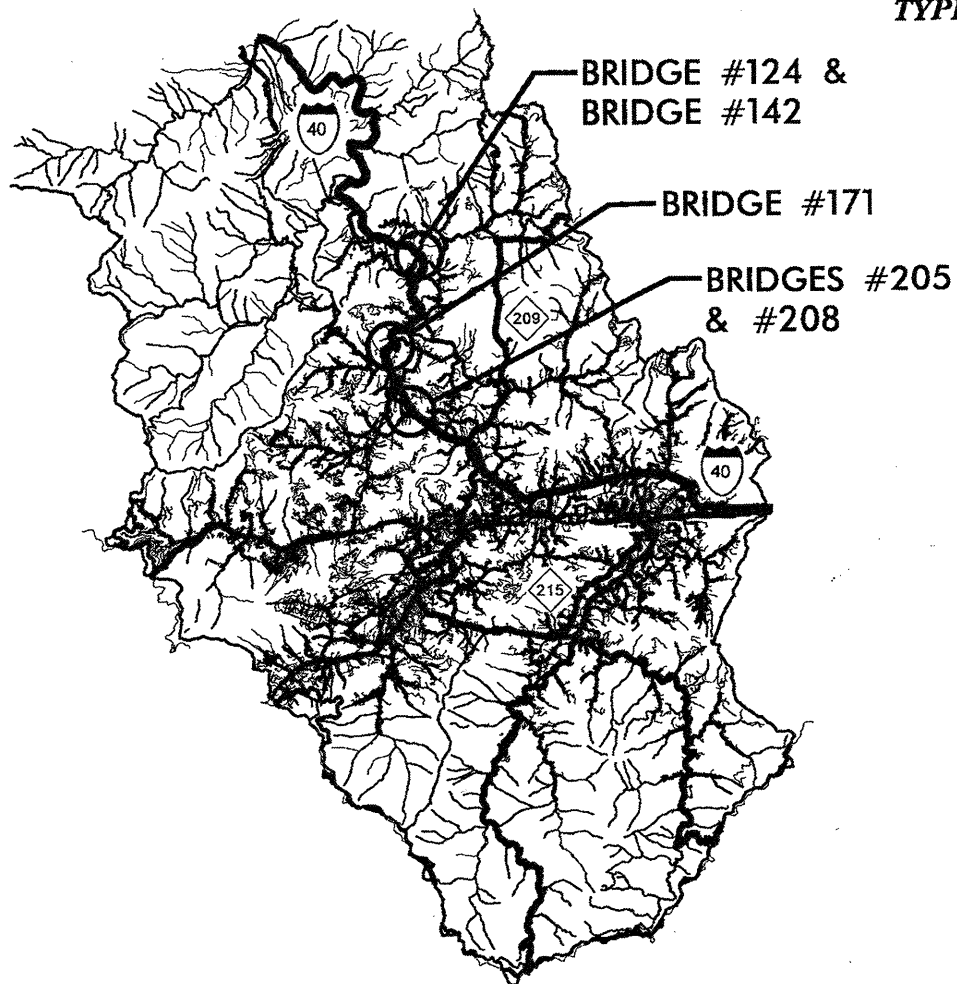
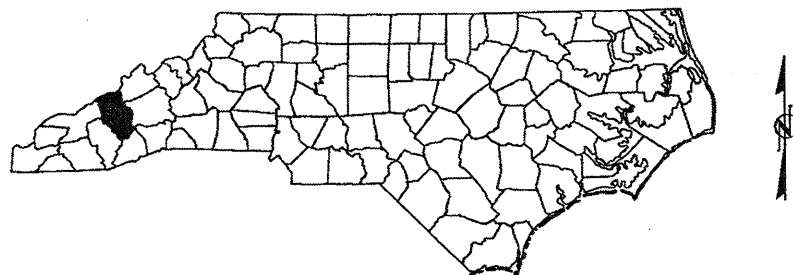


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**TIP PROJECT: BP-5300N**

**CONTRACT: C202899**



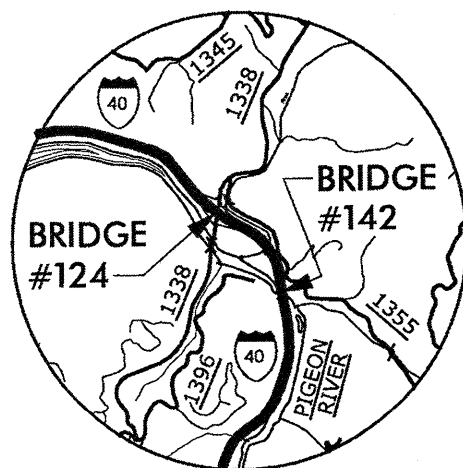
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**HAYWOOD COUNTY**

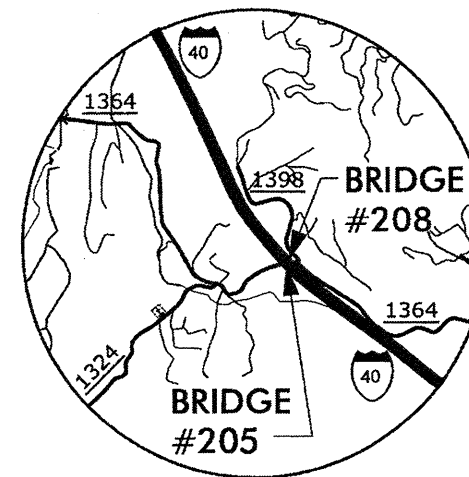
**LOCATION:** BRIDGE #124 ON INTERSTATE 40 OVER S.R. 1338  
 BRIDGE #142 ON INTERSTATE 40 OVER PIGEON RIVER  
 BRIDGE #171 ON INTERSTATE 40 OVER S.R. 1338, JONATHAN CREEK  
 BRIDGES #205 & #208 ON INTERSTATE 40 OVER S.R. 1364

**TYPE OF WORK: BRIDGE PRESERVATION: STRUCTURAL STEEL AND SUBSTRUCTURE REPAIRS**

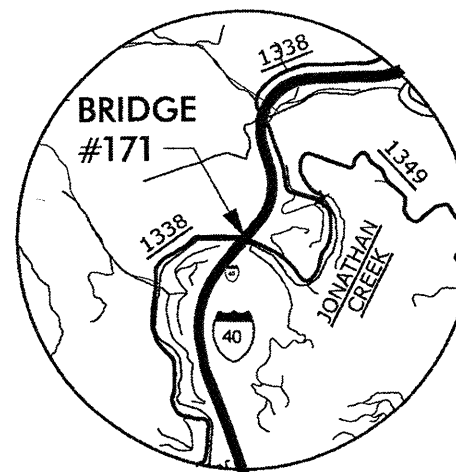
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP-5300N	1A	23
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45438.1.1	BRIMS-040-1(227)	PE	
45438.3.13	BRIMS-040-1(227)	CONSTR.	



VICINITY MAP  
BRIDGES #124 & #142

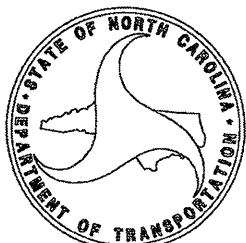


VICINITY MAP  
BRIDGES #205 & #208



VICINITY MAP  
BRIDGE #171

STV / Ralph Whitehead Associates, Inc.  
 1000 West Morehead St., Ste. 200  
 Charlotte, NC 28208  
 NC LICENSE NO. F-0991



PROJECT LENGTH	
BRIDGE #124	LENGTH STRUCTURE PROJECT = .02 MILE
BRIDGE #142	LENGTH STRUCTURE PROJECT = .07 MILE
BRIDGE #171	LENGTH STRUCTURE PROJECT = .12 MILE
BRIDGES #205 & #208	LENGTH STRUCTURE PROJECT = .06 MILE

Prepared For: DIVISION OF BRIDGE MANAGEMENT NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
LETTING DATE:	
	JANUARY 17, 2012

ENGINEER

MARK F. ROBBINS, P.E.  
PROJECT MANAGER

ERIC B. NELSON, JR.  
ENGINEER

**CONTRACT:**

**TIP PROJECT: BP-5300N**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**HAYWOOD COUNTY**

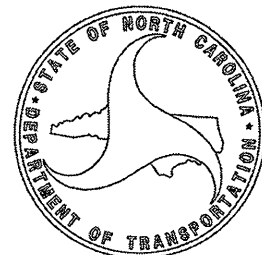
**LOCATION: BRIDGE #124 ON INTERSTATE 40 OVER S.R. 1338  
BRIDGE #142 ON INTERSTATE 40 OVER PIGEON RIVER  
BRIDGE #171 ON INTERSTATE 40 OVER S.R. 1338, JONATHAN CREEK  
BRIDGES #205 & #208 ON INTERSTATE 40 OVER S.R. 1364**

**TYPE OF WORK: BRIDGE PRESERVATION: STRUCTURAL STEEL AND SUBSTRUCTURE REPAIRS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP-5300N	1A	X
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45438.1.1	BRIMS-040-1(227)	PE	
45438.3.13	BRIMS-040-1(227)	CONSTR.	

INDEX OF SHEETS

1	TITLE SHEET
1A	INDEX OF SHEETS
2	SUMMARY OF QUANTITIES
S1-S23	STRUCTURES
TMP-1 - TMP-4A	TRAFFIC MANAGEMENT PLANS



Prepared For:  
**DIVISION OF BRIDGE MANAGEMENT**  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

**ENGINEER**

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
**SUMMARY OF QUANTITIES**

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
 ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202899

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
4405000000-E	1110	224	SF	WORK ZONE SIGNS (PORTABLE)
4415000000-N	1115	1	EA	FLASHING ARROW BOARD
4420000000-N	1120	2	EA	PORTABLE CHANGEABLE MESSAGE SIGN
4430000000-N	1130	60	EA	DRUMS
4450000000-N	1150	240	HR	FLAGGER
4480000000-N	1165	1	EA	TMA
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CLEANING AND REPAINTING BRIDGE #124
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CLEANING AND REPAINTING BRIDGE #142
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CLEANING AND REPAINTING BRIDGE #171
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CLEANING AND REPAINTING BRIDGE #205
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CLEANING AND REPAINTING BRIDGE #208
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM DECK DRAIN MODIFICATION
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POLLUTION CONTROL
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNDERSTRUCTURE WORK PLATFORM
8867000000-E	SP	476	LF	GENERIC STRUCTURE ITEM EPOXY RESIN INJECTION
8882000000-E	SP	143	CF	GENERIC STRUCTURE ITEM CONCRETE REPAIRS
8882000000-E	SP	408	CF	GENERIC STRUCTURE ITEM SHOTCRETE REPAIRS
8889000000-E	SP	5,785	LB	GENERIC STRUCTURE ITEM STRUCTURAL STEEL REPAIRS
8897000000-N	SP	200	EA	GENERIC STRUCTURE ITEM BOLT REMOVAL AND REPLACEMENT

**GENERAL NOTES**

EXISTING BRIDGE AND REPAIR DETAILS INDICATED ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE AND REPAIR DETAILS SHOWN ON THE PLANS AND THE ACTUAL CONDITION AT THE PROJECT SITE.

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

IT IS THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL OSHA AND STATE SAFETY REQUIREMENTS.

DIMENSIONS IN THESE PLANS ARE BASED ON ORIGINAL PLANS. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

ALL VISUAL AND NON-DESTRUCTIVE TESTING WILL BE PERFORMED BY NCDOT.

FOR UNDER STRUCTURE WORK PLATFORM, SEE SPECIAL PROVISIONS.

CONTRACTOR SHALL COORDINATE WITH INSPECTION PERSONNEL TO CAREFULLY EXAMINE HEAVILY RUSTED AREAS, AFTER SURFACE PREPARATION, TO DETERMINE IF ANY SUBSTANTIAL SECTION LOSS HAS OCCURRED.

ALL STRUCTURAL STEEL FOR REPAIRS SHALL BE NEW AASHTO M270 GRADE 36, OR APPROVED EQUIVALENT.

ALL WELDING SHALL BE DONE IN ACCORDANCE WITH CURRENT AWS SPECIFICATIONS

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR STRUCTURAL STEEL REPAIRS, SEE SPECIAL PROVISIONS.

FOR DECK DRAIN MODIFICATION, SEE SPECIAL PROVISIONS.

FOR CLEANING & PAINTING, SEE SPECIAL PROVISIONS.

FOR POLLUTION CONTROL, SEE SPECIAL PROVISIONS.

INTERIOR BENT CAPS SHALL BE COATED WITH EPOXY PROTECTIVE COATING, SEE STANDARD SPECIFICATIONS SECTION 420-18. ALL COSTS RELATED TO EPOXY PROTECTIVE COATING SHALL CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT PAY ITEMS.

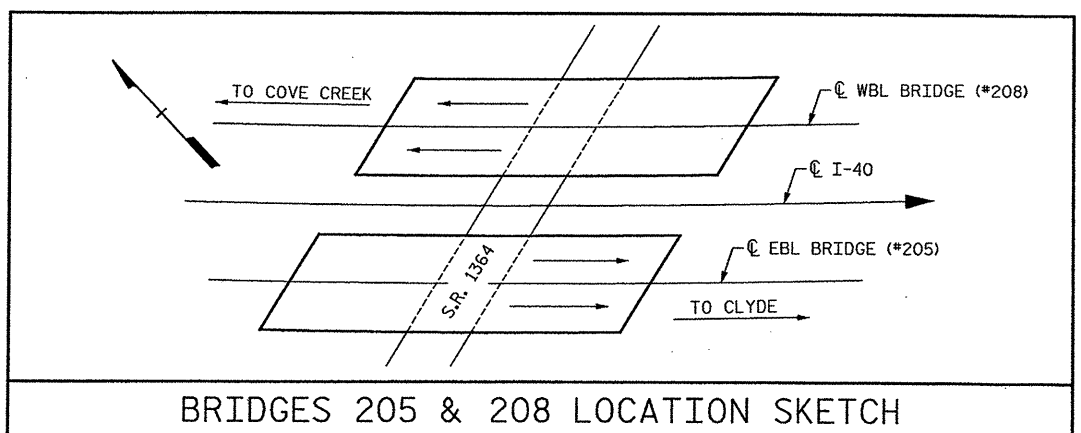
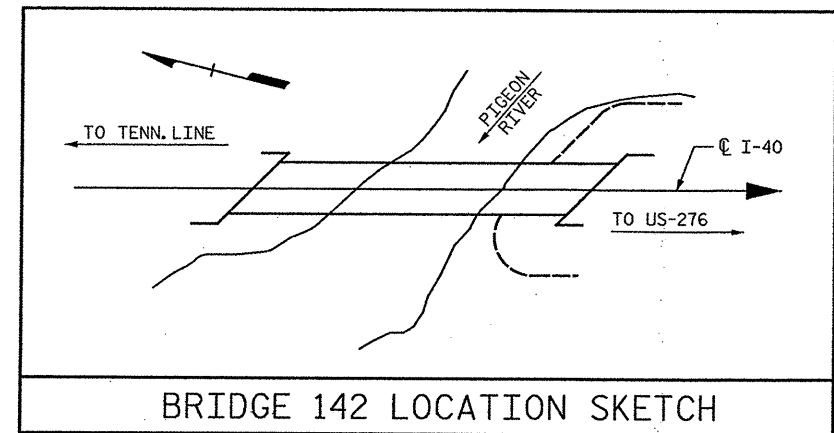
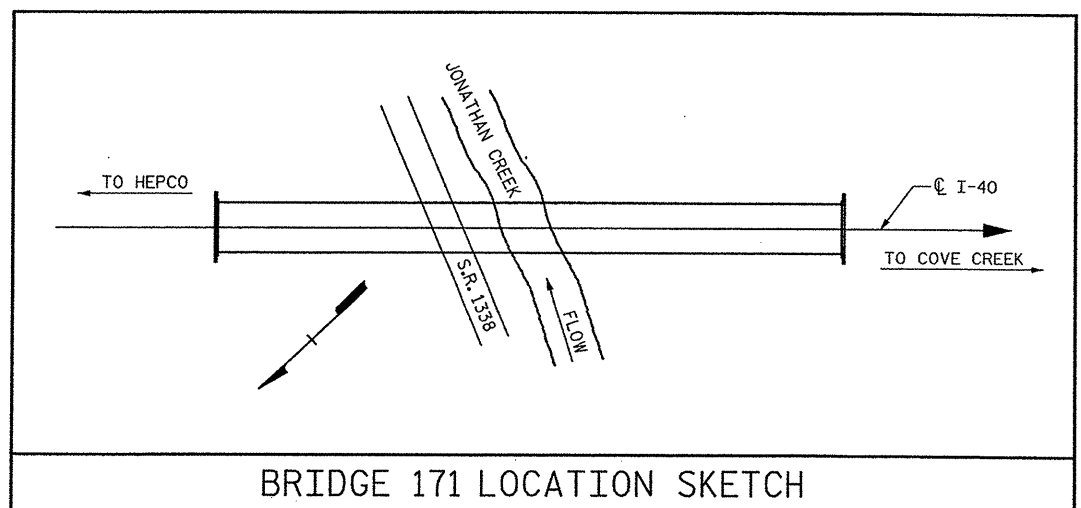
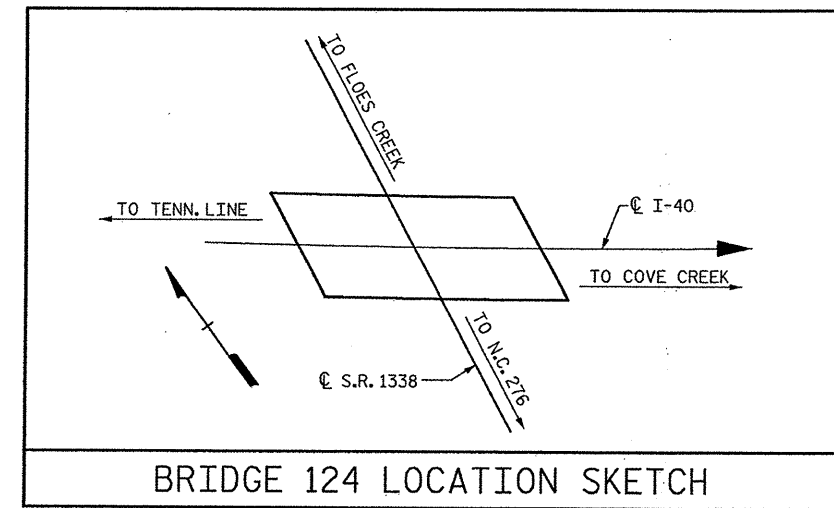
REPLACEMENT OF DAMAGED REINFORCING STEEL AND DOWELS USED IN CONCRETE REPAIR SHALL BE CONSIDERED INCIDENTAL TO CONCRETE REPAIRS. NO ADDITIONAL PAYMENT OR MEASUREMENT WILL BE MADE.

THE COST ASSOCIATED WITH PAINTING AREAS DAMAGED BY FIELD WELDING OR OTHER SHALL BE CONSIDERED INCIDENTAL IN THE BID PRICE OF "STRUCTURAL STEEL REPAIRS".

ALL THE COST ASSOCIATED WITH PREPARING ENGINEERING SUBMITTALS FOR JACKING, ANY ASSOCIATED TEMPORARY SUPPORTS, DIAPHRAGM MODIFICATIONS, EQUIPMENT AND MISCELLANEOUS COMPONENTS SHALL BE CONSIDERED INCIDENTAL TO THE PAY ITEM FOR "BRIDGE JACKING". NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE.

THE COST OF LABOR, MATERIALS, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY FOR REMOVAL AND DISPOSAL OF EXISTING STRUCTURE COMPONENTS SHALL BE INCLUDED IN THE BID PRICE FOR THE VARIOUS CONTRACT PAY ITEMS.

DEBRIS SHALL BE REMOVED FROM EXISTING BENT CAPS. ALL COST ASSOCIATED WITH DEBRIS REMOVAL SHALL BE CONSIDERED INCIDENTAL TO CONCRETE REPAIR PAY ITEM.



PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 124,142,171,205&208

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL NOTES AND  
 LOCATION SKETCHES**  
 BRIDGES ON I-40

12/16/2011 10:00 AM N:\PROJ\DEV\Consent\Division\Contractors\W000PR00\NCDOT\_2011\BP-5300N\_Haywood\kurtm.02\_GeneralNotes and Loc Sketches.dgn

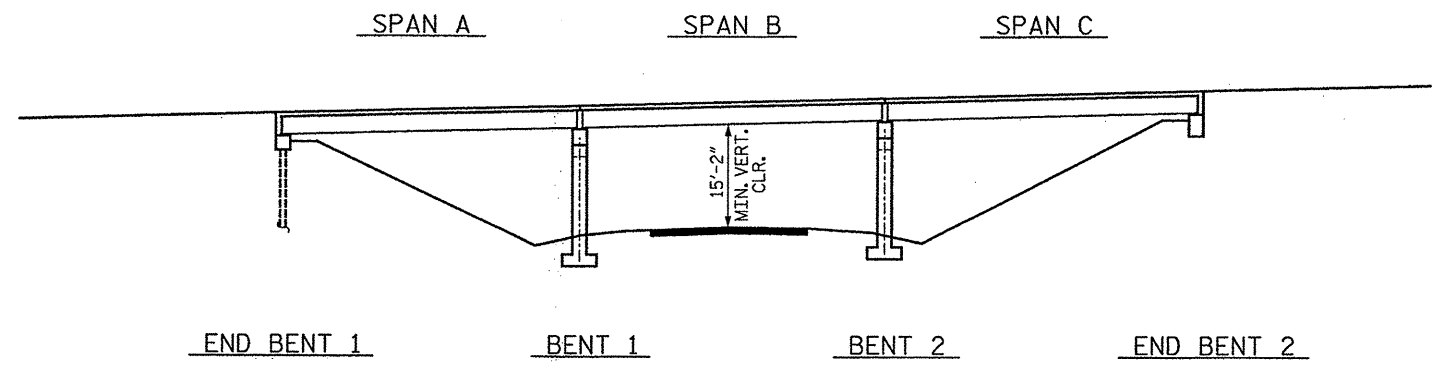
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 CHECKED BY : TJT DATE : 6-11

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 Charlotte, NC 28208  
 NC License No. F-0991

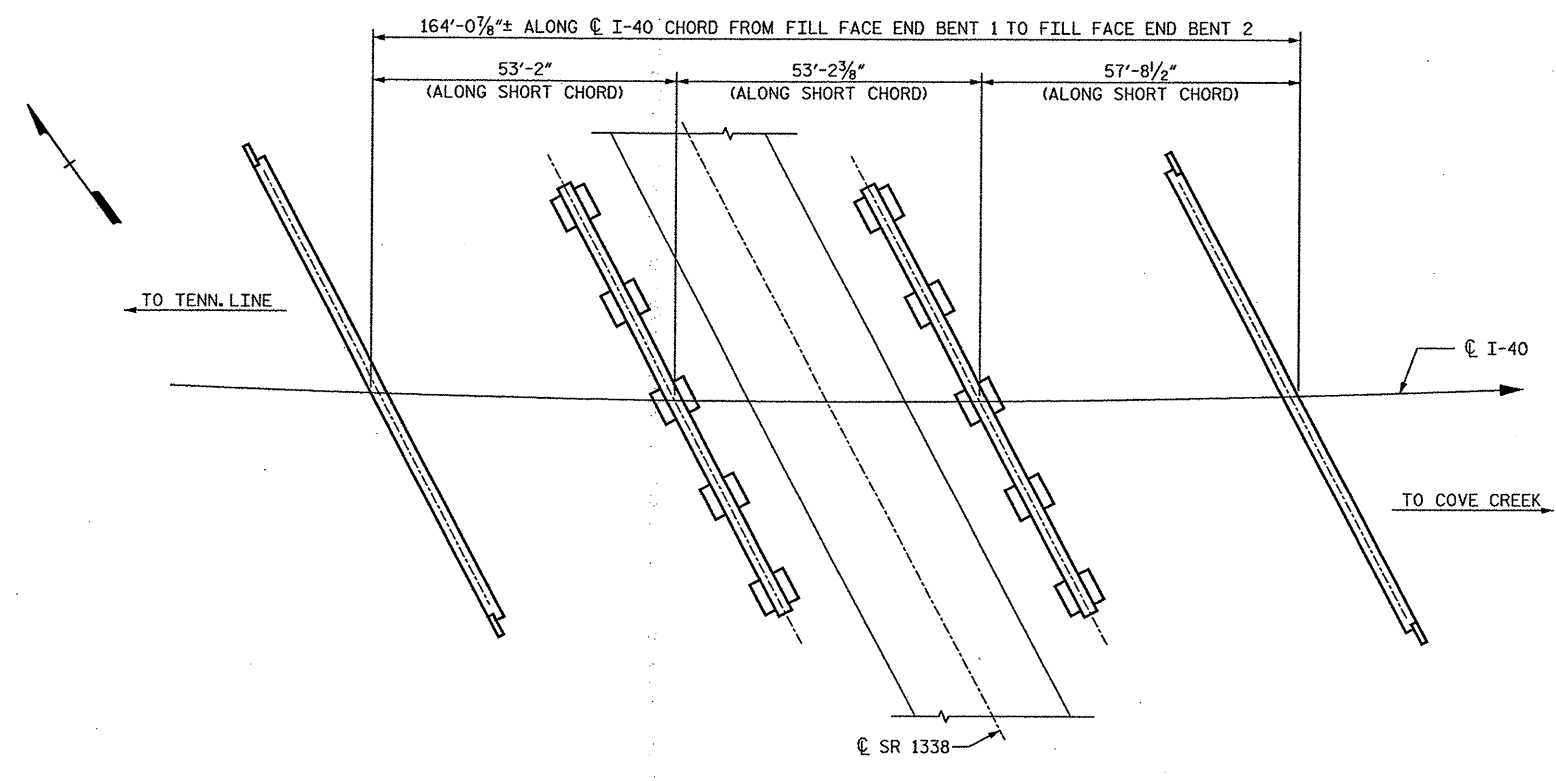
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			S-23

**GENERAL NOTES**

SEE SHEET S-1 OF S-23 FOR ADDITIONAL NOTES.  
 THE HAUNCH REMOVAL AS SHOWN ON SHEET 2 OF 4 SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT ITEMS. ALL COSTS RELATING TO THE HAUNCH REMOVAL SHALL BE CONSIDERED INCIDENTAL AND NO ADDITIONAL PAYMENT WILL BE MADE.  
 THE GIRDER REPAIR AS SHOWN ON SHEET 2 OF 4 SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT ITEMS. ALL COSTS RELATING TO THE GIRDER REPAIR SHALL BE CONSIDERED INCIDENTAL AND NO ADDITIONAL PAYMENT WILL BE MADE.



