

TIP PROJECT: 14B.104534.4

CONTRACT:

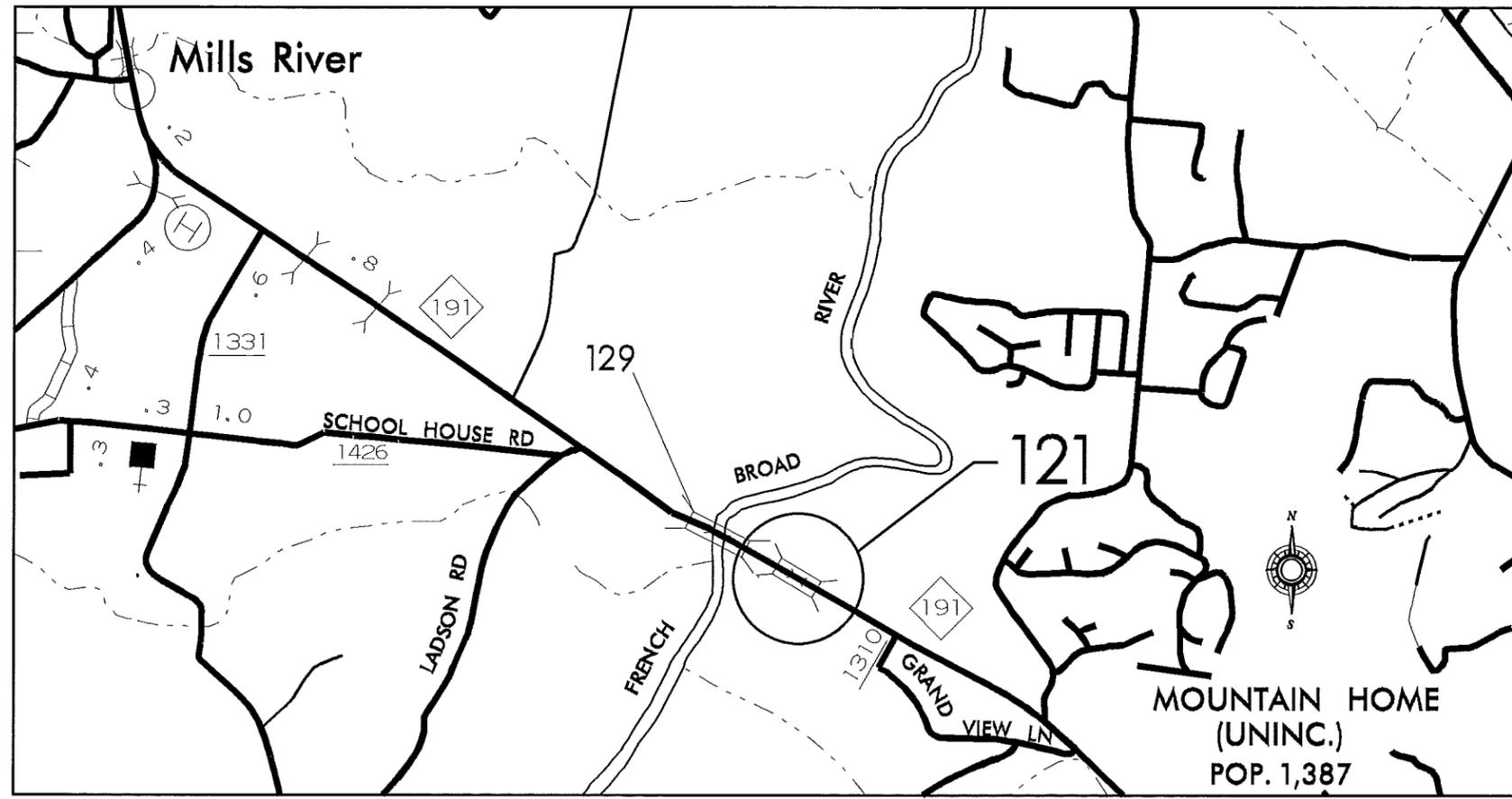
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

LOCATION: HENDERSON BRIDGE #121 ON NC 191 (HAYWOOD RD) OVER
THE FRENCH BROAD RIVER OVERFLOW

TYPE OF WORK: SUPERSTRUCTURE & SUBSTRUCTURE REPAIRS, STRUCTURAL STEEL
REPAIRS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	14B.104534.4	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
14B.104534.4		P.E.	
14B.104534.4		CONST.	



DESIGN DATA

HENDERSON #121 ADT 2010 = 10000

PROJECT LENGTH

HENDERSON #121 = 0.027 MILES

Prepared In the Office of:
STRUCTURES MANAGEMENT UNIT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2012 STANDARD SPECIFICATIONS

LETTING DATE:
MAY 26, 2015

TIMOTHY M. SHERRILL, P.E.
PROJECT ENGINEER

TIMOTHY M. SHERRILL, PE
PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

HENDERSON COUNTY

LOCATION: HENDERSON BRIDGE #121 ON NC 191 (HAYWOOD RD) OVER THE FRENCH BROAD RIVER OVERFLOW

TYPE OF WORK: SUPERSTRUCTURE & SUBSTRUCTURE REPAIRS, STRUCTURAL STEEL REPAIRS



INDEX OF SHEETS

<i>1</i>	<i>TITLE SHEET</i>
<i>1A</i>	<i>INDEX OF SHEETS</i>
<i>S-1</i>	<i>TOTAL BILL OF MATERIAL</i>
<i>S-2 THROUGH S-13</i>	<i>BRIDGE 121</i>
<i>SN</i>	<i>STRUCTURE STANDARD NOTES</i>

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	14B.104534.4	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
14B.104534.4		P.E.	
14B.104534.4		CONST.	

CONTRACT:



DESIGN DATA

HENDERSON #121 ADT 2010 = 10000

PROJECT LENGTH

HENDERSON #121 = 0.027 MILES

Prepared In the Office of:
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
 STRUCTURES MANAGEMENT UNIT - PRESERVATION & REPAIR GROUP
 1000 BIRCH RIDGE DR, RALEIGH, N.C. 27610

TIMOTHY M. SHERRILL, P.E.
 PROJECT ENGINEER

2012 STANDARD SPECIFICATIONS

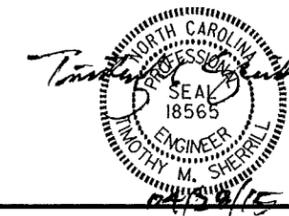
LETTING DATE:
 MAY 26, 2015

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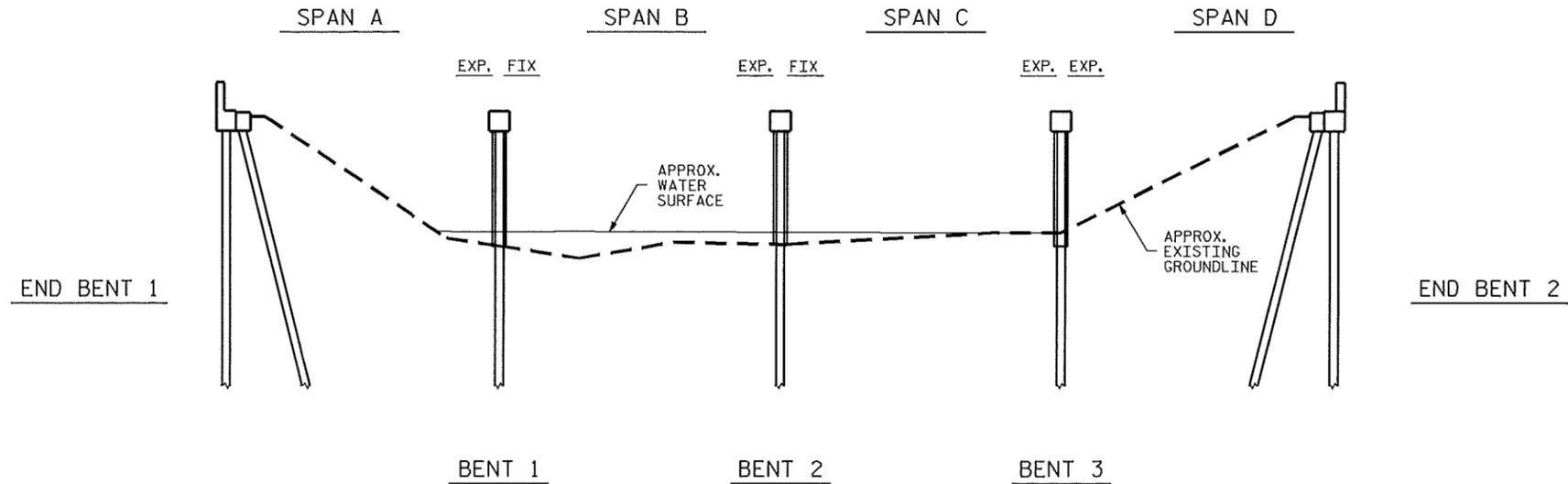
TOTAL BILL OF MATERIAL					
BRIDGE	SHOTCRETE REPAIRS	BEAM REPAIR	BRIDGE JACKING	REPLACEMENT OF STEEL BEARINGS	TEMPORARY WORK PLATFORM
	CU. FT.	LBS.	EACH	EACH	EACH
HENDERSON *121	48.9	2,304	6	8	LUMP SUM

PROJECT NO. 14B.204414.11
 HENDERSON COUNTY
 BRIDGE NO. 121

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TOTAL BILL OF MATERIAL					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					15

