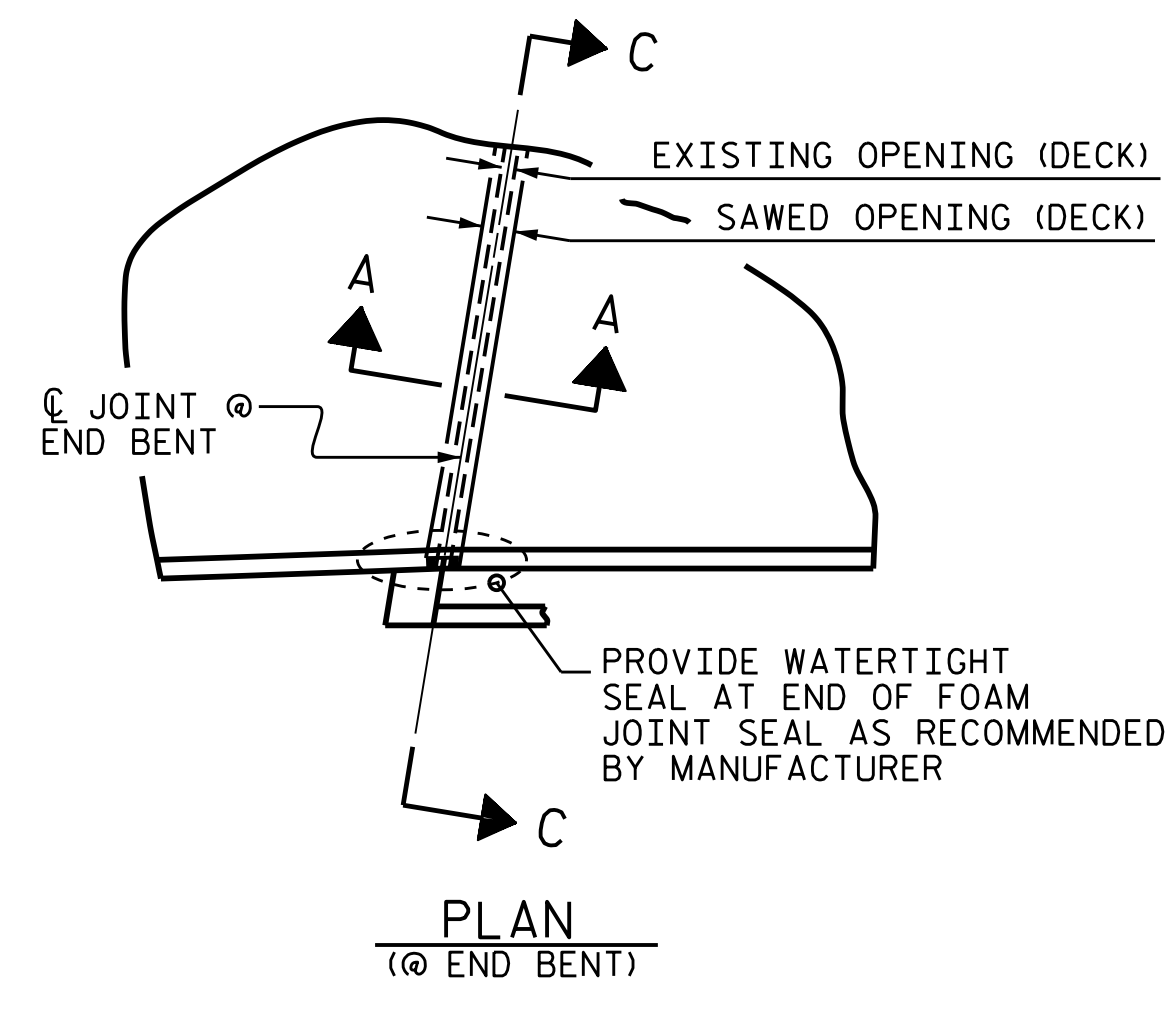


PROPOSED JOINT PRE-SAWED

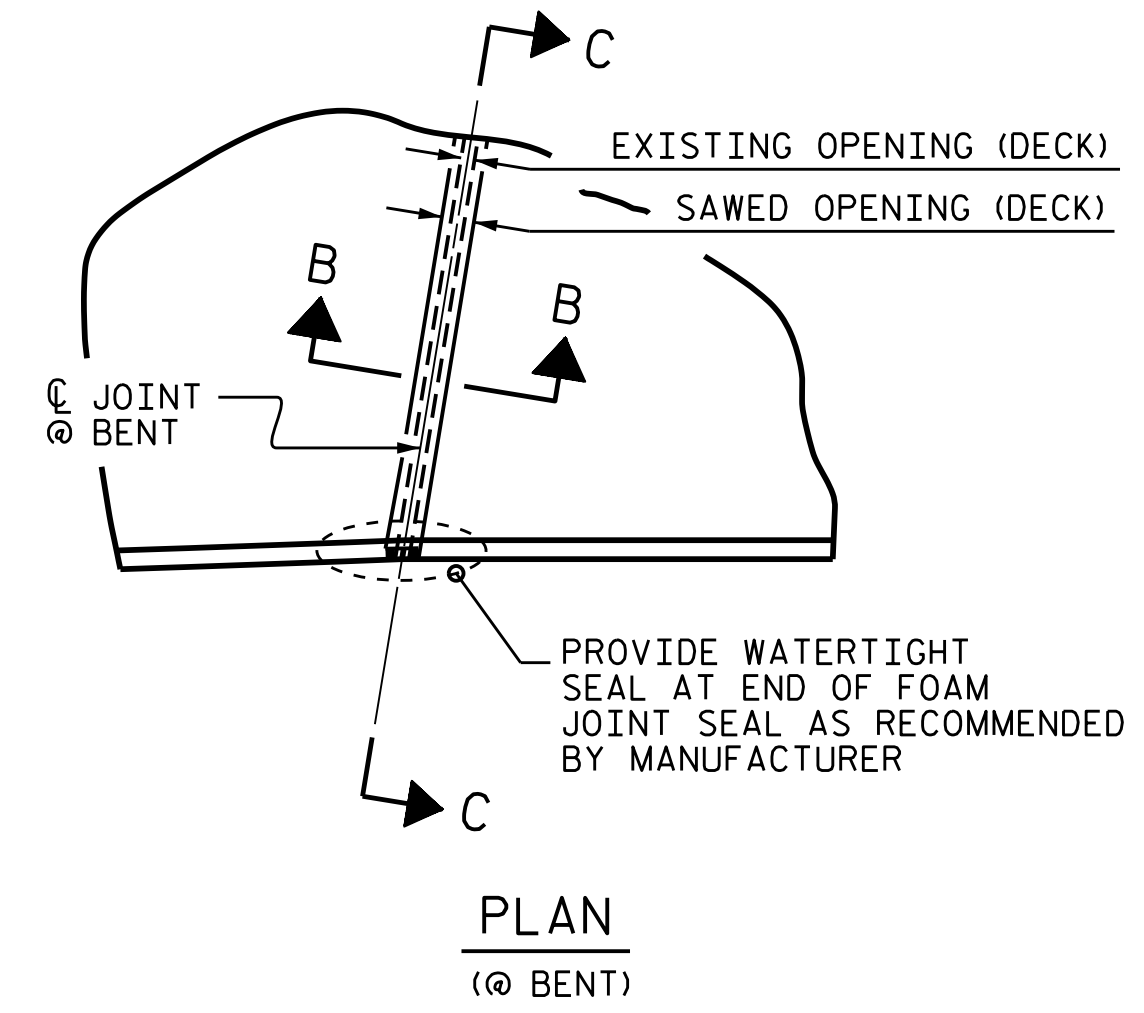


PROPOSED FOAM JOINT SEAL

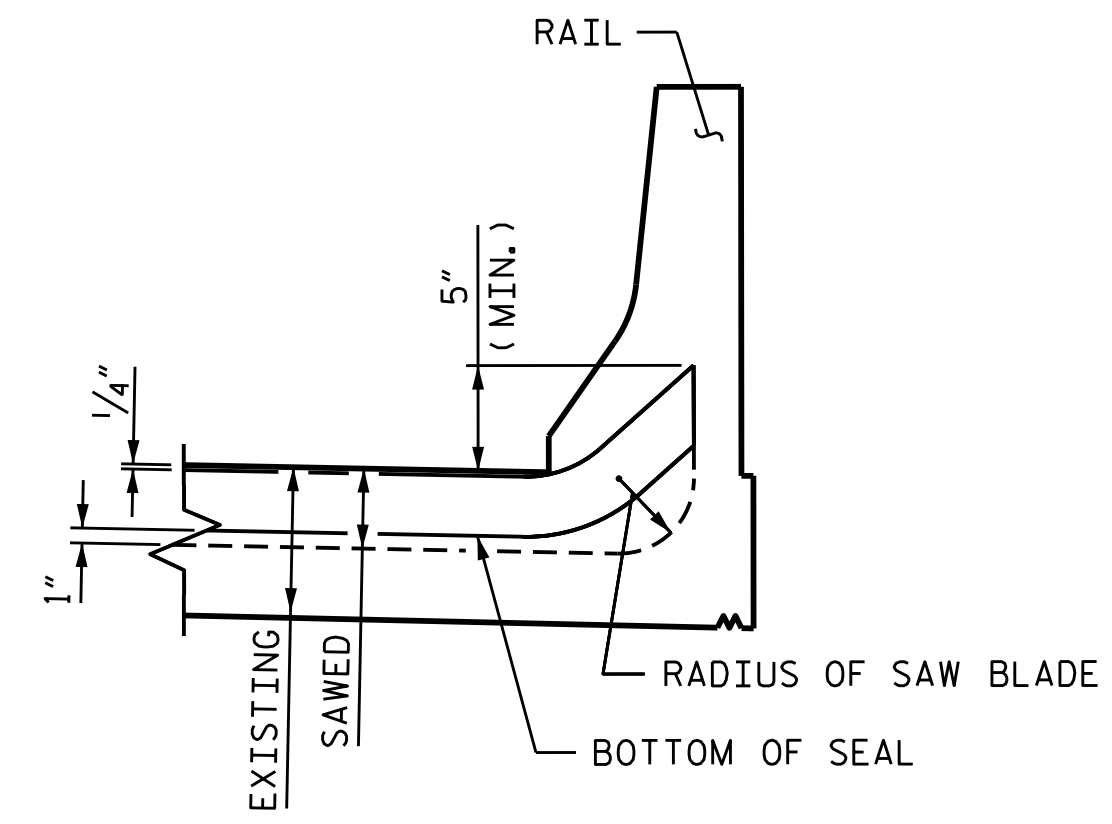
**SECTION B-B**  
(TYP. AT BENTS)



PLAN (@ END BENT)



PLAN (@ BENT)



SECTION C-C

**NOTES**

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

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT SEAL MATERIAL PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT SEAL MATERIAL IS MORE THAN 1/4", NOTIFY THE ENGINEER.

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

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

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

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

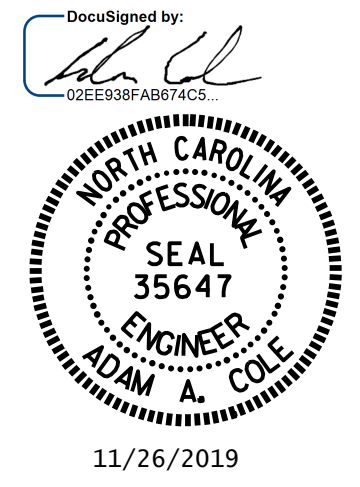
THE INSTALLED FOAM JOINTS SHALL BE WATER TIGHT.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

JOINT REPAIR QUANTITY TABLE		
	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	289 LF	

SAWED JOINT OPENING TABLE				
LOCATION	TOTAL MOVEMENT (ALONG C. RDY)	SAWED JT. OPENING (PERPENDICULAR TO JT.)		
		AT 30°	AT 60°	AT 90°
END BENT 1			2"	
BENT 1	5/8"	1 5/8"	1 1/2"	1 3/8"
BENT 2	1 1/8"	2 5/8"	2 5/16"	2"
END BENT 2			2"	

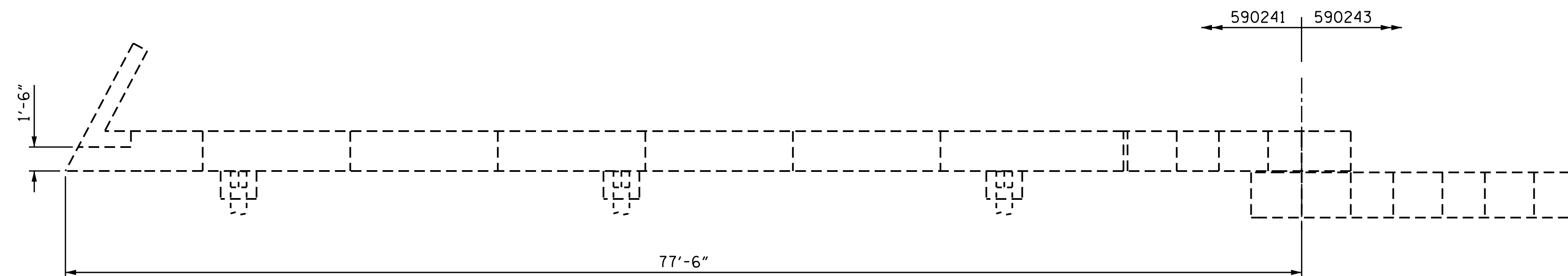
PROJECT NO. I-5769  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590241



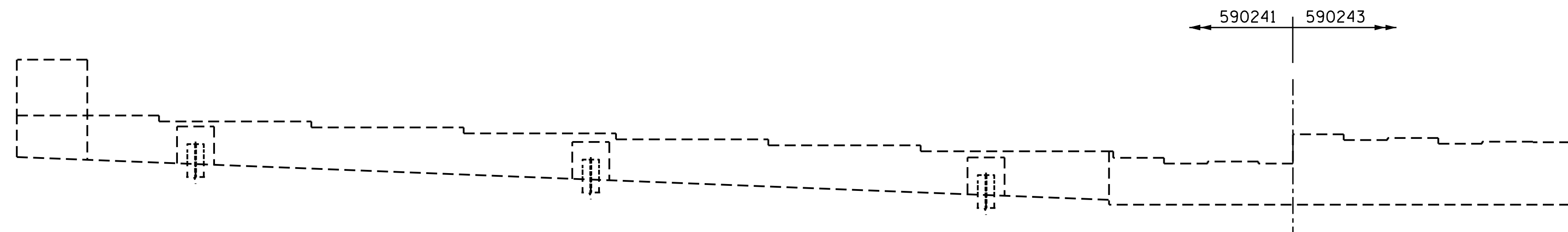
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARDS  
 FOAM JOINT SEAL  
 DETAILS FOR PPC  
 OVERLAY

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

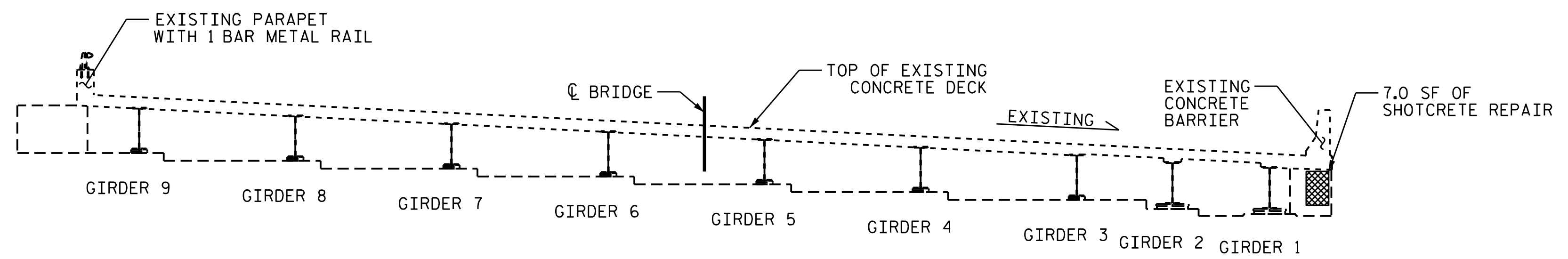
REVISIONS						SHEET NO. <b>S6-04</b>
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 8
2			4			



PLAN



ELEVATION



TYPICAL SECTION

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	7.0	3.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	137			

NOTES

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, 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 AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

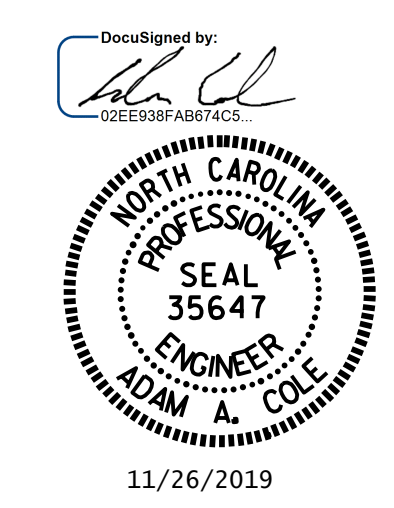
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590241

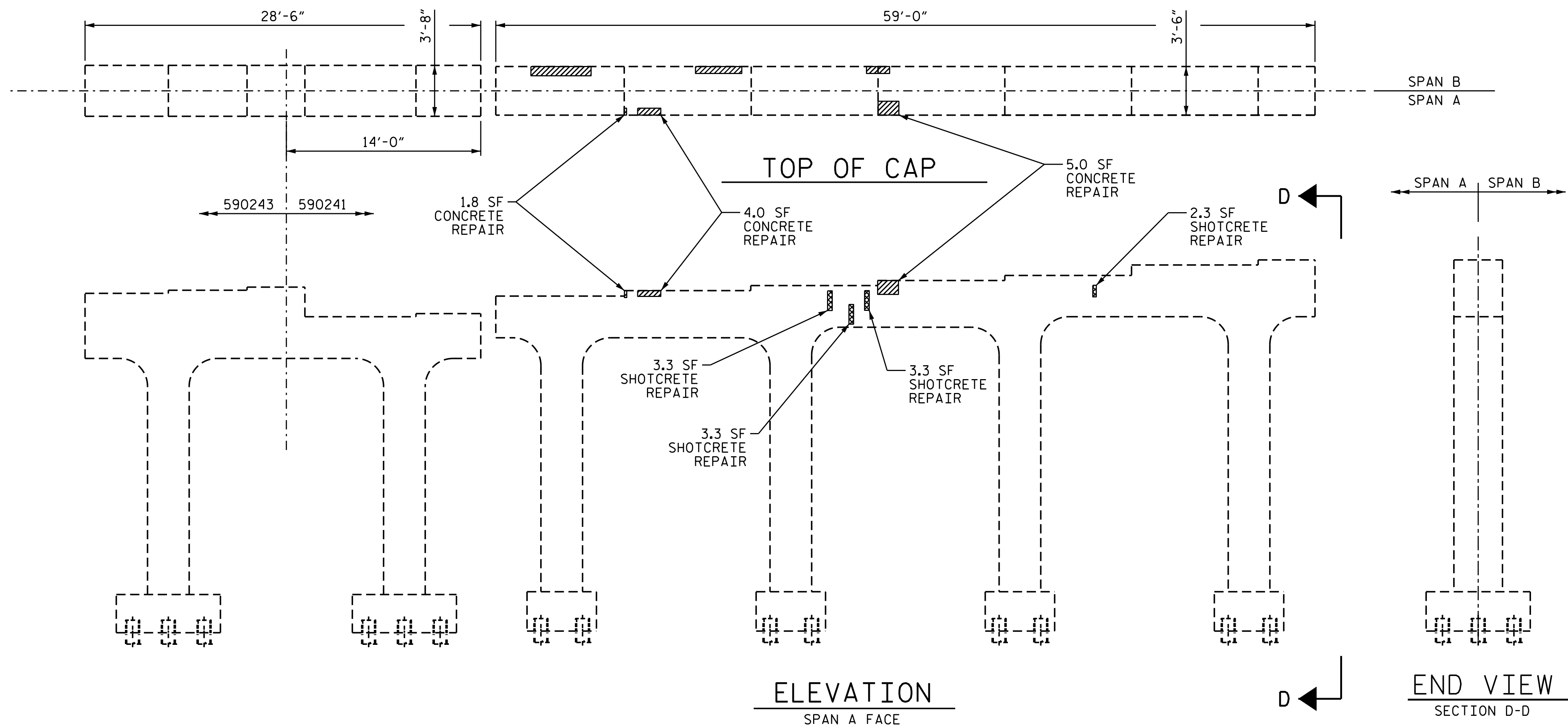


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 1

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

NO.	BY:	DATE:	REVISIONS			SHEET NO.
			NO.	BY:	DATE:	
1			3			S6-05 TOTAL SHEETS 8
2			4			

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AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	14.0	7.0		
COLUMN	1.7	0.9		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	32.5	20.3		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	277			

**NOTES**

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT UTILITY LINES AND LIGHTING ARE ATTACHED TO THE STRUCTURE.

