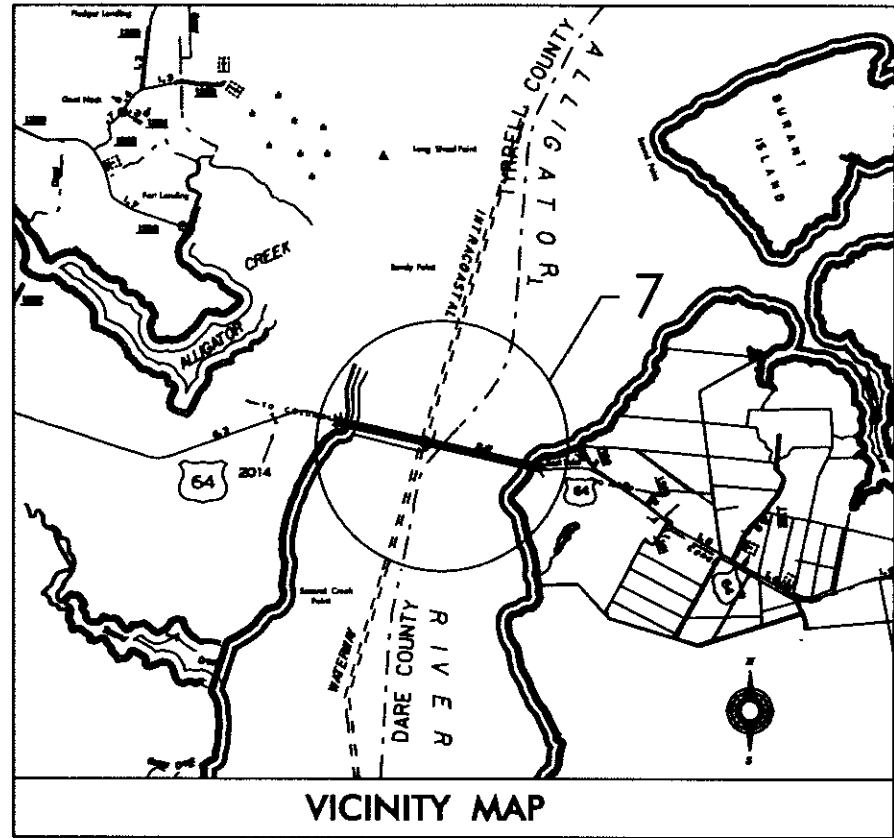


B-5195

CONTRACT NO. 202503



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TYRRELL /DARE COUNTIES

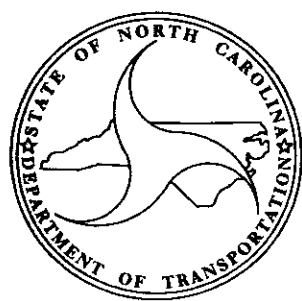
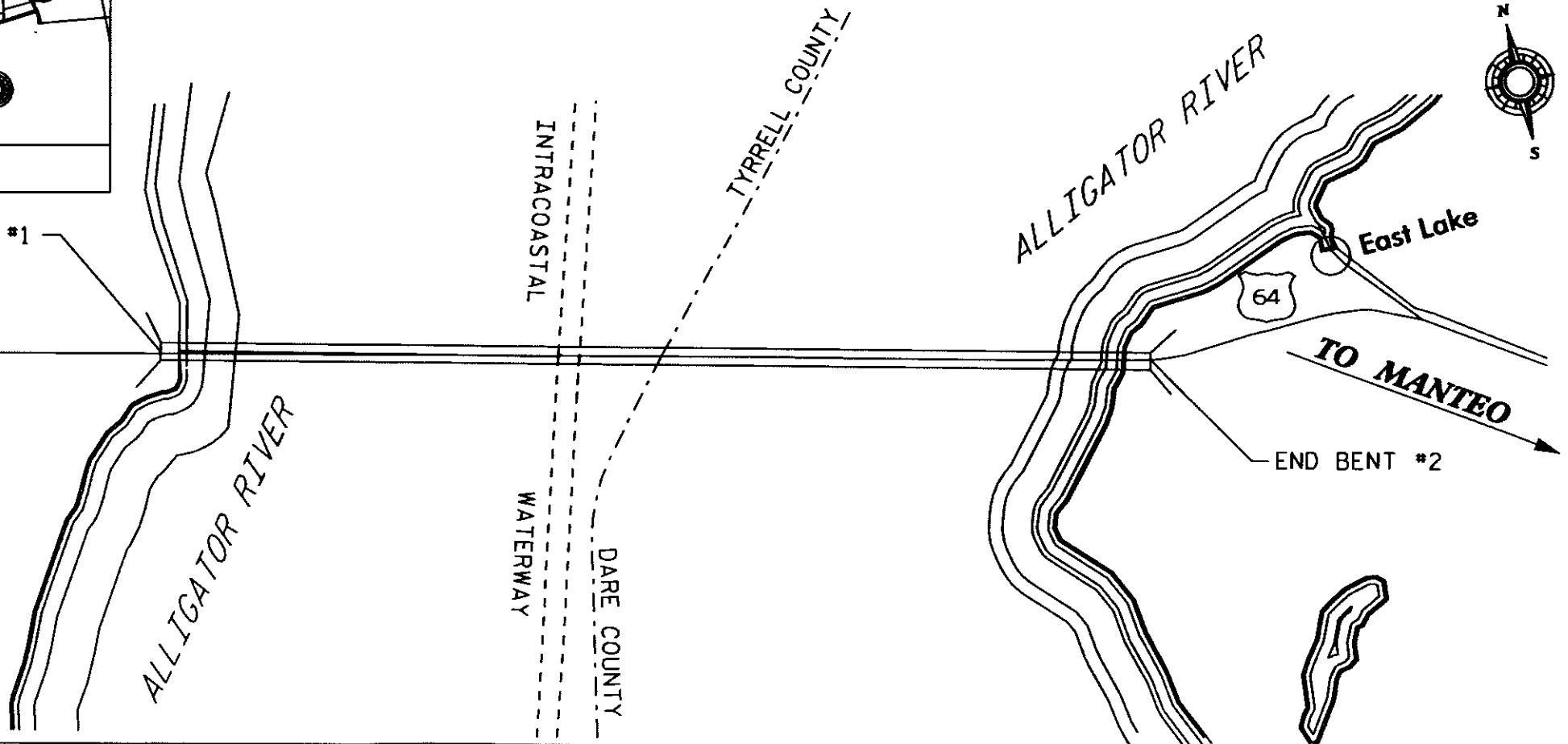
LOCATION: TYRRELL CO. BRIDGE #7, ON US 64, OVER THE ALLIGATOR RIVER.

TYPE OF WORK: BRIDGE PRESERVATION (REPAIRS TO BRIDGE UNDER DECK PILES, CAPS, DIAPHRAGMS, GIRDERS; CLEANING AND PAINTING OF DRAWSPAN).

STATE	STATE PROJECT REFERENCE NO.	TYPE	YEAR
N.C.	B-5195	1	12
STATE FUNDING	ALLOCATION	DESCRIPTION	
42608.1.ST1	STM-0064 (135)	PE	
45288.3.ST1	STM-0064 (135)	CONST	

END BENT #1
← TO COLUMBIA

INDEX OF SHEETS	
1	TITLE SHEET
S1 THRU S9	STRUCTURE PLANS
S10 THUR S12	EXISTING SWING SPAN DETAILS



DESIGN DATA

PROJECT DATA

BRIDGE CONSISTS OF 291 SPANS @ VARIOUS LENGTHS AND 2 SPANS @ 131'. 289 BENTS, 2 REST BENTS, END BENT #1 AND SEA WALL @ END BENT #2

BRIDGE LENGTH IN TYRRELL COUNTY = APPROX. 1.43 MILES
BRIDGE LENGTH IN DARE COUNTY = APPROX. 1.40 MILES
TOTAL BRIDGE LENGTH = APPROX. 2.83 MILES