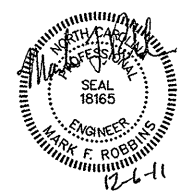
**ELEVATION**  
 (SECTIONS AT BENTS AND END BENTS ARE AT RIGHT ANGLES)



**PLAN**

PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 124  
 REHAB. OF BRIDGE NO. 124 SHEET 1 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
**BRIDGE ON I-40**  
**OVER SR 1338**

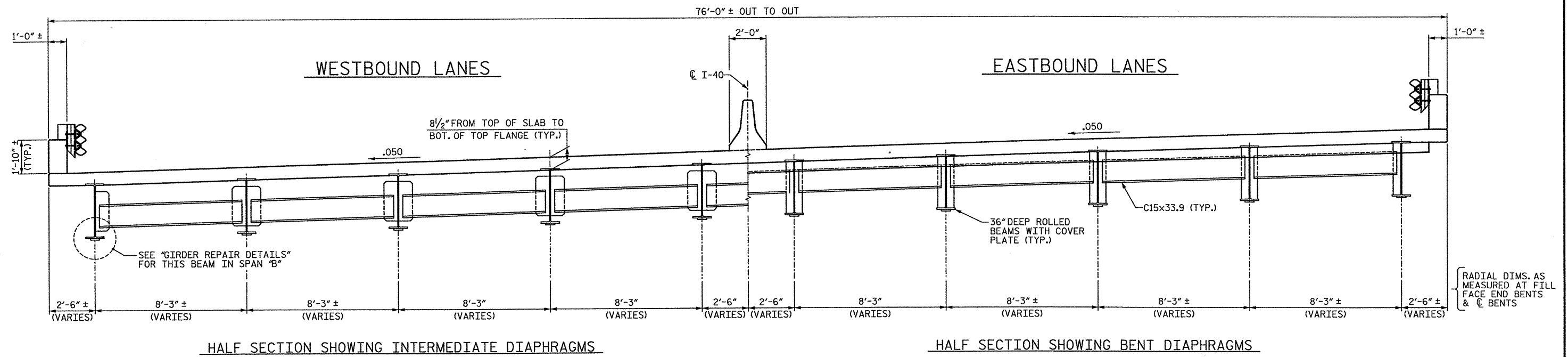


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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			S-23

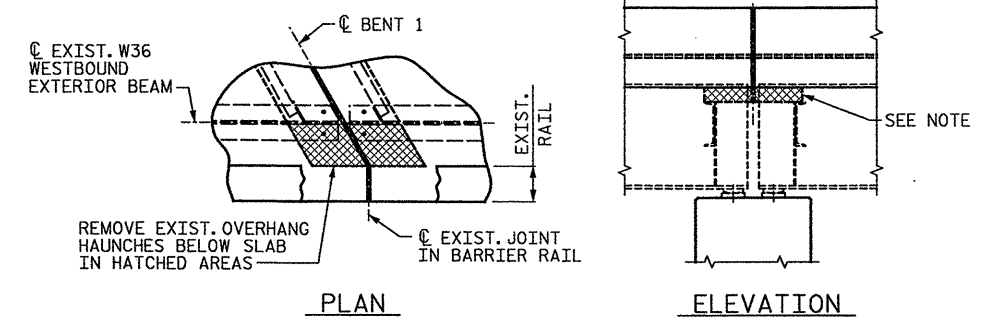
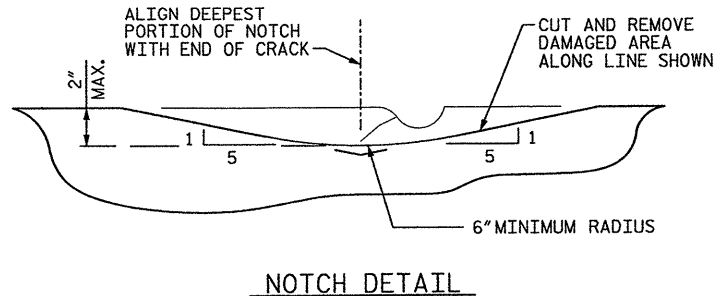
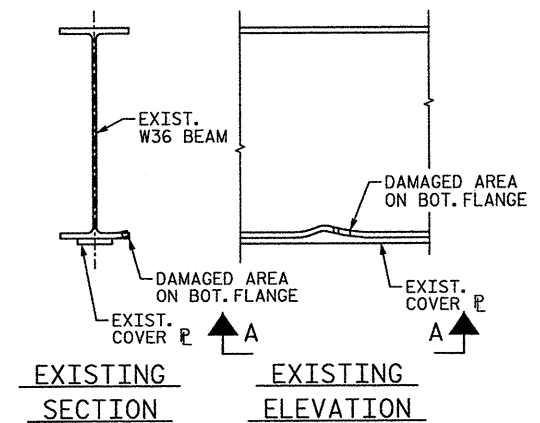
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 CHECKED BY : AJP DATE : 6-11



**EXISTING TYPICAL SECTION THROUGH SUPERSTRUCTURE**

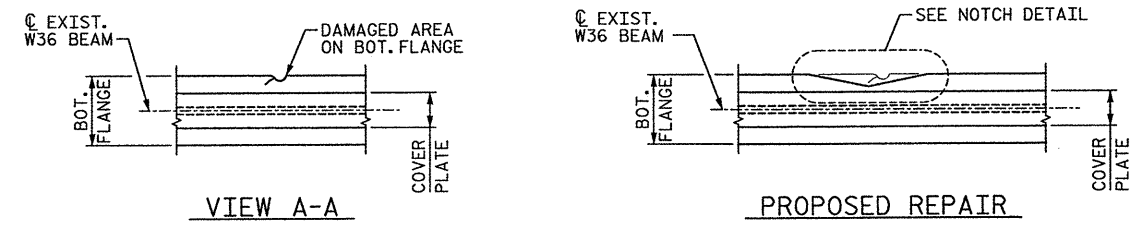
(TYP. SECTION DIMENSIONS ARE SHOWN FOR INFORMATION ONLY AND ARE FROM THE BEST AVAILABLE INFORMATION)



**DECK HAUNCH REMOVAL DETAILS**

NOTE: REMOVE EXIST. SLAB EDGE HAUNCHES TO BOTTOM OF EXIST. SLAB & CUT OFF EXIST. REINF. STEEL 1/2" BELOW OVERLAY SURFACE AND REPAIR TO A SMOOTH SURFACE TO PROVIDE CONCRETE COVER FOR REINFORCING STEEL.

SEE GENERAL NOTES ON SHEET 1 OR 4 FOR INFORMATION RELATING TO PAYMENT.



**GIRDER REPAIR DETAILS**

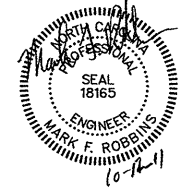
**GIRDER REPAIR NOTES:**

1. CONTRACTOR SHALL PROVIDE ACCESS FOR NCDOT PERSONNEL TO DETERMINE ACTUAL LENGTH OF CRACKING AND INSPECT REPAIR PRIOR TO PAINTING.
2. ONCE THE NOTCH HAS BEEN REMOVED, GRIND THE SURFACE SMOOTH. ENGINEER WILL TEST THE SURFACE TO VERIFY THE ENTIRE EXTENT OF THE CRACK HAS BEEN REMOVED.
3. IF CRACK EXTENDS BEYOND THE REPAIRED SURFACE, STOP WORK AND NOTIFY THE ENGINEER BEFORE PROCEEDING.
4. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL SUBMIT PROCEDURE FOR REMOVING DAMAGED MATERIAL TO THE ENGINEER FOR APPROVAL.
5. SEE GENERAL NOTES ON SHEET 1 OR 4 FOR INFORMATION RELATING TO PAYMENT.

PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 124

REHAB. OF BRIDGE NO. 124 SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE REPAIR**  
 BRIDGE ON I-40  
 OVER SR 1338



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REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
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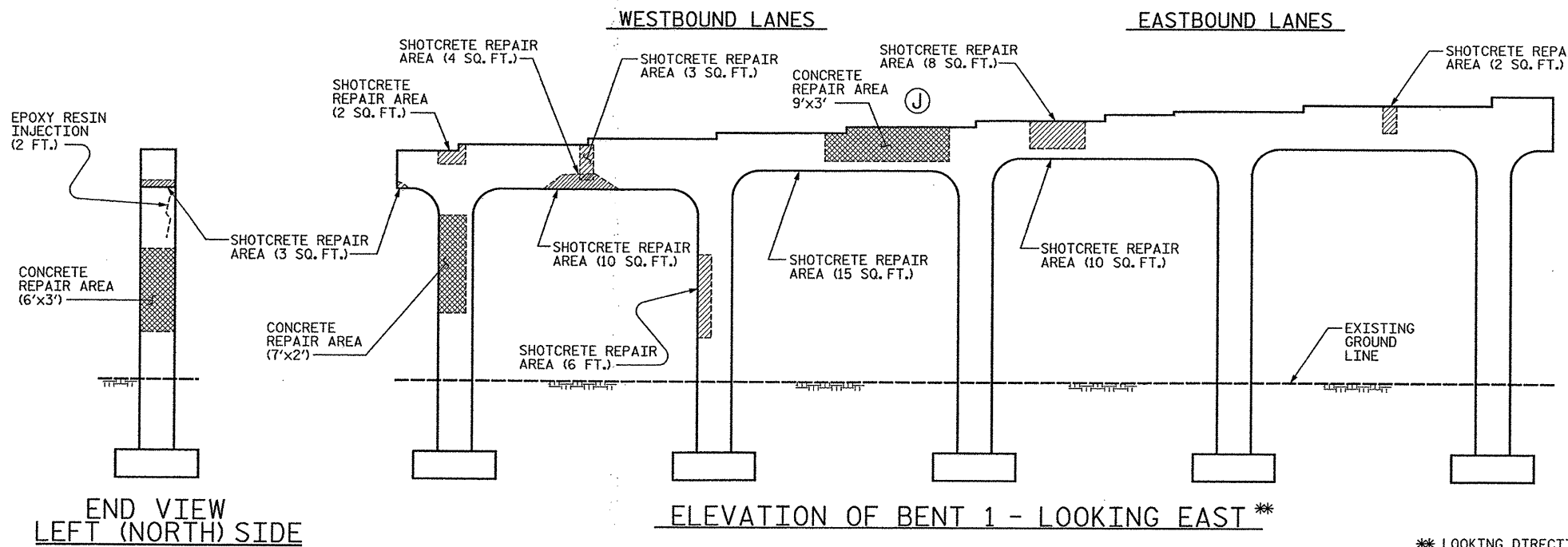
TOTAL SHEETS: S-23

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DRAWN BY : PWP DATE : 6-11  
 CHECKED BY : TRL DATE : 6-11

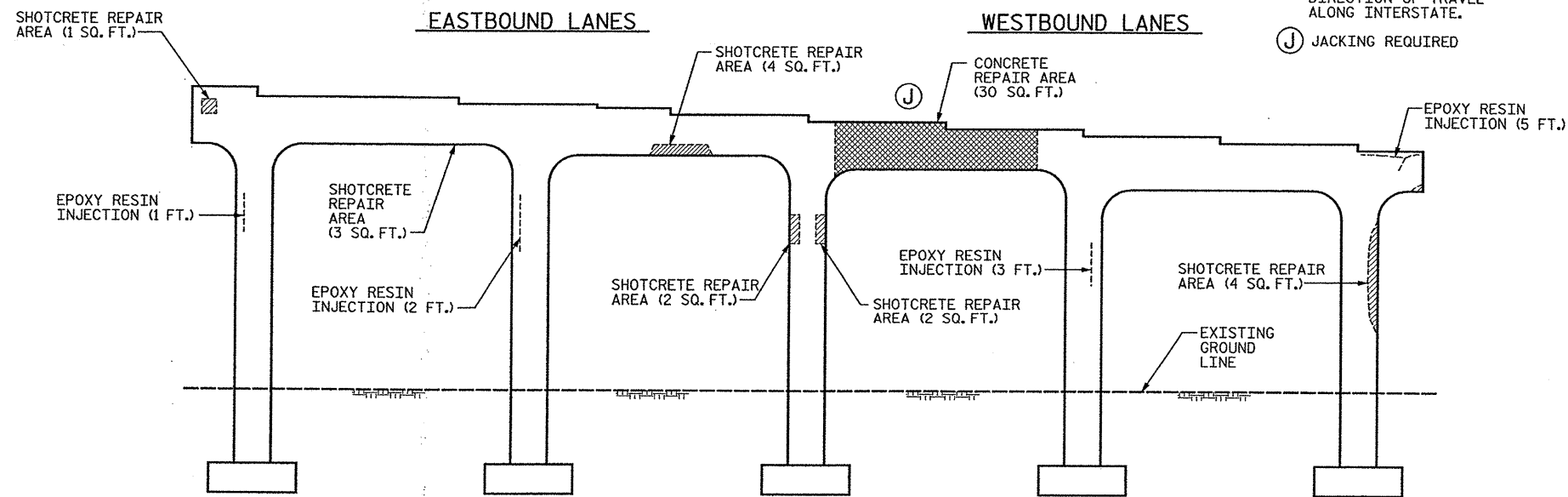
NOTES:

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
2. FOR CRACKS REQUIRING EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A CONCRETE REPAIR IS NECESSARY.
3. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
4. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS. REPAIRS TO DAMAGED BARS SHALL BE DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COSTS.
5. DOWEL LENGTH SHALL BE BASED ON A 9" EMBEDMENT INTO EXISTING CONCRETE AND MAY BE ADJUSTED BASED ON THE MINIMUM EMBEDMENT SPECIFIED BY THE MANUFACTURER OF THE EPOXY ADHESIVE BONDING SYSTEM.
6. REINFORCING STEEL SHALL BE GRADE 60.
7. BENT CAP REPAIRS IN BEARING AREAS SHALL BE PERFORMED WITH CLASS A CONCRETE.
8. BRIDGE JACKING IS REQUIRED FOR CONCRETE REPAIRS THAT EXTEND UNDER A BEARING PLATE. FOR JACKING DETAILS AND NOTES, SEE SHEET S-23 OF S-23.
9. SEE SHEET 1 OF 4 FOR ADDITIONAL NOTES.
10. SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.



ELEVATION OF BENT 1 - LOOKING EAST \*\*

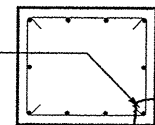
\*\* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG INTERSTATE.  
 (J) JACKING REQUIRED



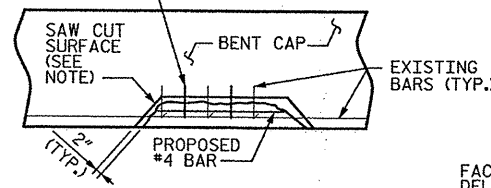
ELEVATION OF BENT 1 - LOOKING WEST

PROPOSED #5 DOWEL (TYP.) CENTERED BETWEEN EXISTING STIRRUPS WITH 9" MIN. EMBED.

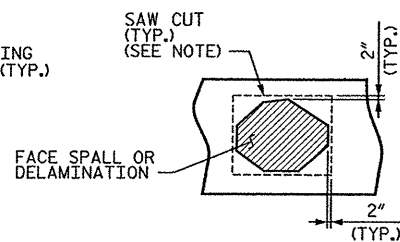
REMOVE BACK TO SOUND CONCRETE AND REPAIR (SEE SPECIAL PROVISIONS)



SECTION CORNER REPAIR



ELEVATION



FACE REPAIR

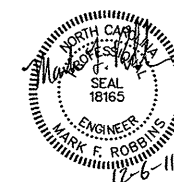
TYPICAL SUBSTRUCTURE REPAIR DETAILS

NOTE: CONTRACTOR SHALL SAW CUT TO A MAXIMUM DEPTH OF 1". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 124

REHAB. OF BRIDGE NO. 124 SHEET 3 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**BENT 1**  
**SUBSTRUCTURE REPAIR**  
 BRIDGE ON I-40  
 OVER SR 1338



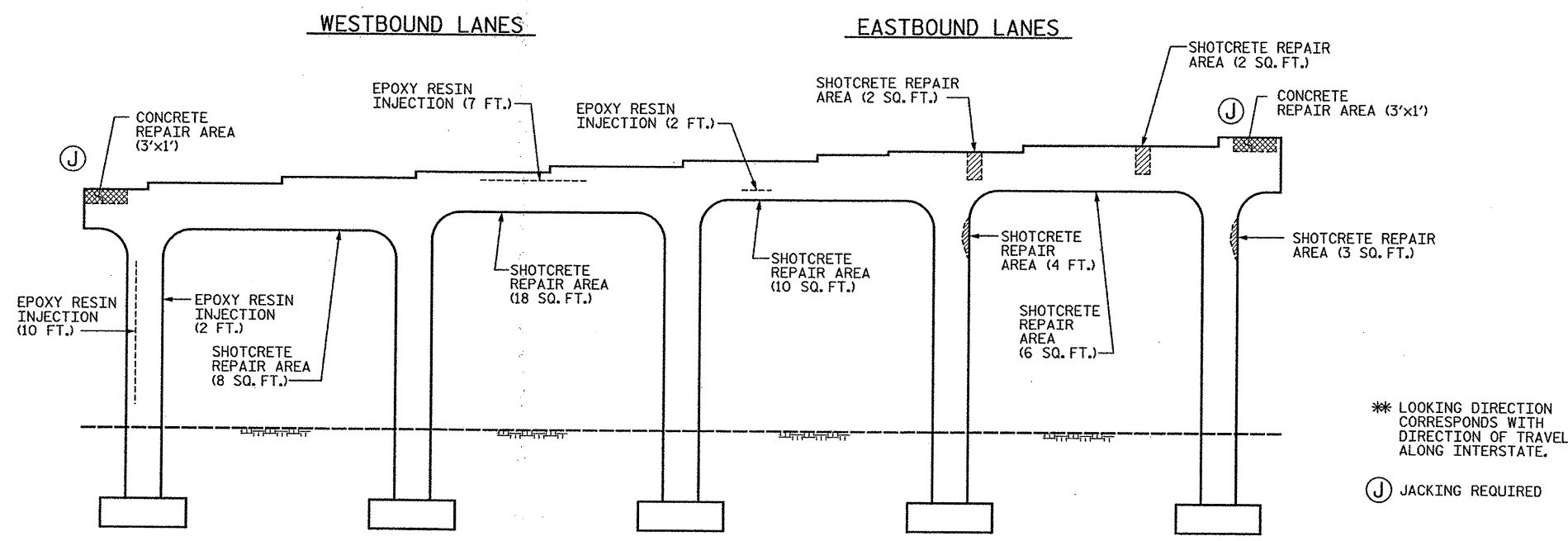
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 Charlotte, NC 28208  
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			5-23

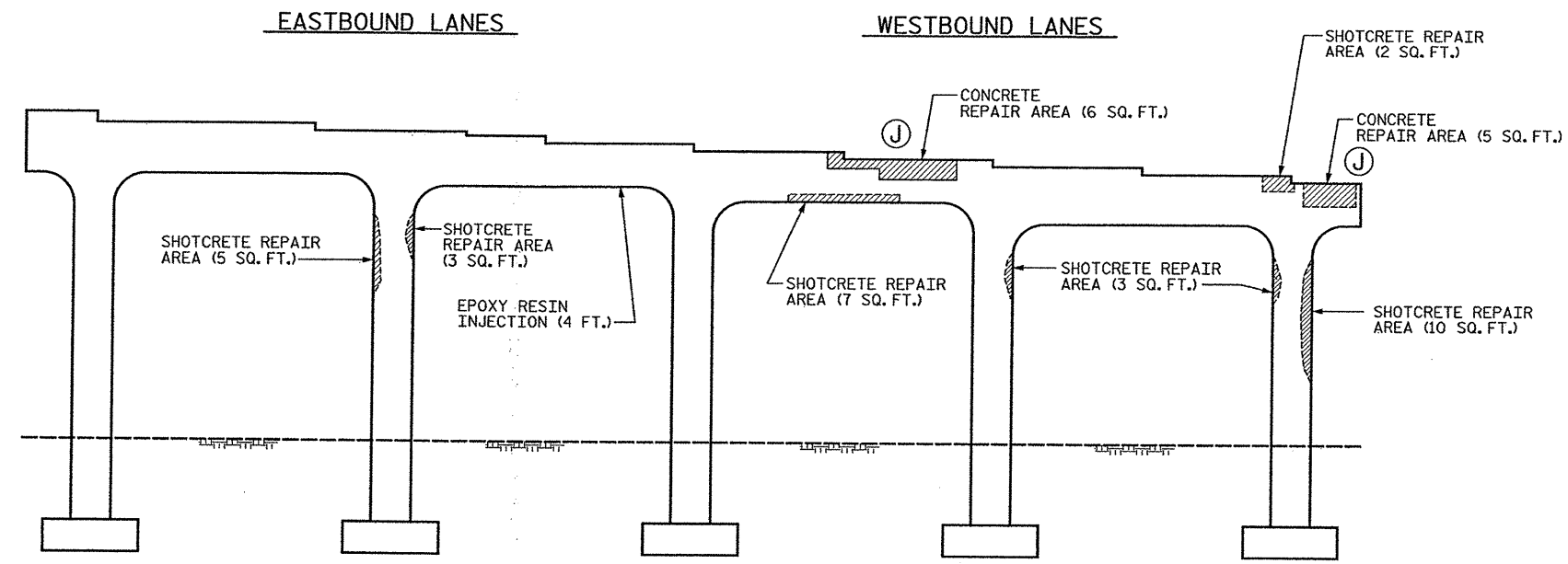
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DRAWN BY: TRL DATE: 6-11  
 CHECKED BY: AJP DATE: 6-11

**NOTES:**  
 1. SEE NOTES ON SHEET 3 OF 4.  
 2. FOR TYPICAL SUBSTRUCTURE REPAIR DETAILS, SEE SHEET 3 OF 4.



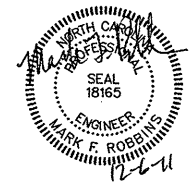
ELEVATION OF BENT 2 - LOOKING EAST\*\*



ELEVATION OF BENT 2 - LOOKING WEST\*\*

PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 124  
 REHAB. OF BRIDGE NO 124 SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**BENT 2  
 SUBSTRUCTURE REPAIR**  
 BRIDGE ON I-40  
 OVER SR 1338



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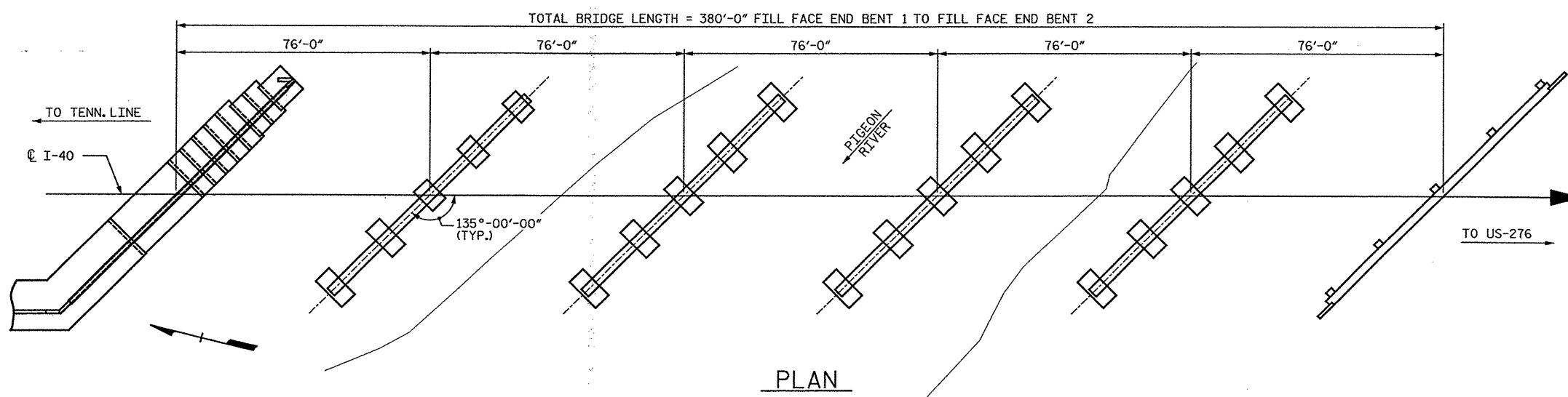
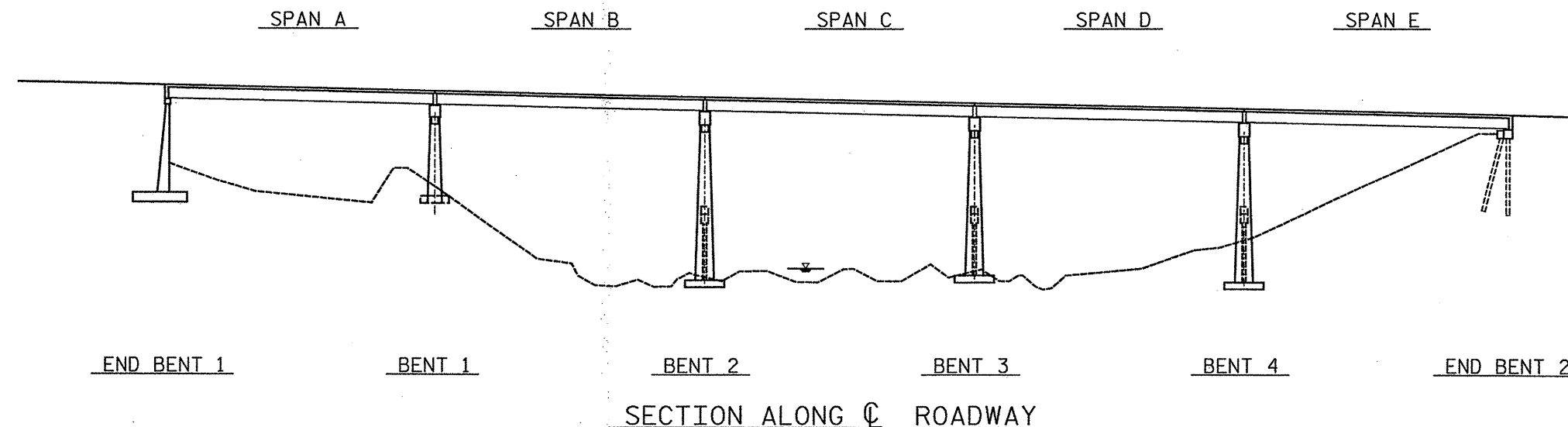
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 Charlotte, NC 28208  
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			S-23



**GENERAL NOTES**

SEE SHEET S-1 OF S-23 FOR ADDITIONAL NOTES.



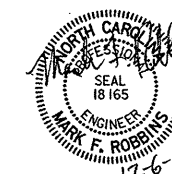
BILL OF MATERIAL							
	EPOXY RESIN INJECTION	UNDER STRUCTURE WORK PLATFORM	BRIDGE JACKING	CONCRETE REPAIRS	SHOTCRETE REPAIRS	CLEANING & REPAINTING BRIDGE #142	POLLUTION CONTROL
	LIN. FT.	LUMP SUM	LUMP SUM	CU. FT.	CU. FT.	LUMP SUM	LUMP SUM
ABUTMENT 1				6			
BENT 1	51			8	71		
BENT 2	41				29		
BENT 3	85				60		
BENT 4	120				28		
TOTAL	297	LUMP SUM	LUMP SUM	14	188	LUMP SUM	LUMP SUM

PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 142

REHAB. OF BRIDGE NO. 142 SHEET 1 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING  
 BRIDGE ON I-40  
 OVER PIGEON RIVER**

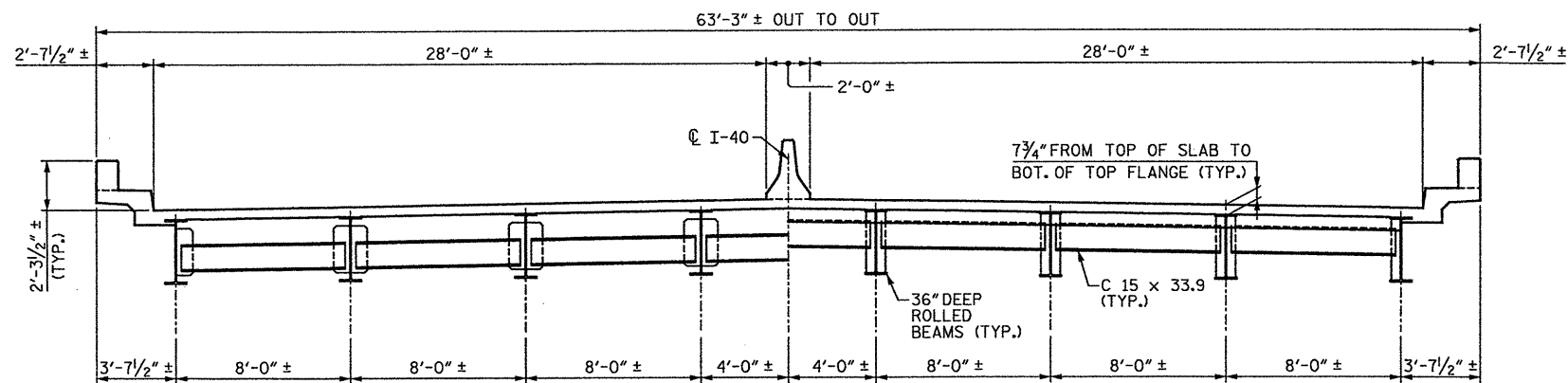


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DRAWN BY : PWP DATE : 6-11  
 CHECKED BY : AJP DATE : 6-11

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-6
2			4			S-23



HALF SECTION SHOWING INTERMEDIATE DIAPHRAGMS      HALF SECTION SHOWING BENT DIAPHRAGMS

**TYPICAL SECTION THROUGH SUPERSTRUCTURE**

(TYPICAL SECTION DIMENSIONS ARE SHOWN FOR INFORMATION ONLY AND ARE FROM BEST AVAILABLE INFORMATION)