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

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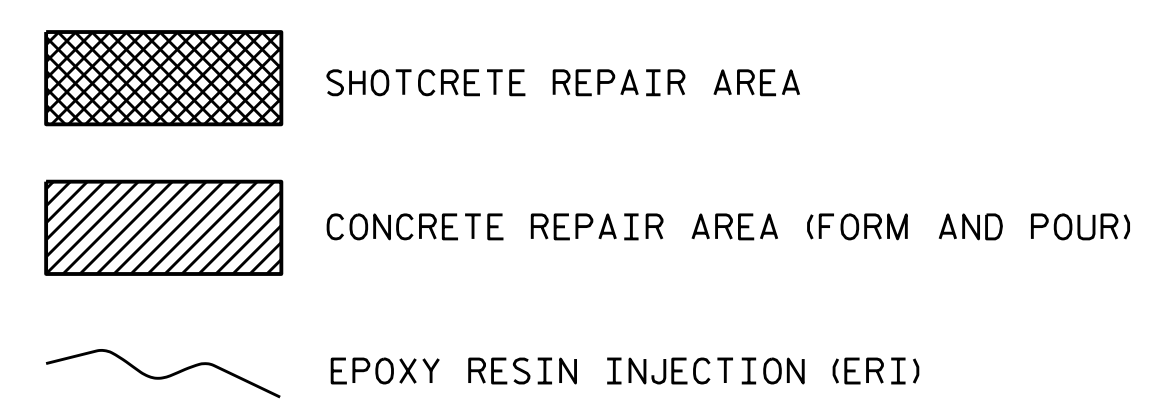
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

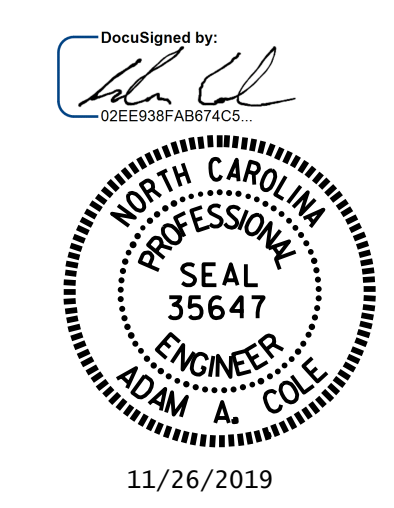
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

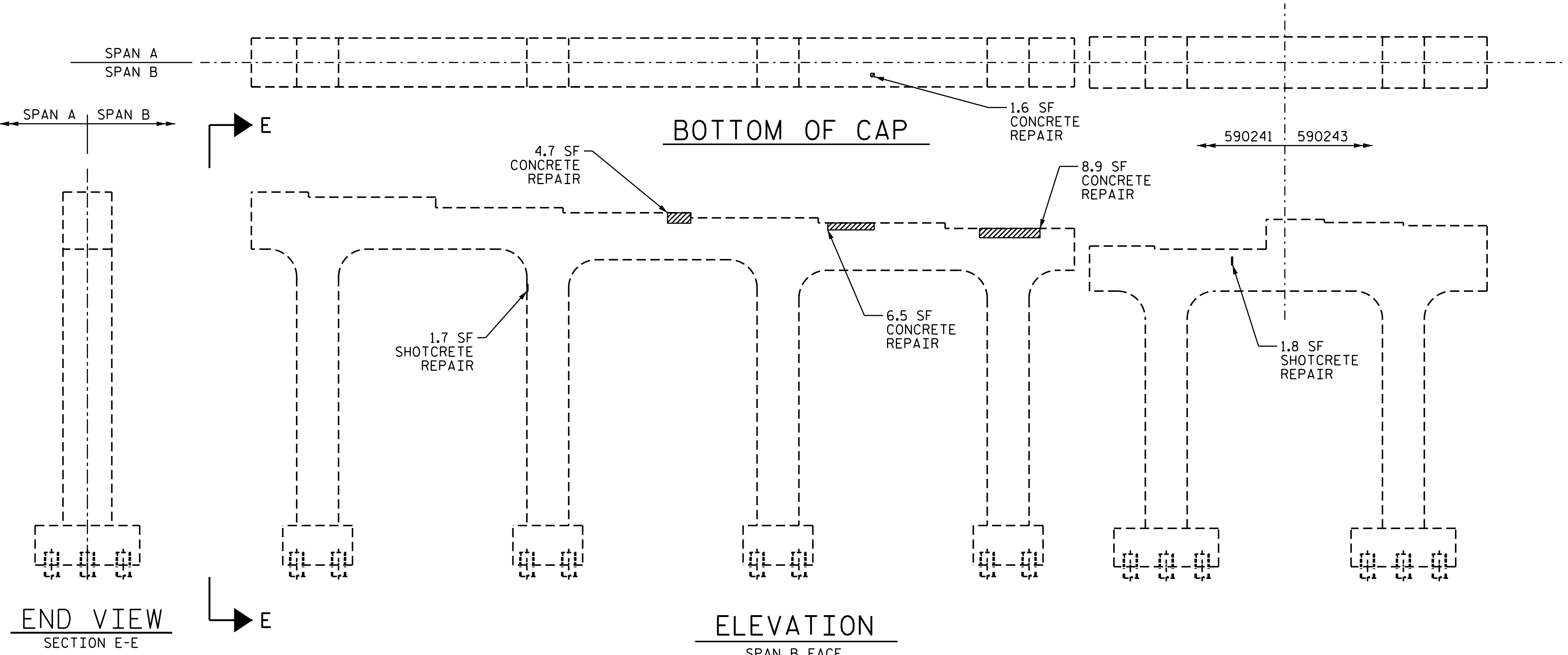


PROJECT NO. I-5769  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590241



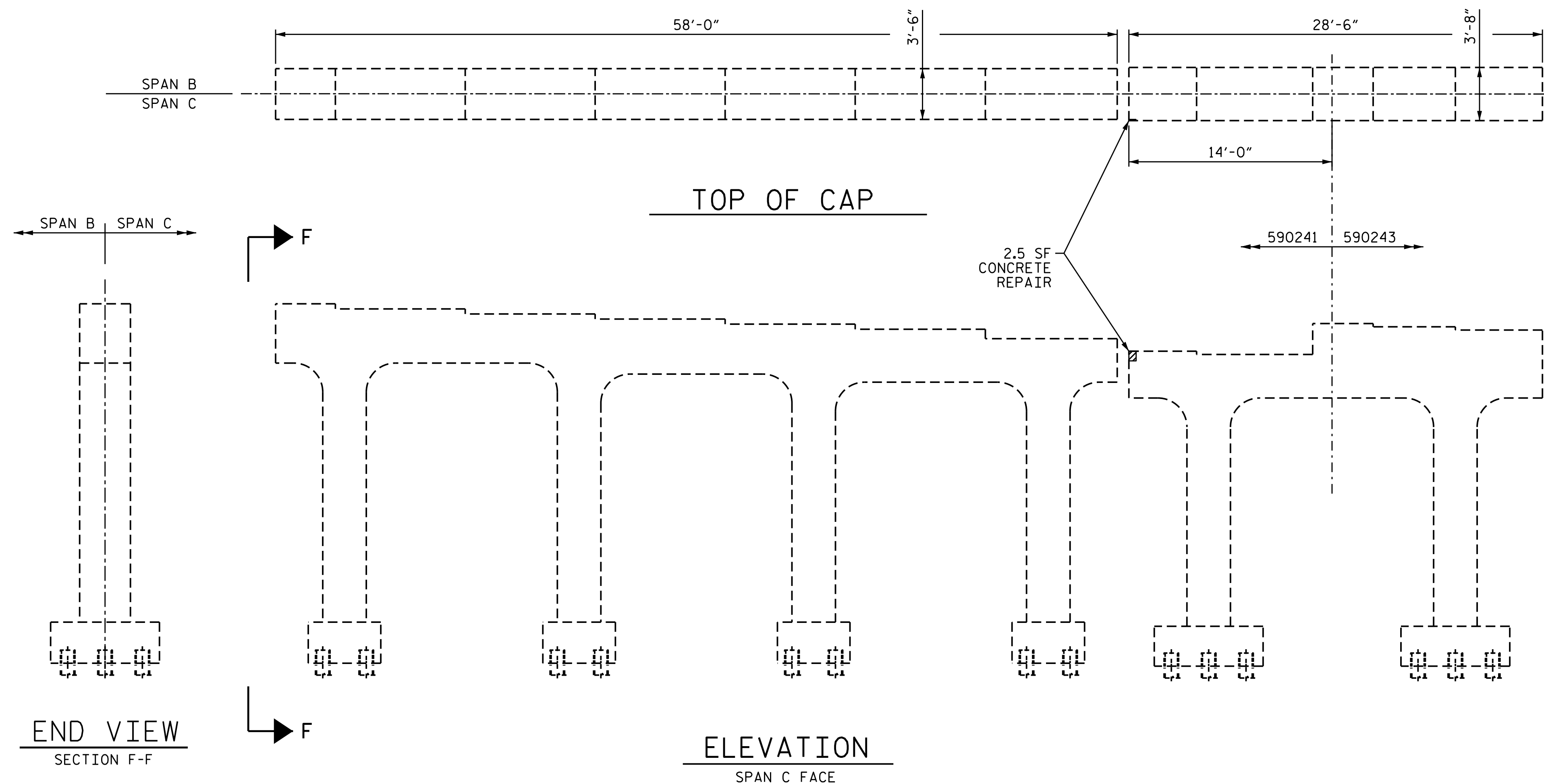
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 BENT 1



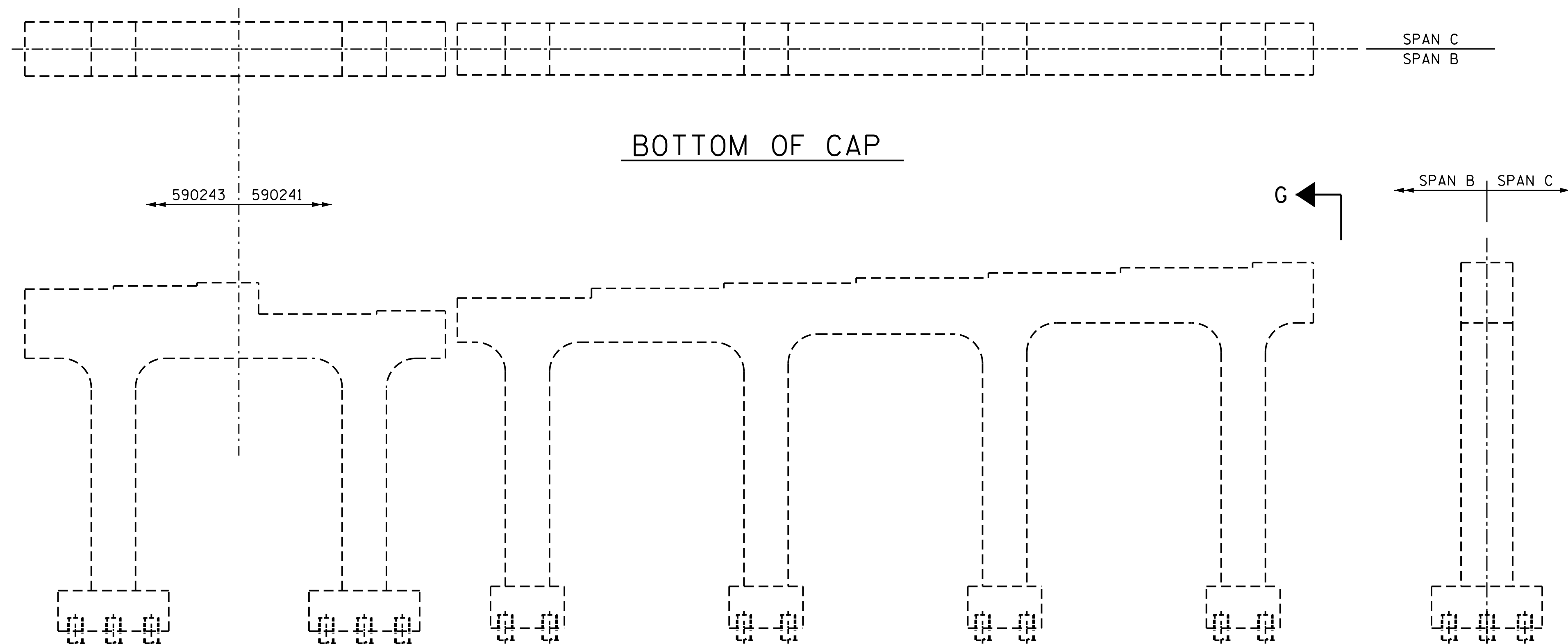
DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
	BY:	DATE:			BY:	DATE:		
1				3			S6-06	
2				4			TOTAL SHEETS 8	



END VIEW  
SECTION F-F

ELEVATION  
SPAN C FACE



BOTTOM OF CAP

ELEVATION  
SPAN B FACE

END VIEW  
SECTION G-G

AS-BUILT REPAIR QUANTITY TABLE				
BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	2.5	1.3		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	274			

NOTES

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT UTILITY LINES AND LIGHTING ARE ATTACHED TO THE STRUCTURE.

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

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

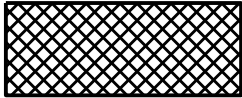
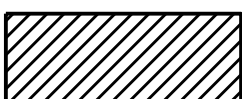

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

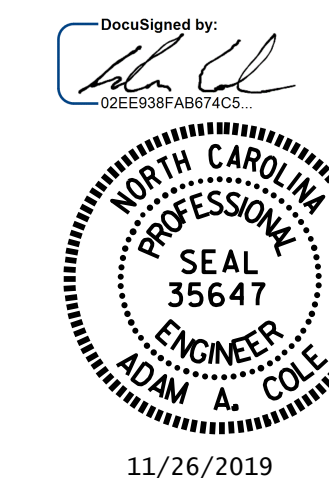
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590241

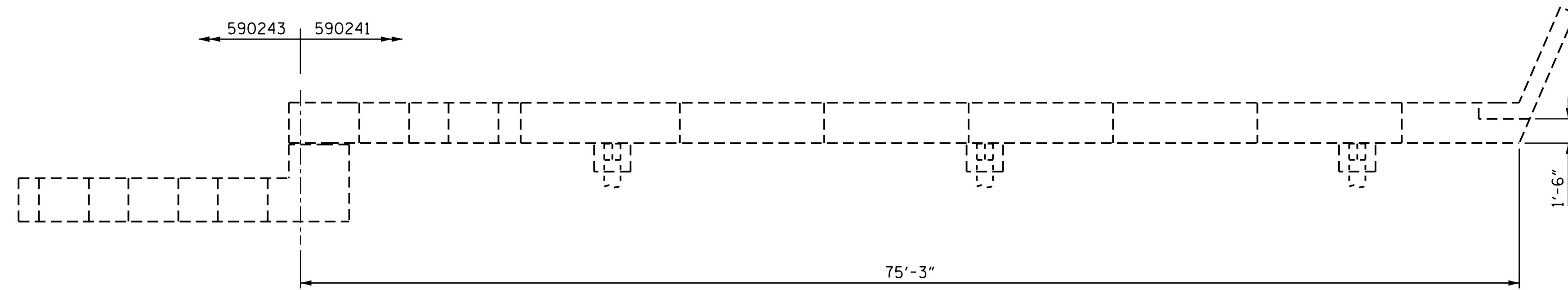


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 2

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

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2			4			TOTAL SHEETS 8

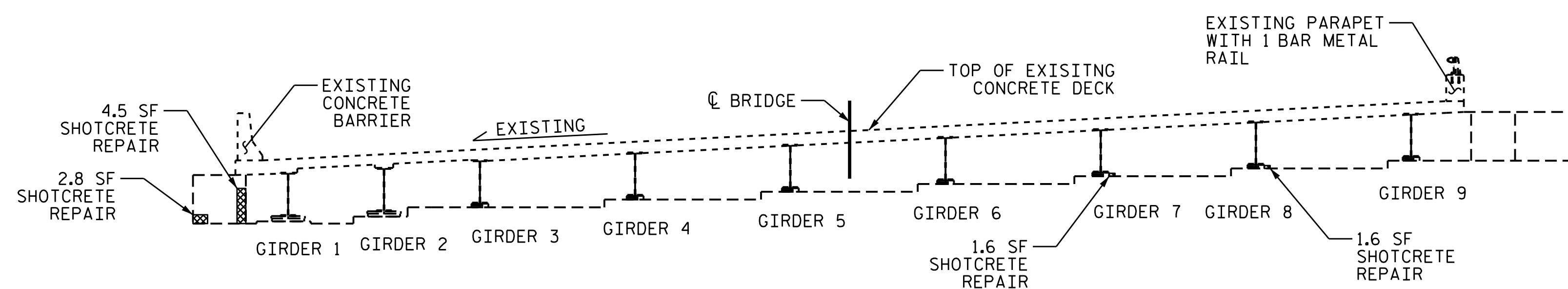
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PLAN



ELEVATION



TYPICAL SECTION

AS-BUILT REPAIR QUANTITY TABLE

END BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	10.5	5.3		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	133			

NOTES

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

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


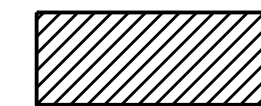

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

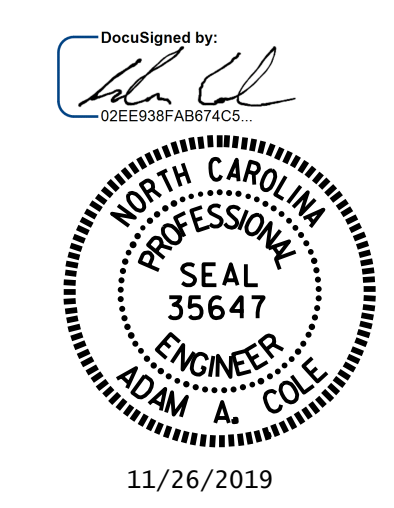
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590241

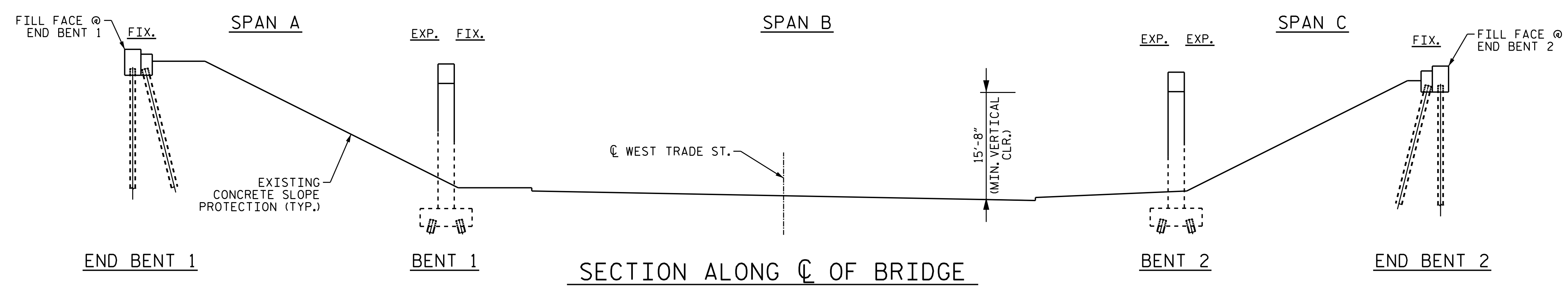


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 END BENT 2

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

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			NO.	BY:	DATE:	
1			3			S6-08 TOTAL SHEETS 8
2			4			

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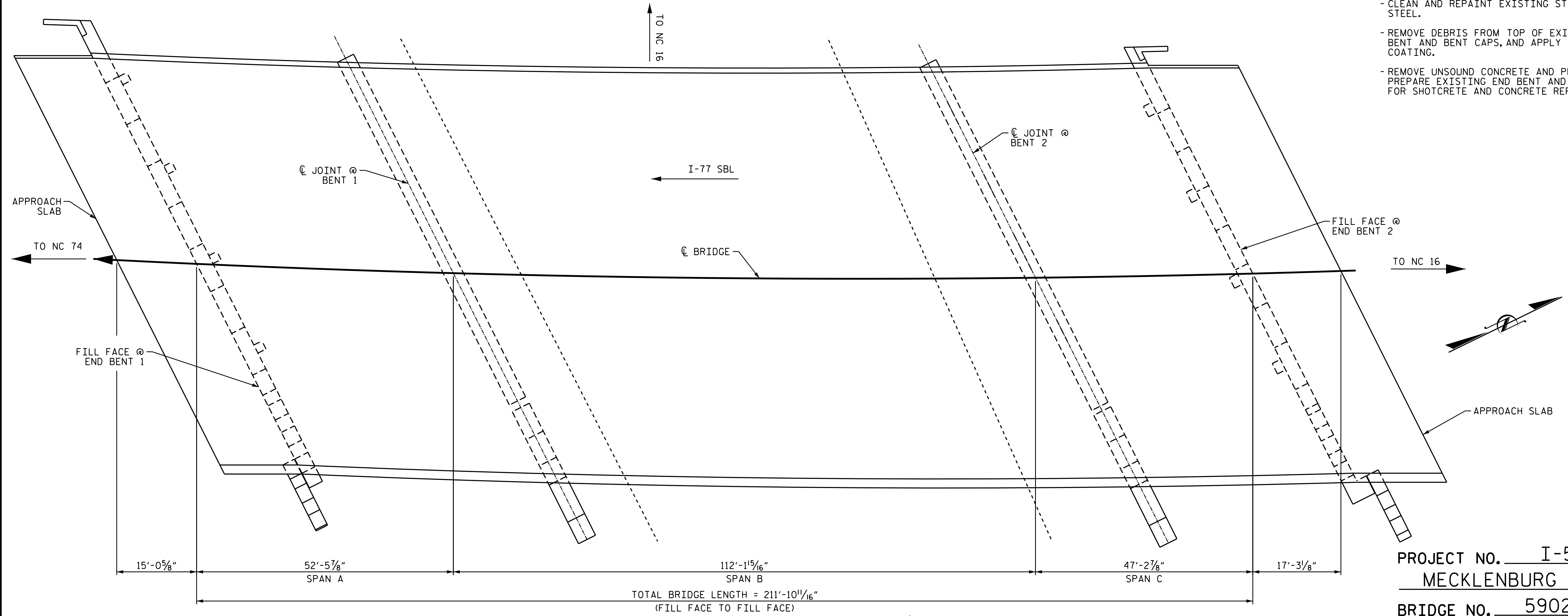


**NOTES**  
 GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 9/5/2018.

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

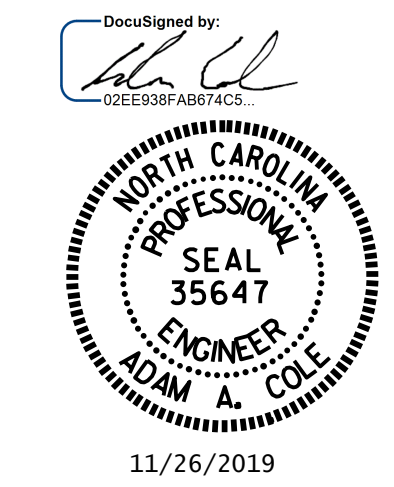
**SCOPE OF WORK**

- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC).
- REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
- GROOVE PPC BRIDGE DECK.
- CLEAN AND REPAINT EXISTING STRUCTURAL STEEL.
- REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS, AND APPLY EPOXY COATING.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIR.



