

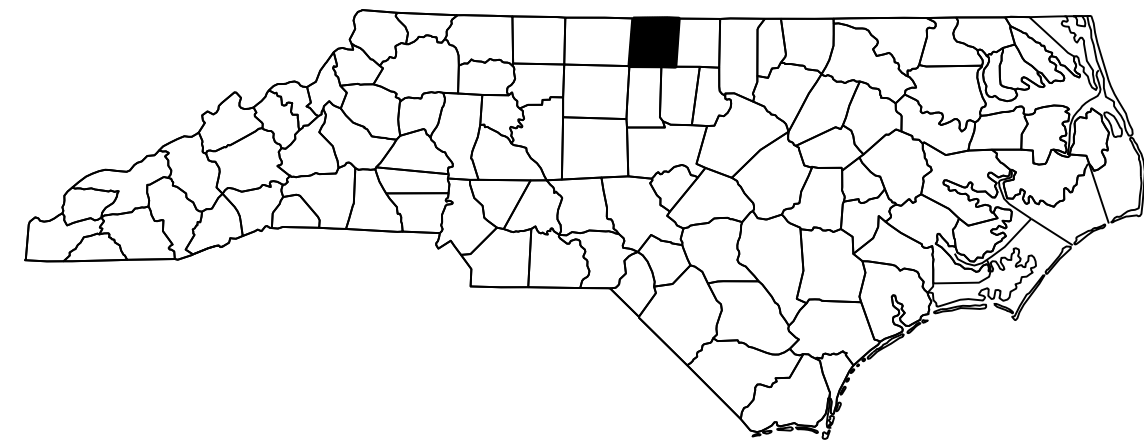
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PROJECT: 15BPR.22

CONTRACT NO: C204299



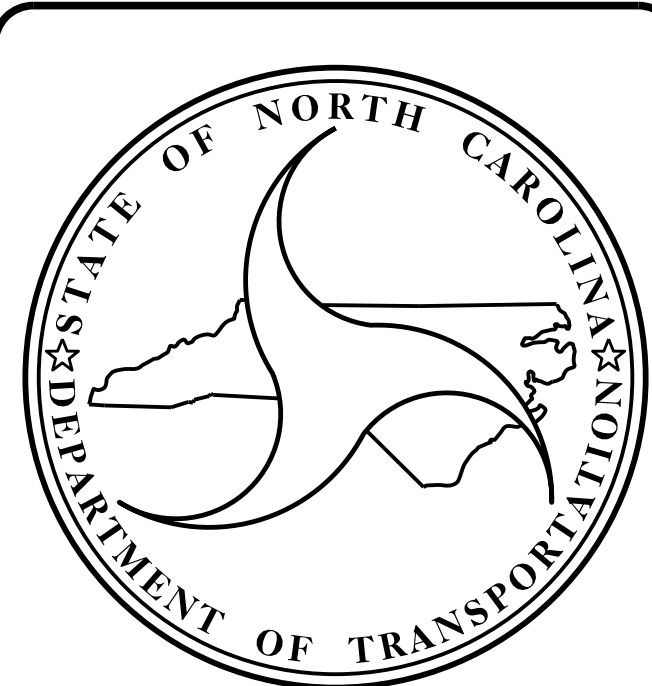
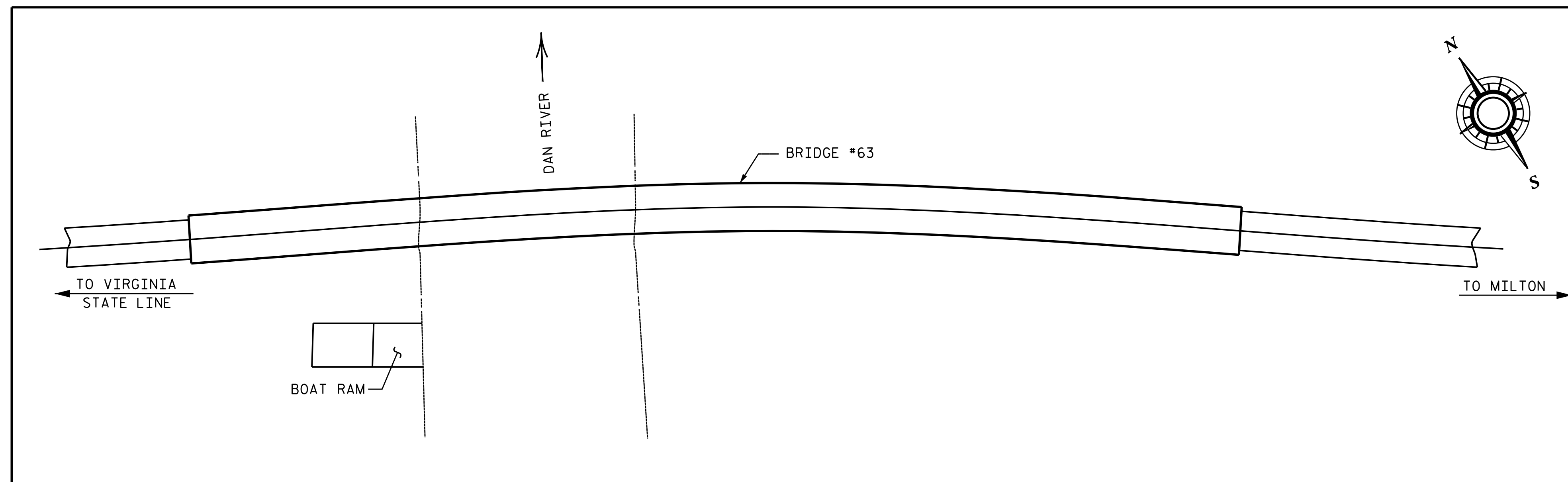
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CASWELL COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.22		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.22		P.E.	
15BPR.22	—	CONST.	

LOCATION: BRIDGE #63 ON NC 62 OVER DAN RIVER

TYPE OF WORK: BRIDGE PRESERVATION - CLEANING & REPAINTING OF BRIDGE STRUCTURAL STEEL AND BEARINGS, SUBSTRUCTURE REPAIR USING SHOTCRETE, CONCRETE, AND EPOXY RESIN INJECTION, AND APPLICATION OF BRIDGE COATING



DESIGN DATA
BRIDGE #63 - ADT 2015 - 3,300

PROJECT LENGTH
BRIDGE #63 - 0.18 MILE

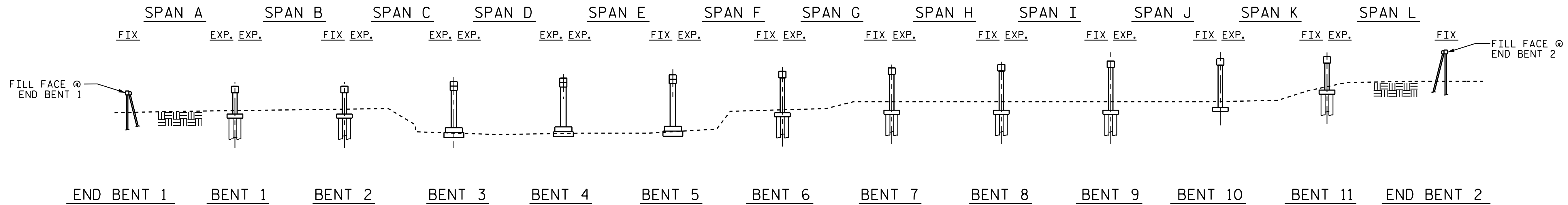
Prepared in the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2018 STANDARD SPECIFICATIONS

LETTING DATE :
FEBRUARY 19, 2018

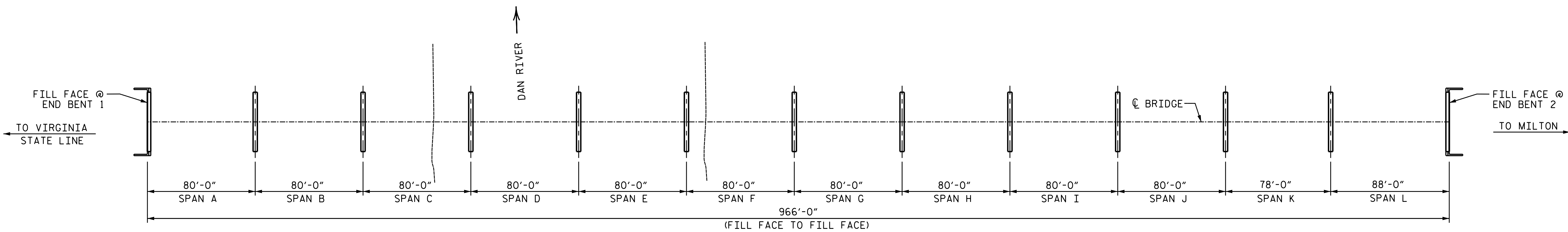
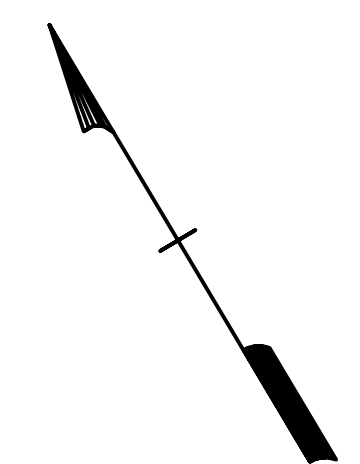
FRANCESCA LEA, PE
PROJECT ENGINEER

KRISTY L. W. ALFORD, PE
PROJECT DESIGN ENGINEER



SECTION ALONG Q BRIDGE

(SECTIONS ALONG Q BRIDGE)



PLAN

(COLUMNS & FOOTINGS NOT SHOWN IN PLAN FOR CLARITY)

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

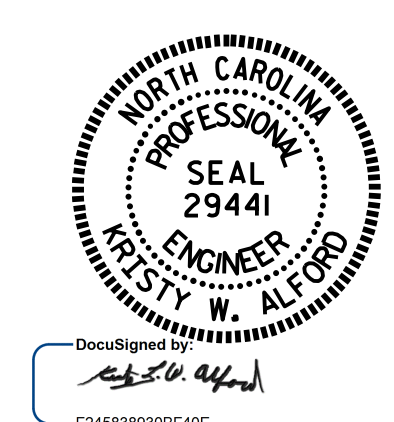
Resident Engineer _____ Date _____

SCOPE OF WORK:

- PAINT EXISTING STRUCTURE.
- REPAIR SUBSTRUCTURE USING EPOXY RESIN INJECTION, SHOTCRETE, AND CONCRETE.
- APPLY BRIDGE COATING TO INTERIOR BENTS.

PROJECT NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63

SHEET 1 OF 2

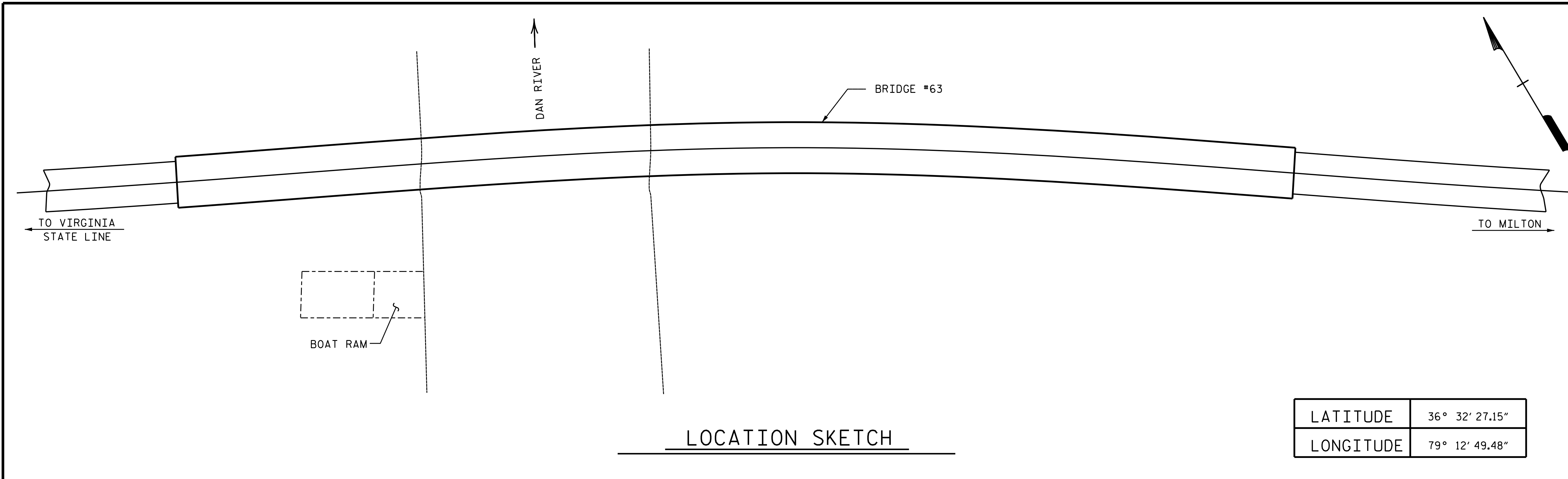


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE ON NC 62
 OVER DAN RIVER

DRAWN BY : O. T. NGUYEN DATE : 11/14/18
 CHECKED BY : K. W. ALFORD DATE : 11/15/18

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

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TOTAL BILL OF MATERIAL								
BRIDGE NO.	POLLUTION CONTROL	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	APPLICATION OF BRIDGE COATING	PAINTING CONTAINMENT FOR BRIDGE #160063	CLEANING & REPAINTING OF BRIDGE #160063	EPOXY COATING
	LUMP SUM	CU. FT.	CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	SO. FT.
63	LUMP SUM	6.0	47.0	359.0	LUMP SUM	LUMP SUM	LUMP SUM	1648.0
TOTAL	LUMP SUM	6.0	47.0	359.0	LUMP SUM	LUMP SUM	LUMP SUM	1648.0

GENERAL NOTES

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

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CLEANING AND REPAINTING OF BRIDGE, POLLUTION CONTROL, AND PAINTING CONTAINMENT, SEE "PAINT EXISTING STRUCTURE" SPECIAL PROVISION.

BRIDGE COATING SHALL BE APPLIED TO ALL EXPOSED FACES OF INTERIOR BENTS. SEE "APPLICATION OF BRIDGE COATING" SPECIAL PROVISION.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

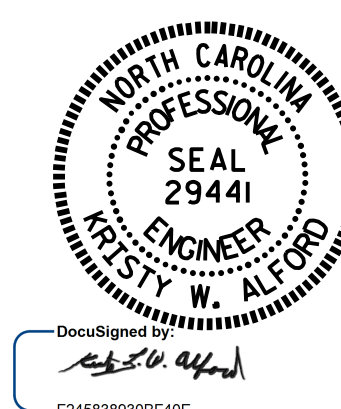
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE "EPOXY COATING AND DEBRIS REMOVAL" SPECIAL PROVISION.

PROJECT NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63

SHEET 2 OF 2



12/21/2018

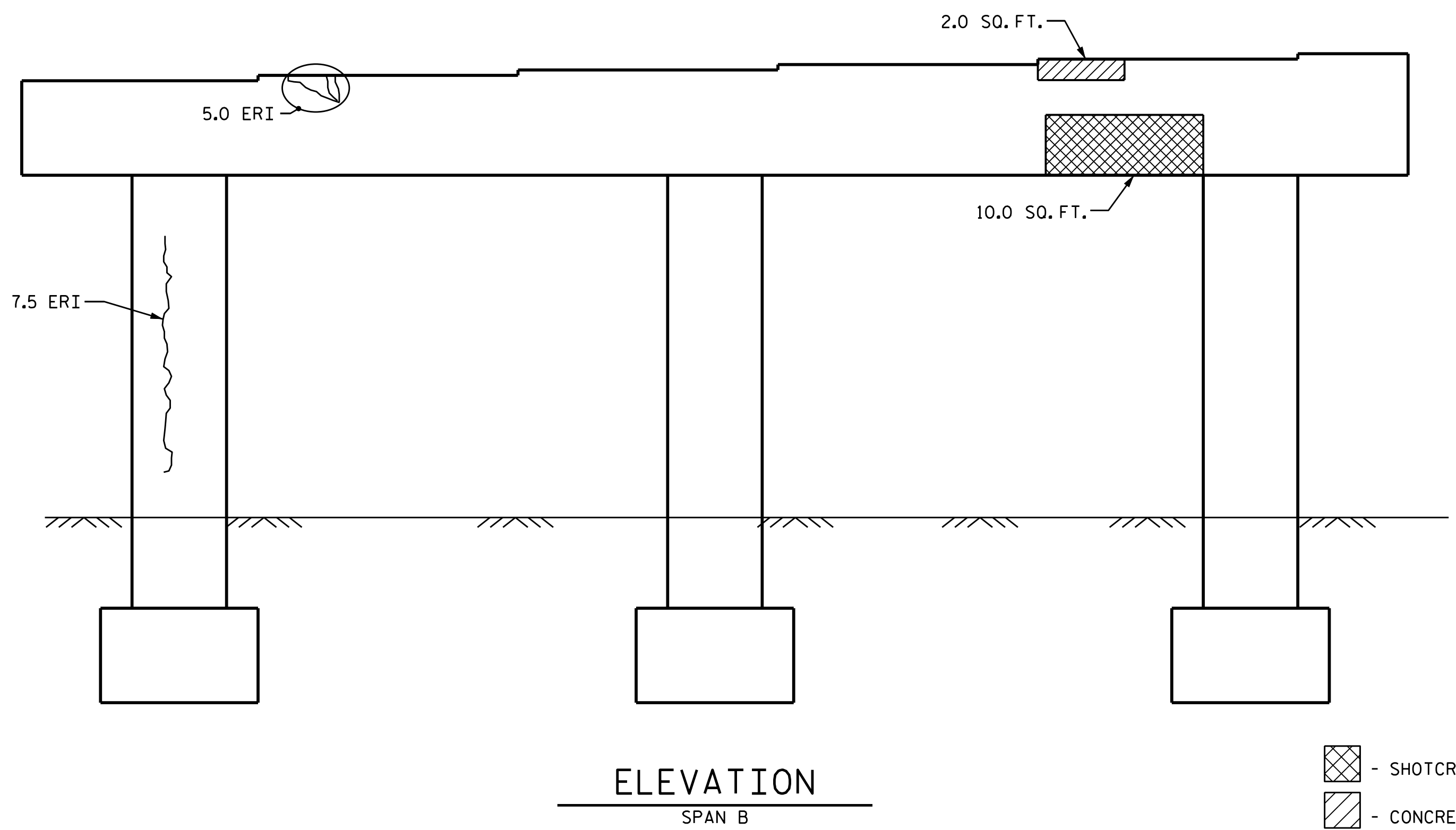
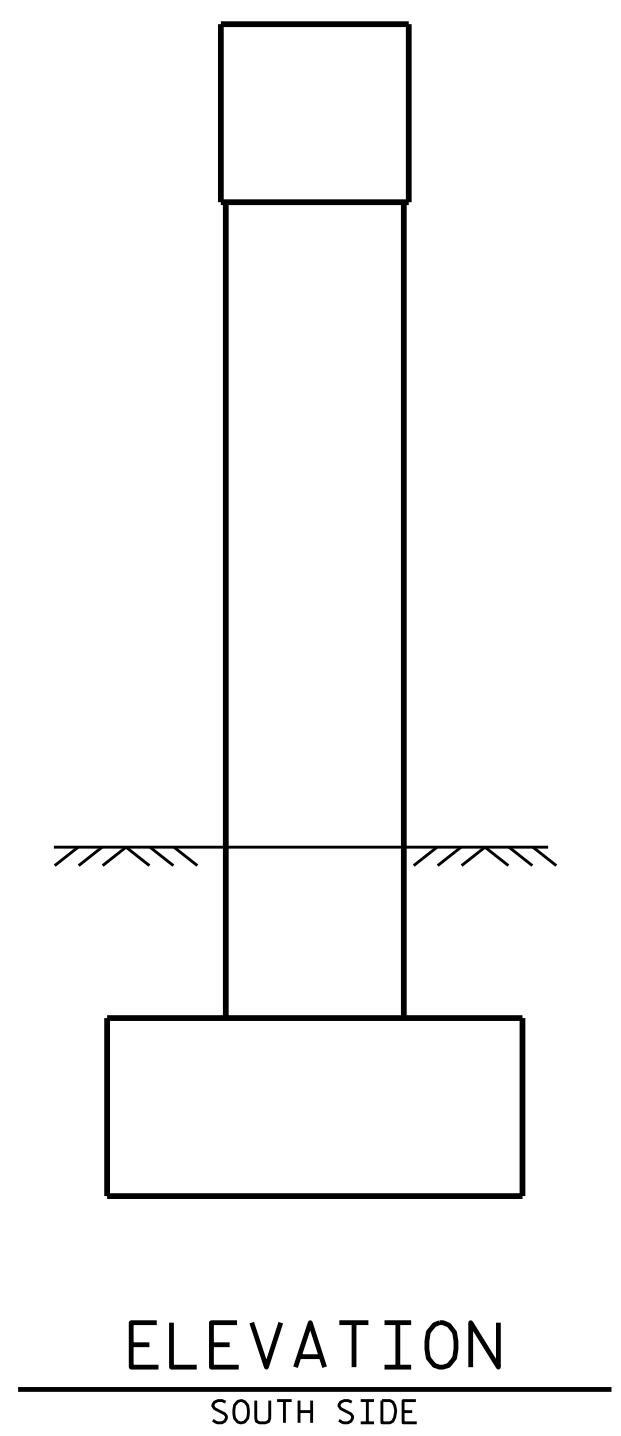
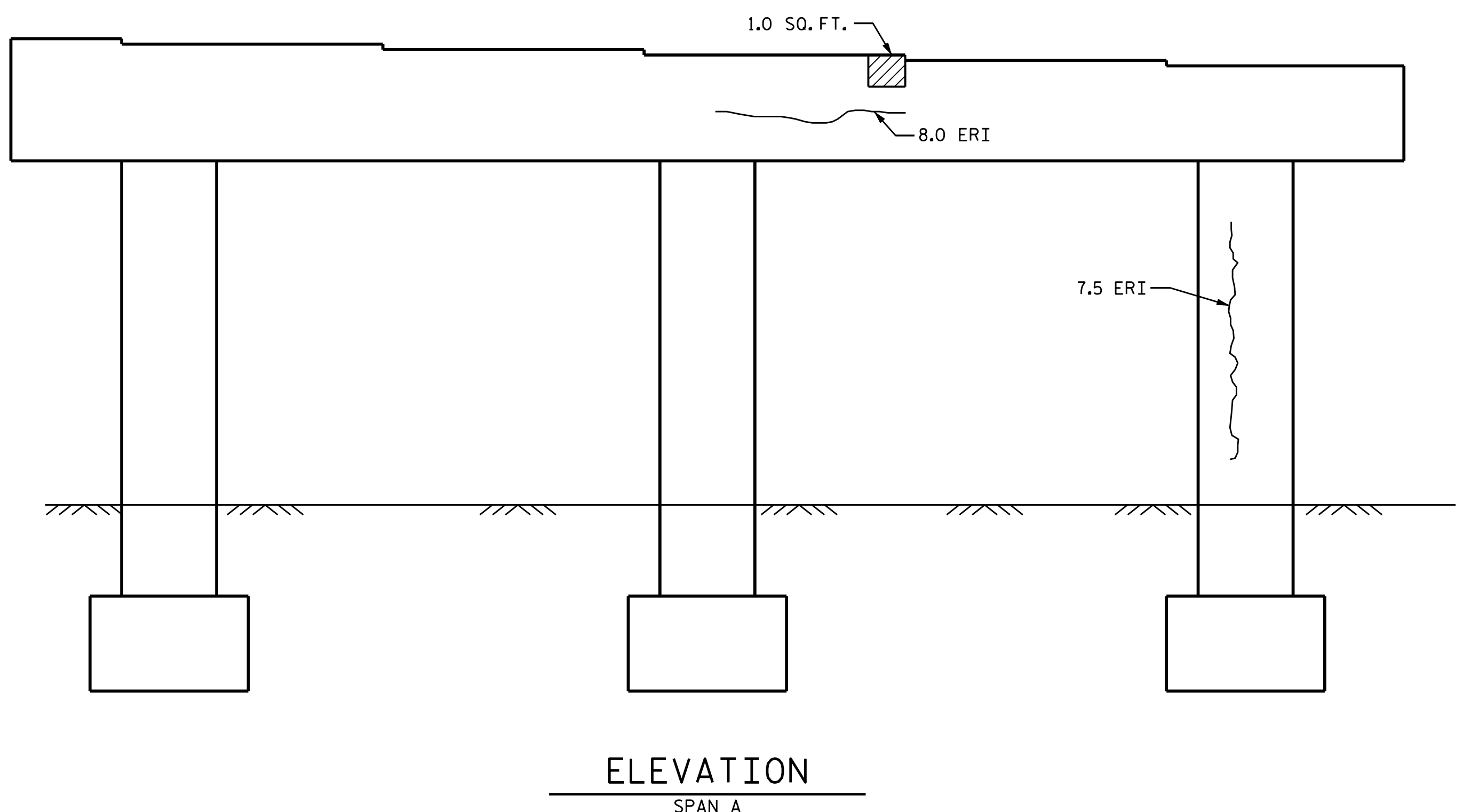
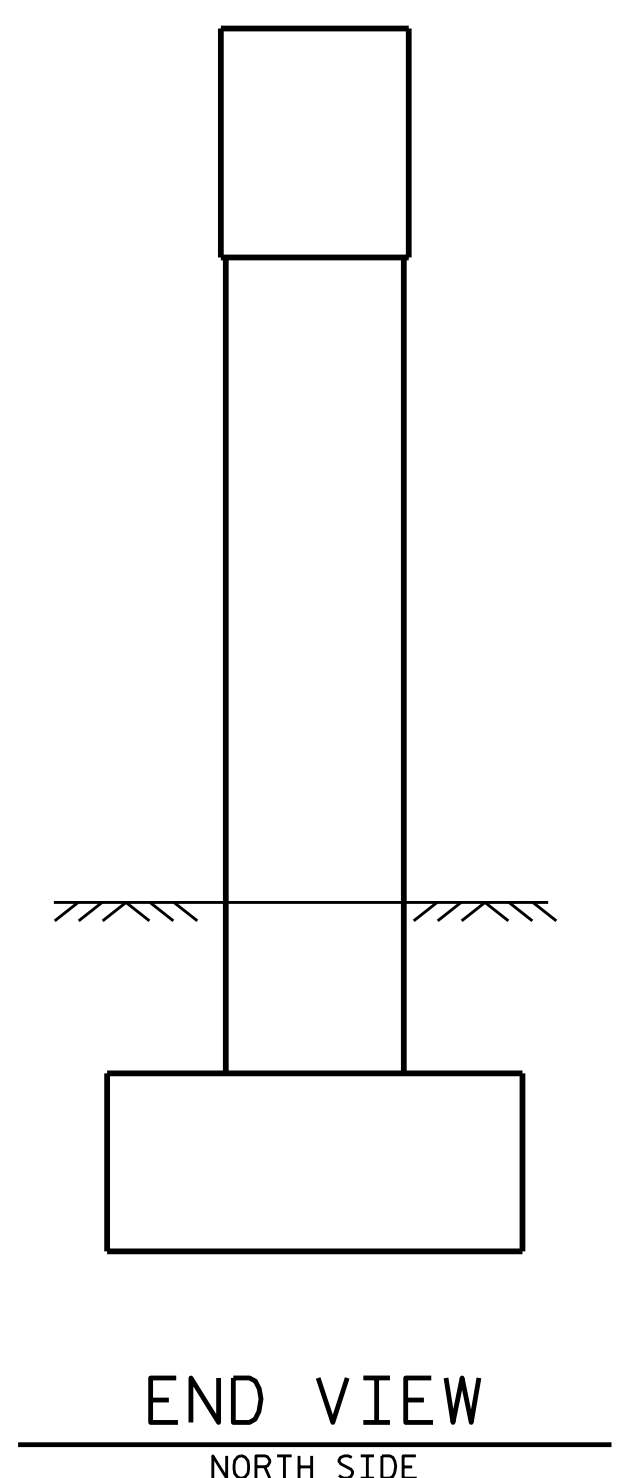
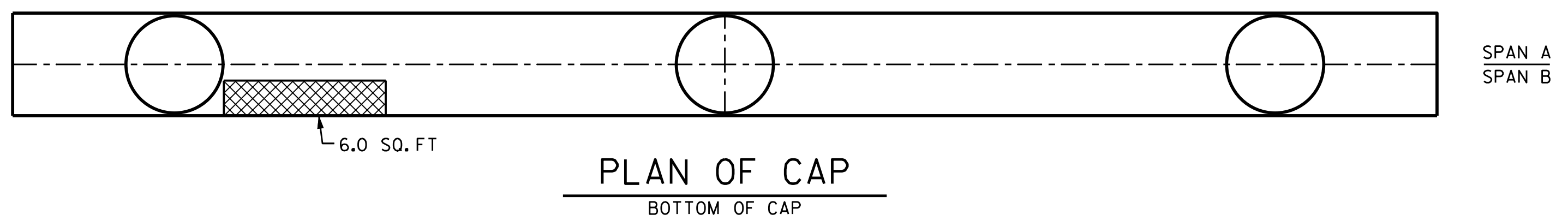
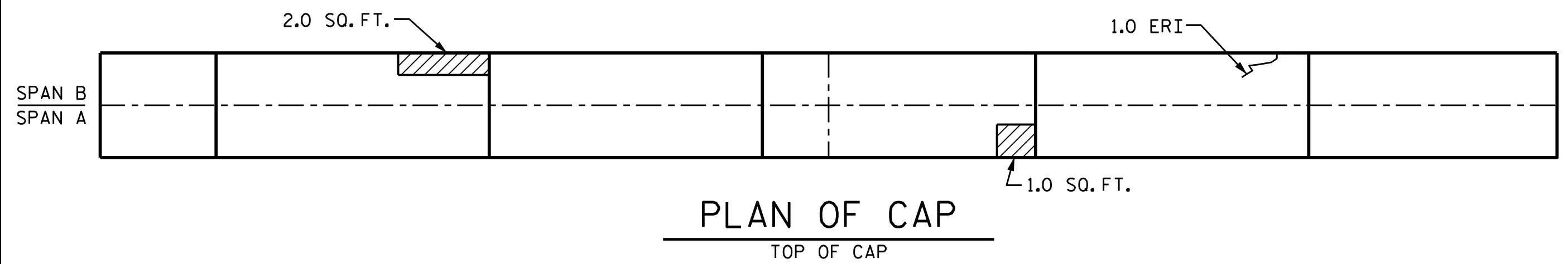
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 BRIDGE ON NC 62
 OVER DAN RIVER