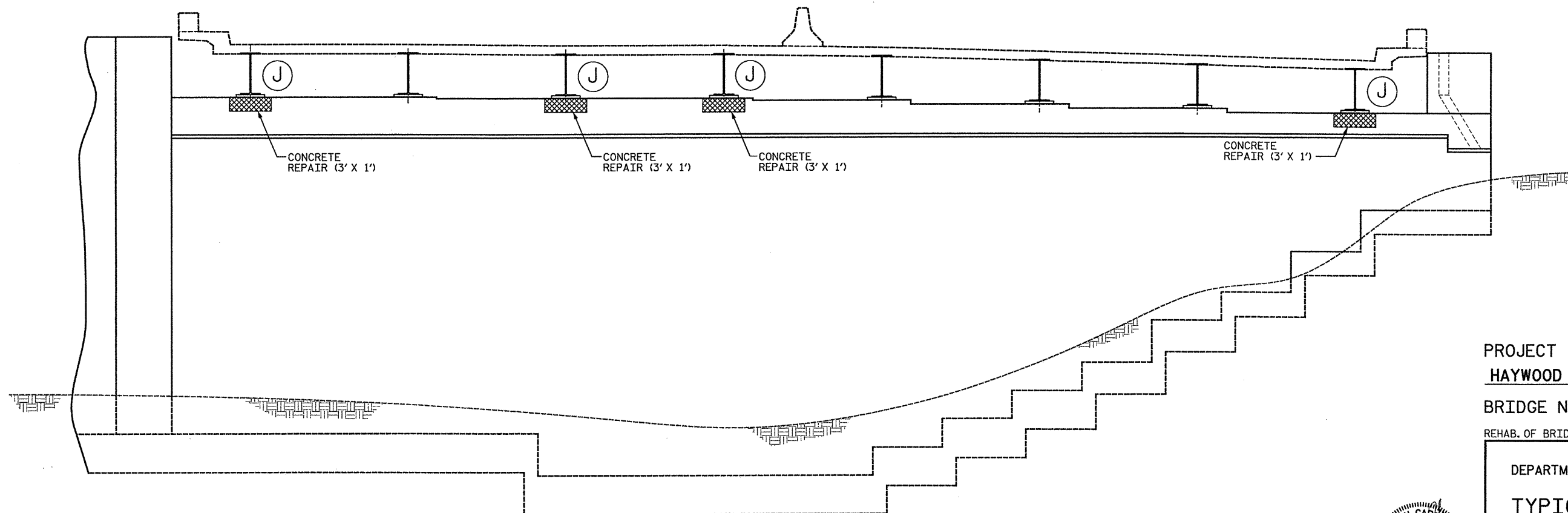
**NOTES:**

1. FOR NOTES, SEE SHEETS 1 OF 6 AND 3 OF 6.
2. FOR TYPICAL SUBSTRUCTURE REPAIR DETAILS, SEE SHEET 3 OF 6.

**J** JACKING REQUIRED

EASTBOUND LANES

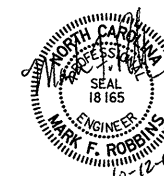
WESTBOUND LANES



**ELEVATION OF ABUTMENT 1**  
(LOOKING WESTBOUND)\*

PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 142  
 REHAB. OF BRIDGE NO. 142      SHEET 2 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION &  
 SUBSTRUCTURE REPAIRS**  
 BRIDGE ON I-40  
 OVER PIGEON RIVER



\* LOOKING DIRECTION  
 CORRESPONDS WITH  
 DIRECTION OF TRAVEL  
 ALONG INTERSTATE

DRAWN BY : PWP      DATE : 6-11  
 CHECKED BY : TRL      DATE : 6-11

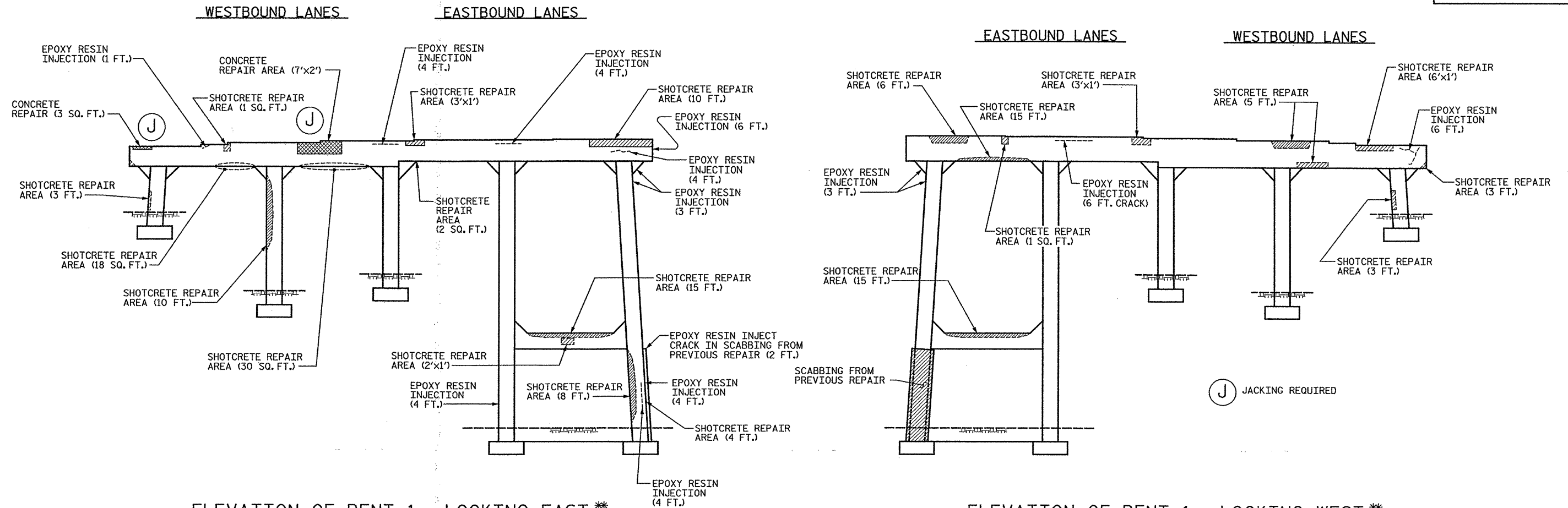
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			S-23

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flows

10/12/2011



ELEVATION OF BENT 1 - LOOKING EAST\*

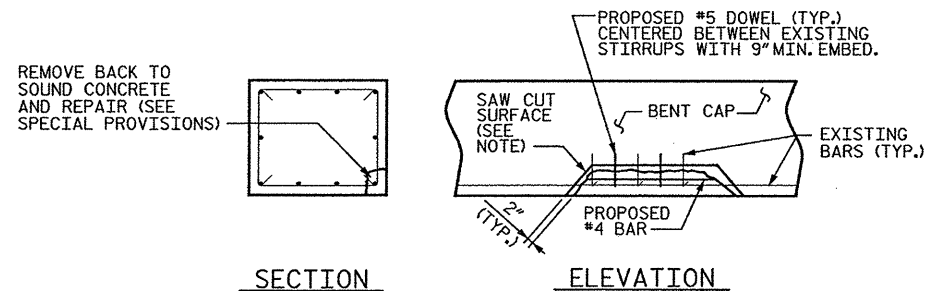
ELEVATION OF BENT 1 - LOOKING WEST\*

\* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG INTERSTATE.

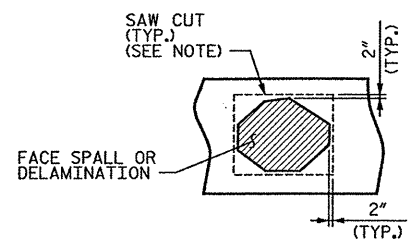
(FOR CAP BOTTOM AND COLUMN SIDE REPAIRS, SEE 'ELEVATION OF BENT 1 - LOOKING EAST')

**NOTES:**

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
2. FOR CRACKS REQUIRING EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A CONCRETE REPAIR IS NECESSARY.
3. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
4. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS. REPAIRS TO DAMAGED BARS SHALL BE DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COSTS.
5. DOWEL LENGTH SHALL BE BASED ON A 9" EMBEDMENT INTO EXISTING CONCRETE AND MAY BE ADJUSTED BASED ON THE MINIMUM EMBEDMENT SPECIFIED BY THE MANUFACTURER OF THE EPOXY ADHESIVE BONDING SYSTEM.
6. REINFORCING STEEL SHALL BE GRADE 60.
7. BENT CAP REPAIRS IN BEARING AREAS SHALL BE PERFORMED WITH CLASS A CONCRETE.
8. BRIDGE JACKING IS REQUIRED FOR CONCRETE REPAIRS THAT EXTEND UNDER A BEARING PLATE. FOR JACKING DETAILS AND NOTES, SEE SHEET S-23 OF S-23.
9. SEE SHEET 1 OF 6 FOR ADDITIONAL NOTES.
10. SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.



CORNER REPAIR



FACE REPAIR

**TYPICAL SUBSTRUCTURE REPAIR DETAILS**

NOTE: CONTRACTOR SHALL SAW CUT TO DEPTH OF 1". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT WILL NOT DAMAGE EXISTING REINFORCING STEEL.

PROJECT NO. BP-5300N

HAYWOOD COUNTY

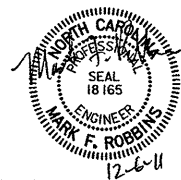
BRIDGE NO.: 142

REHAB. OF BRIDGE NO. 142 SHEET 3 OF 6

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**BENT 1  
SUBSTRUCTURE REPAIR**

BRIDGE ON I-40  
OVER SR 1338

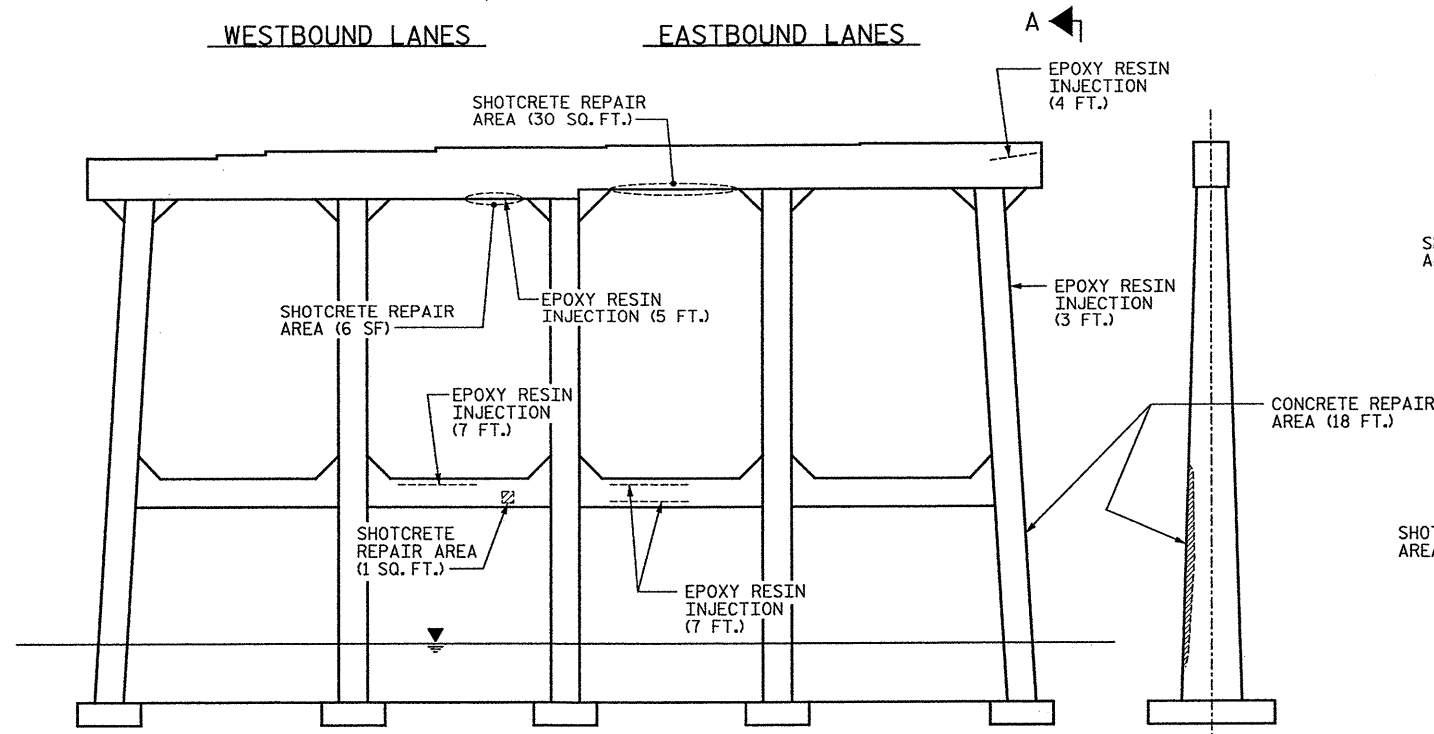


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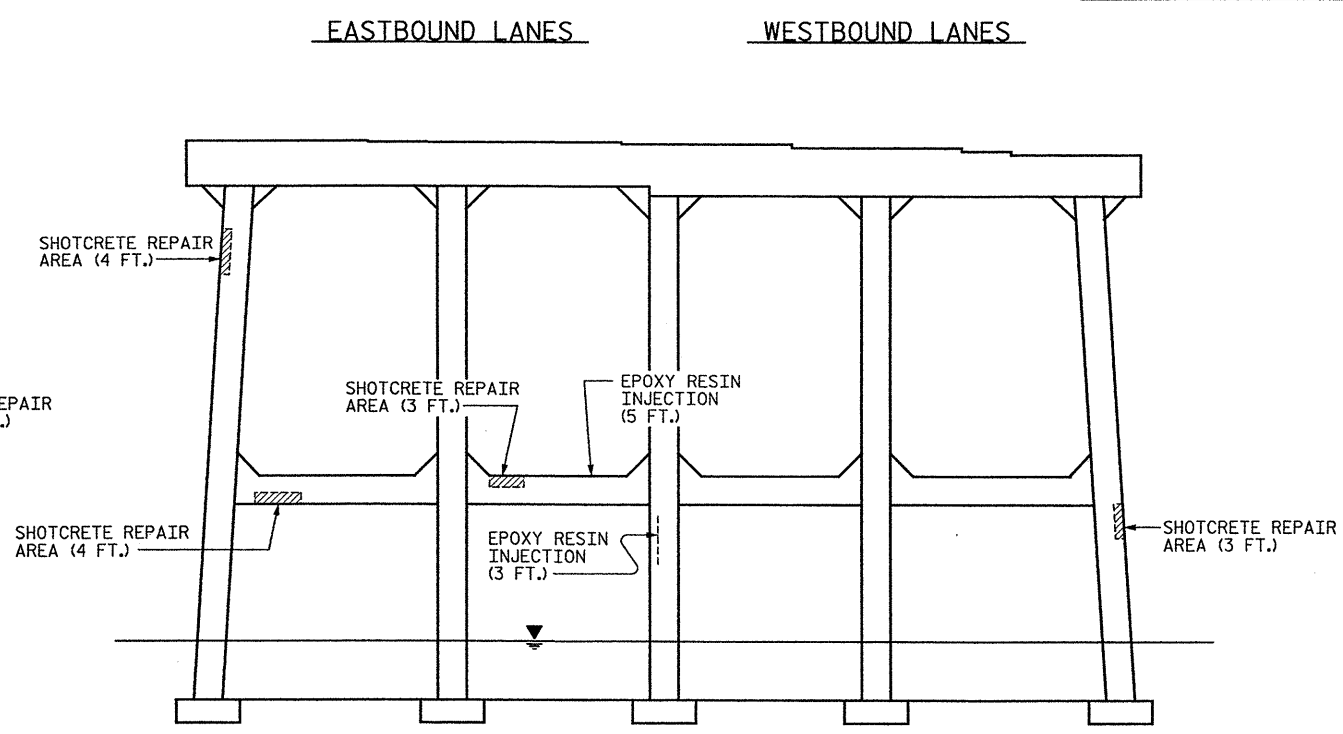
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-8
1			3		TOTAL SHEETS
2			4		S-23

12/16/2011 N:\PROJDEVY\Const\Division\Contractors\W09P00C\NC DOT 2011\BP-5300N Haywood\refm\09 Bridge 142 Bent 1.dgn

DRAWN BY : TRL DATE : 6-11  
CHECKED BY : PWP DATE : 6-11



ELEVATION OF BENT 2 - LOOKING EAST\*\*



ELEVATION OF BENT 2 - LOOKING WEST\*\*

(FOR CAP BOTTOM AND COLUMN SIDE REPAIRS, SEE "ELEVATION OF BENT 2 - LOOKING EAST")

END VIEW A-A

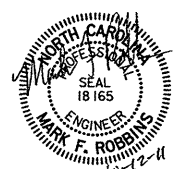
\*\* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG INTERSTATE.

NOTES:

- 1. FOR NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAILS SEE SHEET 3 OF 6.

PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 142  
 REHAB. OF BRIDGE NO. 142 SHEET 4 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**BENT 2**  
**SUBSTRUCTURE REPAIR**  
 BRIDGE ON I-40  
 OVER PIGEON RIVER

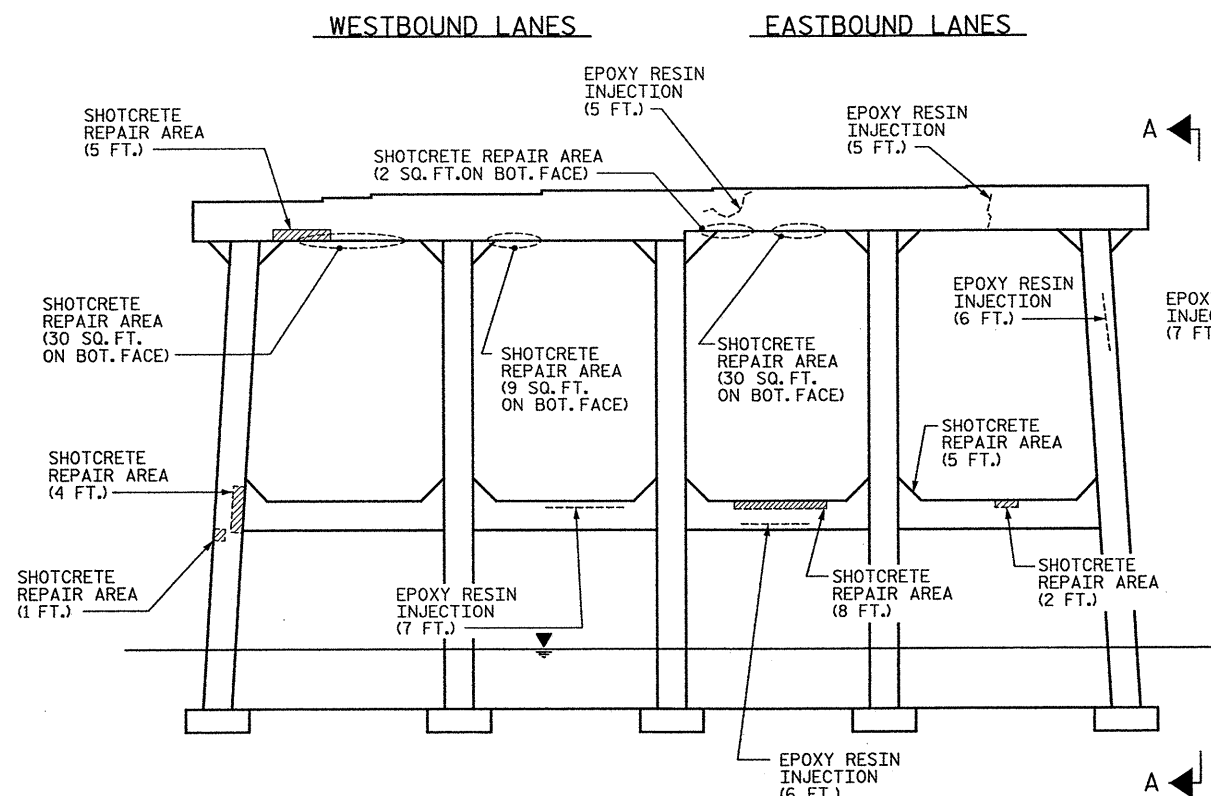


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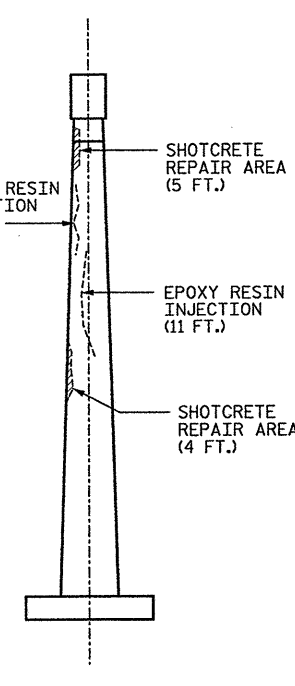
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			S-23

DRAWN BY : TRL DATE : 6-11  
 CHECKED BY : PWP DATE : 6-11

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 10/12/2011

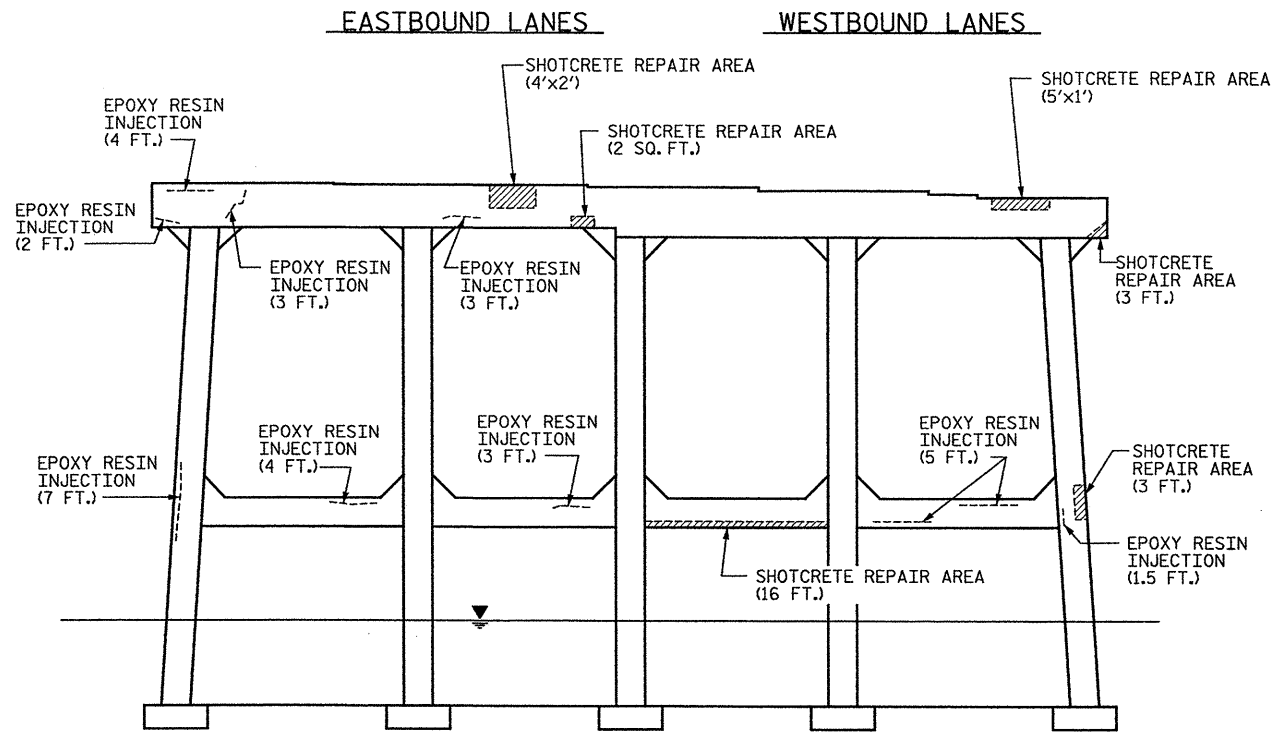


ELEVATION OF BENT 3 - LOOKING EAST\*\*



END VIEW A-A

\*\* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG INTERSTATE.



ELEVATION OF BENT 3 - LOOKING WEST\*\*

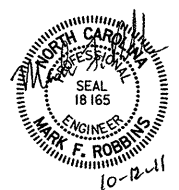
(FOR CAP BOTTOM AND COLUMN SIDE REPAIRS, SEE 'ELEVATION OF BENT 3 - LOOKING EAST')

**NOTES:**

1. FOR NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAILS SEE SHEET 3 OF 6.

PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 142  
 REHAB. OF BRIDGE NO. 142 SHEET 5 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**BENT 3  
 SUBSTRUCTURE REPAIR**  
 BRIDGE ON I-40  
 OVER PIGEON RIVER

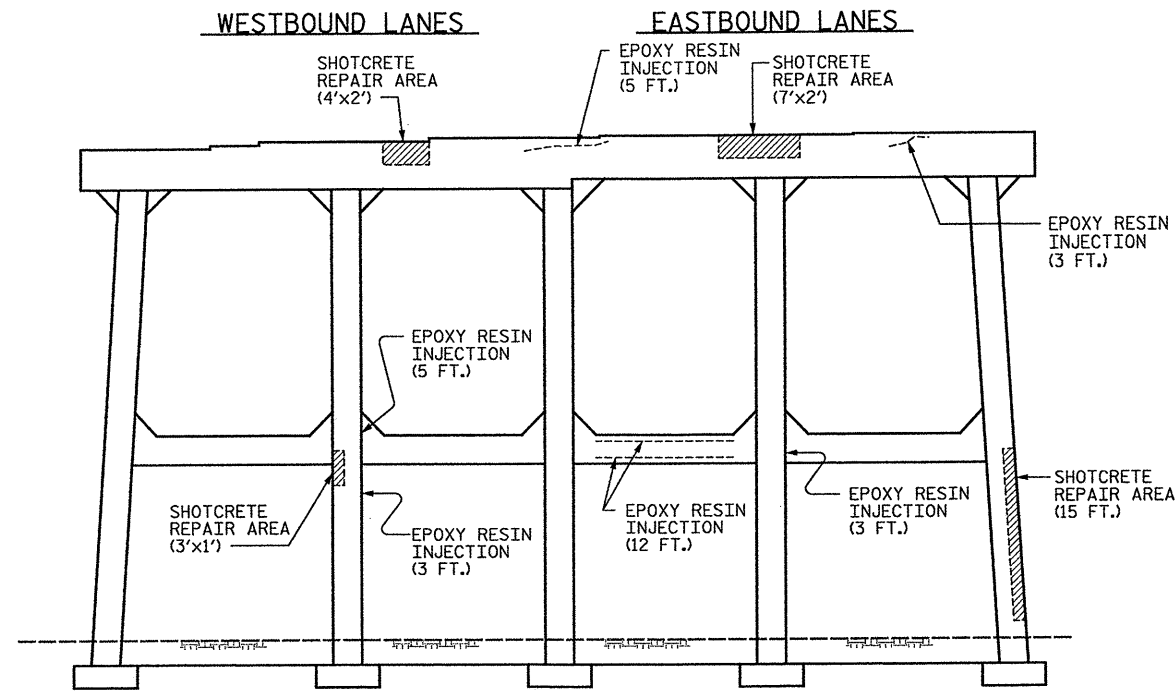


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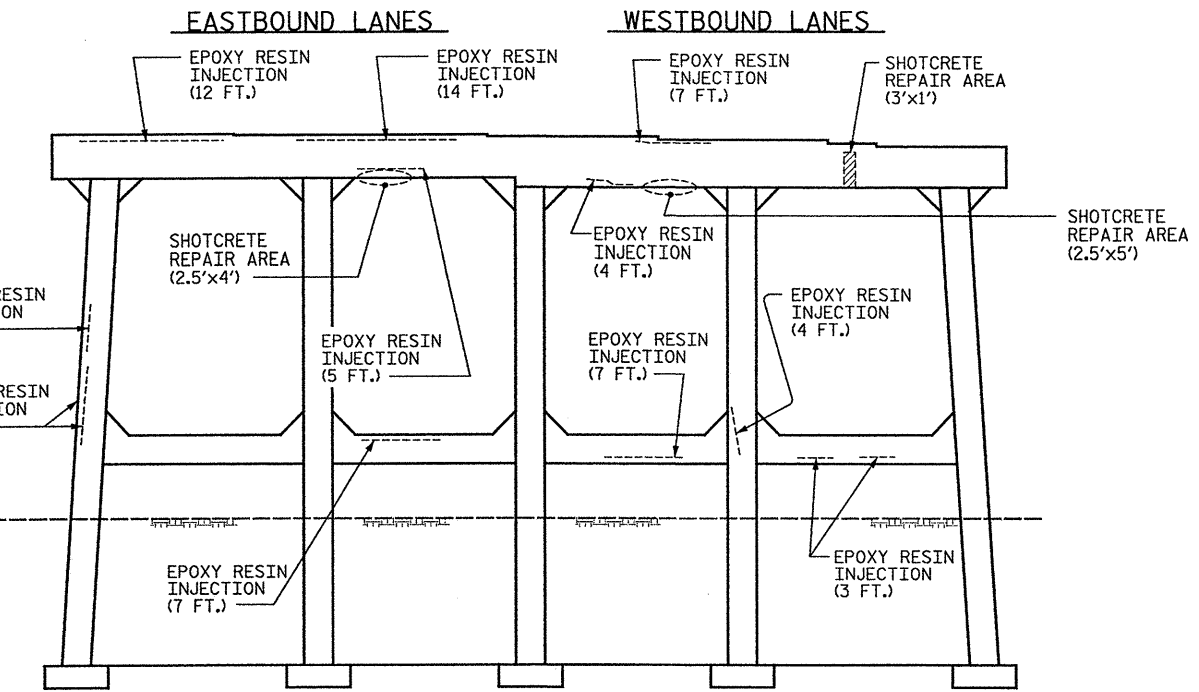
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			S-23

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 10/12/2011

DRAWN BY : TRL DATE : 6-11  
 CHECKED BY : PWP DATE : 6-11



ELEVATION OF BENT 4 - LOOKING EAST\*\*



ELEVATION OF BENT 4 - LOOKING WEST\*\*

(FOR CAP BOTTOM AND COLUMN SIDE REPAIRS, SEE "ELEVATION OF BENT 4 - LOOKING EAST")

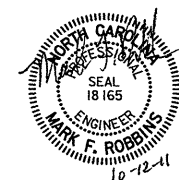
\*\* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG INTERSTATE.