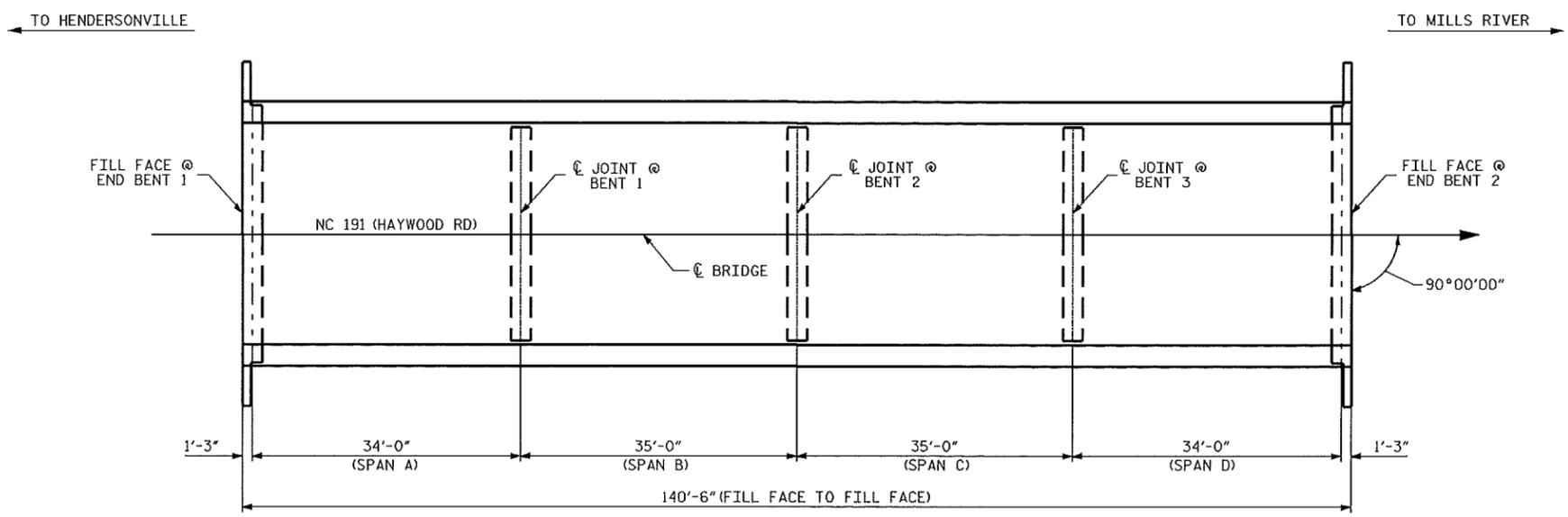


DRAWN BY : C. BRIGHT DATE : 04/15
 CHECKED BY : T. SHERRILL DATE : 04/15



NOTE: THE PROFILE INFORMATION AND WATER SURFACE ARE TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 04/04/2013.

SECTION ALONG $\text{\textcircled{C}}$ ROADWAY



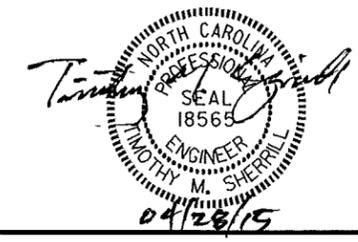
PLAN

SCOPE OF WORK

- SAWCUT AND CHIP OUT UNSOUND CONCRETE ON BENT DIAPHRAGMS.
- SAWCUT AND CHIP OUT UNSOUND CONCRETE ON BENTS.
- CLEAN AND REPAIR REBAR IN CONCRETE REPAIR AREAS.
- PERFORM SHOTCRETE REPAIRS IN PREPARED AREAS.
- PERFORM BEAM END CUT-OUT AND PLATING REPAIRS.
- REMOVE AND REPLACE BEARINGS.

PROJECT NO. 14B.104534.4
 HENDERSON COUNTY
 BRIDGE NO. 121

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON NC 191
 (HAYWOOD RD) OVER
 THE FRENCH BROAD RIVER
 OVERFLOW



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : CL BRIGHT DATE : 03/15
 CHECKED BY : I. SHERRILL DATE : 04/15
 DESIGN ENGINEER OF RECORD: DATE :

28-APR-2015 11:34
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NOTES

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

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

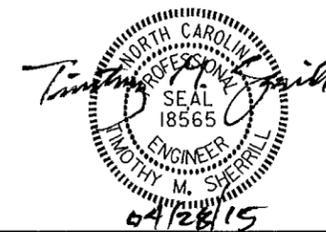
FOR TEMPORARY WORK PLATFORM, SEE SPECIAL PROVISIONS.

LOCATION SKETCH

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

PROJECT NO. 14B.104534.4
HENDERSON COUNTY
 BRIDGE NO. 121

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON NC 191
 (HAYWOOD RD) OVER
 THE FRENCH BROAD RIVER
 OVERFLOW

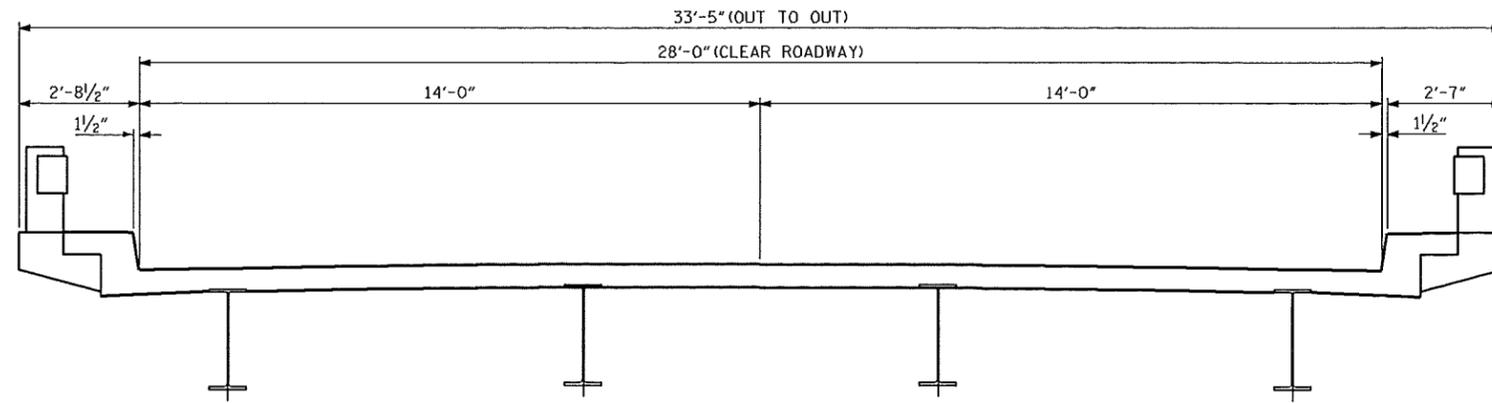


DRAWN BY :	CL BRIGHT	DATE :	3/15
CHECKED BY :	T. SHERRILL	DATE :	4/15
DESIGN ENGINEER OF RECORD:	-	DATE :	-

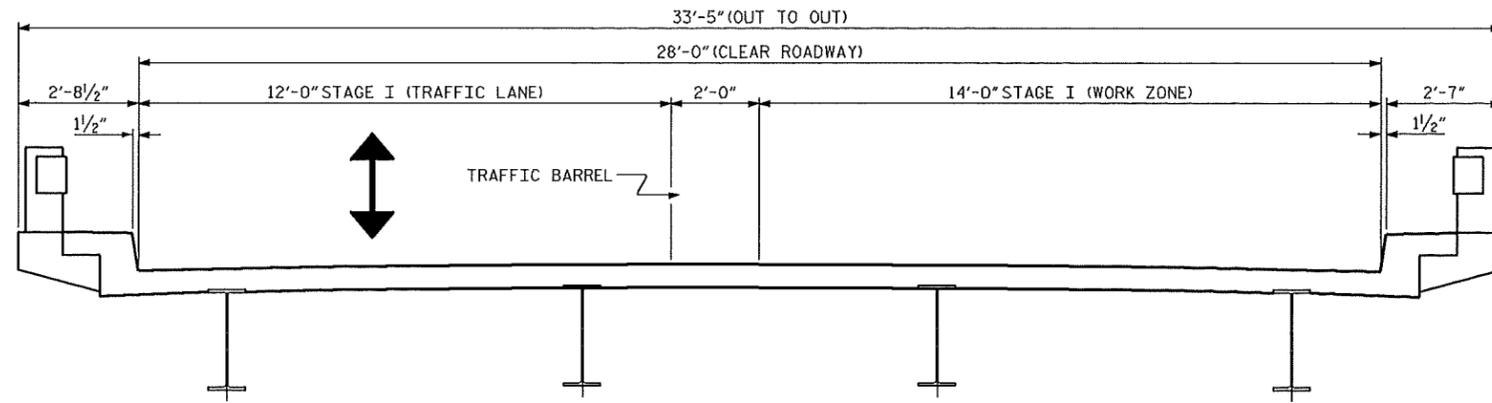
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			15

NOTE:

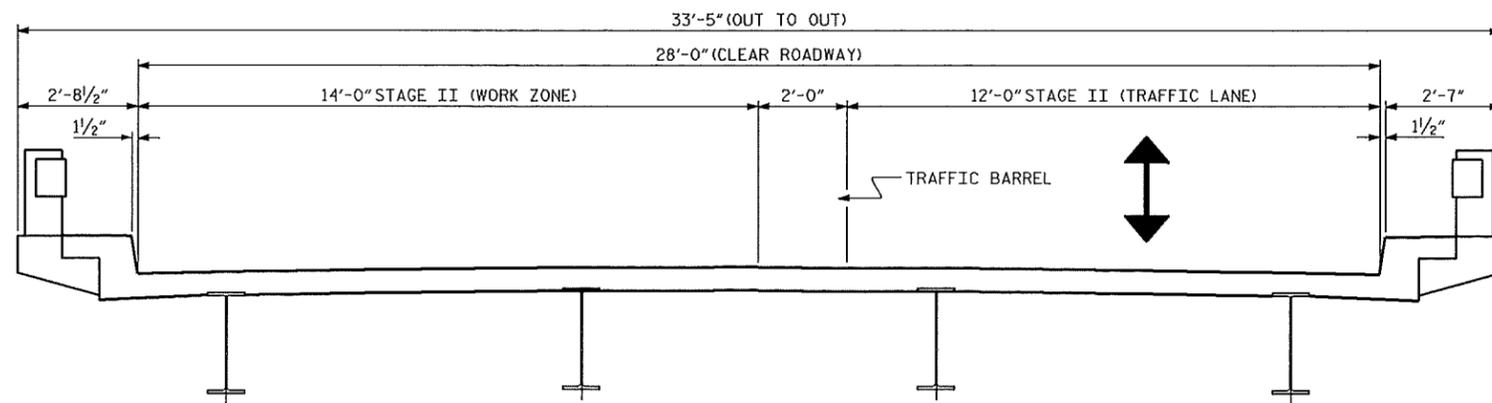
THE WORK STAGING ON THIS PLAN SHEET INDICATES THAT THE RIGHT LANE WORK IS PERFORMED FIRST, FOLLOWED BY THE LEFT LANE WORK. THE CONTRACTOR MAY ELECT TO SEQUENCE THE WORK DIFFERENTLY, BUT THE DIMENSIONS OF THE WORK ZONE AND CLEAR ROADWAY AREAS SHALL MATCH THAT INDICATED ON THIS PLAN SHEET, RESPECTIVE TO THE LANE WHERE THE WORK IS BEING PERFORMED.