**PLAN**  
 FOUNDATIONS NOT SHOWN FOR CLARITY

PROJECT NO. I-5769  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590243



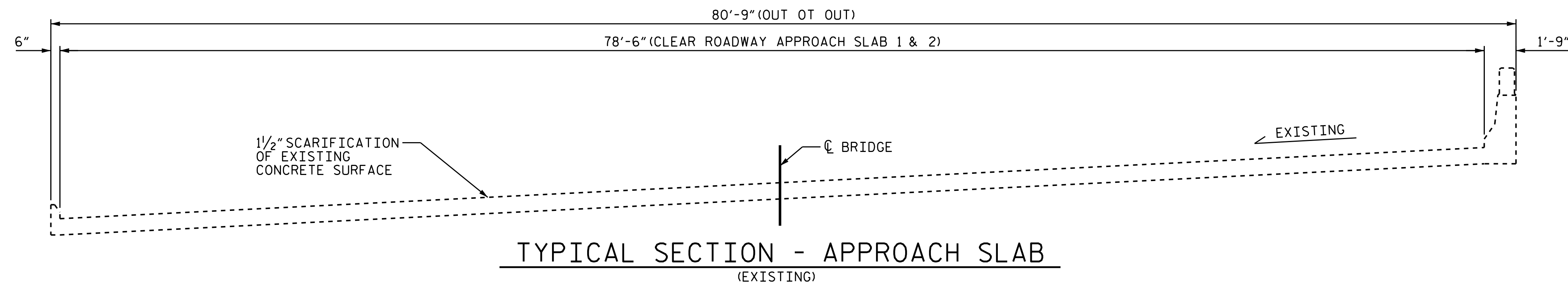
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON I-77 SBL  
 OVER WEST TRADE ST.

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

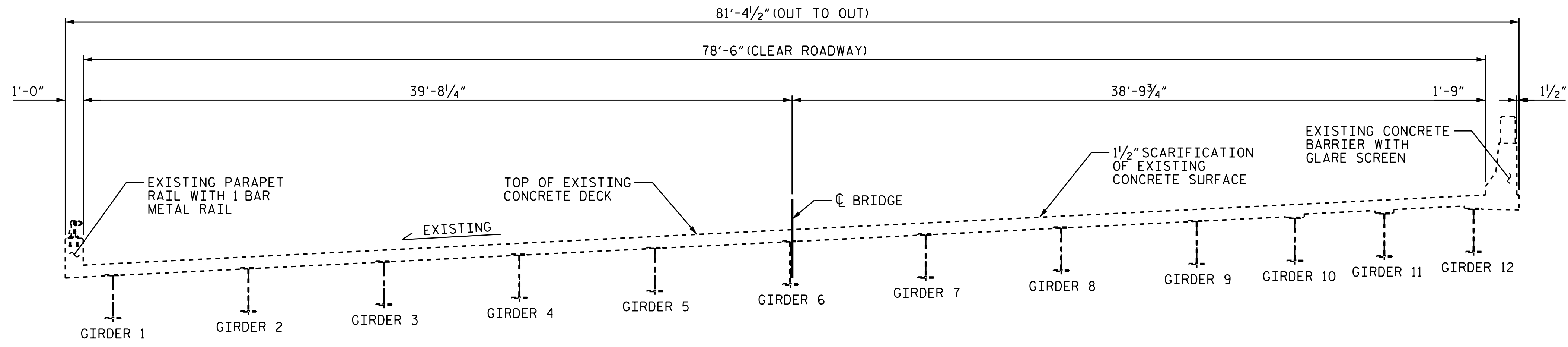
DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

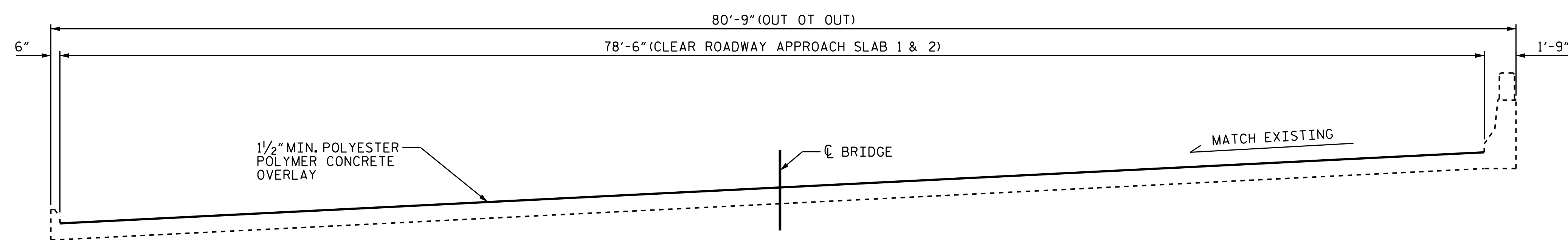
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			ST-01
2			4			TOTAL SHEETS 8



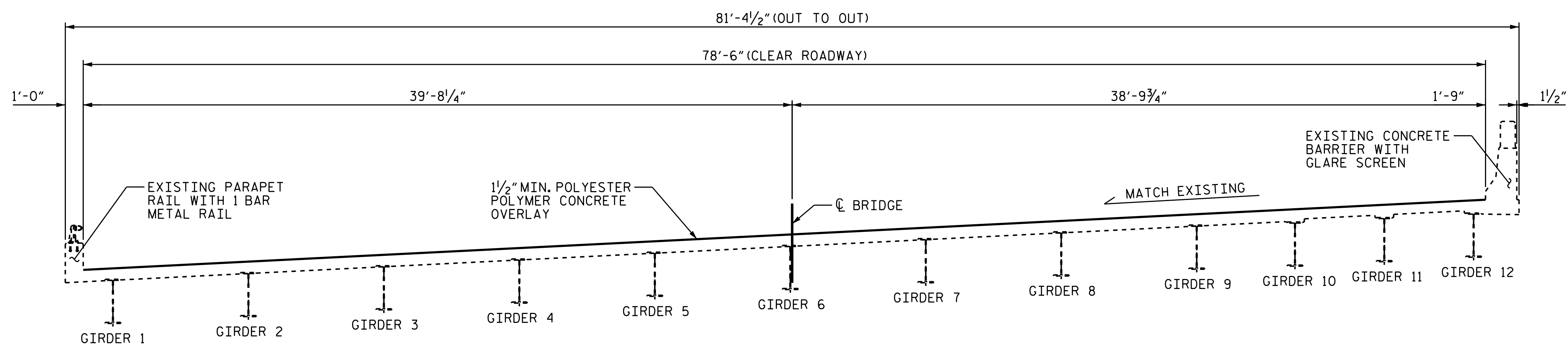
TYPICAL SECTION - APPROACH SLAB  
(EXISTING)



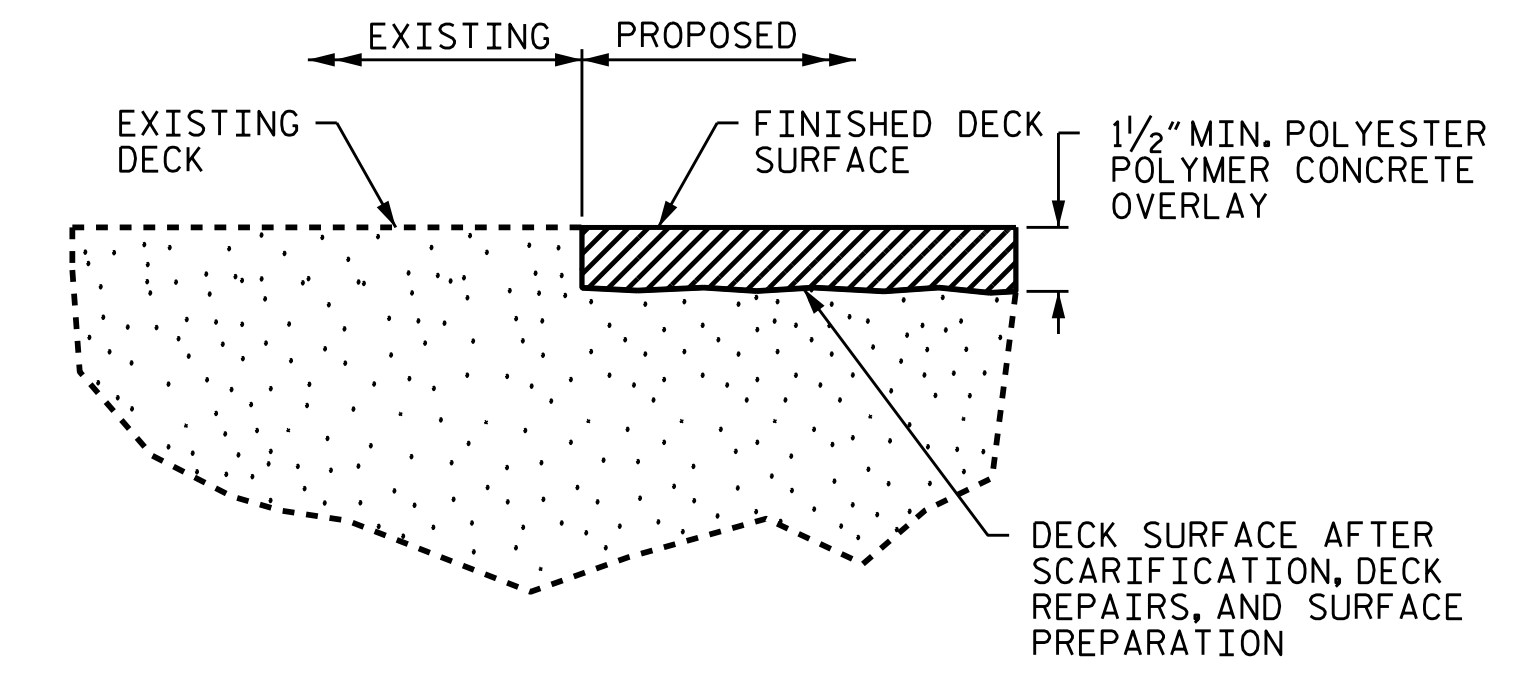
TYPICAL SECTION  
(EXISTING)



TYPICAL SECTION - APPROACH SLAB  
(PROPOSED)

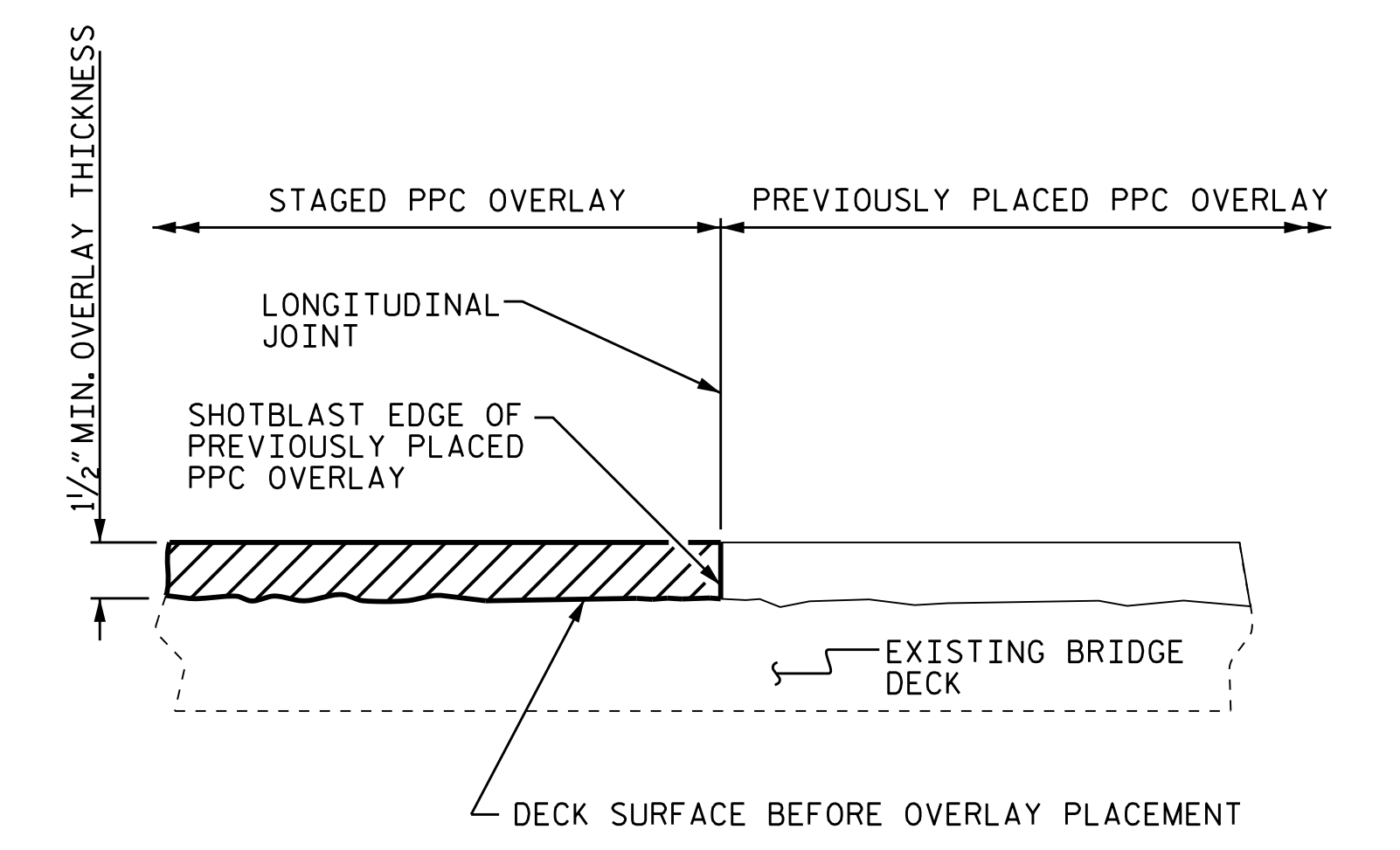


TYPICAL SECTION  
(PROPOSED)



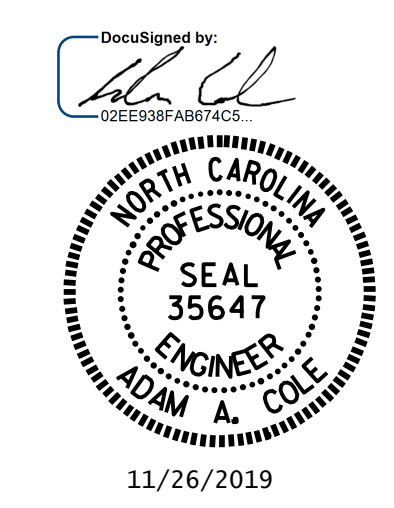
DETAIL FOR POLYESTER  
POLYMER CONCRETE OVERLAY

FINISHED SURFACE ELEVATION SHALL MATCH EXISTING  
CONCRETE SURFACE ELEVATION. ACTUAL THICKNESS  
OF PPC OVERLAY MAY VARY.



STAGED PPC OVERLAY JOINT  
(AS NEEDED)

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
BRIDGE NO. 590243



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

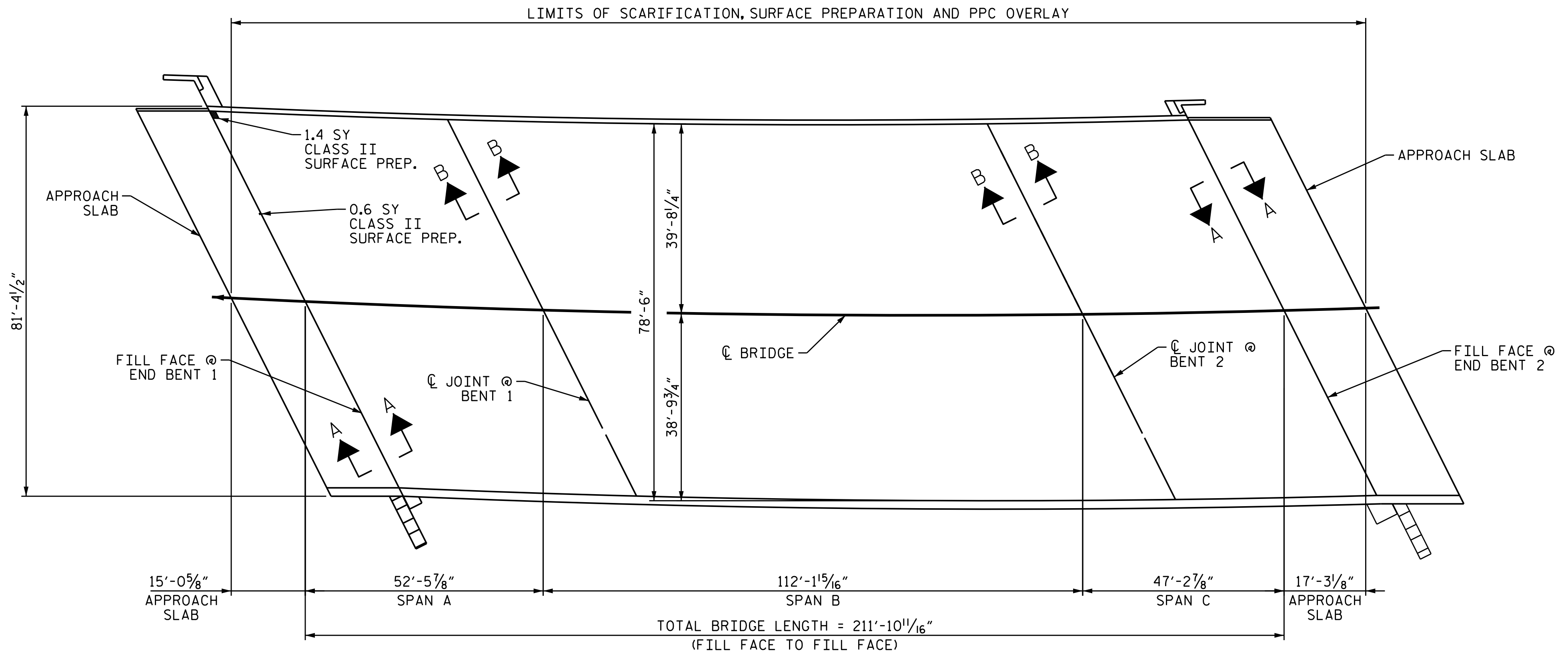
DRAWN BY : D.A. CANTRELL DATE : 10/2018  
CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

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1			3			TOTAL SHEETS
2			4			8

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE		
TOP OF DECK REPAIRS		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK		
APPROACH SLAB 1	137 SQ. YDS.	
SPAN A	458 SQ. YDS.	
SPAN B	979 SQ. YDS.	
SPAN C	412 SQ. YDS.	
APPROACH SLAB 2	151 SQ. YDS.	
CLASS II SURFACE PREPARATION		
APPROACH SLAB 1	0.6 SQ. YDS.	
SPAN A	1.4 SQ. YDS.	
SPAN B	0.0 SQ. YDS.	
SPAN C	0.0 SQ. YDS.	
APPROACH SLAB 2	0.0 SQ. YDS.	
CONCRETE DECK REPAIR FOR PPC OVERLAY		
APPROACH SLAB 1	0.6 SQ. YDS.	
SPAN A	1.4 SQ. YDS.	
SPAN B	0.0 SQ. YDS.	
SPAN C	0.0 SQ. YDS.	
APPROACH SLAB 2	0.0 SQ. YDS.	
SHOTBLASTING BRIDGE DECK		
APPROACH SLAB 1	137 SQ. YDS.	
SPAN A	458 SQ. YDS.	
SPAN B	979 SQ. YDS.	
SPAN C	412 SQ. YDS.	
APPROACH SLAB 2	151 SQ. YDS.	
PPC MATERIALS		
APPROACH SLAB 1	6.7 CU. YDS.	
SPAN A	22.3 CU. YDS.	
SPAN B	47.6 CU. YDS.	
SPAN C	20.1 CU. YDS.	
APPROACH SLAB 2	7.4 CU. YDS.	
PLACING AND FINISHING PPC OVERLAY		
APPROACH SLAB 1	137 SQ. YDS.	
SPAN A	458 SQ. YDS.	
SPAN B	979 SQ. YDS.	
SPAN C	412 SQ. YDS.	
APPROACH SLAB 2	151 SQ. YDS.	
GROOVING BRIDGE FLOORS		
APPROACH SLAB 1	1137 SQ. FT.	
SPAN A	3892 SQ. FT.	
SPAN B	8410 SQ. FT.	
SPAN C	3494 SQ. FT.	
APPROACH SLAB 2	1278 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.