Prepared in the Office of:
DIVISION OF BRIDGE MANAGEMENT

2006 STANDARD SPECIFICATIONS

LETTING DATE: 1/19/2010

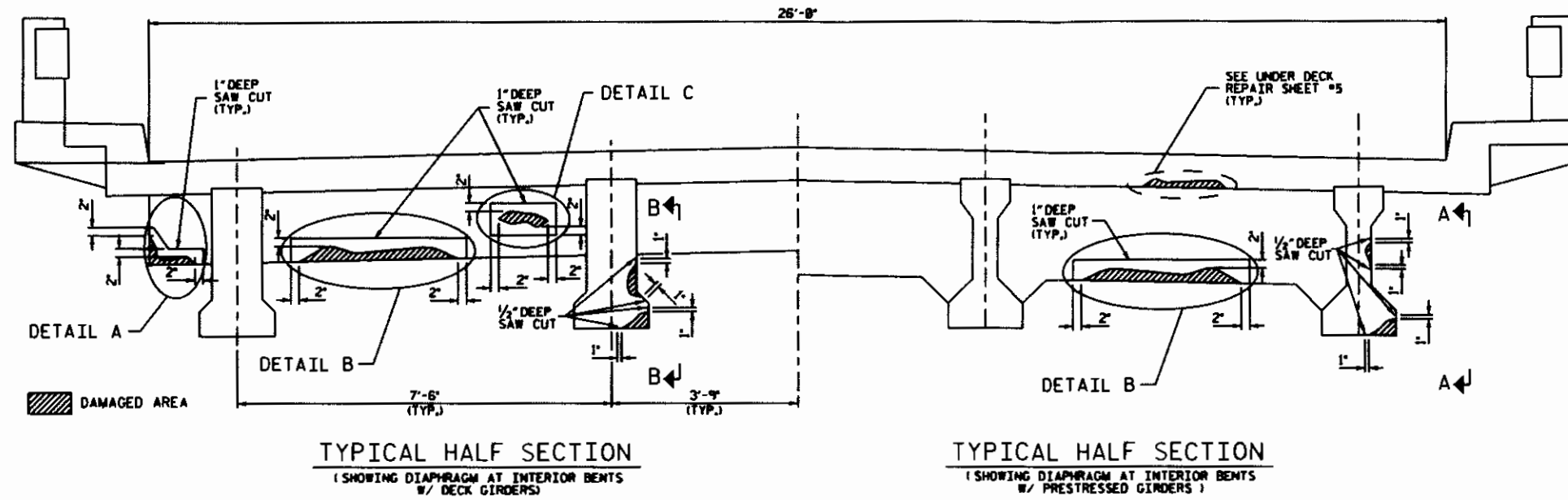
DAN HOLDERMAN, PE
PROJECT ENGINEER

NORTH CAROLINA
PROFESSIONAL SEAL
20208
101609
ERIC B. NELSON, JR.
ENGINEER
ERIC NELSON, PE
DESIGN ENGINEER

880007
45288, 3.ST1
B-5195
8-25-2011
an

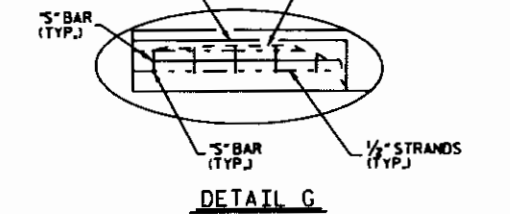
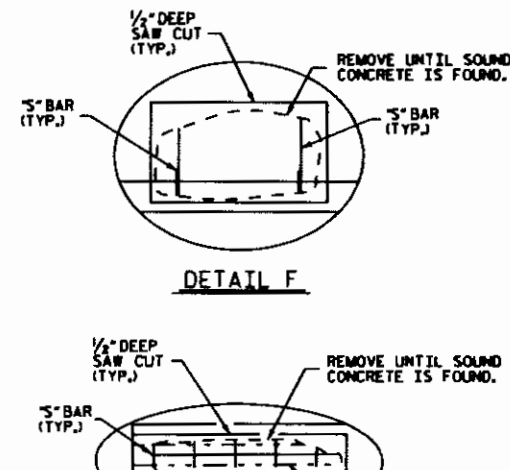
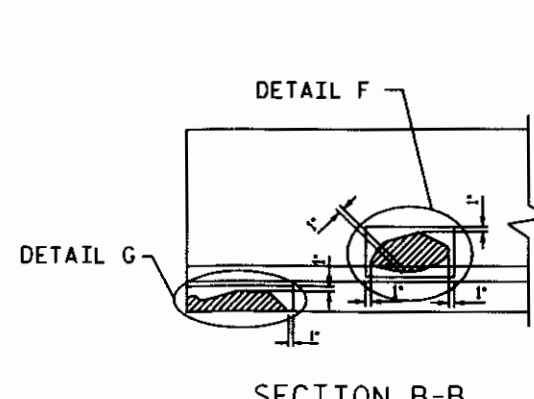
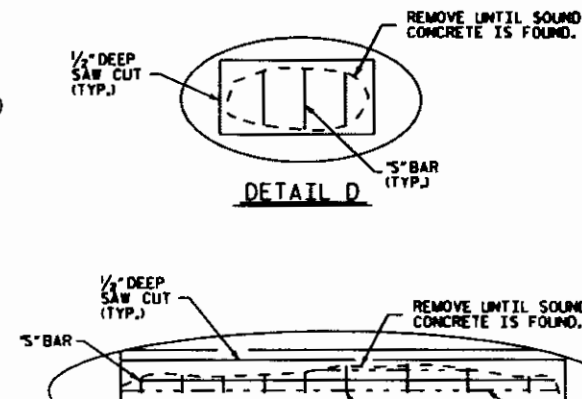
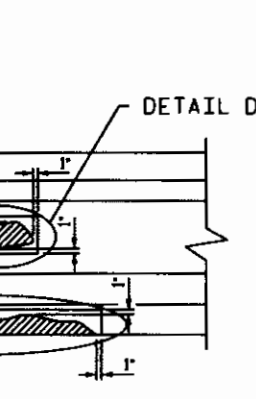
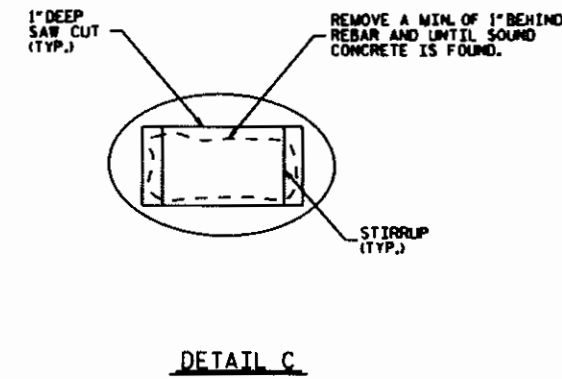
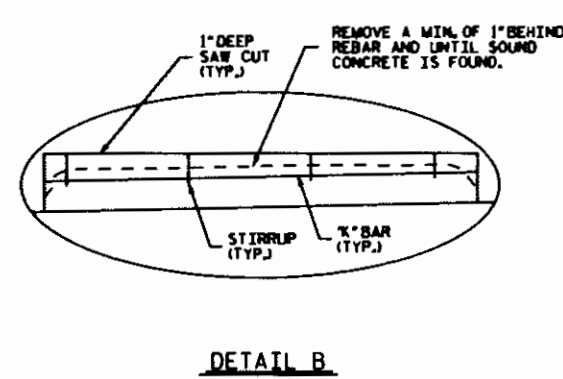
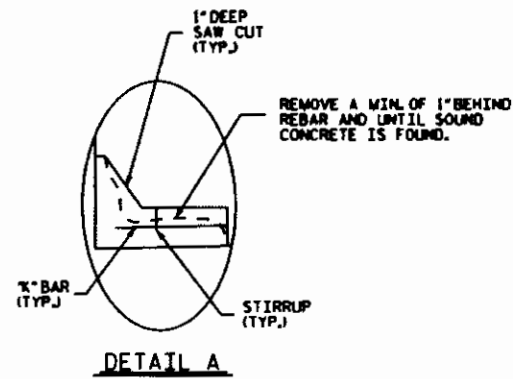
NOTES

1. SPALL DIMENSIONS SHOWN ARE APPROXIMATE.
2. REINFORCEMENT TO BE GRADE 60.
3. ADHESIVELY ANCHORED REINFORCING STEEL WILL BE TESTED FOR ADHESIVE BONDING AND PULLOUT STRENGTH. SEE SPECIAL PROVISIONS.
4. REPAIR MATERIAL FOR CAP SPALLS, DIAPHRAGM AND UNDER DECK REPAIR SHALL BE SHOTCRETE OR POLYMER MODIFIED CONCRETE.
5. REPAIR MATERIAL FOR PRESTRESSED GIRDERS SHALL BE POLYMER MODIFIED CONCRETE.



TYPICAL HALF SECTION
(SHOWING DIAPHRAGM AT INTERIOR BENTS W/ DECK GIRDERS)

TYPICAL HALF SECTION
(SHOWING DIAPHRAGM AT INTERIOR BENTS W/ PRESTRESSED GIRDERS)



PROJECT NO. B-5195
 COUNTY: TYRRELL
 STATION: _____
 BRIDGE NO. 7

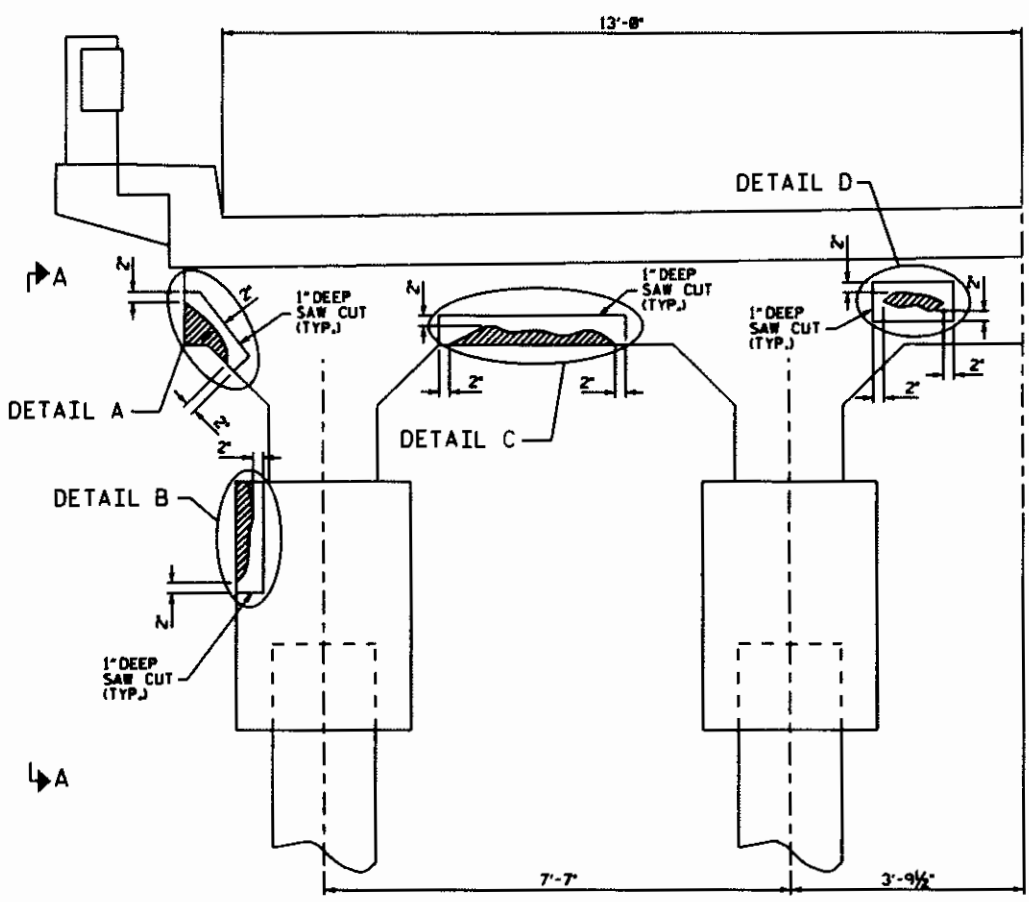
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 BALDWIN
**TYPICAL GIRDER
 AND
 DIAPHRAGM
 REPAIRS**