**NOTES:**

1. FOR NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAILS SEE SHEET 3 OF 6.

PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 142  
 REHAB. OF BRIDGE NO. 142 SHEET 6 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**BENT 4**  
**SUBSTRUCTURE REPAIR**  
 BRIDGE ON I-40  
 OVER PIGEON RIVER

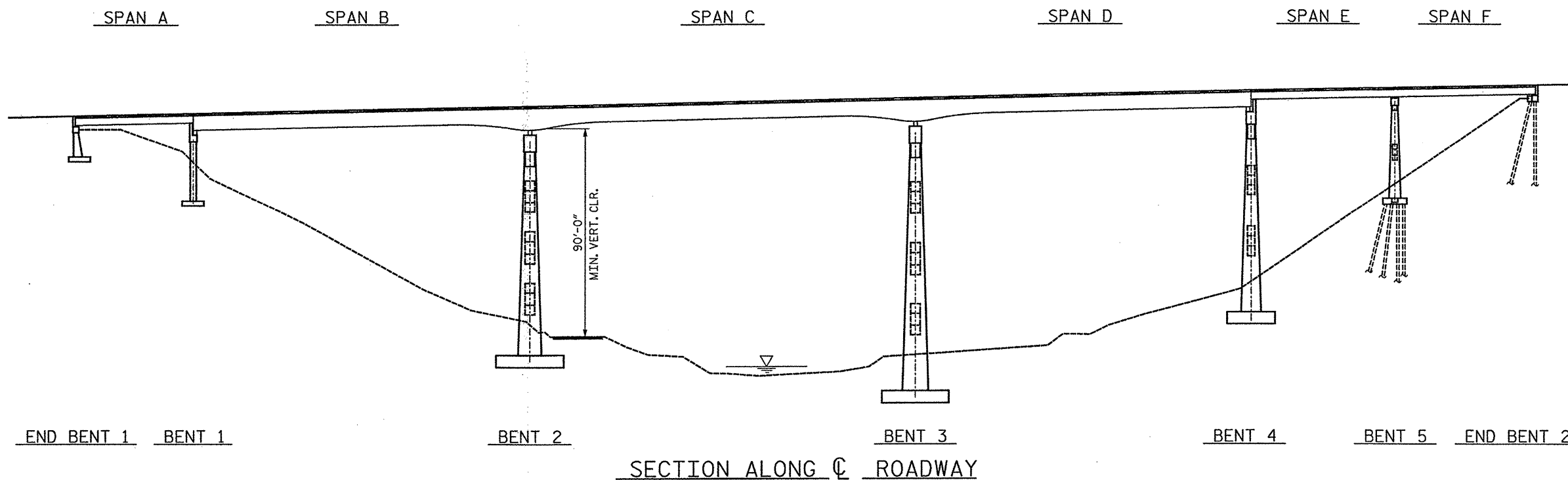


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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			S-23

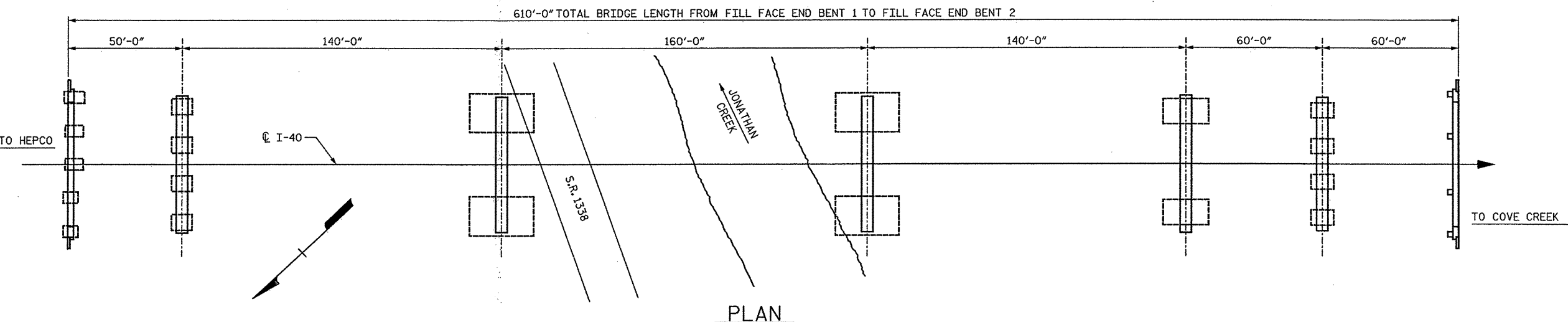
DRAWN BY : TRL DATE : 6-11  
 CHECKED BY : PWP DATE : 6-11

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 10/12/2011  
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**GENERAL NOTES**

SEE SHEET S-1 OF S-23 FOR ADDITIONAL NOTES.  
FOR BOLT REMOVAL AND REPLACEMENT, SEE SPECIAL PROVISIONS.



610'-0" TOTAL BRIDGE LENGTH FROM FILL FACE END BENT 1 TO FILL FACE END BENT 2

PLAN

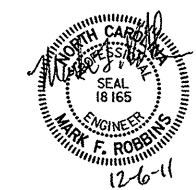
**BILL OF MATERIAL**

	EPOXY RESIN INJECTION	BOLT REMOVAL AND REPLACEMENT	UNDER STRUCTURE WORK PLATFORM	CONCRETE REPAIRS	SHOTCRETE REPAIRS	STRUCTURAL STEEL REPAIRS	DECK DRAIN MODIFICATION	CLEANING & REPAINTING BRIDGE #171	POLLUTION CONTROL
	LIN. FT.	EA.	LUMP SUM	CU. FT.	CU. FT.	LBS	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE		200				5,448			
BENT 1					8				
BENT 2	20			62	81				
BENT 3					3				
BENT 4	50				5				
TOTAL	70	200	LUMP SUM	62	97	5,448	LUMP SUM	LUMP SUM	LUMP SUM

PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
BRIDGE NO.: 171

REHAB. OF BRIDGE NO. 171 SHEET 1 OF 6

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**GENERAL DRAWING**  
**BRIDGE ON I-40 OVER**  
**SR 1338 & JONATHAN**  
**CREEK**

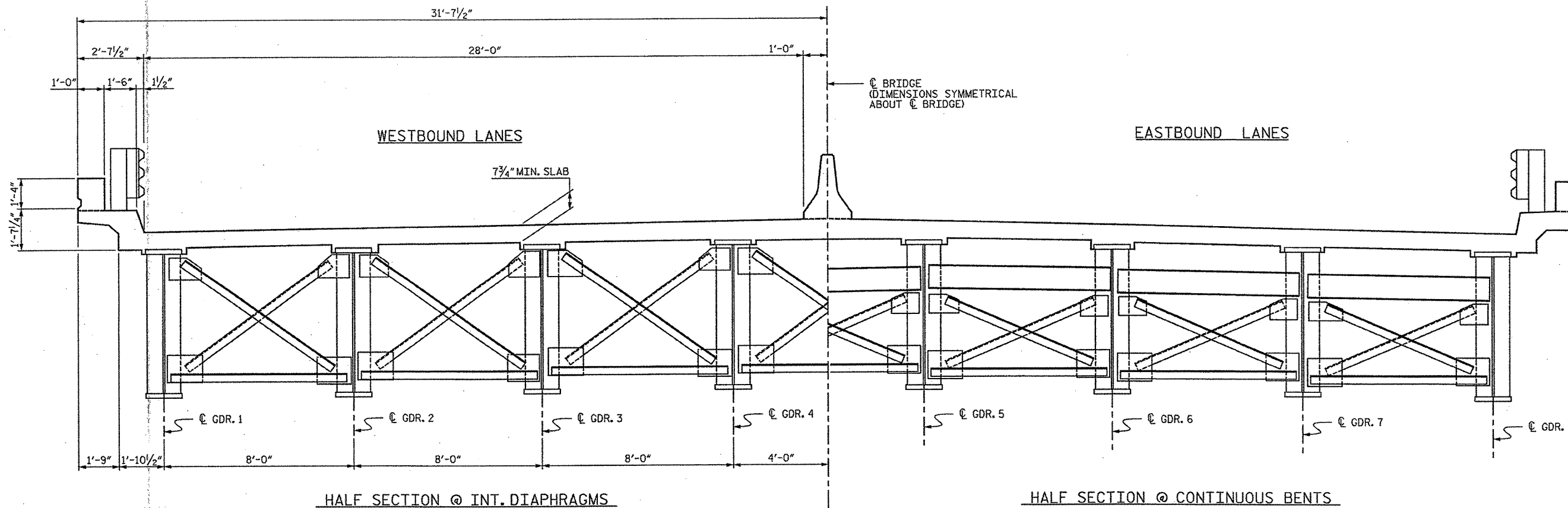


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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			S-23

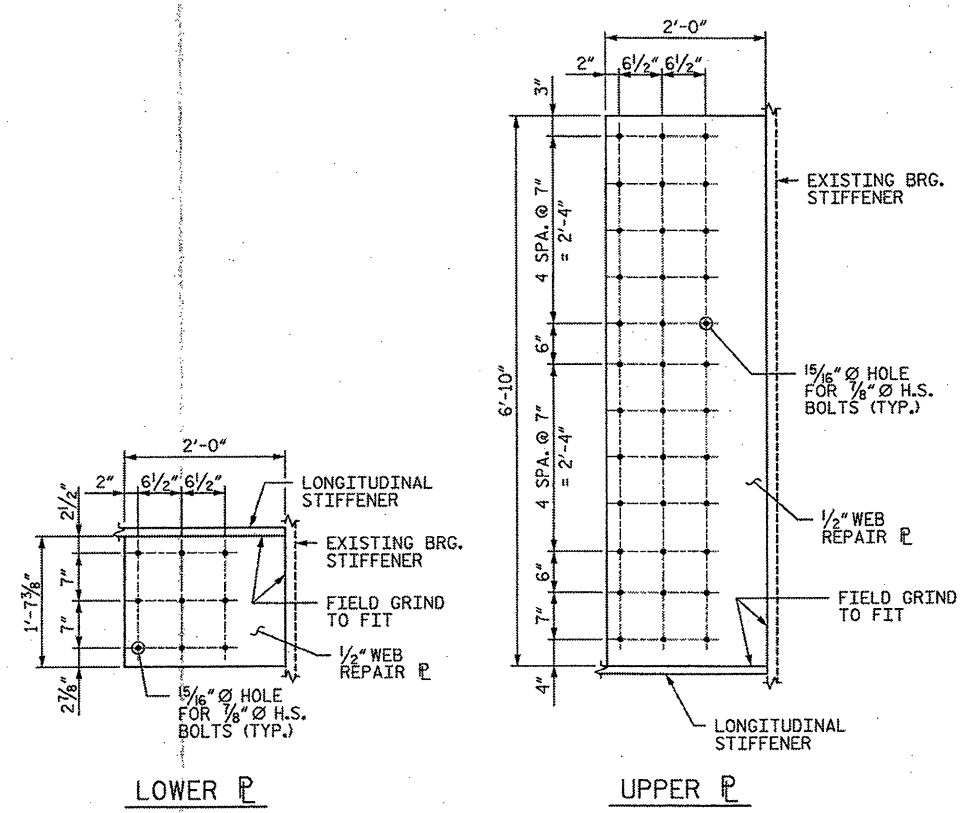
DRAWN BY : CLG DATE : 6-11  
CHECKED BY : AJP DATE : 6-11

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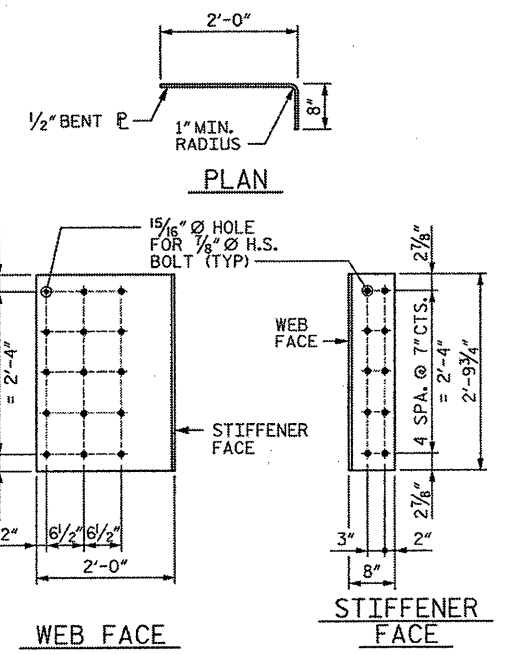
### TYPICAL SECTION THROUGH SUPERSTRUCTURE

(TYPICAL SECTION DIMENSIONS ARE SHOWN FOR INFORMATION ONLY AND ARE FROM BEST AVAILABLE INFORMATION)



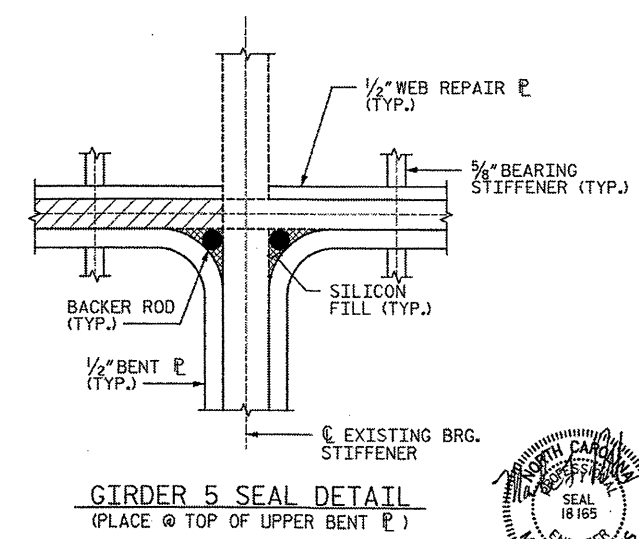
#### GIRDER 5 WEB REPAIR P DETAIL

(5/8" BEARING STIFFENER NOT SHOWN FOR CLARITY)



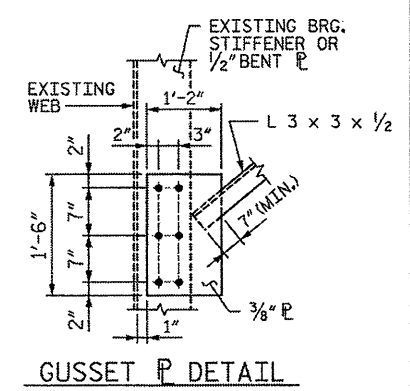
#### GIRDER 5 BENT P DETAIL

(TYPICAL FOR ALL BENT P'S)  
(5/8" BEARING STIFFENER NOT SHOWN FOR CLARITY)



#### GIRDER 5 SEAL DETAIL

(PLACE @ TOP OF UPPER BENT P)

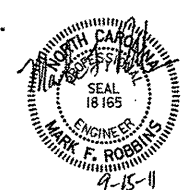


#### GUSSET P DETAIL

NOTE:  
FOR ADDITIONAL NOTES, SEE SHEET 3 OF 6.

PROJECT NO. **BP-5300N**  
**HAYWOOD** COUNTY  
 BRIDGE NO.: **171**  
 REHAB. OF BRIDGE NO. 171 SHEET 2 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION & SUPERSTRUCTURE REPAIR DETAILS**  
 BRIDGE ON I-40 OVER SR 1338 & JONATHAN CREEK



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

S-13  
 TOTAL SHEETS  
 S-23

DRAWN BY : **CLG** DATE : **6-11**  
 CHECKED BY : **TRL** DATE : **6-11**

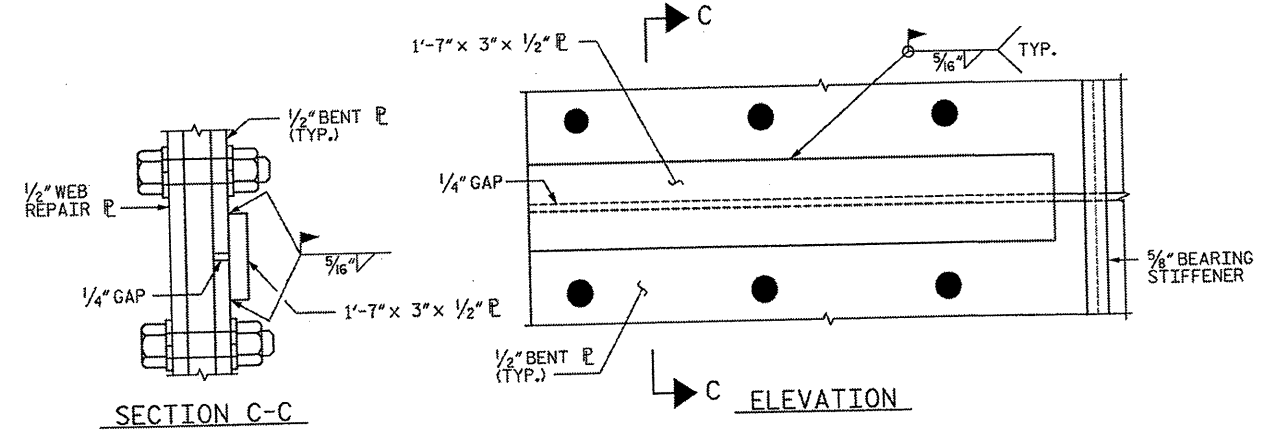
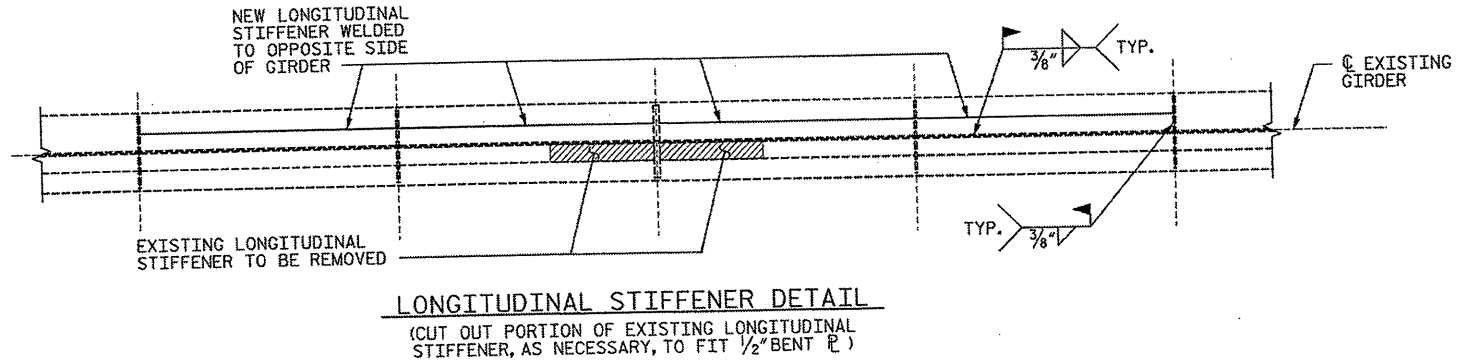
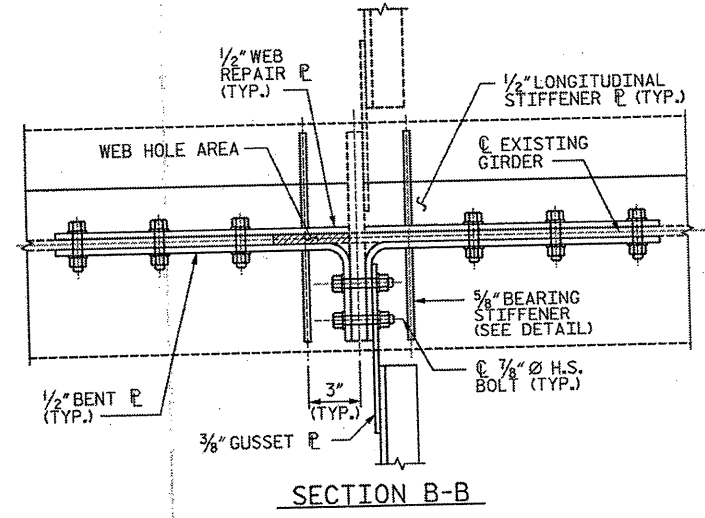
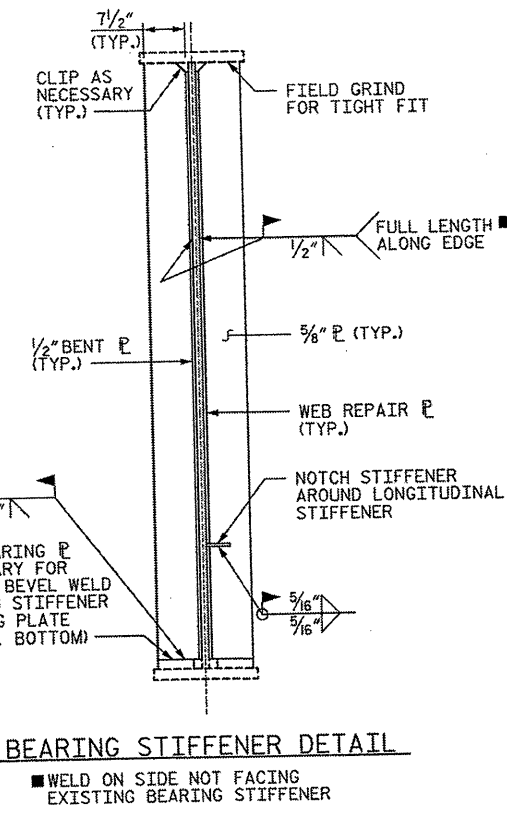
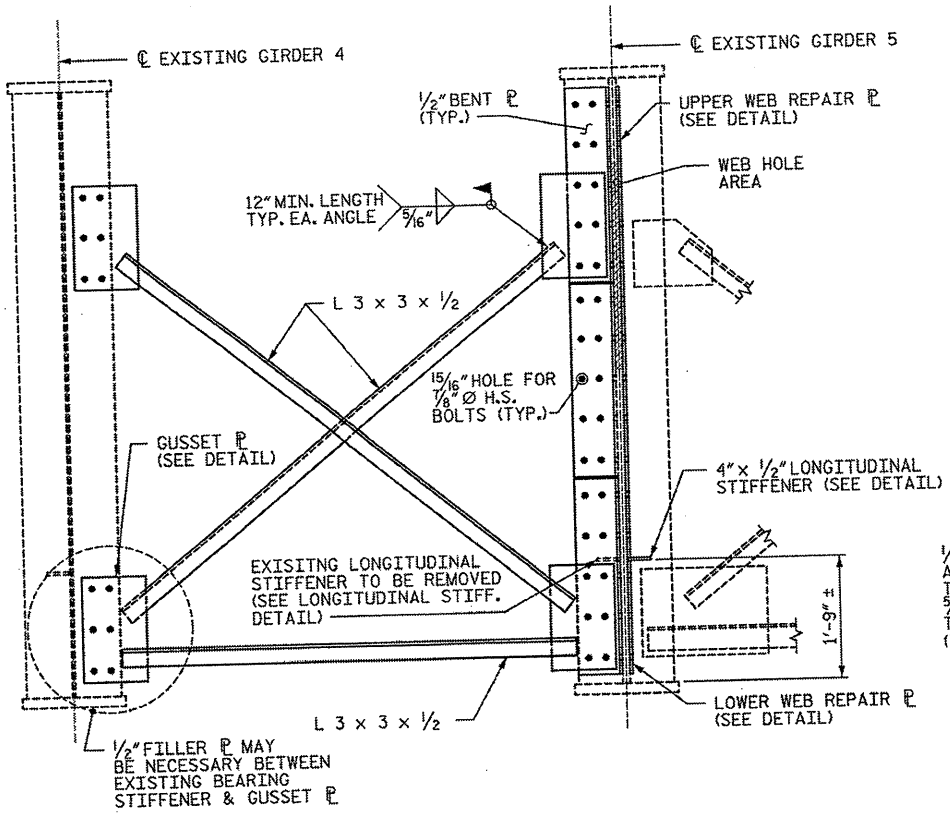
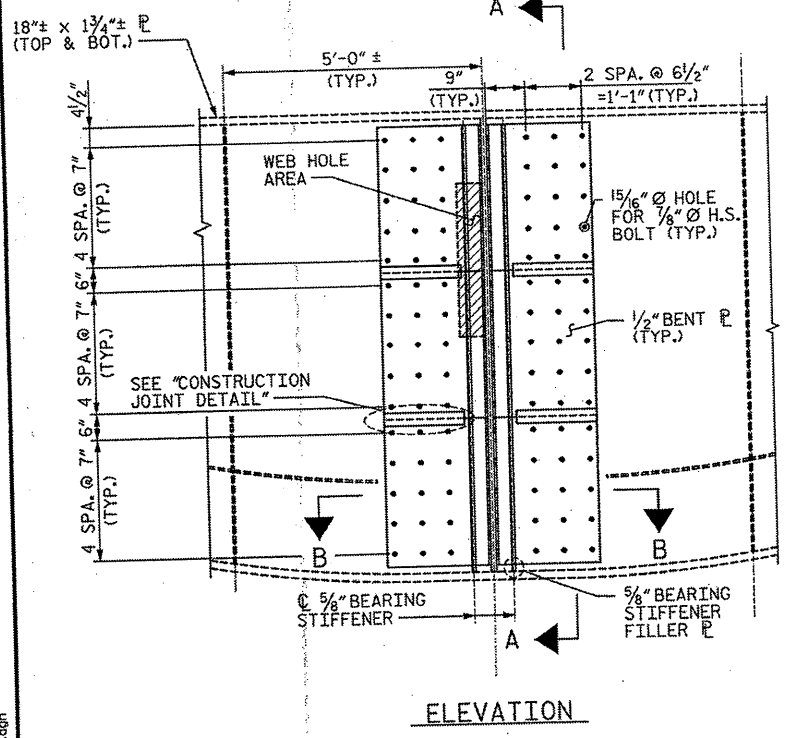
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**NOTES:**

1. ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT AWS SPECIFICATIONS.
2. PROVIDE SILICON FILL/CAULKING AT EXPOSED SECTION OF 1/4" GAP BETWEEN BENT P'S.
3. CONTRACTOR HAS THE OPTION TO USE ONE FULL HEIGHT BENT P INSTEAD OF THE THREE P'S SHOWN. BOLT HOLES SHALL BE PLACED AS SHOWN IN ELEVATION.
4. 7/8" Ø H.S. BOLTS SHALL BE A325 BOLTS AND CORRESPONDING NUTS AND WASHERS.
5. FIELD CUT L 3 x 3 x 1/2 AS NECESSARY TO CONSTRUCT NEW DIAPHRAGM.
6. CONTRACTOR TO VERIFY IN THE FIELD LOCATION OF EXISTING GUSSET P BOLTS AND ADJUST NEW GUSSET P CONNECTION ACCORDINGLY. (GIRDER 4 ONLY)
7. CONTRACTOR SHALL PREPARE AS BUILT PLANS FOR EXISTING BEARING STIFFENER AND DIAPHRAGM FOR USE IN SHOP DRAWING PREPARATION.
8. FABRICATOR SHALL PREPARE SHOP DRAWINGS AND SUBMIT FOR REVIEW PRIOR TO PURCHASE OF MATERIAL.
9. BOLTS, WASHERS AND MISCELLANEOUS COMPONENTS FOR STEEL REPAIRS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT BID PRICE FOR STRUCTURAL STEEL REPAIRS.
10. WHERE DIAPHRAGMS ARE TO BE BOLTED TO EXISTING STEEL BEAMS, DO NOT REMOVE PAINT FROM THE CONTACT SURFACE.
11. BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
12. TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS. FOR DIRECT TENSION INDICATORS, SEE SPECIAL PROVISIONS.
13. SEE SHEET 2 OF 6 FOR ADDITIONAL DETAILS.