DRAWN BY : O. T. NGUYEN DATE : 11/14/18
 CHECKED BY : K. W. ALFORD DATE : 11/15/18

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			14



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

REPAIR QUANTITY TABLE					
REPAIRS BENT 1	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	6.0	3.0			
CAP (HORIZONTAL, CORNER)	10.0	5.0			
COLUMN	0	0			
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	3.0	1.5			
CAP (HORIZONTAL, CORNER)	3.0	1.5			
COLUMN	0	0			
EPOXY RESIN INJECTION			LN. FT		
CAP			14.0		
COLUMN			15.0		
EPOXY COATING			AREA SF		
TOP OF CAP			140.0		

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

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

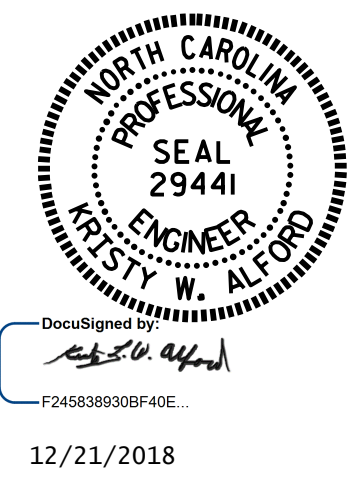
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.
 FOR SUBSTRUCTURE REPAIR DETAIL, SEE "TYPICAL CAP AND COLUMN REPAIRS DETAIL" SHEET.
 FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
 SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
 FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
 THE CONTRACTOR SHALL EPOXY COAT PAINT THE TOP SURFACE OF BENT CAPS AS A FINAL FINISH.

PROJECT NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63

SHEET 1 OF 11

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

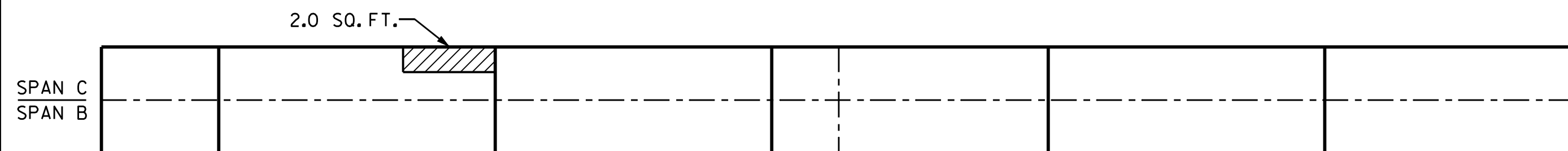
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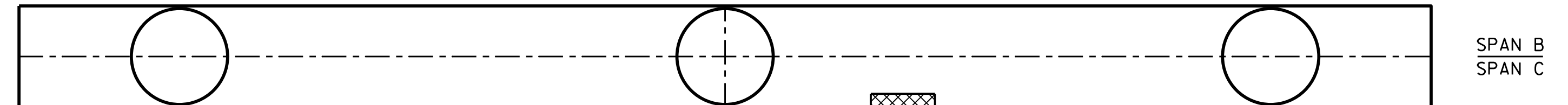
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			14

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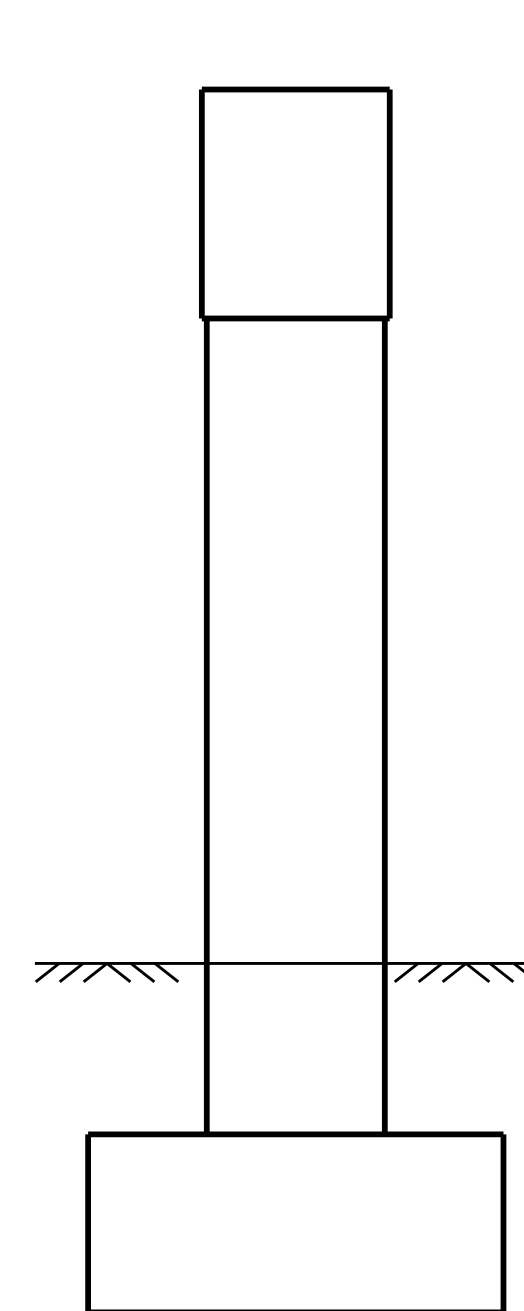
DRAWN BY : K. W. ALFORD DATE : 11/18
 CHECKED BY : O. T. NGUYEN DATE : 11/27/18



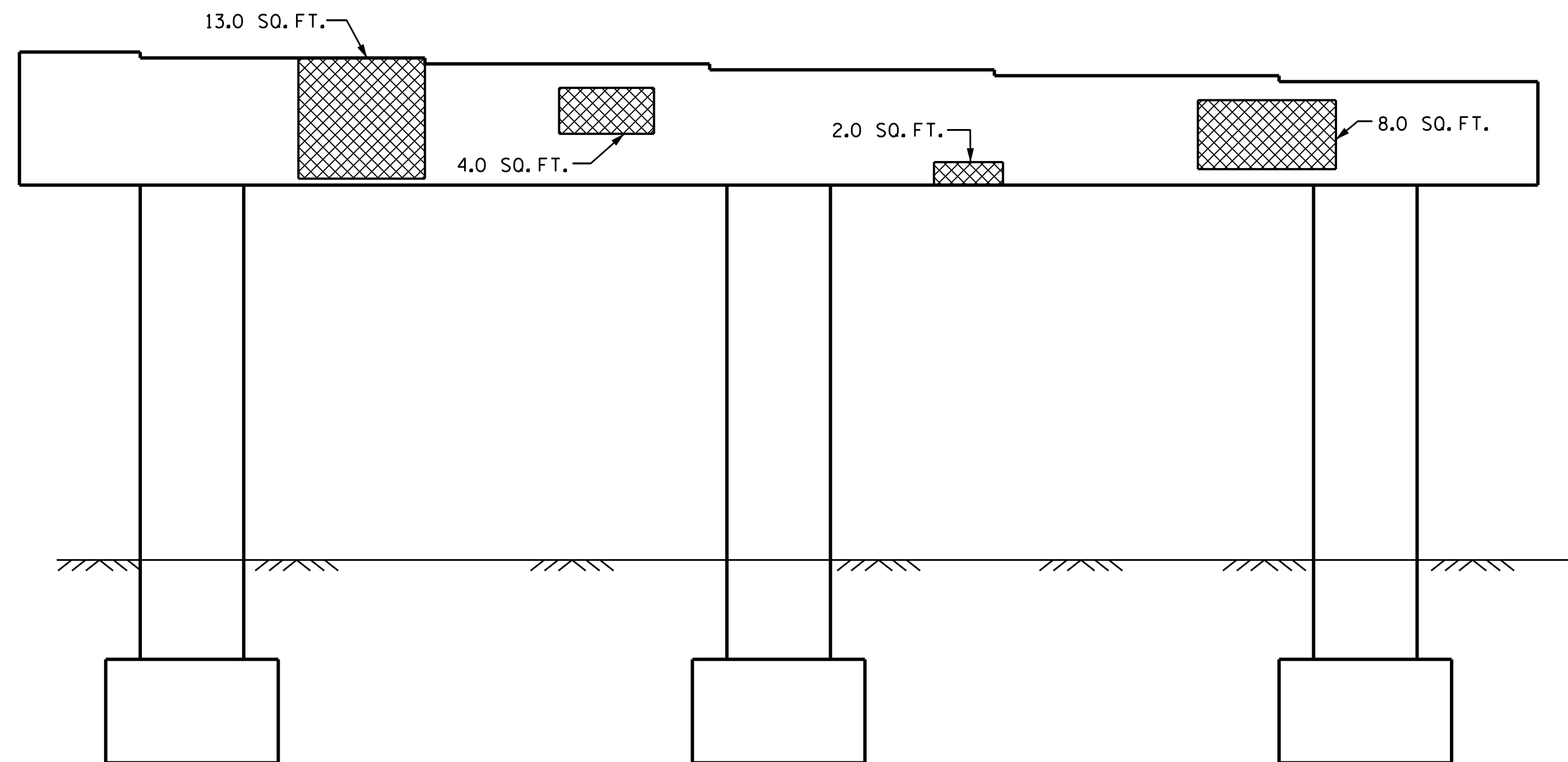
PLAN OF CAP
TOP OF CAP



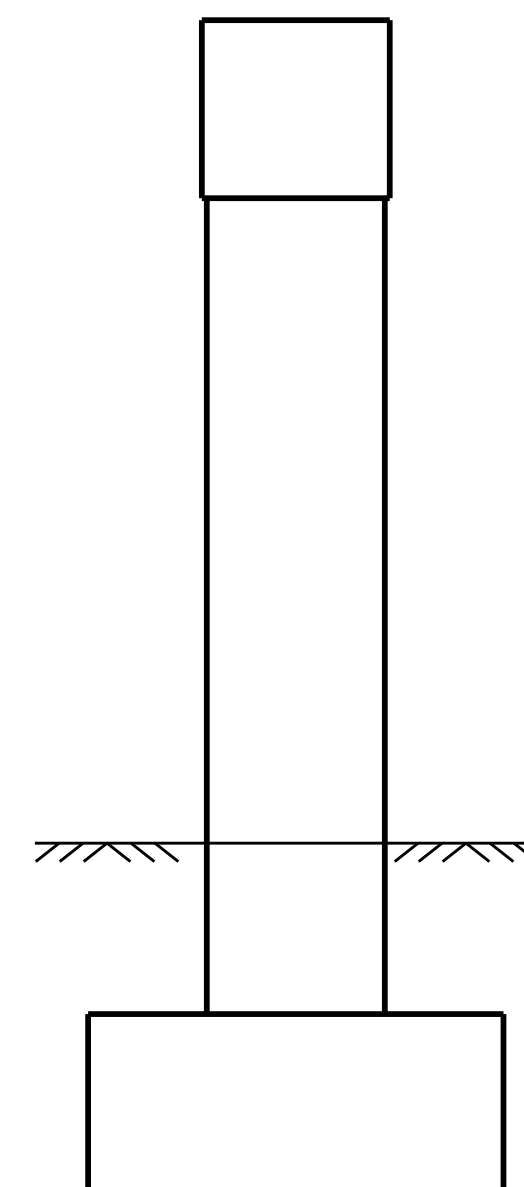
PLAN OF CAP
BOTTOM OF CAP



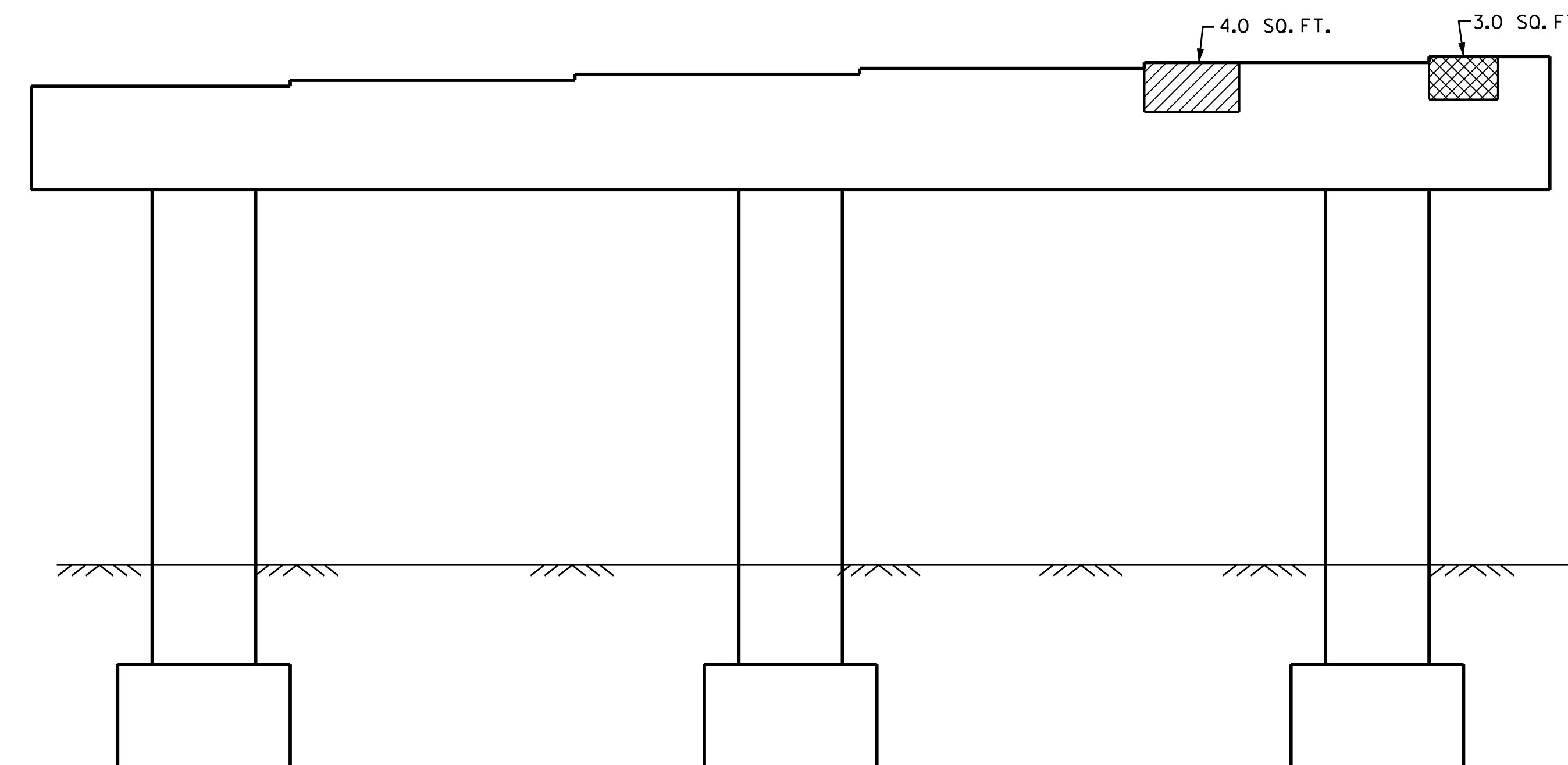
END VIEW
NORTH SIDE



ELEVATION
SPAN B



ELEVATION
SOUTH SIDE



ELEVATION
SPAN C

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

REPAIR QUANTITY TABLE					
REPAIRS BENT 2	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	30.0	15.0			
CAP (HORIZONTAL, CORNER)	1.0	0.5			
COLUMN	0	0			
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	4.0	2.0			
CAP (HORIZONTAL, CORNER)	2.0	1.0			
COLUMN	0	0			
EPOXY RESIN INJECTION			LN. FT		LN. FT
CAP			0.0		
COLUMN			0		
EPOXY COATING			AREA SF		
TOP OF CAP			140.0		

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

NOTES:

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

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

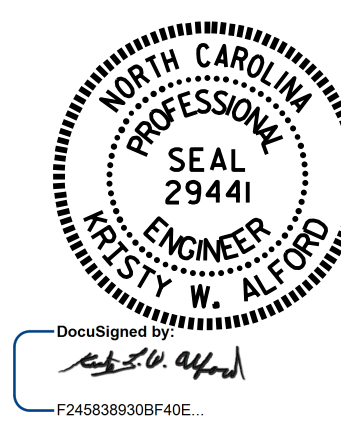
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT PAINT THE TOP SURFACE OF BENT CAPS AS A FINAL FINISH.

PROJECT NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63

SHEET 2 OF 11

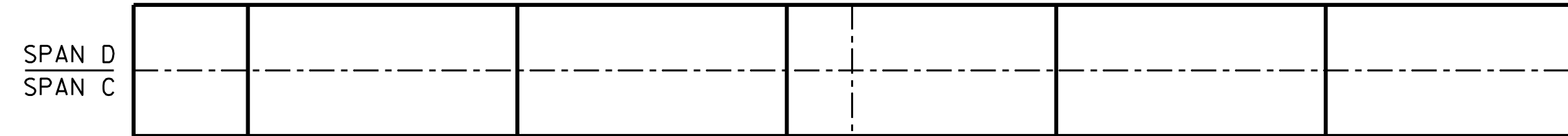


12/21/2018

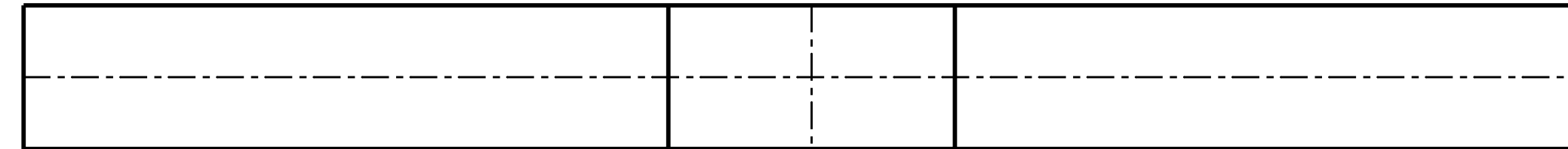
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-4
					TOTAL SHEETS 14