TYPICAL SECTION
(EXISTING)



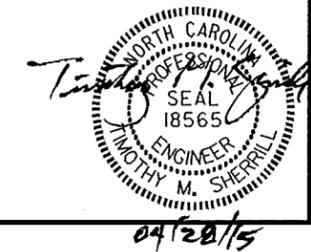
TYPICAL SECTION
(RIGHT LANE JACKING & BEAM WORK)



TYPICAL SECTION
(LEFT LANE JACKING & BEAM WORK)

PROJECT NO. 14B.204414.11
HENDERSON COUNTY
BRIDGE NO. 121

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
TYPICAL SECTION & STAGING						S-4
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	15
1			3			
2			4			



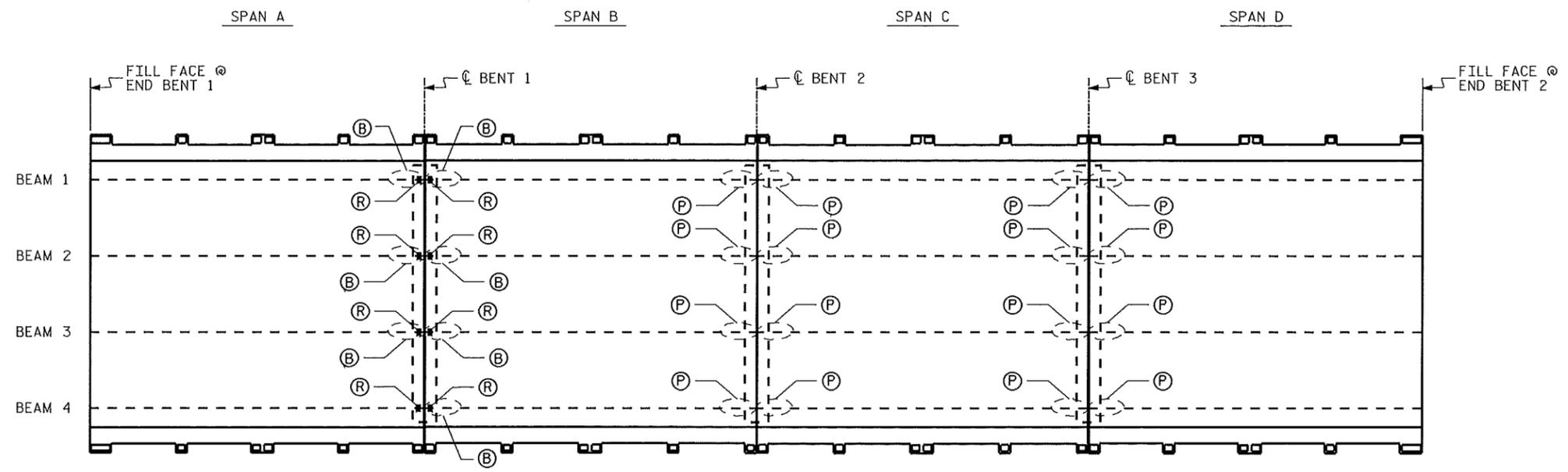
04/20/15

DRAWN BY : C. BRIGHT DATE : 04/15
CHECKED BY : T. SHERRILL DATE : 04/15
DESIGN ENGINEER OF RECORD: T. SHERRILL DATE : 04/15

28-APR-2015 11:34
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rputak

← TO HENDERSONVILLE

TO ASHEVILLE →



NOTES:

FOR BEAM REPAIR DETAILS, SEE "BEAM END CUT-OUT REPAIR DETAILS" AND "BEAM END PLATE REPAIR DETAILS" SHEETS.

FOR BEARING REPLACEMENT DETAILS, SEE "BEARING REPLACEMENT DETAILS" SHEET.

FOR BRIDGE JACKING DETAILS, SEE "JACKING DETAILS" SHEET.

LOCATIONS AND DIMENSIONS OF AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENTS OF REPAIR PRIOR TO STEEL FABRICATION.

THE CONTRACTOR SHALL ENSURE THAT EXISTING UTILITIES ADJACENT TO THE BRIDGE ARE NOT DAMAGED DURING REPAIR OPERATIONS.

BEAM REPAIR LOCATIONS
(OTHER LOCATIONS MAY EXIST, SEE NOTES)

- ⓑ BEAM CUT-OUT REPAIR
- Ⓟ PLATING REPAIR
- Ⓡ BEARING REPLACEMENT

BILL OF MATERIAL

BRIDGE JACKING	BEAM REPAIR	REPLACE BEARINGS
LUMP SUM	LBS.	EACH
	2,304	8

PROJECT NO. 14B.104534.4
HENDERSON COUNTY
 BRIDGE NO. 121

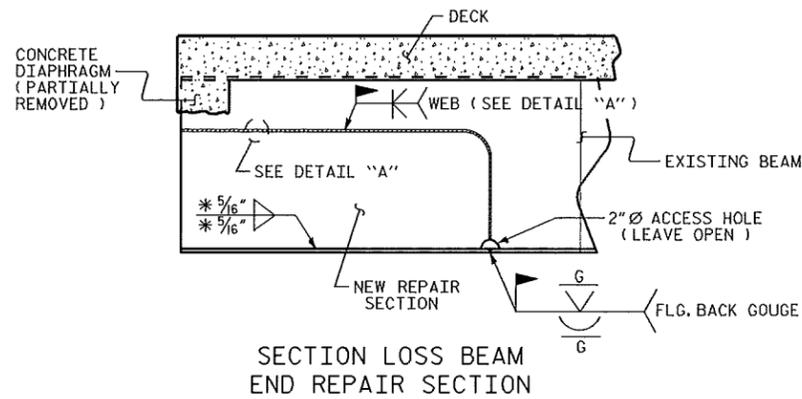
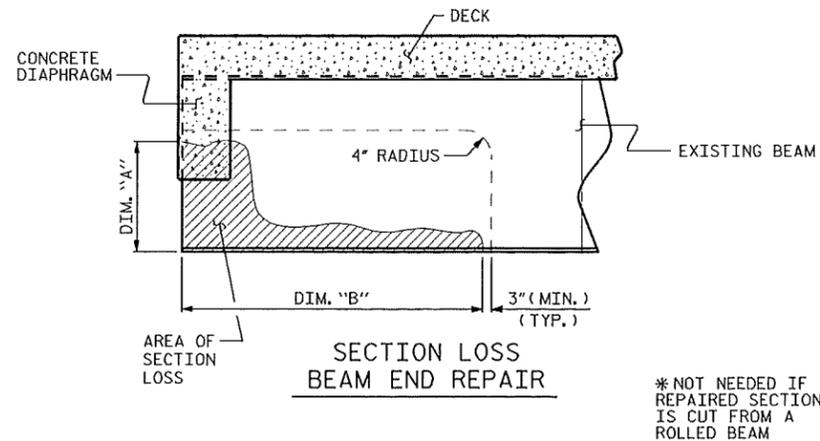
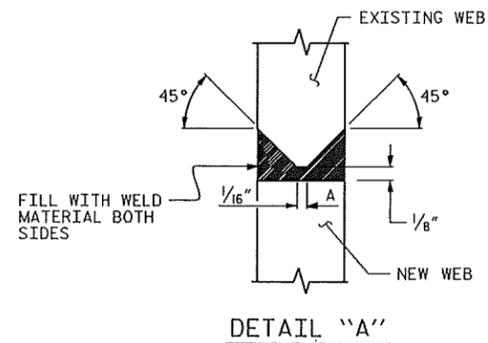
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BEAM REPAIR LOCATIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			15
2			4			



DRAWN BY : C.L. BRIGHT DATE : 4/15
 CHECKED BY : T.M. SHERRILL DATE : 4/15



ANTICIPATED BEAM CUT-OUT REPAIR LOCATIONS				
LOCATION	SPAN	BEAM	DIM. "A"	DIM. "B"
BENT 1	A	1	1'-9"	5'-0"
BENT 1	B	1	1'-2"	2'-8"
BENT 1	A	2	1'-6"	2'-9"
BENT 1	B	2	1'-2"	3'-0"
BENT 1	A	3	1'-4"	2'-8"
BENT 1	B	3	1'-4"	2'-4"
BENT 1	B	4	1'-6"	3'-4"

NOTES:

REPAIR OF BEAM END CUT-OUT REPAIRS SHALL BE COORDINATED WITH BEARING REPLACEMENTS, SO THAT BOTH WILL BE PERFORMED UNDER ONE BRIDGE JACKING OPERATION AT EACH BENT, AS NECESSARY.

INASMUCH AS THE PAINT SYSTEM OF THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTORS ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COST RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE IN THE BID PRICE FOR THE VARIOUS ITEMS OF WORK.

FOR "BEAM REPAIR", SEE SPECIAL PROVISIONS.

FOR "BRIDGE JACKING", SEE SPECIAL PROVISIONS.

FOR "FALSEWORK AND FORMWORK", SEE SPECIAL PROVISIONS.

FOR "SUBMITTAL OF WORKING DRAWINGS", SEE SPECIAL PROVISIONS.

FOR "TEMPORARY WORK PLATFORM", SEE SPECIAL PROVISIONS.

FOR "CRANE SAFETY", SEE SPECIAL PROVISIONS.

BEAM END CUT-OUT REPAIR NOTES:

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

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

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

REPAIR SEQUENCE:

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

REMOVE DEAD LOAD FROM BEAM BY JACKING AND BLOCKING. CONTRACTOR SHALL SUBMIT JACKING PLAN FOR APPROVAL, PRIOR TO BEGINNING WORK. SEE BRIDGE JACKING SPECIAL PROVISIONS.

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

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

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

REPLACEMENT CUT-TO-FIT BEAM SECTION SHALL BE NEW AND FROM SIMILAR SIZE ROLLED BEAM OR APPROVED EQUIVALENT PLATES AND SHALL BE SHOP PRIMED WITH AN NCDOT APPROVED INORGANIC ZINC PRIMER PRIOR TO DELIVERY. THE GRADE OF STEEL SHALL BE AASHTO M270, GRADE 36 OR BETTER.

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

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

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

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

AFTER COMPLETION OF SATISFACTORY BEAM REPAIRS, PAINT THE BEAM AREAS THAT MAY BE COVERED BY THE REPAIRED CONCRETE BENT DIAPHRAGM WITH TWO COATS OF ORGANIC ZINC PAINT MEETING ARTICLE 1080-9 OF THE STANDARD SPECIFICATIONS. PAINT ON THE REPAIRED BEAMS SHALL EXTEND AT LEAST THREE INCHES PAST THE EXTENTS OF THE CONCRETE BENT DIAPHRAGM. PAINTING IS NOT REQUIRED FOR THE REMAINING PORTION OF THE BEAMS. NO SEPARATE PAYMENT SHALL BE MADE FOR THIS PAINTING, AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "BEAM REPAIR".