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

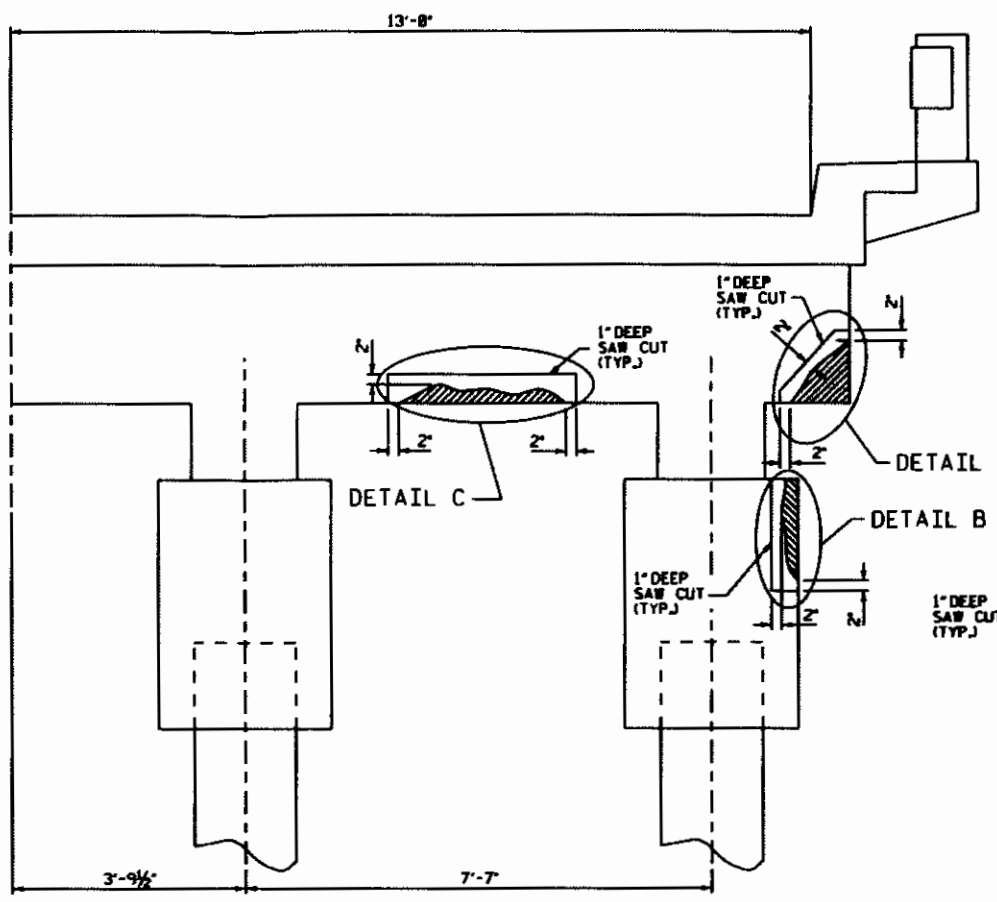
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 CHECKED BY: EBN DATE: 04/08

NOTES

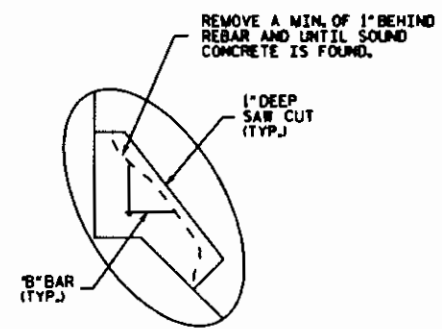
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2. REINFORCEMENT TO BE GRADE 60.
3. ADHESIVELY ANCHORED REINFORCING STEEL WILL BE TESTED FOR ADHESIVE BONDING AND PULLOUT STRENGTH. SEE SPECIAL PROVISIONS.
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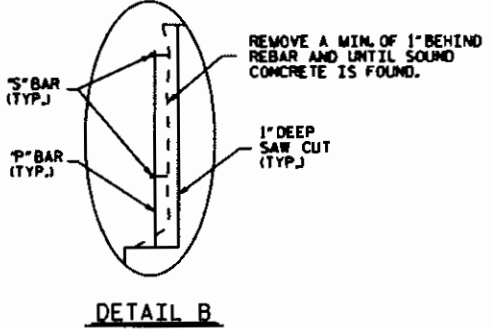
**TYPICAL HALF SECTION
(AT FIXED BENTS)**



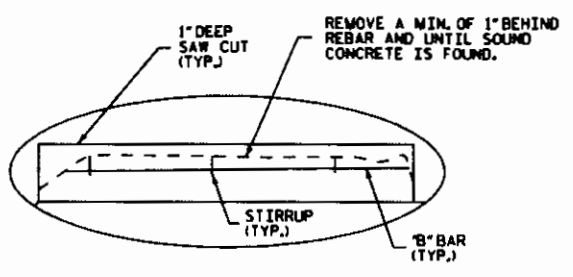
**TYPICAL HALF SECTION
(AT EXPANSION BENTS)**



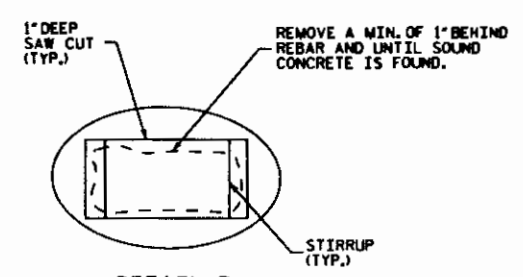
DETAIL A



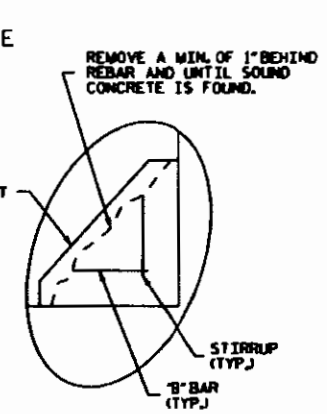
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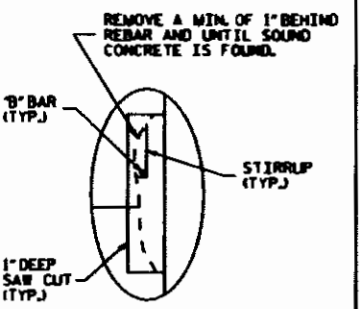
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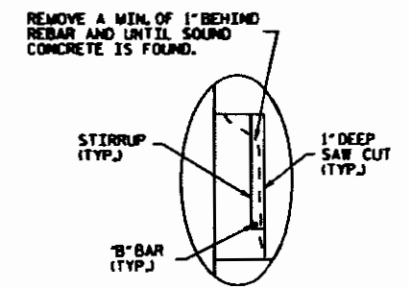
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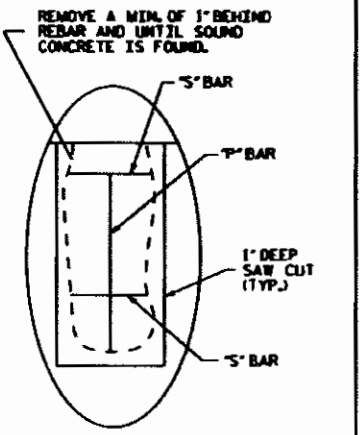
DETAIL E



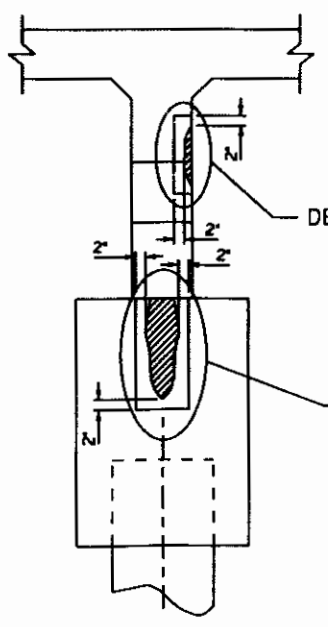
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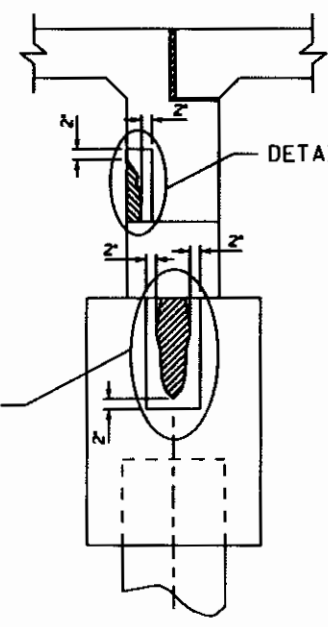
DETAIL G