DRAWN BY : K. W. ALFORD DATE : 11/18
 CHECKED BY : O. T. NGUYEN DATE : 11/27/18

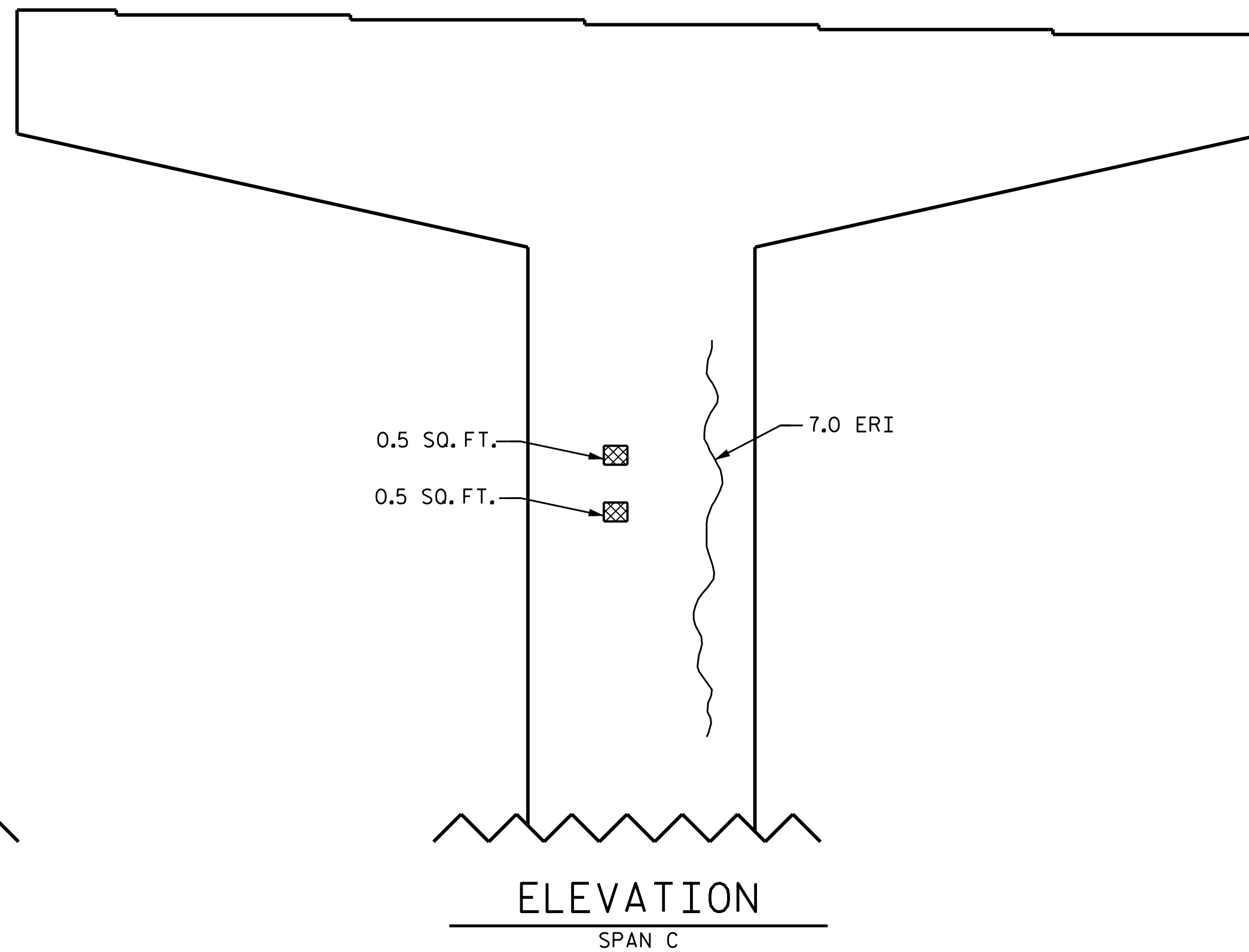
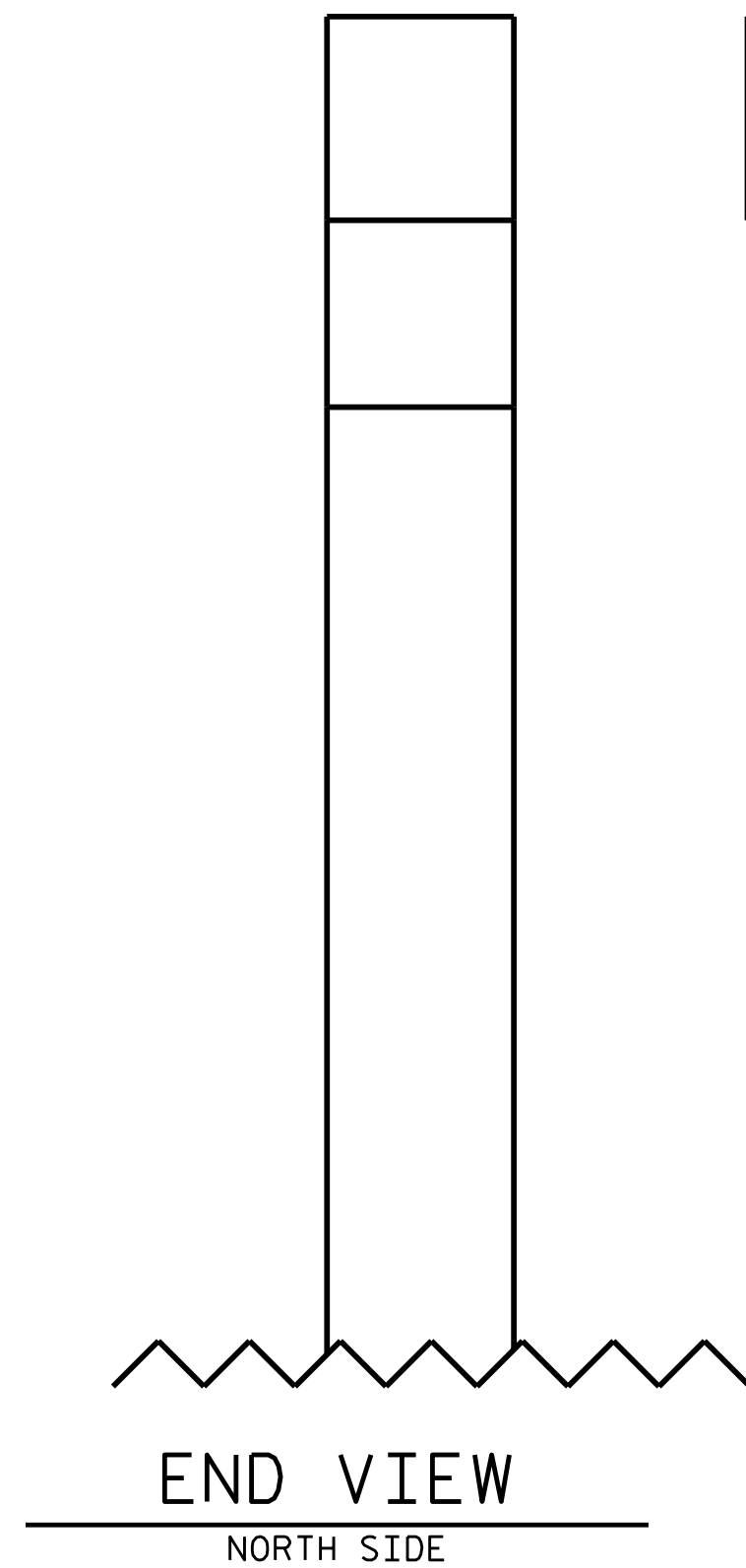
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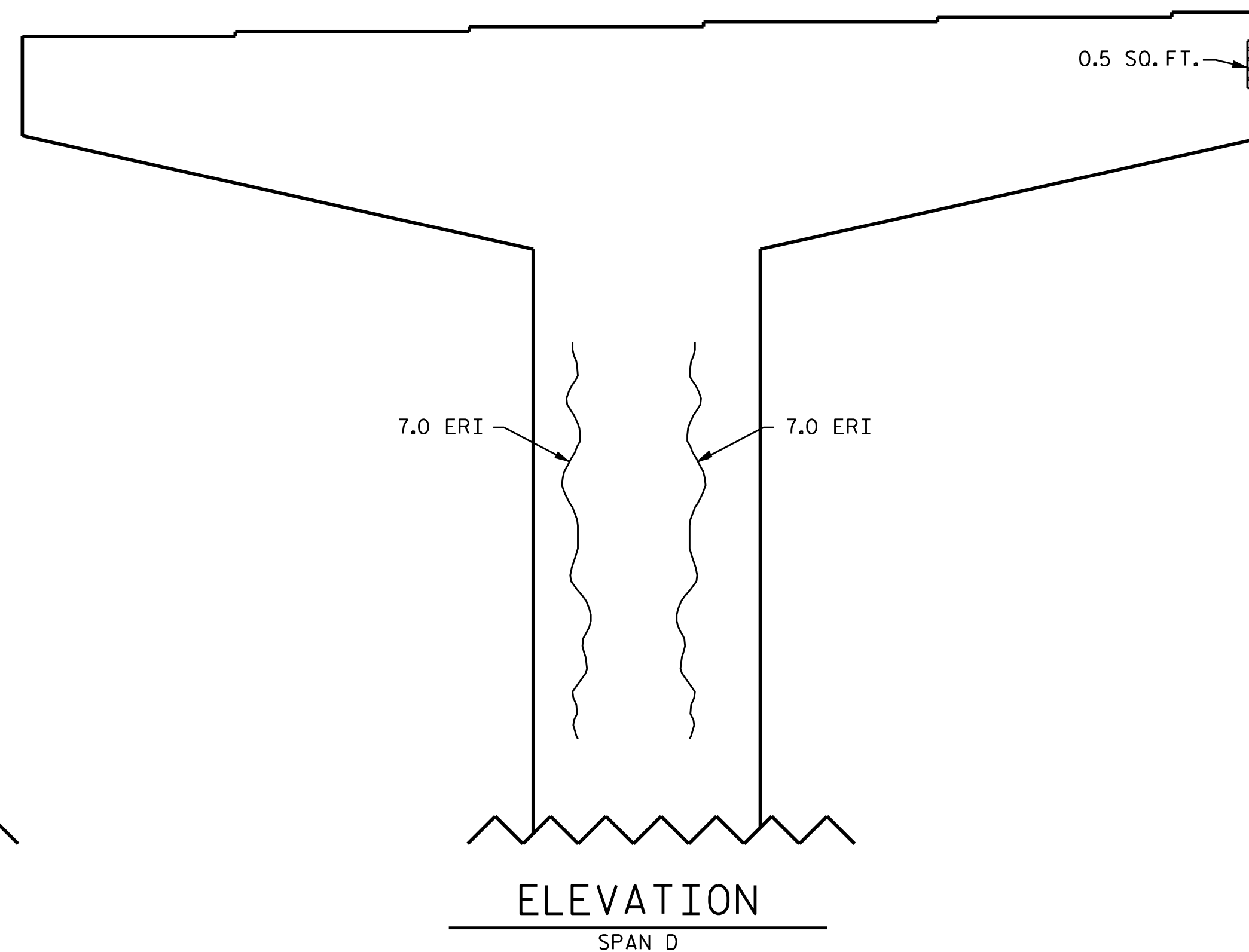
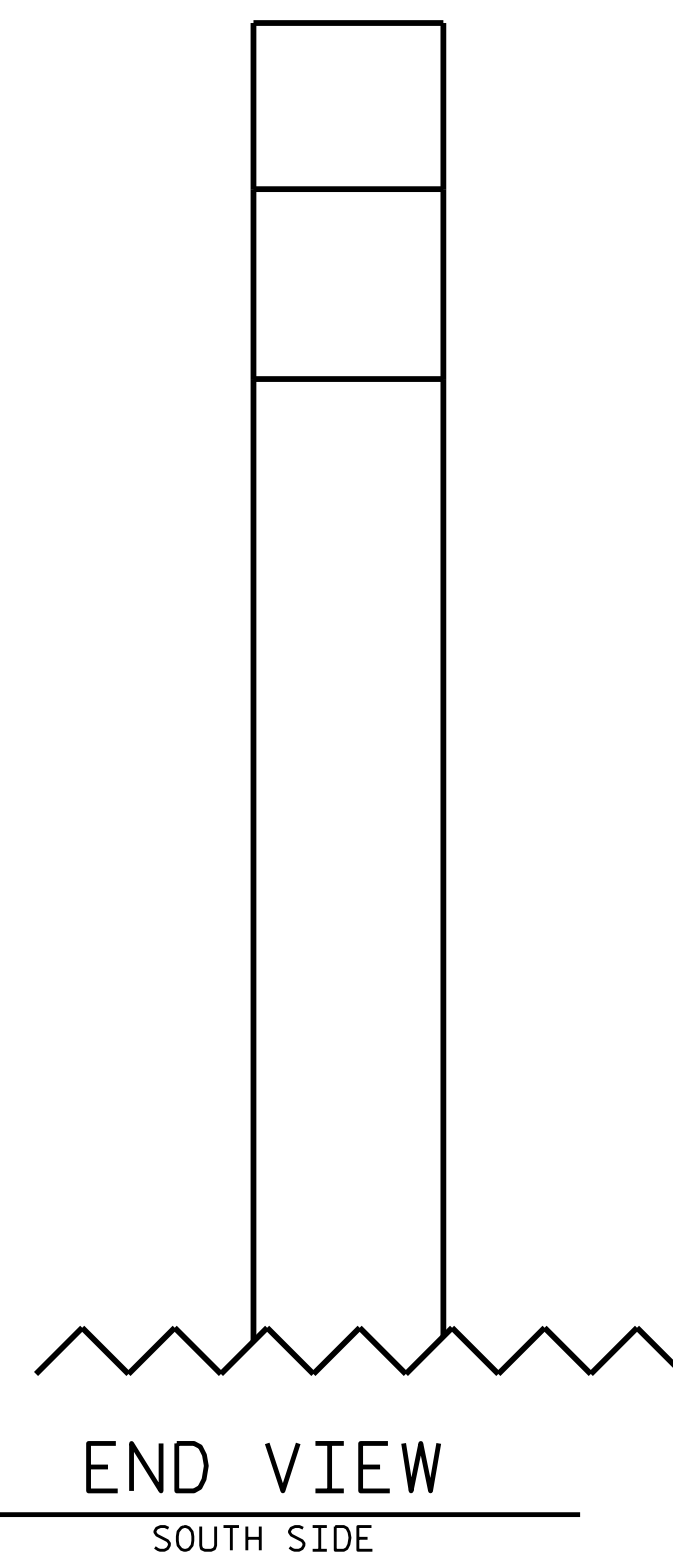
PLAN OF CAP
TOP OF CAP



PLAN OF CAP
BOTTOM OF CAP



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



SPAN C
SPAN D

REPAIR QUANTITY TABLE

REPAIRS BENT 3	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0.5	0.3			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	1.0	0.5			
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION			LN. FT		
CAP			0		
COLUMN			21.0		
EPOXY COATING			AREA SF		
TOP OF CAP			176.0		

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

NOTES:

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FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

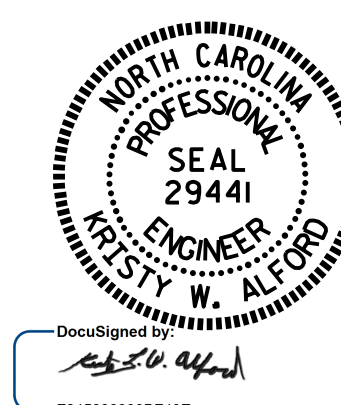
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT PAINT THE TOP SURFACE OF BENT CAPS AS A FINAL FINISH.

PROJECT NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63

SHEET 3 OF 11

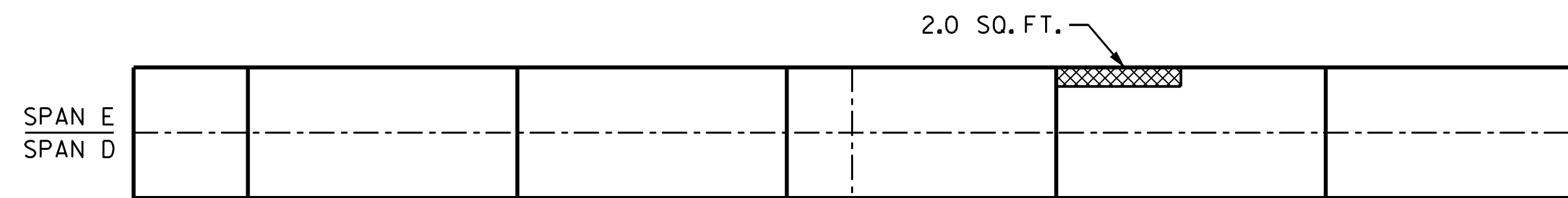


12/21/2018

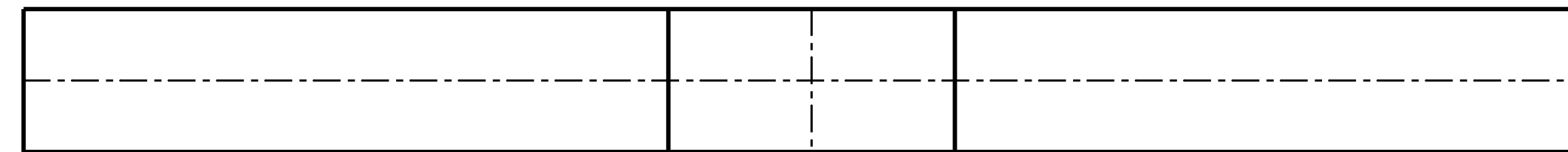
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
BENT 3						S-5
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	14
1			3			
2			4			

DRAWN BY : K. W. ALFORD DATE : 11/18
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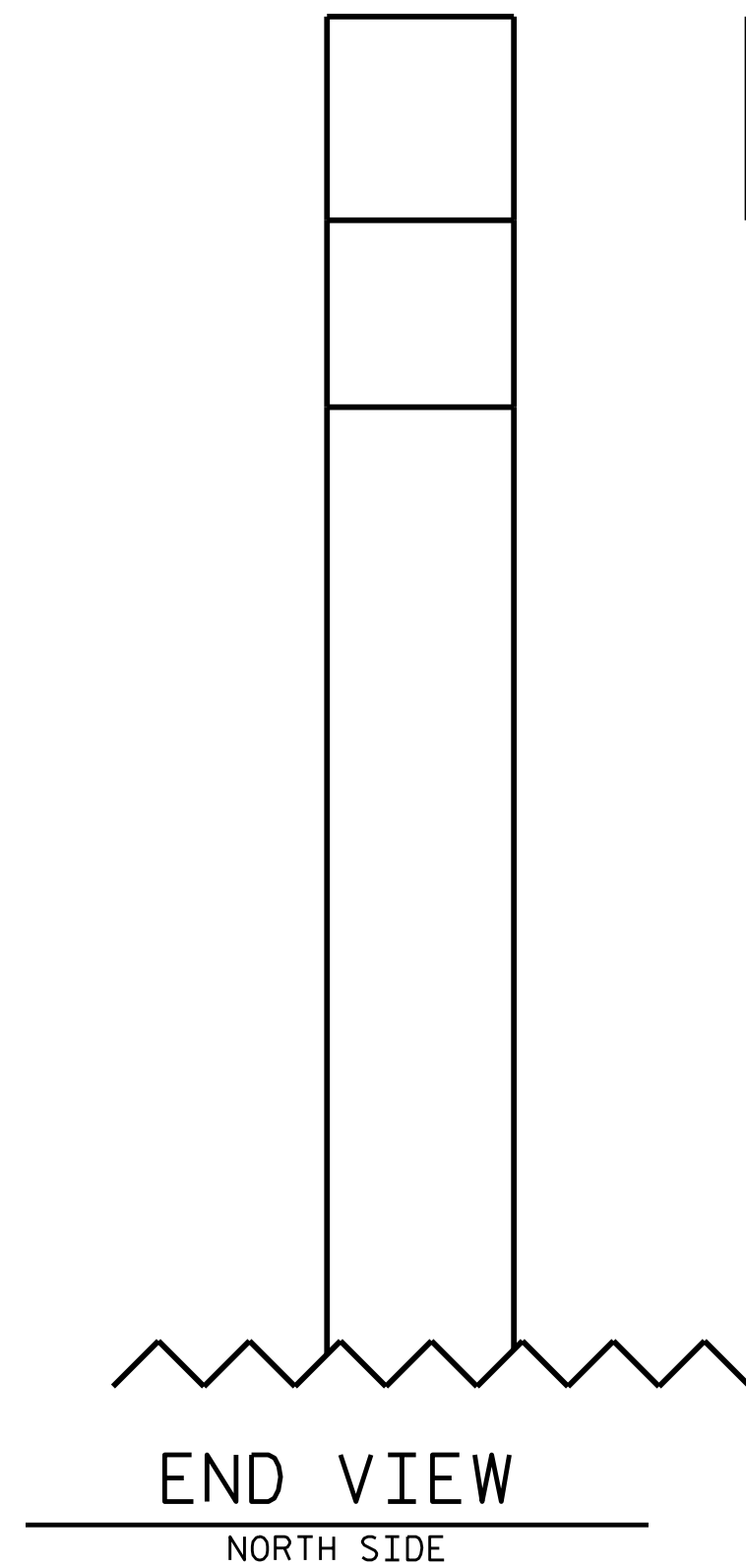
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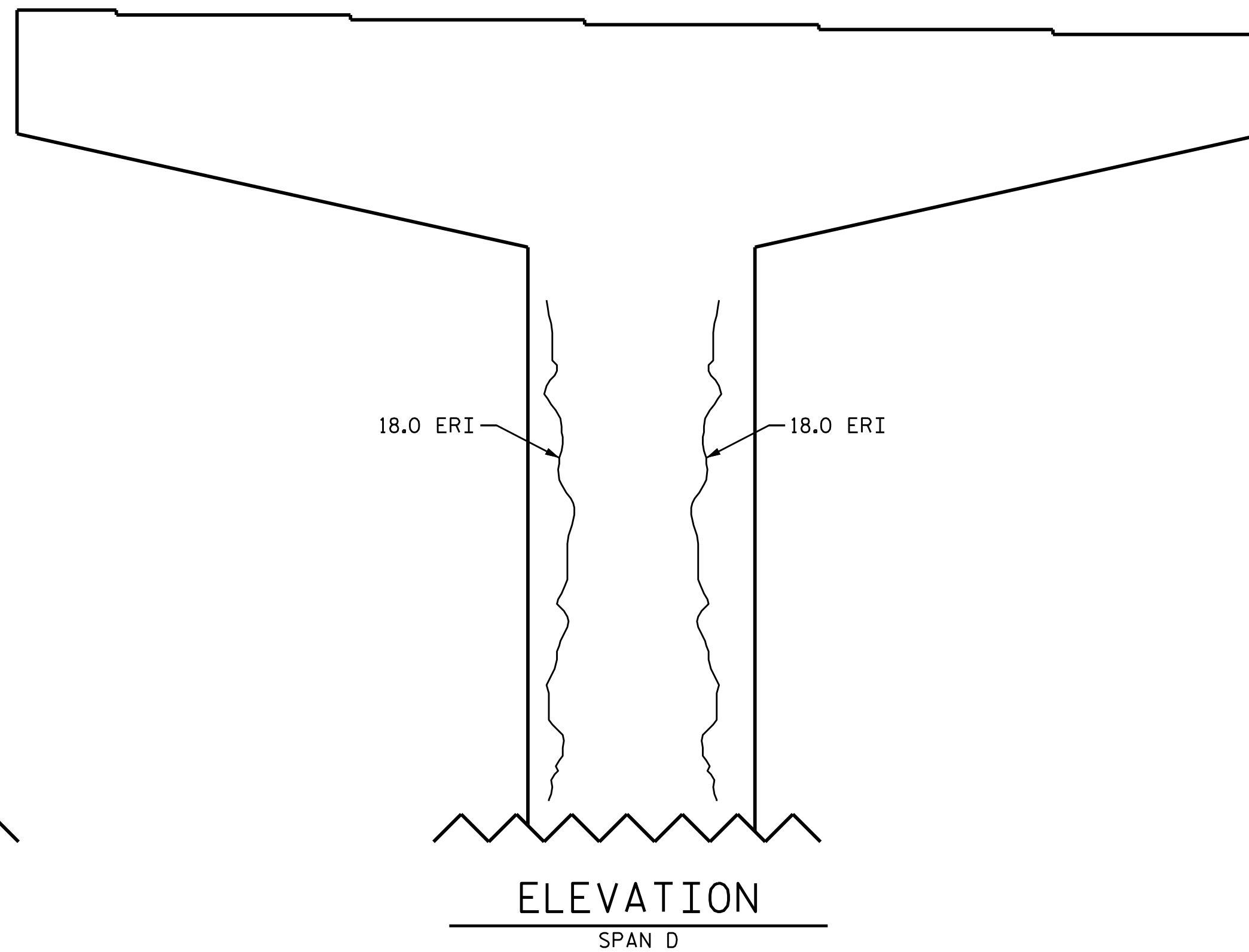
PLAN OF CAP
TOP OF CAP



PLAN OF CAP
BOTTOM OF CAP

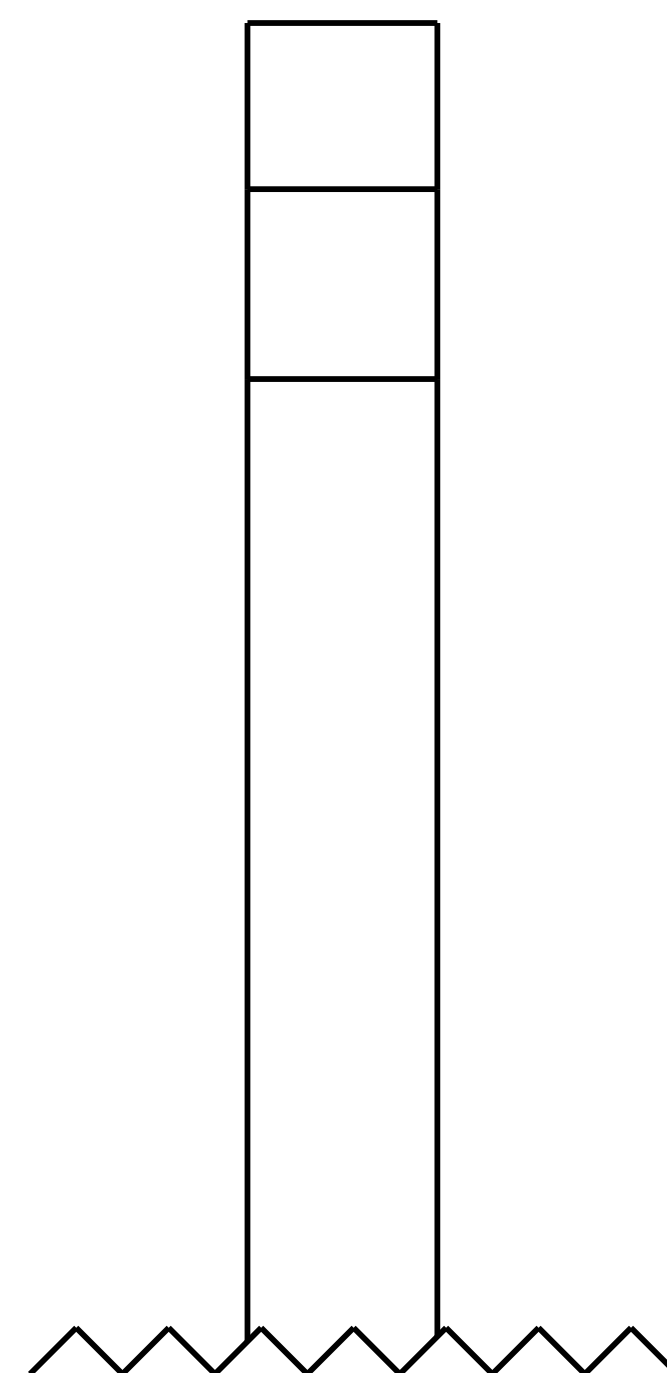


END VIEW
NORTH SIDE

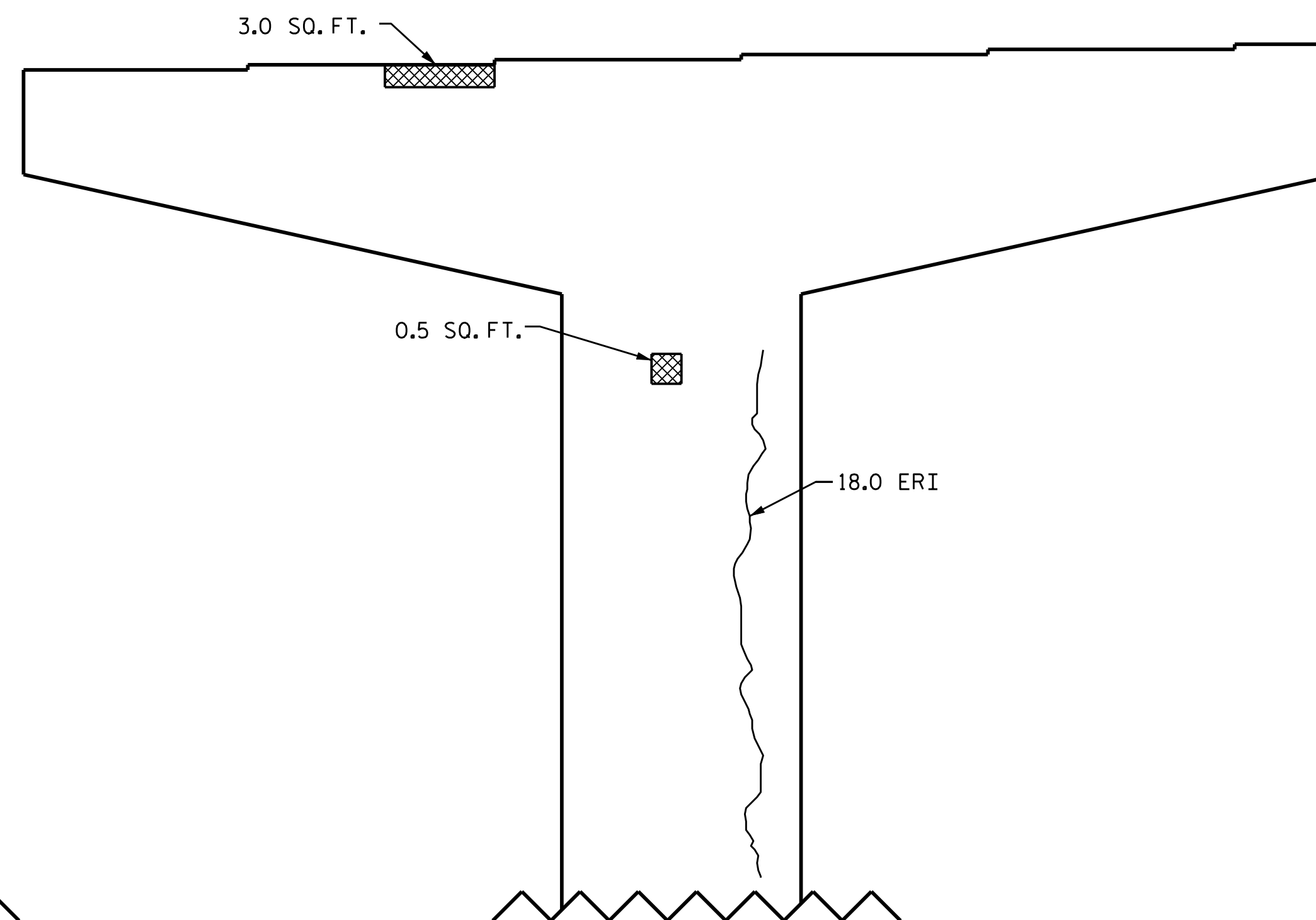


ELEVATION
SPAN D

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



END VIEW
SOUTH SIDE



ELEVATION
SPAN E

SPAN D
SPAN E

REPAIR QUANTITY TABLE

REPAIRS BENT 4	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	3.0	1.5			
CAP (HORIZONTAL, CORNER)	2.0	1.0			
COLUMN	0.5	0.3			
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		0			
COLUMN		54.0			
EPOXY COATING		AREA SF			
TOP OF CAP		176.0			

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

NOTES:

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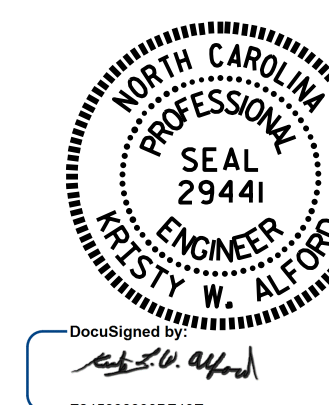
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT PAINT THE TOP SURFACE OF BENT CAPS AS A FINAL FINISH.