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

AFTER COMPLETION OF BEAM END CUT-OUT REPAIRS AND BEARING REPLACEMENTS, LOWER SPAN TO BEAR; CHECK FOR DISTRESS.

REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. 14B.104534.4
HENDERSON COUNTY
 BRIDGE NO. 121

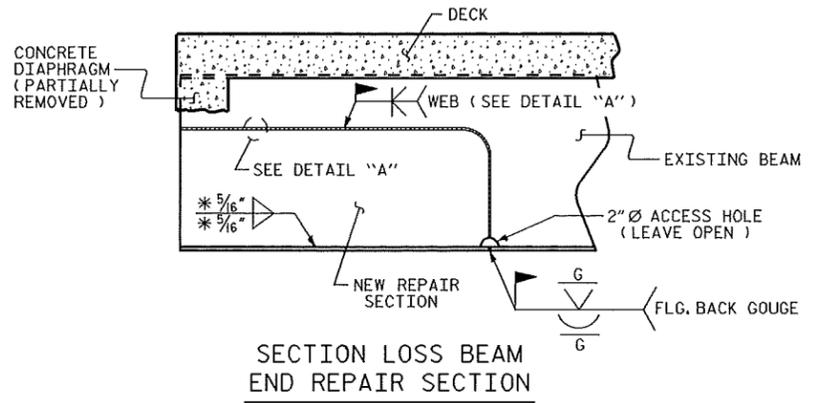
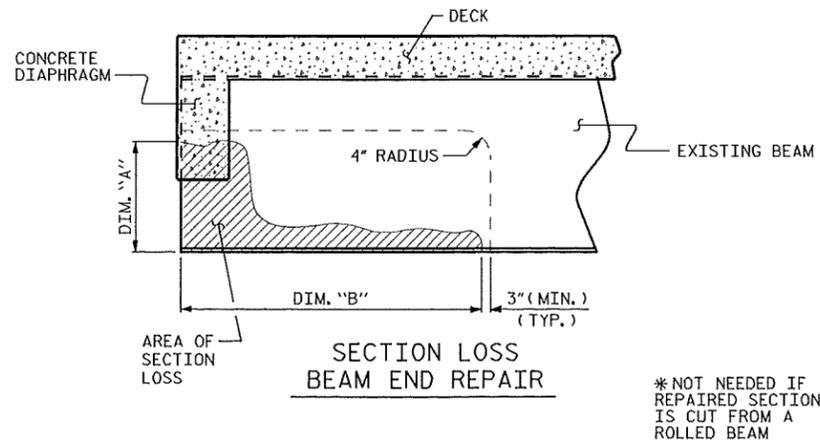
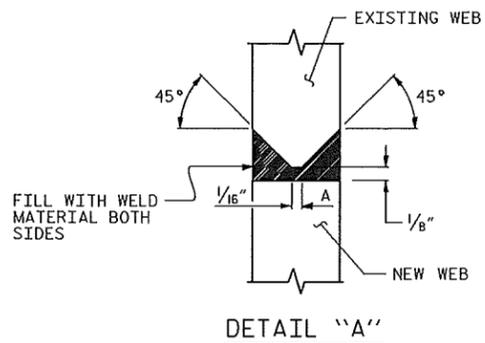
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BEAM END CUT-OUT REPAIR DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			15



DRAWN BY : P.C. BREWER DATE : 3/15
 CHECKED BY : T.M. SHERRILL DATE : 4/15



ANTICIPATED BEAM CUT-OUT REPAIR LOCATIONS				
LOCATION	SPAN	BEAM	DIM. "A"	DIM. "B"
BENT 1	A	1	1'-9"	5'-0"
BENT 1	B	1	1'-2"	2'-8"
BENT 1	A	2	1'-6"	2'-9"
BENT 1	B	2	1'-2"	3'-0"
BENT 1	A	3	1'-4"	2'-8"
BENT 1	B	3	1'-4"	2'-4"
BENT 1	B	4	1'-6"	3'-4"

NOTES:

REPAIR OF BEAM END CUT-OUT REPAIRS SHALL BE COORDINATED WITH BEARING REPLACEMENTS, SO THAT BOTH WILL BE PERFORMED UNDER ONE BRIDGE JACKING OPERATION AT EACH BENT, AS NECESSARY.

INASMUCH AS THE PAINT SYSTEM OF THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTORS ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COST RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE IN THE BID PRICE FOR THE VARIOUS ITEMS OF WORK.

FOR "BEAM REPAIR", SEE SPECIAL PROVISIONS.

FOR "BRIDGE JACKING", SEE SPECIAL PROVISIONS.

FOR "FALSEWORK AND FORMWORK", SEE SPECIAL PROVISIONS.

FOR "SUBMITTAL OF WORKING DRAWINGS", SEE SPECIAL PROVISIONS.

FOR "TEMPORARY WORK PLATFORM", SEE SPECIAL PROVISIONS.

FOR "CRANE SAFETY", SEE SPECIAL PROVISIONS.

BEAM END CUT-OUT REPAIR NOTES:

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

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

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

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

REMOVE DEAD LOAD FROM BEAM BY JACKING AND BLOCKING. CONTRACTOR SHALL SUBMIT JACKING PLAN FOR APPROVAL, PRIOR TO BEGINNING WORK. SEE BRIDGE JACKING SPECIAL PROVISIONS.

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

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

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

REPLACEMENT CUT-TO-FIT BEAM SECTION SHALL BE NEW AND FROM SIMILAR SIZE ROLLED BEAM OR APPROVED EQUIVALENT PLATES AND SHALL BE SHOP PRIMED WITH AN NCDOT APPROVED INORGANIC ZINC PRIMER PRIOR TO DELIVERY. THE GRADE OF STEEL SHALL BE AASHTO M270, GRADE 36 OR BETTER.

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

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

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

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

AFTER COMPLETION OF SATISFACTORY BEAM REPAIRS, PAINT THE BEAM AREAS THAT MAY BE COVERED BY THE REPAIRED CONCRETE BENT DIAPHRAGM WITH TWO COATS OF ORGANIC ZINC PAINT MEETING ARTICLE 1080-9 OF THE STANDARD SPECIFICATIONS. PAINT ON THE REPAIRED BEAMS SHALL EXTEND AT LEAST THREE INCHES PAST THE EXTENTS OF THE CONCRETE BENT DIAPHRAGM. PAINTING IS NOT REQUIRED FOR THE REMAINING PORTION OF THE BEAMS. NO SEPARATE PAYMENT SHALL BE MADE FOR THIS PAINTING, AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "BEAM REPAIR".

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

AFTER COMPLETION OF BEAM END CUT-OUT REPAIRS AND BEARING REPLACEMENTS, LOWER SPAN TO BEAR; CHECK FOR DISTRESS.

REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. 14B.104534.4
 HENDERSON COUNTY
 BRIDGE NO. 121