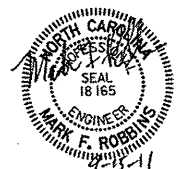


**CONSTRUCTION SEQUENCE:**

1. WELD NEW LONGITUDINAL STIFFENER TO OPPOSITE SIDE OF GIRDER.
2. REMOVE EXISTING LONGITUDINAL STIFFENER AS SHOWN IN PLANS. GRIND AND SMOOTH EDGES OF EXISTING LONGITUDINAL STIFFENER AFTER CUT TO A FLUSH WEB FINISH. CARE SHALL BE TAKEN TO ENSURE EXISTING WEB IS NOT DAMAGED. CONTRACTOR SHALL REPAIR ALL DAMAGE FROM HIS OPERATION AT NO ADDITIONAL COST.
3. REMOVE RUST AND FEATHER EDGES AROUND THE HOLE IN THE WEB SUCH THAT A MINIMUM WEB THICKNESS OF 1/4" IS ATTAINED AROUND THE PERIMETER OF THE HOLE. GRIND EDGE TO A SMOOTH FINISH.
4. REMOVE EXISTING DIAPHRAGM AND REMAINING CHANNEL SECTION.
5. INSTALL 1/2" BENT AND WEB REPAIR P'S AS SHOWN IN PLANS. DRILL 15/16" Ø HOLES IN WEB & EXISTING BEARING STIFFENER TO MATCH BOLT HOLES IN BENT P & HOLES IN WEB REPAIR P'S.
6. INSTALL NEW 5/8" BEARING STIFFENERS.
7. INSTALL NEW DIAPHRAGM.

PROJECT NO. **BP-5300N**  
**HAYWOOD** COUNTY  
 BRIDGE NO.: **171**  
 REHAB. OF BRIDGE NO. 171 SHEET 3 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GIRDER 5 AT  
 BENT 2 & 3 STEEL  
 REPAIR**  
 BRIDGE ON I-40 OVER  
 SR 1338 & JONATHAN CREEK

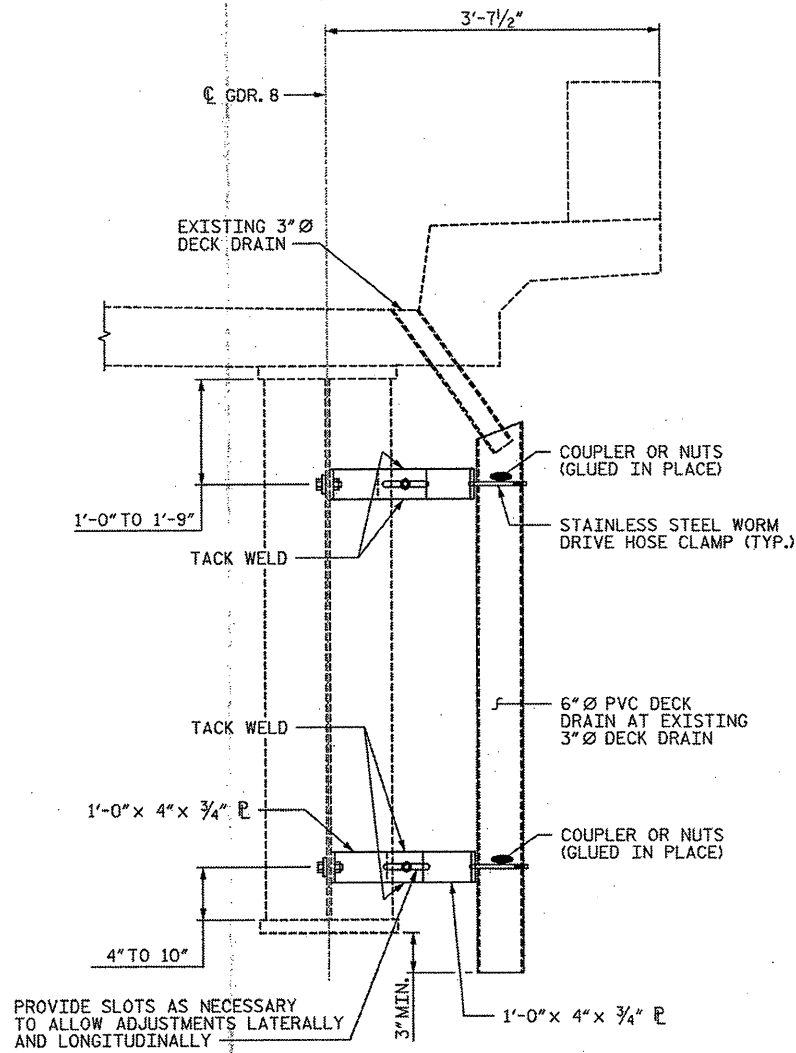


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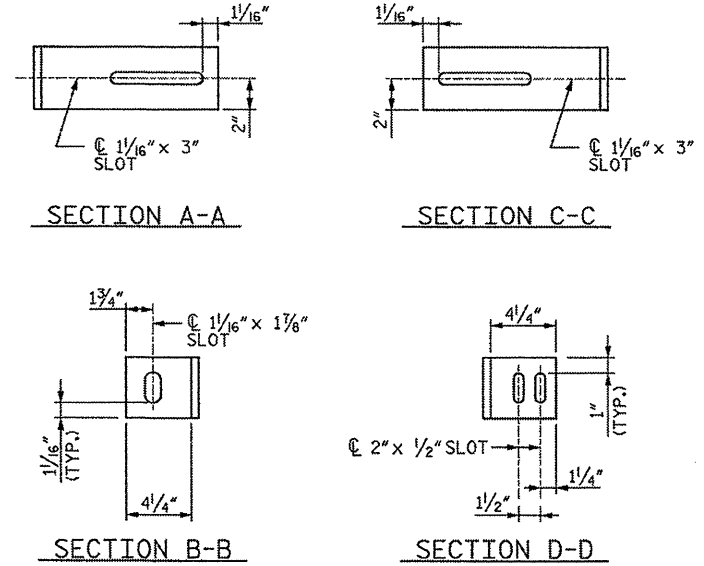
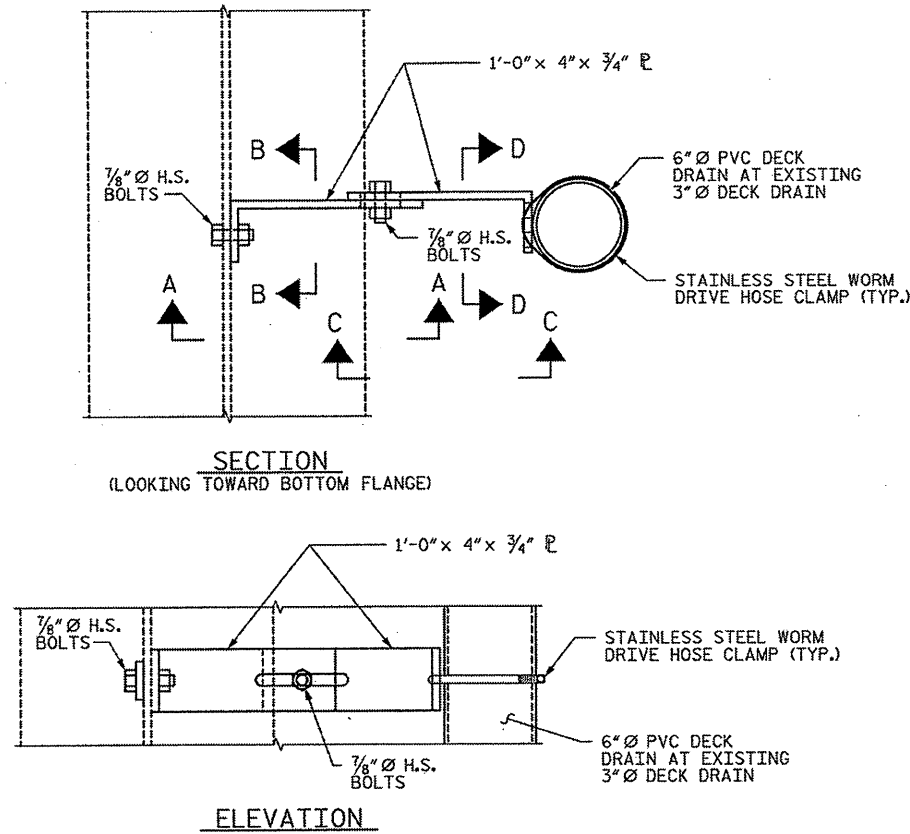
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-14
1			3			TOTAL SHEETS
2			4			S-23

DRAWN BY: CLG DATE: 6-11  
 CHECKED BY: TJT DATE: 6-11

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 9/15/2011



**DECK DRAIN EXTENSION**  
(LOOKING EASTBOUND)



**NOTES:**

1. FOR DECK DRAIN MODIFICATION, SEE SPECIAL PROVISIONS.
2. THE CONTRACTOR MAY PROPOSE AN ALTERNATIVE METHOD TO EXTEND THE EXISTING DRAINAGE BELOW THE BOTTOM FLANGE PROVIDED DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.
3. COUPLING IN DRAIN PIPE WILL BE PERMITTED AS APPROVED BY THE ENGINEER.
4. BOLT SIZE SHALL BE 7/8" Ø H.S. BOLT. STAINLESS STEEL WORM DRIVE HOSE CLAMP SIZE SHALL BE COMMERCIAL QUALITY.
5. PROPOSED DECK DRAIN EXTENSION LENGTH WILL VARY BASED ON EXISTING GIRDER DEPTH.
6. THE 72 EXISTING DECK DRAINS ON THE NORTH SIDE OF THE BRIDGE (GDR. 8) SHALL BE EXTENDED.
7. THE 6" Ø PVC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.
8. PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL.
9. THE COST OF LABOR, MATERIALS, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO CONSTRUCT THE DECK DRAIN EXTENSION SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR "DECK DRAIN EXTENSION".
10. PVC DECK DRAINS SHALL BE PAINTED TO MATCH THE SURFACE FINISH OF THE STRUCTURE WITH TWO COATS OF ACRYLIC OR LATEX PAINT THAT IS CHEMICALLY COMPATIBLE WITH PVC PRODUCTS AND MEETS THE REQUIREMENTS OF ARTICLE 1080-12 OF THE STANDARD SPECIFICATIONS. EACH COAT SHALL BE 2 DRY MILS THICK. DECK DRAINS SHALL BE ROUGHENED PRIOR TO PAINTING. NO SEPARATE PAYMENT SHALL BE MADE FOR PAINTING PVC DECK DRAINS AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM FOR "DECK DRAIN MODIFICATIONS".

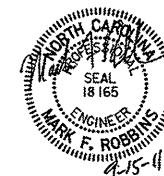
PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 171

REHAB. OF BRIDGE NO. 171 SHEET 4 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**DRAIN REPAIR  
 DETAILS**

BRIDGE ON I-40 OVER  
 SR 1338 & JONATHAN CREEK



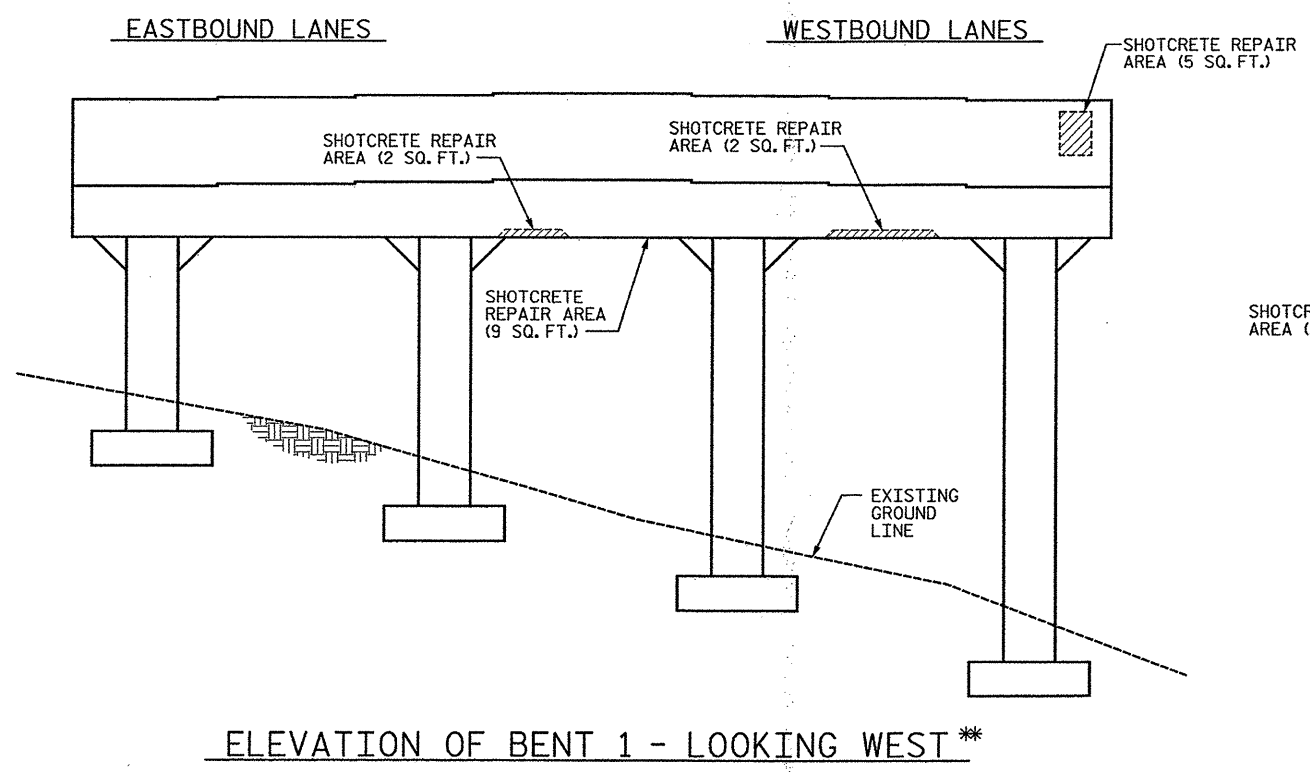
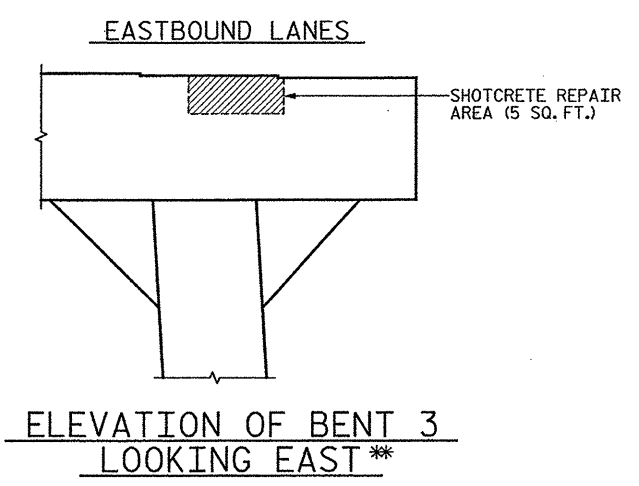
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
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2			4			S-23

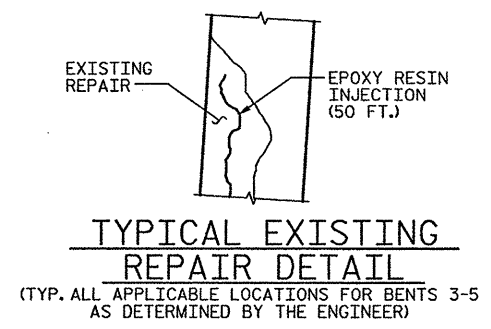
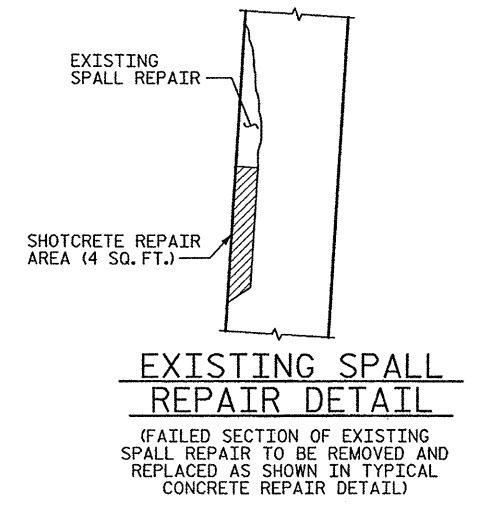
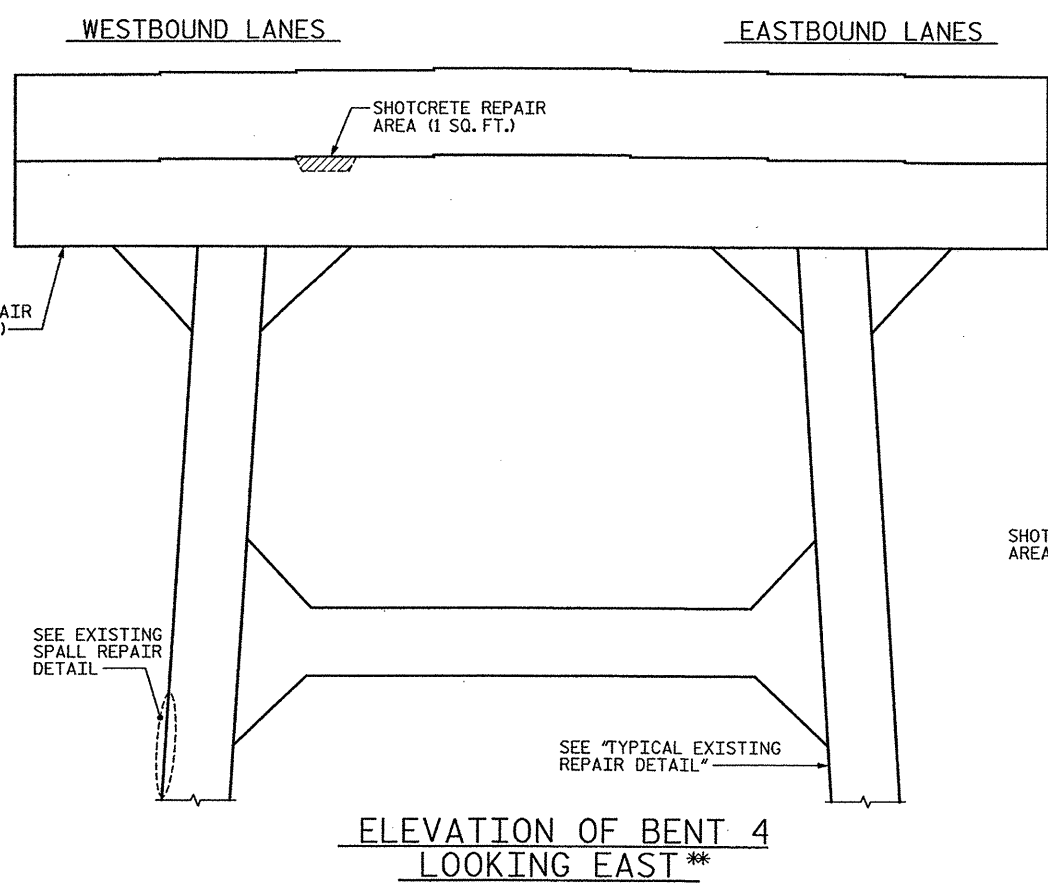
9/15/2011  
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 CHECKED BY : TJT DATE : 6-11

**NOTES:**  
 1. FOR NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAILS, SEE SHEET 6 OF 6.

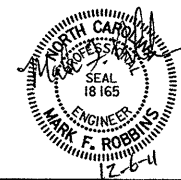


\*\* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG INTERSTATE.



PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 171  
 REHAB. OF BRIDGE NO. 171 SHEET 5 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**BENT 1, 3 & 4  
 SUBSTRUCTURE REPAIR**  
 BRIDGE ON I-40 OVER  
 SR 1338 & JONATHAN CREEK

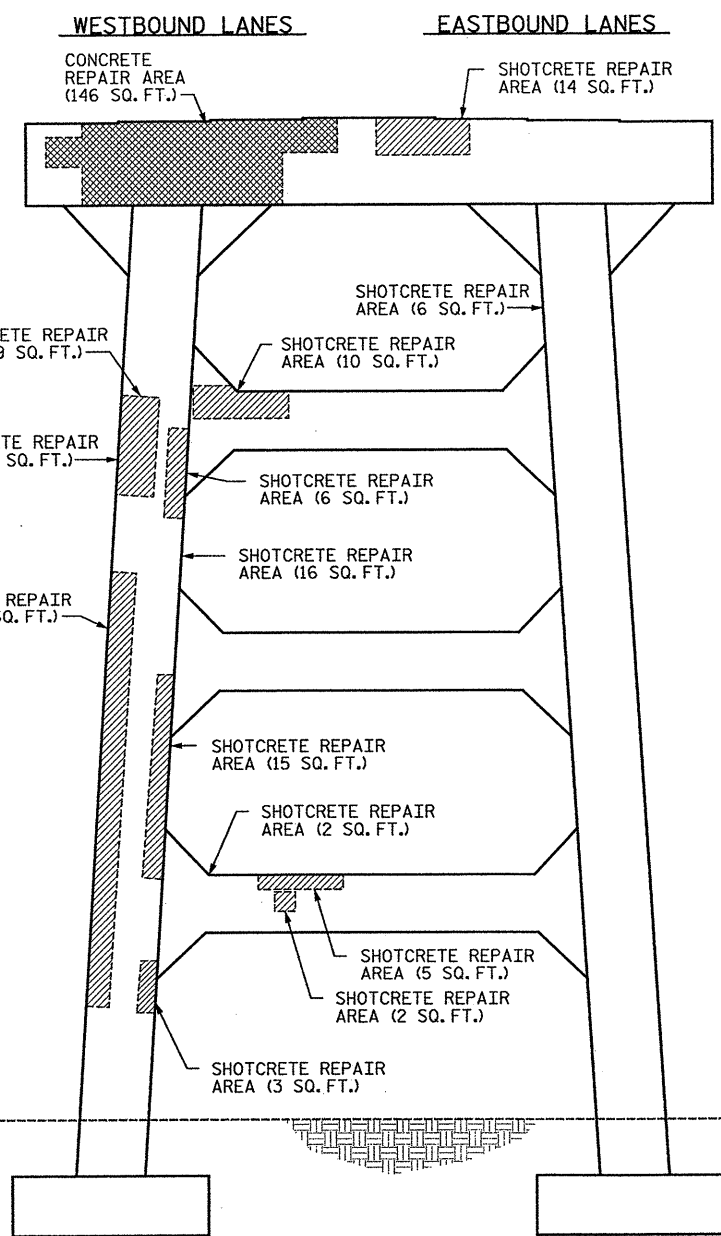


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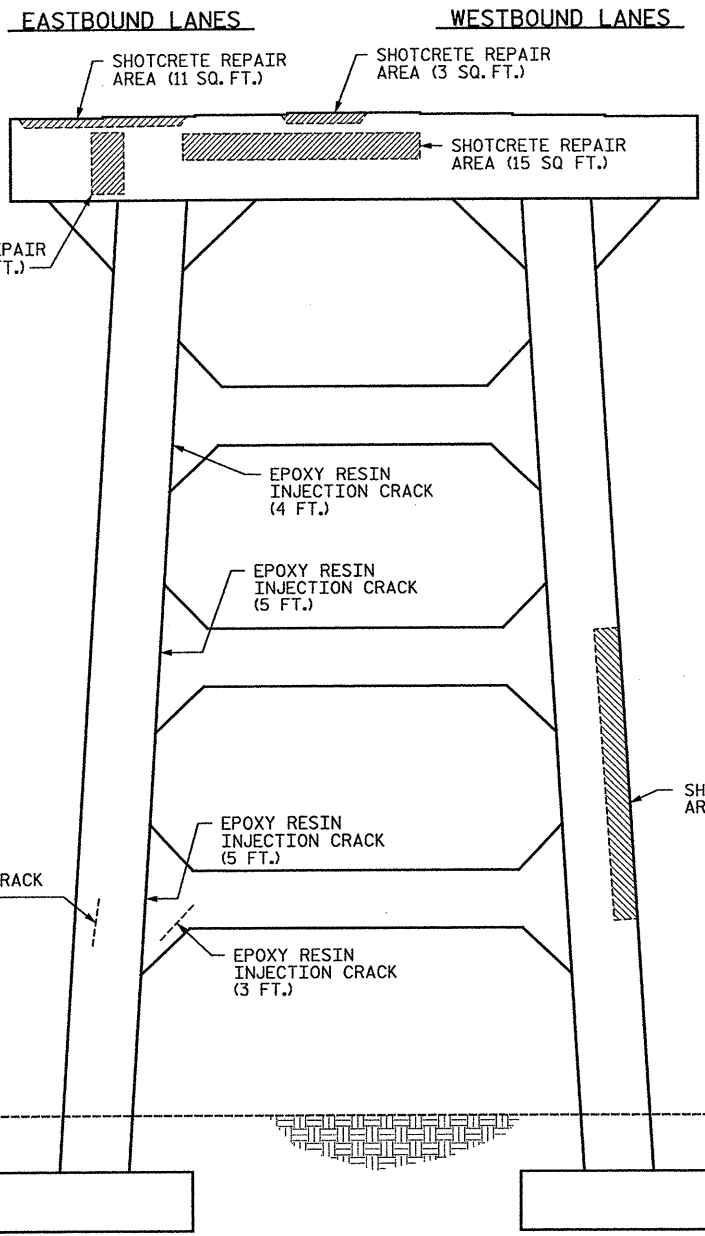
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DRAWN BY : CLG DATE : 6-11  
 CHECKED BY : AJP DATE : 6-11



ELEVATION OF BENT 2  
LOOKING EAST\*\*

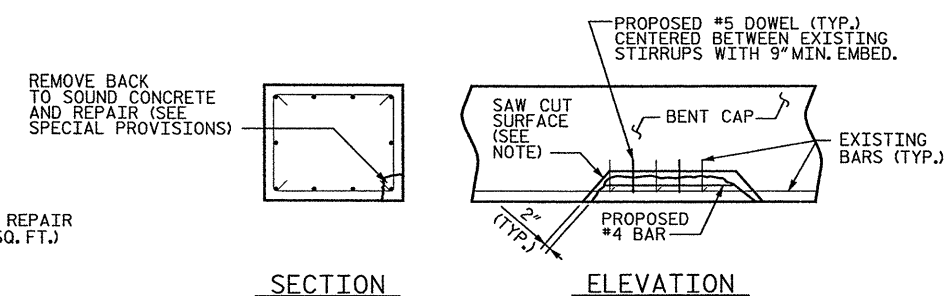


ELEVATION OF BENT 2  
LOOKING WEST\*\*

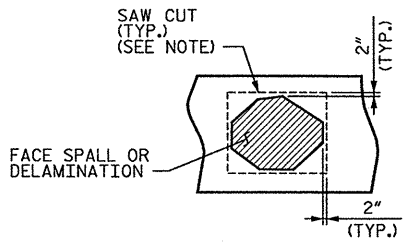
\*\* LOOKING DIRECTION  
CORRESPONDS WITH  
DIRECTION OF TRAVEL  
ALONG INTERSTATE.

NOTES:

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
2. FOR CRACKS REQUIRING EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A CONCRETE REPAIR IS NECESSARY.
3. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
4. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS. REPAIRS TO DAMAGED BARS SHALL BE DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COSTS.
5. DWEL LENGTH SHALL BE BASED ON A 9" EMBEDMENT INTO EXISTING CONCRETE AND MAY BE ADJUSTED BASED ON THE MINIMUM EMBEDMENT SPECIFIED BY THE MANUFACTURER OF THE EPOXY ADHESIVE BONDING SYSTEM.
6. REINFORCING STEEL SHALL BE GRADE 60.
7. BENT CAP REPAIRS IN BEARING AREAS SHALL BE PERFORMED WITH CLASS A CONCRETE.
8. SEE SHEET 1 OF 6 FOR ADDITIONAL NOTES.
9. SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.