PROJECT NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63

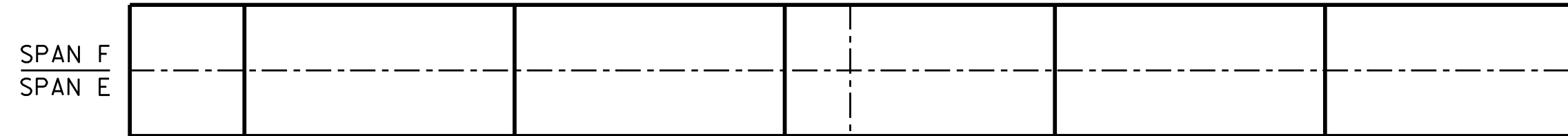
SHEET 4 OF 11



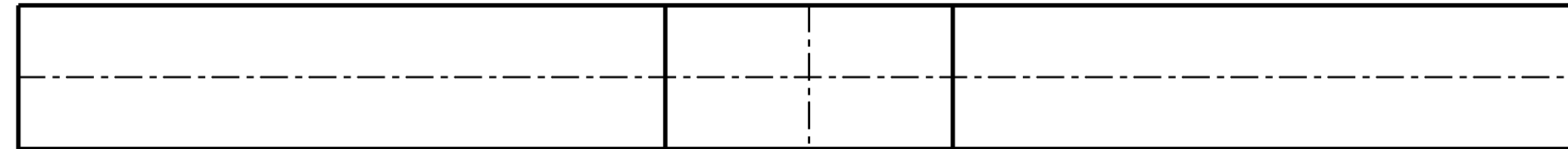
12/21/2018

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 4					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
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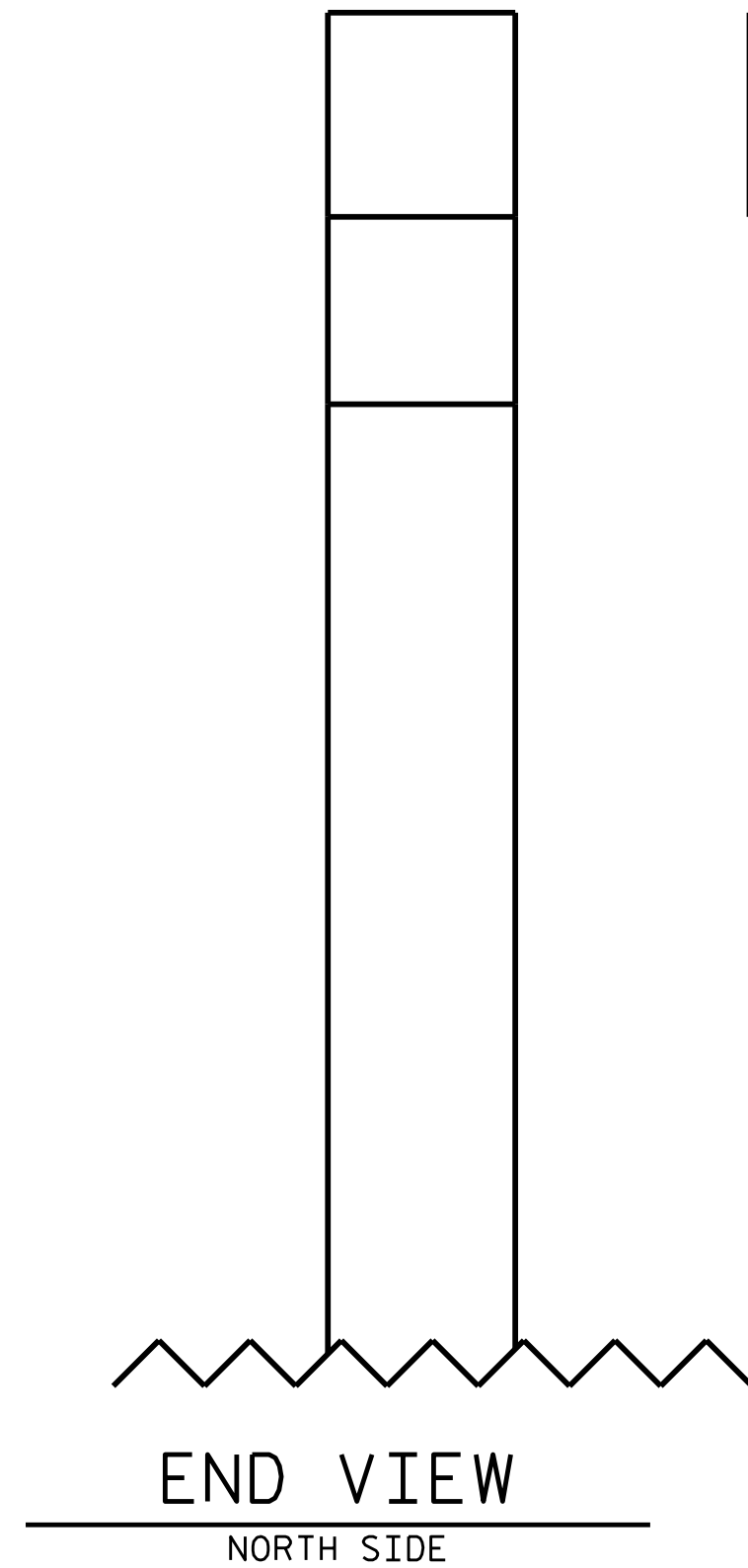
DRAWN BY : K. W. ALFORD DATE : 11/18
 CHECKED BY : O. T. NGUYEN DATE : 11/27/18



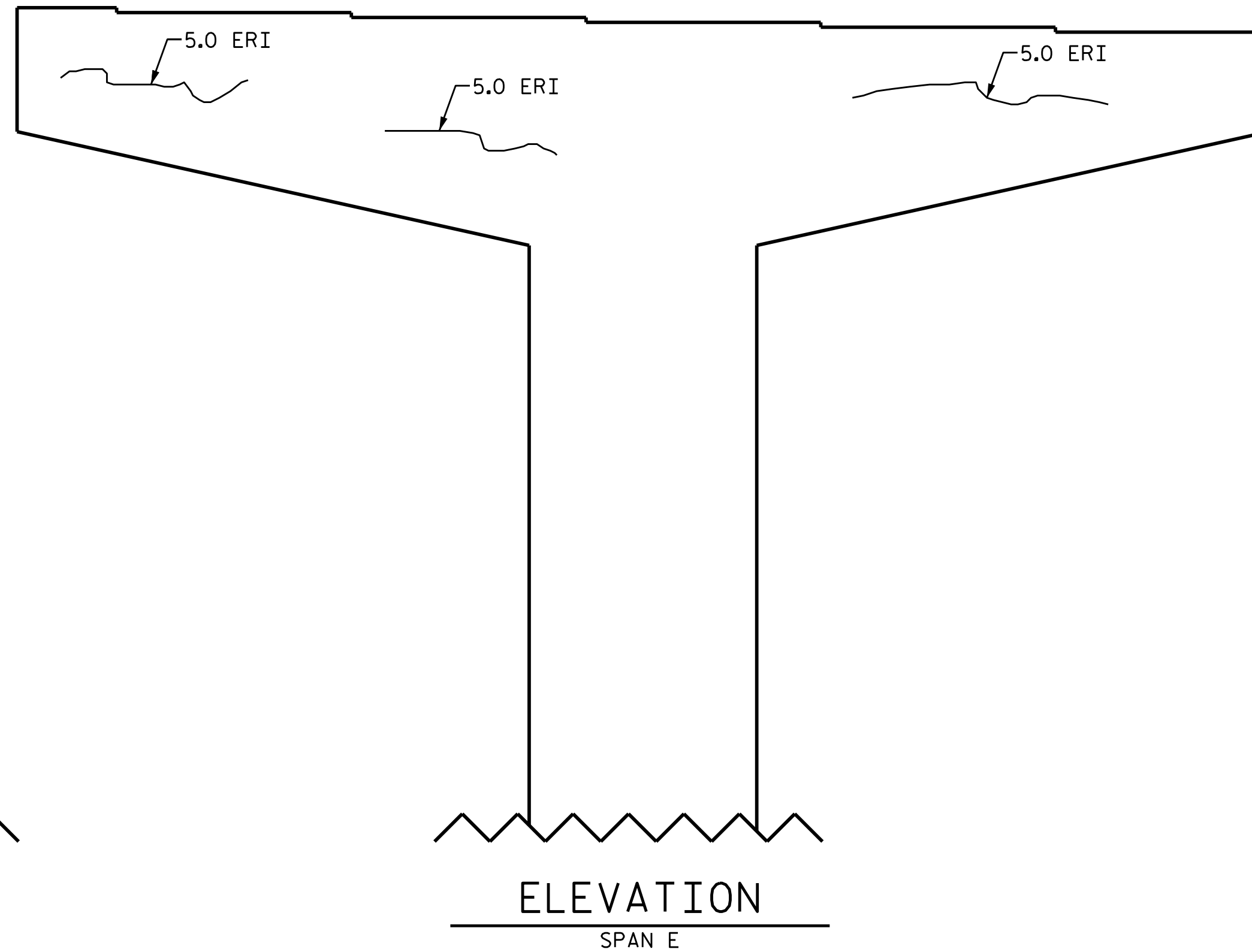
PLAN OF CAP
TOP OF CAP



PLAN OF CAP
BOTTOM OF CAP

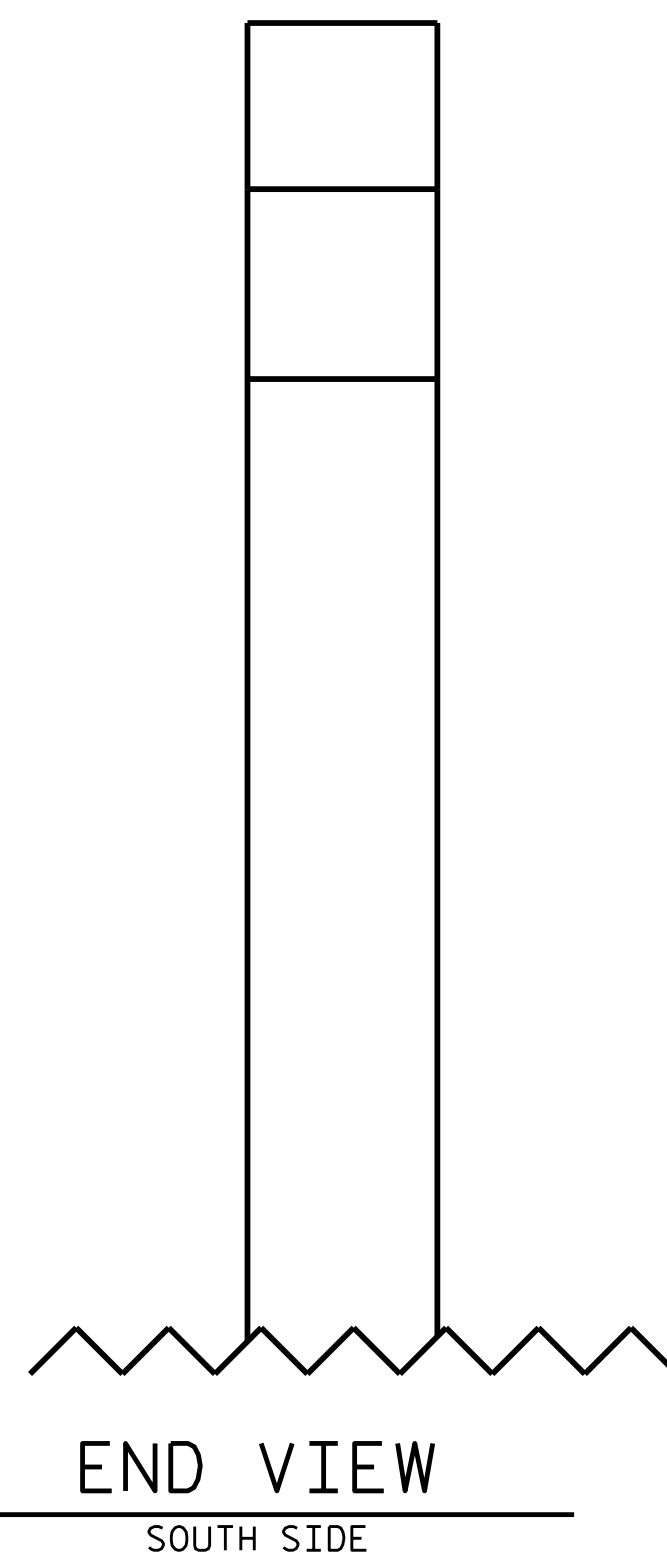


END VIEW
NORTH SIDE

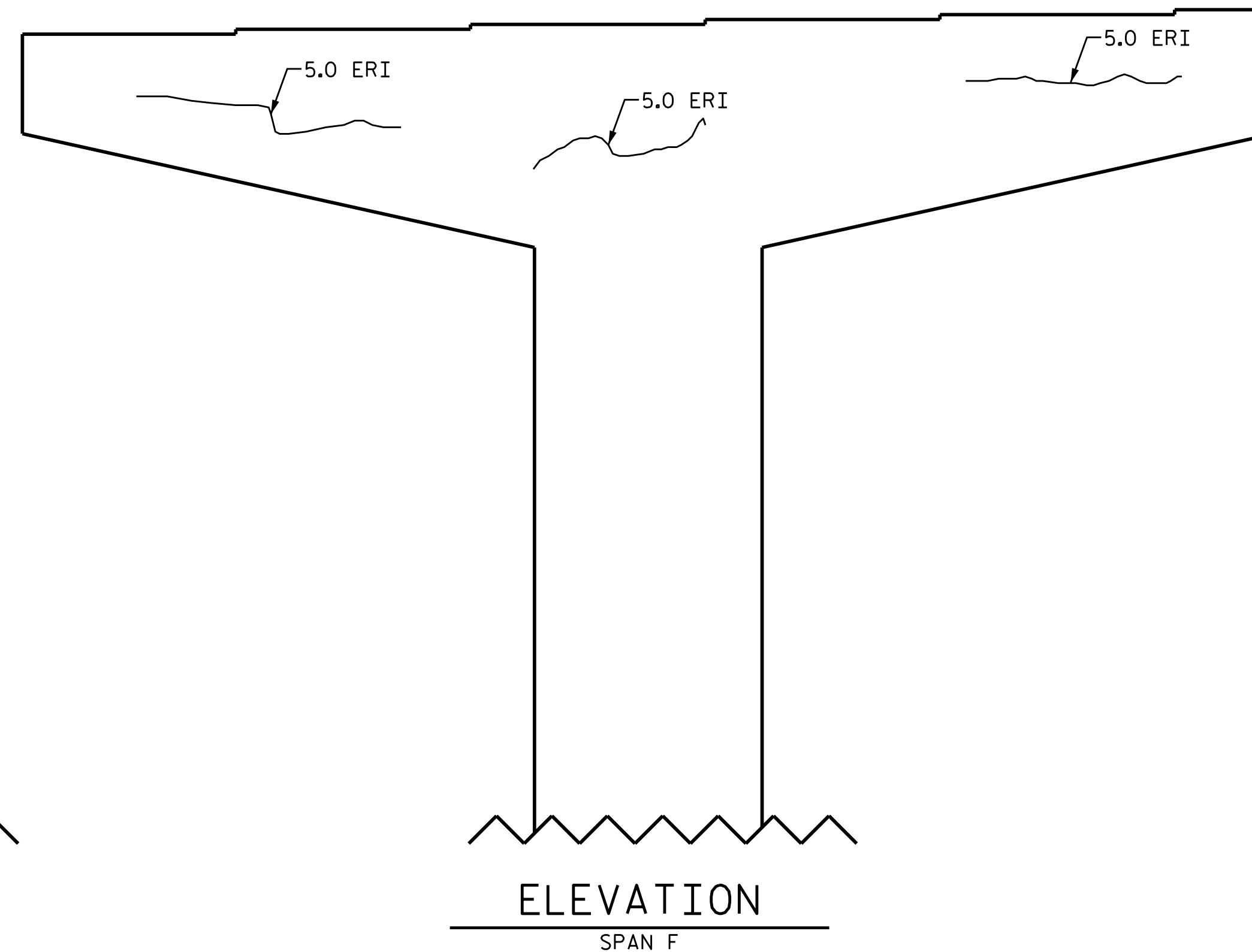


ELEVATION
SPAN E

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



END VIEW
SOUTH SIDE



ELEVATION
SPAN F

SPAN E
SPAN F

REPAIR QUANTITY TABLE

REPAIRS BENT 5	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		30.0			
COLUMN		0			
EPOXY COATING		AREA SF			
TOP OF CAP		176.0			

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

NOTES:

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

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

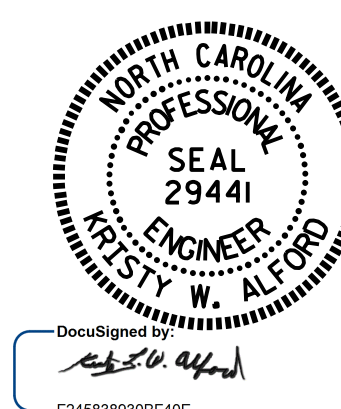
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT PAINT THE TOP SURFACE OF BENT CAPS AS A FINAL FINISH.

PROJECT NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63

SHEET 5 OF 11



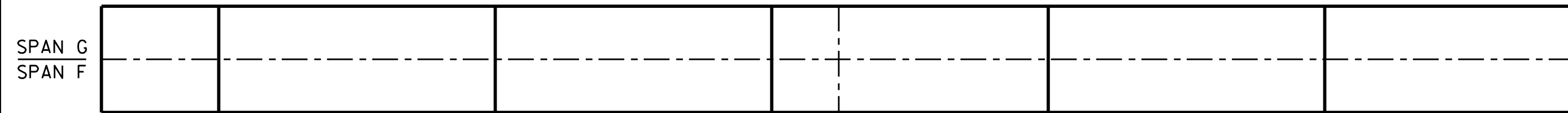
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT 5