DETAIL H



**SECTION A-A
(INTERIOR BENT)**



**SECTION B-B
(EXPANSION BENT)**

PROJECT NO. B-5195
 COUNTY: TYRRELL
 STATION: _____
 BRIDGE NO. 7

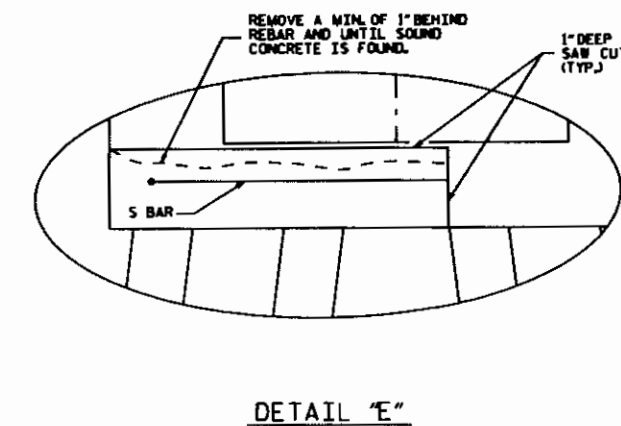
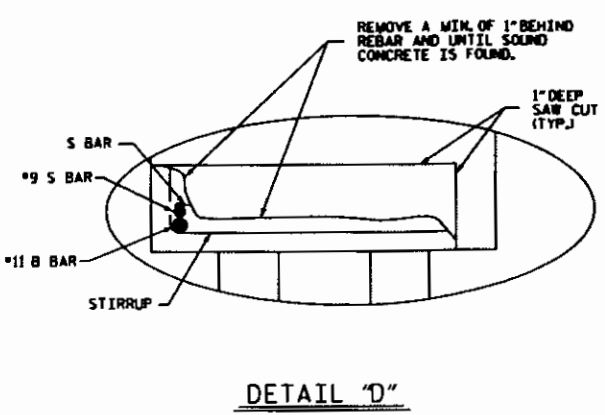
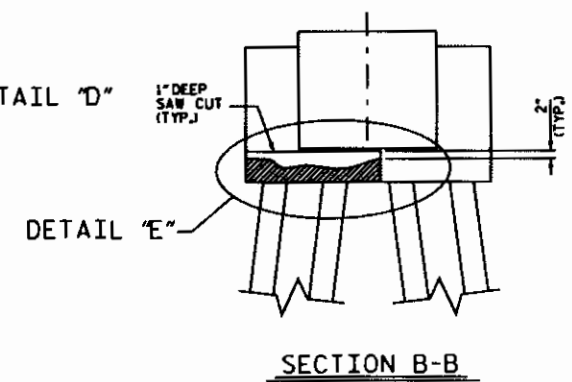
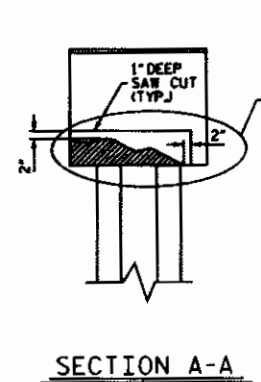
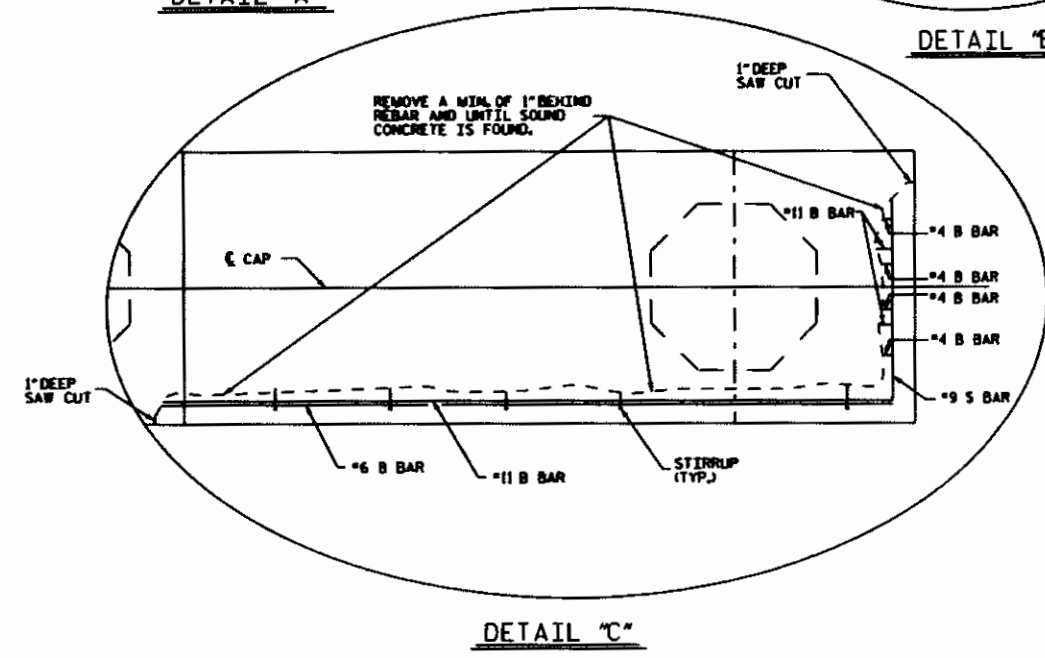
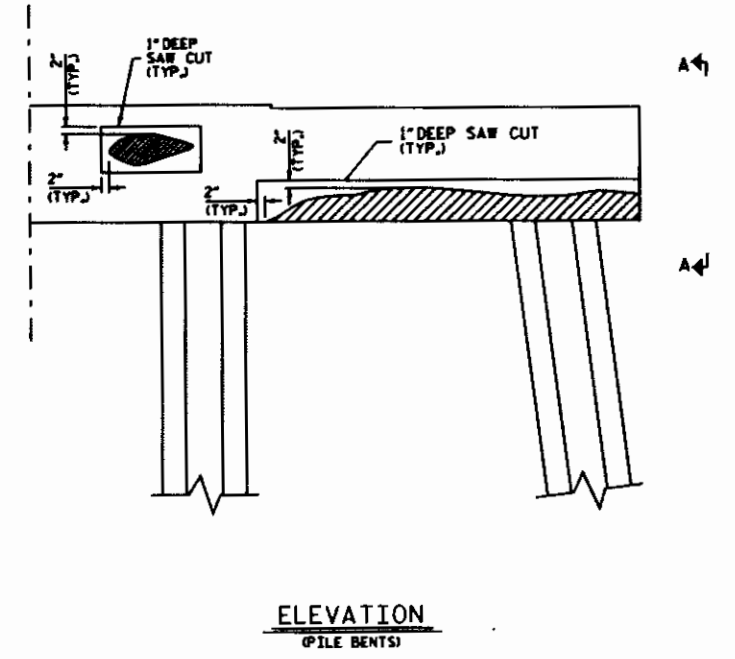
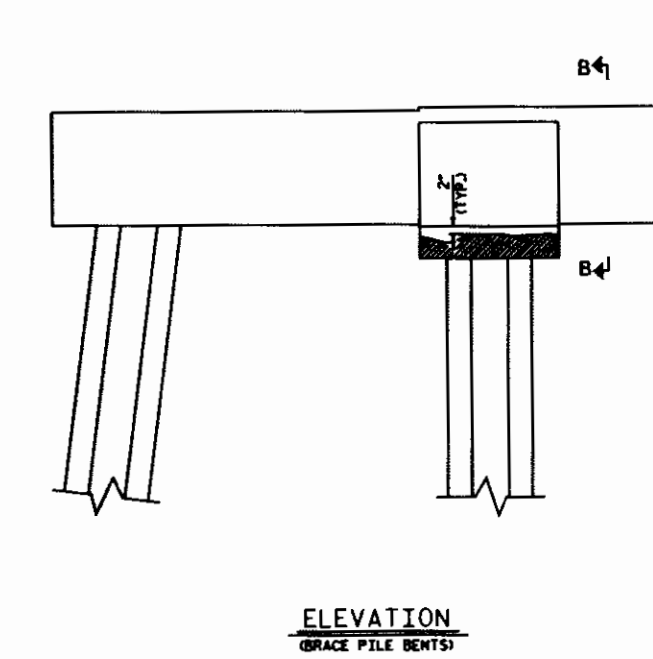
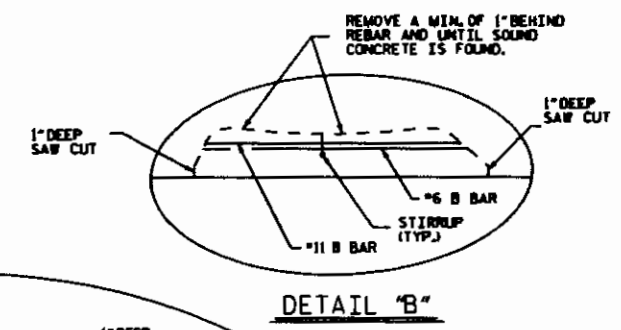
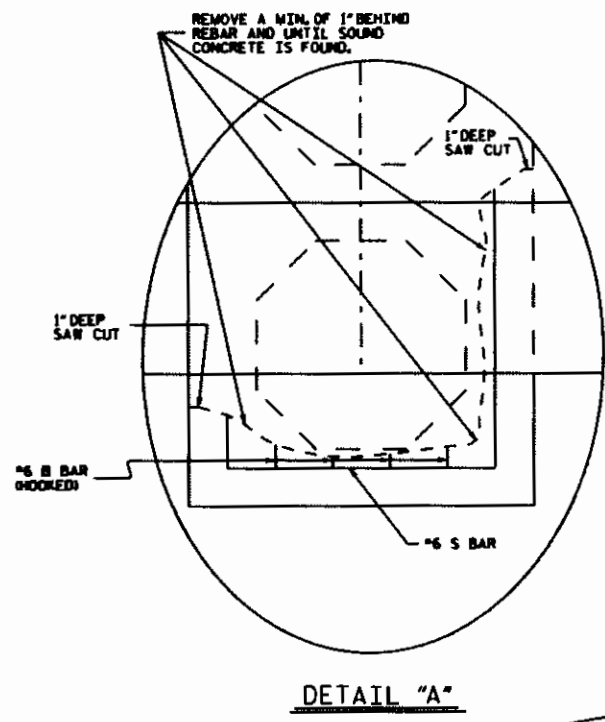
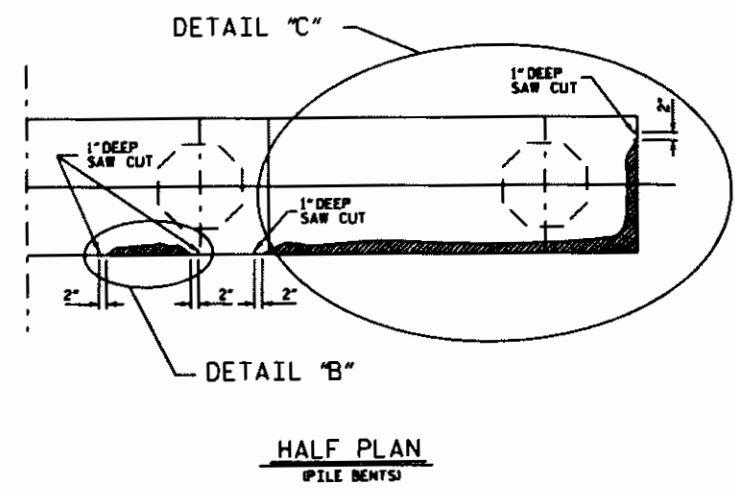
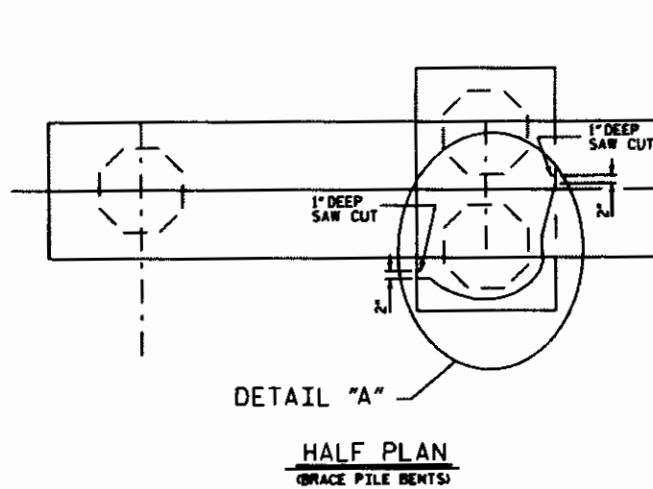
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALPH
 TYPICAL
 INTEGRAL BENT
 REPAIRS