CORNER REPAIR



FACE REPAIR

TYPICAL SUBSTRUCTURE REPAIR DETAILS

NOTE: CONTRACTOR SHALL SAW CUT TO A DEPTH OF 1". THIS DEPTH MAY BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

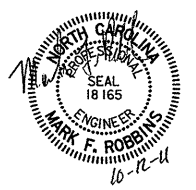
PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 171

REHAB. OF BRIDGE NO. 171 SHEET 6 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 2  
 SUBSTRUCTURE REPAIR

BRIDGE ON I-40 OVER  
 SR 1338 & JONATHAN CREEK



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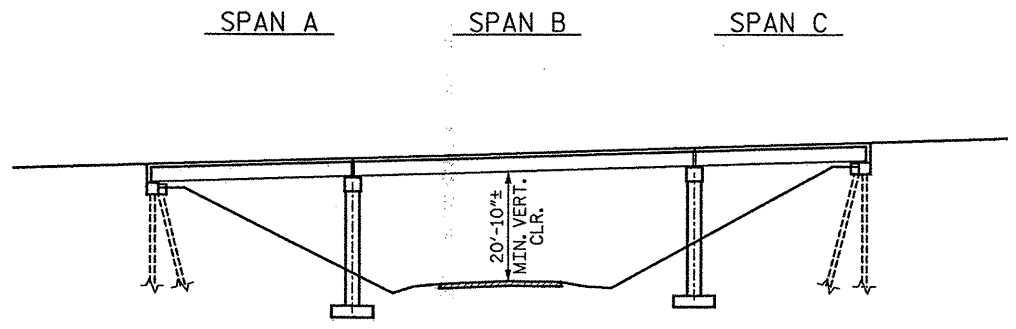
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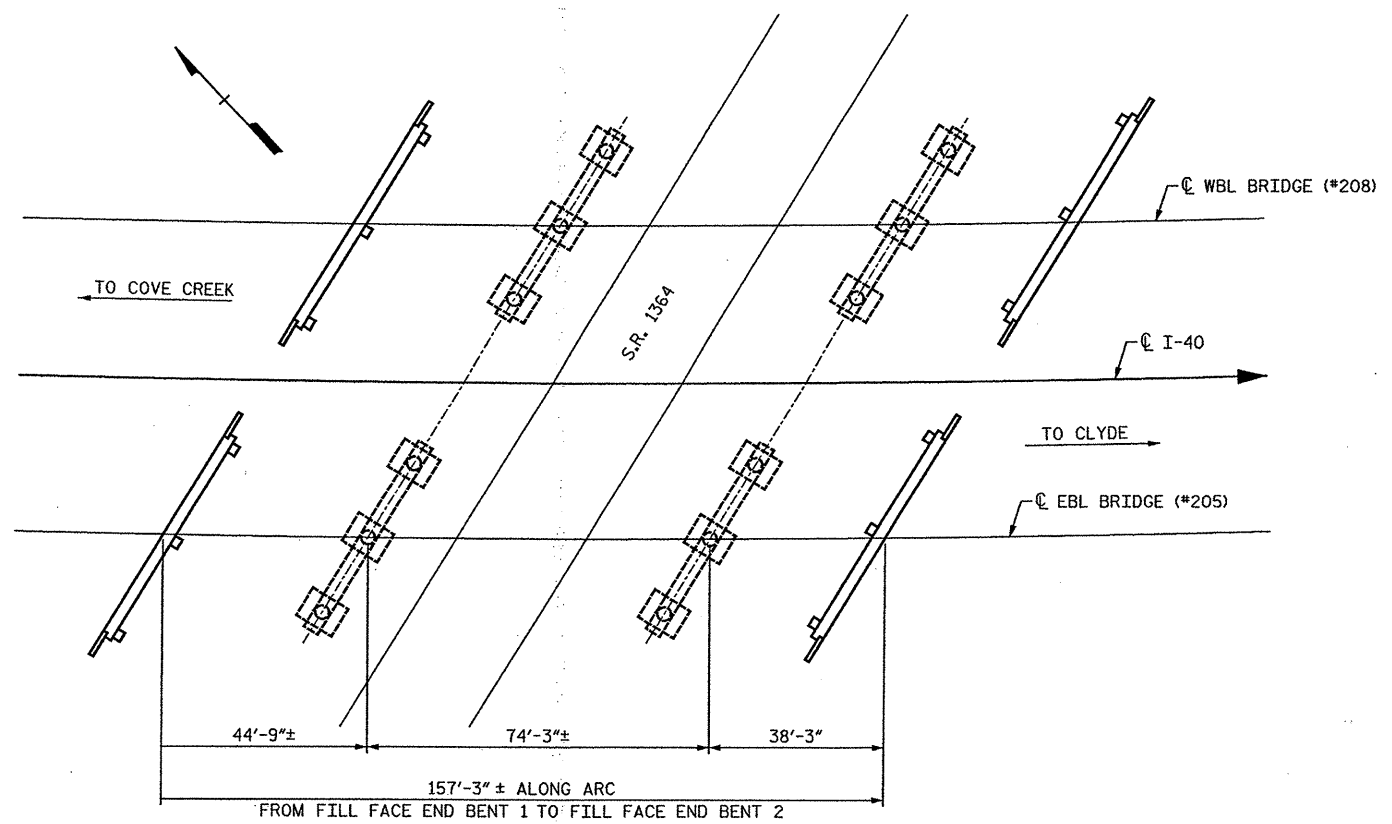
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 CHECKED BY : AJP DATE : 6-11

**GENERAL NOTES**

SEE SHEET S-1 OF S-23 FOR ADDITIONAL NOTES.  
 THE HAUNCH REMOVAL AS SHOWN ON SHEET 2 OF 5 SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT ITEMS. ALL COSTS RELATING TO THE HAUNCH REMOVAL SHALL BE CONSIDERED INCIDENTAL AND NO ADDITIONAL PAYMENT WILL BE MADE.



END BENT 1 BENT 1 BENT 2 END BENT 2  
 SECTION ALONG C MEDIAN

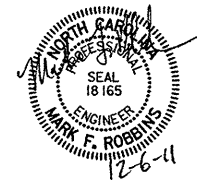


PLAN

BILL OF MATERIAL									
	EPOXY RESIN INJECTION	UNDER STRUCTURE WORK PLATFORM	BRIDGE JACKING	CONCRETE REPAIRS	SHOTCRETE REPAIRS	STRUCTURAL STEEL REPAIRS	CLEANING & REPAINTING BRIDGE #205	CLEANING & REPAINTING BRIDGE #208	POLLUTION CONTROL
	LIN. FT.	LUMP SUM	LUMP SUM	CU. FT.	CU. FT.	LBS.	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE					1	337			
BENT 1	45			21	36				
BENT 2	26				15				
TOTAL	71	LUMP SUM	LUMP SUM	21	52	337	LUMP SUM	LUMP SUM	LUMP SUM

PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 205 & 208  
 REHAB. OF BRIDGE NO. 205 & 208 SHEET 1 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
**BRIDGES ON I-40**  
**OVER SR 1364**



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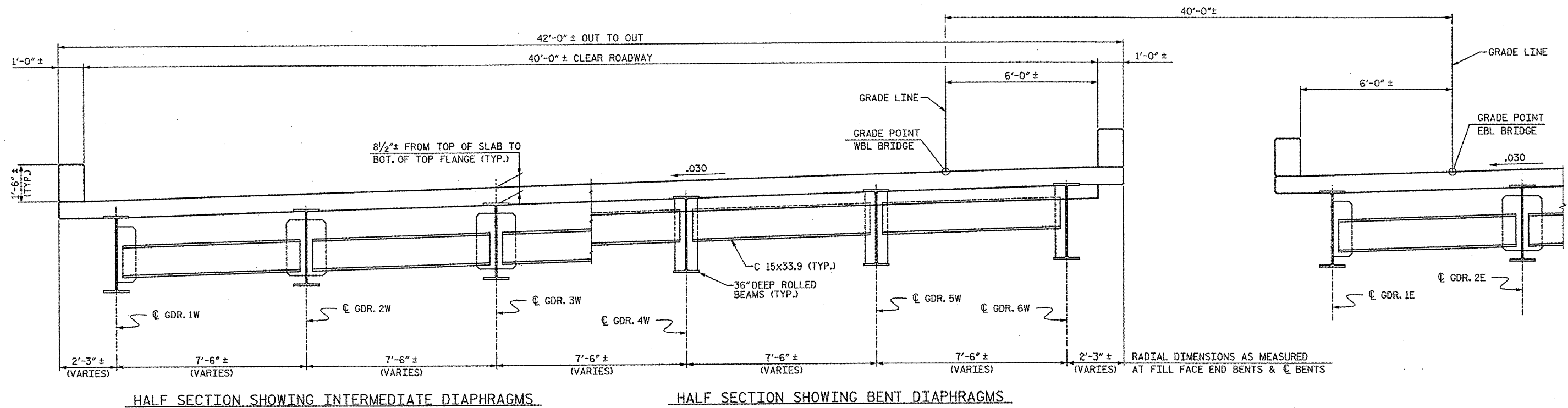
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-18
2			4			TOTAL SHEETS S-23

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 CHECKED BY : AJP DATE : 6-11

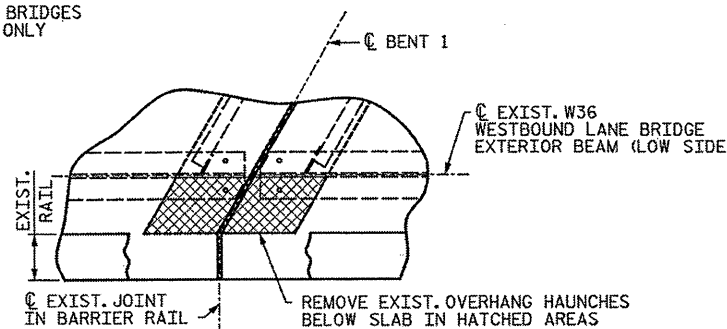
WESTBOUND LANES (WBL) BRIDGE

EASTBOUND LANES (EBL) BRIDGE



EXISTING TYPICAL SECTION THROUGH SUPERSTRUCTURE

DECK DIMENSIONS TYPICAL FOR BOTH 208 (WBL) AND 205 (EBL) BRIDGES (TYP. SECTION DIMENSIONS ARE SHOWN FOR INFORMATION ONLY AND ARE FROM BEST AVAILABLE INFORMATION.)

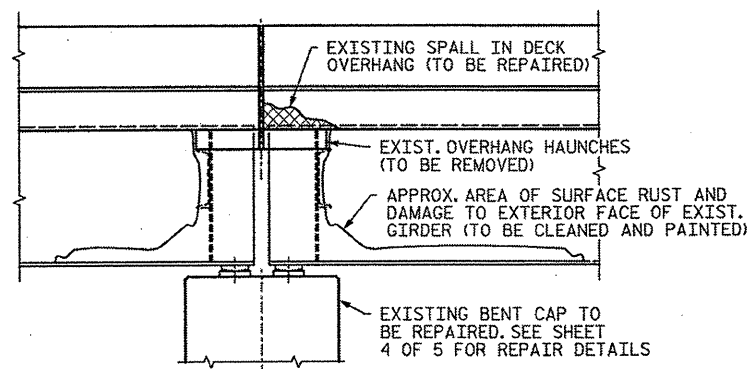


PLAN OF DECK HAUNCH REMOVAL

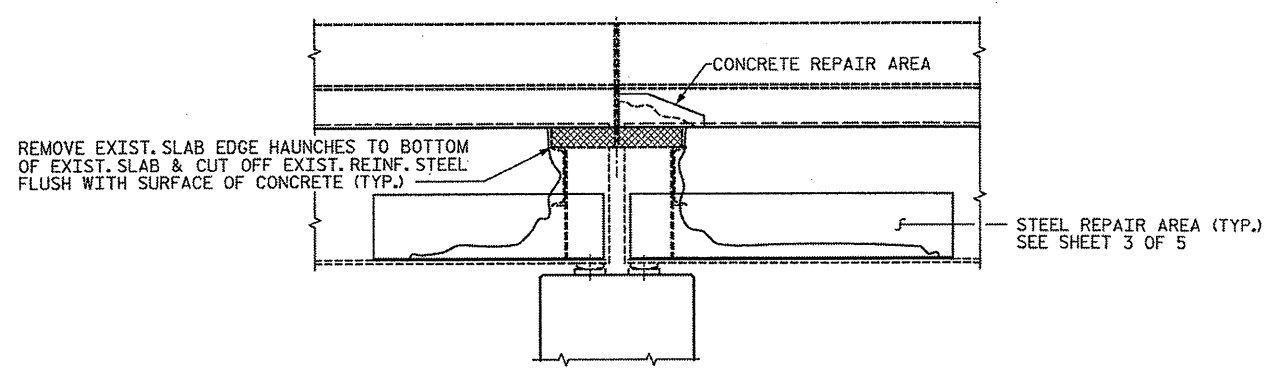
(SEE GENERAL NOTES ON SHEET 1 OF 5 FOR PAY INFORMATION RELATING TO PAYMENT.)

NOTES:

1. FOR NOTES, SEE SHEET 3 OF 5.



ELEVATION OF CONDITIONS GIRDER 1W @ BENT 1



ELEVATION OF SURFACE PREPARATION EXTENTS GIRDER 1W @ BENT 1

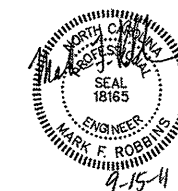
PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
 BRIDGE NO.: 205 & 208

REHAB. OF BRIDGE NO. 205 & 208 SHEET 2 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE REPAIR DETAILS

BRIDGES ON I-40 OVER SR 1364



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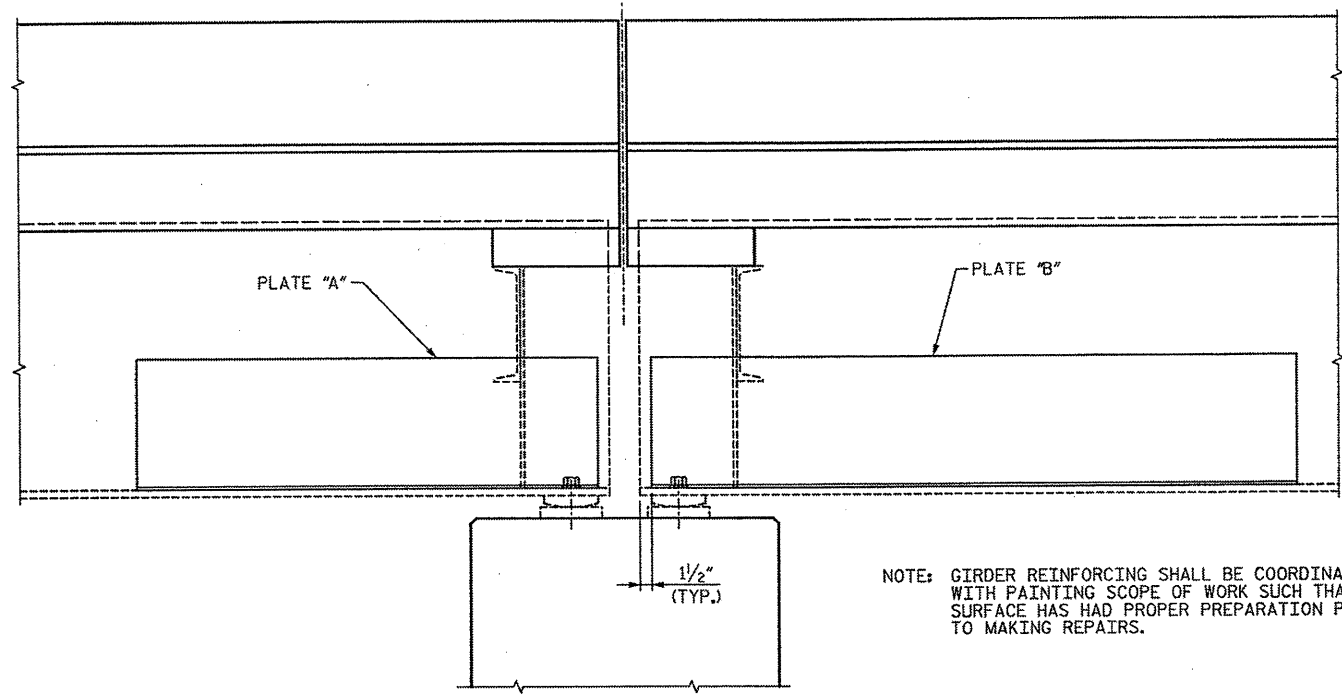
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TOTAL SHEETS S-19  
S-23

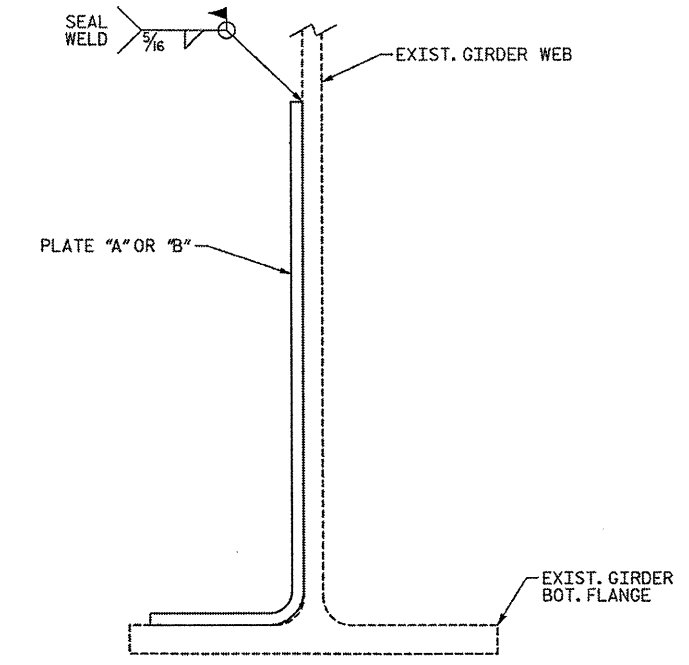
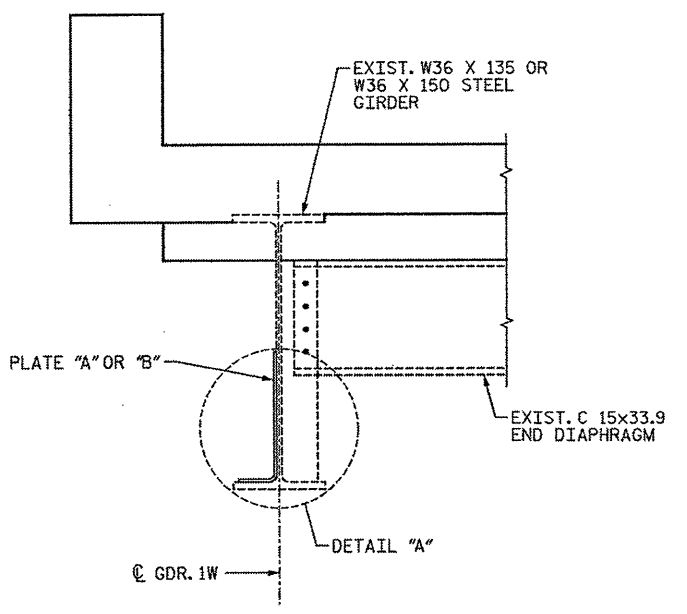
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peter@dj

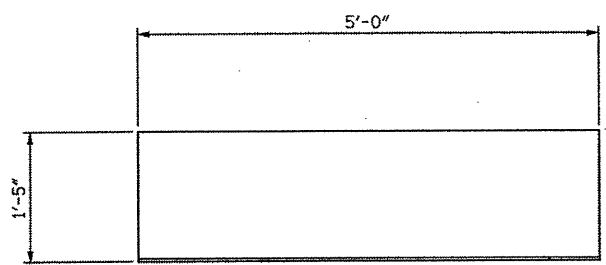
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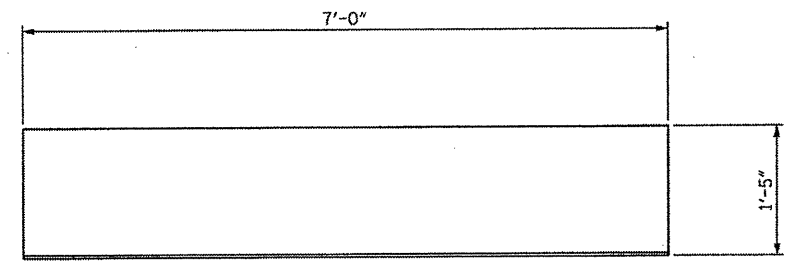
**ELEVATION OF GIRDER REINFORCING PLATES**  
(GIRDER 1W @ BENT 1)



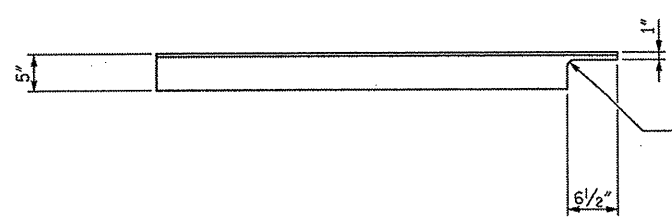
**DETAIL "A"**



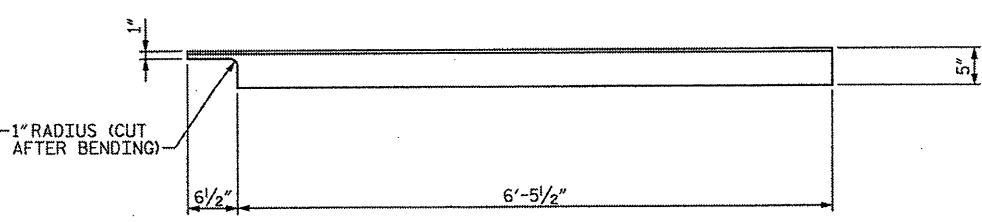
**SIDE VIEW - PLATE "A"**



**SIDE VIEW - PLATE "B"**

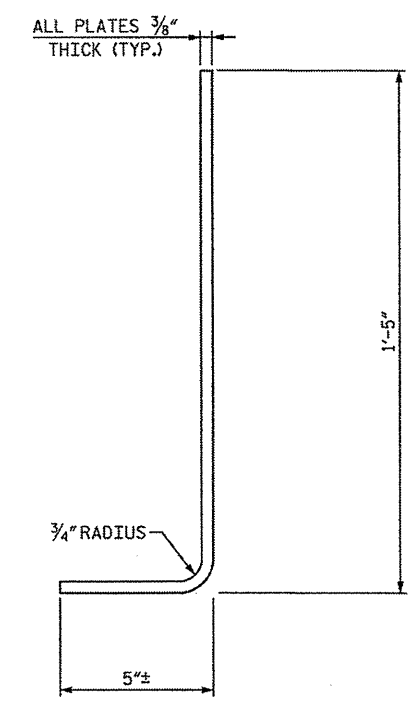


**PLAN - PLATE "A"**



**PLAN - PLATE "B"**

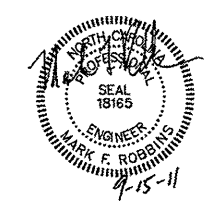
**GIRDER REINFORCING PLATE DETAILS**



**SECTION THRU PLATE "A" AND "B"**  
(BEND LINE IN PLATE SHOULD BE ORIENTED PERPENDICULAR TO GRAIN)

**NOTES**

- FOR STRUCTURAL STEEL REPAIRS, SEE SPECIAL PROVISIONS.
- PLATE STEEL USED FOR REPAIR SHALL BE GRADE 36. NO SUBSTITUTION SHALL BE ALLOWED DUE TO MINIMUM BENDING RADIUS REQUIREMENTS.
- PLATE SIZES ARE BASED ON BEST INFORMATION AVAILABLE. ENGINEER SHALL VERIFY EXTENTS OF REPAIR AND PLATE SIZES PRIOR TO PLATE FABRICATION.
- ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT AWS STANDARDS.



PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
BRIDGE NO.: 205 & 208  
REHAB. OF BRIDGE NO. 205 & 208 SHEET 3 OF 5

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUPERSTRUCTURE  
REPAIR DETAILS**

BRIDGES ON I-40  
OVER SR 1364

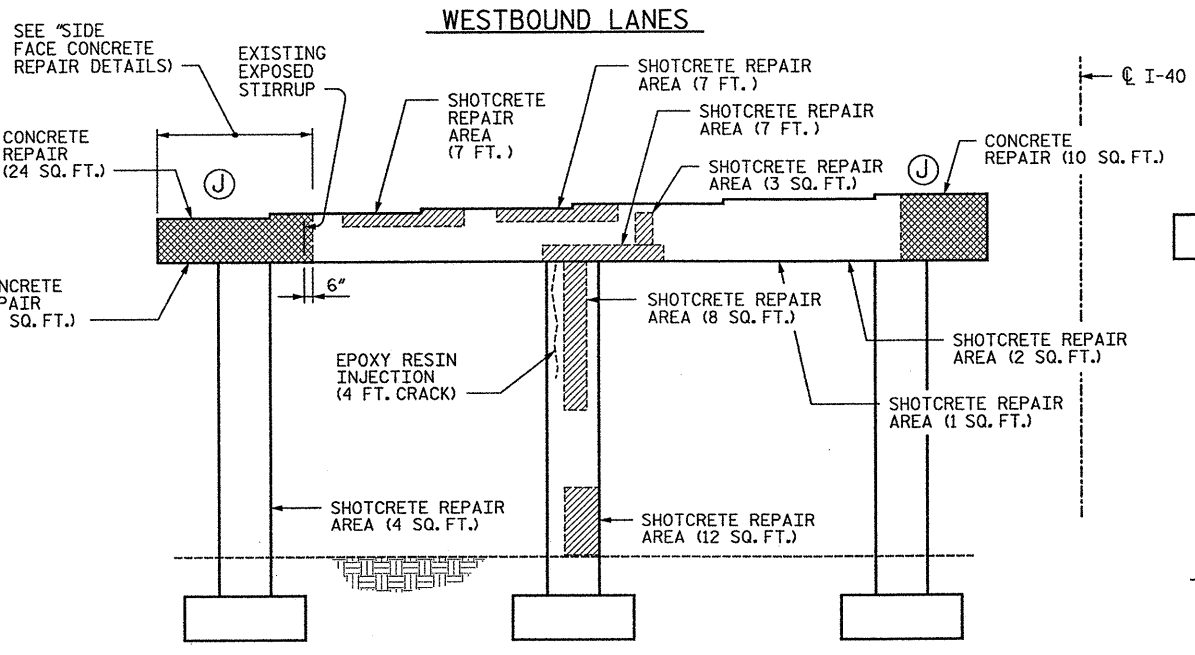
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1			3		
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TOTAL SHEETS: S-20, S-21, S-22, S-23

DRAWN BY: TRL DATE: 6-11  
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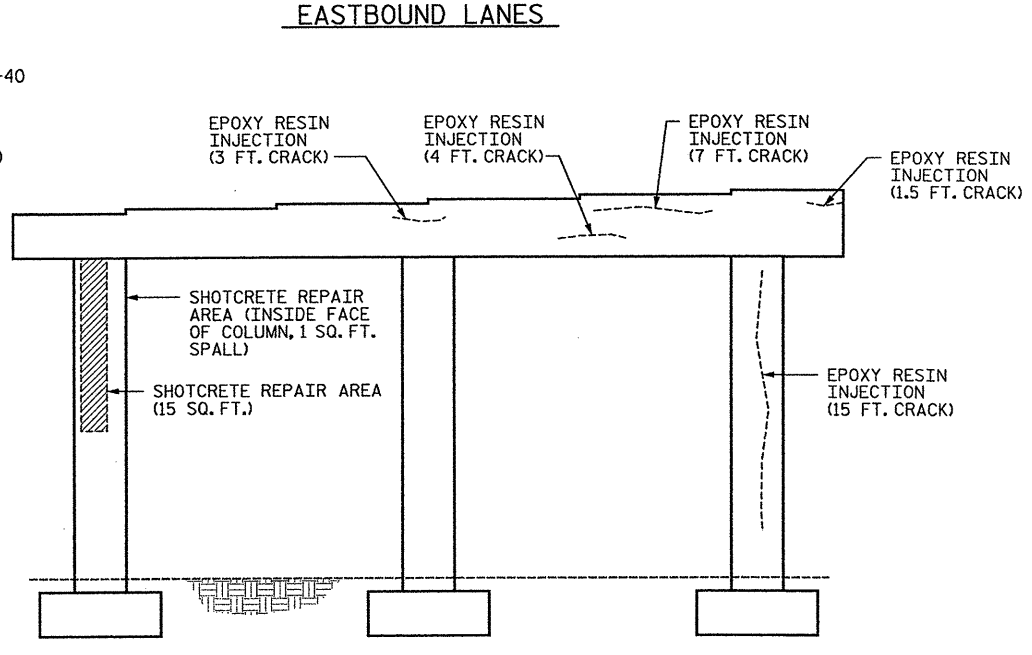
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Charlotte, NC 28203  
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 9/15/2011



ELEVATION OF BENT 1 WESTBOUND - LOOKING EAST\*\*  
(LOOKING FROM FILL SLOPE)

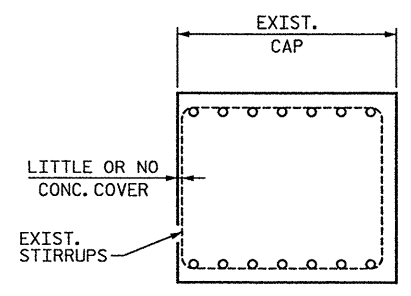
Ⓝ JACKING REQUIRED



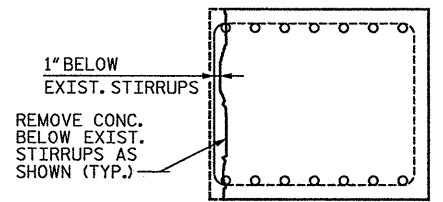
ELEVATION OF BENT 1 EASTBOUND - LOOKING EAST\*\*  
(LOOKING FROM FILL SLOPE)

\*\* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG INTERSTATE.

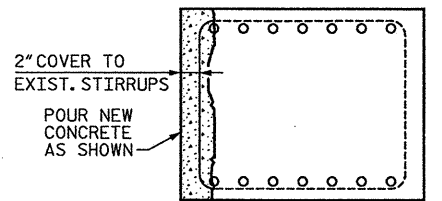
NOTES:  
1. FOR NOTES AND TYPICAL SUBSTRUCTURE REPAIR DETAILS SEE SHEET 5 OF 5.