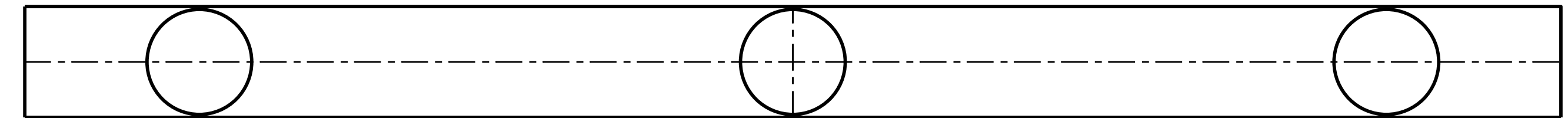
DRAWN BY : K. W. ALFORD DATE : 11/18
 CHECKED BY : O. T. NGUYEN DATE : 11/27/18

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

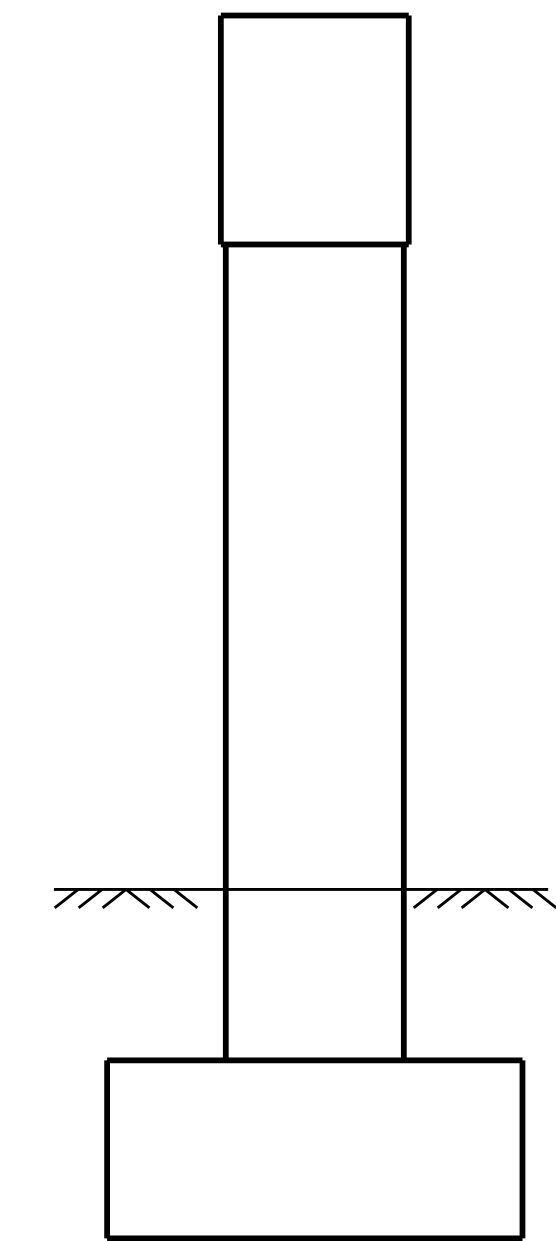
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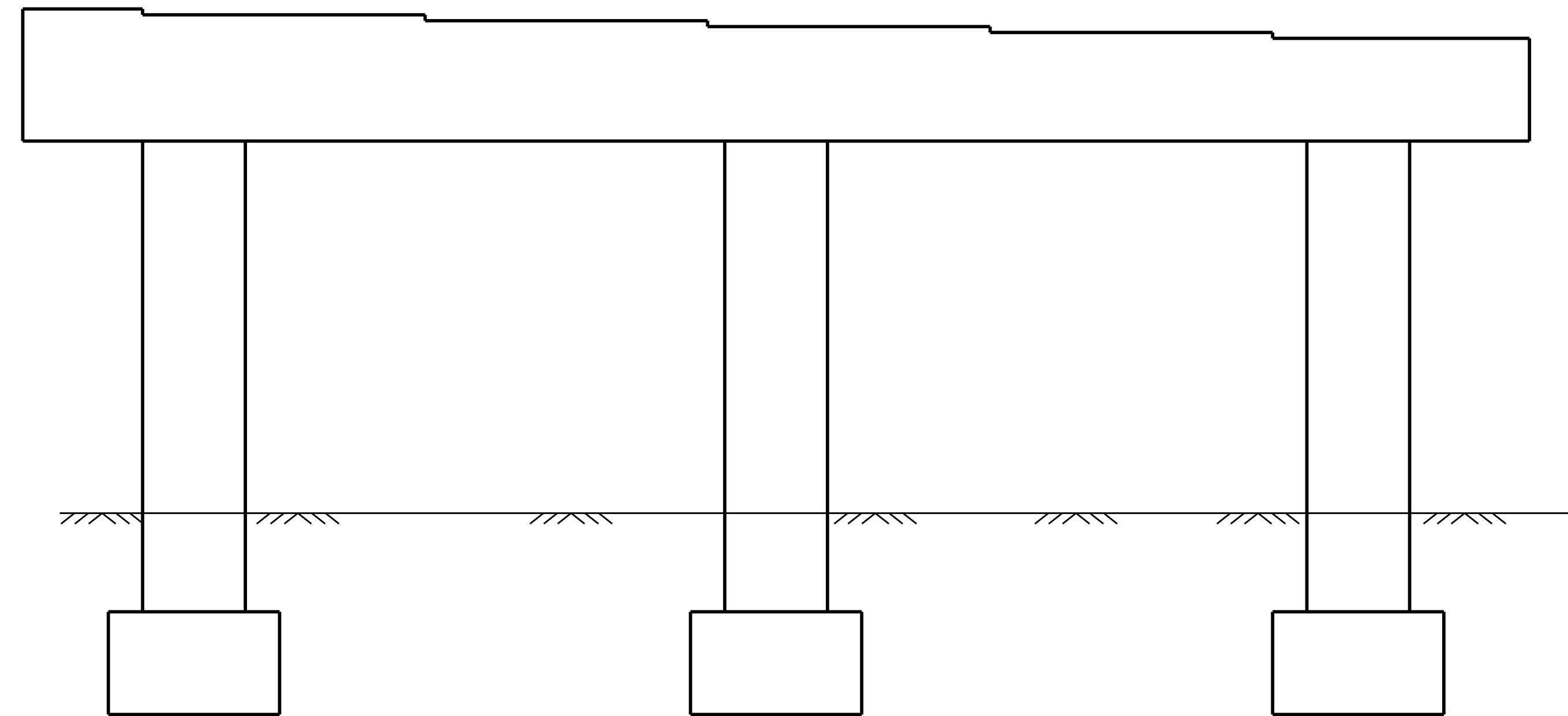
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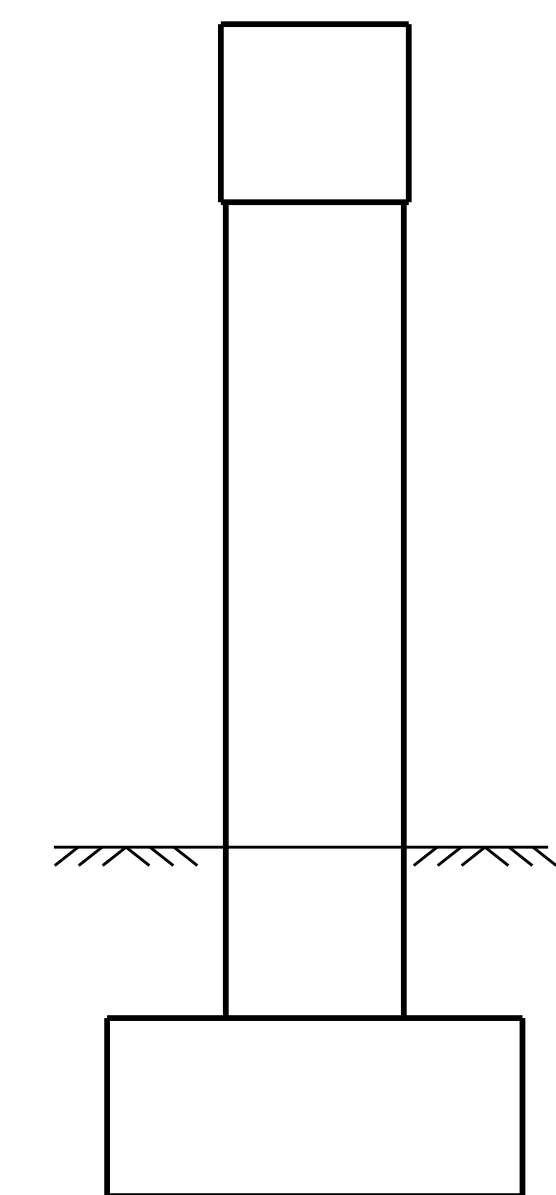
PLAN OF CAP
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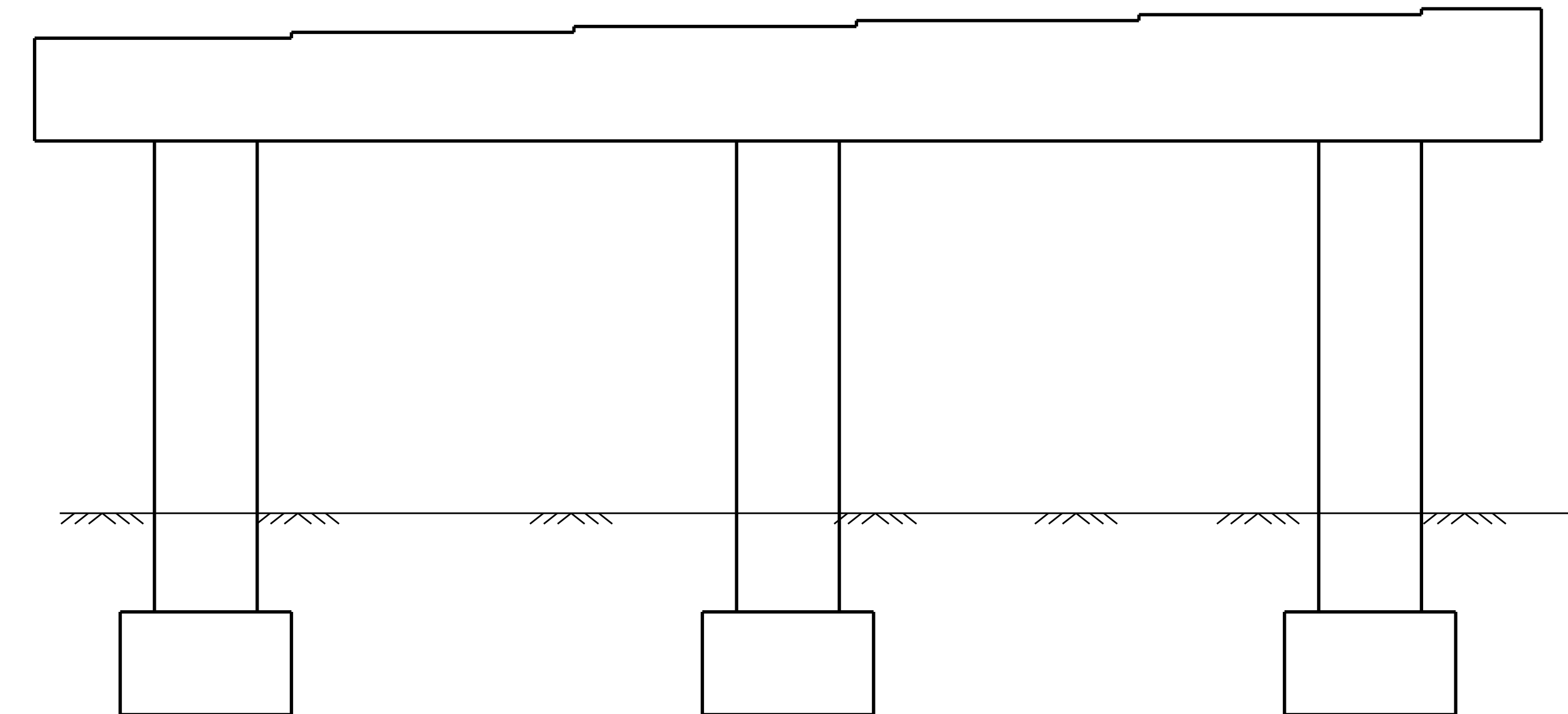
END VIEW
NORTH SIDE



ELEVATION
SPAN F



ELEVATION
SOUTH SIDE



ELEVATION
SPAN G

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

REPAIR QUANTITY TABLE					
REPAIRS BENT 6	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION			LN. FT		LN. FT
CAP			0		
COLUMN			0		
EPOXY COATING		AREA SF			
TOP OF CAP		140.0			

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

NOTES:

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

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

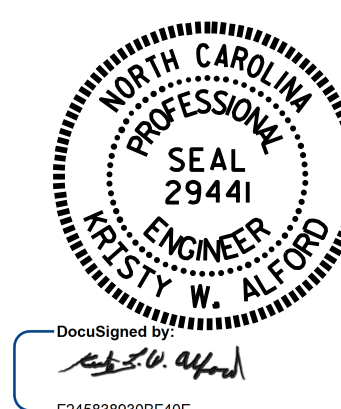
THE CONTRACTOR SHALL EPOXY COAT PAINT THE TOP SURFACE OF BENT CAPS AS A FINAL FINISH.

PROJECT NO. 15BPR.22

CASWELL COUNTY

BRIDGE NO. 63

SHEET 6 OF 11



12/21/2018

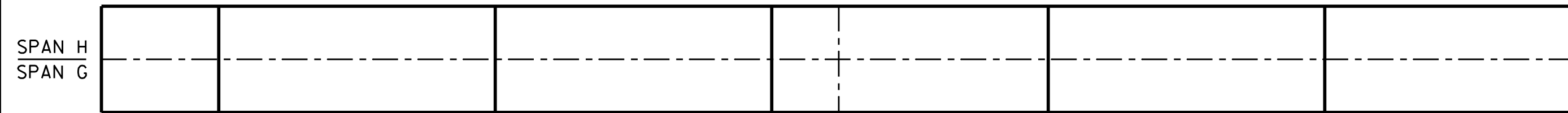
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 6

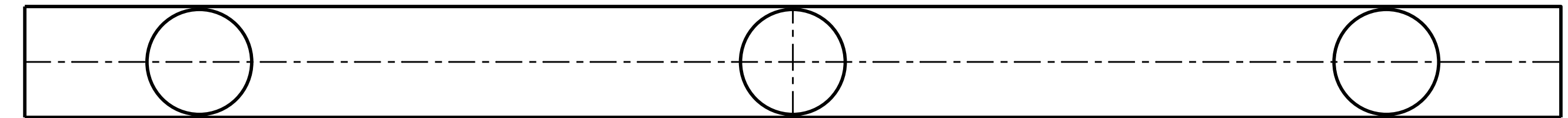
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			14

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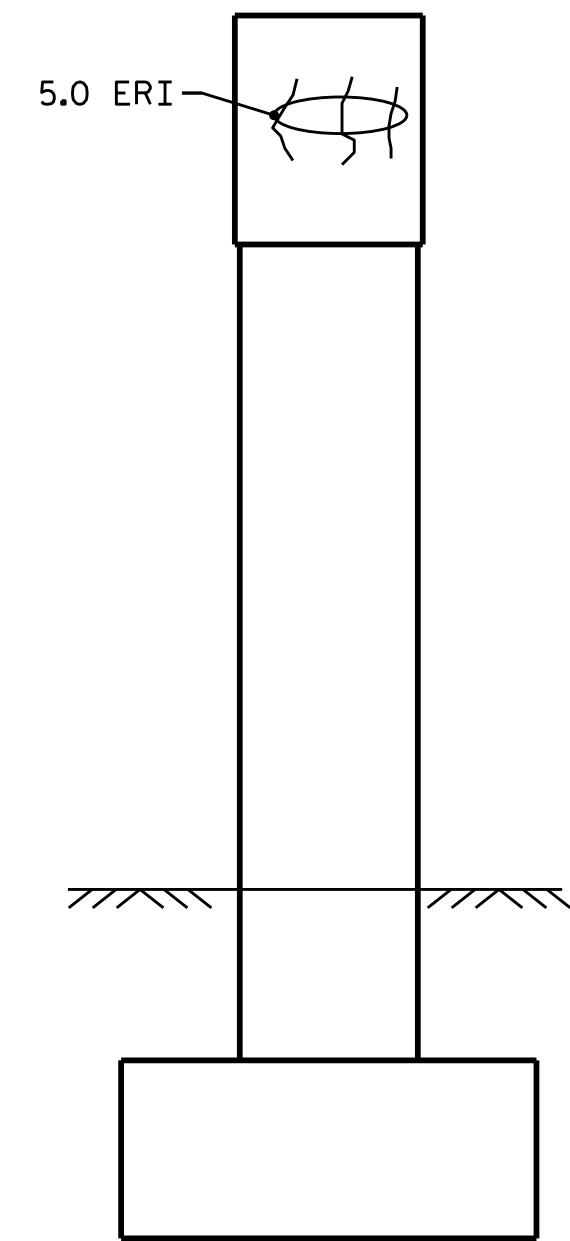
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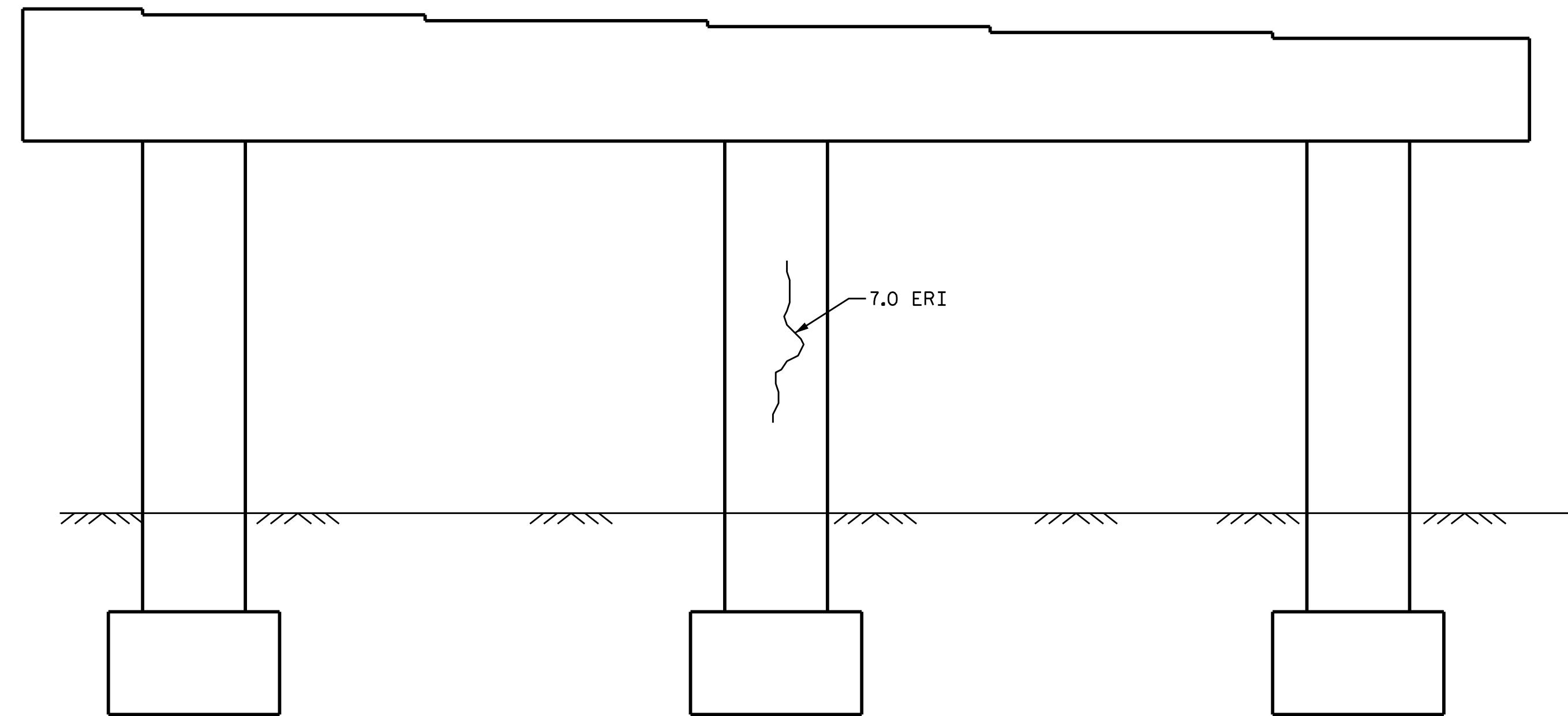
PLAN OF CAP
TOP OF CAP



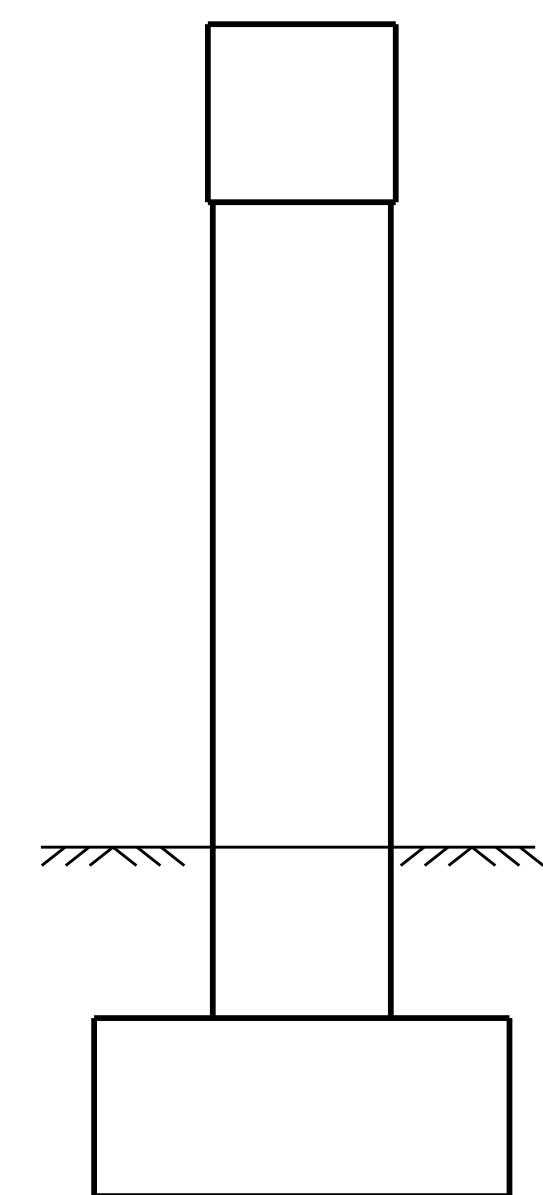
PLAN OF CAP
BOTTOM OF CAP



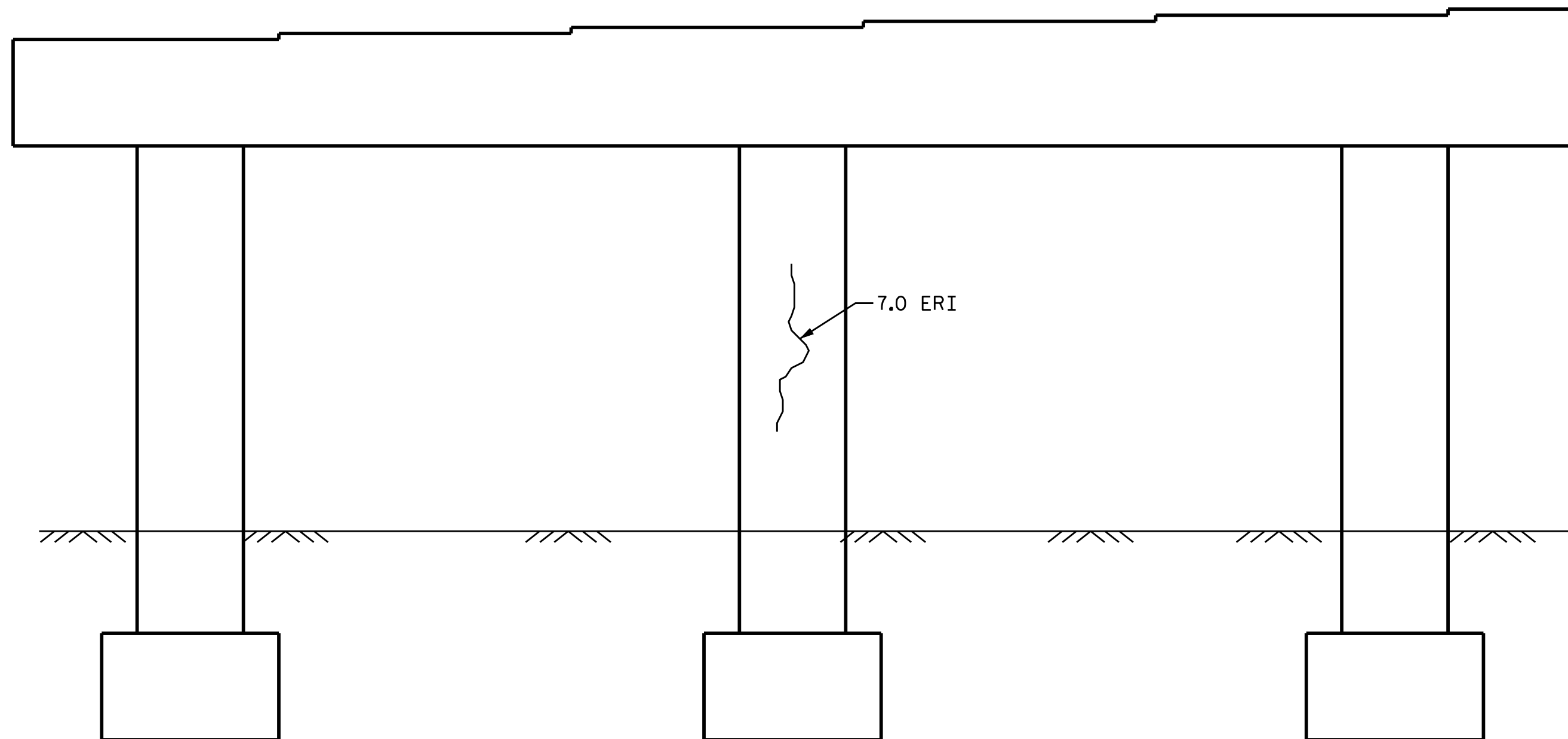
END VIEW
NORTH SIDE



ELEVATION
SPAN G



ELEVATION
SOUTH SIDE



ELEVATION
SPAN H

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

REPAIR QUANTITY TABLE					
REPAIRS BENT 7	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION			LN. FT		LN. FT
CAP			5.0		
COLUMN			14.0		
EPOXY COATING			AREA SF		
TOP OF CAP			140.0		

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

NOTES:

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FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

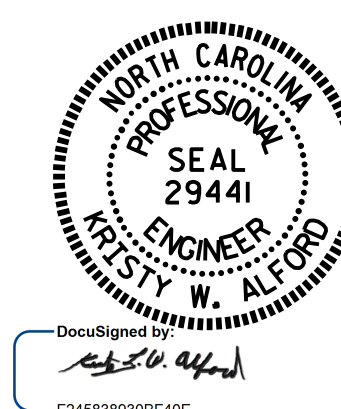
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT PAINT THE TOP SURFACE OF BENT CAPS AS A FINAL FINISH.