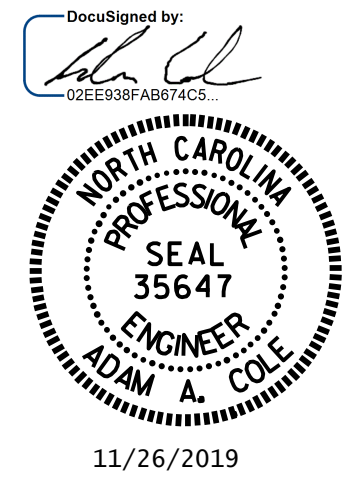
PLAN

**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 SECTION B-B, SEE "JOINT DETAILS" SHEET.  
 FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.  
 FOR CONCRETE DECK REPAIR FOR PPC OVERLAY, PPC MATERIALS, AND PLACING AND FINISHING PPC OVERLAY SEE POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

APPROX. CLASS II SURFACE PREPARATION

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590243



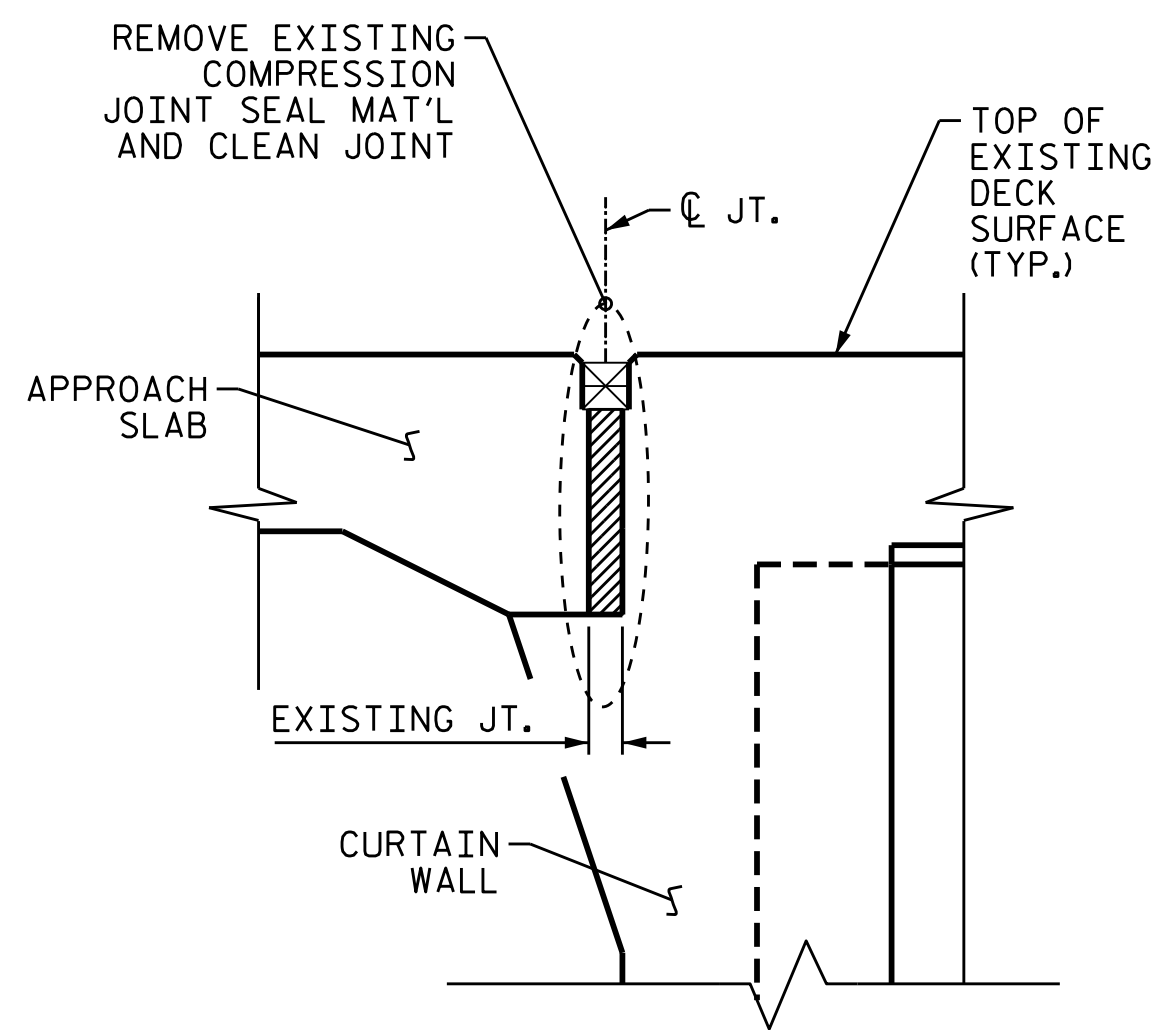
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS

DRAWN BY : D.A. CANTRELL DATE : 10/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

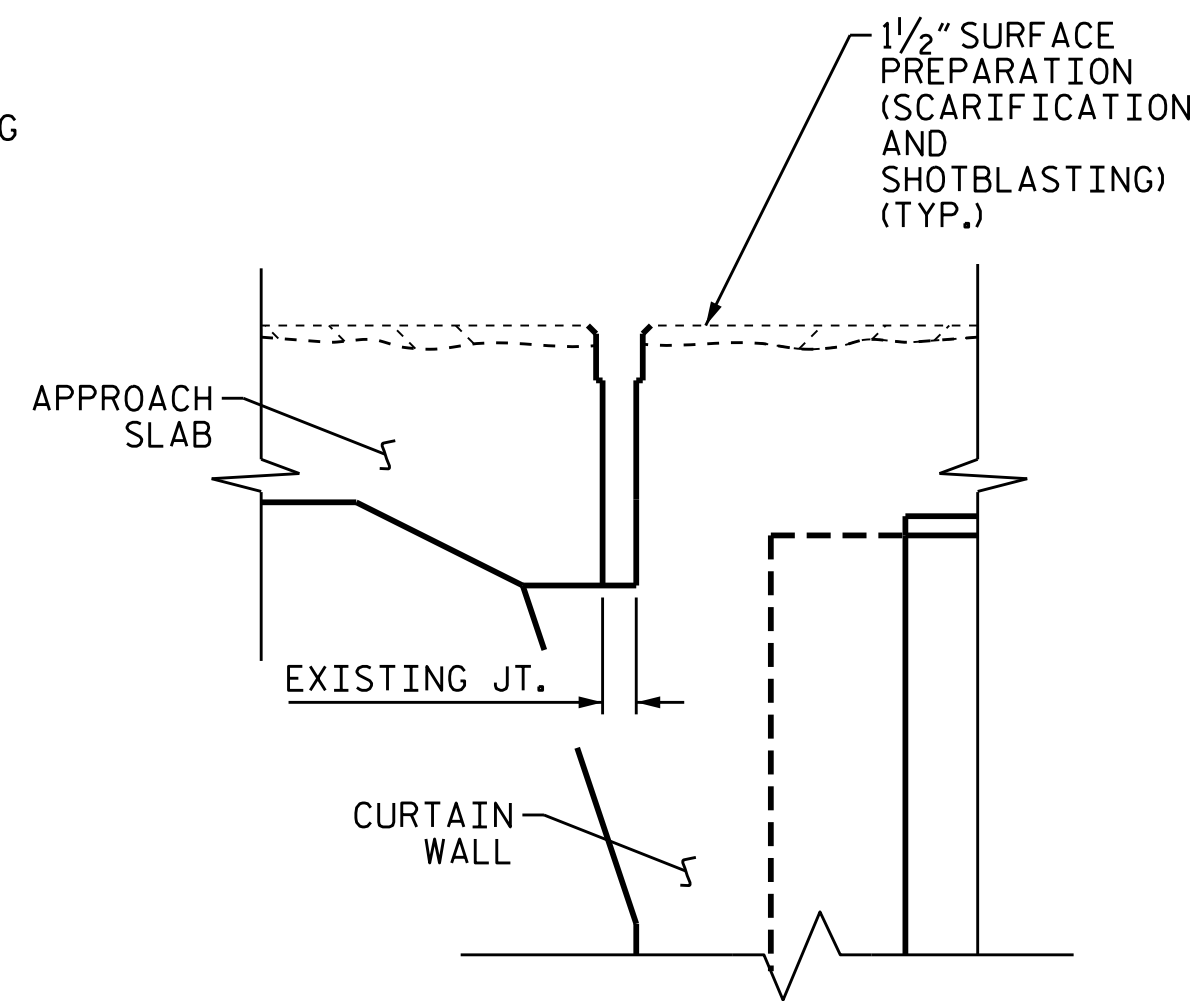
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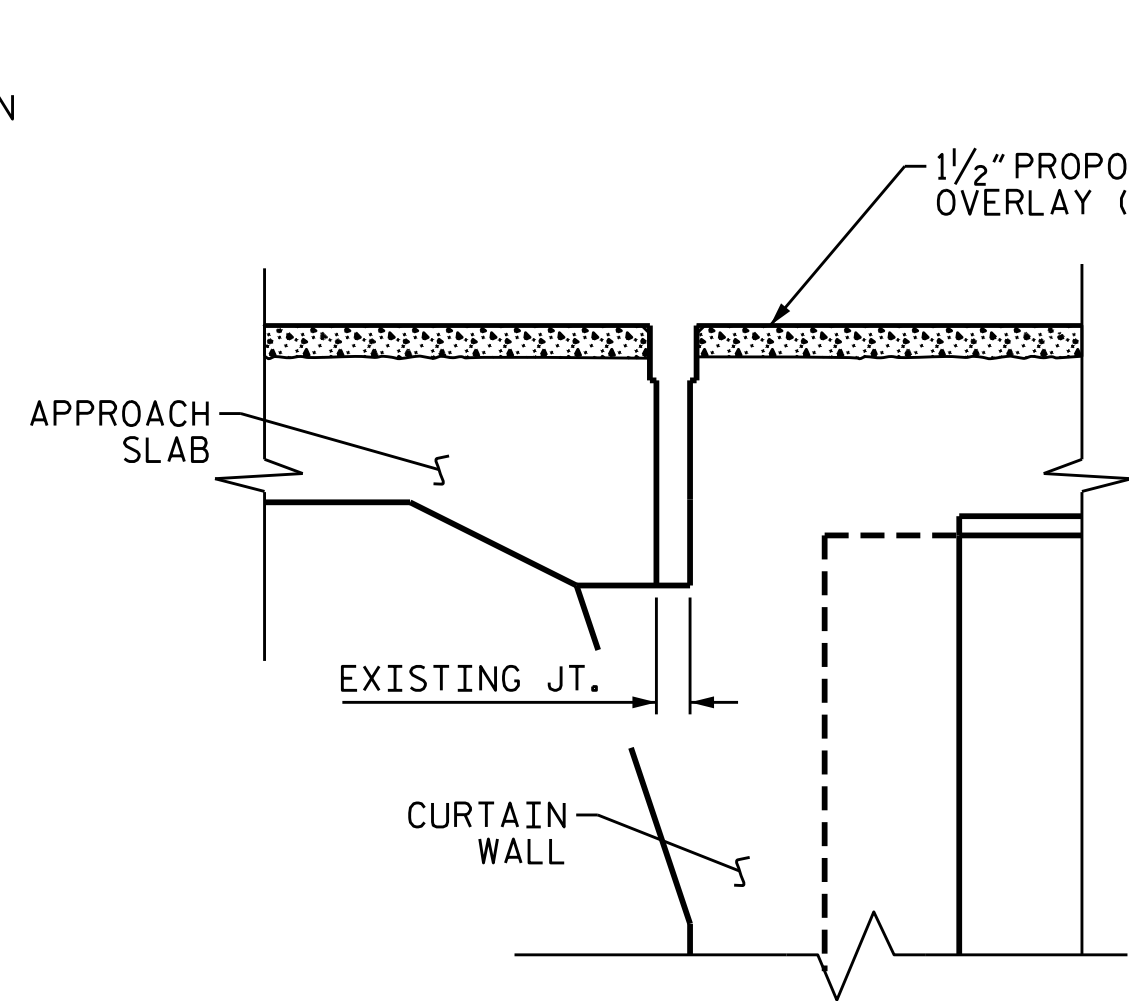




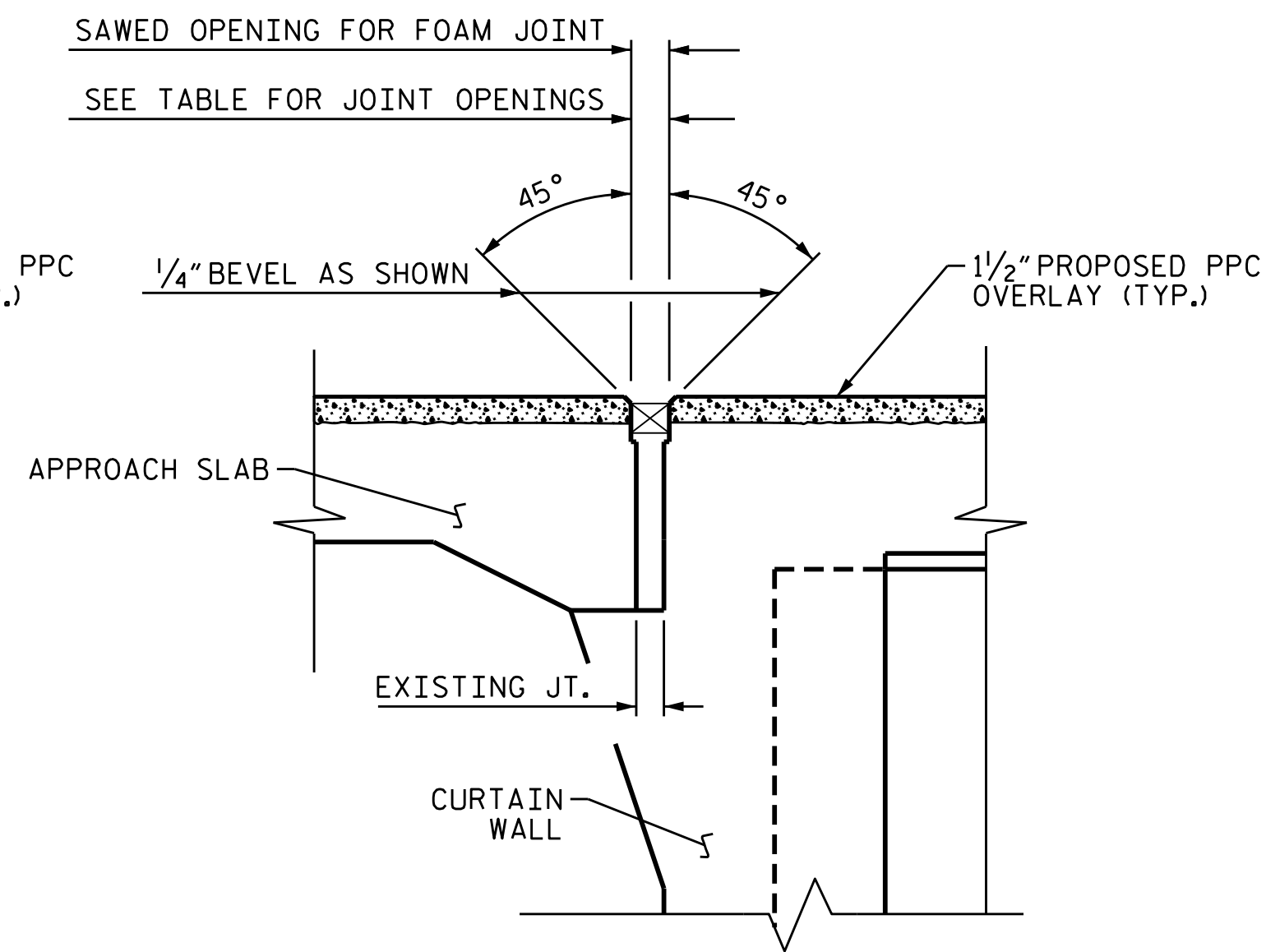
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

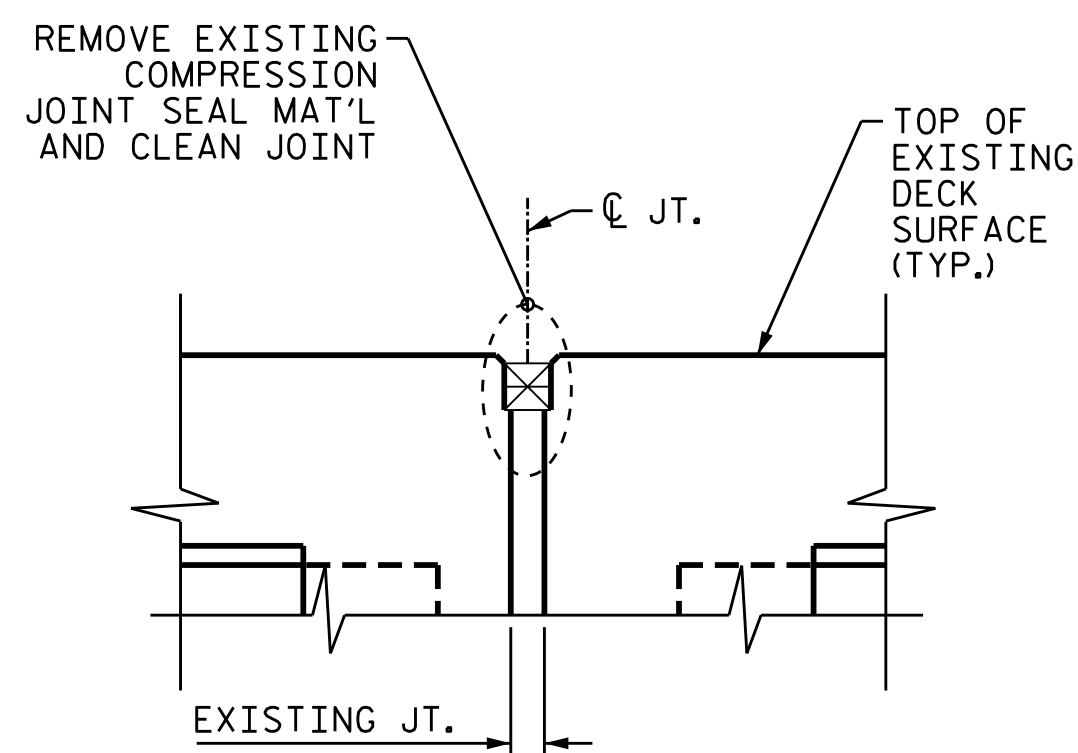


PROPOSED JOINT PRE-SAWED

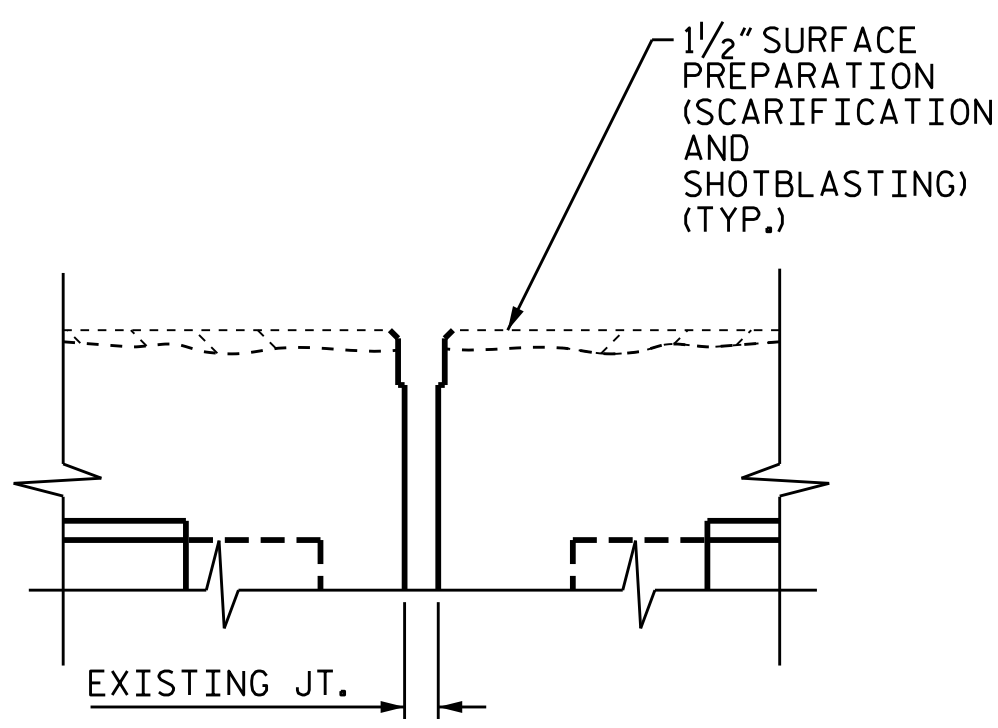


PROPOSED FOAM JOINT SEAL

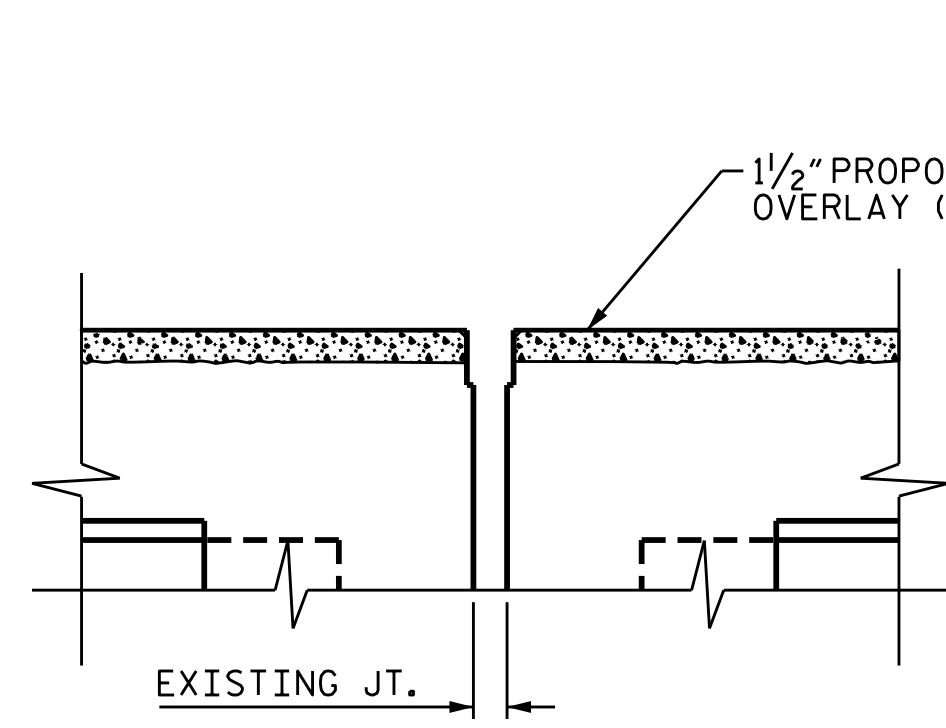
SECTION A-A  
(TYP. AT END BENTS)