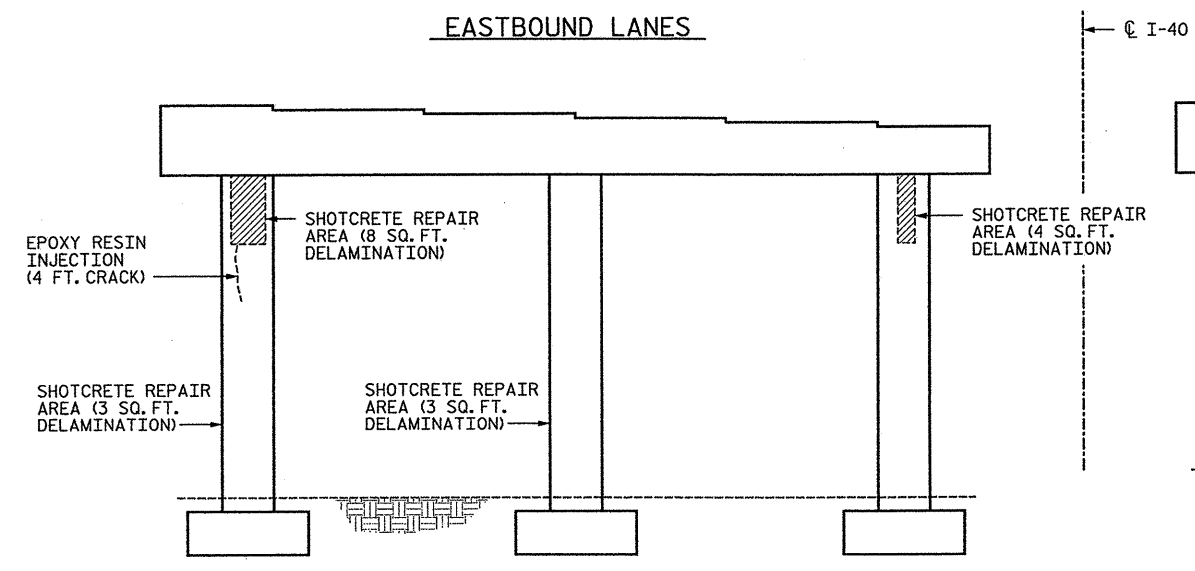
EXISTING CONDITION



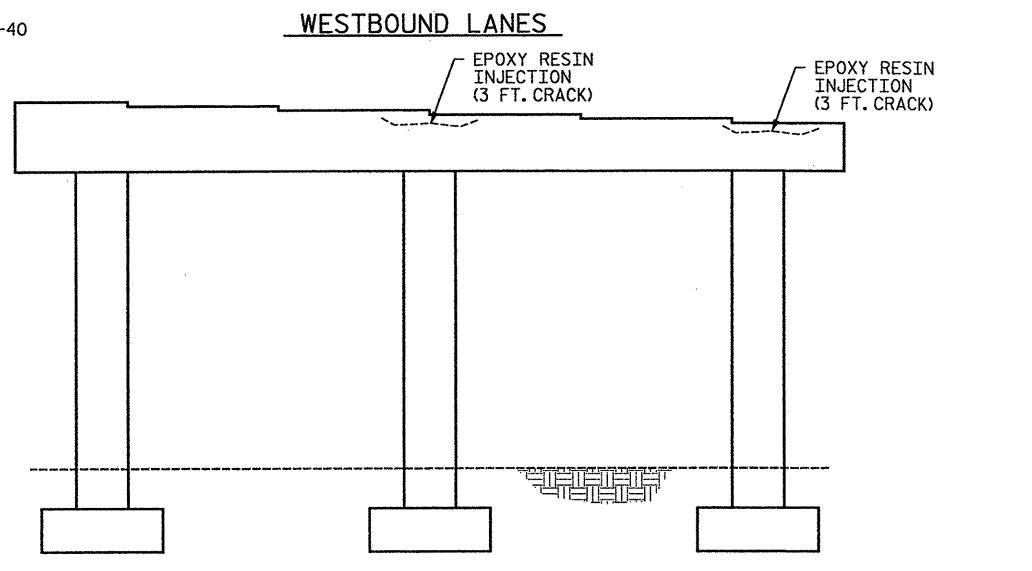
REMOVE EXIST. CONCRETE



POUR NEW CONCRETE  
SIDE FACE CONCRETE  
REPAIR DETAILS



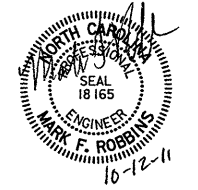
ELEVATION OF BENT 1 EASTBOUND - LOOKING WEST\*\*  
(LOOKING FROM ROADWAY BELOW)



ELEVATION OF BENT 1 WESTBOUND - LOOKING WEST\*\*  
(LOOKING FROM ROADWAY BELOW)

PROJECT NO. BP-5300N  
HAYWOOD COUNTY  
BRIDGE NO.: 205 & 208  
REHAB. OF SHEET NO. 205 & 208 SHEET 4 OF 5

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
BENT 1  
SUBSTRUCTURE REPAIR  
BRIDGES ON I-40  
OVER SR 1364



STV/Ralph Whitehead Associates, Inc.  
1000 West Morehead St., Ste. 200  
Charlotte, NC 28208  
NC License No. F-0991

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

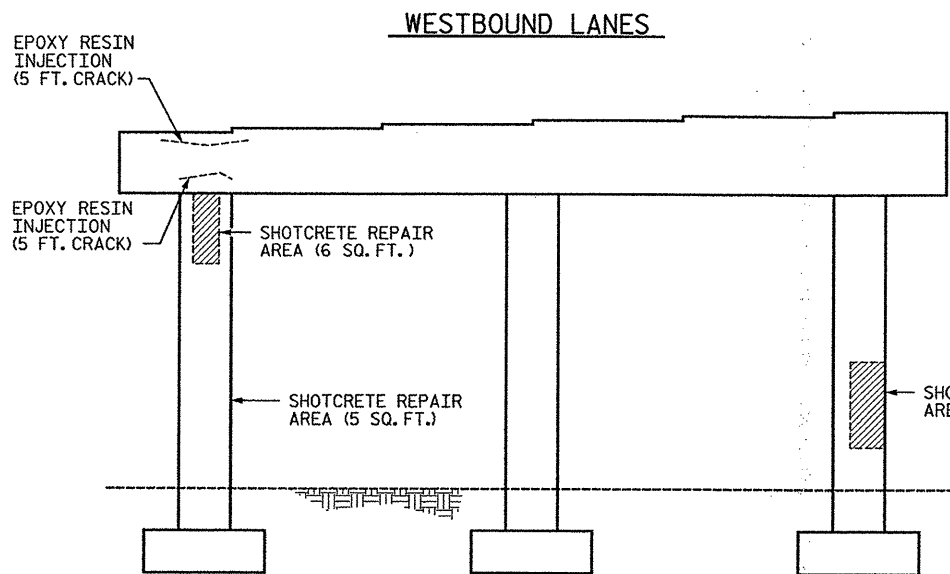
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DRAWN BY : TRL DATE : 6-11  
CHECKED BY : PWP DATE : 6-11

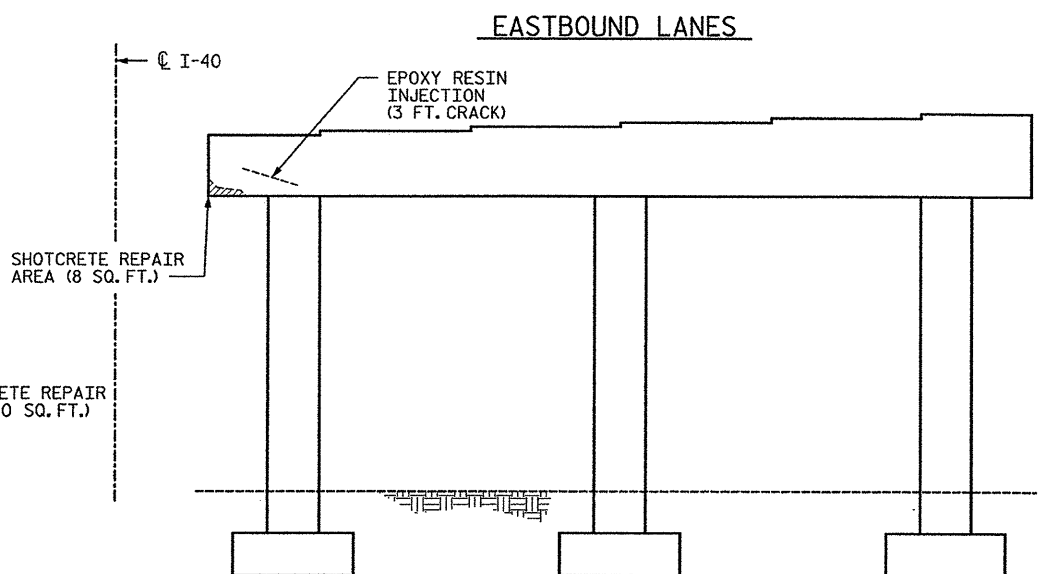


NOTES:

1. CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.
2. FOR CRACKS REQUIRING EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A CONCRETE REPAIR IS NECESSARY.
3. SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.
4. THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS. REPAIRS TO DAMAGED BARS SHALL BE DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COSTS.
5. DOWEL LENGTH SHALL BE BASED ON A 9" EMBEDMENT INTO EXISTING CONCRETE AND MAY BE ADJUSTED BASED ON THE MINIMUM EMBEDMENT SPECIFIED BY THE MANUFACTURER OF THE EPOXY ADHESIVE BONDING SYSTEM.
6. REINFORCING STEEL SHALL BE GRADE 60.
7. BENT CAP REPAIRS IN BEARING AREAS SHALL BE PERFORMED WITH CLASS A CONCRETE.
8. BRIDGE JACKING IS REQUIRED FOR CONCRETE REPAIRS THAT EXTEND UNDER A BEARING PLATE. FOR JACKING DETAILS AND NOTES, SEE SHEET S-23 OF S-23.
9. SEE SHEET 1 OF 5 FOR ADDITIONAL NOTES.
10. SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.

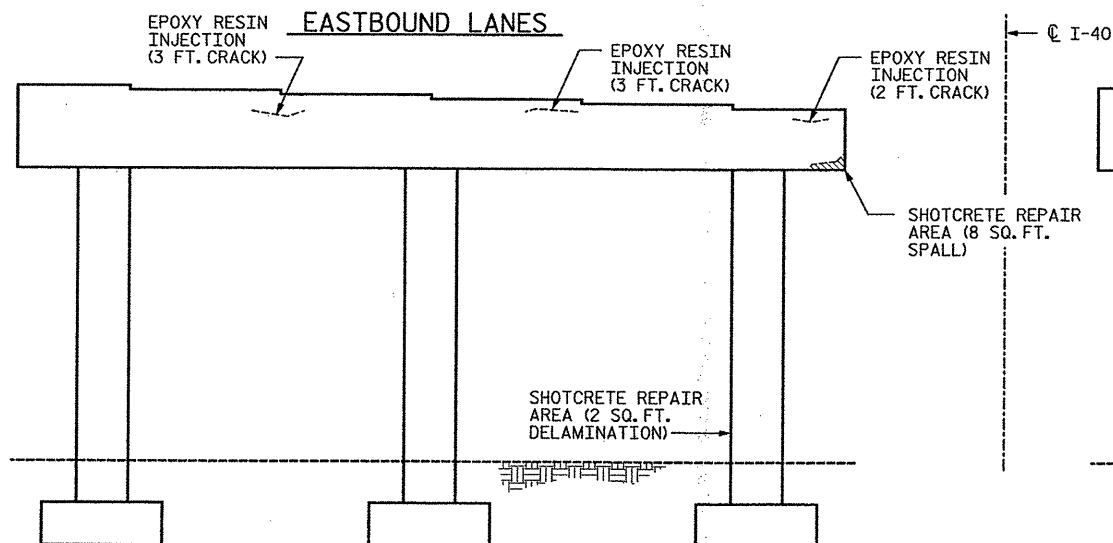


ELEVATION OF BENT 2 WESTBOUND - LOOKING EAST  
(LOOKING FROM ROADWAY BELOW)

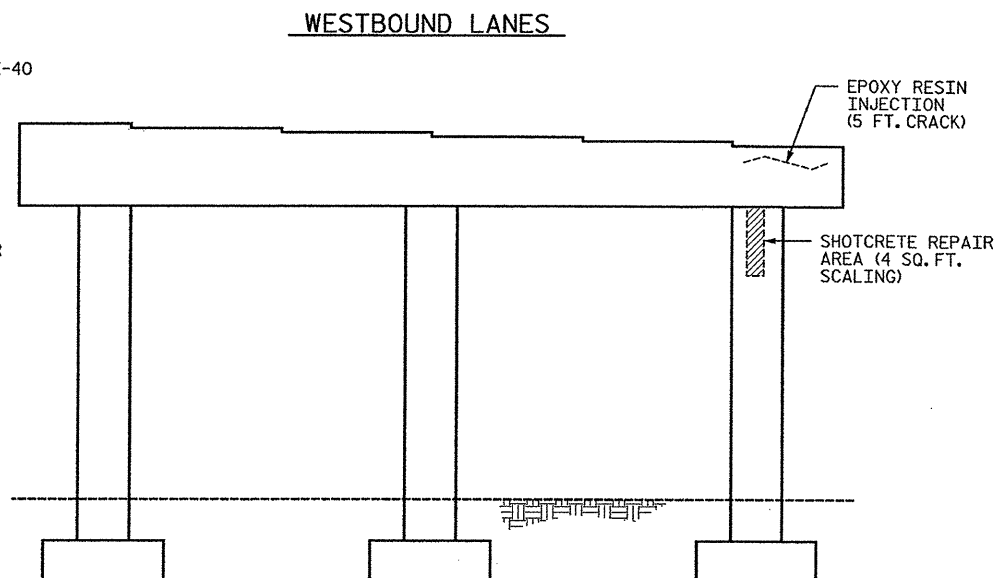


ELEVATION OF BENT 2 EASTBOUND - LOOKING EAST  
(LOOKING FROM ROADWAY BELOW)

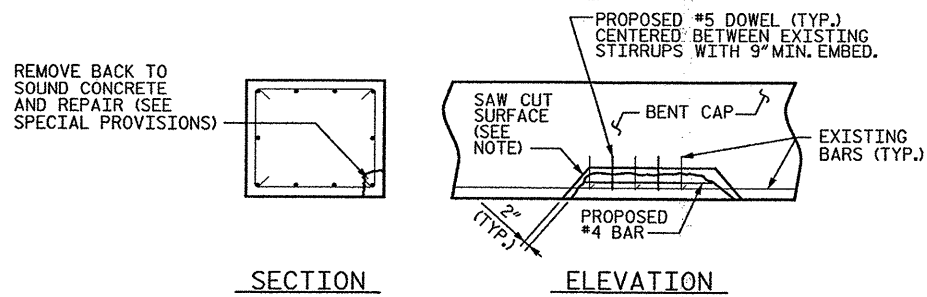
\*\* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG INTERSTATE.



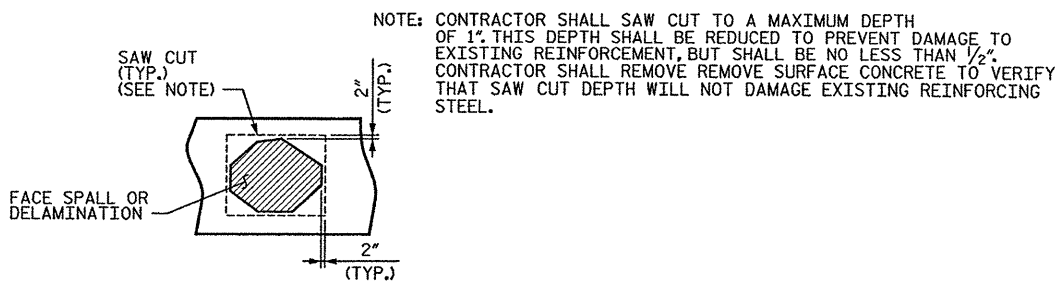
ELEVATION OF BENT 2 EASTBOUND - LOOKING WEST  
(LOOKING FROM FILL SLOPE)



ELEVATION OF BENT 2 WESTBOUND - LOOKING WEST  
(LOOKING FROM FILL SLOPE)



CORNER REPAIR



FACE REPAIR

TYPICAL SUBSTRUCTURE REPAIR DETAILS

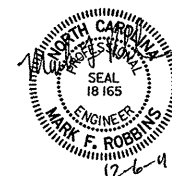
PROJECT NO. **BP-5300N**  
**HAYWOOD** COUNTY  
 BRIDGE NO.: **205 & 208**

REHAB. OF BRIDGE NO. 205 & 208 SHEET 5 OF 5

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 2**  
**SUBSTRUCTURE REPAIR**

BRIDGES ON I-40  
 OVER SR 1364



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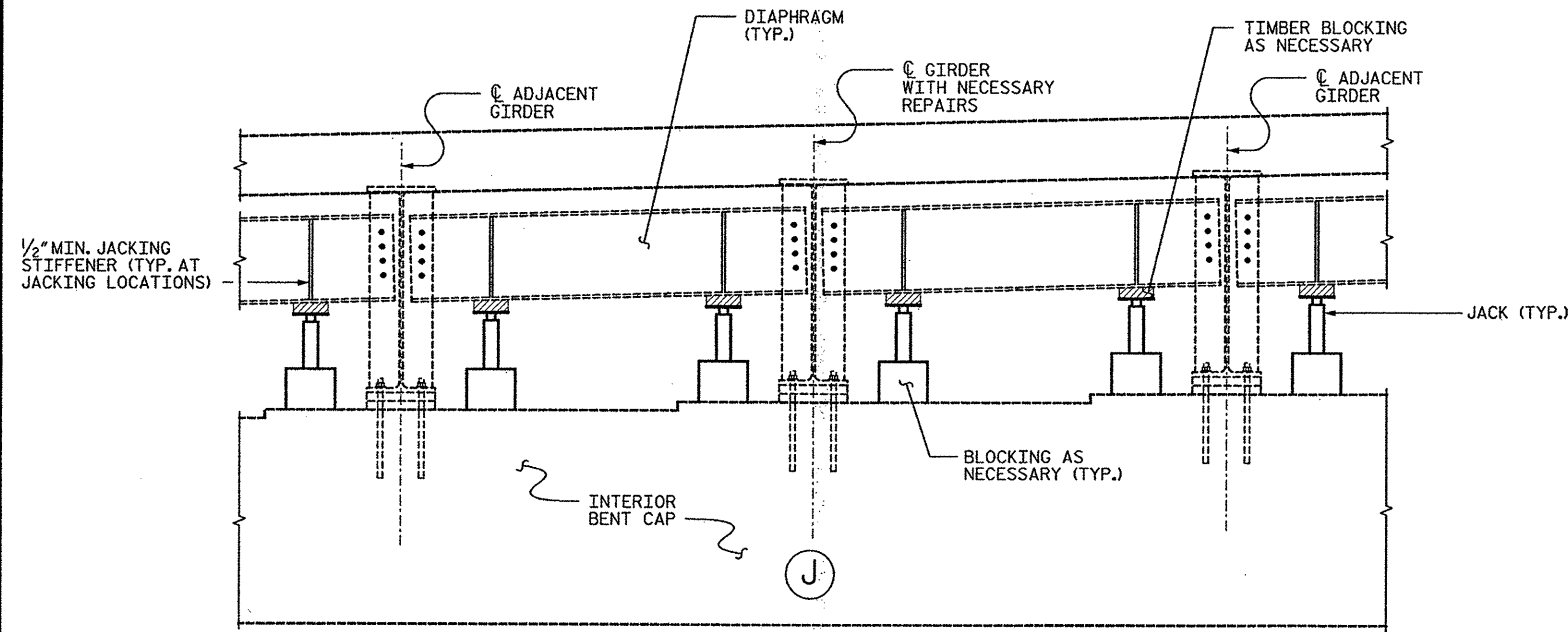
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-22
2			4			S-23

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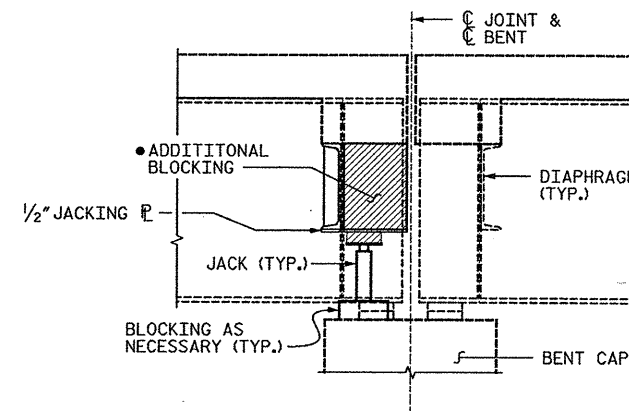
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12/28/2011

DRAWN BY: **TRL** DATE: **6-11**  
 CHECKED BY: **PWP** DATE: **6-11**



GIRDER JACKING DETAIL AT INTERIOR GIRDER



TYPICAL SECTION @ JACKING LOCATION

• BLOCKING SHALL BE FULL WIDTH FROM BACK OF DIAPHRAGM CHANNEL TO THE END OF THE DECK TURN DOWN. BLOCKING SHALL BE INSTALLED THE FULL DEPTH OF THE DIAPHRAGM SUCH THAT THE BLOCKING WILL BE LIFTED SIMULTANEOUSLY WITH THE EXISTING DIAPHRAGM.

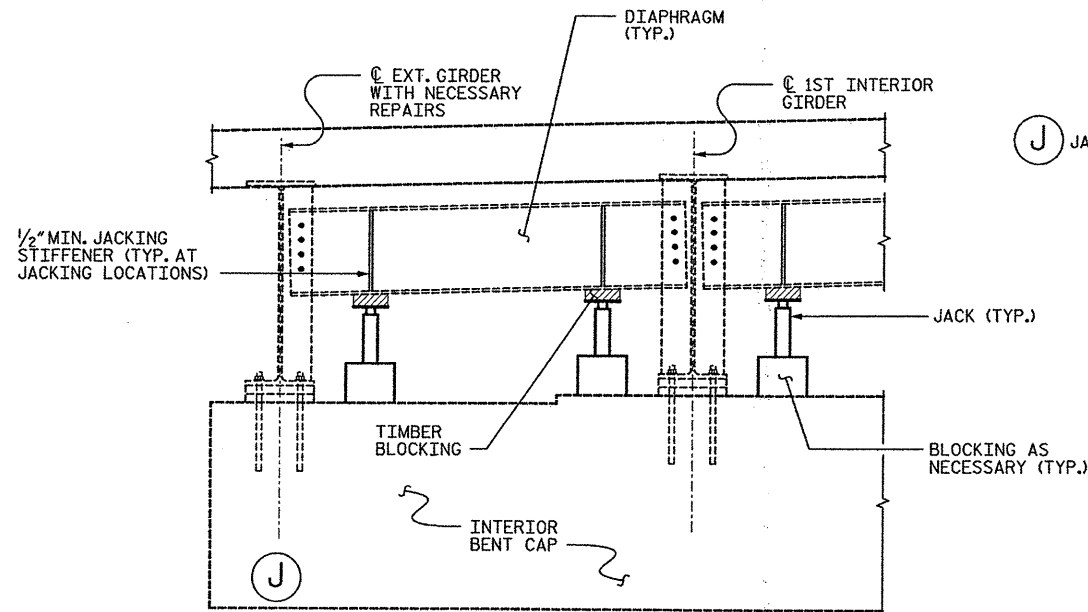
**CONSTRUCTION SEQUENCE:**

1. INSTALL JACKS AND BLOCKING AT LOCATIONS SHOWN ON PLAN.
2. REMOVE NECESSARY NUTS ON ANCHOR BOLTS.
3. JACK GIRDERS A MAXIMUM OF 1/8" IN ORDER TO RELIEVE LOAD ON BENT CAP UNDER BEARING.
4. MECHANICALLY LOCK ALL JACKS AT BENT.
5. PERFORM CONCRETE REPAIRS AT SPECIFIED LOCATIONS.
6. ONCE ALL REPAIRS ARE COMPLETE, LOWER BRIDGE. CONTRACTOR SHALL NOT LOWER BRIDGE UNTIL CONCRETE REPAIR MATERIAL HAS REACHED A COMPRESSIVE STRENGTH OF 3,000 PSI.

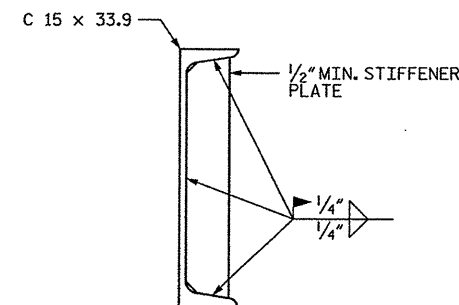
NOTE: THE CONTRACTOR HAS THE OPTION TO PROPOSE AN ALTERNATE CONSTRUCTION SEQUENCE PER THE APPROVAL OF THE ENGINEER.

**NOTES:**

1. JACKING DETAILS SHOWN ARE CONCEPTUAL AND CONSIDERED A MINIMUM. THE CONTRACTOR SHALL PROVIDE JACKING PLANS FOR ALL GIRDERS LIFTED FOR APPROVAL BY THE ENGINEER PRIOR TO ANY JACKING OPERATIONS. JACKING SHALL BE PERFORMED SUCH THAT BRIDGE CAN REMAIN OPEN TO TRAFFIC DURING JACKING OPERATIONS.
2. JACKING PLANS SHALL BE SIGNED AND SEALED BY LICENSED PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA.
3. THE CONTRACTOR SHALL PROVIDE BLOCKING FOR ALL JACKS AS NECESSARY. A BLOCKING PLAN SHALL BE INCLUDED AS PART OF THE JACKING PLAN.
4. THE CONTRACTOR SHALL JACK GIRDERS ON AN INDIVIDUAL BENT SIMULTANEOUSLY BY MEANS OF A DUAL-FLOW PRESSURIZED PUMP CONTROLLING THE JACKS.
5. THE CONTRACTOR SHALL MONITOR THE PLAN LOCATION OF THE GIRDERS FROM INITIAL JACKING UNTIL GIRDERS ARE SECURED ON THEIR PERMANENT BEARINGS. IF THE PLAN LOCATION OF THESE GIRDERS SHIFT FROM ITS ORIGINAL POSITION, THE CONTRACTOR SHALL SECURE FROM ADDITIONAL MOVEMENT IMMEDIATELY. NOTIFY ENGINEER PRIOR TO PROCEEDING WORK OPERATIONS.
6. EACH JACK SHALL HAVE A MINIMUM SAFE WORKING CAPACITY OF 60 TONS.
7. PRIOR TO JACKING THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE SPAN FROM BEING LIFTED.
8. ONCE SPAN HAS BEEN JACKED, CONTRACTOR SHALL INSTALL A MECHANICAL LOCKING DEVICE TO ENSURE THAT GIRDER WILL NOT BE LOWERED DURING CURING OF CONCRETE.
9. CONTRACTOR TO TAKE APPROPRIATE MEANS TO REMOVE NUT ON ANCHOR BOLT WITHOUT DAMAGING THE ANCHOR BOLT. CONTRACTOR SHALL SUBMIT NUT REMOVAL METHOD TO INCLUDE PROCEDURES THAT WILL LOOSEN BOND BETWEEN INTERLOCKING THREADS TO ENGINEER FOR APPROVAL PRIOR TO REMOVING ANCHOR BOLT NUTS.
10. IN NO CIRCUMSTANCES SHOULD THE JACKING BE SOLELY SUPPORTED BY THE DIAPHRAGM. JACKS SHOULD BE CENTERED UNDER DIAPHRAGM AND ADDITIONAL BLOCKING.