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

DRAWN BY: CLB DATE: 03/08
 CHECKED BY: EBN DATE: 04/08

NOTES

1. SPALL DIMENSIONS SHOWN ARE APPROXIMATE.
2. REINFORCEMENT TO BE GRADE 60 AND EPOXY COATED.
3. ADHESIVELY ANCHORED REINFORCING STEEL WILL BE TESTED FOR ADHESIVE BONDING AND PULLOUT STRENGTH. SEE SPECIAL PROVISIONS.
4. REPAIR MATERIAL FOR CAP SPALLS, DIAPHRAGM REPAIR SHALL BE SHOTCRETE OR POLYMER MODIFIED CONCRETE.



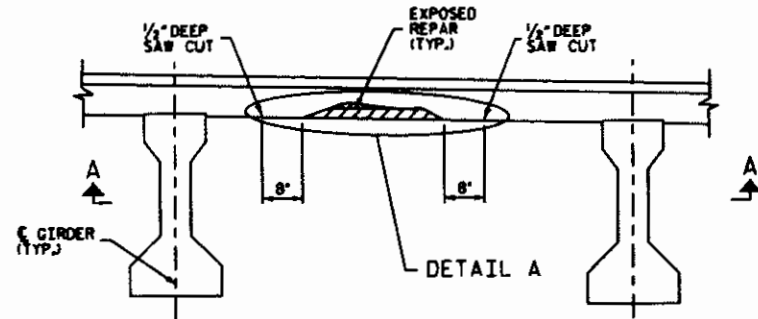
PROJECT NO. B-5195
 COUNTY: TYRRELL
 STATION:
 BRIDGE NO. 7

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION BALDWIN					
TYPICAL PILE BENT REPAIRS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			2		
2			4		
					SHEET NO. S-4
					TOTAL SHEETS

DRAWN BY: CLB DATE: 03/08
 CHECKED BY: EBN DATE: 04/08

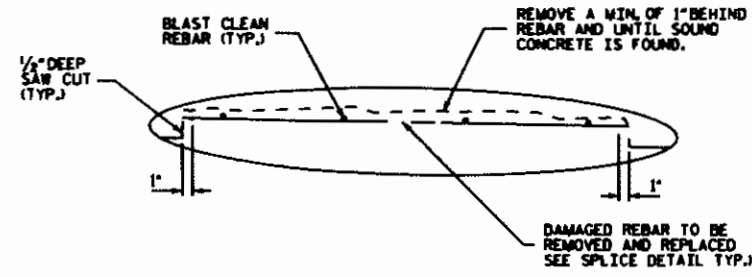
NOTES

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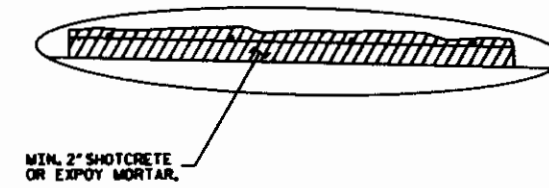


TYPICAL BAY SECTION

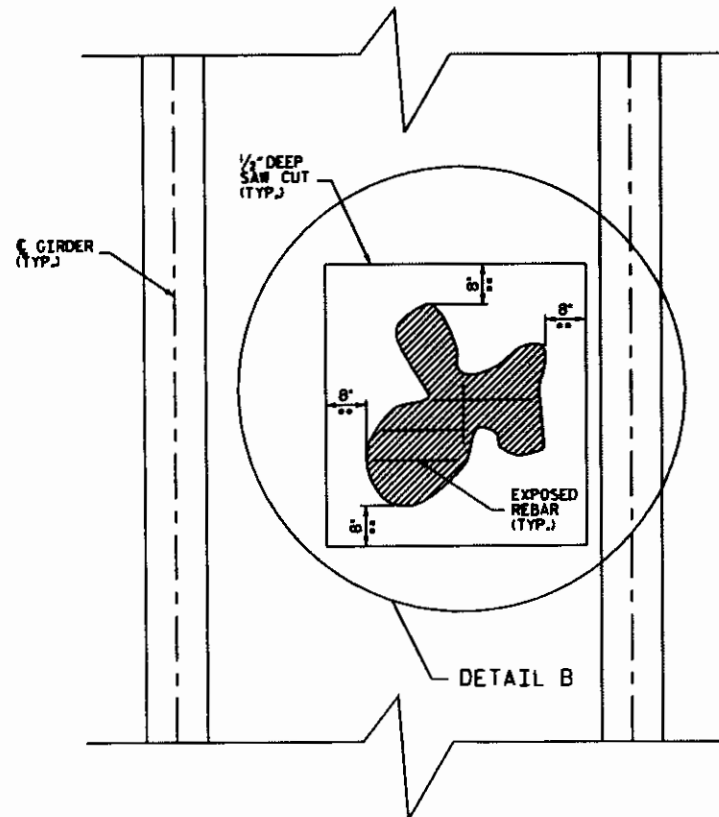
DAMAGED AREA



DETAIL A
(AFTER BLAST CLEANING)

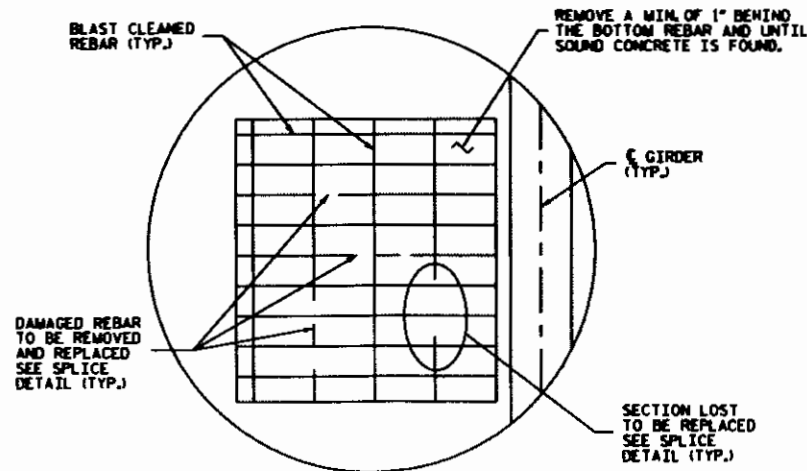


DETAIL A
(AFTER REPAIR)

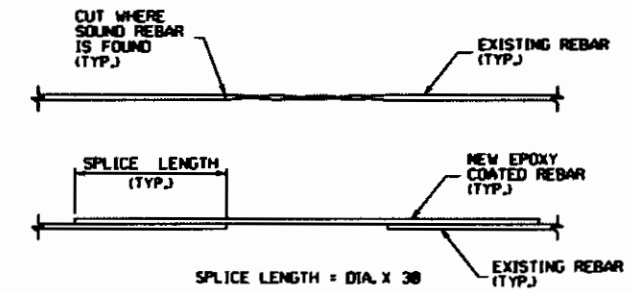


TYPICAL BAY SECTION A-A

** 8" MIN. OR EDGE OF GIRDER OR DIAPHRAGM.



DETAIL B
(AFTER REMOVAL OF MATERIAL AND BLAST CLEANING
REPLACE DAMAGED REBAR AS NEEDED)