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

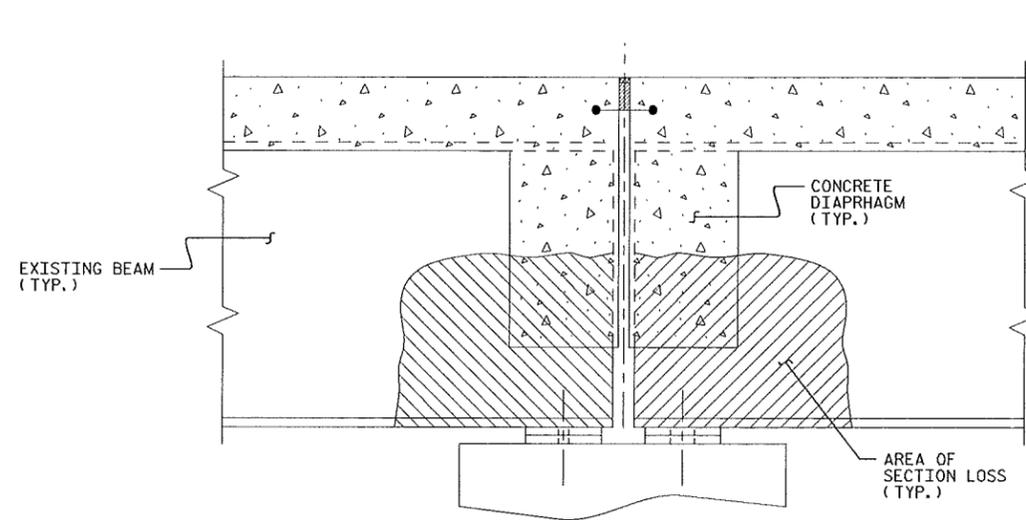
BEAM END CUT-OUT REPAIR DETAILS

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

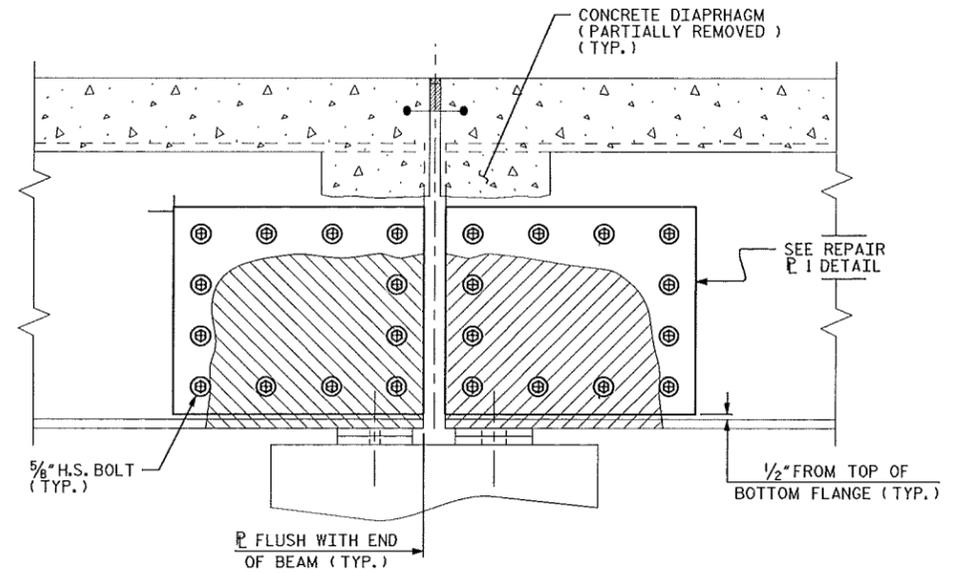
T. M. Sherrill
 04/28/15

NO. 1 BY: DATE: NO. 2 BY: DATE: SHEET NO. S-6 TOTAL SHEETS 15

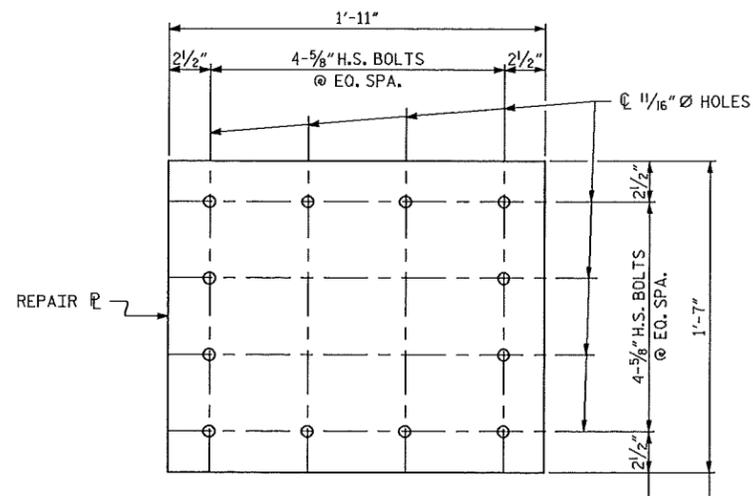
DRAWN BY : P.C. BREWER DATE : 3/15
 CHECKED BY : T.M. SHERRILL DATE : 4/15



(EXISTING)
SECTION LOSS
BEAM END REPAIR



(REPAIR 1)
SECTION LOSS BEAM
END REPAIR PLATES



REPAIR P 1 DETAIL
(28 REQ'D)

BEAM END PLATE REPAIR NOTES:

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

EACH PLATE SHALL BE 1/4" THICKNESS AND SHALL BE APPROVED BY THE ENGINEER.

PLATES SHALL BE NEW, AASHTO M270, GRADE 36 OR BETTER.

PLATES SHALL BE SHOP PRIMED WITH AN NCDOT APPROVED INORGANIC ZINC PRIMER PRIOR TO DELIVERY.

ALL BOLTS SHALL MEET ASTM A325.

ALL NUTS SHALL MEET ASTM A194.

ALL FLAT WASHERS SHALL MEET ASTM F436.

TENSION ON THE BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS (DTIS) IN ACCORDANCE WITH ARTICLE 440-8 OF THE NCDOT STANDARD SPECIFICATIONS. DTIS SHALL BE MEET ASTM F959.

MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA. AFTER CLEANING, PAINT THE BEAM AREAS THAT WILL BE COVERED WITH NEW PLATES WITH TWO COATS OF ORGANIC ZINC PAINT MEETING ARTICLE 1080-9 OF THE STANDARD SPECIFICATIONS. PAINT ON BEAMS SHALL EXTEND AT LEAST 3" PAST NEW PLATES.

PRIOR TO PLACEMENT OF THE PLATES, APPLY WET EPOXY MASTIC AROUND THE TOP AND SIDE PERIMETERS ON THE PLATE FACE THAT IS TO BE IN CONTACT WITH THE BEAM. AMOUNT OF EPOXY MASTIC SHALL BE SUFFICIENT TO SEAL THE INTERFACE OF THE PLATE AND THE BEAM AFTER BOLTS ARE TIGHTENED. NO EPOXY MASTIC SHALL BE PLACED ALONG THE BOTTOM PERIMETER ON THE PLATE, WHILE THE MASTIC IS STILL WET, PLATES SHALL BE PUT IN PLACE AND BOLTS PROPERLY TIGHTENED.

THE EPOXY MASTIC USED FOR THIS WORK SHALL BE COMPATIBLE WITH THE PAINT SYSTEM USED FOR THE PAINTING OF EXISTING STEEL AND SHALL BE APPROVED BY THE NCDOT MATERIALS AND TEST UNIT. THE EPOXY MASTIC WILL BE ACCEPTED ON THE BASIS OF THE MANUFACTURER'S WRITTEN CERTIFICATION THAT THE BATCH PRODUCED MEETS THEIR PRODUCT SPECIFICATION.

PAYMENT WILL BE MADE AT CONTRACT PRICE BID PER POUNDS STRUCTURAL STEEL USED FOR BEAM REPAIR. SUCH PAYMENTS WILL BE FULL COMPENSATION FOR ALL MATERIALS, EQUIPMENT, TOOLS, LABOR, MISCELLANEOUS STEEL, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

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

PROJECT NO. 14B.104534.4
HENDERSON COUNTY
BRIDGE NO. 121

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

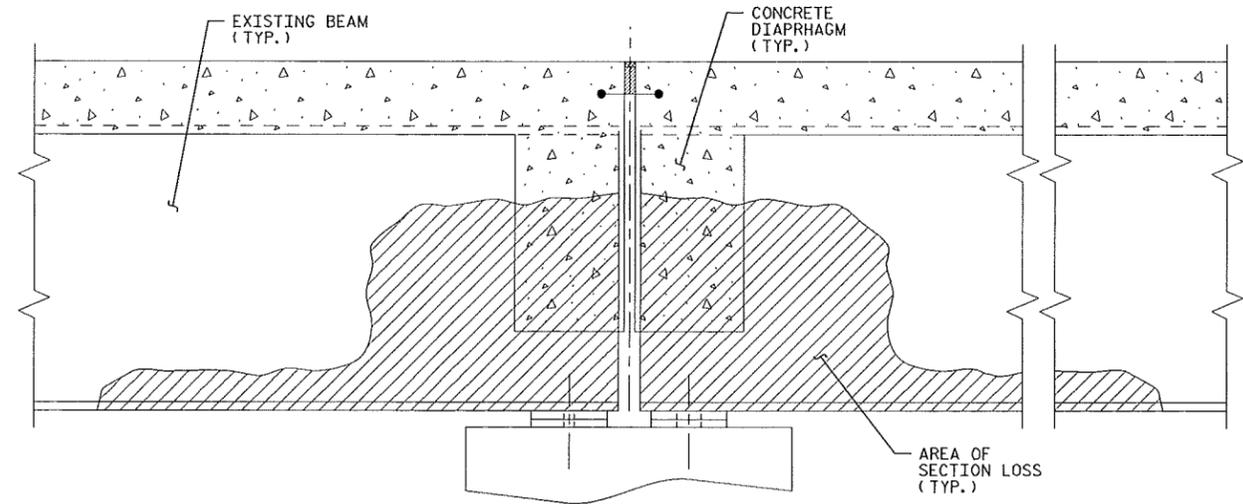
BEAM END PLATE
REPAIR DETAILS



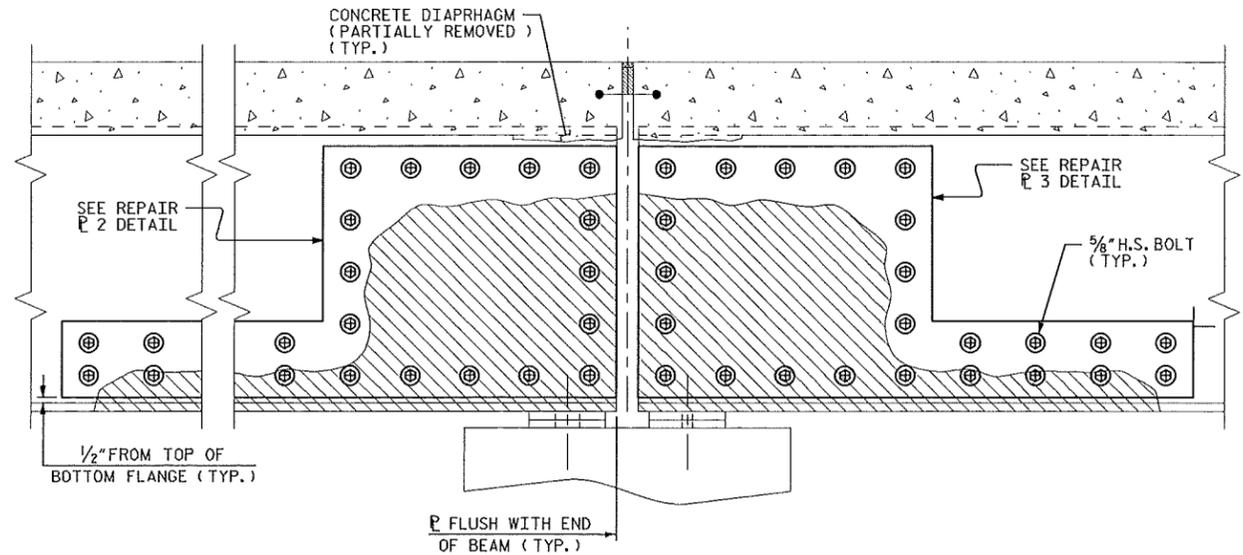
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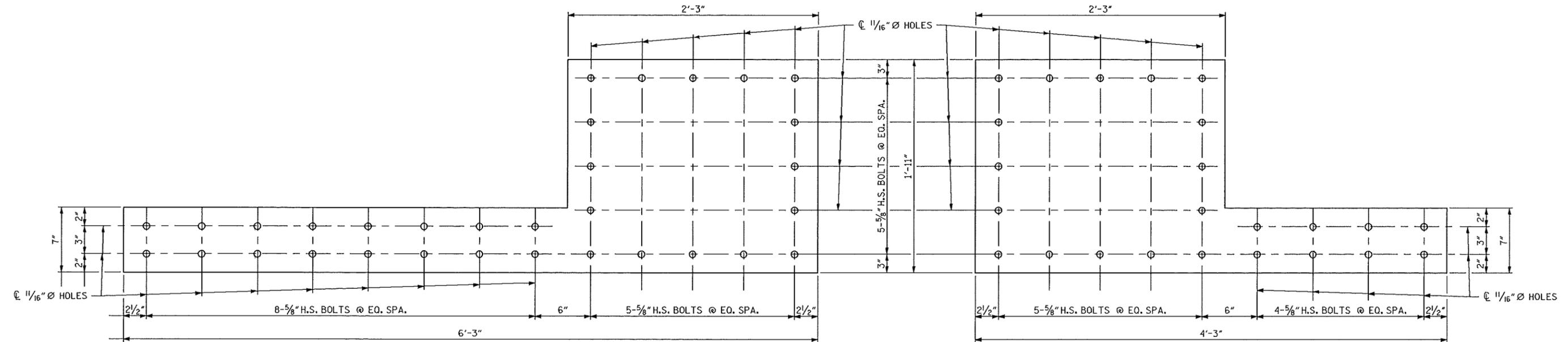
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1			3			TOTAL SHEETS
2			4			15



(EXISTING)
SECTION LOSS BEAM END REPAIR



(REPAIR 2) (REPAIR 3)
SECTION LOSS BEAM END REPAIR PLATES



REPAIR P 2 DETAIL
(2 REO'D)

REPAIR P 3 DETAIL
(2 REO'D)

PLATED REPAIR LOCATIONS							
LOCATION	BEAM	SPAN	REPAIR TYPE	LOCATION	BEAM	SPAN	REPAIR TYPE
BENT 2	1	B	REPAIR 1	BENT 3	1	C	REPAIR 1
BENT 2	2	B	REPAIR 1	BENT 3	2	C	REPAIR 1
BENT 2	3	B	REPAIR 1	BENT 3	3	C	REPAIR 1
BENT 2	4	B	REPAIR 1	BENT 3	4	C	REPAIR 2
BENT 2	1	C	REPAIR 1	BENT 3	1	D	REPAIR 1
BENT 2	2	C	REPAIR 1	BENT 3	2	D	REPAIR 1
BENT 2	3	C	REPAIR 1	BENT 3	3	D	REPAIR 1
BENT 2	4	C	REPAIR 1	BENT 3	4	D	REPAIR 3

PROJECT NO. 14B.104534.4
 HENDERSON COUNTY
 BRIDGE NO. 121
 SHEET 2 OF 2

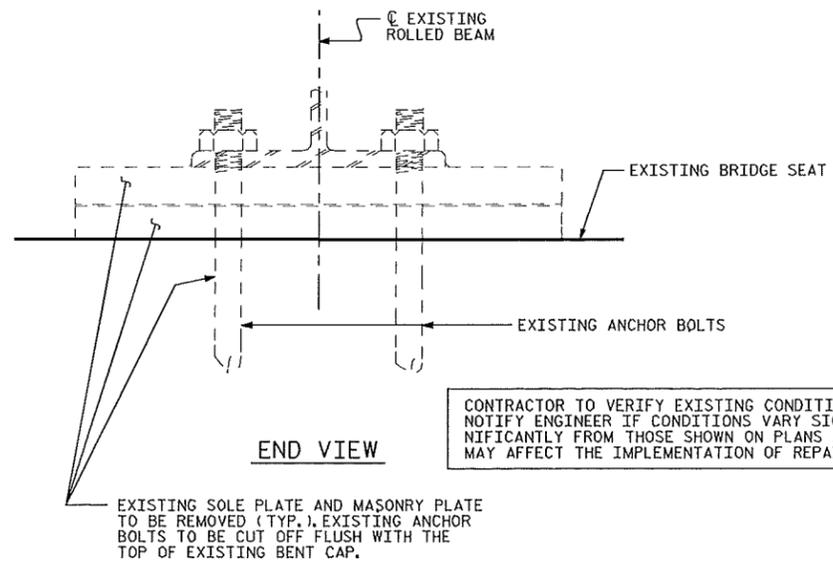
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BEAM END PLATE
 REPAIR DETAILS

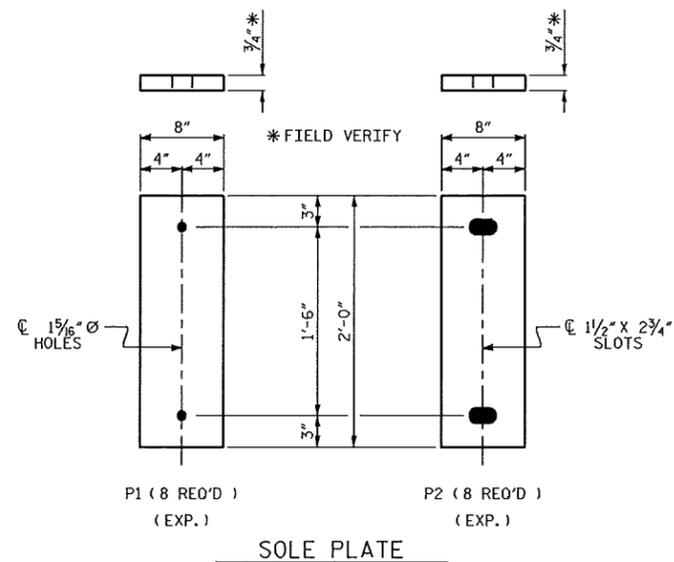
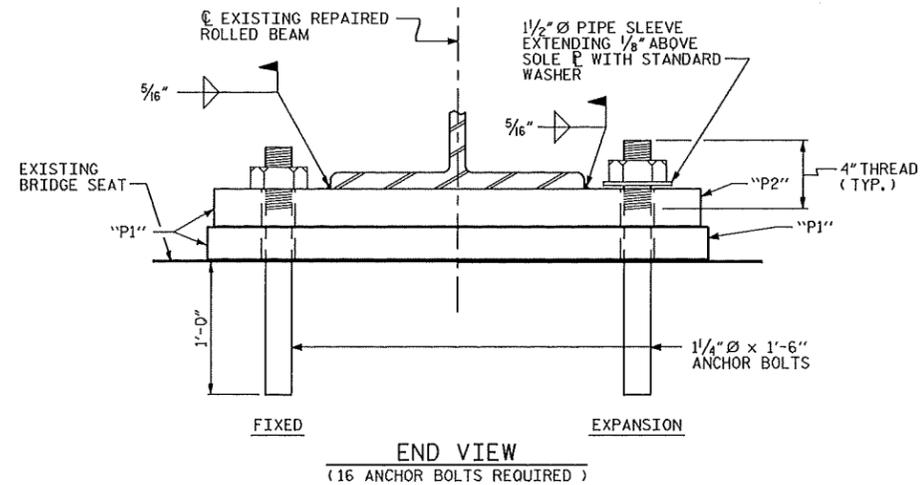
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1			3			TOTAL SHEETS
2			4			15



DRAWN BY : P.C. BREWER DATE : 3/15
 CHECKED BY : T.M. SHERRILL DATE : 4/15
 DESIGN ENGINEER OF RECORD: DATE :



CONTRACTOR TO VERIFY EXISTING CONDITIONS. NOTIFY ENGINEER IF CONDITIONS VARY SIGNIFICANTLY FROM THOSE SHOWN ON PLANS AND MAY AFFECT THE IMPLEMENTATION OF REPAIRS.



BEARING REPAIR SEQUENCE

THE EXISTING BEARINGS DETERMINED FOR REPLACEMENT SHALL BE REMOVED AND REPLACED WITH BEARINGS AS SHOWN.

AT ALL POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

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

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

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

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1 1/4 inch diameter ANCHOR BOLTS. BOLTS SHALL BE ADHESIVELY ANCHORED; SEE STANDARD SPECIFICATIONS. ADHESIVE FOR NEW ANCHOR BOLTS SHALL BE AN NCDOT-APPROVED PRODUCT. FIELD TESTING WILL NOT BE REQUIRED FOR INSTALLATION OF ADHESIVELY ANCHORED BOLTS.

ANTICIPATED BEARING REPLACEMENT LOCATIONS

SPAN	BEAM	LOCATION	PLATES
A	1	BENT 1	P1, P2
A	2	BENT 1	P1, P2
A	3	BENT 1	P1, P2
A	4	BENT 1	P1, P2
B	1	BENT 1	P1, P2
B	2	BENT 1	P1, P2
B	3	BENT 1	P1, P2
B	4	BENT 1	P1, P2

PROJECT NO. 14B.104534.4
 HENDERSON COUNTY
 BRIDGE NO. 121

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BEARING REPLACEMENT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			15



ASSEMBLED BY : P.C. BREWER DATE : 3/15
 CHECKED BY : T.M. SHERRILL DATE : 4/15

JACKING NOTES:

THE CONTRACTOR SHALL SUBMIT JACKING PLANS AND CALCULATIONS FOR REVIEW AND APPROVAL PRIOR TO MATERIAL PURCHASE OR FABRICATION OF THE JACKING SYSTEM.

THE CONTRACTOR SHALL JACK ALL GIRDERS IN A SPAN ON AN INDIVIDUAL BENT SIMULTANEOUSLY BY MEANS OF A DUAL-FLOW PRESSURIZED PUMP CONTROLLING THE JACKS. ALTERNATIVELY, JACKING OF INDIVIDUAL GIRDERS MAY BE ALLOWED, PROVIDED THE ELEVATION DIFFERENCE FROM THE JACKED GIRDER TO ADJACENT GIRDER(S) DOES NOT EXCEED 1/8".

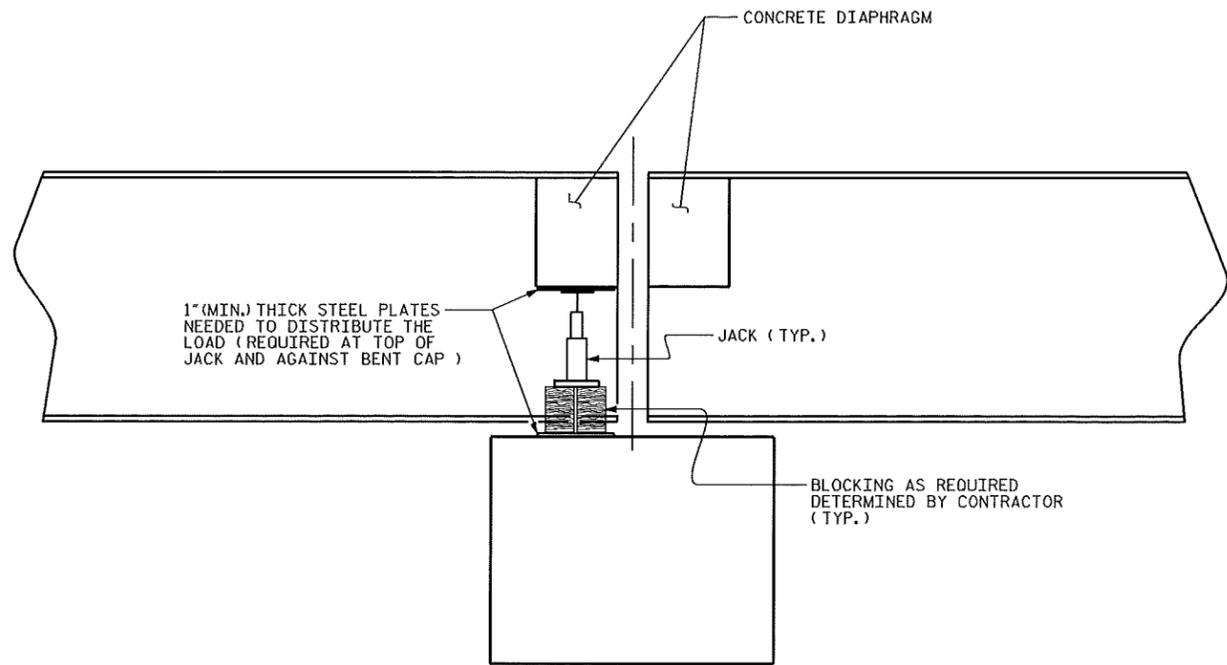
THE SPAN SHALL BE LIFTED ENOUGH THAT THE BEAMS CLEAR THE BEARINGS AND ALL LOAD IS SUPPORTED BY THE JACKS. AFTER JACKING IS COMPLETE, THE CONTRACTOR SHALL PROVIDE A METHOD TO SUPPORT THE SPAN FOR DEAD AND LIVE LOADS AND REMOVE THE JACKS DURING BEAM REPAIR, OR IF JACKS REMAIN IN PLACE DURING THE ENTIRE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

IF DURING THE JACKING PROCESS OR WHILE THE SPAN IS BEING SUPPORTED THE BEAMS SHIFT FROM THEIR ORIGINAL POSITION, ALL WORK WILL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

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

ALL ADJACENT BEARINGS OF BEAMS NOT BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARINGS LOOSENED SHALL BE TIGHTENED BACK AFTER THE BEAMS ARE REPAIRED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

PAYMENT OF JACKING WILL BE MADE AT THE LUMP SUM PRICE BID FOR "BRIDGE JACKING". SUCH LUMP SUM PRICE WILL BE FULL COMPENSATION FOR ALL MATERIALS, EQUIPMENT, TOOLS, LABOR, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.



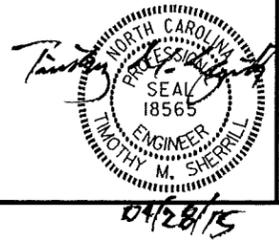
SECTION THRU DIAPHRAGM
 (FOR GENERAL INFORMATION, ONLY. CONTRACTOR SHALL SUBMIT THEIR OWN JACKING PLAN SPECIFIC TO THIS PROJECT.)

PROJECT NO. 14B.104534.4
HENDERSON COUNTY
 BRIDGE NO. 121

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BEAM END REPAIR AND BEARING REPLACEMENT
 JACKING DETAILS

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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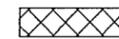


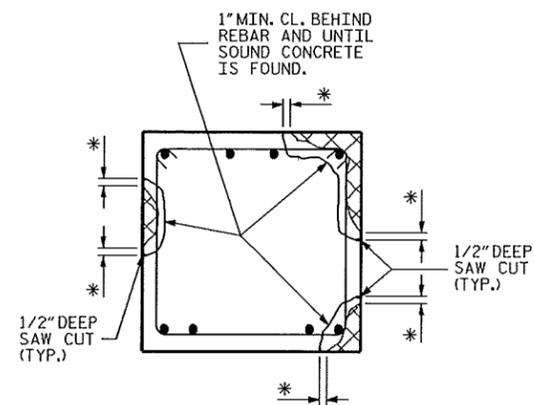
DRAWN BY : P.C. BREWER DATE : 3/15
 CHECKED BY : T.M. SHERRILL DATE : 4/15

SUMMARY OF QUANTITIES

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	28.0	10.5		
DIAPHRAGM	3.3	1.7		

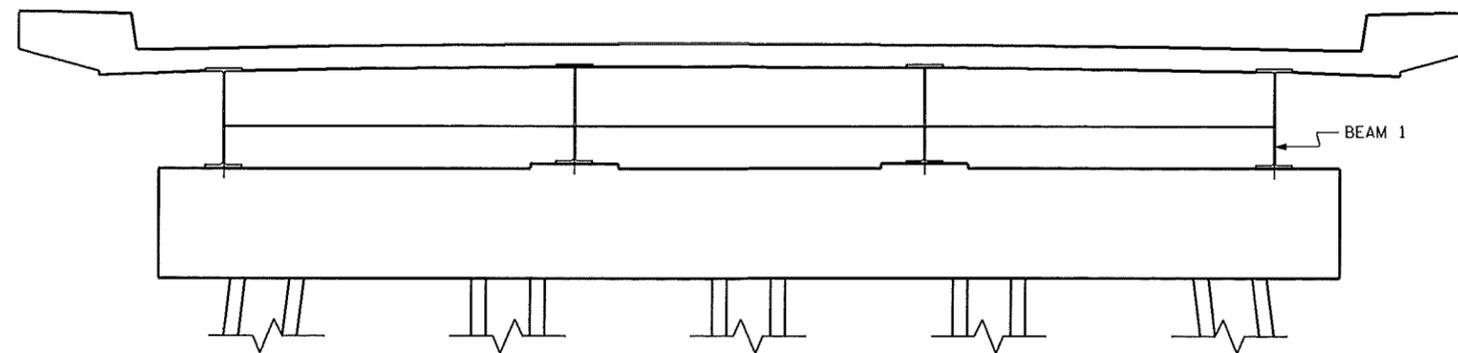
VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAW CUT. SEE REPAIR DETAILS.

 DAMAGED AREA

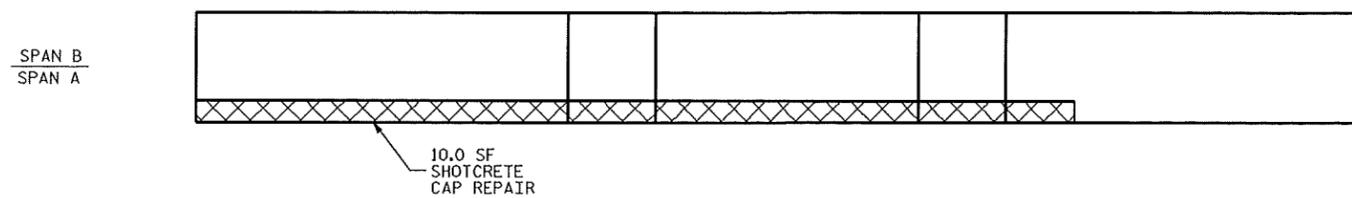


* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (1" MIN. DEPTH)

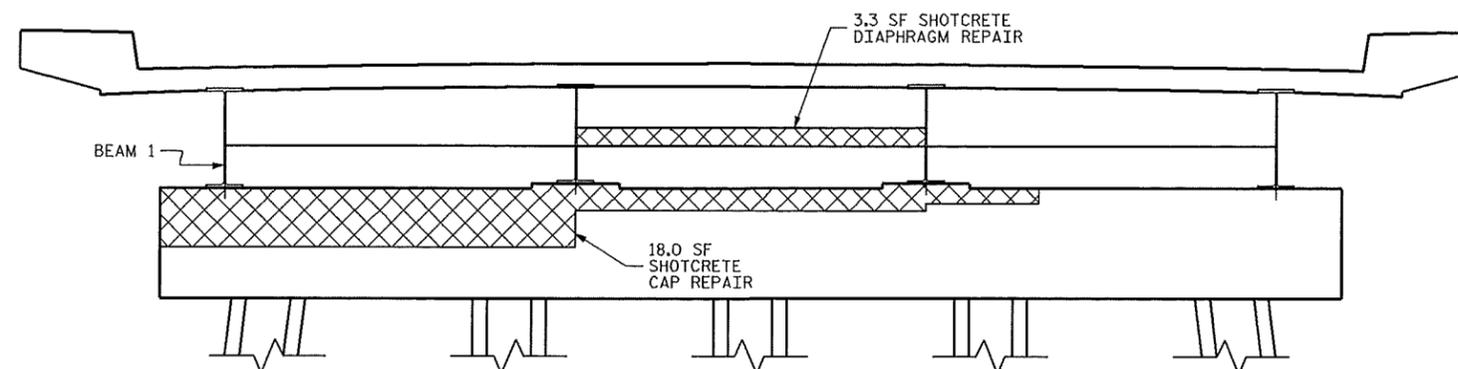
CAP REPAIR DETAILS (SCALED FOR CLARITY)



BENT 1 (NORTH FACE)



TOP OF CAP



BENT 1 (SOUTH FACE)

NOTES

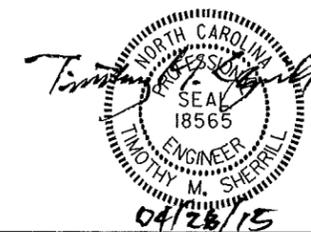
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWING THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR DIAPHRAGM REPAIR DETAILS SEE "BENT 3" SHEET.