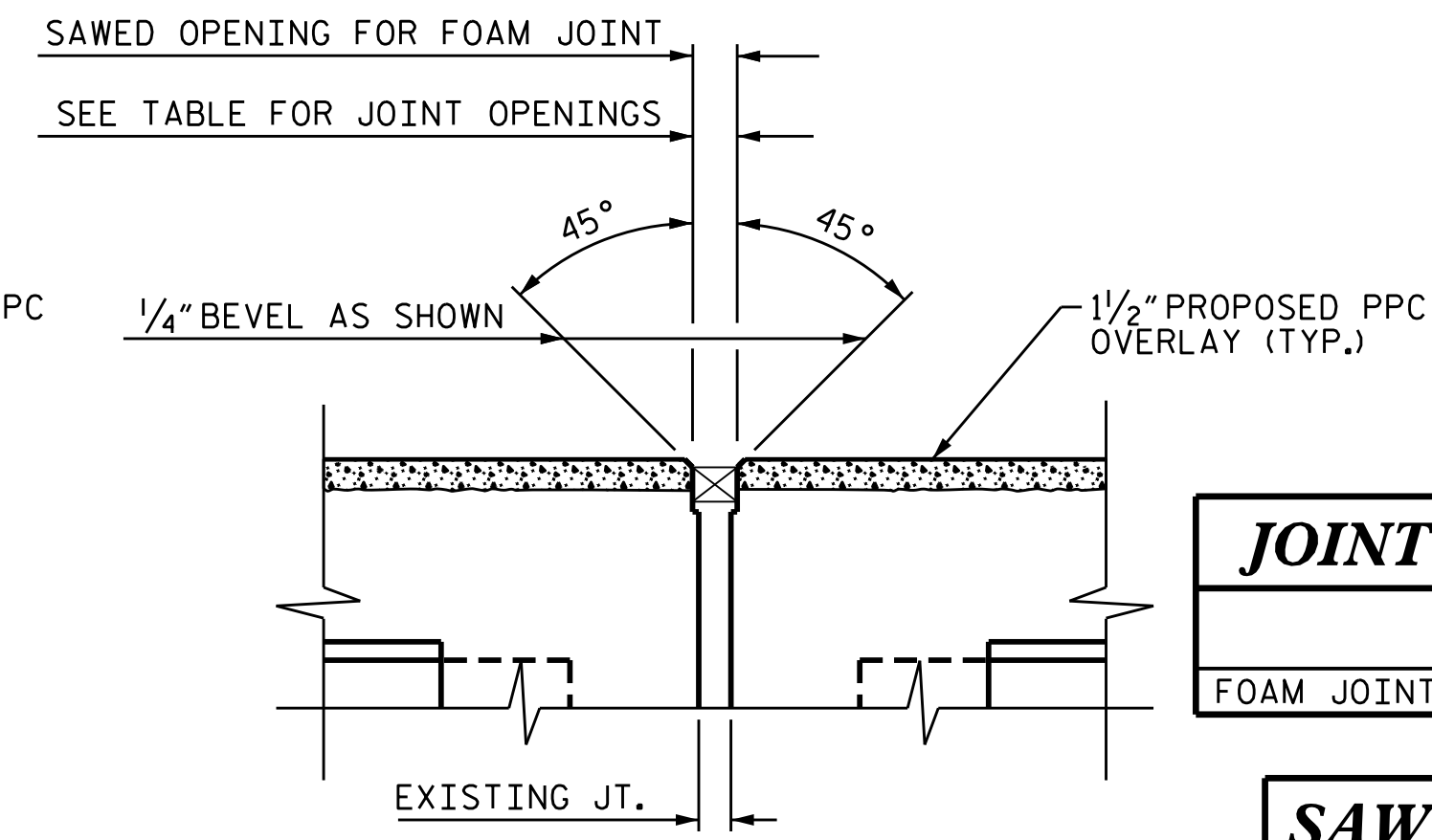
EXISTING COMPRESSION JOINT SEAL



EXISTING JOINT AFTER DECK SCARIFICATION

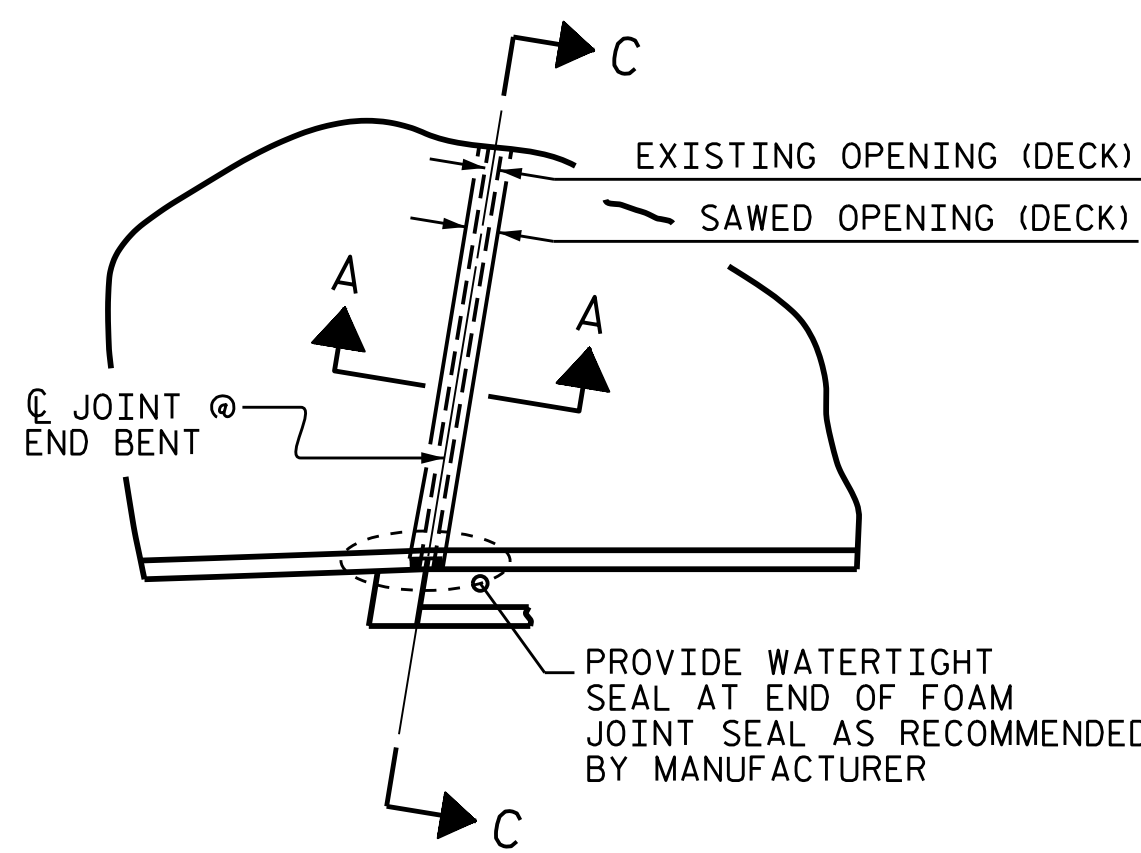


PROPOSED JOINT PRE-SAWED

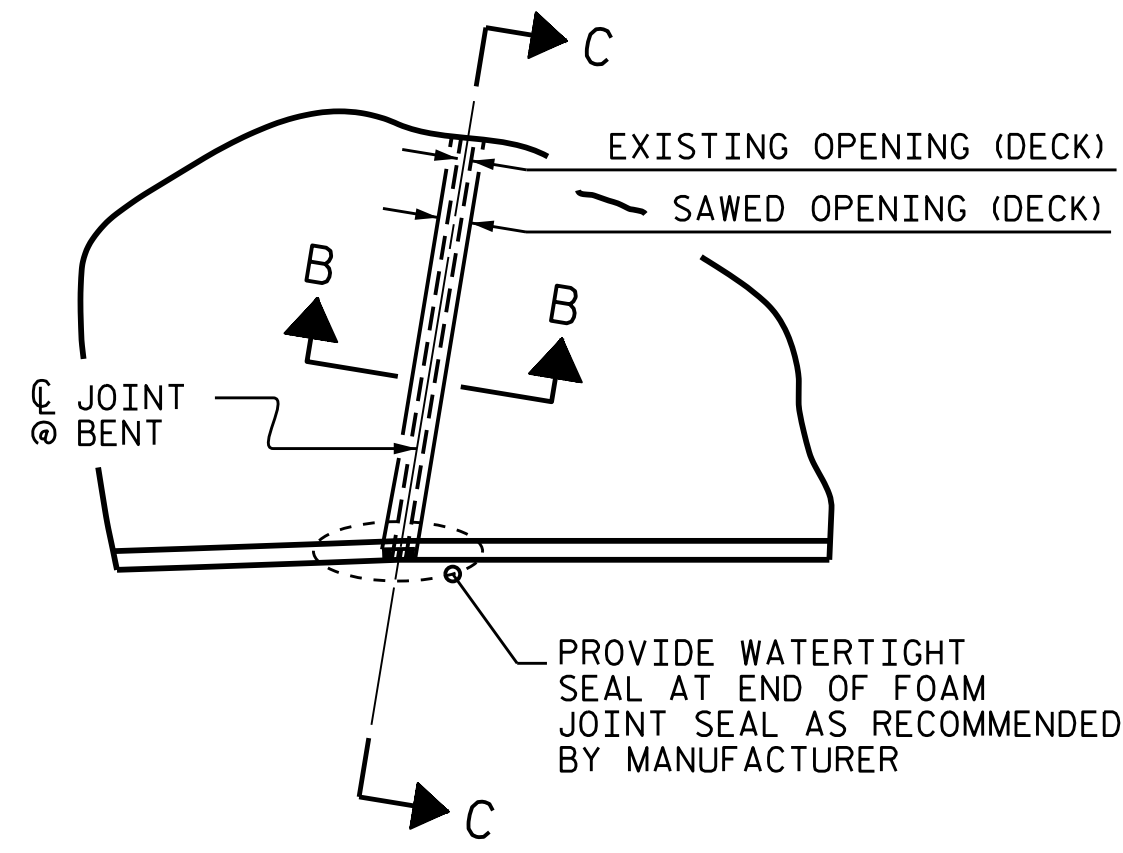


PROPOSED FOAM JOINT SEAL

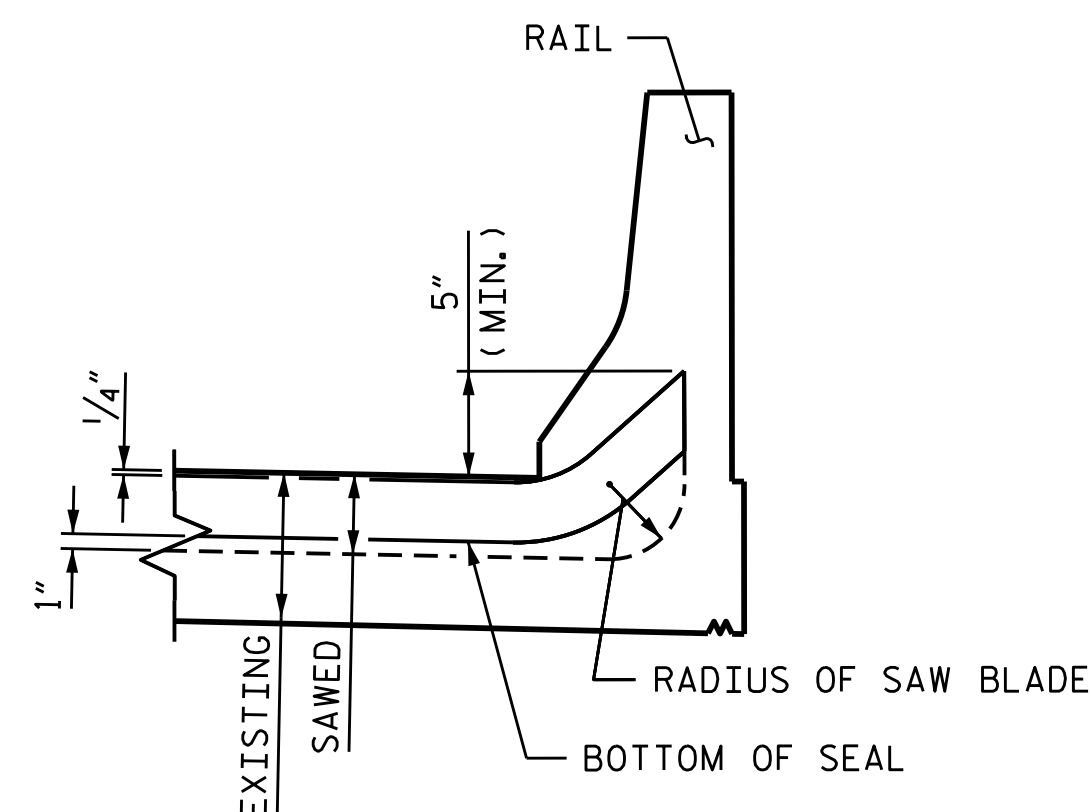
SECTION B-B  
(TYP. AT BENTS)



PLAN  
(@ END BENT)



PLAN  
(@ BENT)



SECTION C-C

NOTES

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

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

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

FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

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

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

THE INSTALLED FOAM JOINTS SHALL BE WATER TIGHT.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

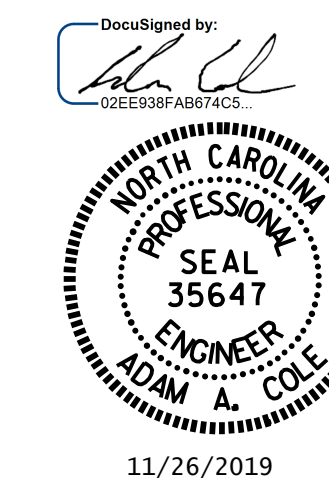
JOINT REPAIR QUANTITY TABLE

	ESTIMATED	ACTUAL
FOAM JOINT SEALS FOR PRESERVATION	380 LF	

SAWED JOINT OPENING TABLE

LOCATION	TOTAL MOVEMENT (ALONG C RDY)	SAWED JT. OPENING (PERPENDICULAR TO JT.)		
		AT 30°	AT 60°	AT 90°
END BENT 1			2"	
BENT 1	9/16"	1 5/8"	1 1/2"	1 3/8"
BENT 2	1 13/16"	2 5/8"	2 3/16"	2"
END BENT 2			2"	

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
BRIDGE NO. 590243



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

STANDARDS

FOAM JOINT SEAL  
DETAILS FOR PPC  
OVERLAY

DRAWN BY : D.A. CANTRELL DATE : 11/2018  
CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

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1			3			TOTAL SHEETS
2			4			8

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	7.5	3.8		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	204			

**NOTES**

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

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

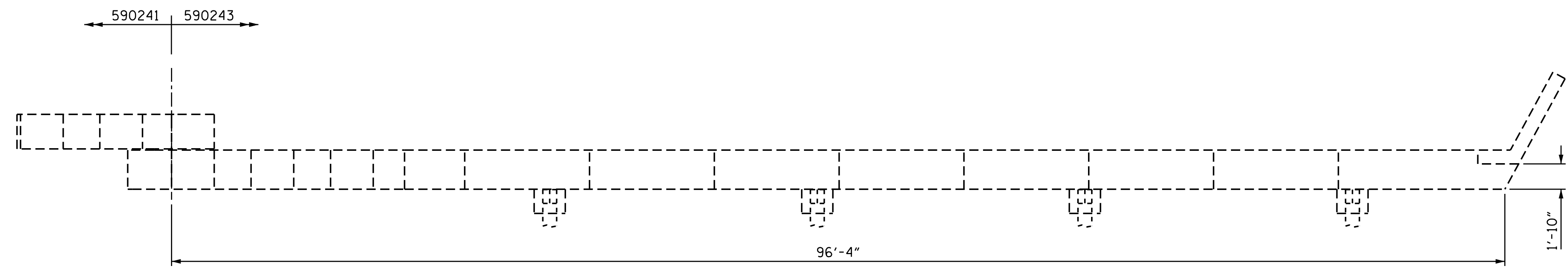
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

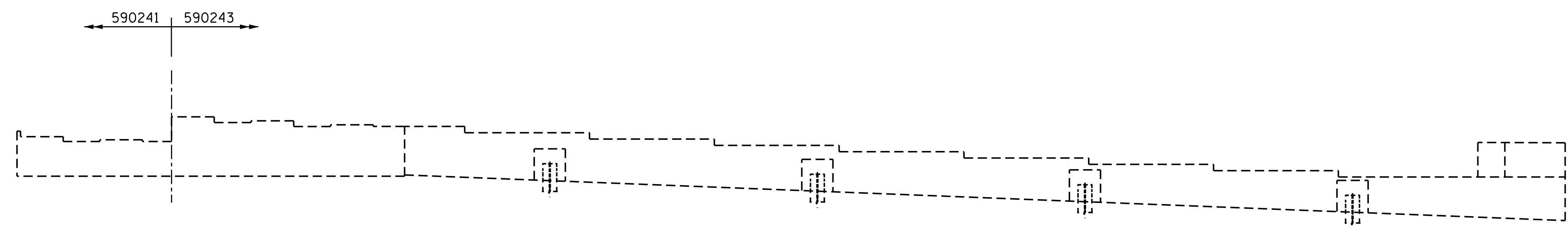
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

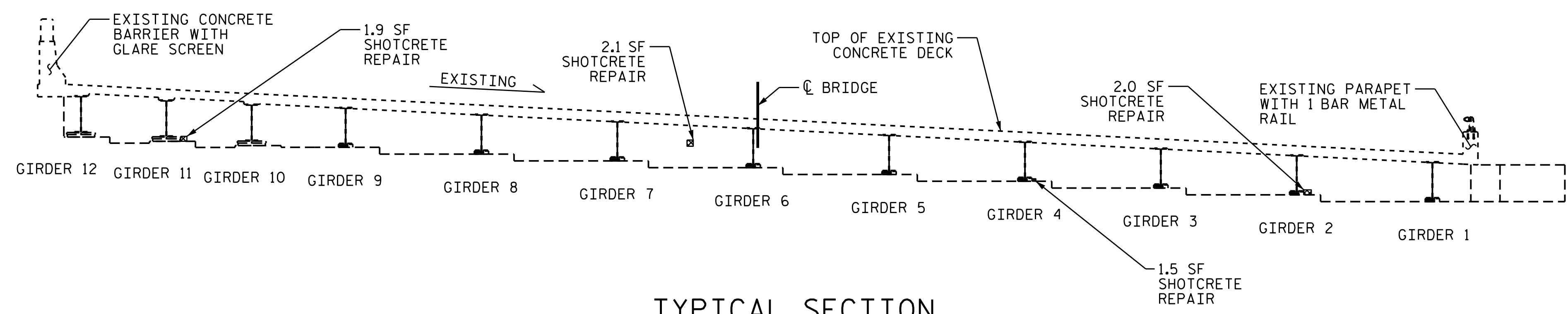
FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.



PLAN



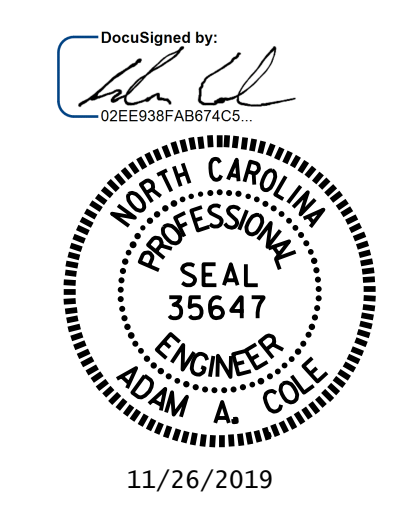
ELEVATION



TYPICAL SECTION

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

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
BRIDGE NO. 590243

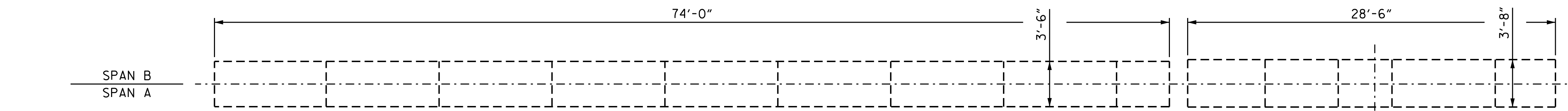


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
END BENT 1

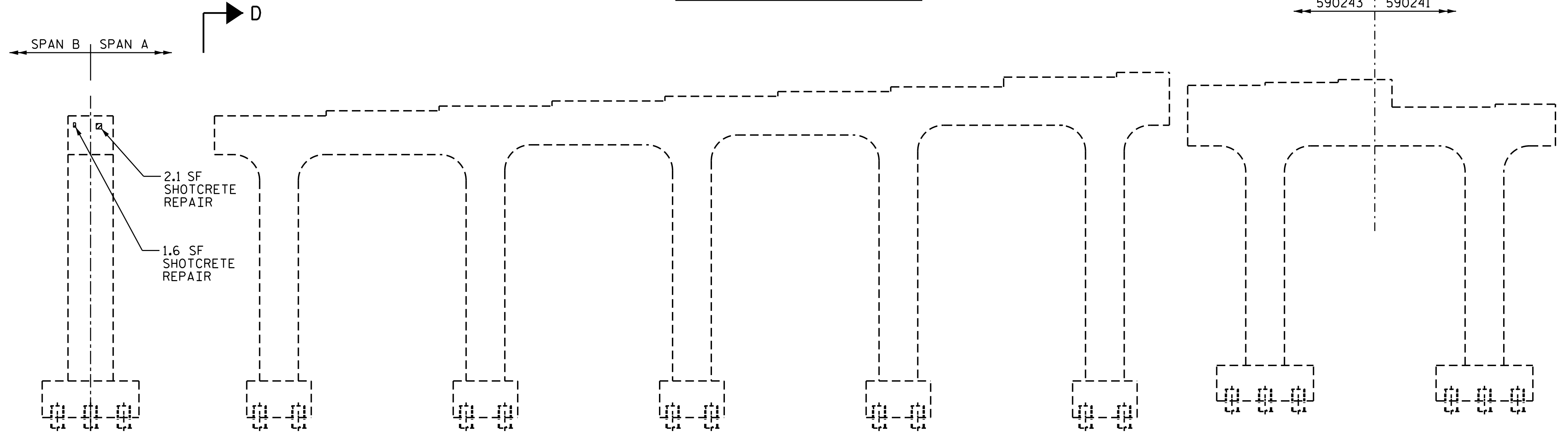
DRAWN BY : D.A. CANTRELL DATE : 11/2018  
CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

NO.	REVISIONS			SHEET NO.
	BY:	DATE:	NO.	
1			3	S7-05
2			4	

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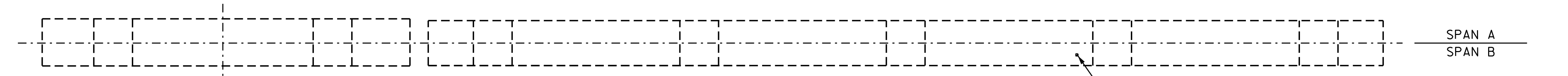


TOP OF CAP

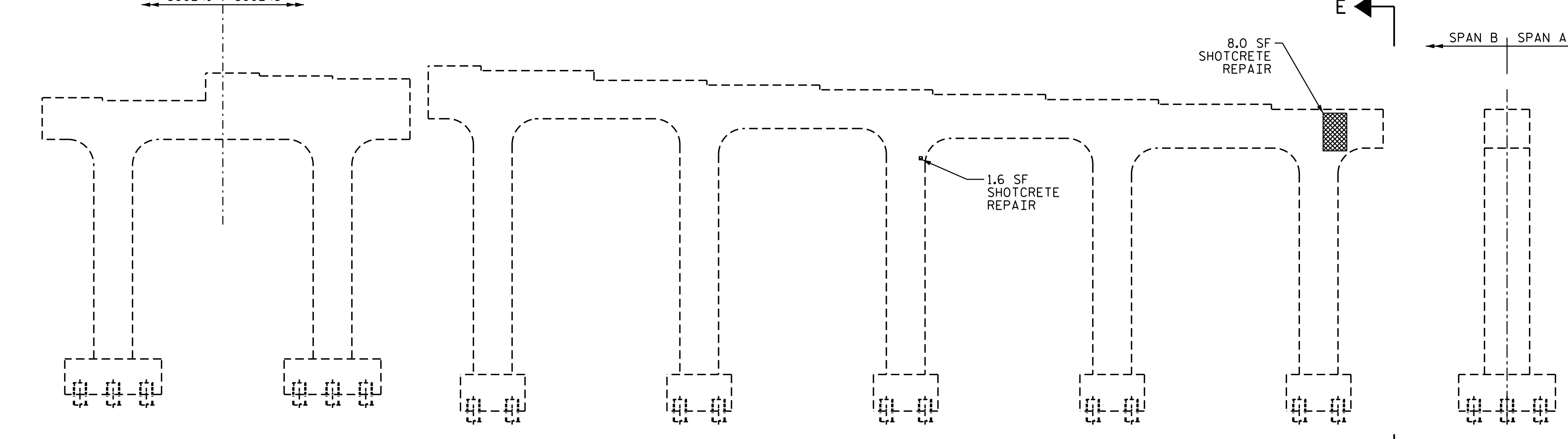


END VIEW  
SECTION D-D

ELEVATION  
SPAN A FACE



BOTTOM OF CAP



ELEVATION  
SPAN B FACE

END VIEW  
SECTION E-E

AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	13.1	6.6		
COLUMN	1.6	0.8		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	329			

**NOTES**

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT UTILITY LINES AND LIGHTING ARE ATTACHED TO THE STRUCTURE.