GIRDER JACKING DETAIL AT EXTERIOR GIRDER



JACKING STIFFENER DETAIL

PROJECT NO. **BP-5300N**  
**HAYWOOD** COUNTY  
 BRIDGE NO.: **124, 142, 205 & 208**  
 REHAB. OF HAYWOOD CO. BRIDGES

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**JACKING PLAN**

BRIDGES ON I-40



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 Charlotte, NC 28208  
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REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	DATE:	S-23
1			3		TOTAL SHEETS
2			4		S-23

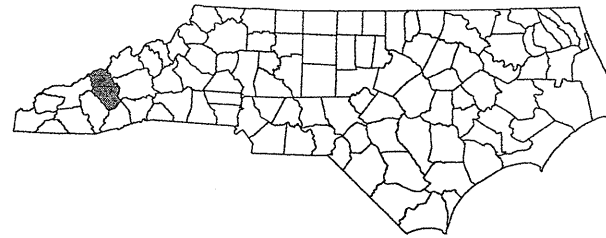
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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**HAYWOOD COUNTY  
DIVISION 14**



**BRIDGE PAINTING**

**HAYWOOD CO. – #124, #142, #171, #205 AND #208**

**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET, INDEX, TRAFFIC MANAGEMENT STRATEGY
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	GENERAL NOTES
TMP-2	SINGLE LANE CLOSURES ON I-40
TMP-2A	DESIGN TABLES
TMP-3	TRAFFIC CONTROL PHASING
TMP-4	BRIDGE #124 FLAGGING OPERATION FOR SR 1338 (FINES CREEK RD.) NORTHBOUND
TMP-4A	BRIDGE #124 FLAGGING OPERATION FOR SR 1338 (FINES CREEK RD.) SOUTHBOUND

SHEET NO.  
TMP-1

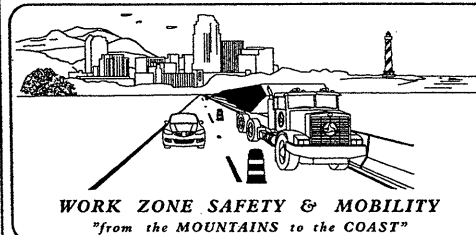
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**TRAFFIC MANAGEMENT STRATEGY**

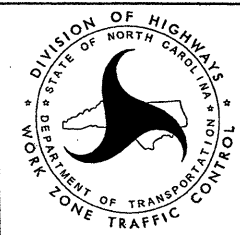
PROPOSED BRIDGE PAINTING WORK WILL BE PERFORMED USING LANE CLOSURES ON BRIDGE, AND/OR FLAGGER CONTROLLED LANE CLOSURES BELOW BRIDGE. REFER TO SHEET TMP-3 FOR TRAFFIC CONTROL PHASING.

**BP-5300N**

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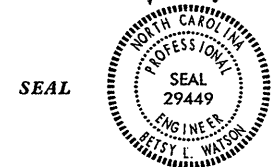
PLAN PREPARED FOR NCDOT BRIDGE MANAGEMENT UNIT  
RALEIGH, NC



PLAN PREPARED BY:  
Stantec Consulting Services Inc.  
801 Jones Franklin Road-Suite 300  
Raleigh, NC 27606  
Tel. 919.851.6866  
Fax. 919.851.7024  
www.stantec.com

BETSY L. WATSON, P.E. TRAFFIC ENGINEER  
GEORGE KARAGEORGE TRANSPORTATION DESIGNER

APPROVED: *Betsy L. Watson*  
DATE: 10/25/11







# ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:













STD. NO.	TITLE
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1150.01	FLAGGING DEVICES
1180.01	SKINNY DRUMS

## GENERAL




-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  WORK AREA
-  NORTH ARROW

## LEGEND




### TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM  SKINNY DRUM  TUBULAR MARKER
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW BOARD (TYPE C)
-  FLAGGER
-  LAW ENFORCEMENT
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  CHANGEABLE MESSAGE SIGN (CMS)
-  PORTABLE CONCRETE BARRIER (PCB)





### TEMPORARY SIGNING

-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN




### SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY




### PAVEMENT MARKINGS

-  EXISTING PAVEMENT MARKING (GRAY)
-  SKIP LINES
-  MINI-SKIP LINES
-  SOLID LINES



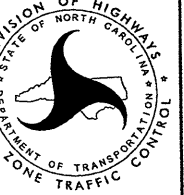

### PAVEMENT MARKING SYMBOLS

-  PAVEMENT MARKING SYMBOLS
-  EXISTING PAVEMENT MARKING SYMBOLS (HOLLOW)
-  ONLY PAVEMENT MARKING ALPHANUMERIC CHARACTERS

### PAVEMENT MARKERS

-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW

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 <p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-8866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 		ROADWAY STANDARD DRAWINGS & LEGEND
			

## GENERAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
BP-5300N	TMP-1B

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRABLE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

### LANE CLOSURE TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
I-40	6:00 A.M. - 7:00 P.M. MONDAY THRU THURSDAY AND 6:00 A.M. FRIDAY THRU 7:00 P.M. SUNDAY (NO WEEKEND CLOSURES)

### HOLIDAY & HOLIDAY WEEKEND LANE CLOSURE TIME RESTRICTIONS

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND HOLIDAY WEEKENDS AS FOLLOWS:

- | ROAD NAME |
|-----------|
| ALL ROADS |
- 1) FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
  - 2) FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 7:00 P.M. JANUARY 2nd. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.
  - 3) FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
  - 4) FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
  - 5) FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY; THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
  - 6) FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.
  - 7) FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.
  - 8) FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.


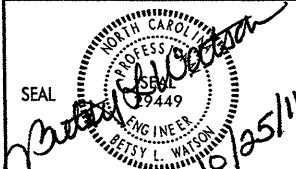

### LANE AND SHOULDER CLOSURE REQUIREMENTS

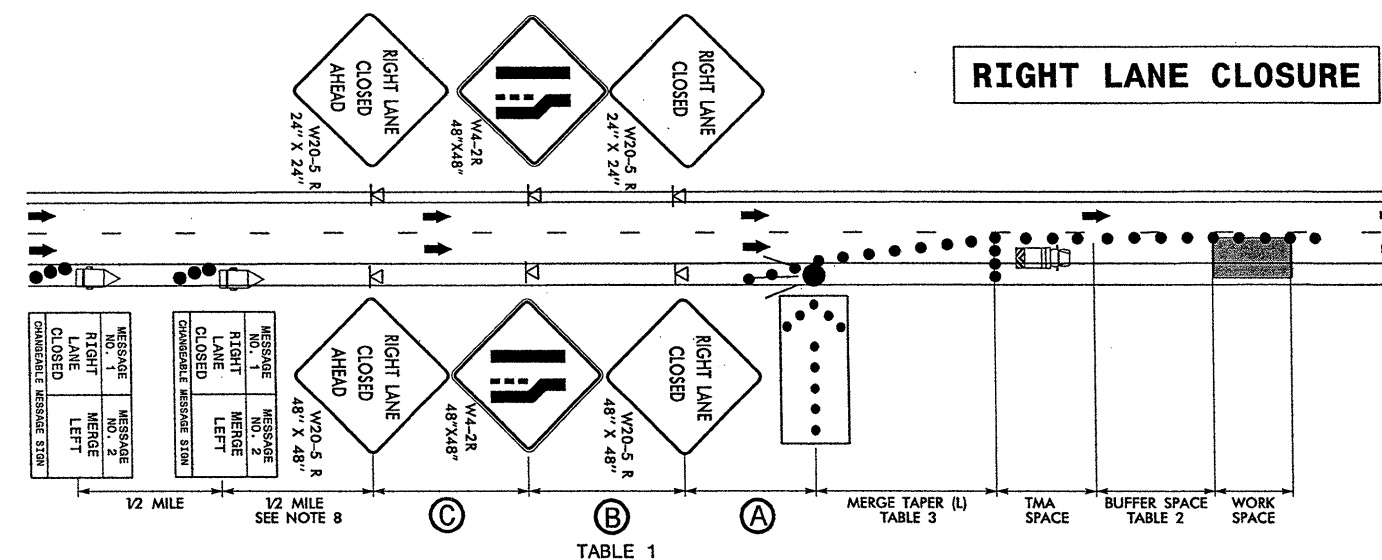
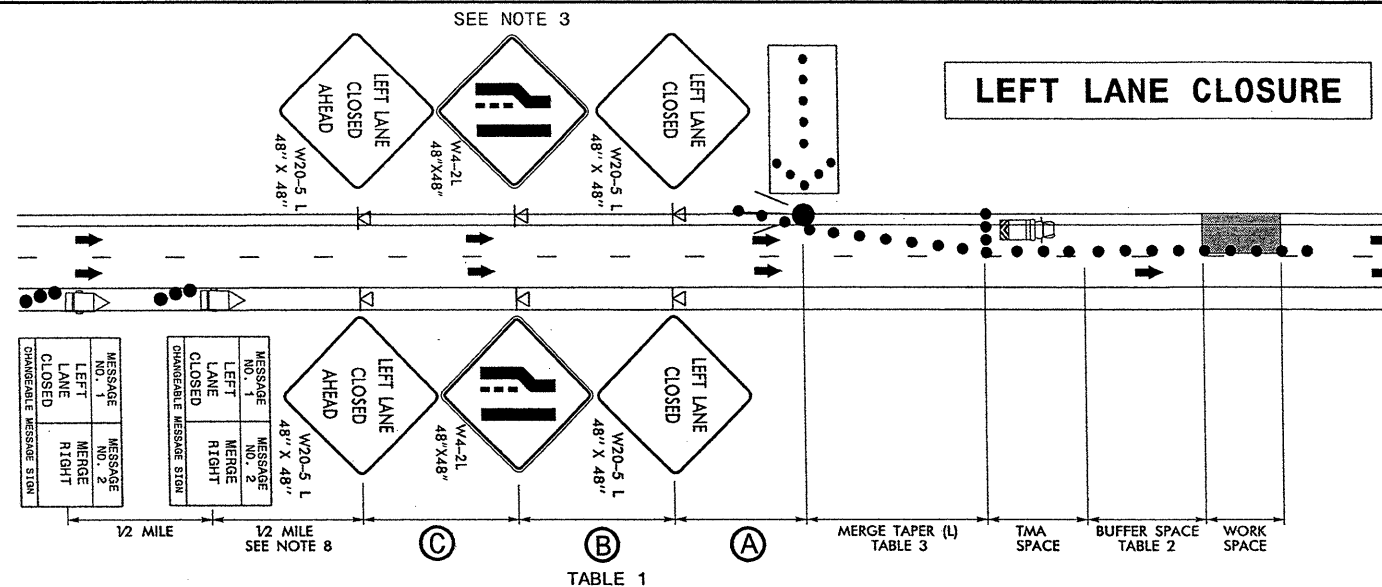
- C) LANE CLOSURES ARE REQUIRED WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN ANY PORTION OF A TRAVEL LANE. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- D) INSTALL ALL LANE CLOSURES ACCORDING TO THE PLANS, ROADWAY STANDARD DRAWINGS (1101.02), OR AS DIRECTED BY THE ENGINEER.
- E) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- H) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON I-40.

### MISCELLANEOUS

- I) ALL DIMENSIONS AND STATIONS IN THE TRAFFIC MANAGEMENT PLAN AND PHASING ARE APPROXIMATE (+/-); FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
- J) MAINTAIN DRIVEWAY ACCESS AT ALL TIMES, UNLESS OTHERWISE DIRECTED BY ENGINEER.
- K) THE CONTRACTOR IS TO FURNISH, INSTALL, MAINTAIN, RELOCATE AND REMOVE CHANGEABLE MESSAGE SIGNS DURING VARIOUS STAGES OF CONSTRUCTION AT THE DISCRETION OF THE ENGINEER TO ADEQUATELY INFORM MOTORISTS OF CHANGING WORK ZONE CONDITIONS.
- L) PLACE ALL CHANGEABLE MESSAGE SIGNS AS NEEDED IN THE LOCATIONS AND WITH THE WORD MESSAGES AS SHOWN IN THE PLAN OR AS DIRECTED BY THE ENGINEER TO PROVIDE ADVANCE WARNING TO THE PUBLIC DURING CONSTRUCTION.
- M) ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919) 733-4740 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.

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gkarageorge

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**NOTES**

- FOR BRIDGE #124 REFER TO STD. 1101.02 SHEET 10 OF 15, FOR RIGHT LANE CLOSURE THRU EXIT RAMP.
- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
- STATIONARY SIGNS SHOULD BE USED IF THE LANE CLOSURE WILL BE IN PLACE FOR LONGER THAN 3 CONSECUTIVE DAYS.
- SIGNS ARE NOT REQUIRED ON THE LEFT SIDE OF THE ROADWAY WHEN THERE IS NOT ENOUGH ROOM FOR PLACEMENT. AT CONCRETE BARRIER LOCATIONS CLAMP ATTACHMENTS AND SMALLER SIGNS MAY BE USED.
- PLACE ARROW BOARDS ON THE SHOULDER. IF SHOULDERS DO NOT EXIST, PLACE ARROW BOARDS WITHIN THE MERGE TAPER BEHIND THE CHANNELIZING DEVICES OF THE LANE CLOSURE. IF NEEDED, EXTEND LANE CLOSURES TO PROVIDE STOPPING SIGHT DISTANCE TO THE ARROW BOARD (TABLE 2).
- PLACE LANE CLOSURE DRUMS IN TAPERS AT A MAXIMUM SPACING EQUAL IN FEET TO THE POSTED SPEED LIMIT (MPH). ALONG BUFFER SPACES AND WORK AREAS SPACE DRUMS AT A MAXIMUM SPACING EQUAL IN FEET TO TWICE THE POSTED SPEED LIMIT (MPH). IN ALL CASES, CHANNELIZING DEVICES ARE TO BE SPACED IN SUCH A MANNER AS TO POSITIVELY ACHIEVE THE INTENDED VISUAL CHANNELIZATION. CHANNELIZING DEVICES SHOULD BE LATERALLY OFFSET 3 FT INSIDE THE CLOSED LANE AS ROOM PERMITS.
- POSITION THE TMIA TO MAINTAIN A ROLL-AHEAD DISTANCE AS RECOMMENDED BY THE MANUFACTURER.
- PLACE CHANGEABLE MESSAGE SIGN (CMS) ON THE OUTSIDE OF THE TRAVELWAY OR AS DIRECTED BY THE ENGINEER. PLACE CMS APPROXIMATELY 1/2 MILE IN ADVANCE OF THE W20-5 SIGNS. IF TRAFFIC BACKS UP TO WHERE THE CMS IS INITIALLY PLACED, RELOCATE CMS 1/2 MILE FROM ANTICIPATED BACKUP. CONTINUE TO MONITOR TRAFFIC AND MOVE CMS APPROXIMATELY 1/2 MILE IN CONJUNCTION WITH ANTICIPATED BACKUP, TAKING INTO CONSIDERATION VERTICAL GRADES AND HORIZONTAL ALIGNMENT OF THE ROADWAY.
- WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER, REMOVE LANE CLOSURE DEVICES, COVER OR LAY DOWN SIGNS, AND TURN OFF ARROW BOARD AND MESSAGE SIGNS.

REFER TO SHEET TMP-2A  
FOR DESIGN TABLES

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TABLE 1 ADVANCE WARNING SIGN SPACING			
ROAD TYPE & POSTED SPEED LIMIT (MPH)	DISTANCE BETWEEN SIGNS (FEET)		
	(A)	(B)	(C)
URBAN ≤ 35	100	100	100
RURAL ≤ 35	200	200	200
40-50	350	350	350
55	500	500	500
CONTROLLED ACCESS ROADS (≥ 55)	1000	1500	2700

SIGN SPACING DISTANCES ARE RECOMMENDED AND APPROXIMATE. THESE DISTANCES SHOULD BE ADJUSTED FOR FIELD CONDITIONS, BY INCREASING OR DECREASING THE RECOMMENDED DISTANCES.

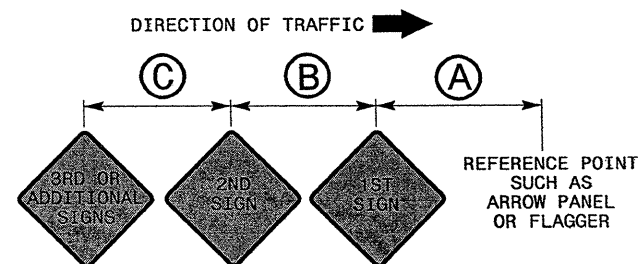


TABLE 2	
POSTED SPEED LIMIT (MPH)	LONGITUDINAL BUFFER SPACE & STOPPING SIGHT DISTANCE (FEET)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

TAPER LENGTHS FOR CHANNELIZING DEVICES & PAVEMENT MARKINGS	
TYPE OF TAPER	TAPER LENGTH
MERGE	L
SHIFT	1/2 L
SHOULDER	1/3 L
DOWNSTREAM (OPTIONAL)	100' PER LANE
ONE-LANE, TWO-WAY TRAFFIC	50'-100'

M.U.T.C.D. FORMULAS FOR TAPER LENGTH OF CHANNELIZING DEVICES AND PAVEMENT MARKINGS:

SPEED LIMIT (S)      TAPER LENGTH (L) IN FEET

40 MPH OR LESS       $L = W \times S$

45 MPH OR GREATER       $L = \frac{W \times S^2}{60}$

L = TAPER LENGTH (FEET)  
W = OFFSET WIDTH (FEET)  
S = POSTED SPEED LIMIT, OFF-PEAK 85 PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED (MPH)

WHENEVER TAPERS ARE TO BE USED IN CLOSE PROXIMITY TO AN INTERCHANGE RAMP, CROSSROADS, CURVES, OR OTHER INFLUENCING FACTORS, THE LENGTH OF THE TAPERS MAY BE ADJUSTED.

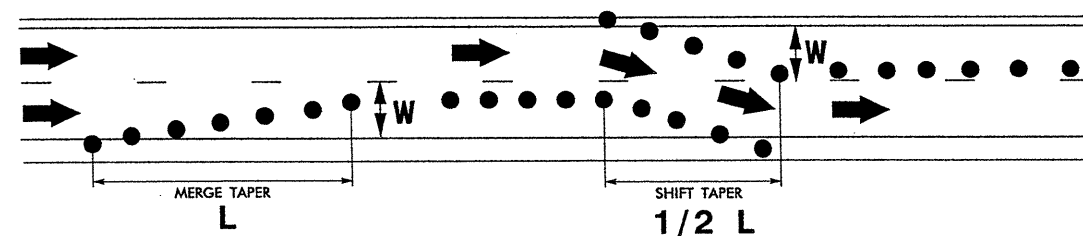


TABLE 3 TAPER (L)												
OFFSET WIDTH (FEET) W	1	2	3	4	5	6	7	8	9	10	11	12
POSTED SPEED (MPH) S	MINIMUM TAPER (L) LENGTH (FEET) L											
20	10	15	20	30	35	40	50	55	60	70	75	80
25	15	25	35	45	55	65	75	85	95	105	115	125
30	15	30	45	60	75	90	105	120	135	150	165	180
35	25	45	65	85	105	125	145	165	185	205	225	245
40	30	55	80	110	135	160	190	215	240	270	295	320
45	45	90	135	180	225	270	315	360	405	450	495	540
50	50	100	150	200	250	300	350	400	450	500	550	600
55	55	110	165	220	275	330	385	440	495	550	605	660
60	60	120	180	240	300	360	420	480	540	600	660	720
65	65	130	195	260	325	390	455	520	585	650	715	780
70	70	140	210	280	350	420	490	560	630	700	770	840

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## TRAFFIC CONTROL PHASING

BRIDGE #124 - I-40 OVER SR 1338 (FINES CREEK RD.)

WHEN PAINTING OVER NORTHBOUND LANE USE FLAGGING OPERATION AS SHOWN ON SHEET TCP-4.

WHEN PAINTING OVER SOUTHBOUND LANE USE FLAGGING OPERATION AS SHOWN ON SHEET TCP-4A.

BRIDGE #142 - I-40 OVER PIGEON RIVER

WHEN PAINTING OVER PIGEON RIVER USE LANE CLOSURES ALONG I-40 AS SHOWN ON SHEETS TMP-2 AND TMP-2A.

BRIDGE #171 - I-40 OVER SR 1338 (WHITE OAK RD.) AND JONATHAN CREEK


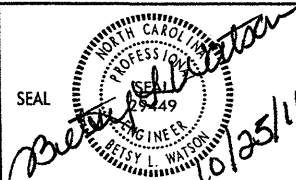

WHEN PAINTING OVER SR 1338 (WHITE OAK RD.) USE A FLAGGING OPERATION ON SR 1338 PER ROADWAY STD. 1101.02 SHEET 1 OF 15.

WHEN PAINTING OVER JONATHAN CREEK USE LANE CLOSURES ALONG I-40 AS SHOWN ON SHEETS TMP-2 AND TMP-2A.

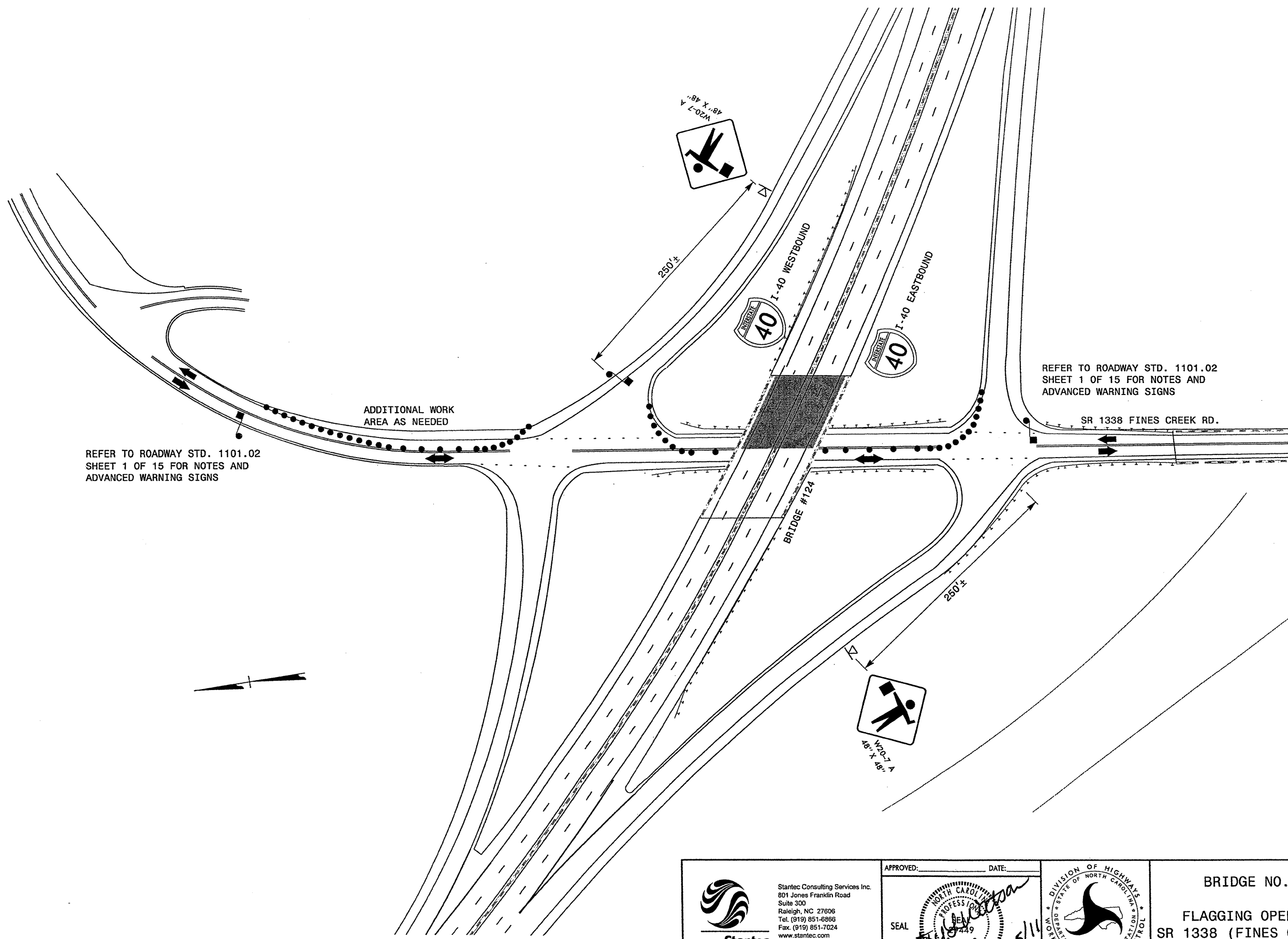
BRIDGE #205/#208 - I-40 OVER SR 1364 (COLEMAN MOUNTAIN RD.)

WHEN PAINTING OVER SR 1364 (COLEMAN MOUNTAIN RD.) USE A FLAGGING OPERATION ON SR 1364 PER ROADWAY STD.1101.02 SHEET 1 OF 15.

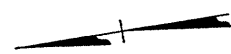
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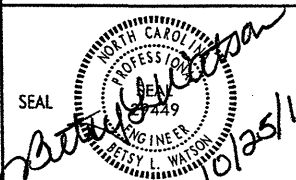

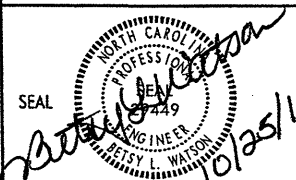
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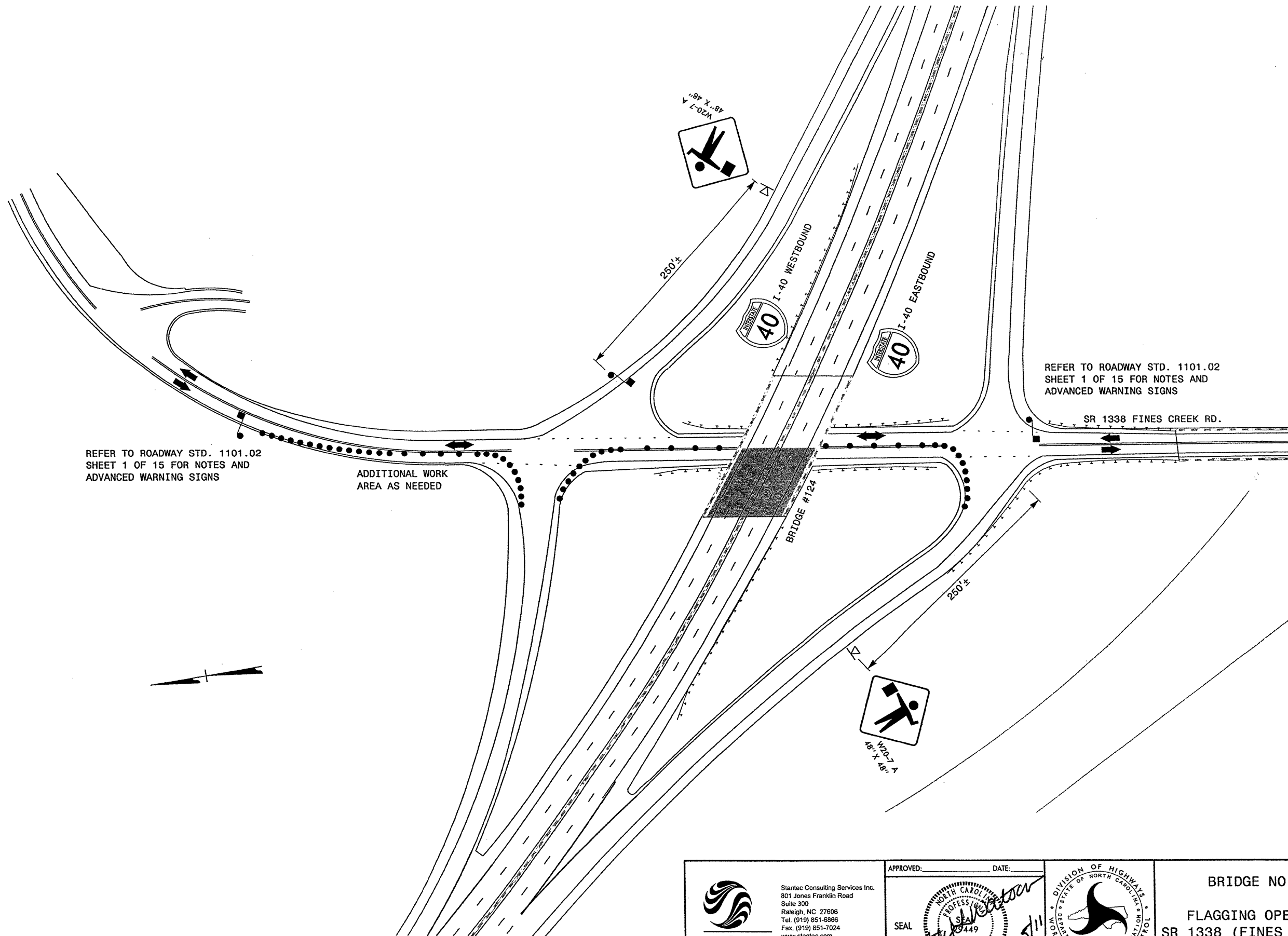





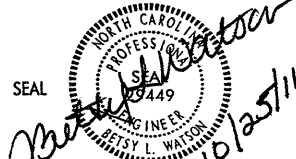

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 Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-8866 Fax. (919) 851-7024 www.stantec.com License No. F-0572	APPROVED: _____ DATE: _____ 		BRIDGE NO. 124  FLAGGING OPERATIONS SR 1338 (FINES CREEK RD.) NORTHBOUND
	SEAL 		



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	<p>SEAL</p> <p><i>Betsy L. Watson</i>          10/25/11</p>		

## 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 2006 "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/ANS "BRIDGE WELDING CODE". ELECTROSLAB 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. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN