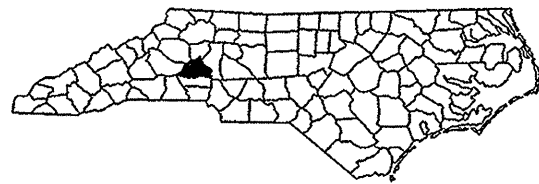


**CONTRACT: C203075 PROJECT: 17BP.12.P.2 & 12B.101812**



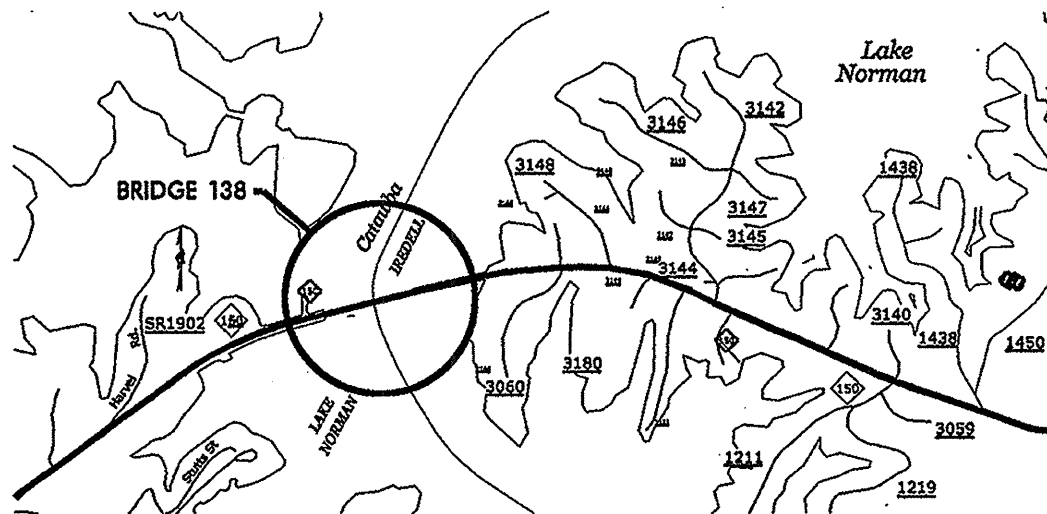
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**CATAWBA COUNTY**

LOCATION: BRIDGE 138 ON NC 150 OVER LAKE NORMAN

TYPE OF WORK: BRIDGE DECK PRESERVATION; LATEX MODIFIED CONCRETE OVERLAY  
STRUCTURAL STEEL REPAIRS, CLEANING AND PAINTING EXISTING STRUCTURAL STEEL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS 17BP.12.P.2 & 12B.101812	I	
WBS NO.	P.A. PROJECT NO.	DESCRIPTION	
17BP.12.P.2		PE	
17BP.12.P.2		CONST.	
12B.101812		PE	
12B.101812		CONST.	




**PREPARED IN THE OFFICE OF:**  
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 Raleigh, NC 27605  
 Tel: 919.881.8888  
 Fax: 919.881.8824  
 www.startac.com  
 License No. FC271


DESIGN DATA  
 ADT 2006 = 19,000

PROJECT LENGTH  
 LENGTH OF ROADWAY PROJECT 17BP.12.P.2 = 0.027 MI.  
 LENGTH OF STRUCTURE PROJECT 17BP.12.P.2 = 0.220 MI.  
 TOTAL LENGTH OF PROJECT 17BP.12.P.2 = 0.247 MI.

DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 STRUCTURES MANAGEMENT UNIT - PRESERVATION & REPAIR GROUP  
 190 BIRCH RIDGE DR., RALEIGH, NC 27619  
 2012 STANDARD SPECIFICATIONS

LETTING DATE:  
 NOVEMBER 20, 2012

JOE KELVINGTON, PE  
 PROJECT DESIGN ENGINEER  
 RICK NELSON, PE  
 NCDOT PROJECT ENGINEER  
 TIMOTHY M. SHERRILL, PE  
 PROJECT DESIGN ENGINEER

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA  


**CONTRACT: C203075**      **TIP PROJECT: 17BP.12.P.2 & 12B.101812**



STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**CATAWBA COUNTY**

LOCATION: BRIDGE 138 ON NC 150 OVER LAKE NORMAN

TYPE OF WORK: BRIDGE DECK PRESERVATION: LATEX MODIFIED CONCRETE OVERLAY  
 STRUCTURAL STEEL REPAIRS, CLEANING AND PAINTING EXISTING STRUCTURAL STEEL

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
N.C.	WBS 17BP.12.P.2 & 12B.101812	1A	
DWG. NO.	DESCRIPTION		
17BP.12.P.2		PE	
17BP.12.P.2		CONST.	
12B.101812		PE	
12B.101812		CONST.	

INDEX OF SHEETS

DWG.	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEET
2	SUMMARY OF QUANTITIES
S-1 THRU S-17	BRIDGE DECK REPAIR & JOINT MODIFICATIONS (17BP.12.P.2)
S-18 THRU S-29	STRUCTURAL STEEL REPAIR AND PAINTING (12B.101812)
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
 PROJECT: 17BP.12.P.2 & 12B.101812  
 CONTRACT: C203075

**PROJECT: 17BP.12.P.2 &**

**CONTRACT: C203075**

**12B.101812**

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

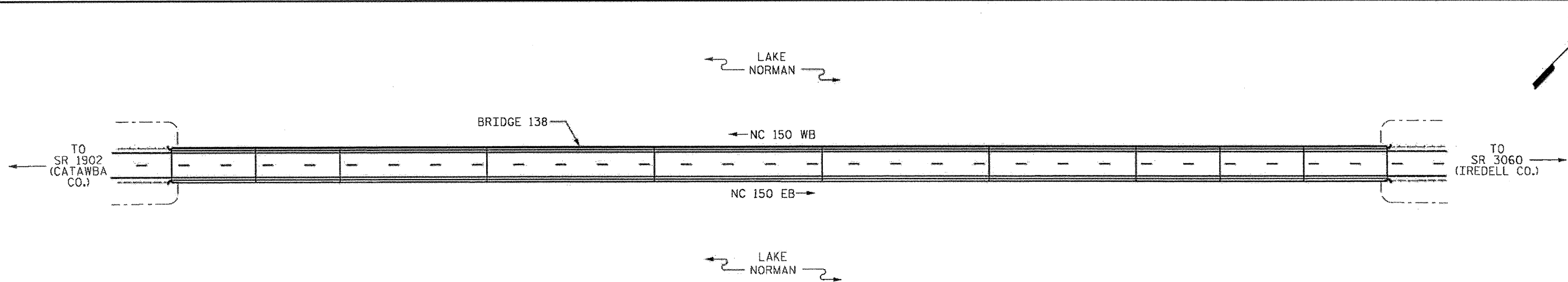
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS 17BP.12.P.2 & 12B.101812	2	

## SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
 ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203075

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM TEMP STEEL COVER FOR EXP JOINT SEAL REPAIR
1330000000-E	607	436	SY	INCIDENTAL MILLING	8881000000-E	SP	221.1	CY	GENERIC STRUCTURE ITEM LATEX MOD CONCRETE OVERLAY - VERY EARLY STRENGTH
1523000000-E	610	30	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	8889000000-E	SP	8,582	LB	GENERIC STRUCTURE ITEM DIAPHRAGM MODIFICATION SPANS A, B AND H
1575000000-E	620	2	TON	ASPHALT BINDER FOR PLANT MIX	8889000000-E	SP	3,310	LB	GENERIC STRUCTURE ITEM DIAPHRAGM MODIFICATION SPANS C AND G
4400000000-E	1110	48	SF	WORK ZONE SIGNS (STATIONARY)	8889000000-E	SP	1,230	LB	GENERIC STRUCTURE ITEM PLATE GIRDER REPAIR
4405000000-E	1110	116	SF	WORK ZONE SIGNS (PORTABLE)	8889000000-E	SP	1,085	LB	GENERIC STRUCTURE ITEM REPLACE STEEL DIAPHRAGM
4420000000-N	1120	2	EA	PORTABLE CHANGEABLE MESSAGE SIGN	8889000000-E	SP	232	LB	GENERIC STRUCTURE ITEM REPLACE STEEL STIFFENER PLATES
4435000000-N	1135	60	EA	CONES	8889000000-E	SP	4,300	LB	GENERIC STRUCTURE ITEM ROLLED BEAM REPAIR
4450000000-N	1150	640	HR	FLAGGER	8893000000-E	SP	3,505.8	SY	GENERIC STRUCTURE ITEM HYDRO-DEMOLITION OF BRIDGE DECK
4847000000-E	1205	2,925	LF	POLYUREA PAVEMENT MARKING LINES (4", *****) (STANDARD GLASS BEADS)	8893000000-E	SP	3,614.3	SY	GENERIC STRUCTURE ITEM PLACING & FINISHING LATEX MOD CONC OVERLAY - VERY EARLY STRENGTH
4905000000-N	1253	16	EA	SNOWPLOWABLE PAVEMENT MARKERS	8893000000-E	SP	3,614.3	SY	GENERIC STRUCTURE ITEM SCARIFYING BRIDGE DECK
8147000000-E	420	1,117	SF	REINFORCED CONCRETE DECK SLAB	8897000000-N	SP	100	EA	GENERIC STRUCTURE ITEM BOLT REMOVAL AND REPLACEMENT
8161000000-E	420	32,191	SF	GROOVING BRIDGE FLOORS					
8224000000-E	425	4,491	LB	EPOXY COATED REINFORCING STEEL (BRIDGE)					
8296000000-N	442	Lump Sum		POLLUTION CONTROL					
8657000000-N	430	Lump Sum		ELASTOMERIC BEARINGS					
8692000000-N	SP	Lump Sum		FOAM JOINT SEALS					
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE JACKING AT BENT 1, 2 AND 7					
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CLEANING & PAINTING STRUCTURAL STEEL					
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS					
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXISTING STRUCTURE					
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM SYNTHETIC RUBBER EXPANSION JOINT SEAL					

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**BRIDGE 138 ON NC 150 (RIVER HIGHWAY)  
 ACROSS LAKE NORMAN**

LOCATION: BRIDGE 170138, ON NC 150 (RIVER HIGHWAY)  
 1.0 MILES EAST OF JUNCTION SR 1840

BILL OF MATERIAL - DECK OVERLAY & ROADWAY APPROACHES								
INCIDENTAL MILLING	ASPHALT CONC. SURFACE COURSE, TYPE S9.5C	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	EPOXY COATED REINFORCING STEEL (BRIDGE)	FOAM JOINT SEAL	SYNTHETIC RUBBER JT. SEAL	PARTIAL REMOVAL OF EXISTING STRUCTURE	TEMP. STEEL COVER FOR EXP. JOINT SEAL REPAIR
SQ. YDS.	TON	SQ.FT.	SQ.FT.	LBS.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM
436	30	1,117	32,191	4,491	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM

BILL OF MATERIAL - DECK OVERLAY & ROADWAY APPROACHES							
LATEX MODIFIED CONC. OVERLAY-VERY EARLY STRENGTH	HYDRO-DEMOLITION OF BRIDGE DECK	CLASS I* SURFACE PREPARATION	CLASS II* SURFACE PREPARATION	CLASS III* SURFACE PREPARATION	CLASS AA* CONCRETE	PLACING & FINISHING LATEX MOD. CONC. OVERLAY-VERY EARLY STRENGTH	SCARIFYING BRIDGE DECK
CU.YDS.	SQ.YDS.	SQ.YDS.	SQ.YDS.	SQ.YDS.	CU.YDS.	SQ.YDS.	SQ.YDS.
221.1	3,505.8	0	31.3	0	0	3,614.3	3,614.3

\* QUANTITIES ARE ESTIMATES FROM BEST AVAILABLE DATA, AND SHOULD BE CONSIDERED FOR INFORMATION PURPOSES ONLY. IF ANY CLASS III LOCATIONS ARE ENCOUNTERED PRIOR TO OR DURING HYDRO-DEMOLITION, SEE "TYP. BLOW THRU" CONTAINMENT AND FORMWORK" DETAIL. NO SEPARATE MEASUREMENT OR PAYMENT FOR THIS ITEM SHALL BE MADE. ALL COSTS FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR HYDRO-DEMOLITION.

FOR STRUCTURAL STEEL REPAIR QUANTITIES, SEE S-18.

**NOTES:**

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS. THE CONTRACTOR SHALL FIELD VERIFY THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

ROADWAY SCARIFICATION IS INCLUDED TO ENSURE A SMOOTH TRANSITION ONTO THE BRIDGE FLOOR. DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL SCARIFY AS REQUIRED TO PROVIDE A SMOOTH TRANSITION TO THE ROADWAY AT BOTH ENDS OF THE BRIDGE.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, 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 SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

FOR ADHESIVELY ANCHORED BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

PROJECT NO. WBS 17BP.12.P.2

CATAWBA COUNTY

STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**LOCATION SKETCH  
 AND DECK REHABILITATION  
 BILL OF MATERIAL**

**REHABILITATE BRIDGE NO. 138**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			2			TOTAL SHEETS
2			4			36

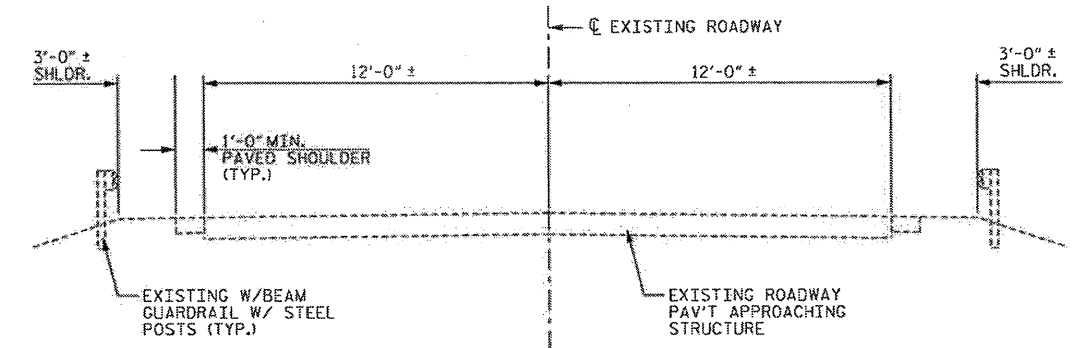
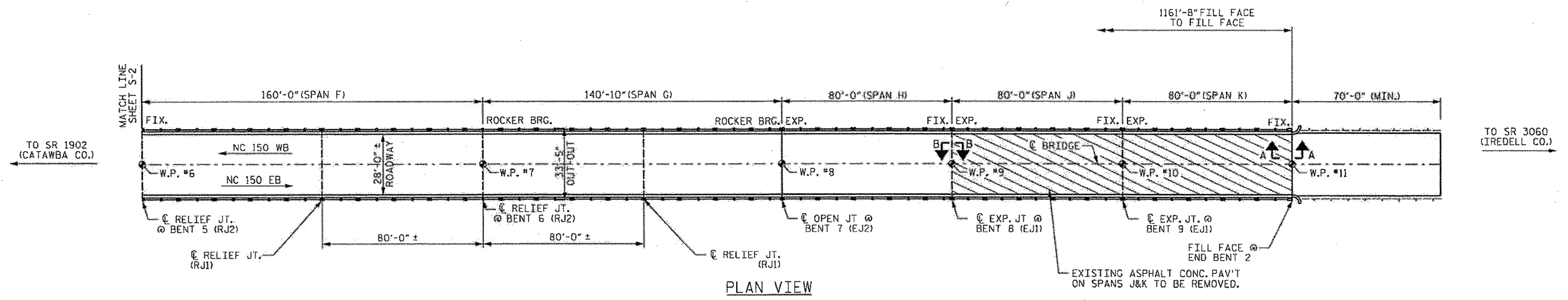
*John J. Kelvington*  
 11/12  
 SEAL 13406  
 PROFESSIONAL ENGINEER  
 STATE OF NORTH CAROLINA

Stantec Consulting Services Inc.  
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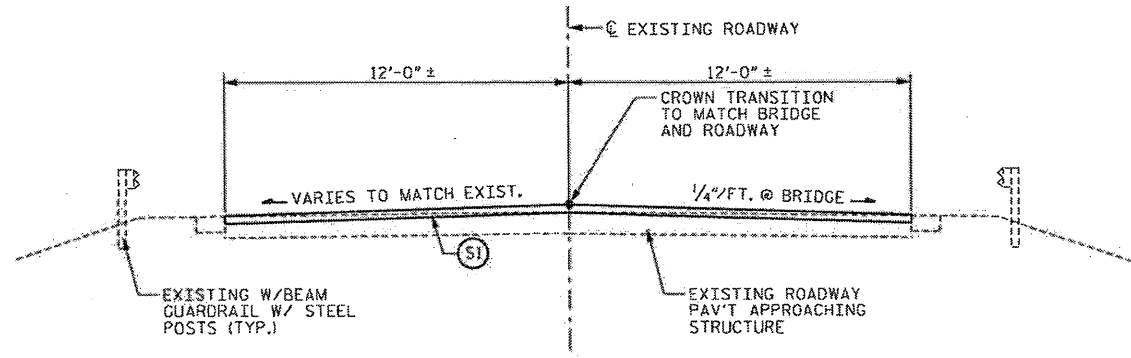
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 CHECKED BY: J. T. KELVINGTON DATE: 11/11



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EXISTING ROADWAY SECTION



PROPOSED ROADWAY APPROACH SECTION

Ⓢ1 S1 ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C 1 1/2" MIN. THICK

PROJECT NO. WBS 17BP.12.P.2  
CATAWBA COUNTY

STATION: \_\_\_\_\_

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF BRIDGE

REHABILITATE BRIDGE NO. 138

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-3
1			3			107# SHEETS
2			4			36

Joseph J. King

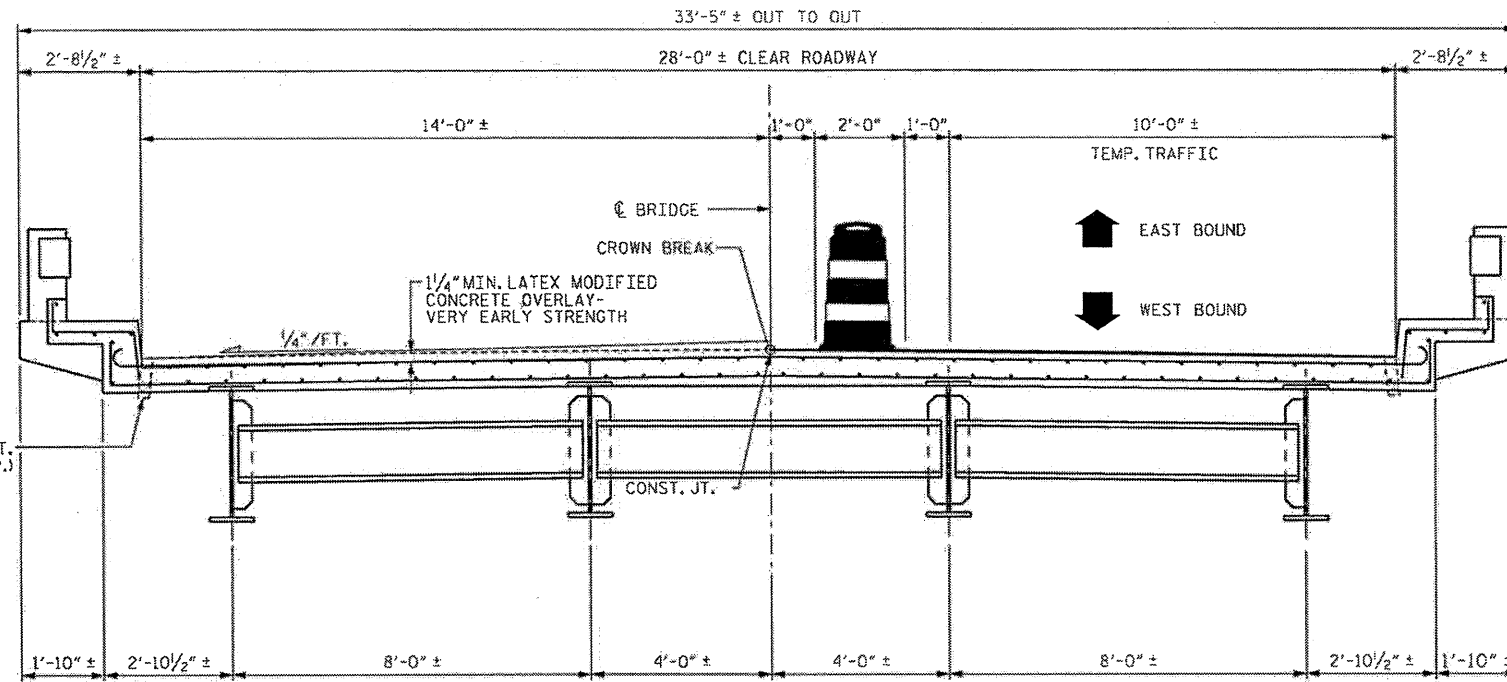
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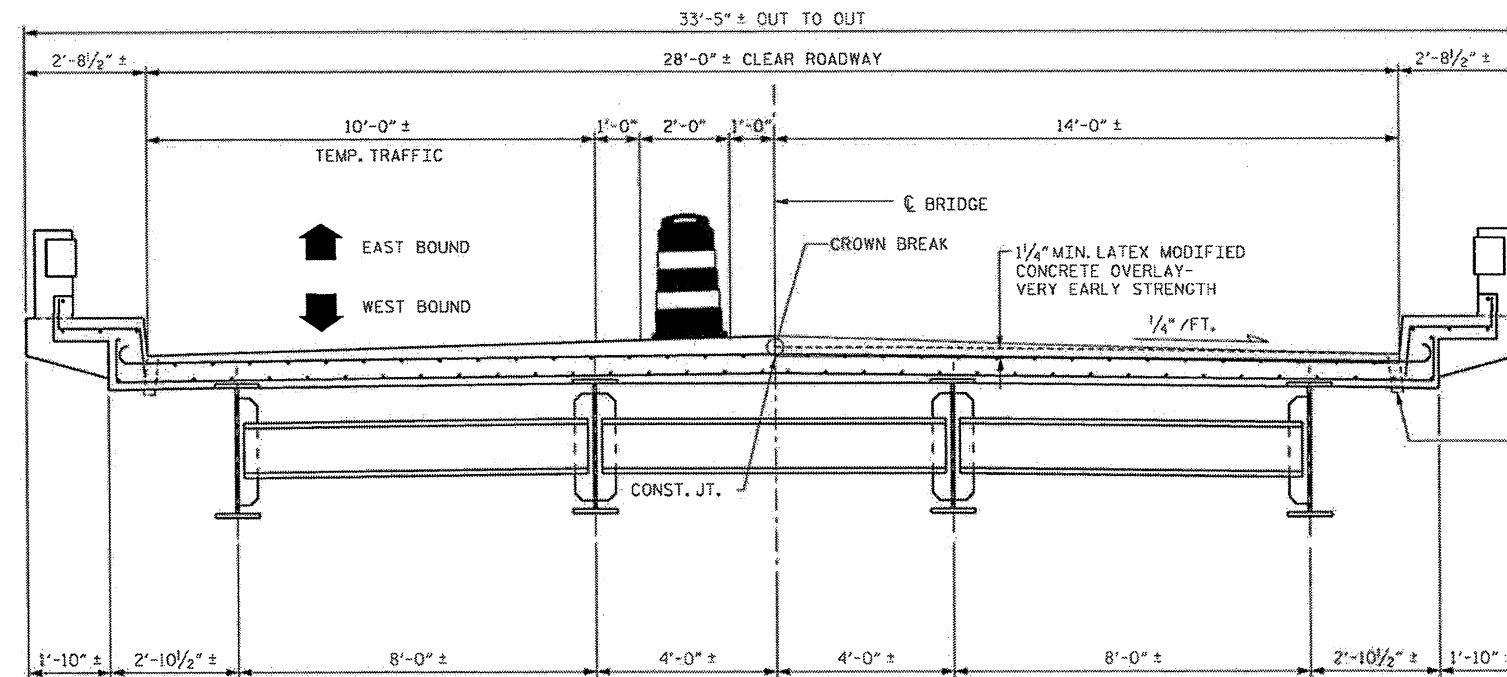
Stantec Consulting Services Inc.  
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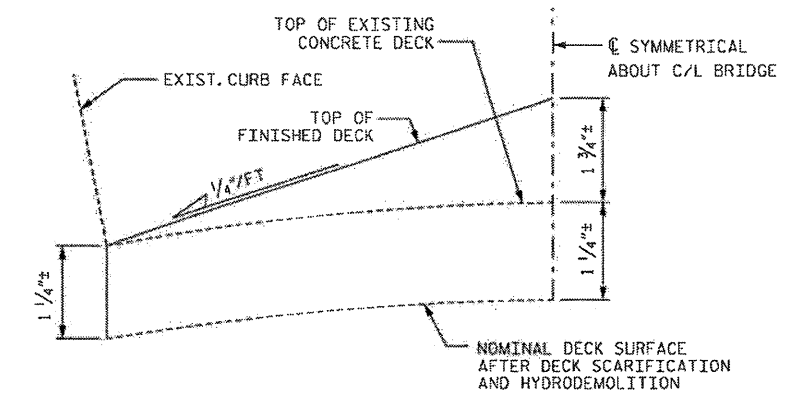
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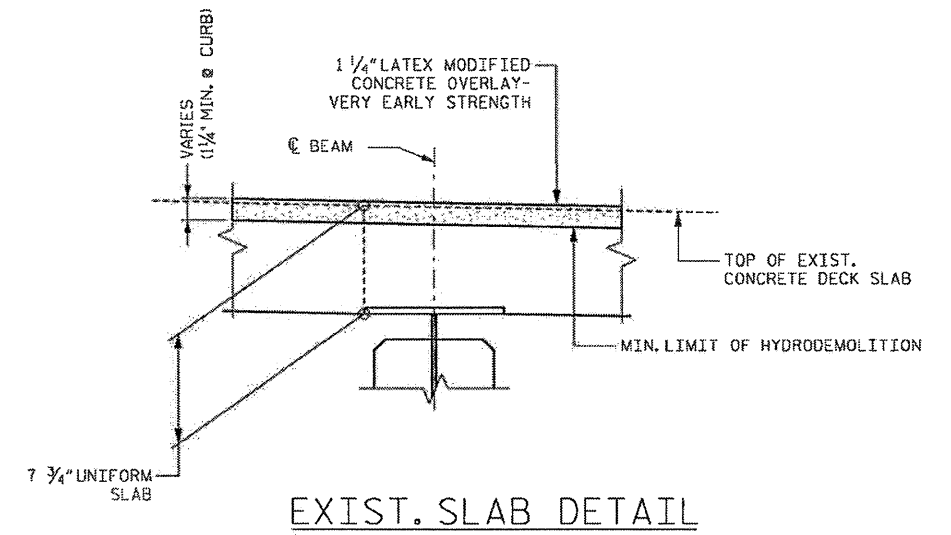
TYPICAL SECTION - SPANS A,B,H,J,K  
CONTINUOUS SPANS C-G SIMLAR



TYPICAL SECTION - SPANS A,B,H,J,K  
CONTINUOUS SPANS C-G SIMLAR



BRIDGE CROSS SLOPE SCHEMATIC FOR  
DECK OVERLAY



EXIST. SLAB DETAIL

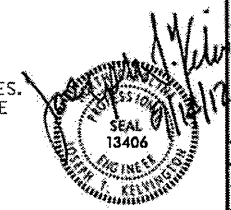
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CATAWBA COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BRIDGE TYPICAL SECTION  
 REHABILITATE BRIDGE NO. 138

NO.		BY:		DATE:		NO.		BY:		DATE:		SHEET NO.	
1						3						S-4	
2						4						TOTAL SHEETS	36

NOTES:  
 WATER & CONCRETE SLURRY FROM HYDRO-DEMOLITION SHALL NOT BE ALLOWED TO DRAIN ACROSS TRAVEL LANES. CONTRACTOR SHALL PROVIDE A METHOD TO CONTROL THE WATER.  
 FOR TRAFFIC CONTROL AND PHASING DETAILS, SEE TRAFFIC MANAGEMENT PLANS.

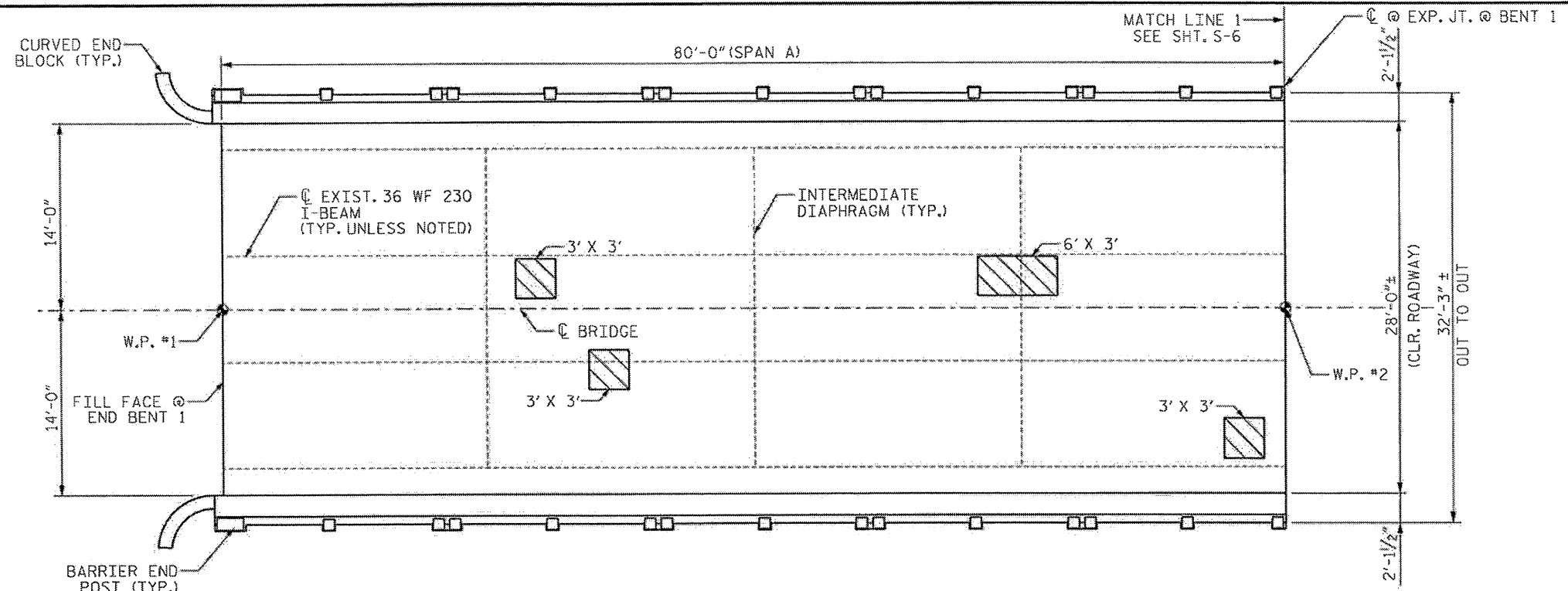


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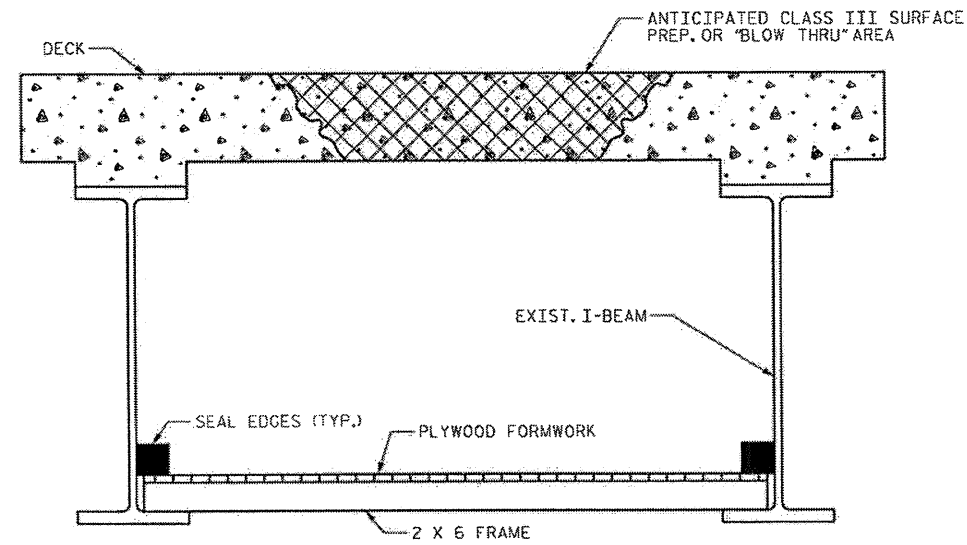
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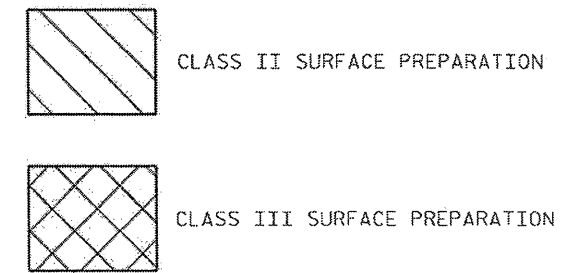
**PLAN OF SPAN A - DECK REPAIRS**  
 NOTE: CONCRETE BARRIER RAIL IS NOT SHOWN FOR CLARITY

**NOTE:**  
 CONTRACTOR SHALL FURNISH FORM WORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.  
 SUBMIT DETAILS OF PROPOSED FORM WORK FOR APPROVAL PRIOR TO BEGINNING WORK.  
 COSTS FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.  
 CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.  
 CONTRACTOR, AT HIS OPTION, MAY CHOOSE TO MONITOR HYDRO-DEMOLITION WORK IN LIEU OF BLOW THRU CONTAINMENT.



**TYP. "BLOW THRU" CONTAINMENT AND FORMWORK**



**NOTES:**  
 L' X W' = LENGTH OF AREA ALONG C BRIDGE X WIDTH OF AREA NORMAL TO C BRIDGE

**PROJECT NO.** WBS 17BP.12.P.2  
**CATAWBA COUNTY**  
**STATION:** \_\_\_\_\_

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-5
DECK REPAIR DETAILS SPAN A						
REHABILITATE BRIDGE NO. 138						TOTAL SHEETS 36
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

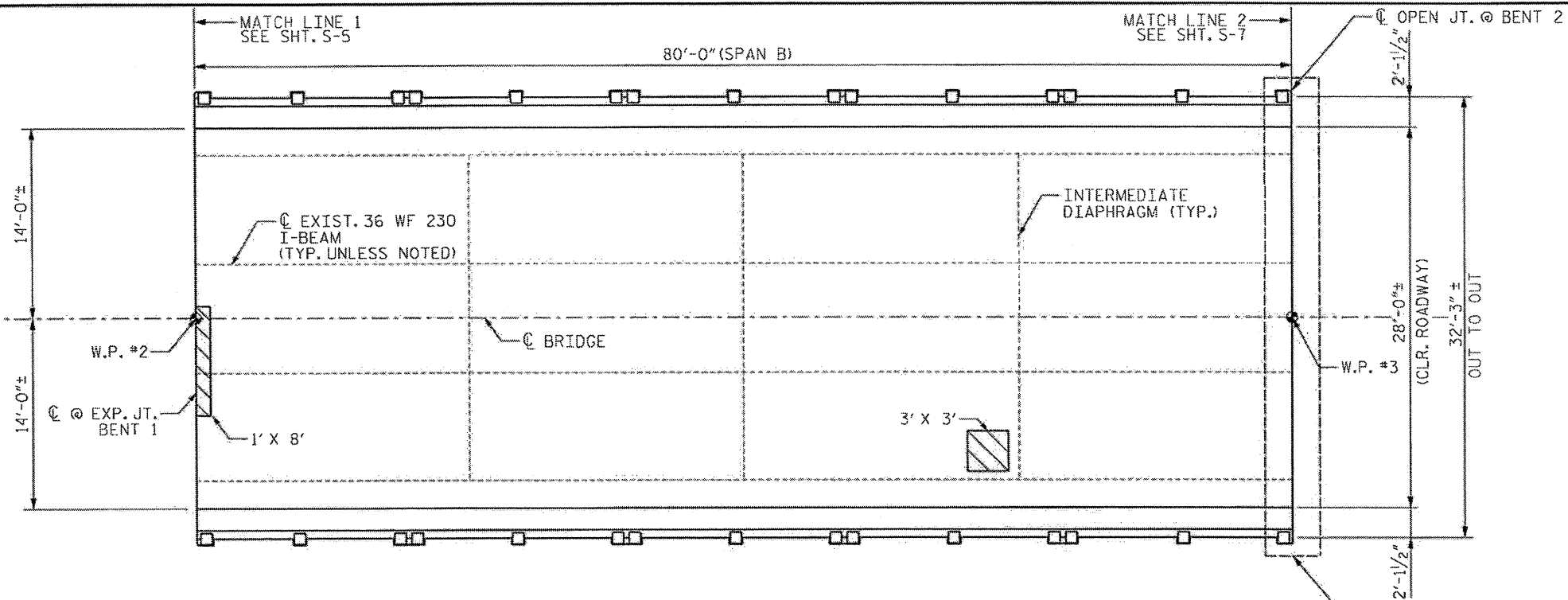
*Jose J. Ruiz*  
 PROFESSIONAL ENGINEER  
 NO. 13406  
 EXPIRES 12/31/12

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 CHECKED BY: J. T. KELVINGTON DATE: 11/11

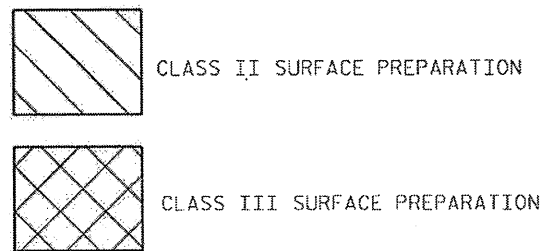


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**PLAN OF SPAN B - DECK REPAIRS**  
 NOTE: CONCRETE BARRIER RAIL IS NOT SHOWN FOR CLARITY

PARTIAL REMOVAL OF EXIST. STRUCTURE IS REQUIRED FOR REPLACEMENT OF EXISTING FINGER JOINT WITH A JOINT SEAL. SEE SHTS. S-12 THRU S-13.



L' X W' = LENGTH OF AREA ALONG @ BRIDGE X WIDTH OF AREA NORMAL TO @ BRIDGE

**NOTE:**

CONTRACTOR SHALL FURNISH FORM WORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.  
 SUBMIT DETAILS OF PROPOSED FORM WORK FOR APPROVAL PRIOR TO BEGINNING WORK.  
 COSTS FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.  
 CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.

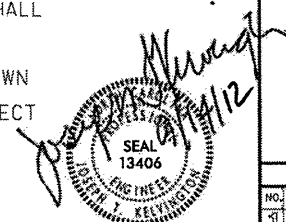
PROJECT NO. WBS 17BP.12.P.2  
CATAWBA COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**DECK REPAIR DETAILS  
 SPAN B**

**REHABILITATE BRIDGE NO. 138**

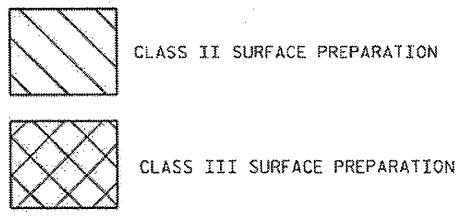
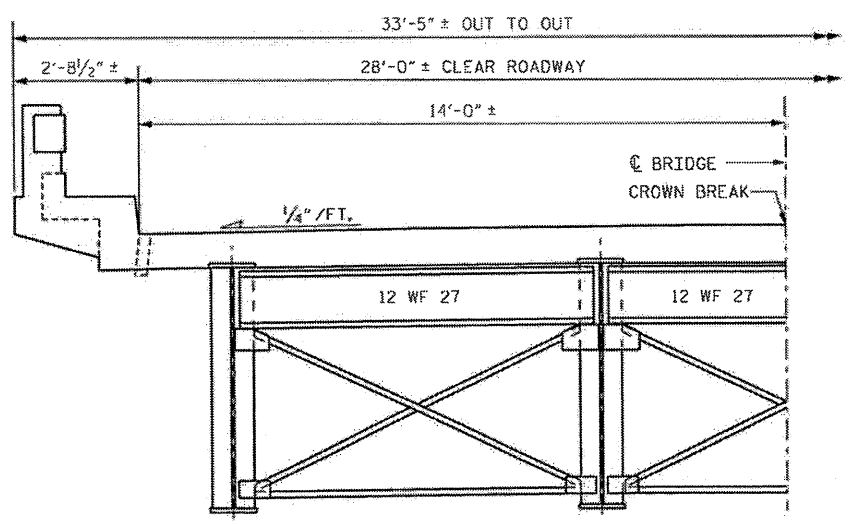
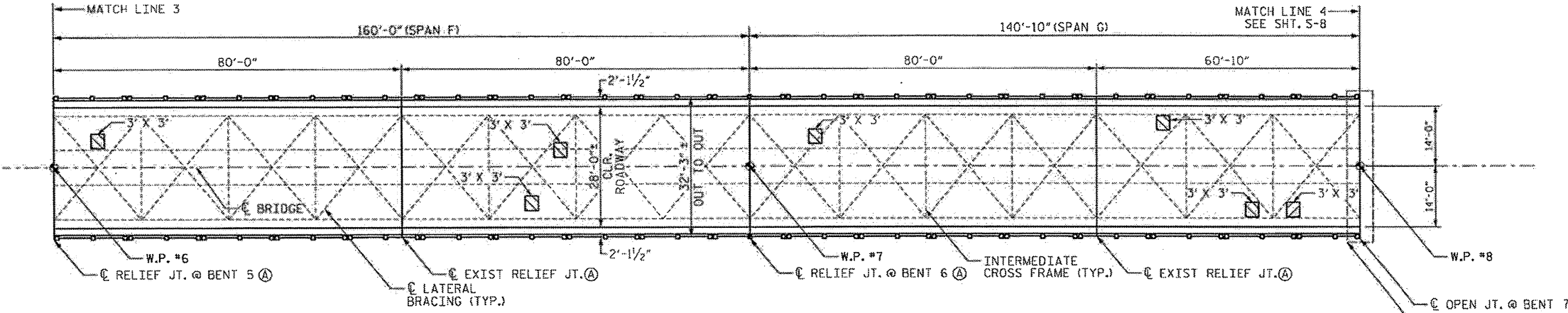
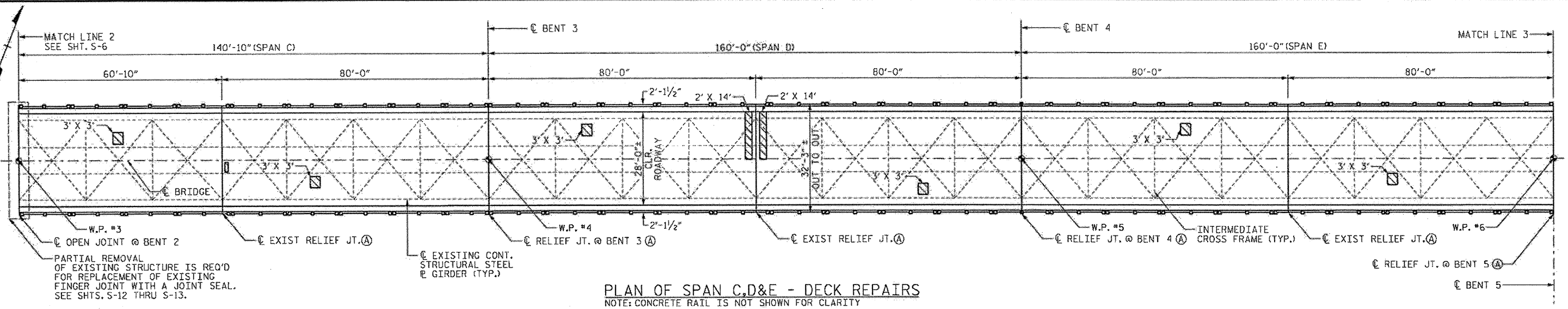
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-6
2			4			36



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 CHECKED BY: J. I. KELVINGTON DATE: 11/11

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**NOTES:**  
 L' X W' = LENGTH OF AREA ALONG @ BRIDGE X  
 WIDTH OF AREA NORMAL TO @ BRIDGE

**NOTE:**  
 (A) EXISTING RELIEF JOINT @ MIDSPAN AND @ INTERIOR BENT LOCATIONS SHALL BE REMOVED AND RECONSTRUCTED SEE SHT. S-14 THRU S-17 FOR DETAILS.  
 CONTRACTOR SHALL FURNISH FORMWORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.  
 SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.  
 COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.  
 CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.

**PROJECT NO.** WBS 17BP.12.P.2  
**CATAWBA COUNTY**  
**STATION:** \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**DECK REPAIR DETAILS  
 SPAN C,D,E,F & G**

**REHABILITATE BRIDGE NO. 138**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS 36
2			4			

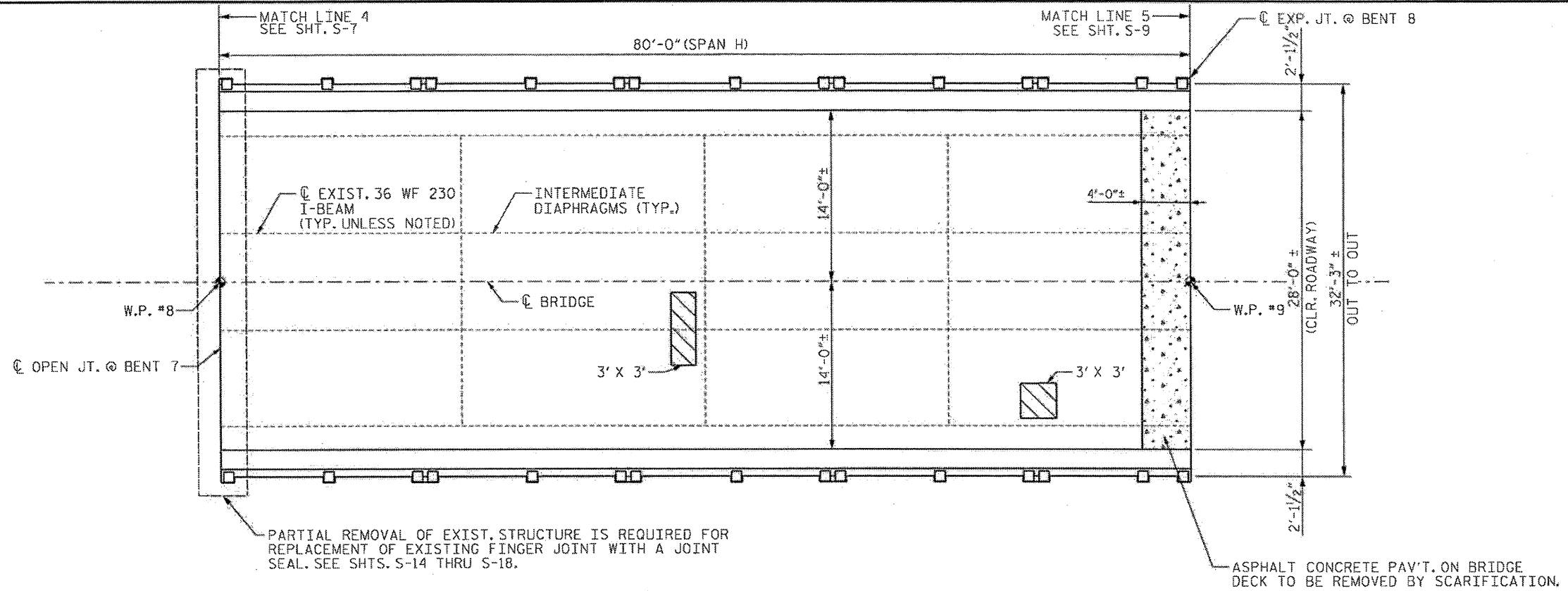
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 Raleigh, NC 27606  
 Tel. (919) 851-6866  
 Fax. (919) 851-7024  
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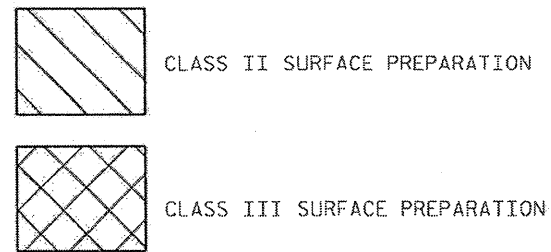
DRAWN BY: P. Z. ARMATA DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

*Professional Engineer Seal*  
 SEAL 13406  
 ENGINEER  
 J. KELVINGTON  
 4/12

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**PLAN OF SPAN H - DECK REPAIRS**  
 NOTE: CONCRETE BARRIER RAIL IS NOT SHOWN FOR CLARITY



L' X W' = LENGTH OF AREA ALONG  $\text{\O}$  BRIDGE X WIDTH OF AREA NORMAL TO  $\text{\O}$  BRIDGE

**NOTE:**

CONTRACTOR SHALL FURNISH FORM WORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.

SUBMIT DETAILS OF PROPOSED FORM WORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COSTS FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.

CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.

PROJECT NO. WBS 17BP.12.P.2

CATAWBA COUNTY

STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**DECK REPAIR DETAILS  
 SPAN H**

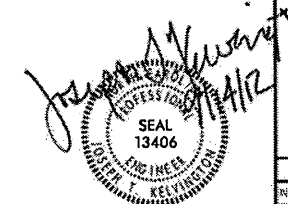
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REVISIONS						SHEET NO. S-8
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2			4			

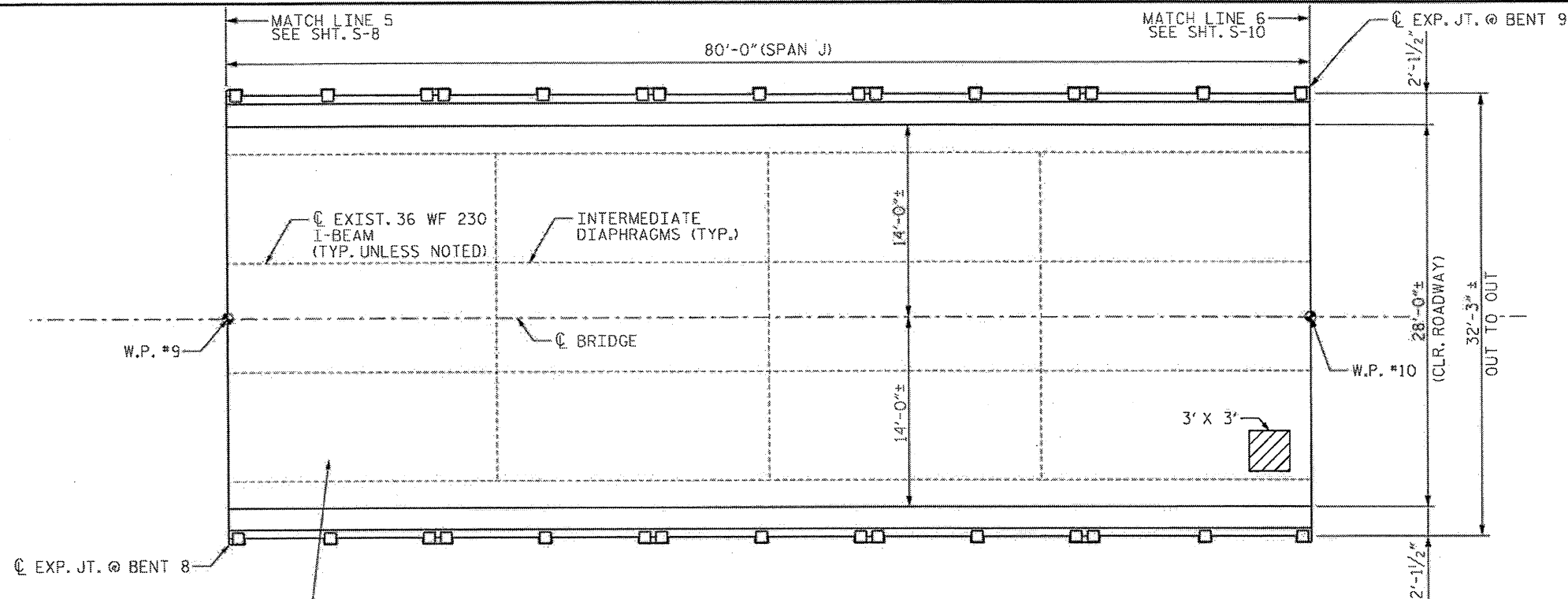


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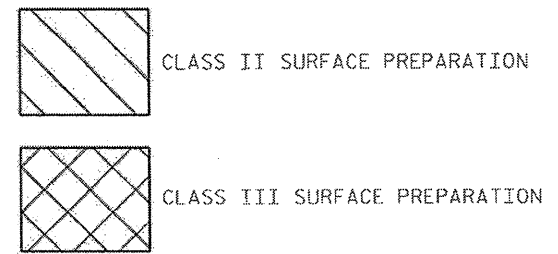


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**PLAN OF SPAN J - DECK REPAIRS**  
 NOTE: CONCRETE BARRIER RAIL IS NOT SHOWN FOR CLARITY

ASPHALT CONCRETE PAV'T. ON BRIDGE DECK TO BE REMOVED BY SCARIFICATION.



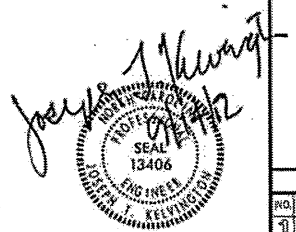
**NOTES:**  
 L' X W' = LENGTH OF AREA ALONG CL BRIDGE X WIDTH OF AREA NORMAL TO CL BRIDGE

**NOTE:**  
 CONTRACTOR SHALL FURNISH FORM WORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.  
 SUBMIT DETAILS OF PROPOSED FORM WORK FOR APPROVAL PRIOR TO BEGINNING WORK.  
 COSTS FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.  
 CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.

PROJECT NO. WBS 17BP.12.P.2  
CATAWBA COUNTY  
 STATION: \_\_\_\_\_

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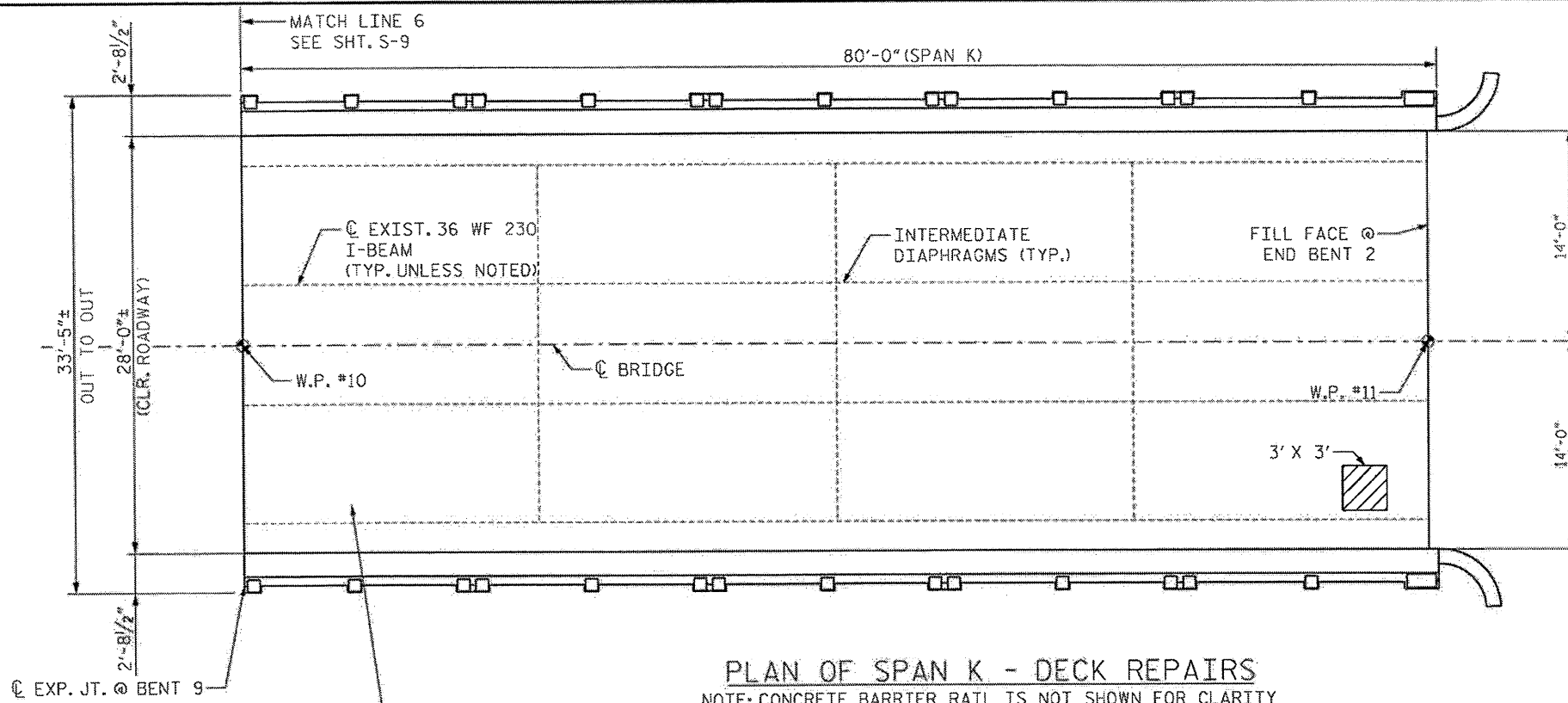
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**DECK REPAIR DETAILS**  
**SPAN J**

**REHABILITATE BRIDGE NO. 138**

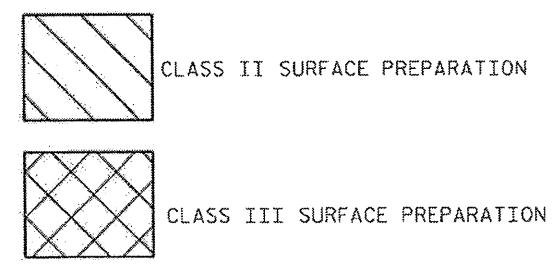
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-9
1			3			TOTAL SHEETS: 36
2			4			

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**PLAN OF SPAN K - DECK REPAIRS**  
 NOTE: CONCRETE BARRIER RAIL IS NOT SHOWN FOR CLARITY

ASPHALT CONCRETE PAV'T. ON BRIDGE DECK TO BE REMOVED BY SCARIFICATION.



L' X W' = LENGTH OF AREA ALONG  $\phi$  BRIDGE X WIDTH OF AREA NORMAL TO  $\phi$  BRIDGE

**NOTE:**

CONTRACTOR SHALL FURNISH FORM WORK TO SUPPORT SLAB OVERHANG REGIONS WITH EXTENSIVE CLASS III SURFACE PREPARATION.

SUBMIT DETAILS OF PROPOSED FORM WORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COSTS FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE BID PER SQ. YD. OF HYDRO-DEMOLITION.

CLASS II AND CLASS III SURFACE PREPARATION SHOWN IS REPRESENTATIVE AND DOES NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED @ THE PROJECT SITE.

**PROJECT NO.** WBS 17BP.12.P.2  
**CATAWBA COUNTY**  
**STATION:** \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**DECK REPAIR DETAILS  
 SPAN K**  
 REHABILITATE BRIDGE NO. 138

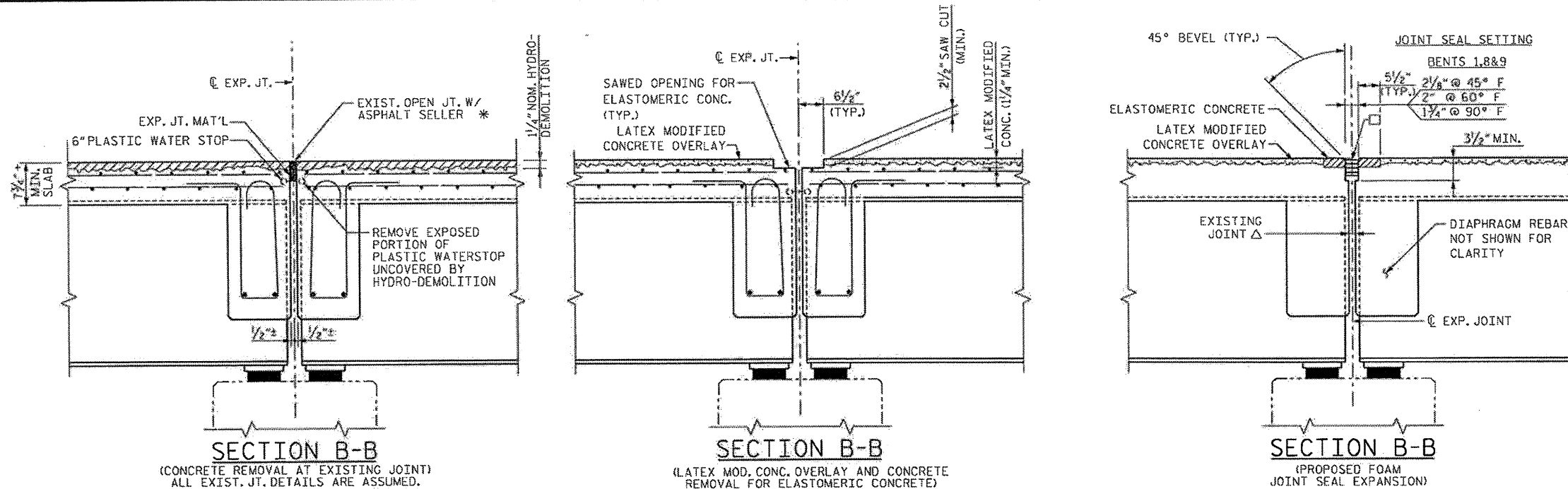
*Joseph King*  
 PROFESSIONAL ENGINEER  
 SEAL 13406  
 12/11

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 CHECKED BY: J I KELVINGTON DATE: 11/11

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			36

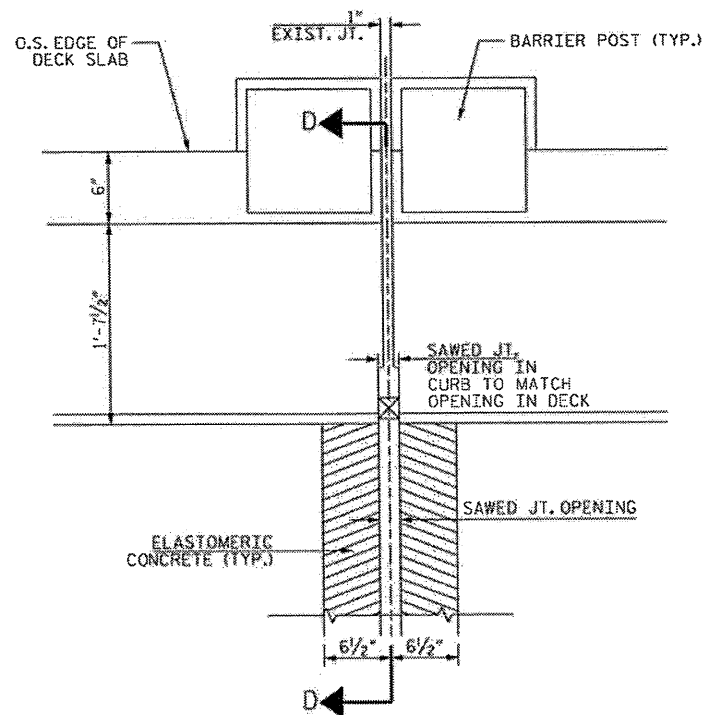
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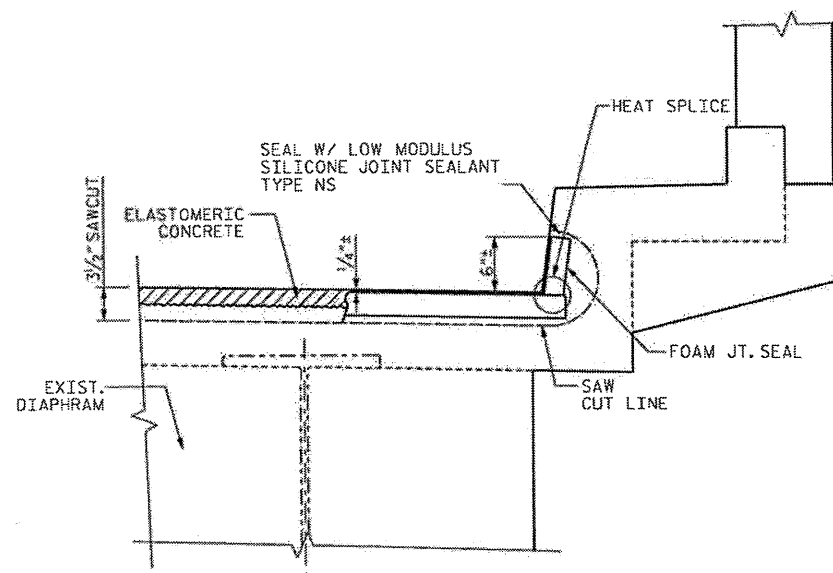
NOTE: ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, THE ENTIRE WATERSTOP SHALL BE REMOVED.  
 RETAIN ALL EXIST. REINF. STEEL. CLEAN AND REPAIR AS REQ'D.  
 \* FROM BEST AVAILABLE INFORMATION.

NOTE: FOR FOAM JOINT SEAL, SEE SPECIAL PROVISIONS.  
 THE INSTALLED EVAZOTE JOINT SEALS SHALL BE WATERTIGHT.  
 THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.  
 USE 2.8125" x 2.50" UNCOMPRESSED SEAL.  
 EXIST. JOINT OPENING @ BENT = 1".

**EXPANSION JOINT REPLACEMENT DETAILS**  
 (BENTS 1,8&9)



PARTIAL PLAN OF EXP. JT. EJ1



SECTION D-D

ELASTOMERIC CONCRETE	
LOCATION	QTY
BENT 1	5.8 C.F.
BENT 8	5.8 C.F.
BENT 9	5.8 C.F.

TOTAL ELASTOMERIC CONC. = 17.4 C.F.  
 TOTAL ELASTOMERIC CONC. = 0.6 C.Y.

PROJECT NO. WBS 17BP.12.P.2  
CATAWBA COUNTY  
 STATION: \_\_\_\_\_

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**EXPANSION JOINT  
 DETAIL EJ1**  
 REHABILITATE BRIDGE NO. 138

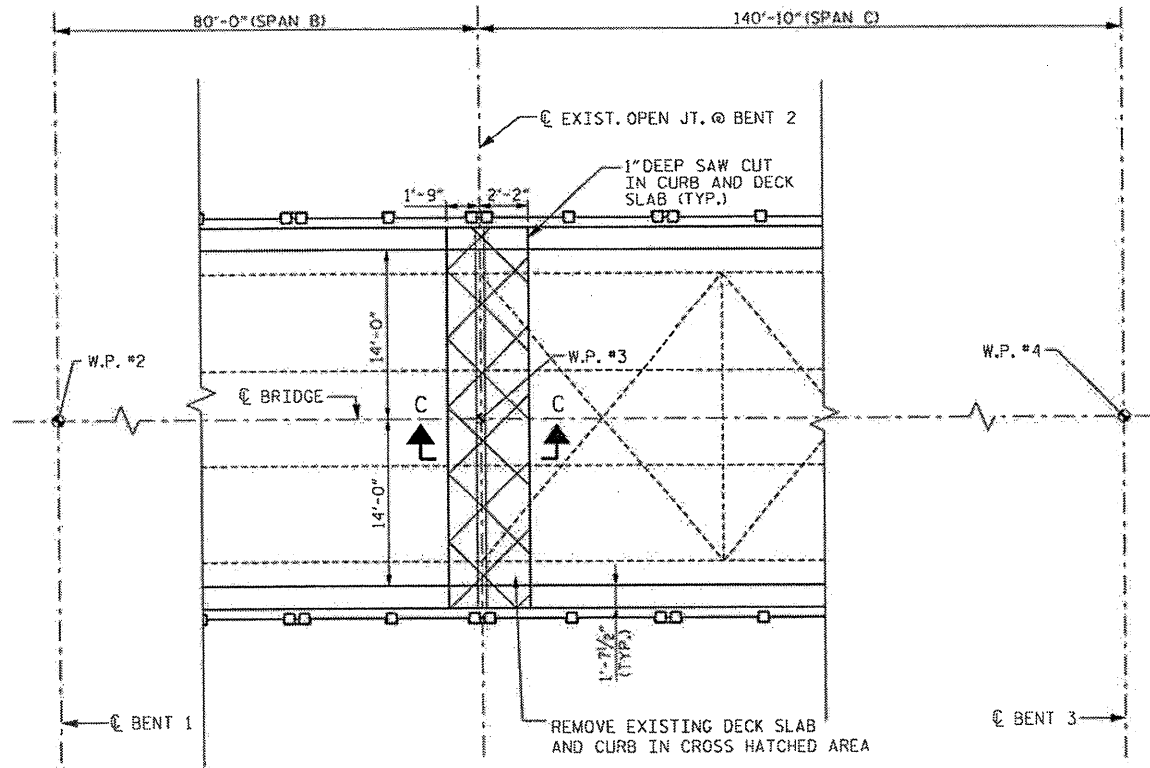
REVISIONS						SHEET NO. S-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 36
2			4			

*Joseph J. King*  
 REGISTERED PROFESSIONAL ENGINEER  
 NO. 5817  
 13406  
 KELVINGTON, N.C.

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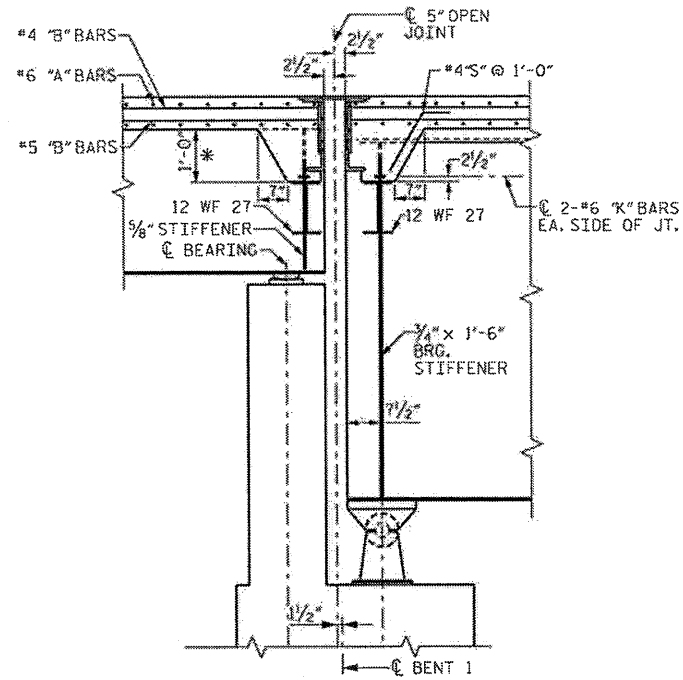
DRAWN BY: P. Z. ARMATA DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

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 2011\BBS\_17BP.12.P.2\_Catawba Co.\BBS\Catawba Co.\138\Catawba Co.\138\Bound Drawing - DONSA\2012 09 13 reviewed set\BBS\Finger Joint Det. Ldgn



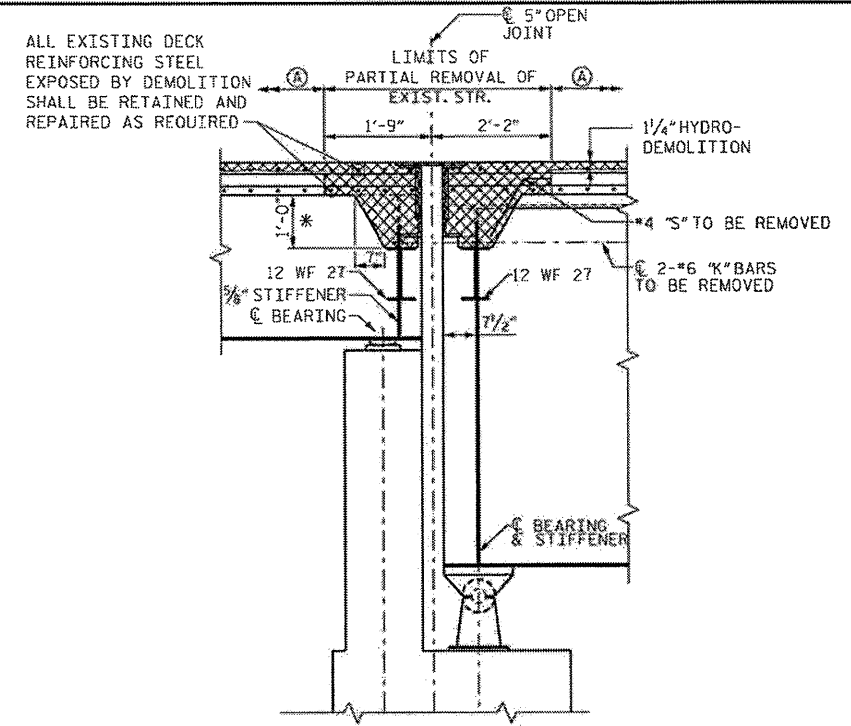
**PLAN**

APPROX. EXIST. CONDITIONS AND STRUCTURAL REMOVAL JOINT @ BENT 2 SHOWN. JOINT @ BENT 7 OPPOSITE HAND



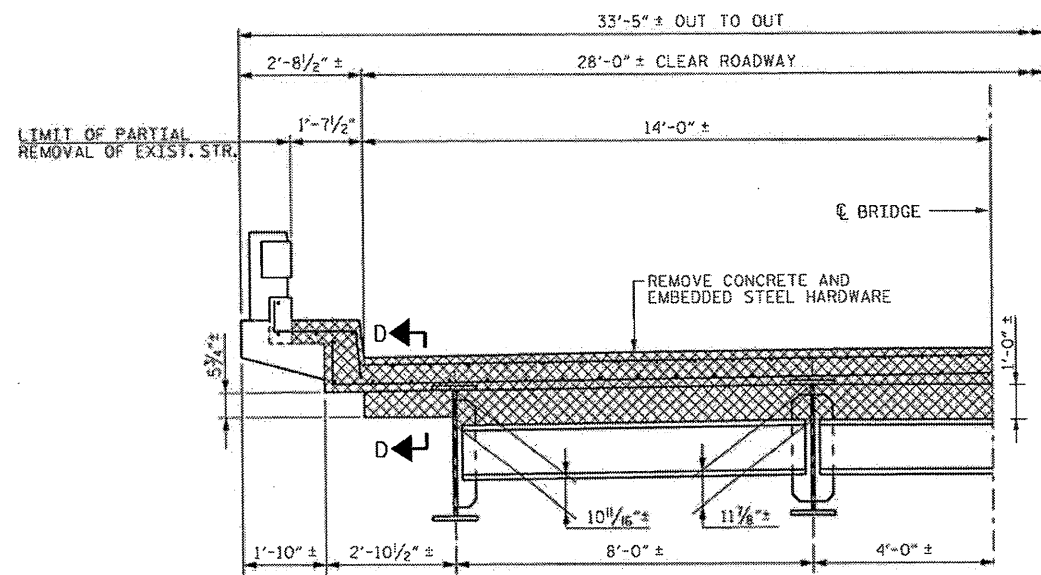
**SECTION C-C**

APPROX. EXIST. CONDITIONS  
 \* DIMENSION VARIES 1'-0" @ C.BRIDGE



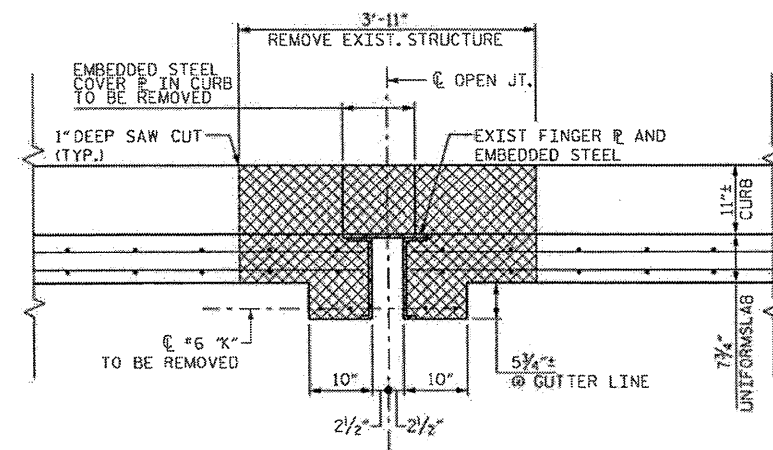
**SECTION C-C**

STRUCTURAL REMOVAL  
 (A) LIMIT FOR HYDRO-DEMOLITION OF BRIDGE DECK



**HALF SECTION @ OPEN JOINT**

RETAIN AND REPAIR ALL EXPOSED DECK SLAB AND CURB REINFORCING STEEL



**SECTION D-D**

NOTE: REMOVE ALL EMBEDDED STEEL HARDWARE

PROJECT NO. **WBS 17BP.12.P.2**  
**CATAWBA COUNTY**

STATION: \_\_\_\_\_

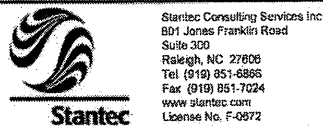
SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**JOINT SEAL EJ2  
 DETAILS**

REHABILITATE BRIDGE NO. 138

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-12
1			3			TOTAL SHEETS 36
2			4			

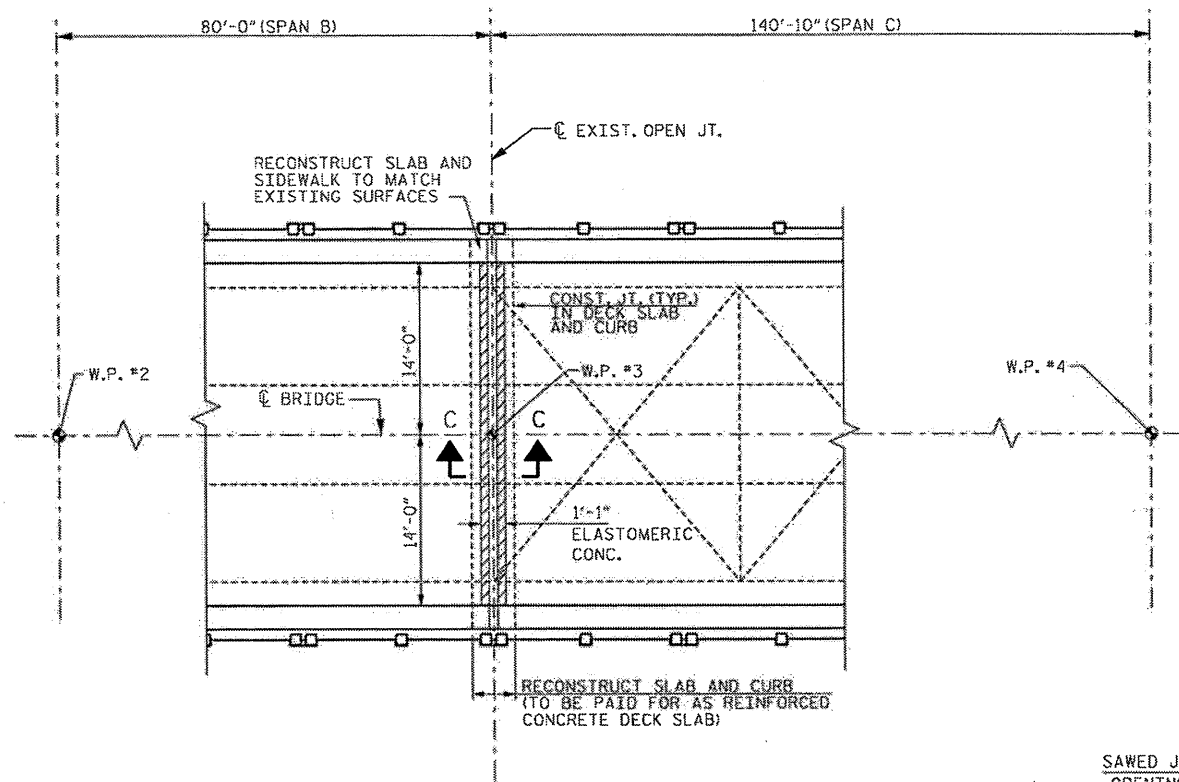


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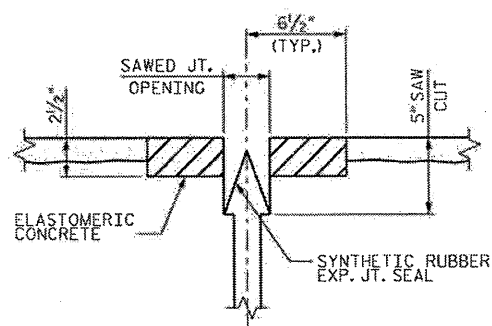
*Joseph M. Kingston*  
 SEAL 13406  
 PROFESSIONAL ENGINEER  
 NORTH CAROLINA  
 11/14/12



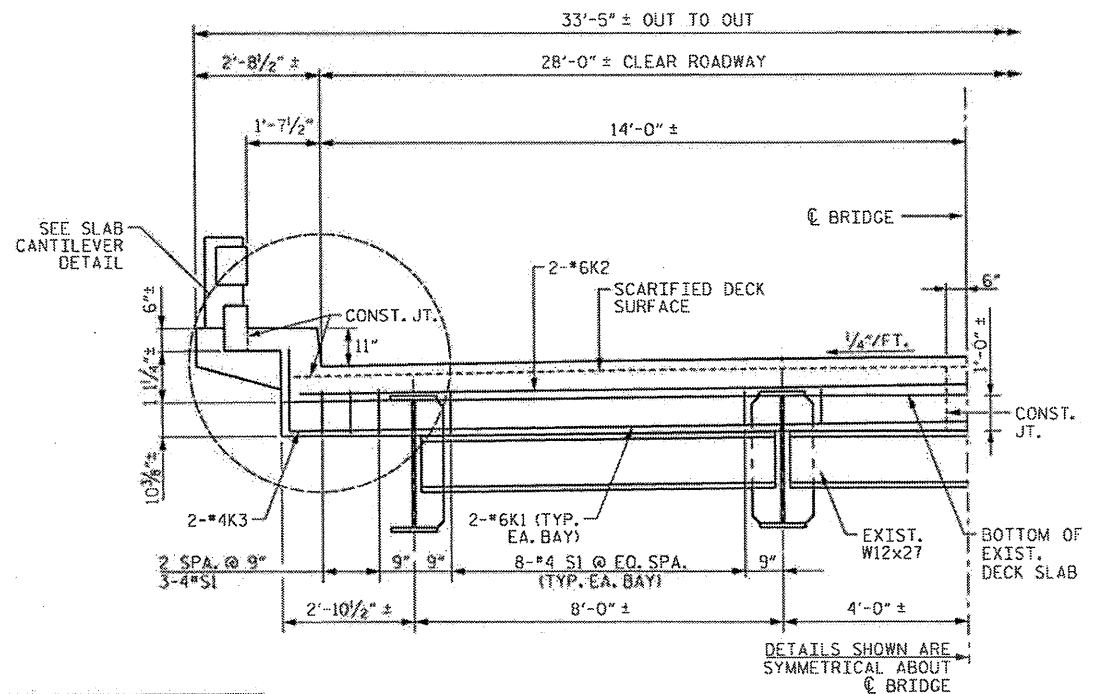
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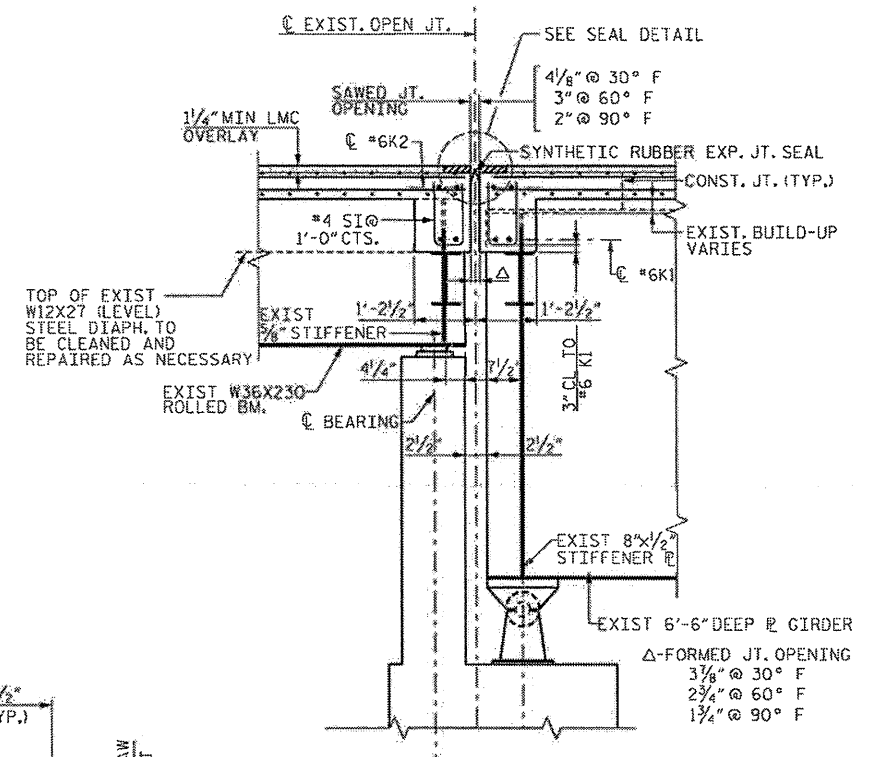
**PLAN**  
PROPOSED CONDITIONS



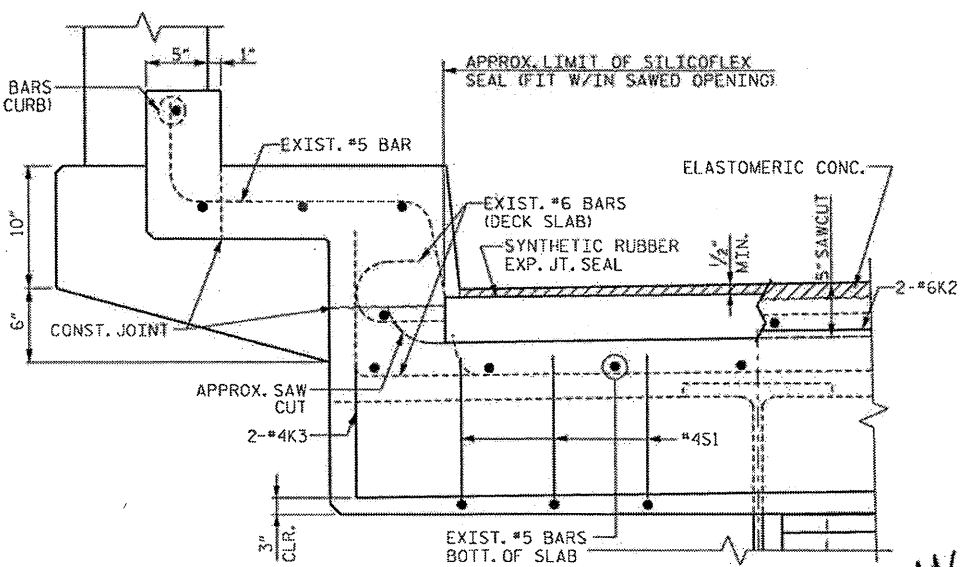
**SEAL DETAIL**



**HALF SECTION THRU C JOINT**



**SECTION C-C**  
PROPOSED CONDITIONS



**SLAB CANTILEVER DETAIL**

BAR TYPES	
	2
	1

ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
- 1 JOINT SHOWN (2 REQ'D.)					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
*K1	12	#6	STR	7'-6"	135
*K2	8	#6	STR	13'-9"	165
*K3	8	#4	2	3'-4"	18
*S1	60	#4	1	2'-10"	114
REINFORCING STEEL					LBS.
* EPOXY COATED REINFORCING STEEL					LBS.
					432
CLASS AA CONCRETE					C.Y.
					4.4

NOTES:  
 ALL DIAPHRAGM REPAIR WORK AND EDGE BEAM CONSTRUCTION FOR EJ2 SHALL BE COMPLETE PRIOR TO DECK SCARIFICATION AND HYDRO-DEMOLITION.  
 TEMP. COVER  $\bar{R}$  FOR TRAFFIC OPERATIONS IS REQ'D. DURING CONSTRUCTION. SEE SHT. S-15 FOR DETAILS.

ELASTOMERIC CONCRETE-EJ2	
LOCATION	QTY
BENT 2	5.0 C.F.
BENT 7	5.0 C.F.

TOTAL ELASTOMERIC CONC. = 10.0 C.F.  
 TOTAL ELASTOMERIC CONC. = 0.4 C.Y.

FOR PARTIAL REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

REINFORCED CONCRETE DECK SLAB (1 END)-122 SF

PROJECT NO. WBS 17BP.12.P.2  
CATAWBA COUNTY

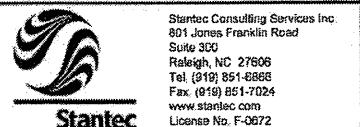
STATION: \_\_\_\_\_  
 SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

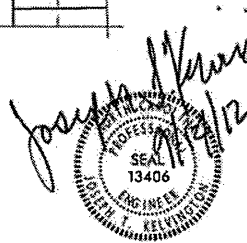
**JOINT SEAL EJ2 DETAILS**

REHABILITATE BRIDGE NO. 138

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			36

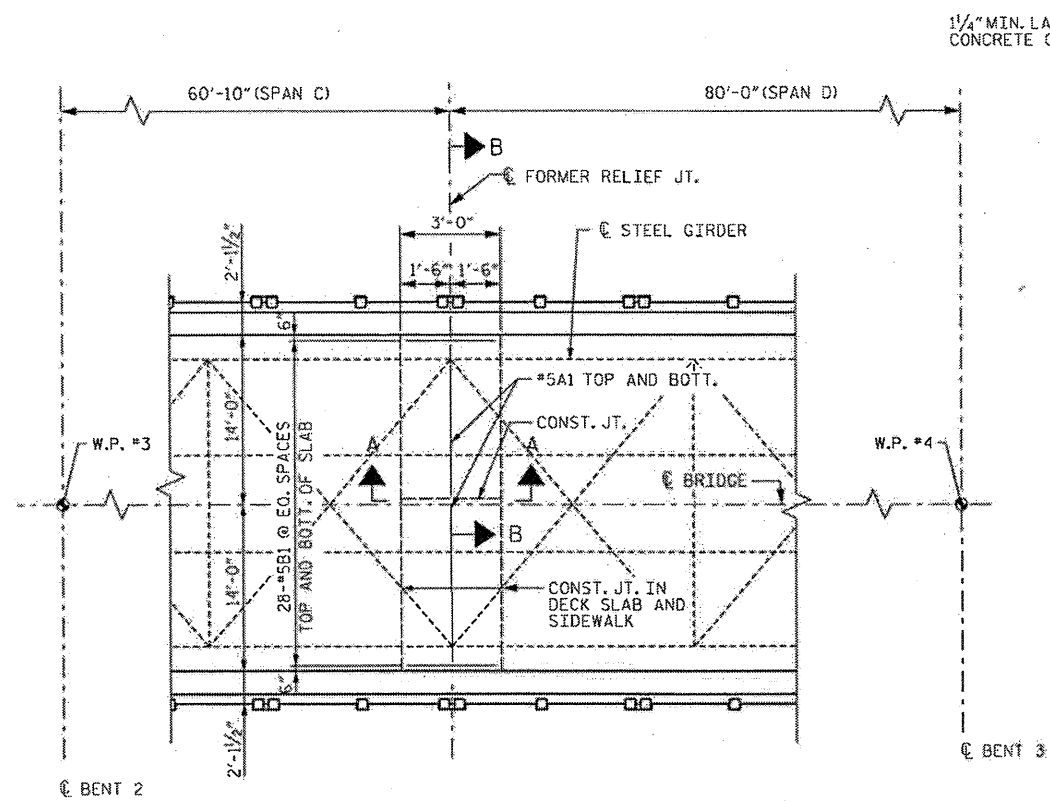


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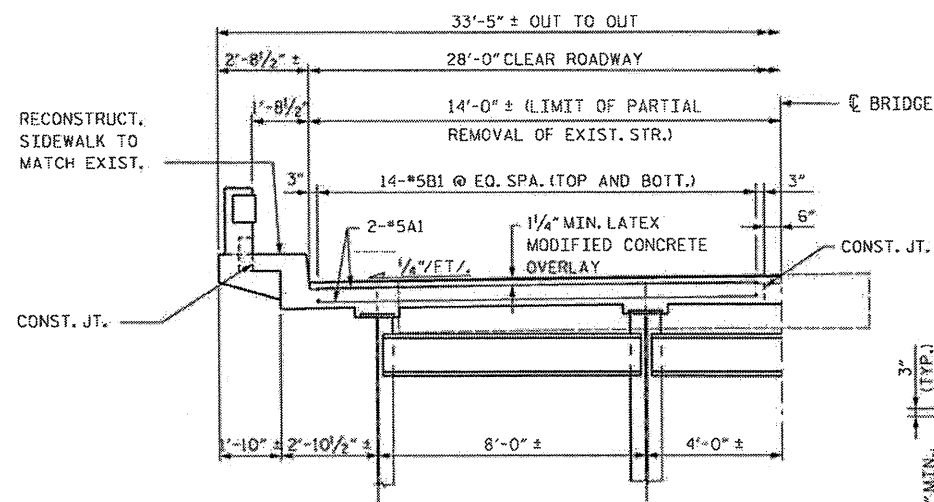




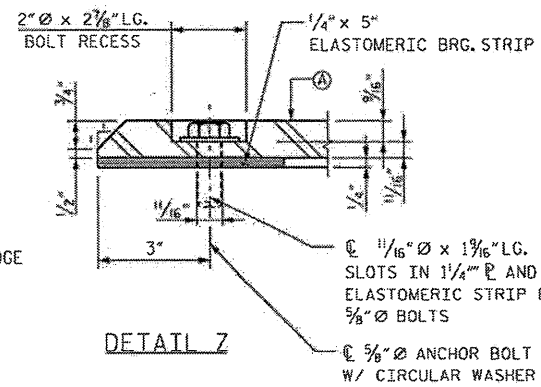
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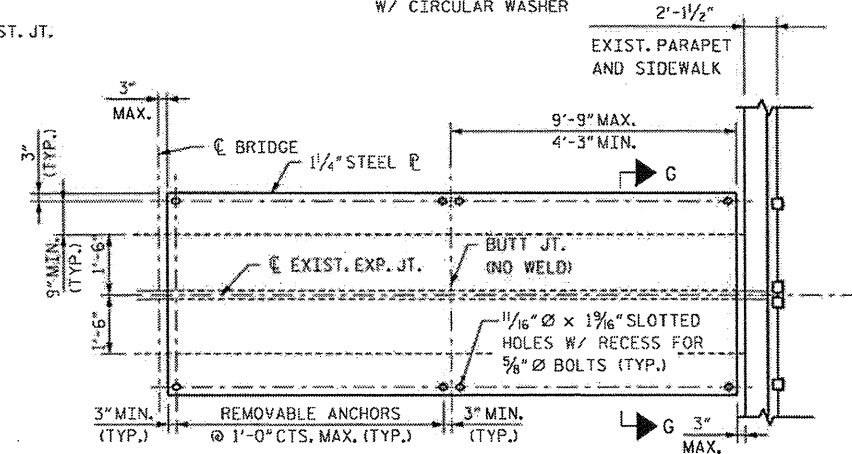
RELIEF JOINT REPAIR PLAN  
 SPANS C, D, E, F, AND G  
 (TYPICAL EA. JOINT)



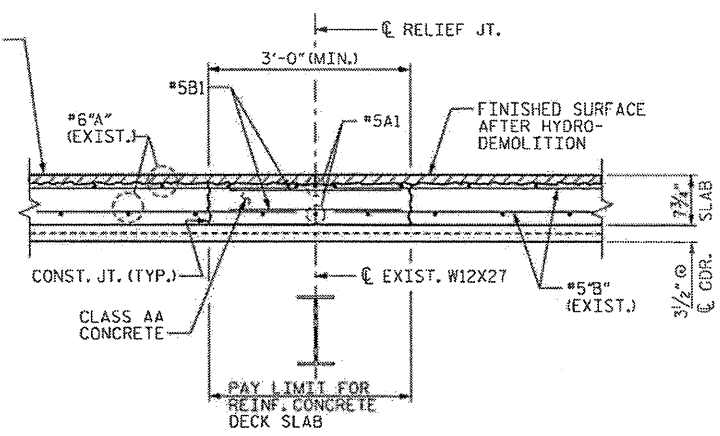
SECTION B-B  
 EXISTING DECK REINF. NOT SHOWN FOR CLARITY.



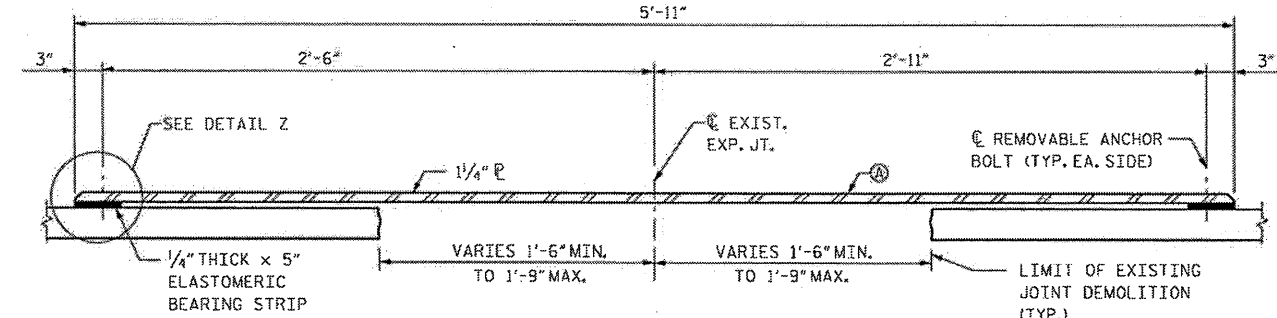
DETAIL Z



USE THIS DETAIL FOR CONSTRUCTION OF JOINTS RJ1, RJ2, EJ1 AND EJ2.  
 TEMP. COVER P DETAIL PLAN



SECTION A-A



SECTION G-G

FOR TEMPORARY STEEL COVER P, SEE SPECIAL PROVISIONS.  
 (A) PROVIDE SURFACE TREATMENT FOR SKID RESISTANCE BONDED TO P  
 REQUIRED ULTIMATE ANCHOR BOLT RESISTANCE:  
 TENSION = 10.5k  
 SHEAR = 1.0k

NOTES:  
 WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL NOT BE PERMITTED.

NOTES:  
 ALL PROPOSED REINFORCING STEEL SHALL BE EPOXY COATED.  
 CONCRETE OVERLAY SHALL BE PLACED AFTER DECK HAS BEEN CAST AND CURED A MINIMUM OF 7 DAYS.  
 CONCRETE DECK SLAB SHALL BE RECONSTRUCTED TO MATCH EXISTING SURFACES AS SHOWN. COSTS FOR ALL MATERIALS, LABOR AND INCIDENTALS REQUIRED FOR THIS WORK WILL BE PAID FOR AT THE UNIT PRICE BID FOR REINFORCED CONCRETE DECK SLAB.  
 REPLACE CONCRETE REMOVED IN DECK SLAB AND BUILD-UPS W/ CLASS AA CONC.  
 PLACE CLASS AA TO MATCH FINISHED SURFACE AFTER HYDRO-DEMOLITION.

ALL BAR DIMENSIONS ARE OUT TO OUT

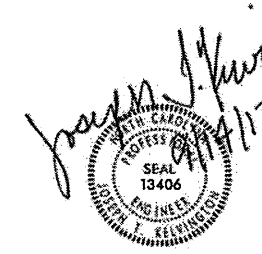
BILL OF MATERIAL						
1 JOINT SHOWN (5 REQ'D.)						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	4	*5	STR	13'-2"	55	
*B1	56	*5	STR	2'-8"	156	
REINFORCING STEEL				LBS.		
*EPOXY COATED REINFORCING STEEL				LBS.	211	
CLASS AA CONCRETE				C.Y.	2.0	

FOR PARTIAL REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.  
 REINFORCED CONCRETE DECK SLAB (1 JOINT REPAIR)= 97 SF

PROJECT NO. WBS 17BP.12.P.2  
 CATAWBA COUNTY  
 STATION: \_\_\_\_\_

SHEET 2 of 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 INTERIOR  
 JOINT AND SLAB  
 REPAIR DETAILS  
 (RJ1)  
 REHABILITATE BRIDGE NO. 138

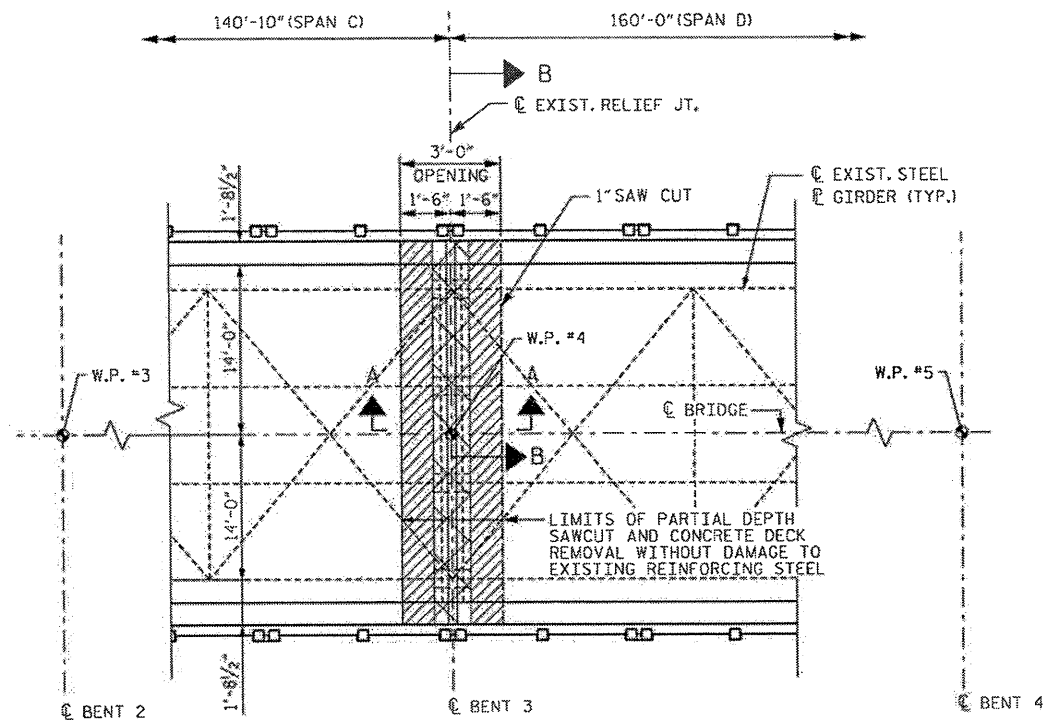


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1			3			TOTAL SHEETS 36
2			4			

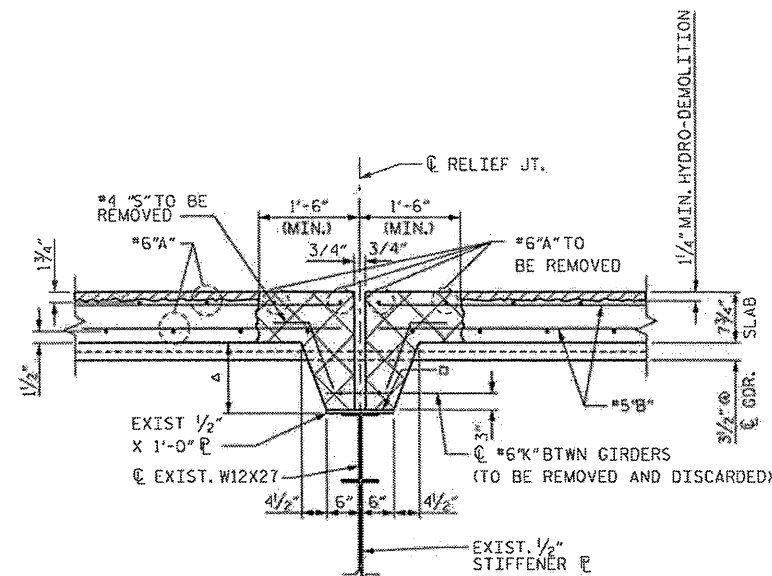
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DRAWN BY: P. Z. ARMATA DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

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RELIEF JOINT (RJ2) REPAIR  
 @ BENTS 3, 4, 5, AND 6  
 (TYPICAL EA. JOINT)



REMOVE ALL EXISTING CONCRETE IN CROSS-HATCHED AREA TO MIN. LIMITS SHOWN. RETAIN EXIST. STEEL EXCEPT AS NOTED. CONTRACTOR SHALL EXERCISE CARE TO ENSURE THAT EXIST. STEEL IS UNDAMAGED BY CONCRETE REMOVAL ACTIVITIES.

□ THOROUGHLY CLEAN EXPOSED STEEL SURFACES TO REMOVE ALL RUST AND CONTAMINATED CONCRETE.

△ DIMENSION VARIES. 1'-0" @  $\bar{C}$  BRIDGE

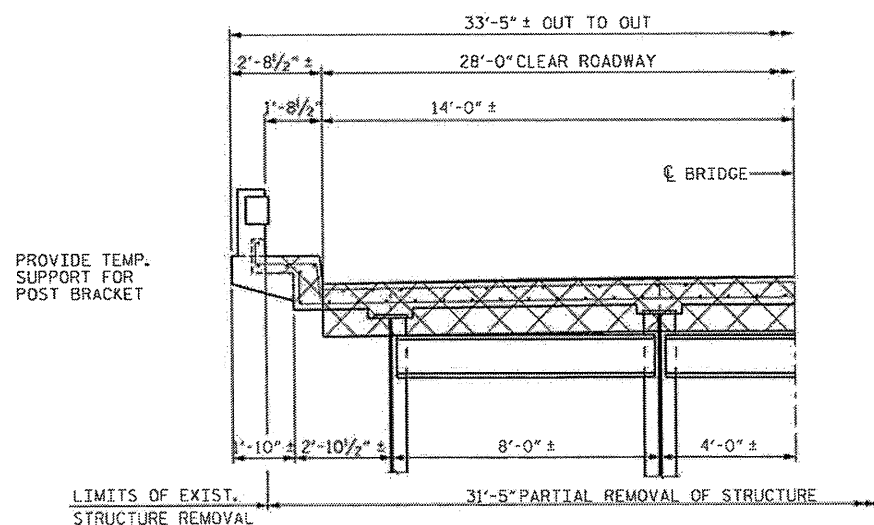
EXISTING SECTION A-A

NOTES:

DECK REMOVAL SHALL BE PERFORMED BY FIRST INTRODUCING A PARTIAL DEPTH SAWCUT (1" MAX DEPTH) FOLLOWED BY CONCRETE REMOVAL WITH A CHIPPING HAMMER IN THE RANGE OF 15 LBS.. CARE SHALL BE TAKEN SO AS TO PREVENT DAMAGE TO EXISTING DECK REINFORCING STEEL AND EXISTING GIRDERS.

WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL NOT BE PERMITTED.

REMOVE CONCRETE TO LIMITS SHOWN THRU THE EXISTING SIDEWALK AND THE DECK SLAB. RETAIN ALL EXISTING REINFORCING STEEL EXPOSED IN SIDEWALK AND THE DECK SLAB UNLESS NOTED OTHERWISE. SIDEWALK SHALL BE RECONSTRUCTED TO MATCH EXISTING SURFACES.



EXISTING SECTION B-B

PROJECT NO. WBS 17BP.12.P.2  
CATAWBA COUNTY  
 STATION: \_\_\_\_\_

SHEET 1 of 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 INTERIOR  
 JOINT AND SLAB  
 REPAIR DETAILS  
 (RJ2)

REHABILITATE BRIDGE NO. 138

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-16
1			3			TOTAL SHEETS
2			4			36

*James Kelvington*  
 11/12



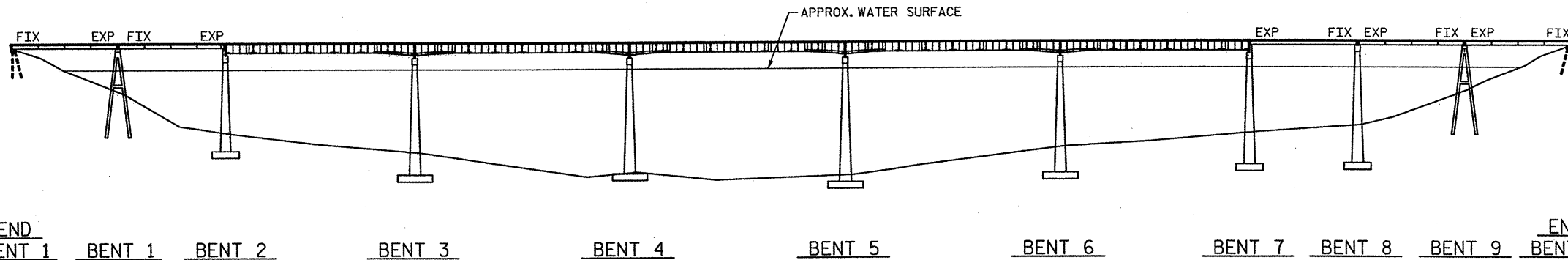
Stantec Consulting Services Inc.  
 801 Jones Franklin Road  
 Suite 300  
 Raleigh, NC 27606  
 Tel. (919) 861-8808  
 Fax. (919) 851-7024  
 www.stantec.com  
 License No. F-0872

DRAWN BY: P. Z. ARMATA DATE: 11/11  
 CHECKED BY: J. T. KELVINGTON DATE: 11/11

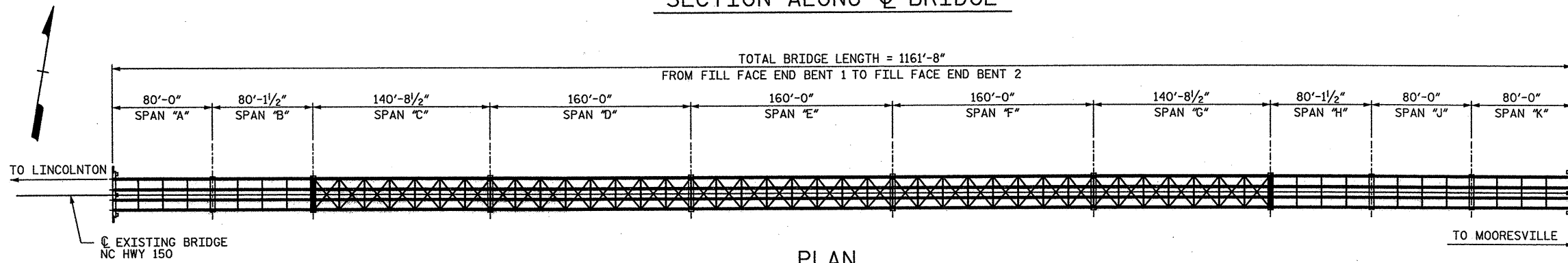




SPAN "A" SPAN "B" SPAN "C" SPAN "D" SPAN "E" SPAN "F" SPAN "G" SPAN "H" SPAN "J" SPAN "K"



SECTION ALONG C BRIDGE



PLAN

GENERAL NOTES:

- INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR THIS PROJECT.
- THE CONTRACTOR SHALL PAINT ALL STRUCTURAL STEEL ON THE BRIDGE. THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS.
- WORK ON THIS BRIDGE 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 CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL OSHA AND STATE SAFETY REQUIREMENTS.
- 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 CONDITIONS AT THE SITE.
- 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.
- WORK, AS DESCRIBED IN THESE PLANS, IS TO BE COMPLETED WITHOUT INTERRUPTION OF TRAFFIC ON THE BRIDGE.
- CONTRACTOR SHALL COORDINATE WITH INSPECTION PERSONNEL OF THE ENGINEER TO CAREFULLY EXAMINE HEAVILY RUSTED AREAS, AFTER SURFACE PREPARATION, TO DETERMINE IF ANY SUBSTANTIAL SECTION LOSS HAS OCCURRED. THE ENGINEER WILL DETERMINE THE COURSE OF ACTION TAKEN FOR CASES OF EXCESSIVE SECTION LOSS.

TOTAL BILL OF MATERIAL

	ELASTOMERIC BEARINGS SPANS A, B & H	BRIDGE JACKING AT BENT 1, 2 & 7	CLEANING & REPAINTING OF BRIDGE #138	CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS	DIAPHRAGM MODIFICATION SPANS A, B & H	DIAPHRAGM MODIFICATION SPANS C & G	ROLLED BEAM REPAIR	PLATE GIRDER REPAIR	REPLACE STEEL DIAPHRAGM	REPLACE STEEL STIFFENER PLATES	BOLT REMOVAL AND REPLACEMENT	POLLUTION CONTROL
	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LBS.	LBS.	LBS.	LBS.	LBS.	LBS.	EACH	LUMP SUM
SUPERSTRUCTURE					8582	3310	4300	1230	1085	232	100	
BENT 1	8	1										
BENT 2	4	1										
BENT 6												
BENT 7	4	1										
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	8582	3310	4300	1230	1085	232	100	LUMP SUM

NOTES (CONTD.):

- ALL THE COST ASSOCIATED WITH PREPARING ENGINEERING SUBMITTALS FOR JACKING, ANY ASSOCIATED TEMPORARY SUPPORTS, EQUIPMENT AND MISCELLANEOUS COMPONENTS SHALL BE CONSIDERED INCIDENTAL TO THE PAY ITEM FOR BRIDGE JACKING AT BENT 1, 2 & 7. 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.
- ALL WELDING SHALL BE DONE IN ACCORDANCE WITH CURRENT AWS SPECIFICATIONS.
- FOR BRIDGE JACKING AT BENTS 1, 2 & 7 SEE SPECIAL PROVISIONS.
- FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. NO FIELD TESTING OF ANCHOR BOLTS IS REQUIRED.
- DEBRIS SHALL BE REMOVED FROM EXISTING BENT CAPS. ALL COST ASSOCIATED WITH DEBRIS REMOVAL SHALL BE CONSIDERED INCIDENTAL TO BRIDGE JACKING AT BENT 1, 2 & 7 PAY ITEM.
- REPLACEMENT OF BOLTS AT ROCKER BEARINGS SHALL BE MADE AT THE DISCRETION OF THE ENGINEER IN THE FIELD. ALL COSTS ASSOCIATED WITH THE REPLACEMENT OF THE ANCHOR BOLTS AT ROCKER BEARINGS SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT PAY ITEMS.
- REPAIR OF DAMAGE TO EXISTING STRUCTURE, WHICH OCCURS AS A RESULT OF BRIDGE REHABILITATION, SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT PAY ITEMS.
- THE CONCRETE HAUNCH REMOVAL AS SHOWN ON SHEET "PROPOSED REPAIRS AT BENTS 2 & 7" AND "REPAIR DETAILS AT BENT 6" SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT ITEMS. ALL COSTS RELATING TO THE HAUNCH REMOVAL SHALL BE CONSIDERED INCIDENTAL AND NO ADDITIONAL PAYMENT SHALL BE MADE.
- BOLTS, WASHERS, DIAPHRAGM CONNECTOR PLATES AND MISCELLANEOUS COMPONENTS FOR REPLACEMENT OF STEEL DIAPHRAGMS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT BID PRICE FOR "REPLACE STEEL DIAPHRAGM".
- REPLACEMENT OF GUSSET PLATES SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT BID PRICE FOR "PLATE GIRDER REPAIR".
- FOR BOLT REMOVAL & REPLACEMENT, SEE SPECIAL PROVISIONS.
- CONTRACTOR SHALL APPLY AN EPOXY PROTECTIVE COATING TO THE TOP SURFACE AREA OF THE BENT CAPS AT BENT 1, 2, 7, 8 & 9, EXCLUDING AREAS UNDER THE MASONRY PLATES. FOR EPOXY COATING SEE STANDARD SPECIFICATIONS. ALL COSTS FOR APPLICATION OF PROTECTIVE COATING SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT BID ITEMS.

PROJECT NO. 12B.101812

CATAWBA COUNTY

BRIDGE NO.: 138

REHABILITATION OF BRIDGE NO. 138

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUPERSTRUCTURE REPAIR  
DETAILS FOR BRIDGE  
ON NC HWY 150 OVER  
LAKE NORMAN**



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

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

DRAWN BY: PWP DATE: 7-11  
CHECKED BY: TJT DATE: 7-11

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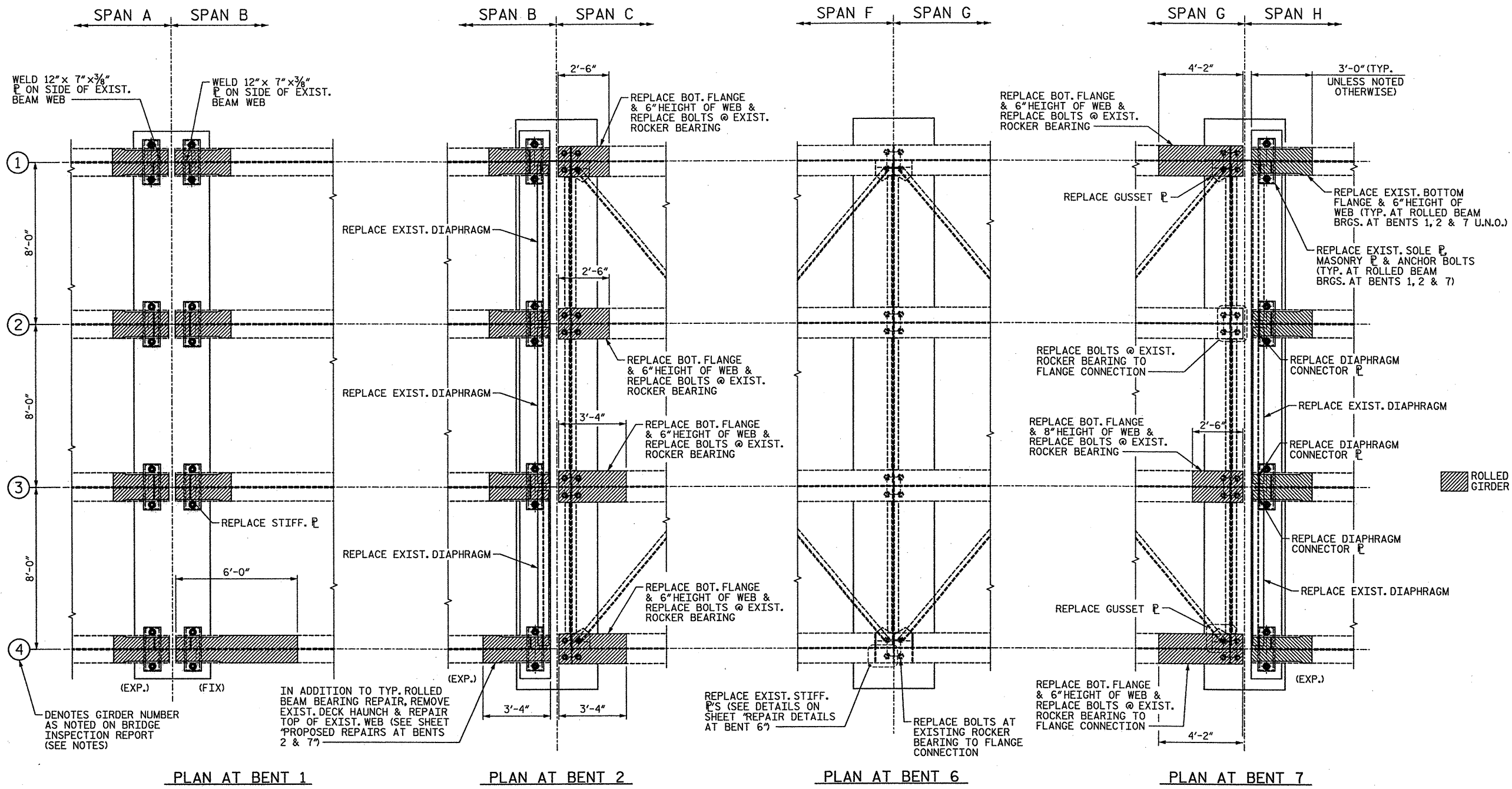
pkelly

3/30/2012

I:\PROJ\DEV\Constr\Division\Contractors\WORK\PROJ\NC DOT 2011\12B-1282 CATAWBA\12B101812 Proposed Girder Repair Details at Bents 1, 2, 6 & 7.dgn

pkelly

3/20/2012



**NOTES:**

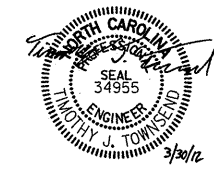
- FOR ADDITIONAL NOTES, SEE SHEET TITLED "SUPERSTRUCTURE REPAIR DETAILS FOR BRIDGE ON NC HWY 150 OVER LAKE NORMAN".
- REPLACEMENT OF BOLTS AT ROCKER BEARINGS REFERS TO BOLTS CONNECTING BOTTOM FLANGE TO TOP OF BEARING. BOLTS SHALL BE ASTM A307 WITH CORRESPONDING NUTS AND WASHERS. CONTRACTOR SHALL SIZE BOLTS, NUTS AND WASHERS TO MATCH EXISTING BOLTS BEING REPLACED.
- FOR REPAIRS INDICATED AT BENT 1, GIRDER LINE 1, SPANS A & B, SEE DETAILS ON "REPAIRS AT BENT 1" SHEET.
- FOR REPAIRS AT BENTS 1, 2 & 7, BRIDGE SHALL BE JACKED. SEE SHEETS TITLED "JACKING DETAILS FOR ROLLED BEAM SPANS" AND "JACKING DETAILS FOR PLATE GIRDER SPANS".
- REPAIRS AT BENT 6 SHALL BE COMPLETED WITHOUT JACKING.
- ALL BOLTS SHALL BE ASTM A490 UNLESS NOTED OTHERWISE.