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

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

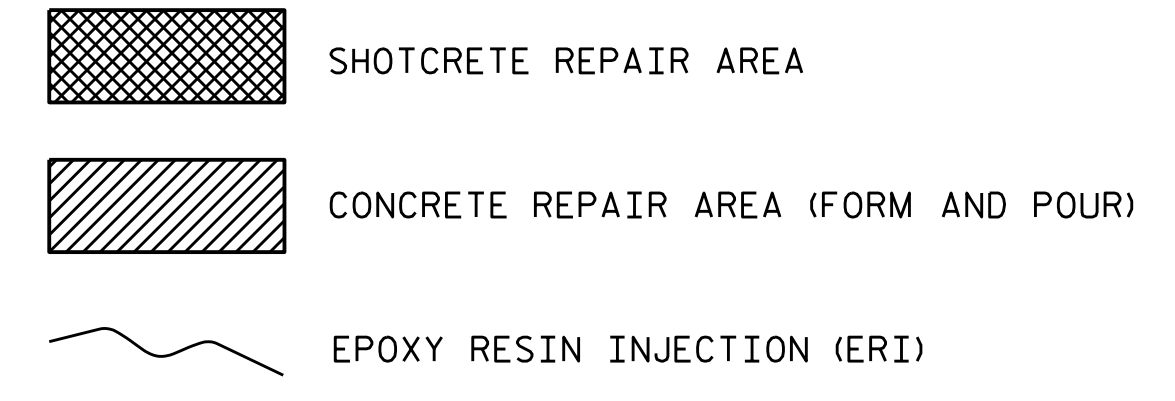
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

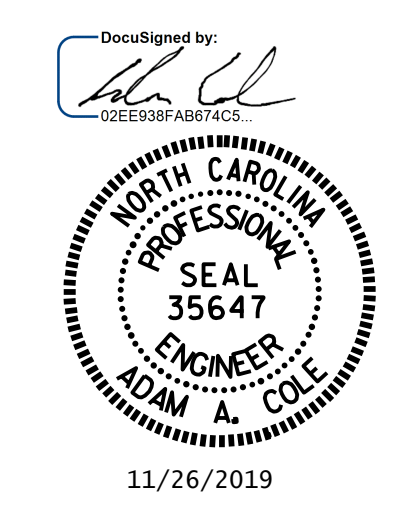
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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



PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590243

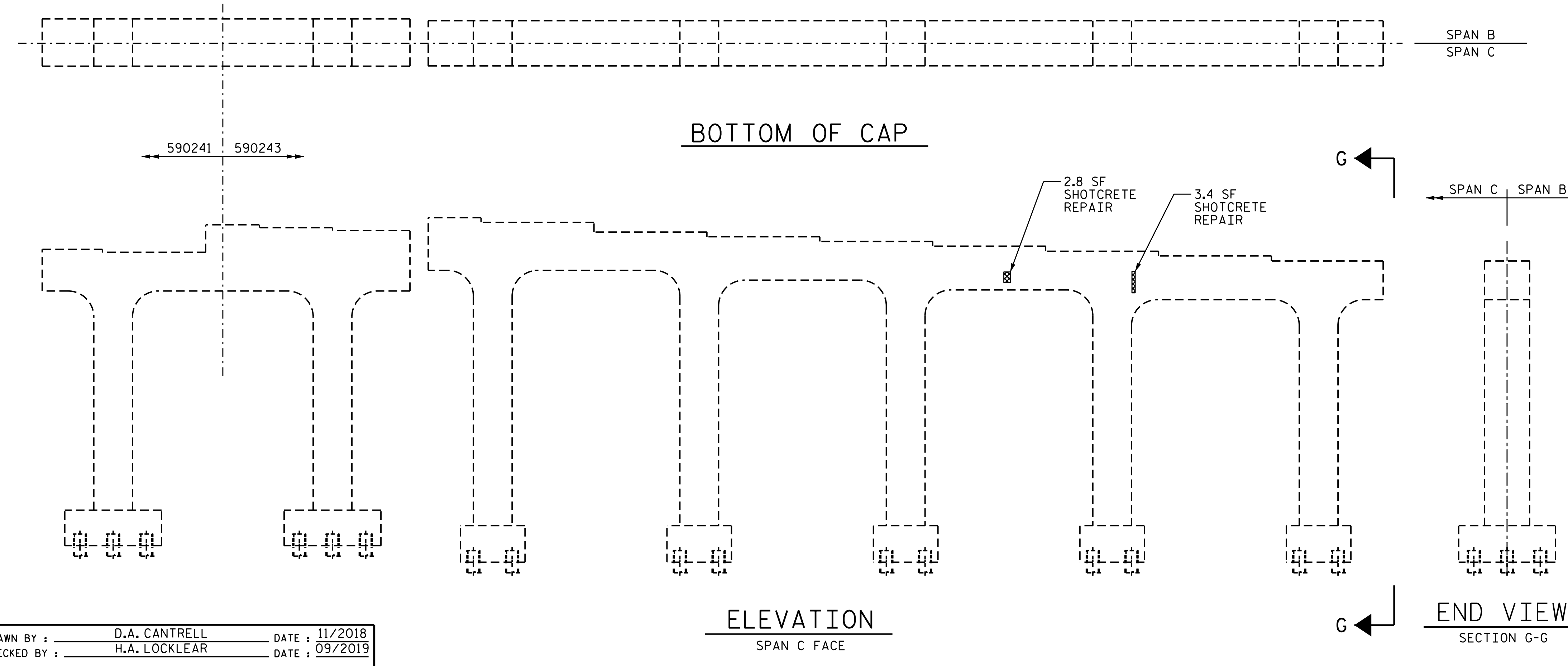
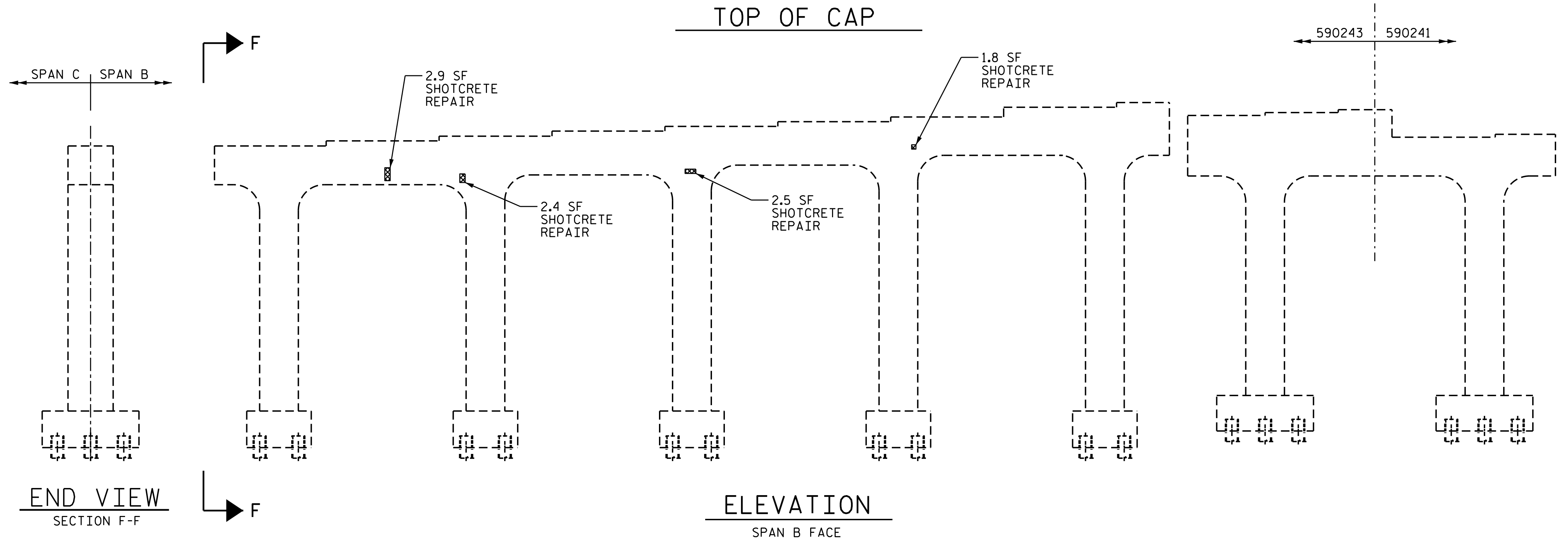
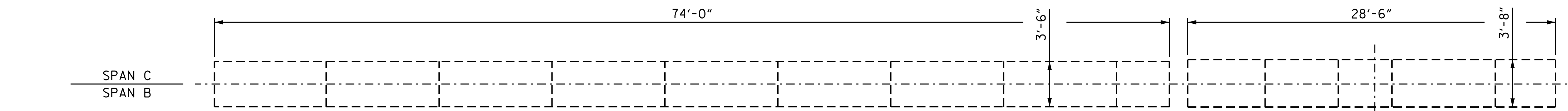


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 1

DRAWN BY : D.A. CANTRELL DATE : 11/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S7-06
1			3			TOTAL SHEETS
2			4			8

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AS-BUILT REPAIR QUANTITY TABLE				
BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	15.8	7.9		
COLUMN	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	329			

**NOTES**

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT UTILITY LINES AND LIGHTING ARE ATTACHED TO THE STRUCTURE.

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

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE 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 MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

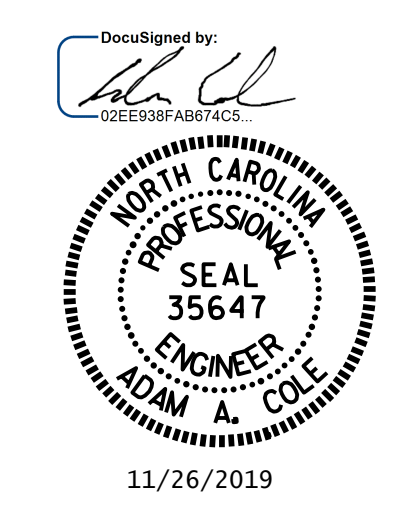
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. I-5769  
 MECKLENBURG COUNTY  
 BRIDGE NO. 590243



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 2

DRAWN BY : D.A. CANTRELL DATE : 11/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

NO.	REVISIONS			SHEET NO.
	BY:	DATE:	NO.	
1			3	S7-07
2			4	

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AS-BUILT REPAIR QUANTITY TABLE				
END BENT 2 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
CURTAIN WALL	7.5	3.8		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	3.9	2.0		
CURTAIN WALL	0	0		
EPOXY COATING	AREA SF		AREA SF	
CAP	186			

**NOTES**

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

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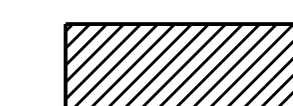

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP AND TO THE TOP SURFACE OF THE PILE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

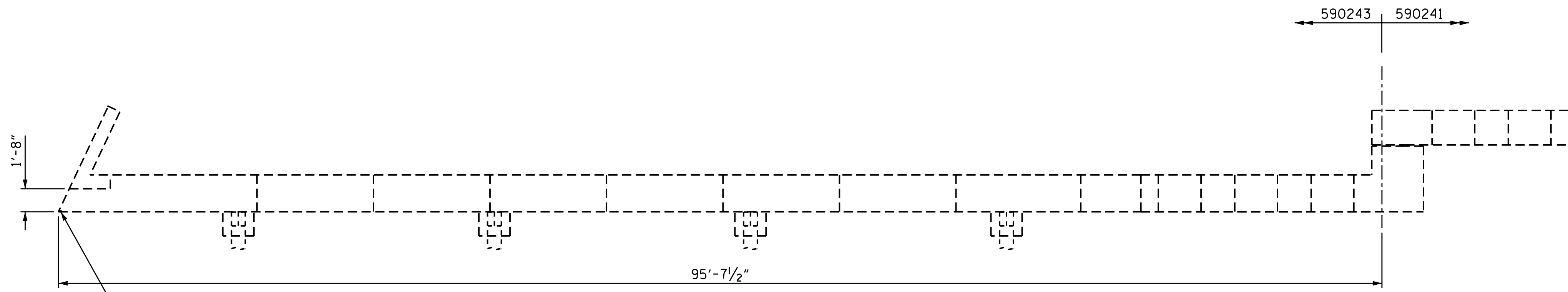
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

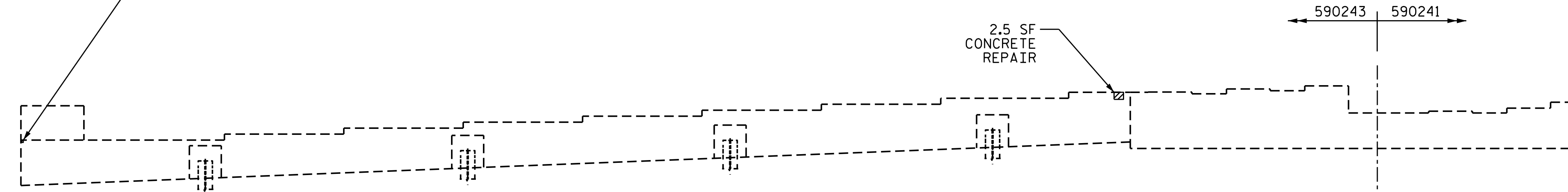
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

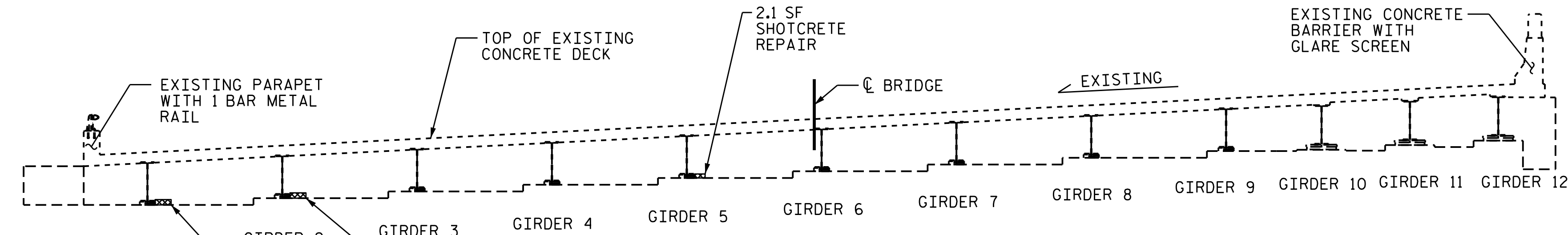
-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA (FORM AND POUR)
-  EPOXY RESIN INJECTION (ERI)



**PLAN**

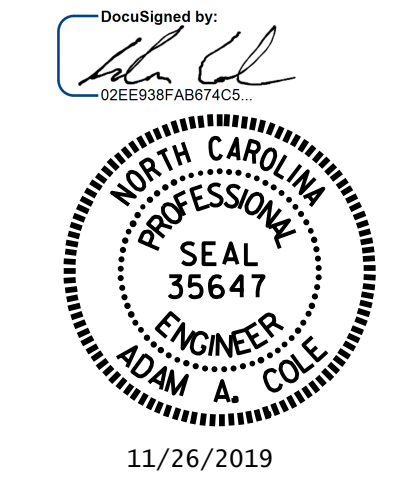


**ELEVATION**



**TYPICAL SECTION**

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590243



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

DRAWN BY : D.A. CANTRELL DATE : 11/2018  
 CHECKED BY : H.A. LOCKLEAR DATE : 09/2019

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
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1				3			S7-08	
2				4			TOTAL SHEETS 8	

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# BRIDGE JACKING NOTES

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

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

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

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

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

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

THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED IS  $1/8"$ .

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

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

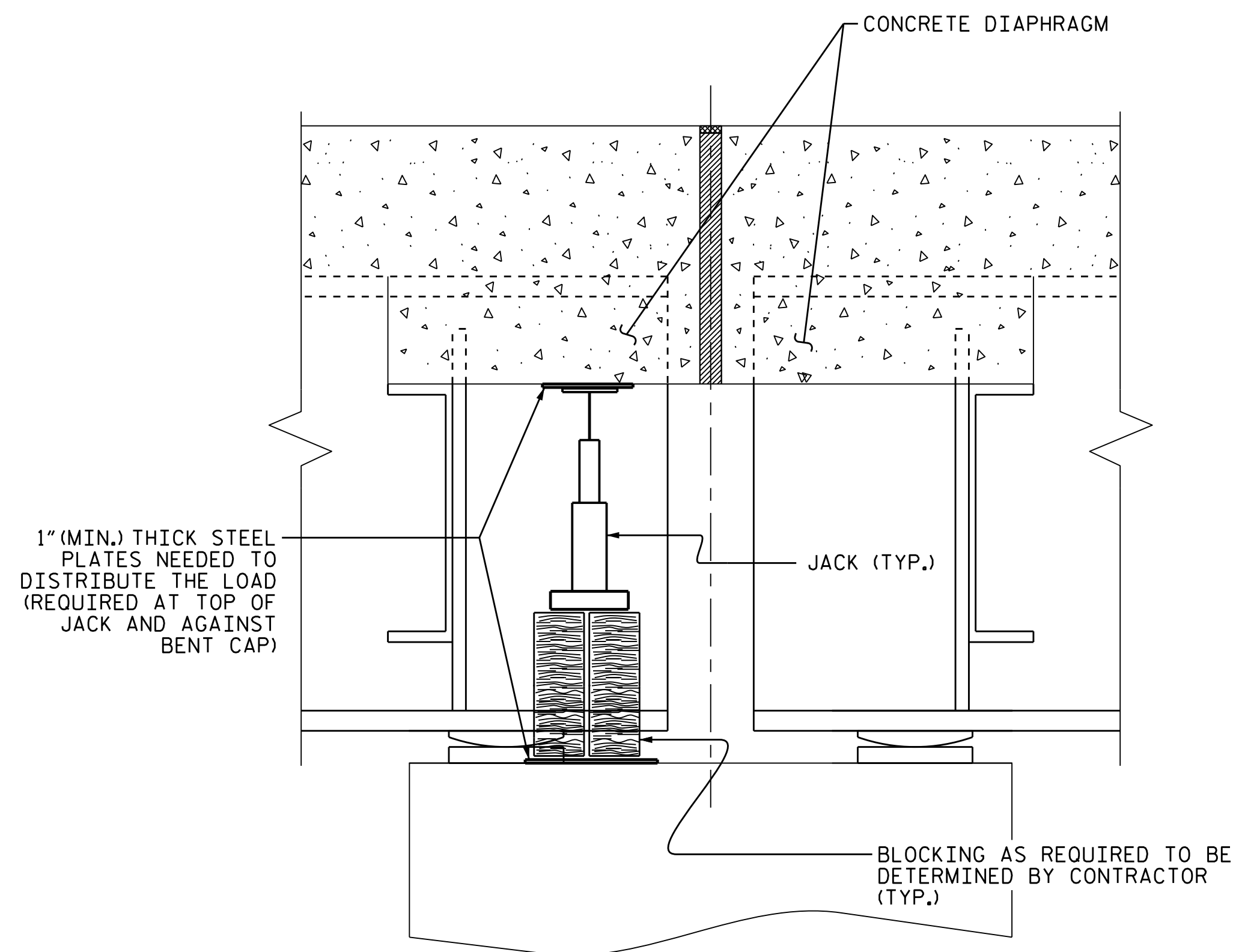
FOR TYPE I OR TYPE II BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

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

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

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

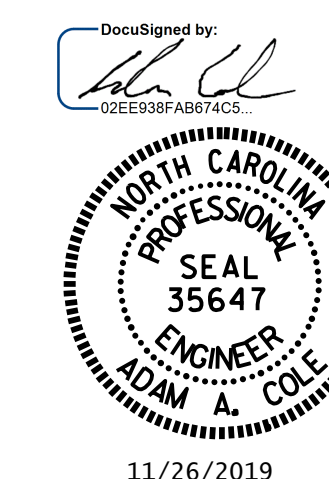


SECTION THRU DIAPHRAGM

BRIDGE JACKING TABLE

BRIDGE	LOCATION	SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)
590221	BENT 2	C	4	TYPE I	40.9
590230	BENT 1	B	7	TYPE I	89.1
590231	BENT 2	B	10	TYPE I	86.0

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590221, 590230  
 & 590231



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

ASSEMBLED BY : R. SAHA DATE : 8/2019  
 CHECKED BY : H.A. LOCKLEAR DATE : 9/2019  
 DRAWN BY : NAP 08/18  
 CHECKED BY :

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SD-01
1			3			TOTAL SHEETS
2			4			3

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**NOTES**

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

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

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

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

NO MORE THAN ONE-THIRD OF THE CAP OR COLUMN CROSS SECTIONAL AREA SHALL BE REMOVED AT ONE TIME. SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 33% OF A CAP OR COLUMN CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, IF THE AREAS OF REMOVAL ARE NOT ADJACENT TO OR DIRECTLY OPPOSITE ONE ANOTHER. IF REMOVAL EXTENDS MORE THAN 1 1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