PROJECT NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63

SHEET 7 OF 11

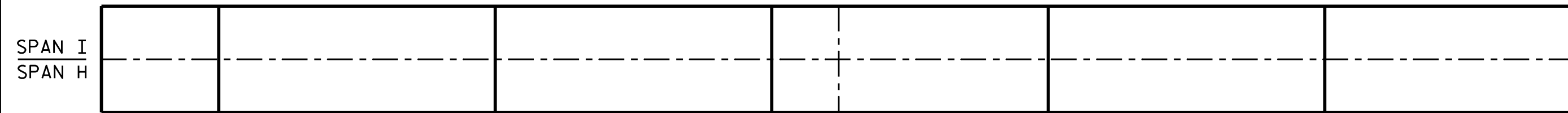


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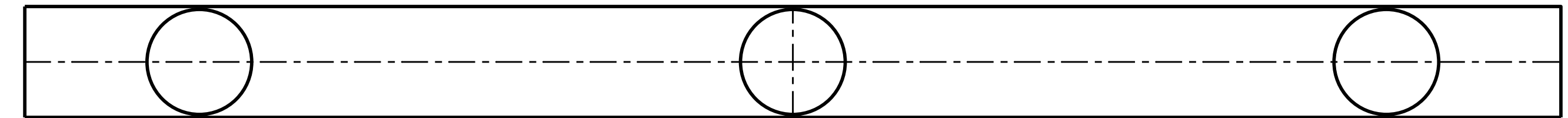
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BENT 7					
REVISIONS					SHEET NO.
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1			3		
2			4		
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					TOTAL SHEETS 14

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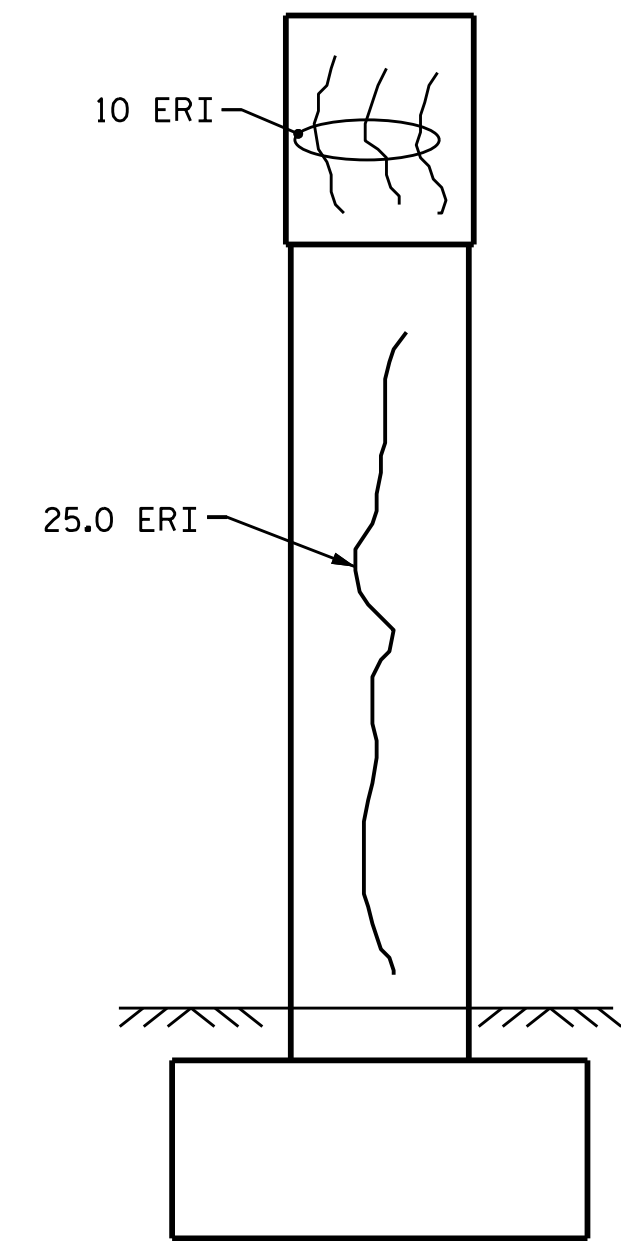
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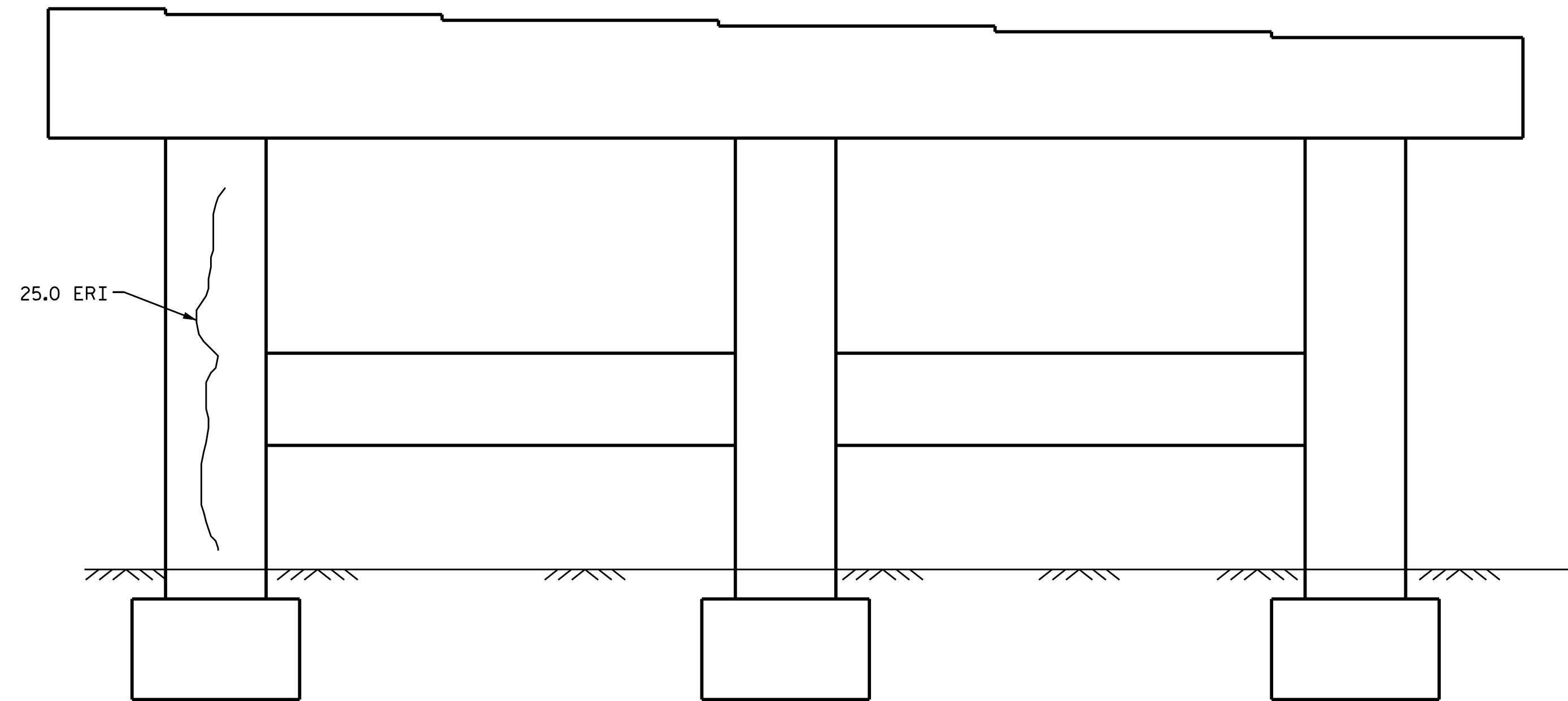
PLAN OF CAP
TOP OF CAP



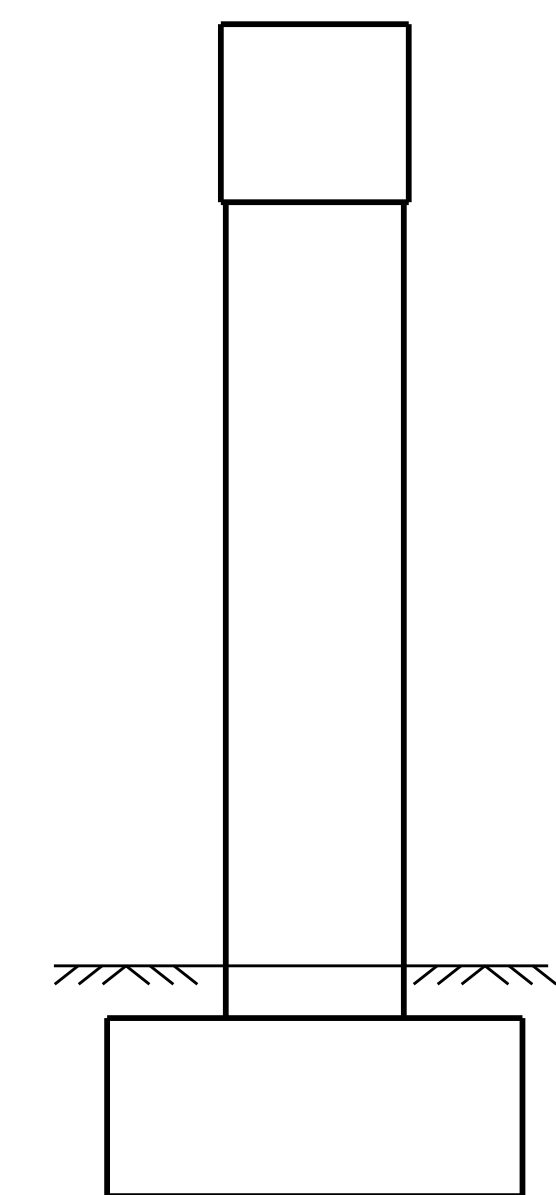
PLAN OF CAP
BOTTOM OF CAP



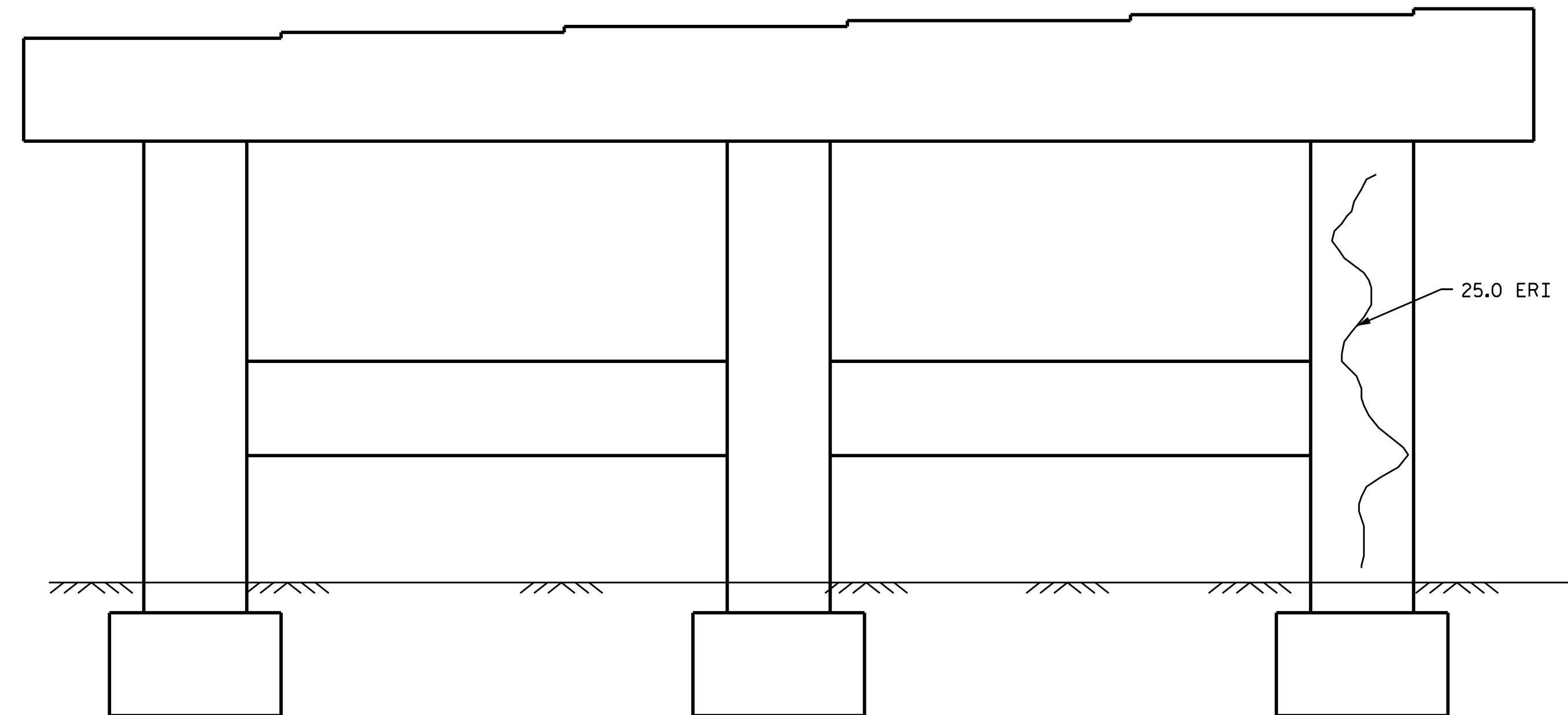
END VIEW
NORTH SIDE



ELEVATION
SPAN H



ELEVATION
SOUTH SIDE



ELEVATION
SPAN I

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

REPAIR QUANTITY TABLE					
REPAIRS BENT 8	QUANTITIES			ACTUAL	
	ESTIMATE		AREA SF	DEPTH FT	VOLUME CF
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		10.0			
COLUMN		75.0			
EPOXY COATING		AREA SF			
TOP OF CAP		140.0			

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

NOTES:

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FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

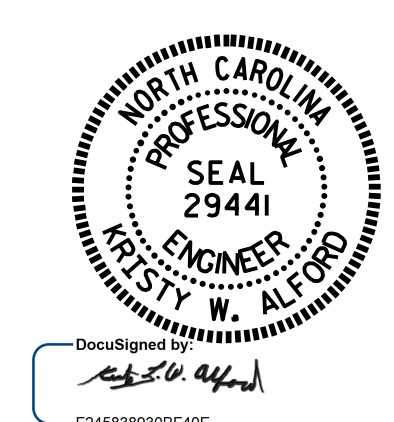
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT PAINT THE TOP SURFACE OF BENT CAPS AS A FINAL FINISH.

PROJECT NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63

SHEET 8 OF 11

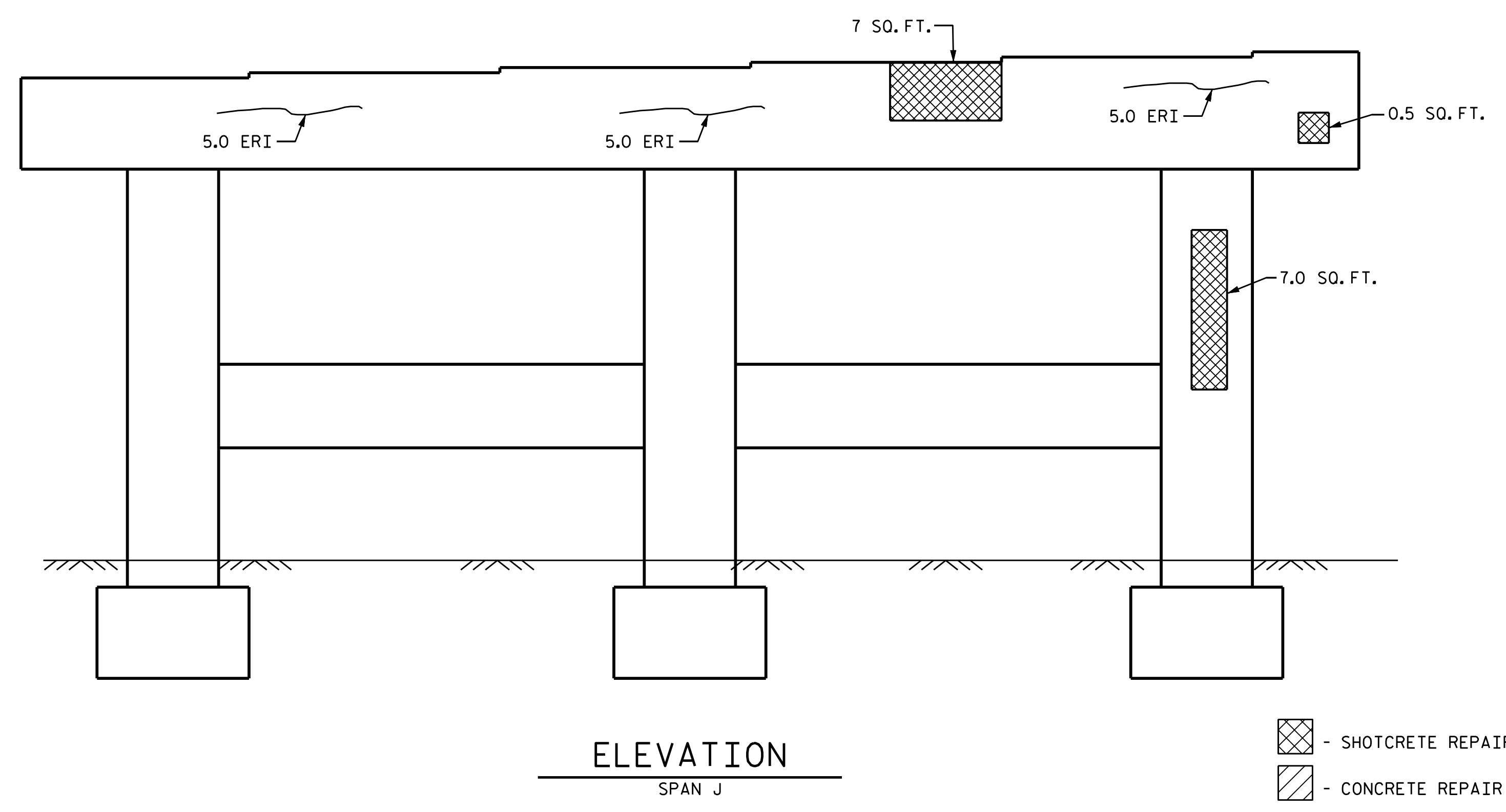
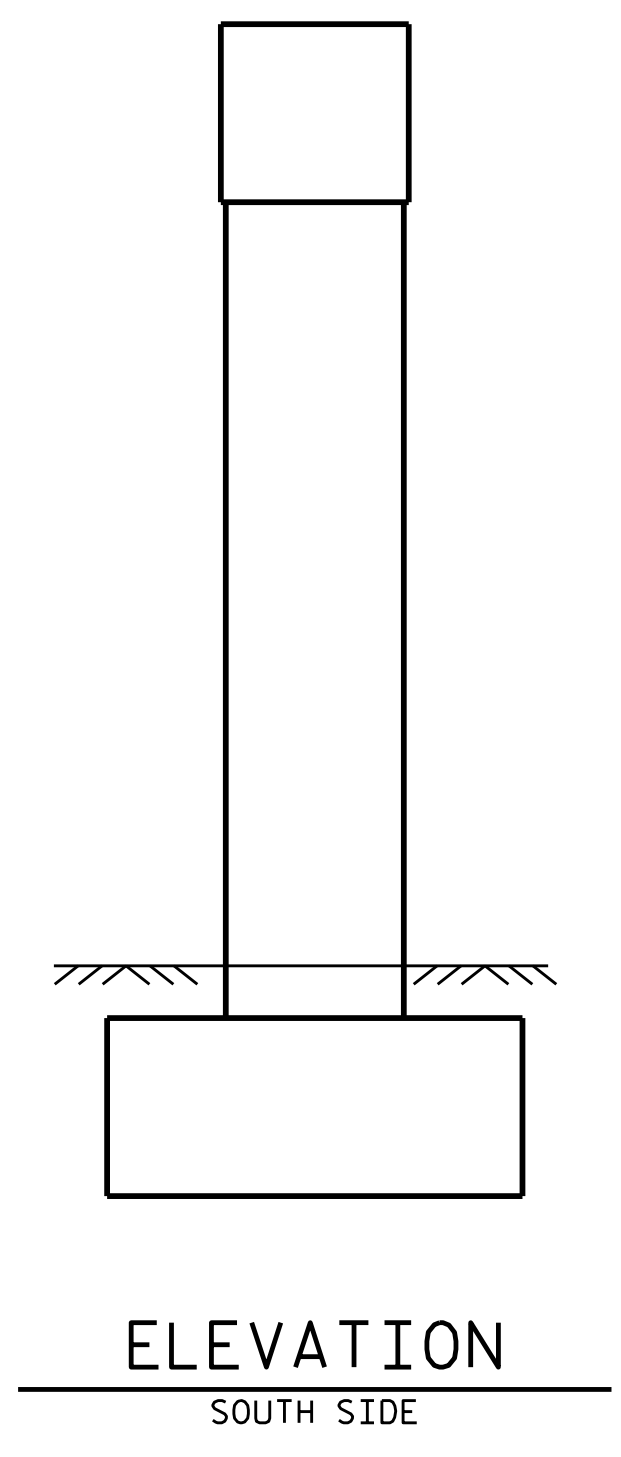
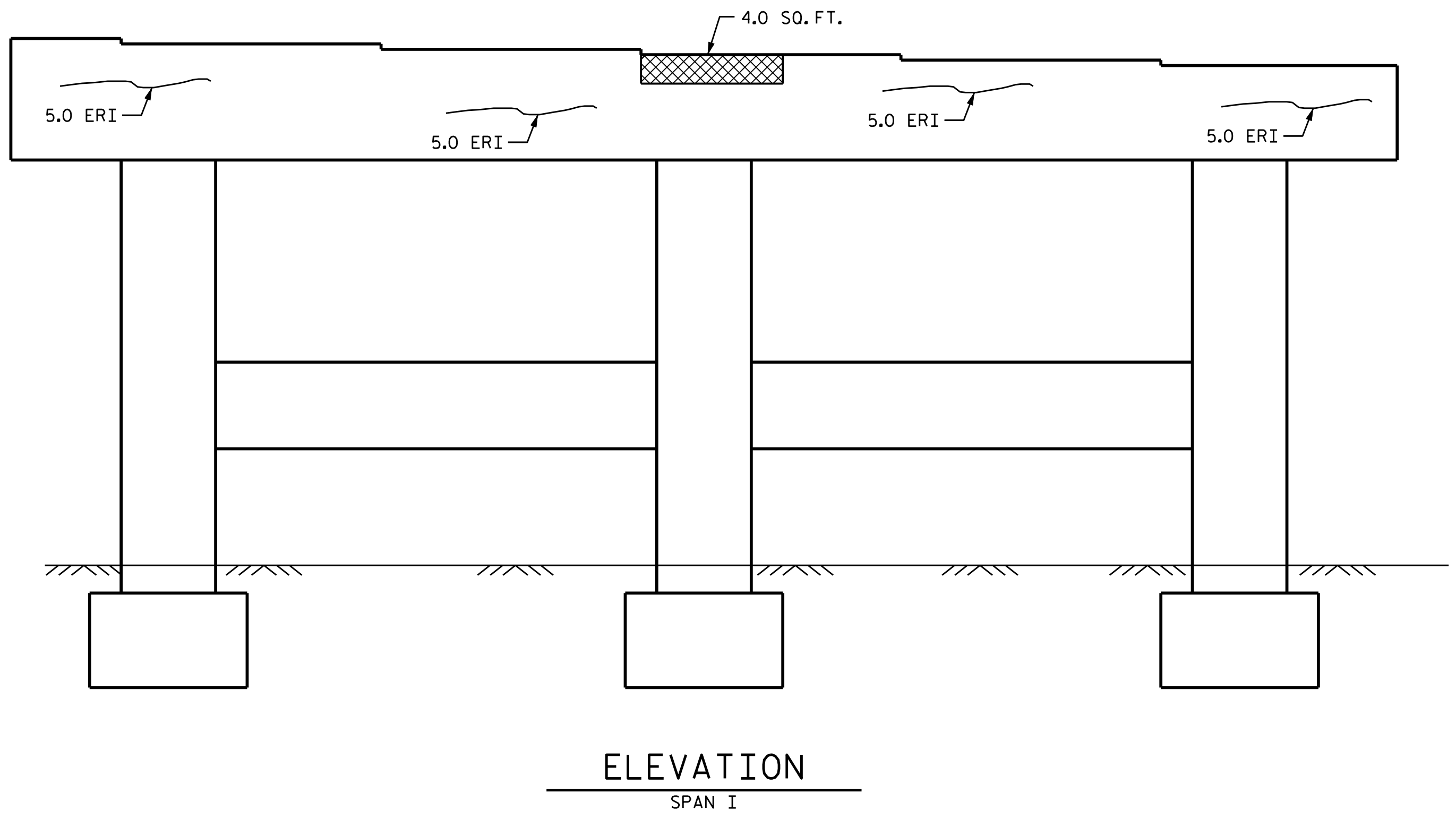
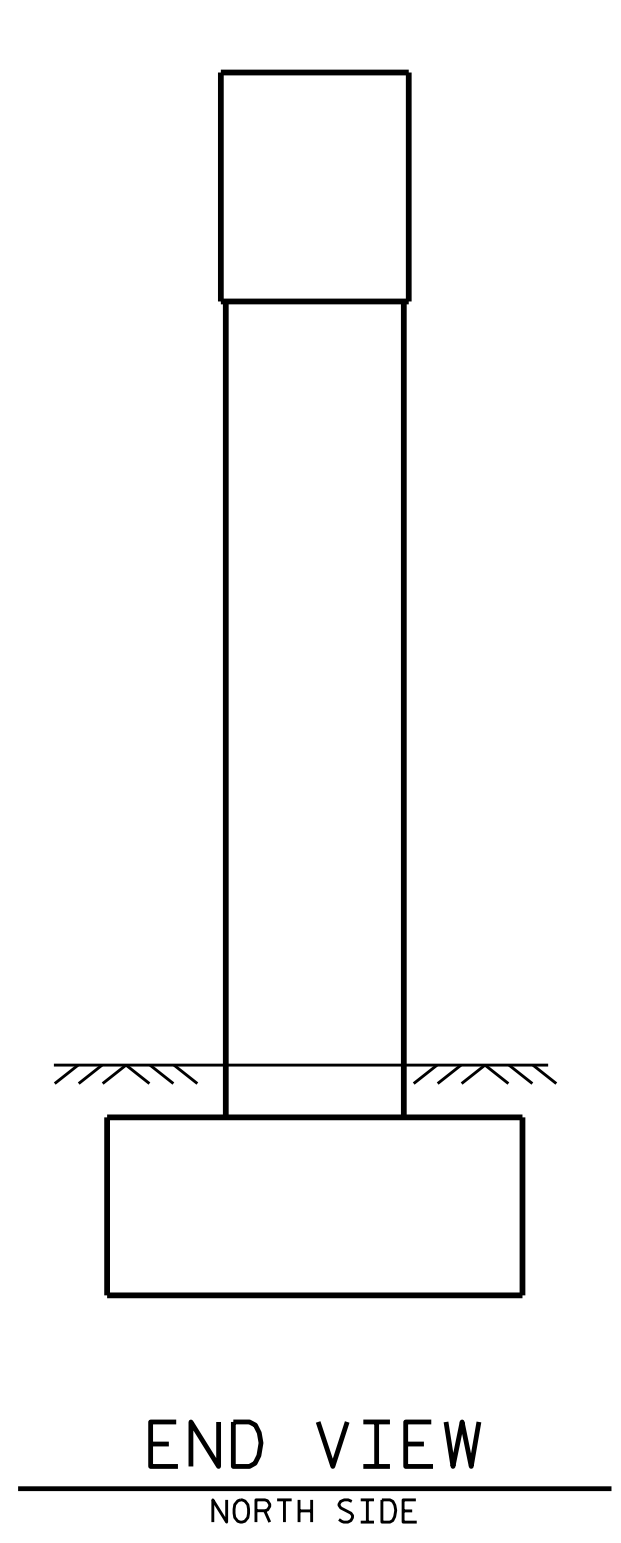
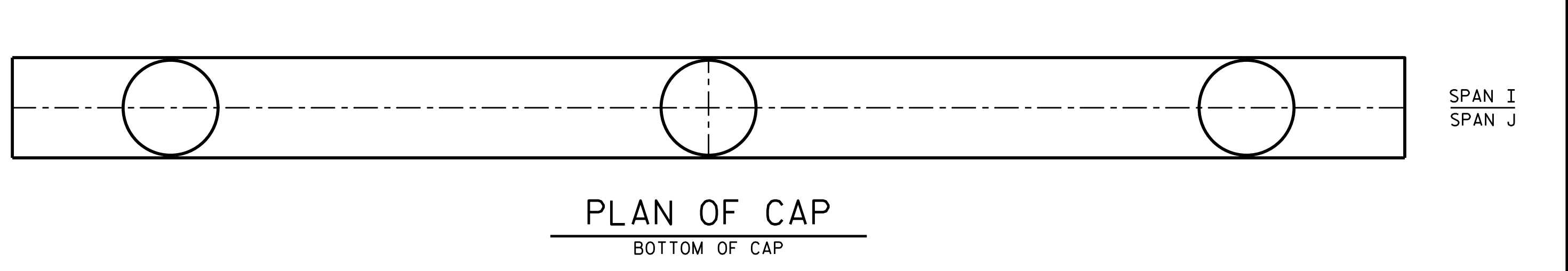
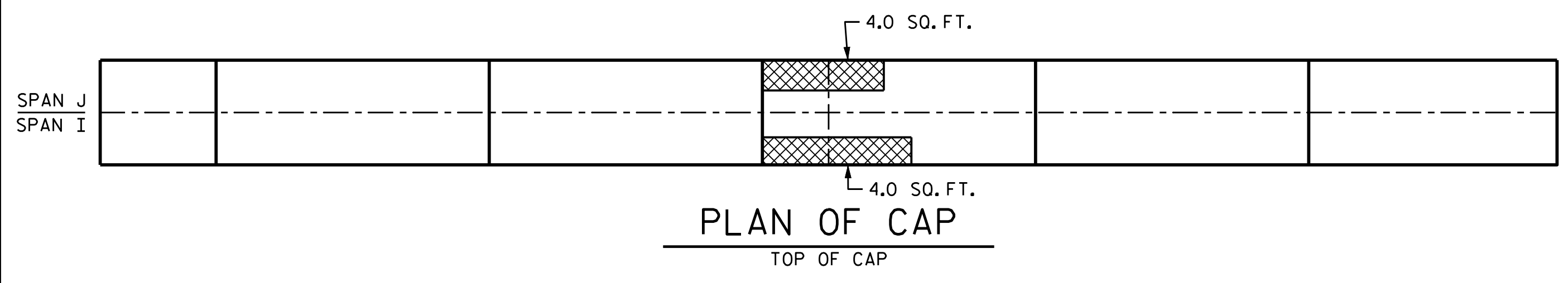