PROJECT NO. 14B.104534.4
HENDERSON COUNTY
 BRIDGE NO. 121

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

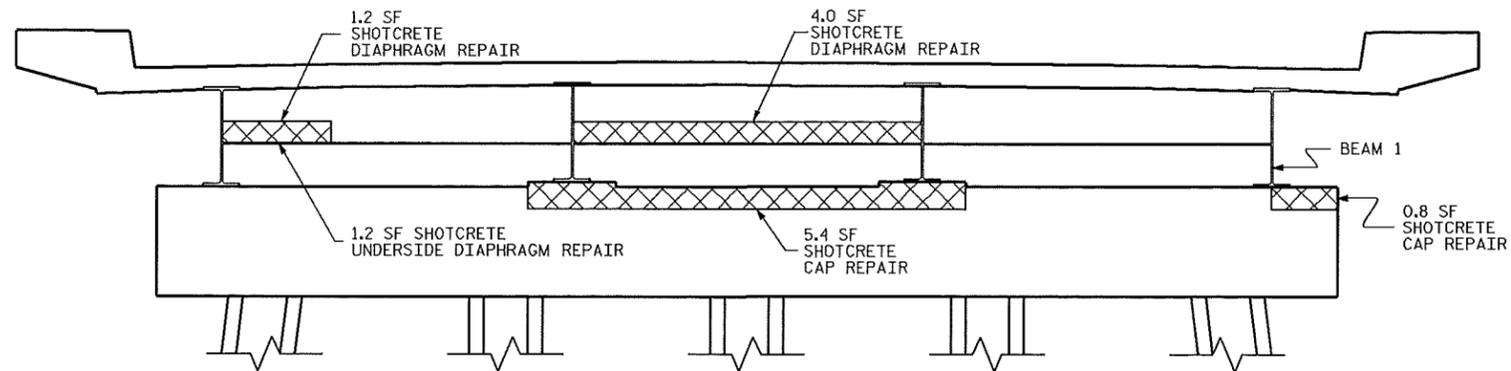
BENT 1



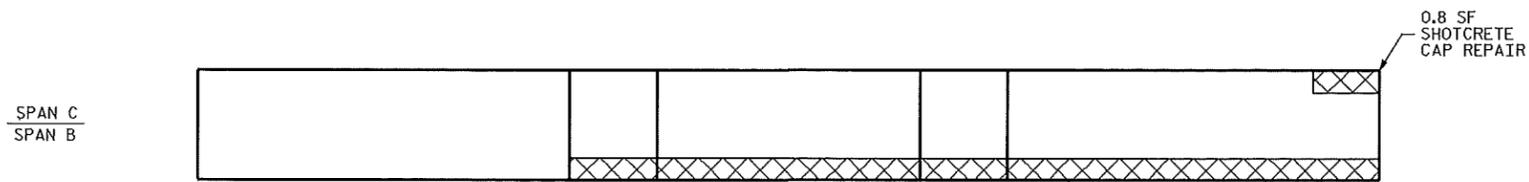
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 CHECKED BY : T. SHERRILL DATE : 04/15
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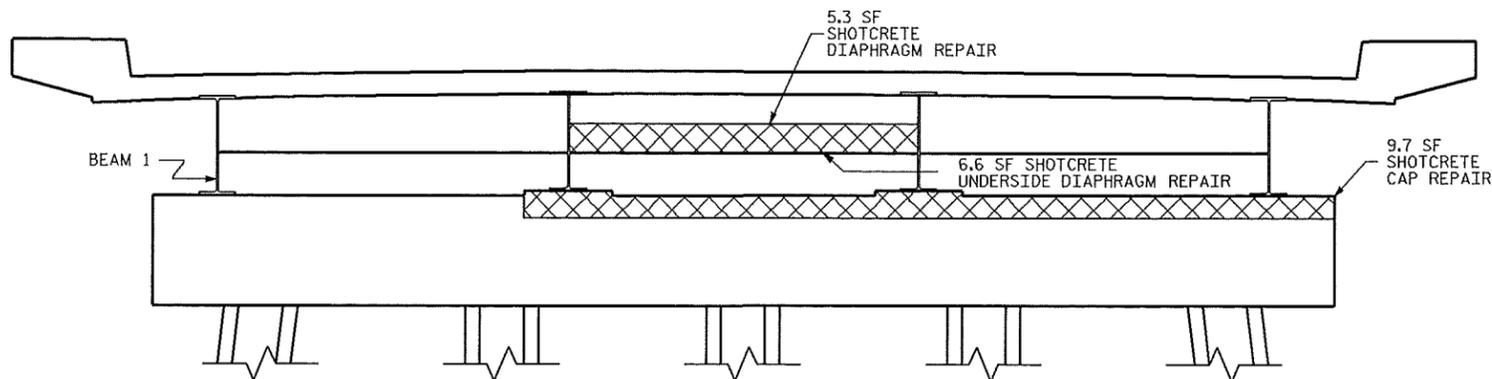


BENT 2 (NORTH FACE)



TOP OF CAP

DAMAGED AREA



BENT 2 (SOUTH FACE)

SUMMARY OF QUANTITIES				
REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	31.3	11.7		
DIAPHRAGM	11.7	5.9		

VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAW CUT. SEE REPAIR DETAILS.

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWING THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR CAP REPAIR DETAILS, SEE "BENT 1" SHEET.

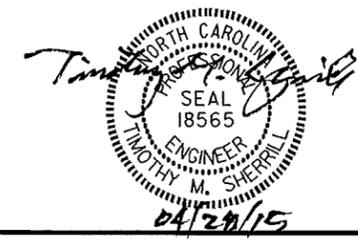
FOR DIAPHRAGM REPAIR DETAILS, SEE "BENT 3" SHEET.

PROJECT NO. 14B.104534.4
 HENDERSON COUNTY
 BRIDGE NO. 121

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT 2

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2			4			

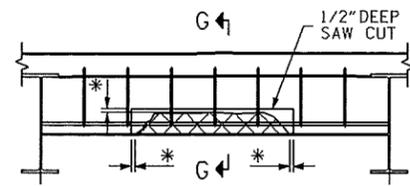


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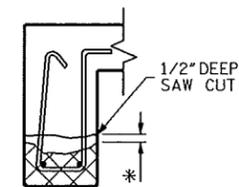
SUMMARY OF QUANTITIES

REPAIRS BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	13.8	5.2		
DIAPHRAGM	27.8	13.9		

VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAW CUT. SEE REPAIR DETAILS.



TYPICAL SECTION



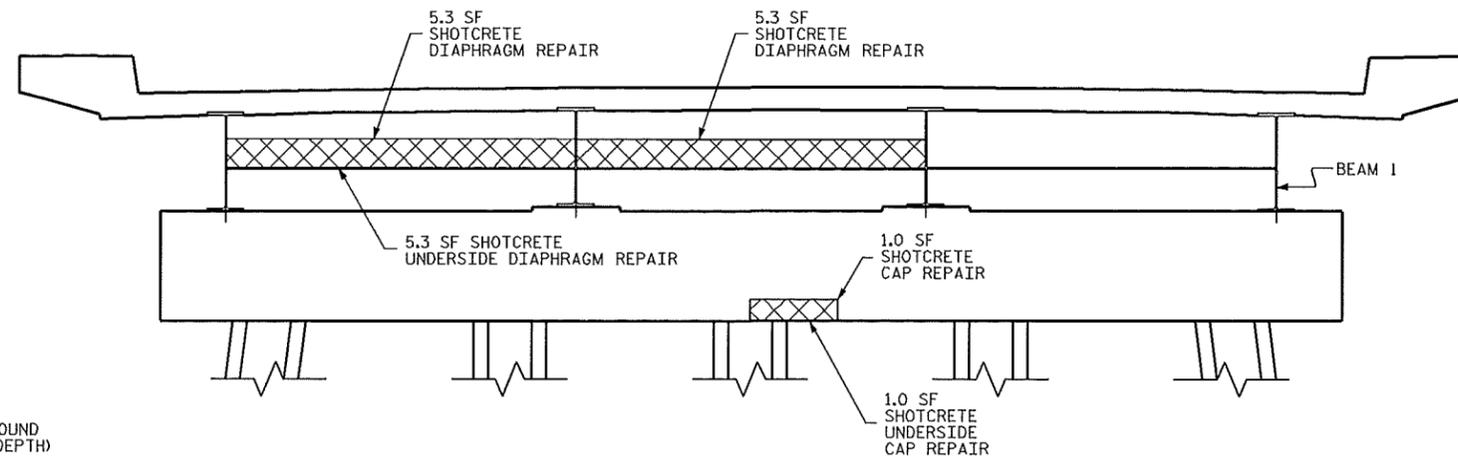
SECTION G-G
(SCALED FOR CLARITY)

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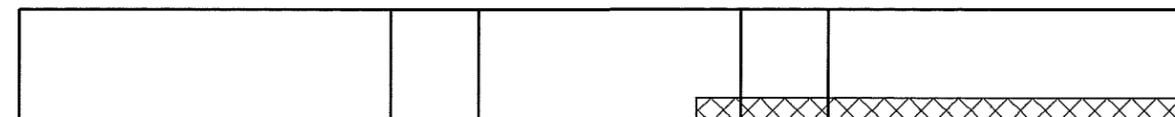
NOTE:
EXISTING REBAR TO REMAIN IN PLACE. CLEAN AND REPAIR AS NECESSARY.

DAMAGED AREA

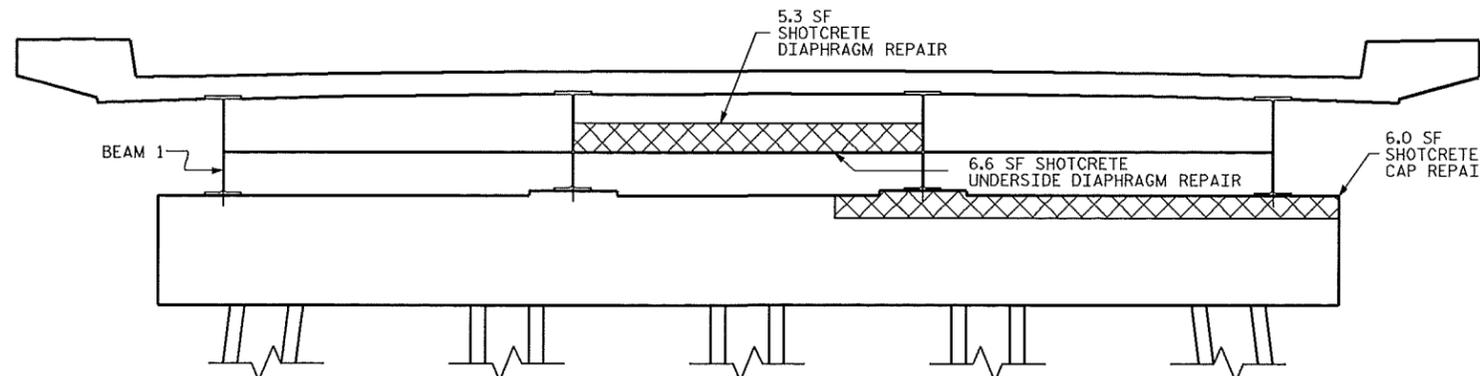
SPAN D
SPAN C



BENT 3 (NORTH FACE)



TOP OF CAP



BENT 3 (SOUTH FACE)

NOTES

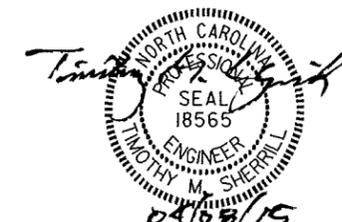
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FOR CAP REPAIR DETAILS, SEE "BENT 1" SHEET.

PROJECT NO. 14B.104534.4
HENDERSON COUNTY
 BRIDGE NO. 121

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT 3



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 CHECKED BY : I. SHERRILL DATE : 04/15
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1			2			TOTAL SHEETS
2			4			15

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "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 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 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 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 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0". EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED. WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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.

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