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

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

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

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

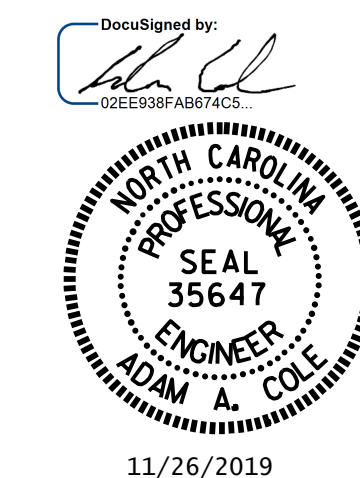
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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

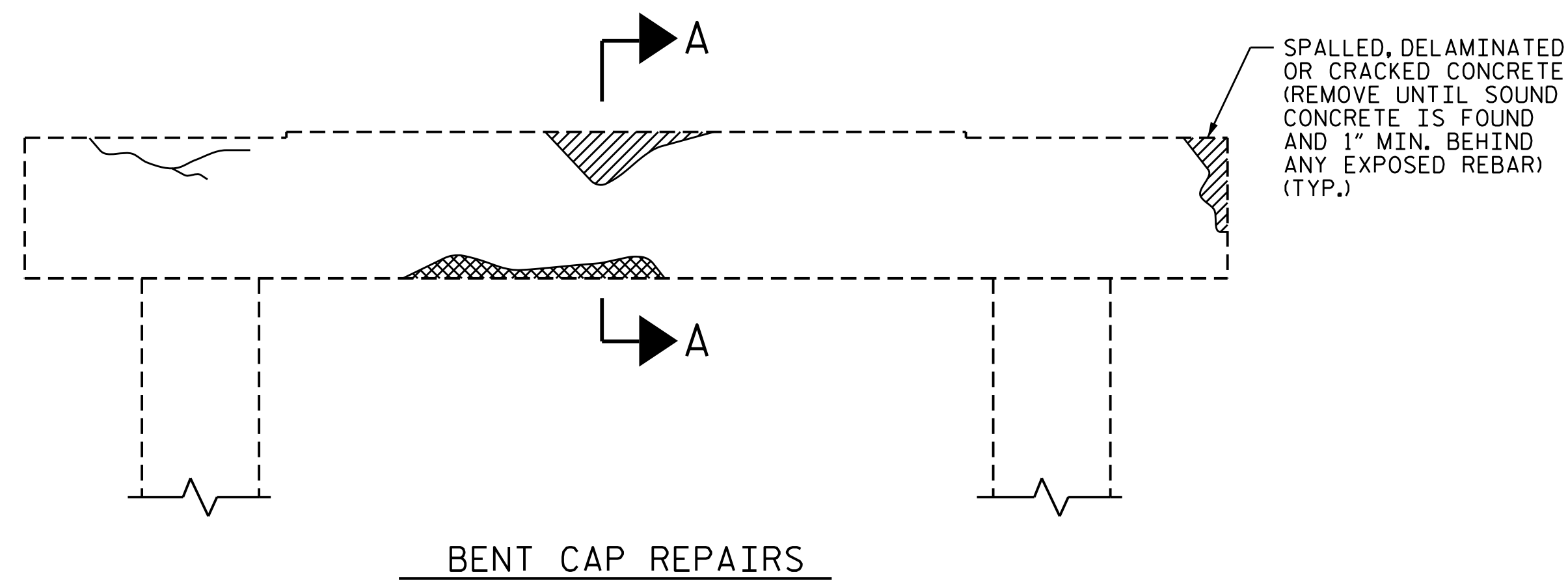
PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590221, 590222,  
590227, 590230, 590231, 590241, 590243



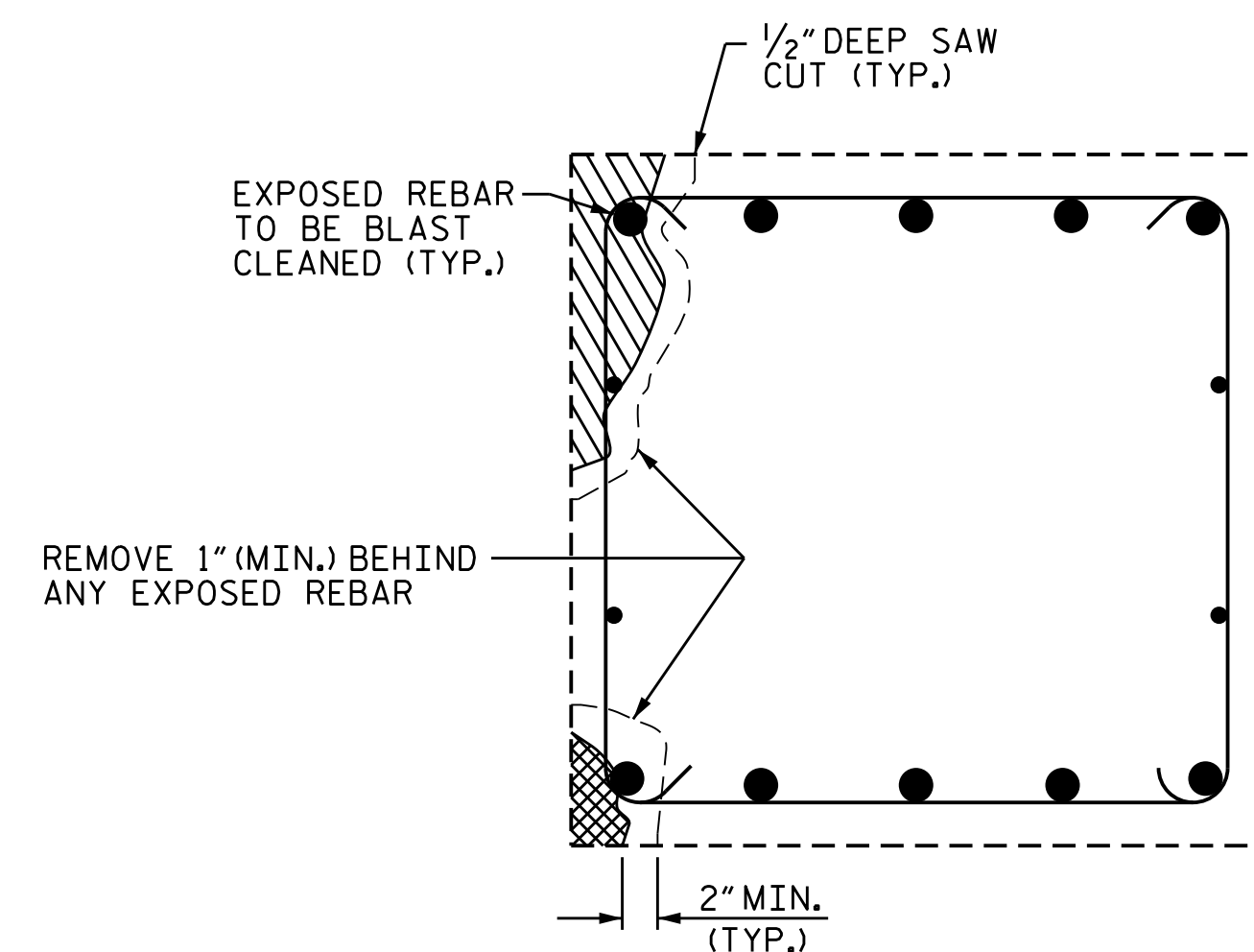
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 TYPICAL CAP  
 AND COLUMN  
 REPAIR DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SD-02
1			3			TOTAL SHEETS
2			4			3

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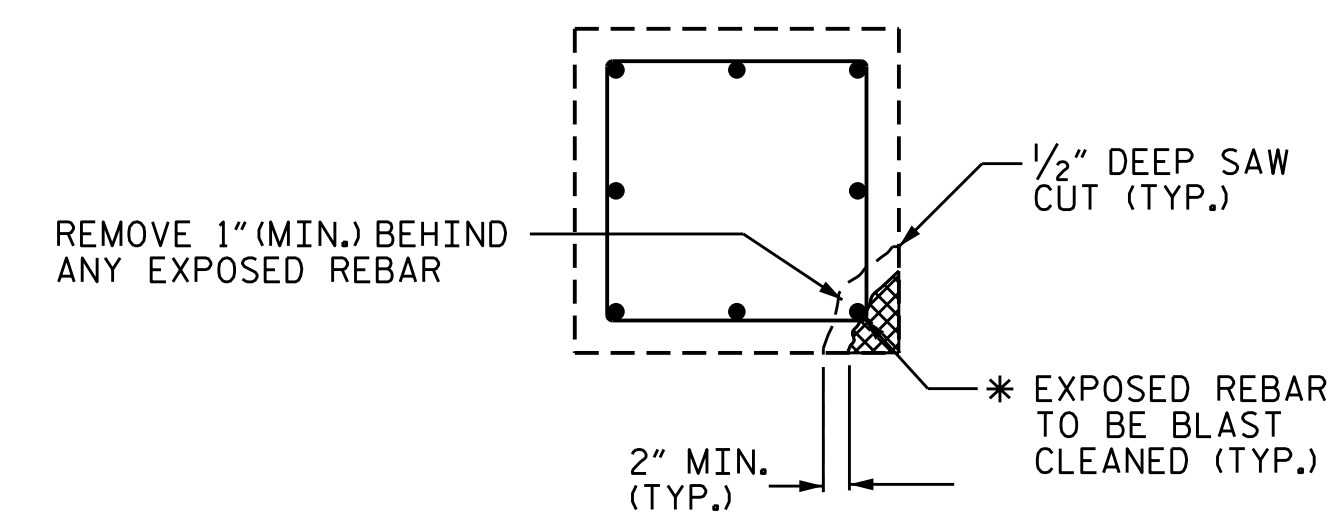


**BENT CAP REPAIRS**



**SECTION A-A**

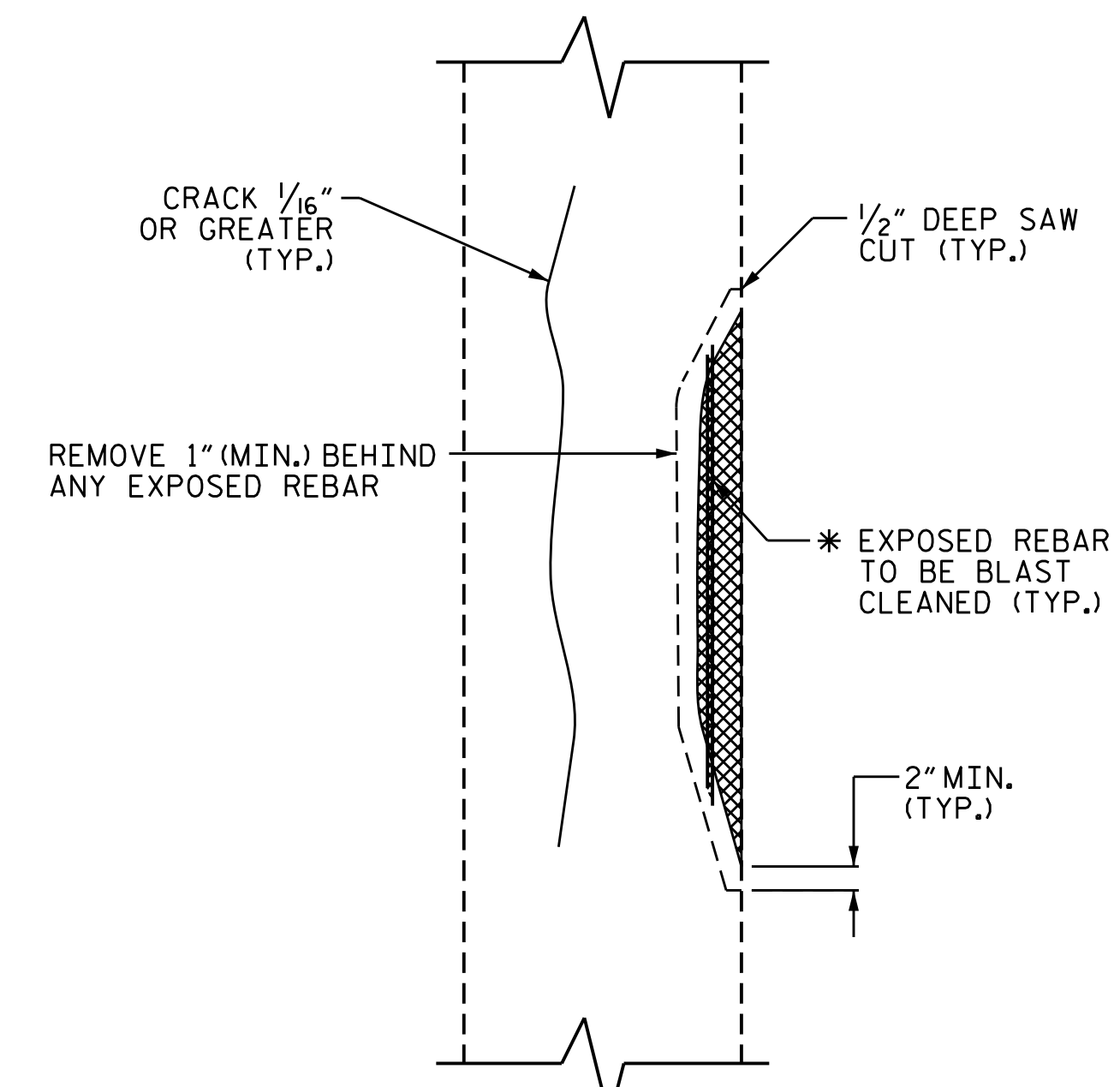
**CAP REPAIR**



**PLAN OF COLUMN**

**REPAIR KEY**

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

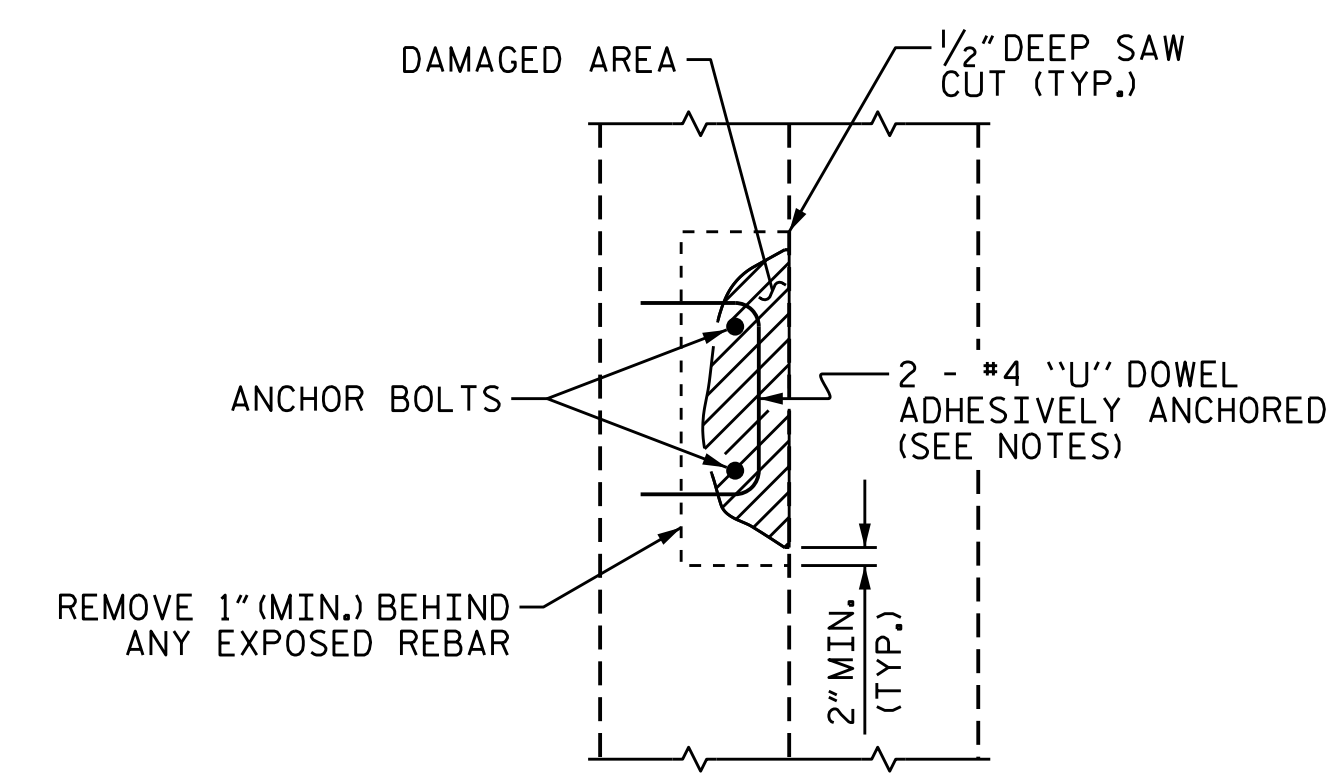


**ELEVATION OF COLUMN**

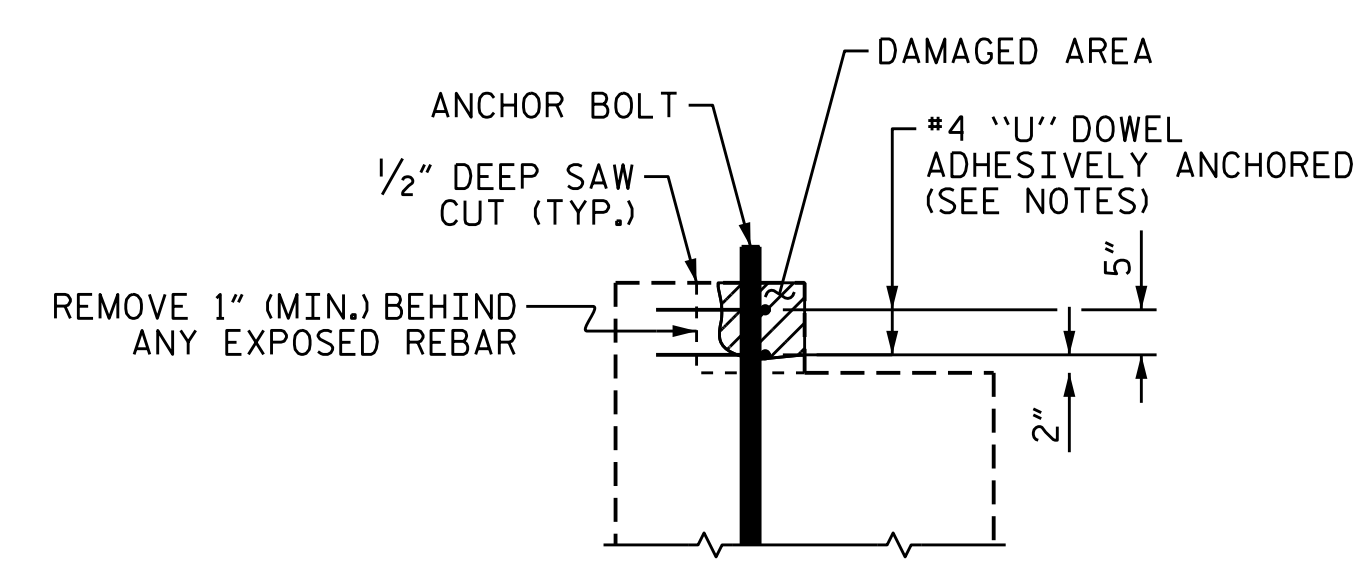
**COLUMN REPAIR**

\* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

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



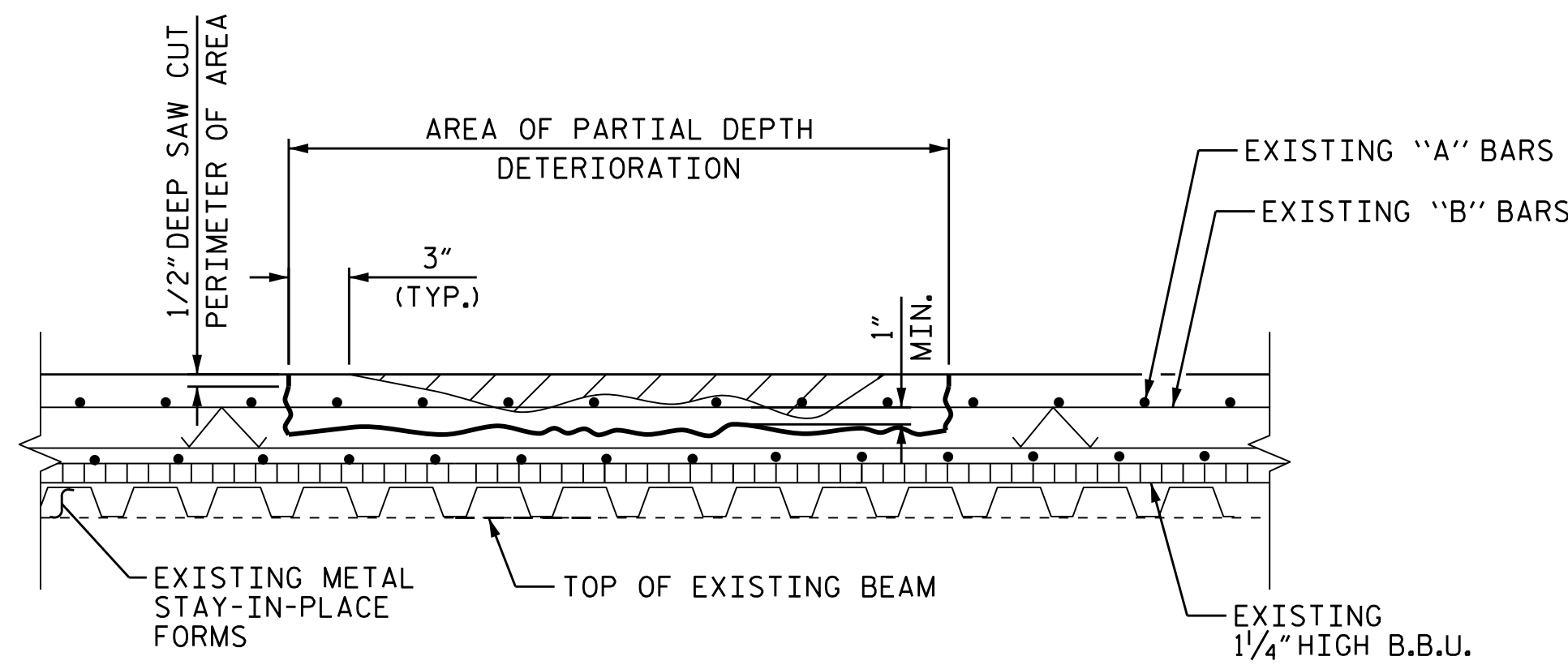
**PLAN**



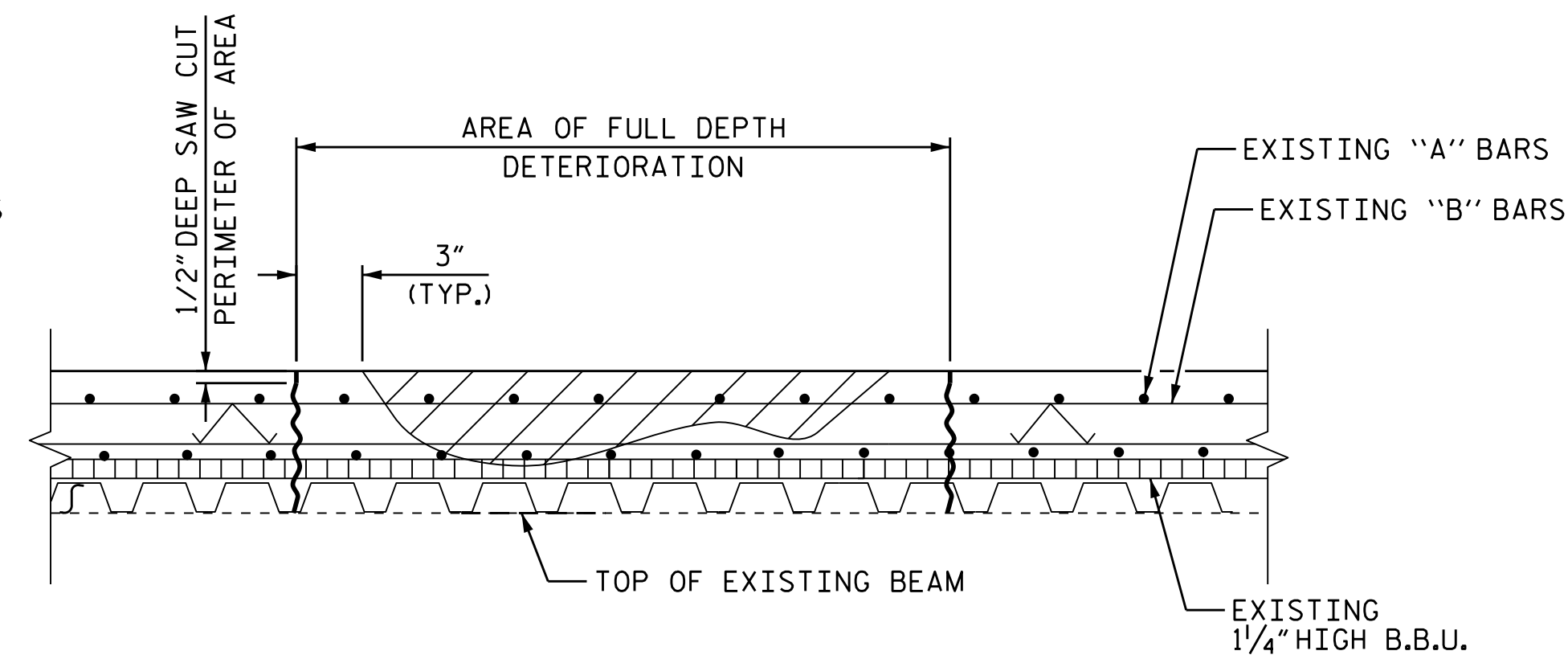
**ELEVATION**

**PEDESTAL WALL REPAIR**

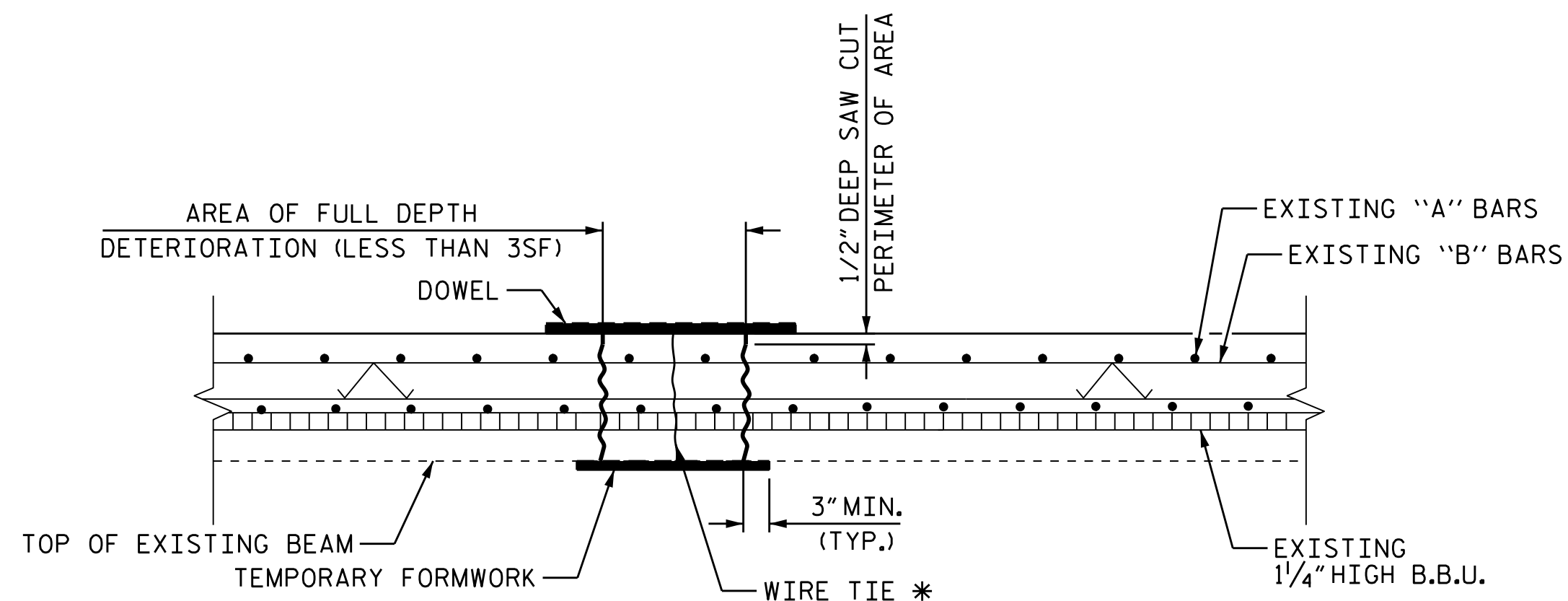
ASSEMBLED BY : R. SAHA DATE : 8/2019  
 CHECKED BY : H.A. LOCKLEAR DATE : 9/2019  
 DRAWN BY : NAP 8/18  
 CHECKED BY :



**CLASS II (PARTIAL DEPTH) REPAIR**



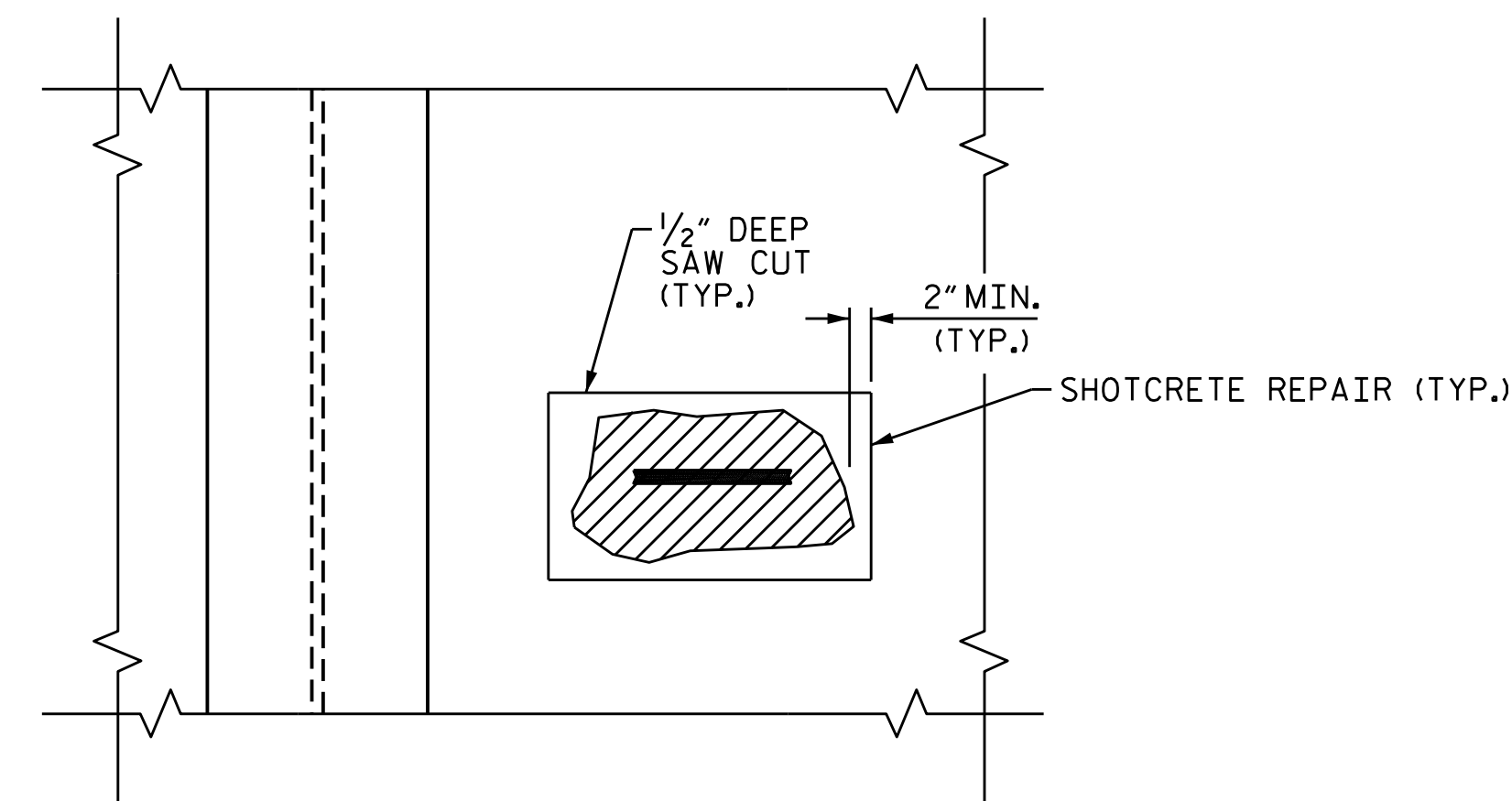
**CLASS III (FULL DEPTH) REPAIR**



**FULL DEPTH REPAIR WITH TEMPORARY FORMWORK**

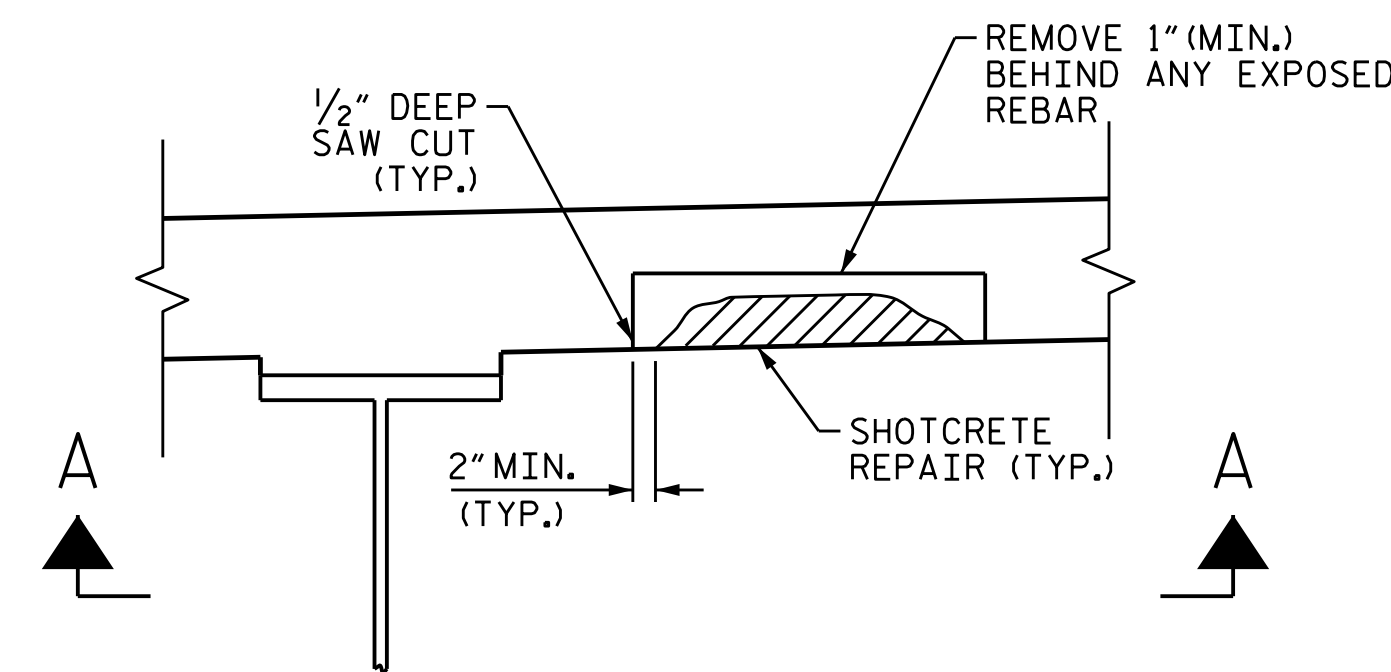
(FOR AREAS OF DETERIORATION EQUAL TO OR LESS THAN 3SF)

\* WIRE TIE TO BE KNOTTED BELOW TEMPORARY FORMWORK AND ATTACHED TO DOWEL THAT IS WIDER THAN FORMED FULL DEPTH HOLE. ROTATE DOWEL TO TIGHTEN FORMWORK AGAINST BOTTOM OF DECK.



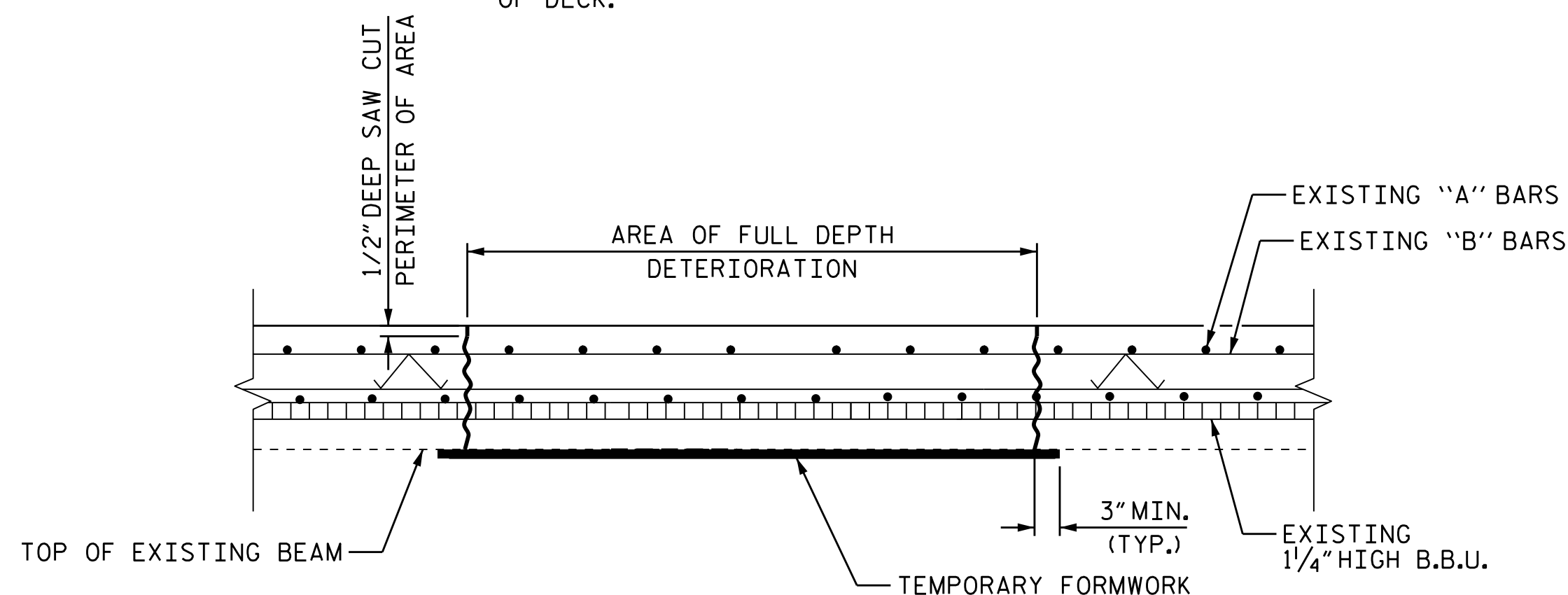
SECTION A-A

AREA OF DETERIORATION



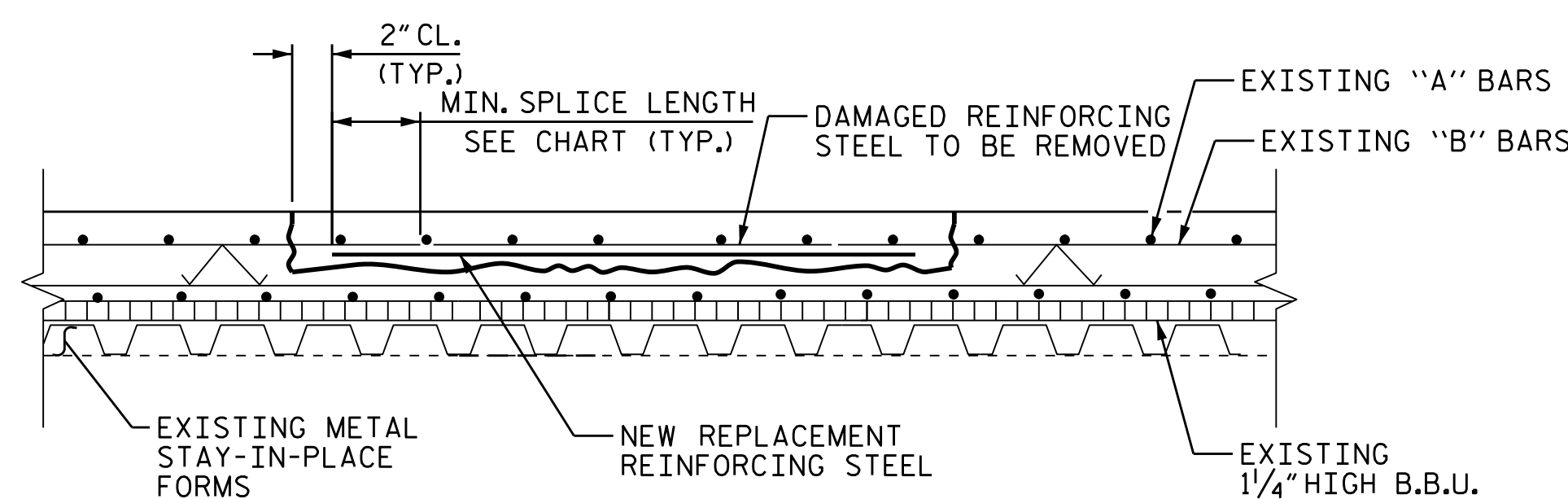
TYPICAL SECTION

**UNDERSIDE OF DECK REPAIR**



**FULL DEPTH REPAIR WITH TEMPORARY FORMWORK**

(FOR AREAS OF DETERIORATION GREATER THAN 3SF)



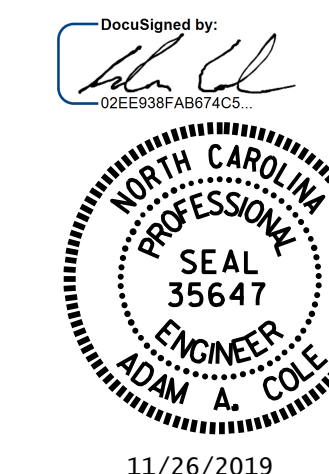
**REINFORCING STEEL REPAIR**

**NOTES**

- FOR AREAS TO BE REPAIRED, SEE "PLAN OF SPAN" SHEETS.
- ALL DECK REPAIRS SHALL BE COMPLETED PRIOR TO PLACEMENT OF OVERLAY.
- FOR CLASS II AND CLASS III SURFACE PREPARATION, SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.
- FOR CONCRETE FOR DECK REPAIR FOR POLYESTER POLYMER CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING WORK FOR TEMPORARY FORMWORK. FOR SUBMITTALS OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- UPON REMOVAL OF TEMPORARY FORMWORK, ALL VOIDS AND HONEYCOMBS ON THE UNDERSIDE OF DECK SURFACE SHALL BE FILLED WITH THE SAME MATERIAL AS USED FOR THE PATCH, AND FINISHED TO CONFORM TO THE SURROUNDING CONCRETE SURFACE.
- NO FORMWORK SHALL BE LEFT IN PLACE.
- REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE PATCH SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.

BAR SIZE	REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS				
	EXCEPT APPROACH SLABS, PARAPET AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

PROJECT NO. I-5769  
MECKLENBURG COUNTY  
 BRIDGE NO. 590221, 590222,  
590227, 590230, 590231, 590241, 590243



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 DECK REPAIR DETAILS

ASSEMBLED BY : R. SAHA DATE : 8/2019  
 CHECKED BY : H.A. LOCKLEAR DATE : 9/2019  
 DRAWN BY : NAP 9/18  
 CHECKED BY :

NO.	REVISIONS						SHEET NO. SD-03
	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	
1			3			3	
2			4				



## 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.
	--	27,000 LBS. PER SQ. IN.
	--	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	----	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

### MATERIAL AND WORKMANSHIP:

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

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

### CONCRETE:

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

### CONCRETE CHAMFERS:

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

### DOWELS:

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

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

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

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

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

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

### REINFORCING STEEL:

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

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

### STRUCTURAL STEEL:

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

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST  $\frac{3}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

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

### HANDRAILS AND POSTS:

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

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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

STD. NO. SN