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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 8					
REVISIONS					SHEET NO.
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1			3		
2			4		
					TOTAL SHEETS 14

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 CHECKED BY : O. T. NGUYEN DATE : 11/27/18

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

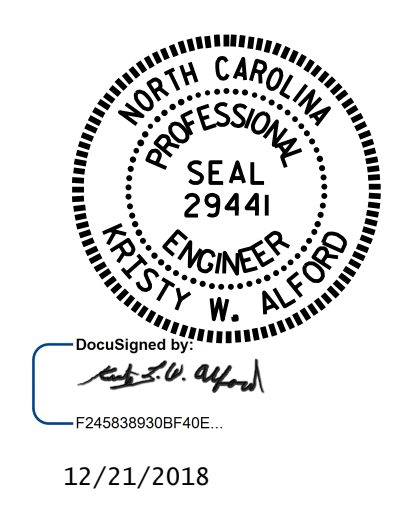
REPAIR QUANTITY TABLE					
REPAIRS BENT 9	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	11.5	5.8			
CAP (HORIZONTAL, CORNER)	8.0	4.0			
COLUMN	7.0	3.5			
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION		LN. FT			LN. FT
CAP		35.0			
COLUMN		0			
EPOXY COATING	AREA SF				
TOP OF CAP	140.0				

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

NOTES:
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 FOR EPOXY COATING, SEE SPECIAL PROVISIONS.
 FOR SUBSTRUCTURE REPAIR DETAIL, SEE "TYPICAL CAP AND COLUMN REPAIRS DETAIL" SHEET.
 FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
 SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
 FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
 THE CONTRACTOR SHALL EPOXY COAT PAINT THE TOP SURFACE OF BENT CAPS AS A FINAL FINISH.

PROJECT NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63

SHEET 9 OF 11

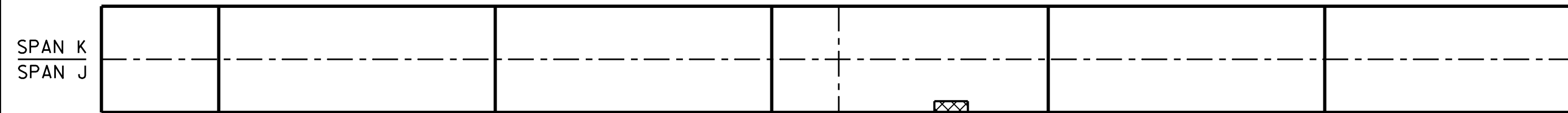


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

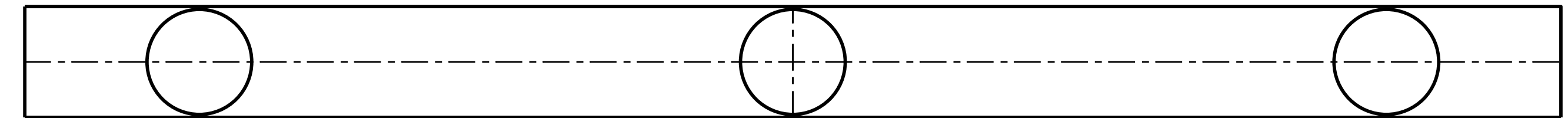
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			14

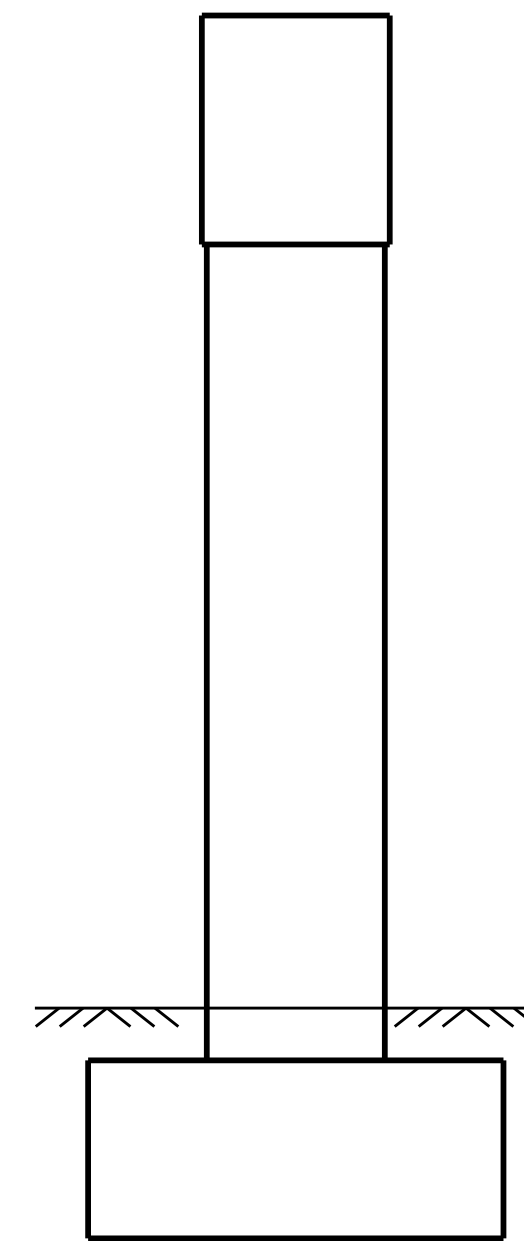
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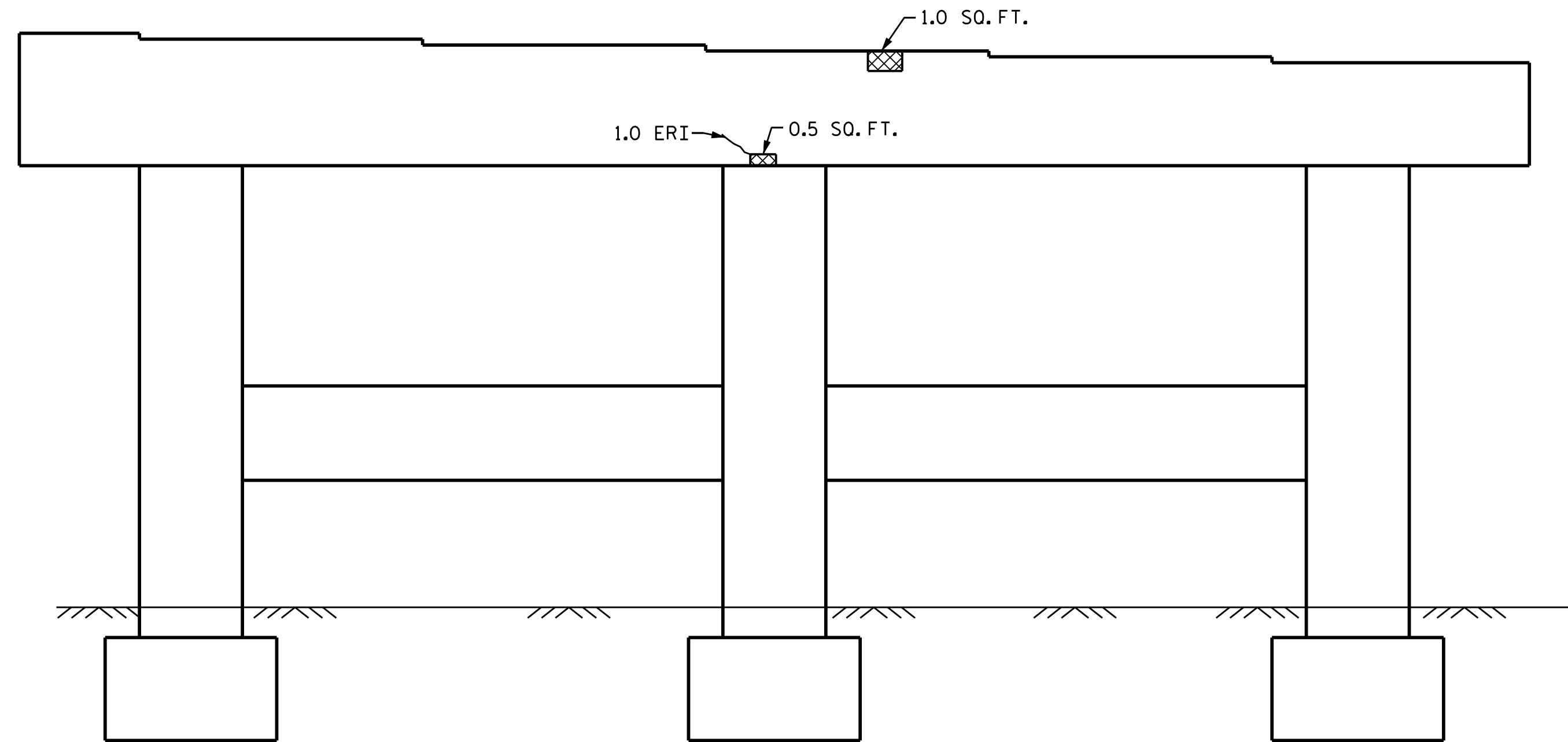
PLAN OF CAP
TOP OF CAP



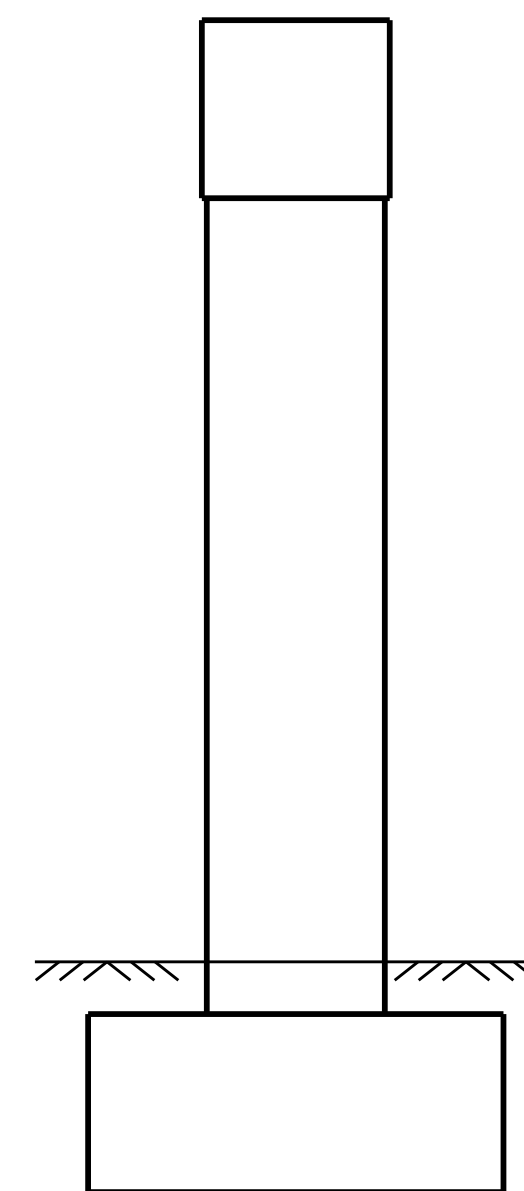
PLAN OF CAP
BOTTOM OF CAP



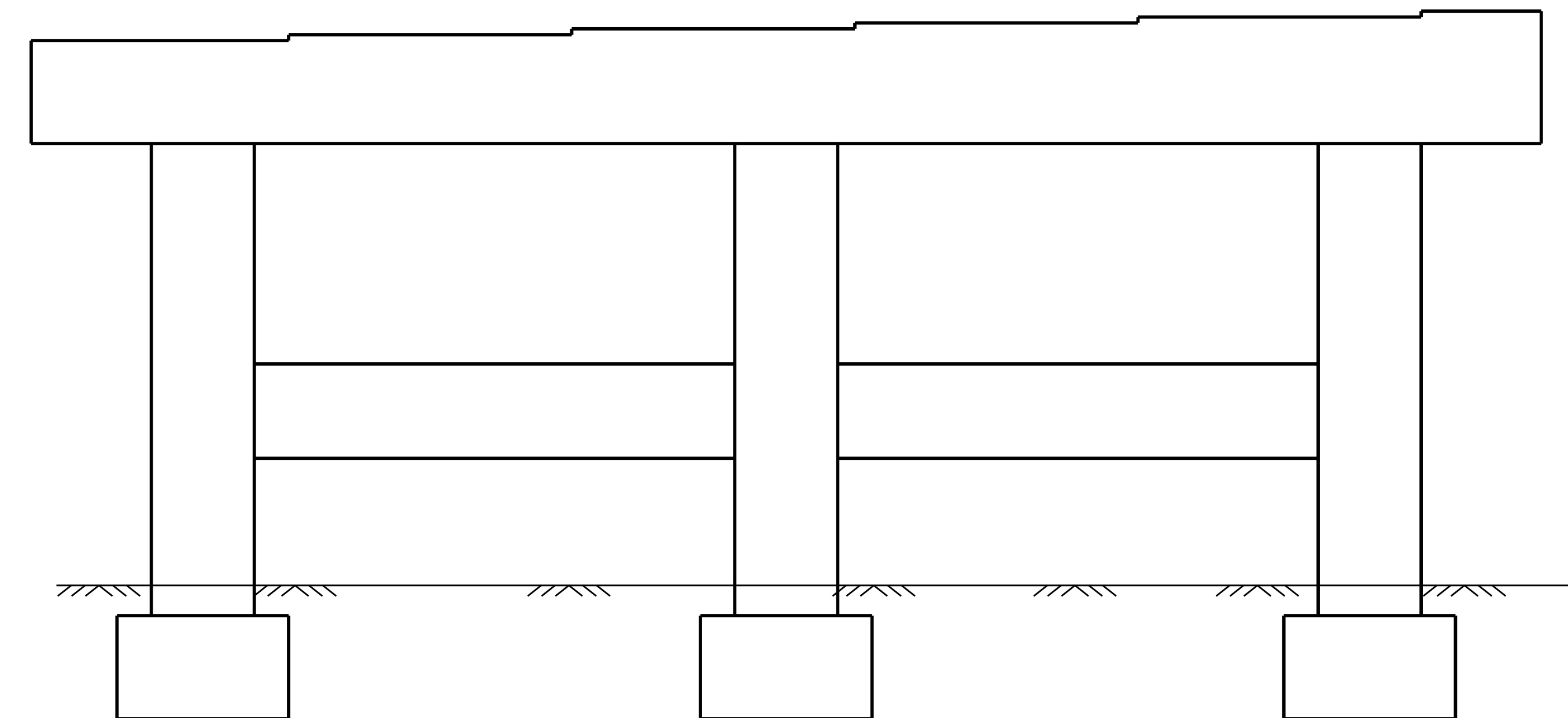
END VIEW
NORTH SIDE



ELEVATION
SPAN J



ELEVATION
SOUTH SIDE



ELEVATION
SPAN K

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

REPAIR QUANTITY TABLE					
REPAIRS BENT 10	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	1.5	0.8			
CAP (HORIZONTAL, CORNER)	0.5	0.3			
COLUMN	0	0			
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION					LN. FT
CAP					1.0
COLUMN					0
EPOXY COATING					AREA SF
TOP OF CAP					140.0

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

NOTES:

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

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

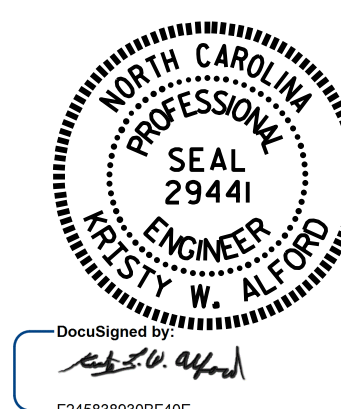
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT PAINT THE TOP SURFACE OF BENT CAPS AS A FINAL FINISH.

PROJECT NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63

SHEET 10 OF 11

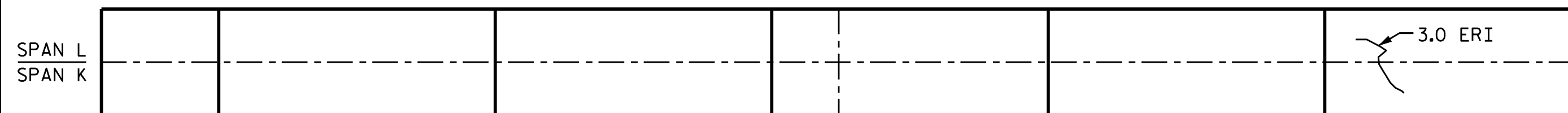


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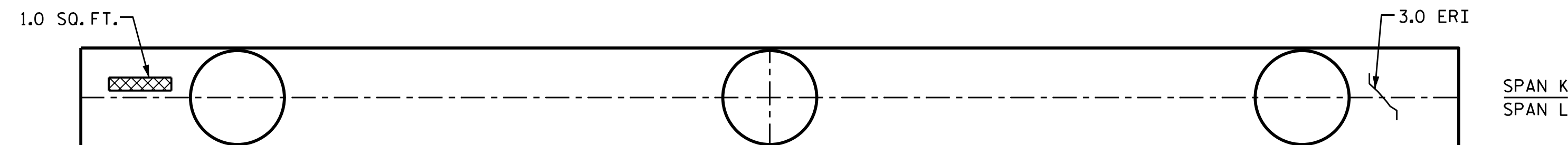
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 10					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 14

DRAWN BY : K. W. ALFORD DATE : 11/18
 CHECKED BY : O. T. NGUYEN DATE : 11/27/18

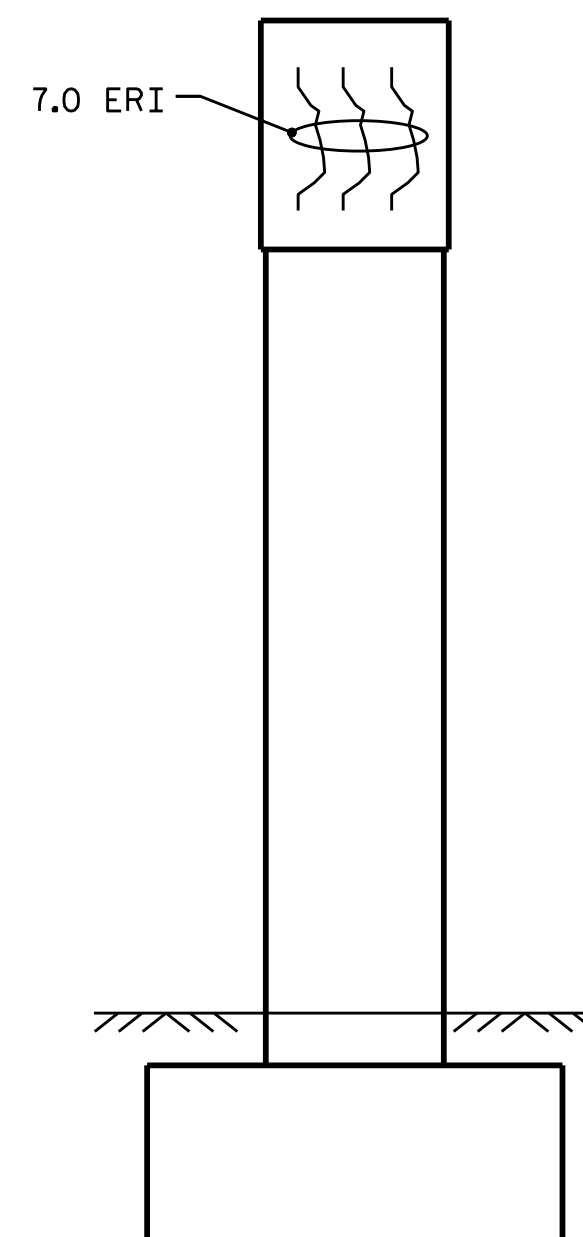
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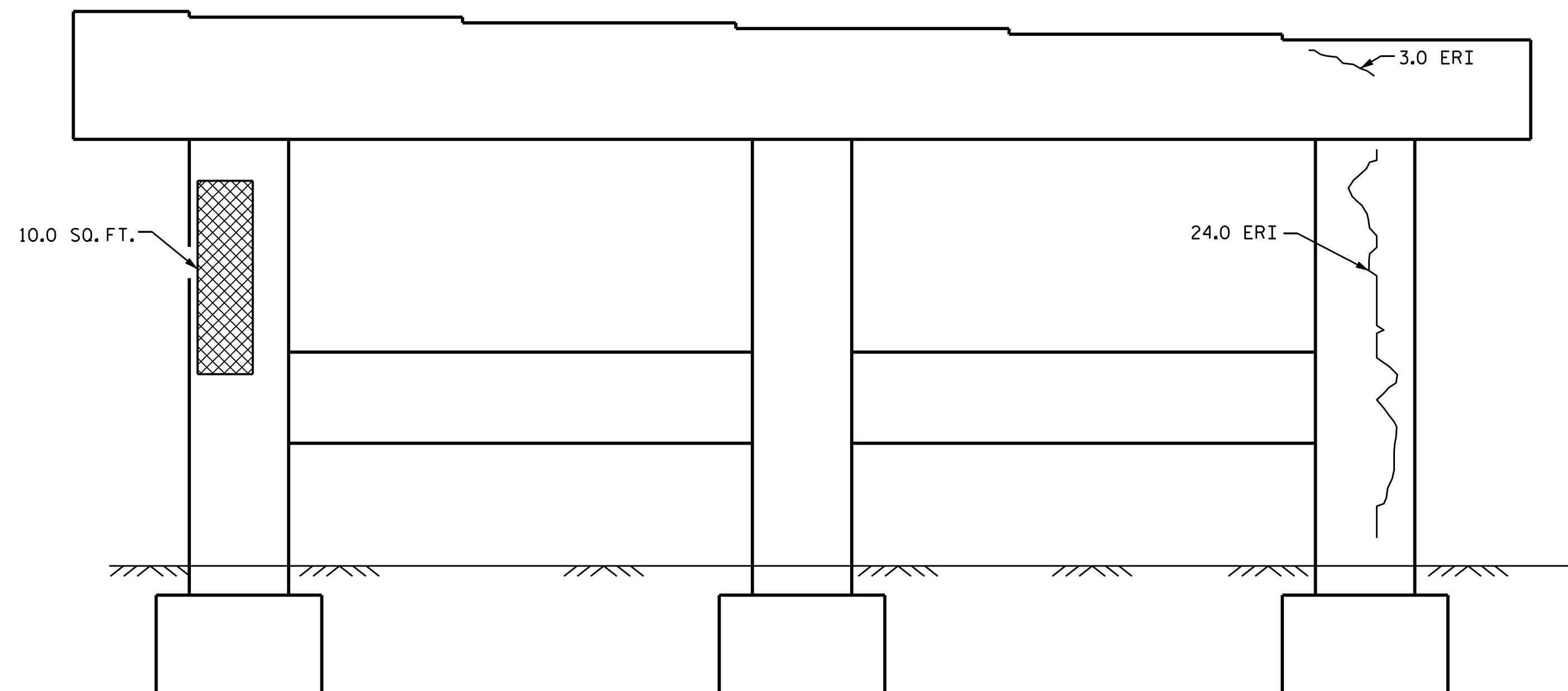
PLAN OF CAP
TOP OF CAP



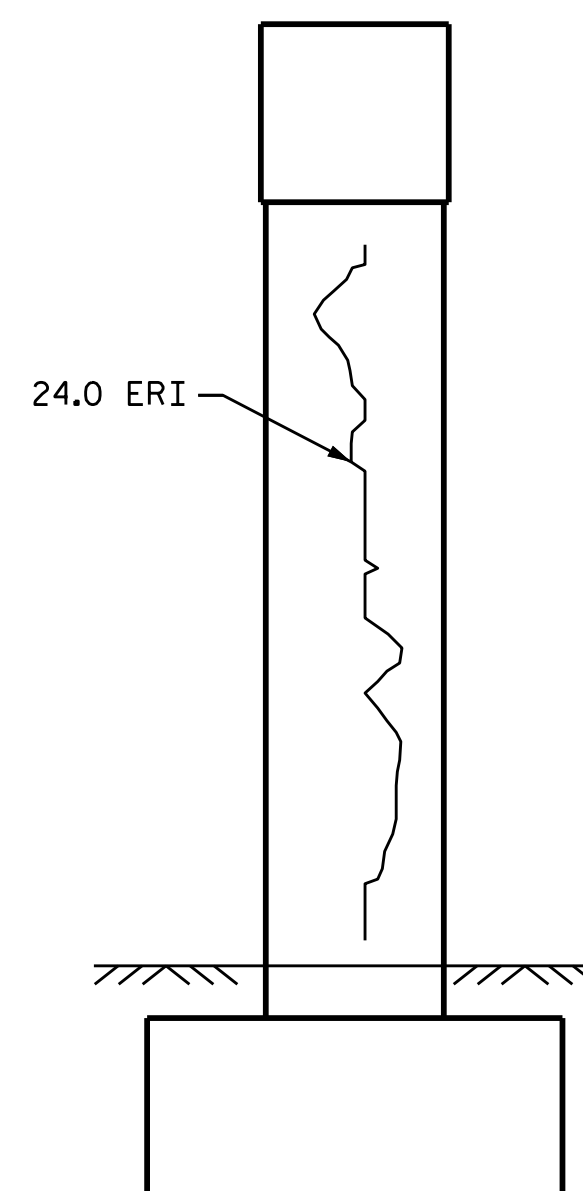
PLAN OF CAP
BOTTOM OF CAP



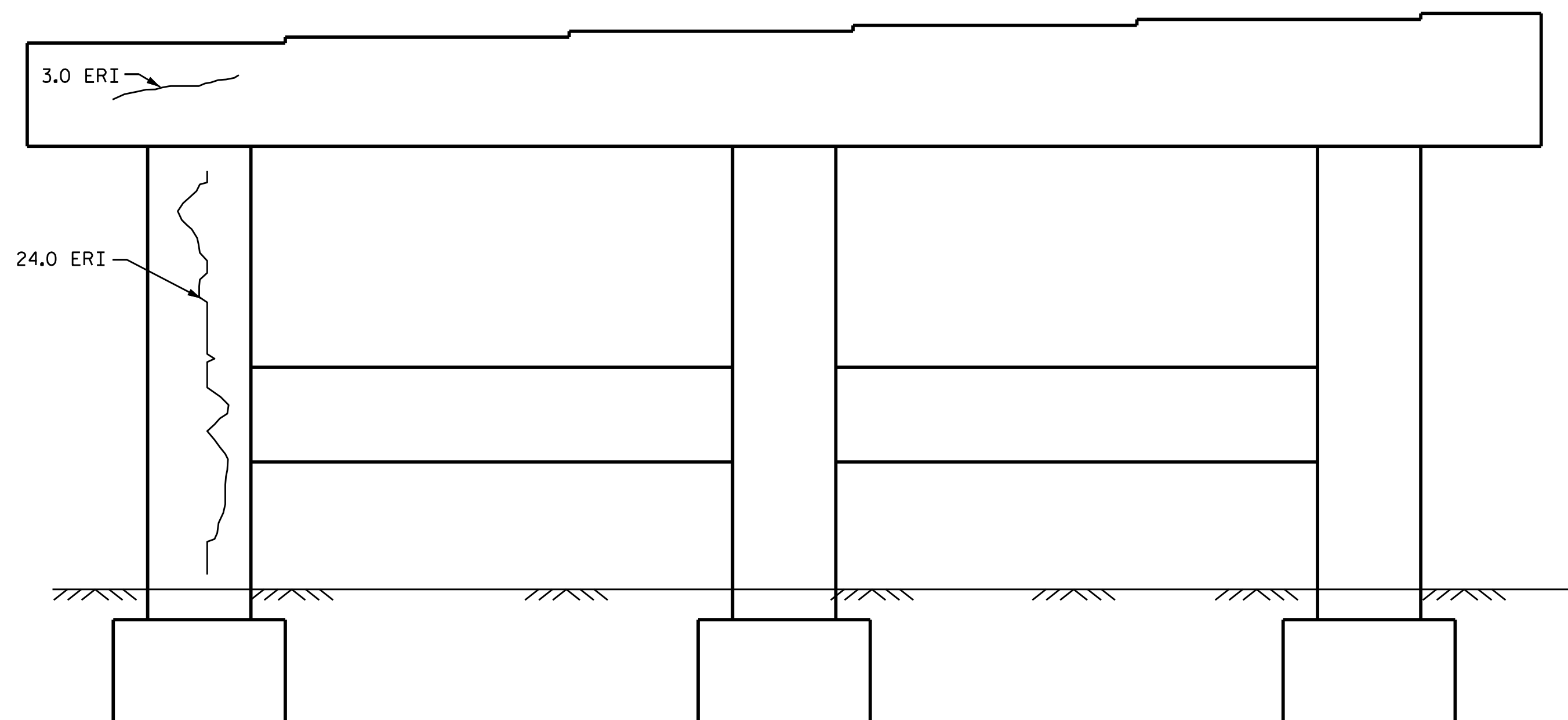
END VIEW
NORTH SIDE



ELEVATION
SPAN K



ELEVATION
SOUTH SIDE



ELEVATION
SPAN L

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

REPAIR QUANTITY TABLE					
REPAIRS BENT 11	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	1.0	0.5			
COLUMN	10.0	5.0			
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0			
CAP (HORIZONTAL, CORNER)	0	0			
COLUMN	0	0			
EPOXY RESIN INJECTION					LN. FT
CAP					13.0
COLUMN					72.0
EPOXY COATING					AREA SF
TOP OF CAP					140.0

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

NOTES:

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

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

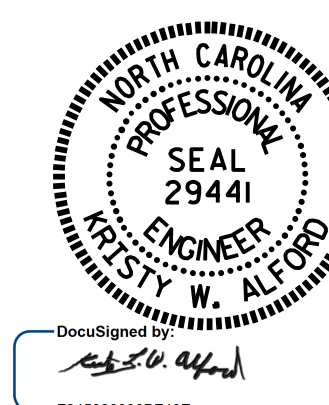
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT PAINT THE TOP SURFACE OF BENT CAPS AS A FINAL FINISH.

PROJECT NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63

SHEET 11 OF 11



12/21/2018

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 11					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
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DRAWN BY : K. W. ALFORD DATE : 11/18
 CHECKED BY : O. T. NGUYEN DATE : 11/27/18

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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 30% OF A CAP OR COLUMN CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, 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.

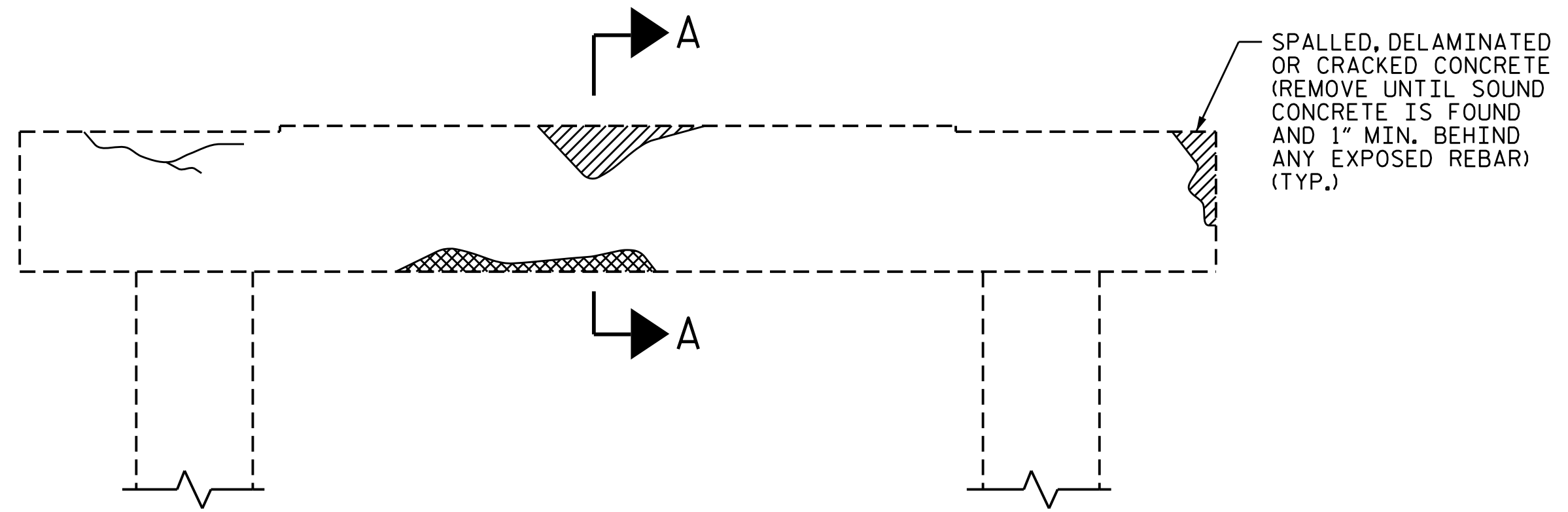
COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING, OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

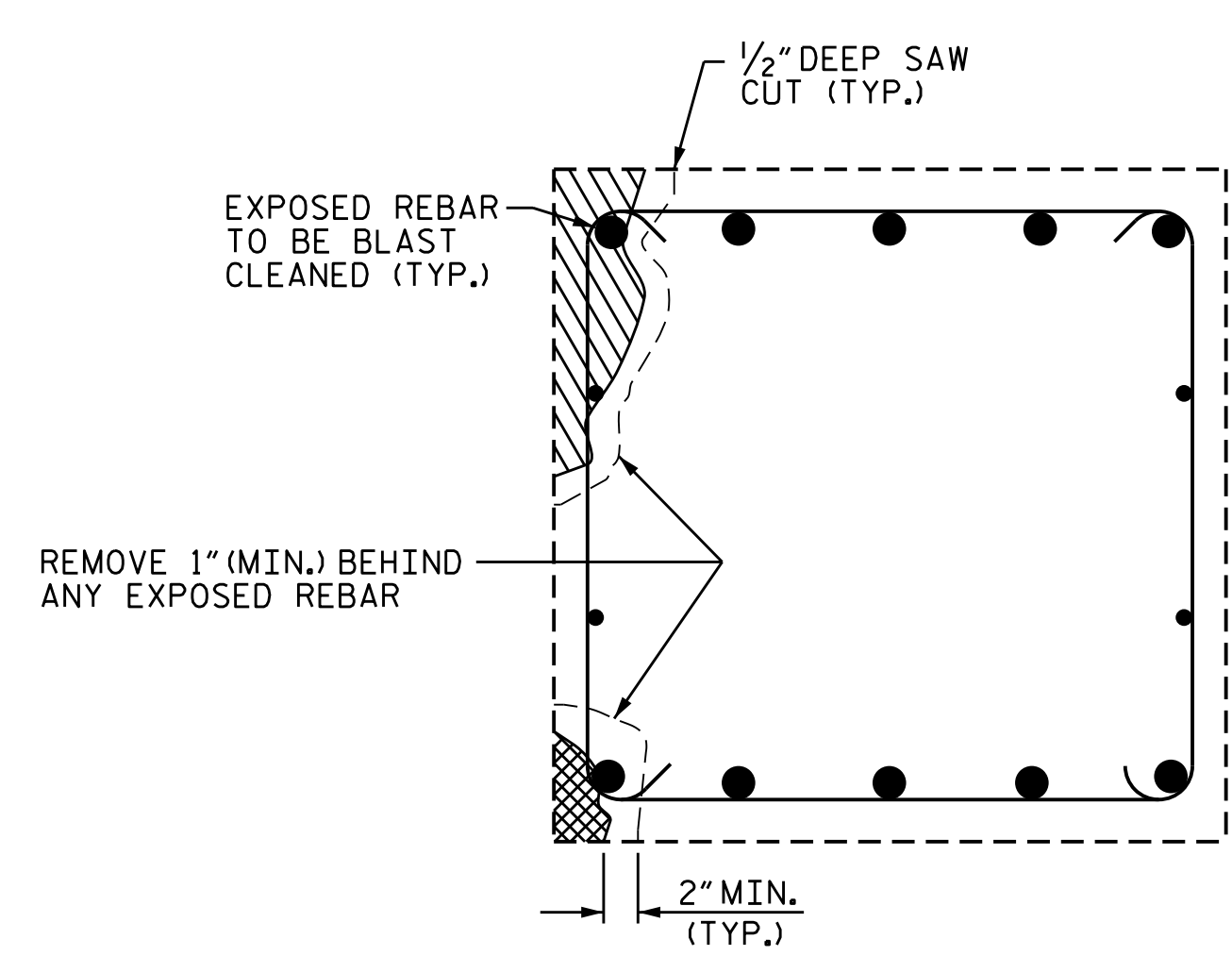
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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

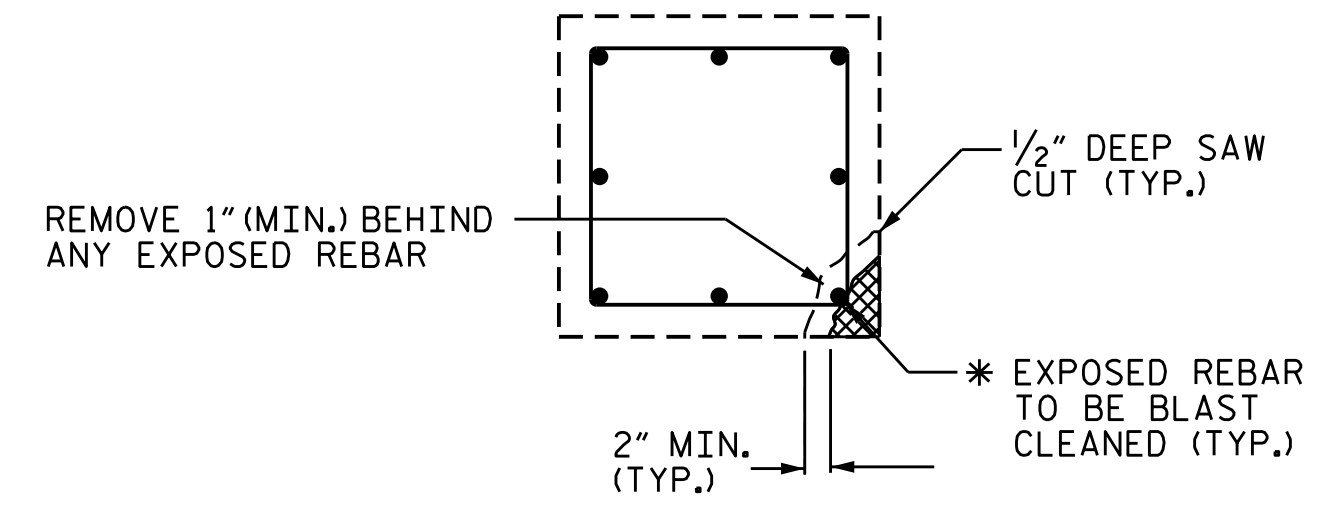


BENT CAP REPAIRS



SECTION A-A

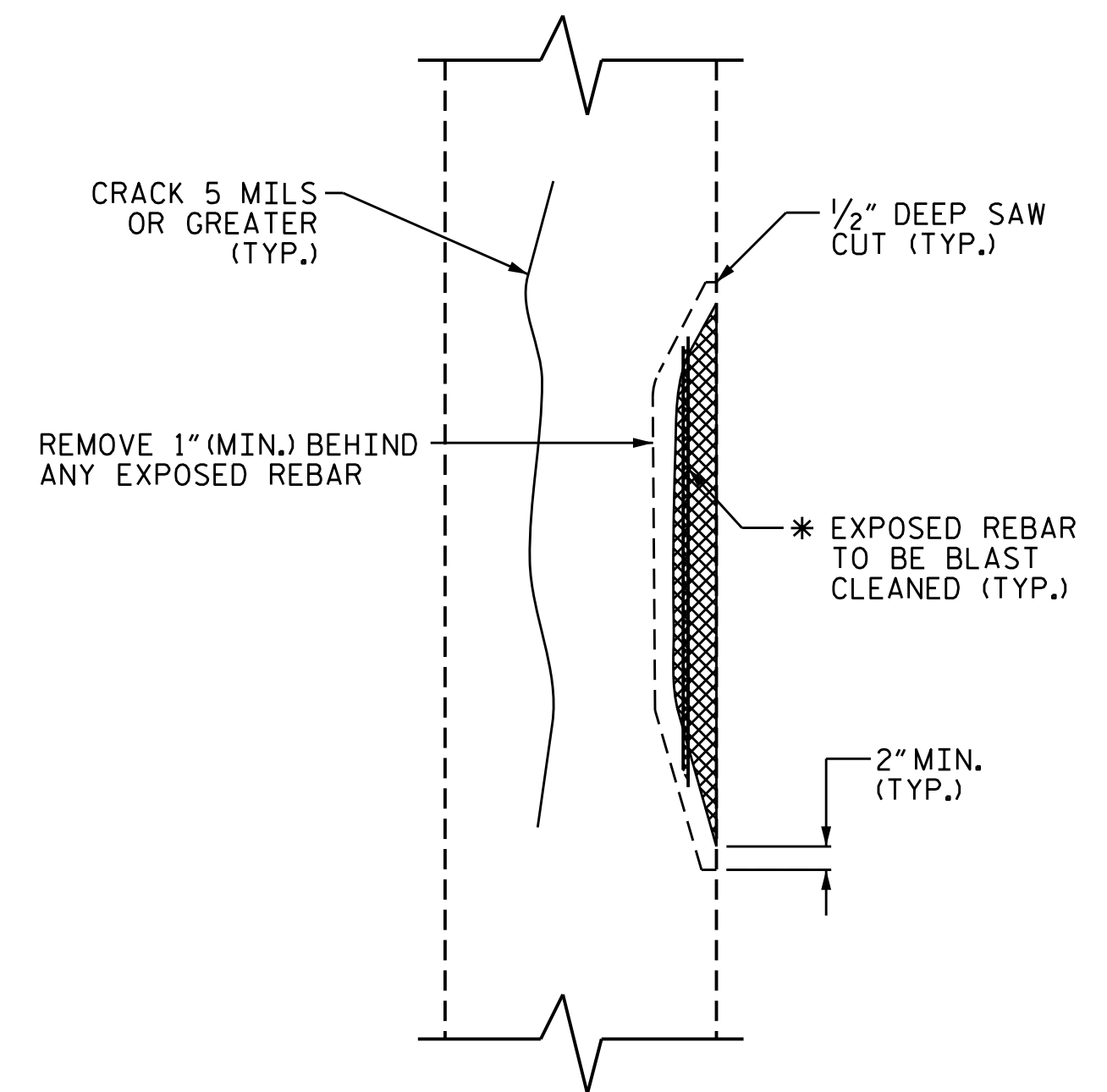
CAP REPAIR



PLAN OF COLUMN

REPAIR KEY

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

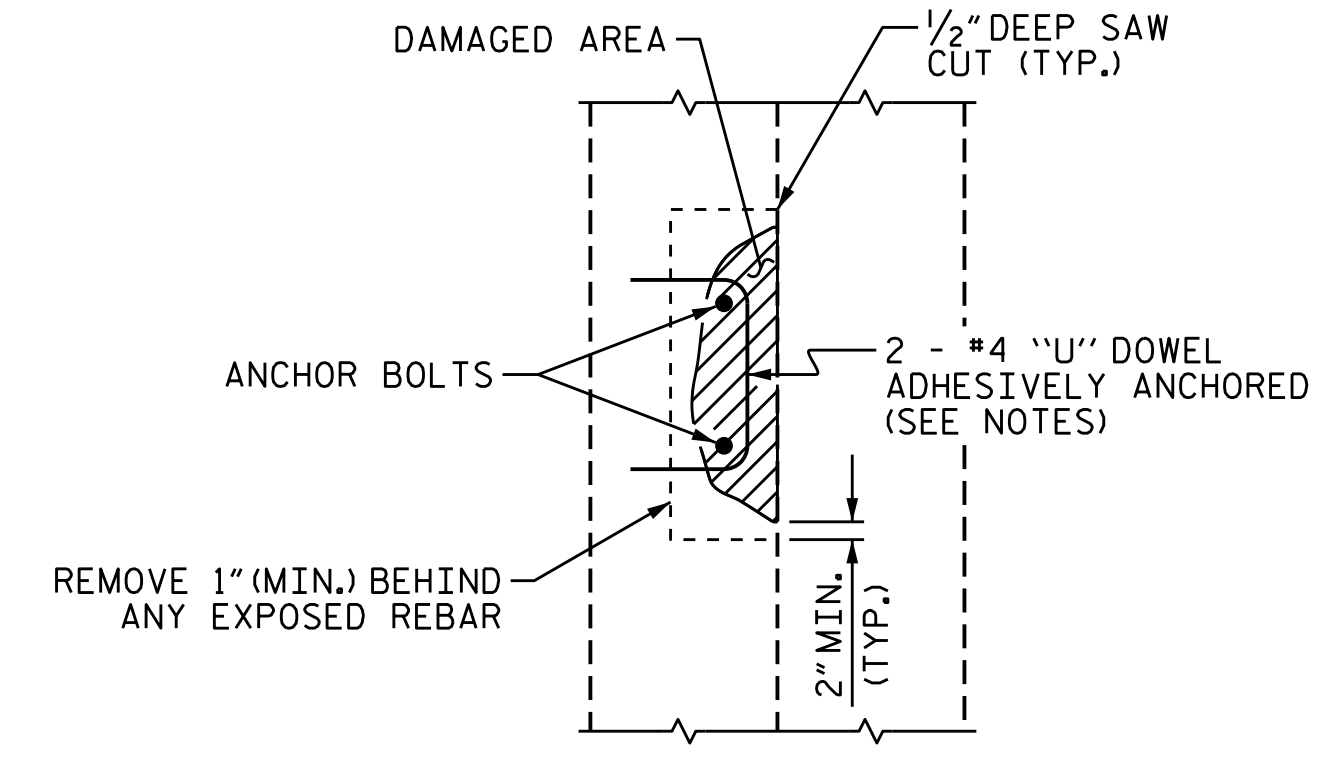


ELEVATION OF COLUMN

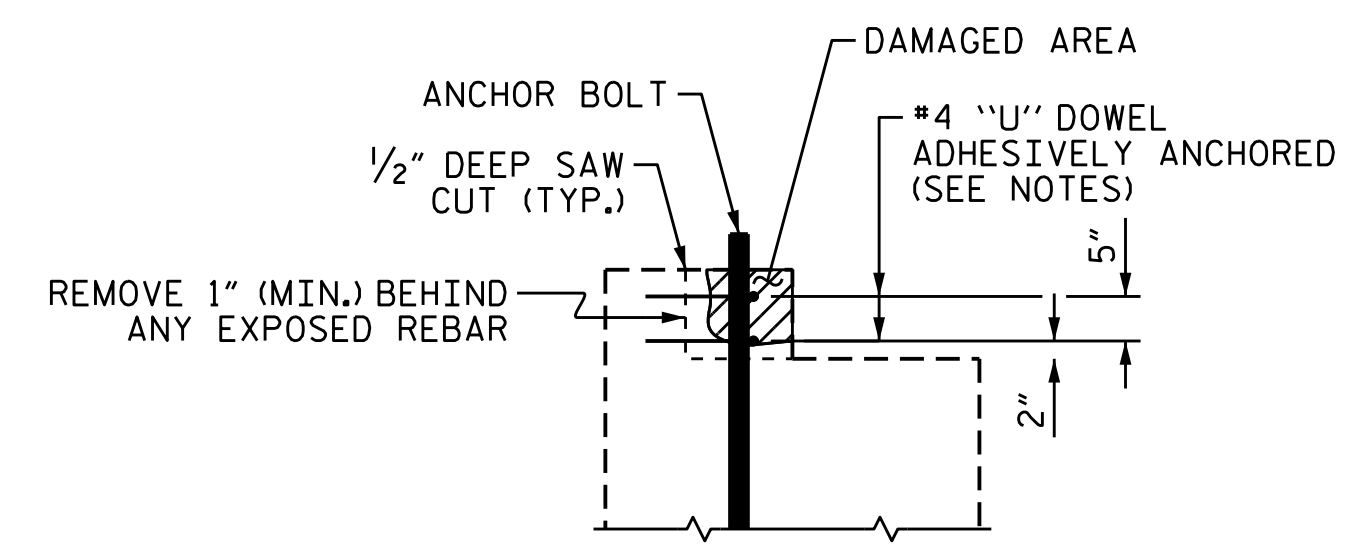
COLUMN REPAIR

* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

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



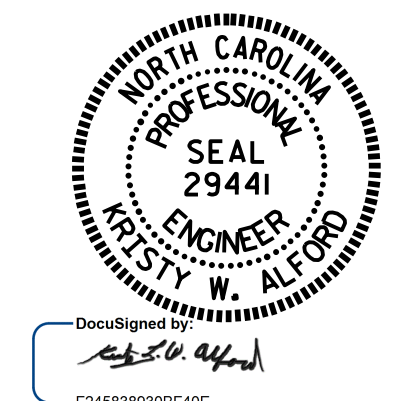
PLAN



ELEVATION

PEDESTAL WALL REPAIR

PROJ. NO. 15BPR.22
CASWELL COUNTY
 BRIDGE NO. 63



12/21/2018

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

ASSEMBLED BY : K.W. ALFORD DATE : 11/18
 CHECKED BY : O. T. NGUYEN DATE : 11/27/18
 DRAWN BY : NAP 8/18
 CHECKED BY :

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

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 $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{1}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{1}{8}$ " \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 $\frac{1}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{1}{8}$ " \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. FINIS 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