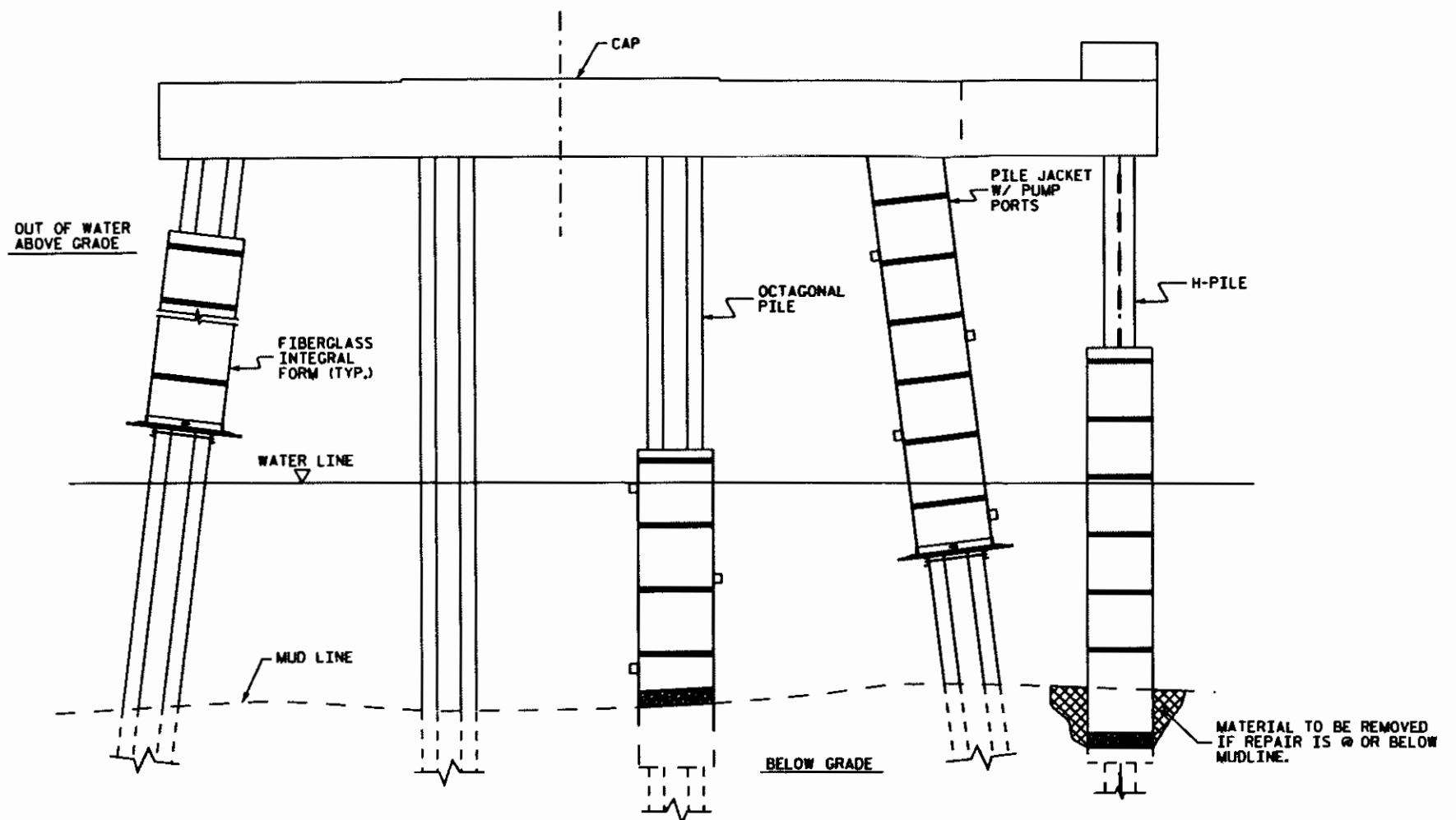
SPlice DETAIL

PROJECT NO. B-5195
 COUNTY: TYRRELL
 STATION: _____
 BRIDGE NO. 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 TYPICAL
 UNDER SIDE OF
 DECK REPAIR

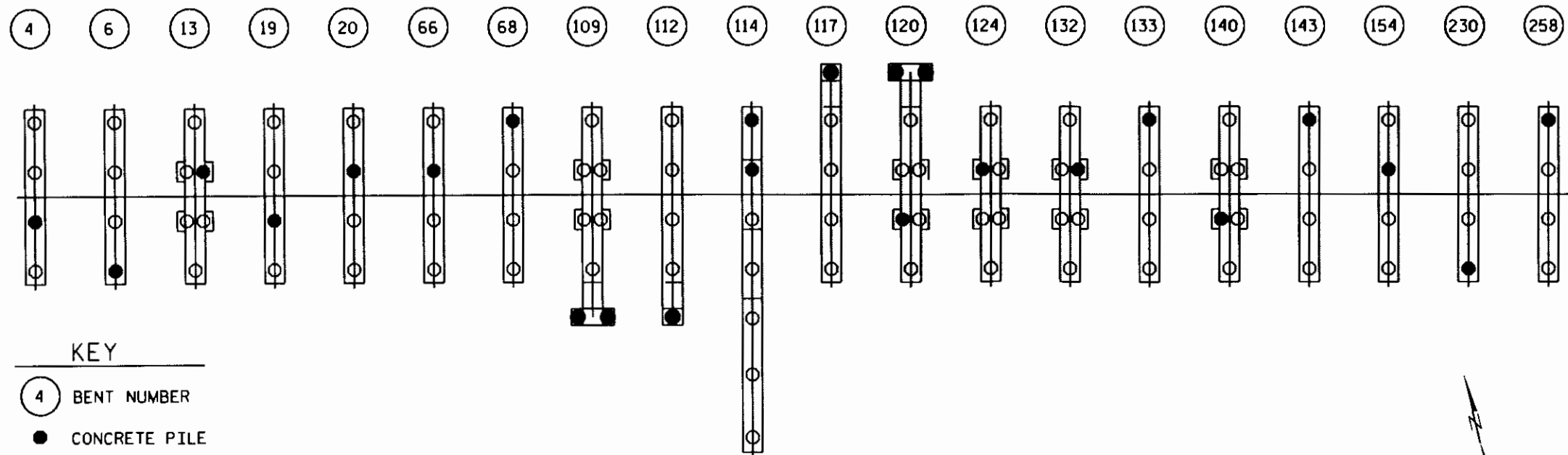
REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			2		
2			4		

S-5



ELEVATION VIEW
(ALL PILE JACKET REPAIR LOCATIONS SIMILAR)

PILE JACKET CHART			
BENT	PILE	LENGTH	DESCRIPTION
4	3	11	EXISTING JACKET 4' ABOVE WL TO ML
6	4	11	CAP TO ML
13	3	3	TOP OF EXISTING JACKET UP 3'
19	3	11	2' BELOW WL TO CAP
20	2	11	2' BELOW WL TO CAP
66	2	18	EXISTING JACKET 4' ABOVE WL TO ML
68	1	11	FROM WL TO CAP
109	H	21	2' BELOW MUDLINE TO 4' ABOVE WL
109	H	21	2' BELOW MUDLINE TO 4' ABOVE WL
112	H	21	2' BELOW MUDLINE TO 4' ABOVE WL
114	1	13	2' BELOW WL TO CAP
114	2	13	2' BELOW WL TO CAP
117	H	21	2' BELOW MUDLINE TO 4' ABOVE WL
120	H	20	2' BELOW MUDLINE TO 4' ABOVE WL
120	H	20	2' BELOW MUDLINE TO 4' ABOVE WL
120	4	11	WL TO CAP
124	2	11	WL TO CAP
132	3	11	WL TO CAP
133	1	11	WL TO CAP
140	4	11	WL TO CAP
143	1	20	EXISTING JACKET 4' ABOVE WL TO ML
154	2	6	2' BELOW WL TO CAP
230	4	11	WL TO CAP
238	1	8	WL TO CAP
TOTAL NUMBER OF CONCRETE PILE JACKETS:			15
TOTAL LENGTH OF PILE JACKETS (CONCRETE):			153 LF
TOTAL NUMBER OF H-PILE JACKETS:			6
TOTAL LENGTH OF PILE JACKETS (H-PILES):			124 LF
TOTAL NUMBER OF REJACKETS:			3
TOTAL LENGTH OF PILE REJACKETS:			49 LF



PLAN VIEW OF PILE JACKET REPAIR LOCATIONS

KEY
 (4) BENT NUMBER
 ● CONCRETE PILE
 ■ H-PILE

PROJECT NO. B-5195
 COUNTY: TYRRELL
 STATION:
 BRIDGE NO. 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RAILROADS

PILE JACKETS
 REPAIR (TYP.)

SHEET 1 OF 4

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

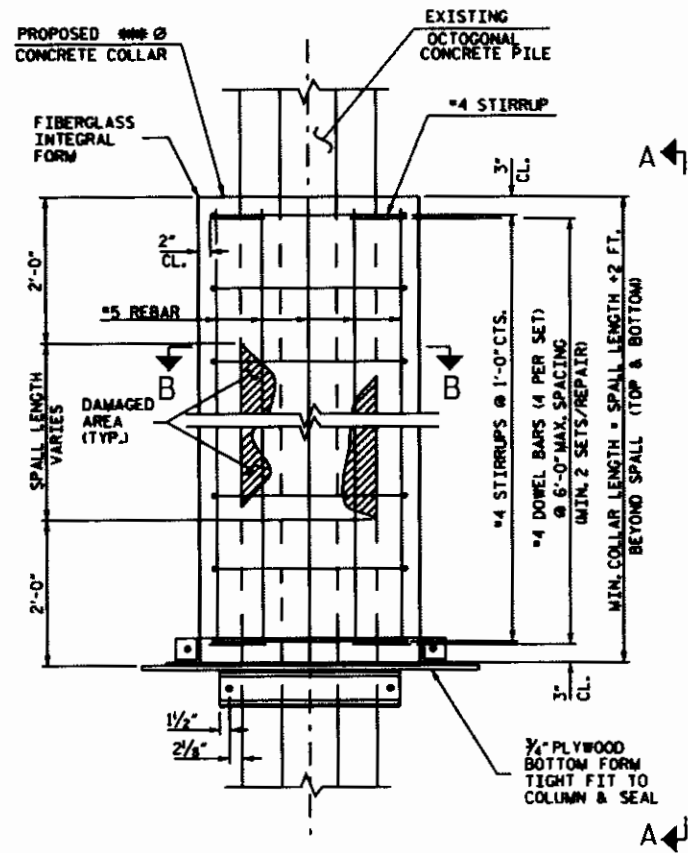
REVISED

NO. S-6

DRAWN BY: CLB DATE: 09/09
 CHECKED BY: EBN DATE: 09/09

PILE JACKET OUT OF WATER REPAIR

1C2a

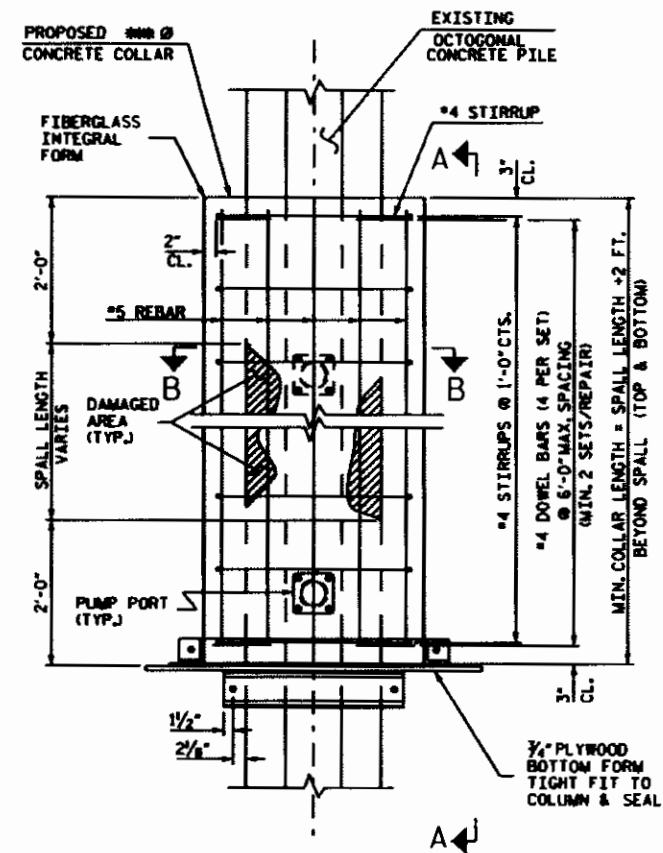


JACKET ELEVATION

(ABOVE GRADE/WATER APPLICATIONS)
SEE JACKET SIZING CHART

PILE JACKET ABOVE GRADE REPAIR
W/ PUMP PORTS

1C2b



JACKET ELEVATION

SEE JACKET SIZING CHART

PROJECT NO. B-5195
 COUNTY: TYRRELL
 STATION:
 BRIDGE NO. 7

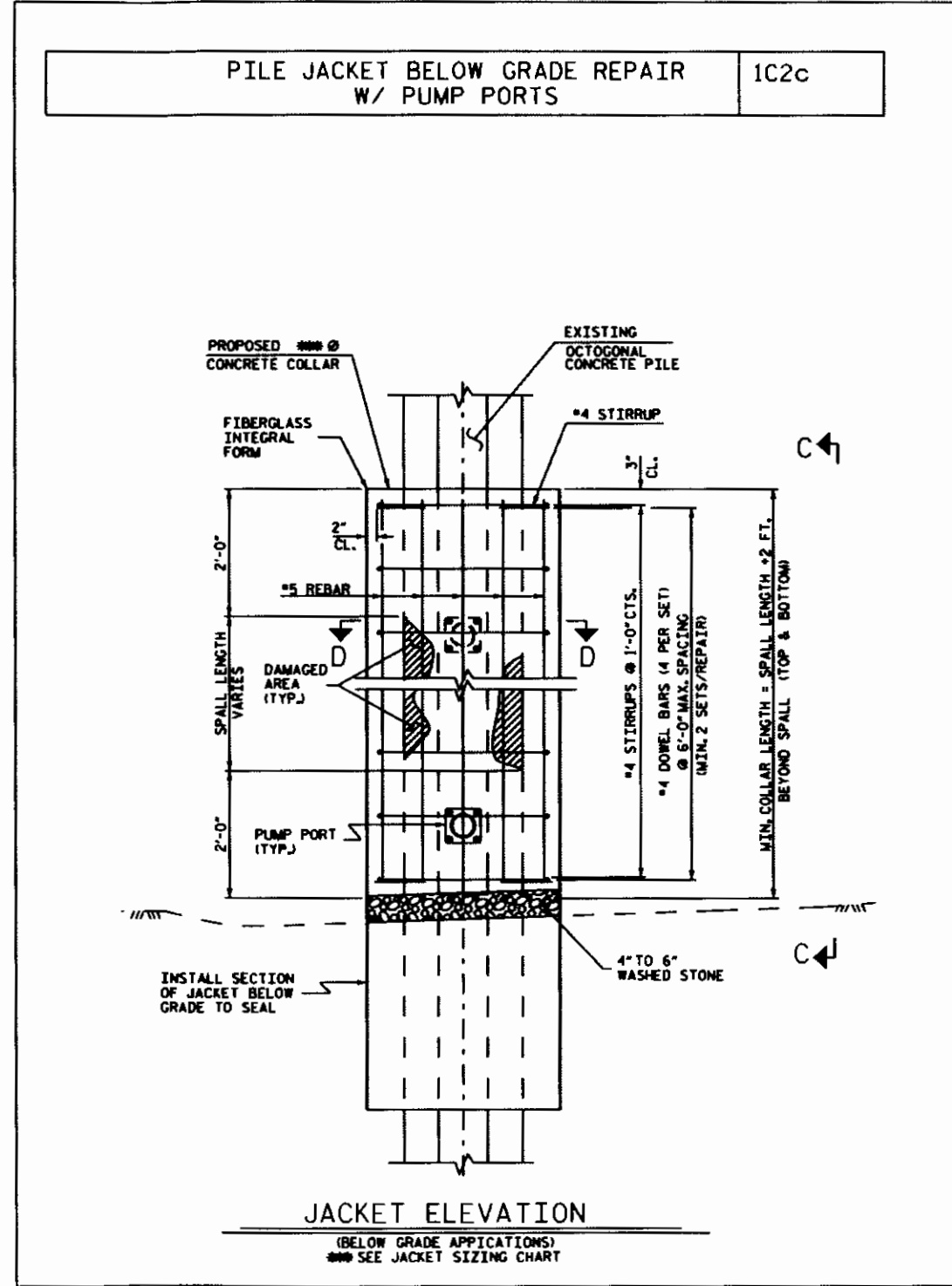
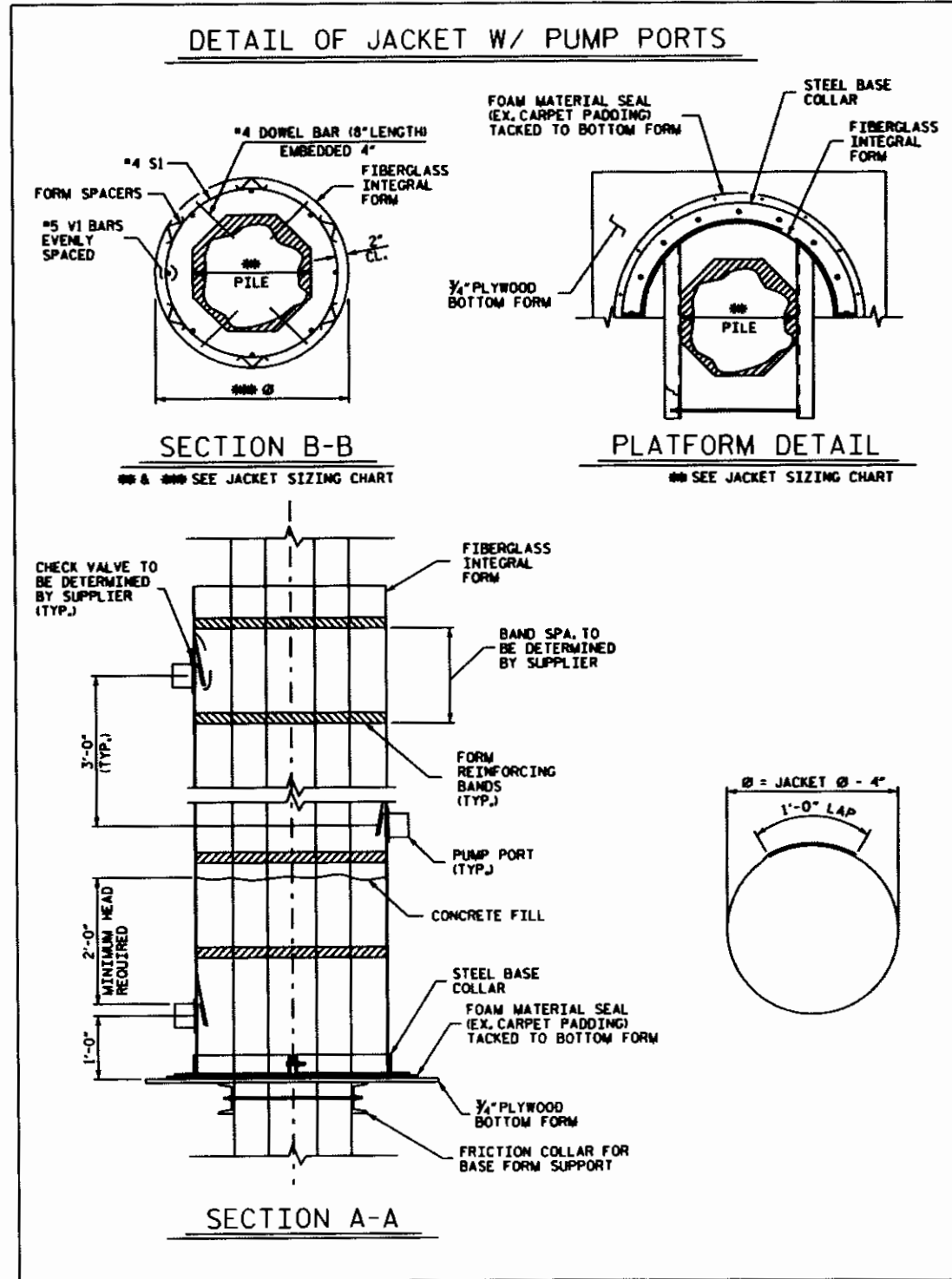
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 BALDWIN

PILE JACKETS

SHEET 2 OF 4

REVISIONS						DRAWN BY S-7
NO.	BY	DATE	NO.	BY	DATE	
1			8			TOTAL SHEETS
2			4			

DRAWN BY: CLB DATE: 09/09
 CHECKED BY: EBN DATE: 09/09



PROJECT NO. B-5195
 COUNTY: TYRRELL
 STATION: _____
 BRIDGE NO. 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 BALANCE

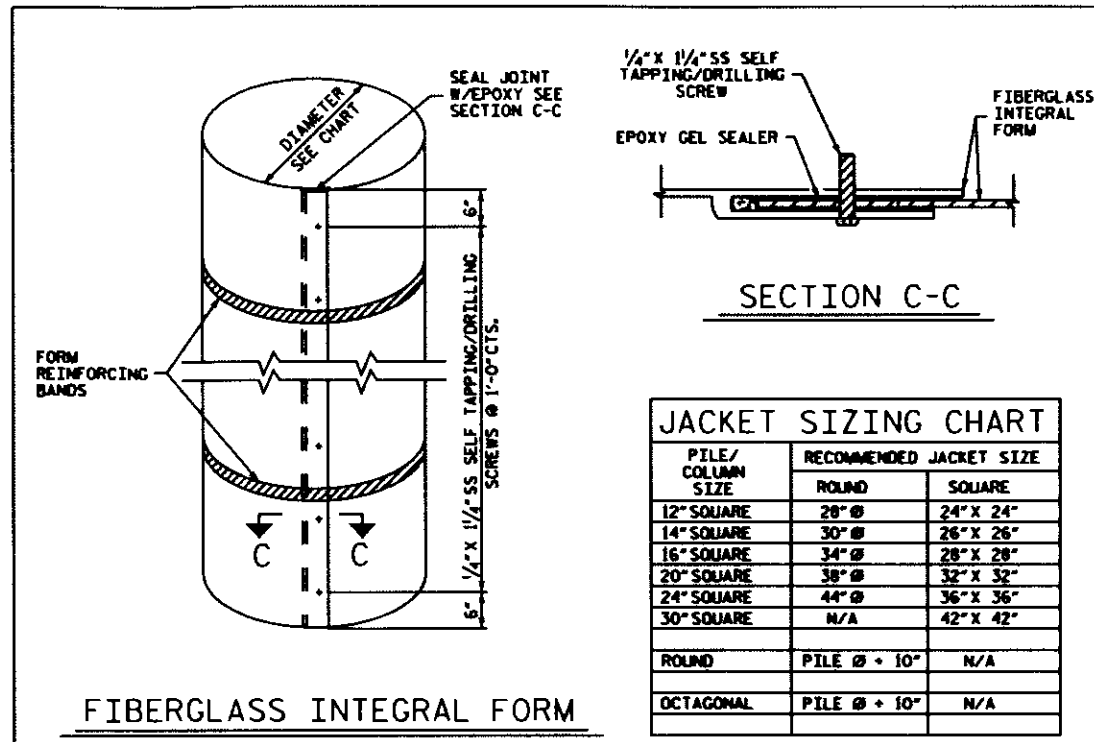
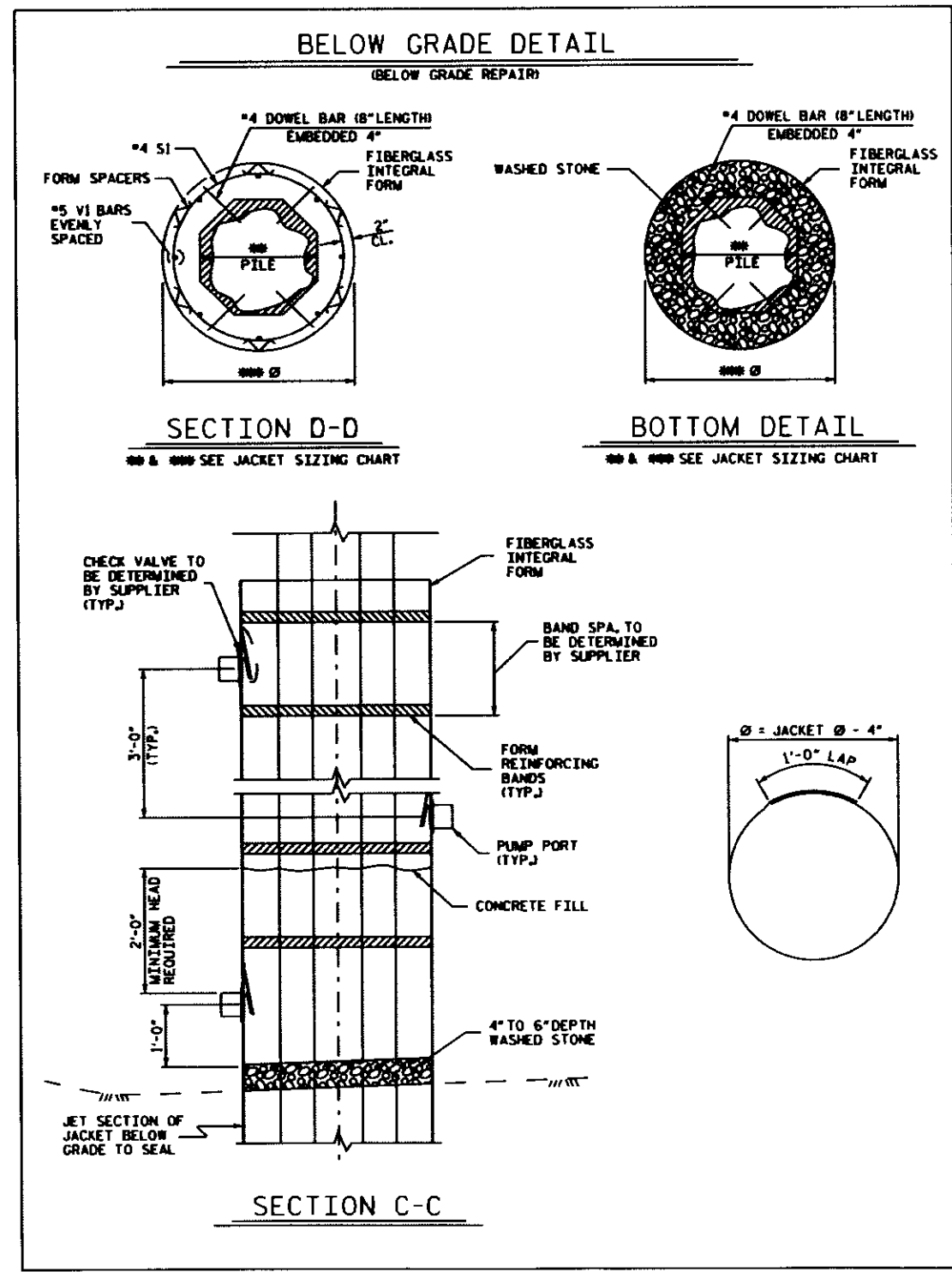
PILE JACKETS

SHEET 3 OF 4

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

S-8

DRAWN BY: CLB DATE: 09/09
 CHECKED BY: EBN DATE: 09/09



- REPAIR SEQUENCE**
- 1) Completely remove all loose delaminated and weak concrete, oil, grease, salt and other contaminants. Prepare concrete using acceptable mechanical means and concrete cleaners and degreasers as necessary to obtain clean, sound and rough surfaces. Coarse aggregate shall be exposed. Concrete pile surfaces should be sound and free of contamination. Where marine growth or other contaminants exist, including visible signs of corrosion, a high pressure water blast should be utilized to ensure a clean, sound, contaminant-free surface for optimum bond.
 - 2) Clean reinforcing steel & columns or pile, of all rust and foreign material.
 - 3) Determine fiberglass integral form length. Minimum length is 2' above and below clean, sound, contaminant-free surface.
 - 4) Drill 1/4" holes and place #4 dowels w/ epoxy grout.
 - 5) Build the rebar cage by placing the #4 stirrups and vertical reinforcing steel in accordance with the project drawing.
 - 6) Install form spacers to insure adequate concrete cover at all ports of the sleeve.
 - 7) Install the leave-in-place Fiberglass Form (also called Jacket or Collar). The diameter of the jacket should be large enough to in-circle the pile while providing a minimum of 5" total clearance, 2" of clearance between the pile and the reinforcing steel and 2" of clearance between the reinforcing steel and the form. (see Jacket sizing chart)
 - 8) Insert concrete pump hose thru top of jacket and extend to just above the bottom and pump at a flow rate to the desired fill elevation. If site conditions prohibit inserting pump hose thru top of jacket then install pump ports and place concrete as shown in the details.
 - 9) Place concrete fill. Install pump port(s) in jacket for underwater applications. Ports should have a check valve to keep back flow of concrete once pump nozzle is removed. For concrete placements greater than 5' use multiple ports spaced 3' vertically and alternating 180° from previous port. A minimum of 2' of concrete head, is needed above port prior to changing ports.
 - 10) Remove form work when concrete strength achieves 3000 psi.

PROJECT NO. B-5195
 COUNTY: TYRRELL
 STATION: _____
 BRIDGE NO. 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE JACKETS

SHEET 4 OF 4

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

DRAWN BY: CLB DATE: 09/09
 CHECKED BY: EBN DATE: 09/09