- ALL STRUCTURAL STEEL FOR GIRDER AND BEAM REPAIRS SHALL BE NEW AASHTO M270 GRADE 36, OR APPROVED EQUIVALENT. ALL STEEL FOR DIAPHRAGM MODIFICATIONS SHALL BE NEW AASHTO M270 GRADE 50, OR APPROVED EQUIVALENT.
- BOLTS, NUTS, AND WASHERS (EXCEPT A490 BOLTS) SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- CONTRACTOR SHALL PREPARE AS BUILT PLANS FOR EXISTING STIFFENERS, GUSSET PLATES, AND DIAPHRAGMS FOR USE IN SHOP DRAWING PREPARATIONS.
- FOR ALL ROLLED BEAM REPAIRS, REPLACE BEARING WITH NEW ELASTOMERIC BEARING.
- FABRICATOR SHALL PREPARE SHOP DRAWINGS FOR STEEL REPAIRS AND SUBMIT THEM TO THE ENGINEER FOR REVIEW PRIOR TO PURCHASE OF MATERIAL.
- FOR REPLACEMENT OF EXISTING DIAPHRAGMS, SEE SPECIAL PROVISION FOR REPLACE STEEL DIAPHRAGM.

PROJECT NO. 12B.101812  
CATAWBA COUNTY  
 BRIDGE NO.: 138  
 REHABILITATION OF BRIDGE NO. 138

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**PROPOSED  
 GIRDER REPAIR DETAILS  
 AT BENTS 1, 2, 6 & 7**



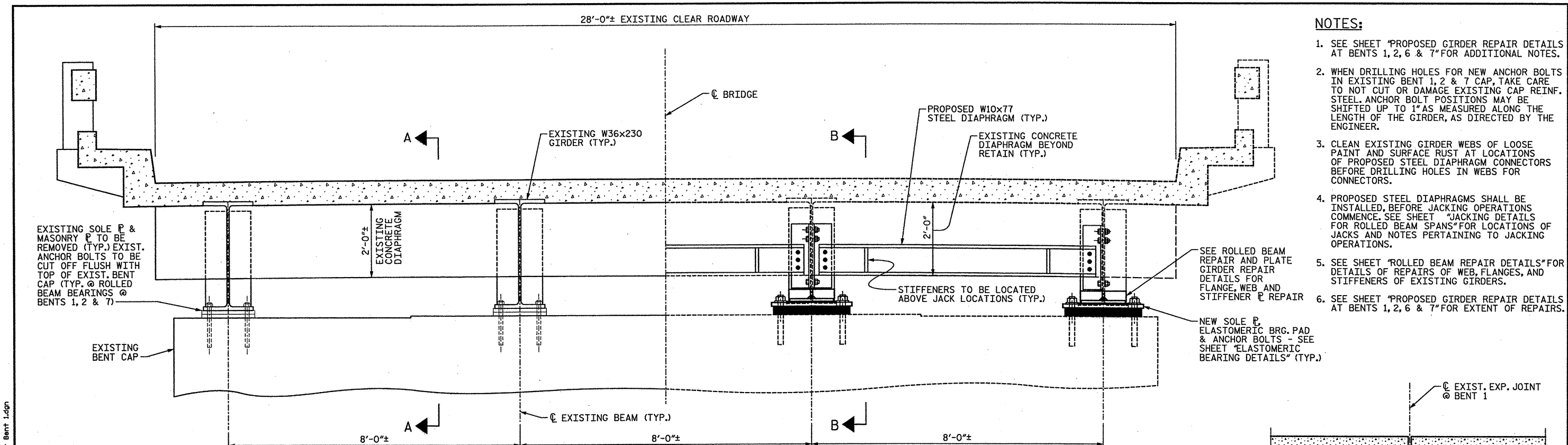
DRAWN BY : PWP DATE : 7-11  
 CHECKED BY : TJT DATE : 7-11

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 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	

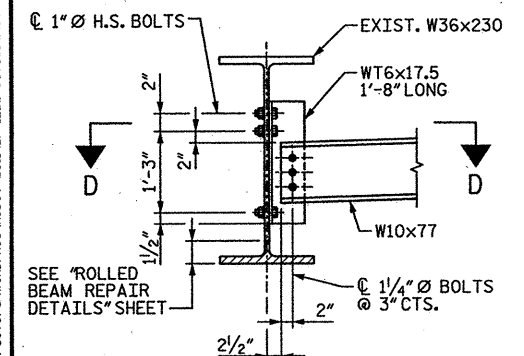
TOTAL SHEETS: S-19  
 S-29



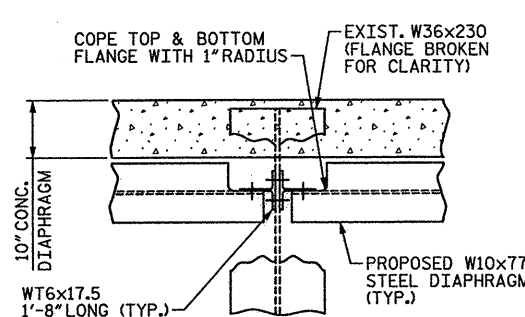


- NOTES:**
- SEE SHEET "PROPOSED GIRDER REPAIR DETAILS AT BENTS 1, 2, 6 & 7" FOR ADDITIONAL NOTES.
  - WHEN DRILLING HOLES FOR NEW ANCHOR BOLTS IN EXISTING BENT 1, 2 & 7 CAP, TAKE CARE TO NOT CUT OR DAMAGE EXISTING CAP REINF. STEEL. ANCHOR BOLT POSITIONS MAY BE SHIFTED UP TO 1" AS MEASURED ALONG THE LENGTH OF THE GIRDER, AS DIRECTED BY THE ENGINEER.
  - CLEAN EXISTING GIRDER WEBS OF LOOSE PAINT AND SURFACE RUST AT LOCATIONS OF PROPOSED STEEL DIAPHRAGM CONNECTORS BEFORE DRILLING HOLES IN WEBS FOR CONNECTORS.
  - PROPOSED STEEL DIAPHRAGMS SHALL BE INSTALLED BEFORE JACKING OPERATIONS COMMENCE. SEE SHEET "JACKING DETAILS FOR ROLLED BEAM SPANS" FOR LOCATIONS OF JACKS AND NOTES PERTAINING TO JACKING OPERATIONS.
  - SEE SHEET "ROLLED BEAM REPAIR DETAILS" FOR DETAILS OF REPAIRS OF WEB, FLANGES, AND STIFFENERS OF EXISTING GIRDERS.
  - SEE SHEET "PROPOSED GIRDER REPAIR DETAILS AT BENTS 1, 2, 6 & 7" FOR EXTENT OF REPAIRS.

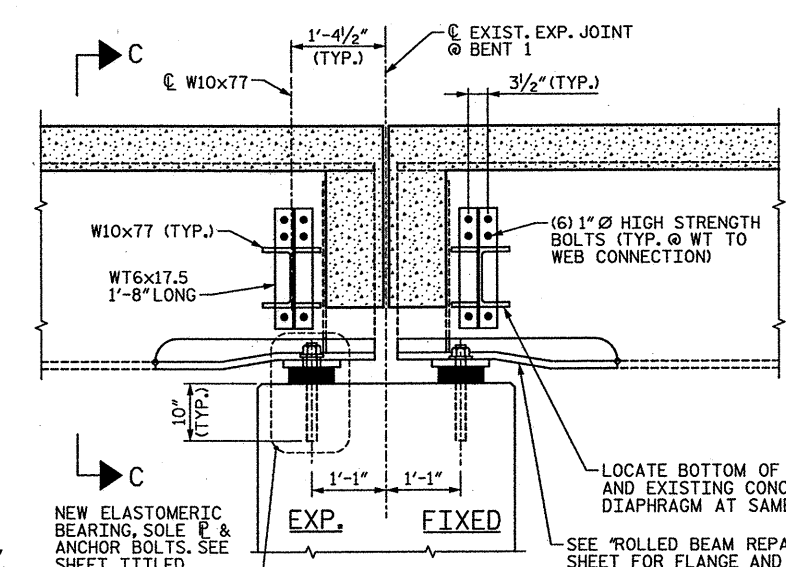
**SECTION AT PROPOSED END DIAPHRAGMS AT BENT 1**  
(SPAN "A" SHOWN, SPAN "B" SIMILAR)



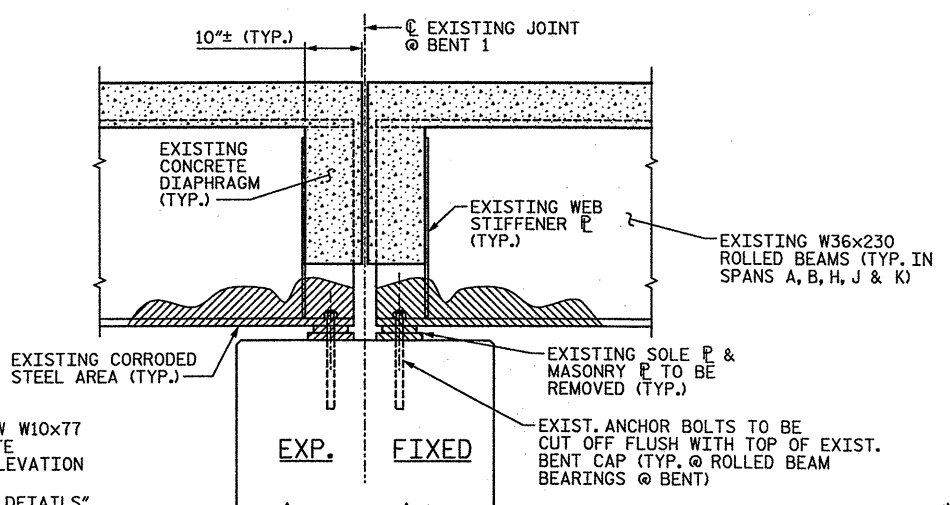
**SECTION C-C**  
(10" CONCRETE DIAPHRAGM & DECK NOT SHOWN FOR CLARITY)



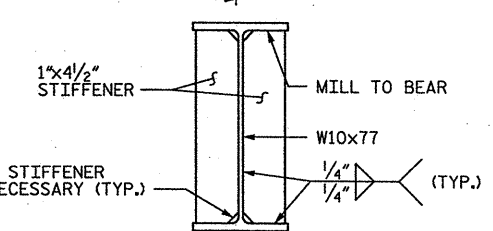
**SECTION D-D**



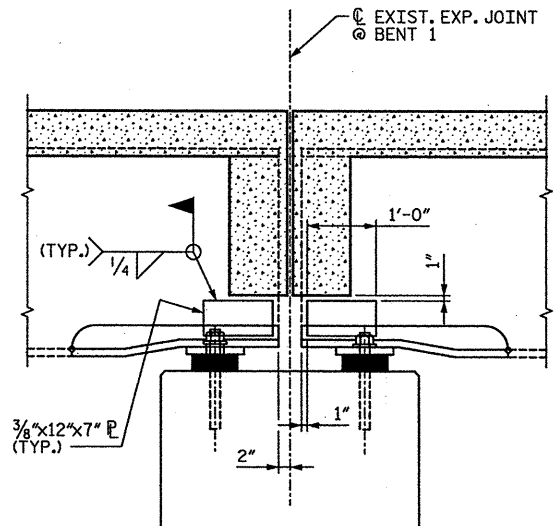
**SECTION B-B**  
(PROPOSED SECTION)



**SECTION A-A**  
(EXISTING SECTION)



**STIFFENER DETAIL**



**WEB REPAIR DETAIL AT GIRDERS ON LINE 1, BENT 1**

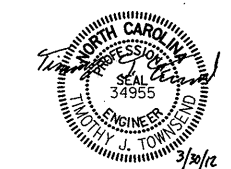
PROJECT NO. 12B.101812  
CATAWBA COUNTY

BRIDGE NO.: 138

REHABILITATION OF BRIDGE NO. 138

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**REPAIRS AT BENT 1**



DRAWN BY: PWP DATE: 7-11  
CHECKED BY: TJT DATE: 7-11

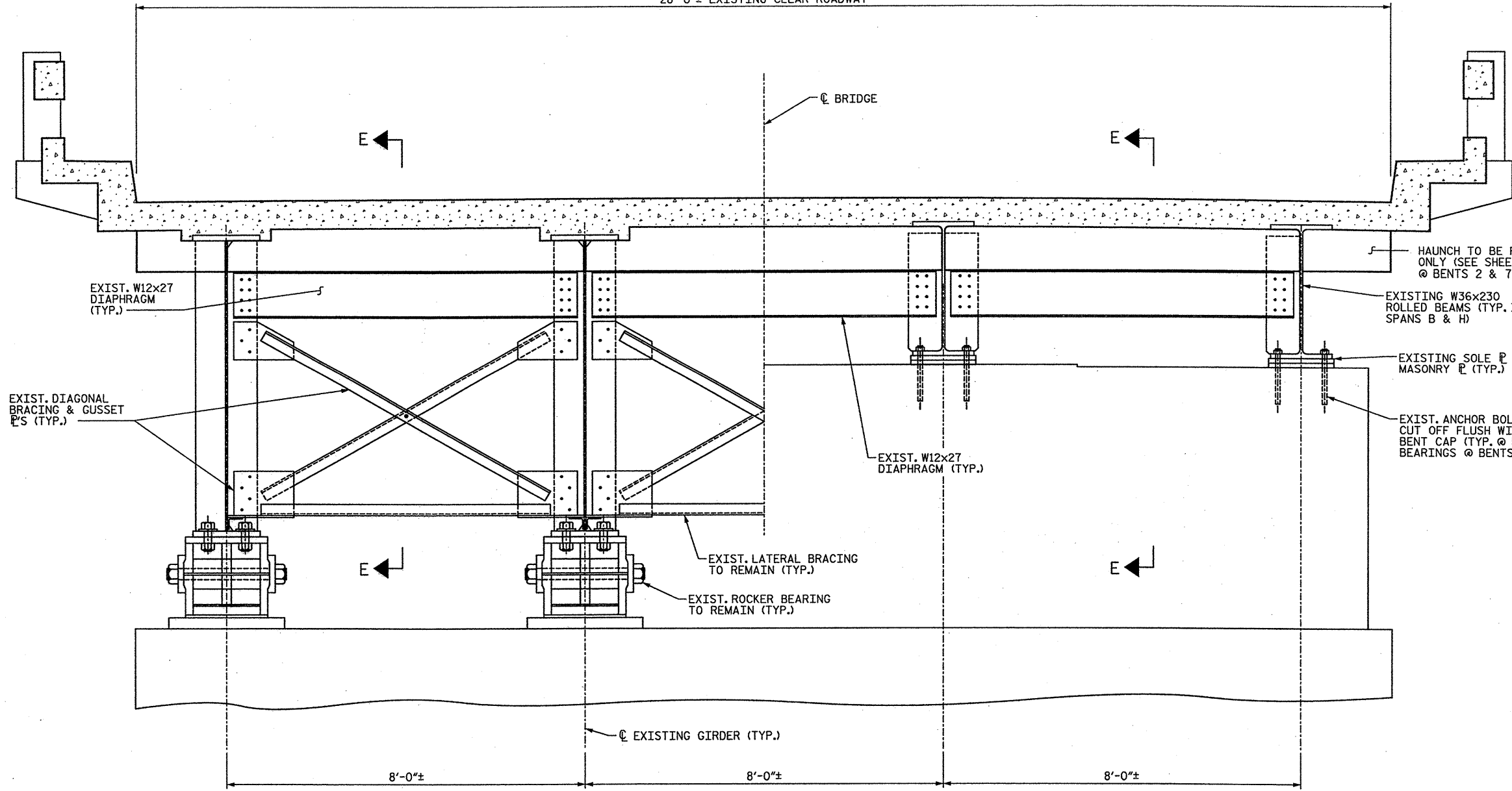
STV/Ralph Whitehead Associates, Inc.  
1000 West Morehead St., Ste. 200  
Charlotte, NC 28208  
NC LICENSE NO. F-0991

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20	
1			3			TOTAL SHEETS	
2			4			S-29	

I:\PROJECTS\Construction\Contractors\WDRP\NC DOT 2011\BP-1282 Catawba\Info\04 Repairs at Bent 1.dgn

28'-0"± EXISTING CLEAR ROADWAY

- NOTE:**
1. SEE SHEET "SUPERSTRUCTURE REPAIR DETAILS FOR BRIDGE ON NC HWY 150 OVER LAKE NORMAN" FOR ADDITIONAL NOTES.
  2. SEE SHEET "DIAPHRAGM DETAILS AT BENT 2 & 7" FOR SECTION E-E.



SECTION AT PLATE GIRDER SPAN      SECTION AT ROLLED BEAM SPAN  
 SECTIONS AT EXISTING END DIAPHRAGMS

I:\PROJECTS\Construction\Contractors\WORLDPROG\NC001 2011\BP-12B2 Catawba\Info\05 Existing End Diaphragms at Bent 2 & 7.dgn

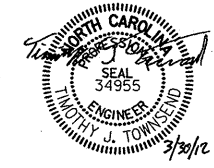
PROJECT NO. 12B.101812  
 CATAWBA COUNTY

BRIDGE NO.: 138

REHABILITATION OF BRIDGE NO. 138

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

EXISTING  
 END DIAPHRAGMS  
 AT BENT 2 & 7

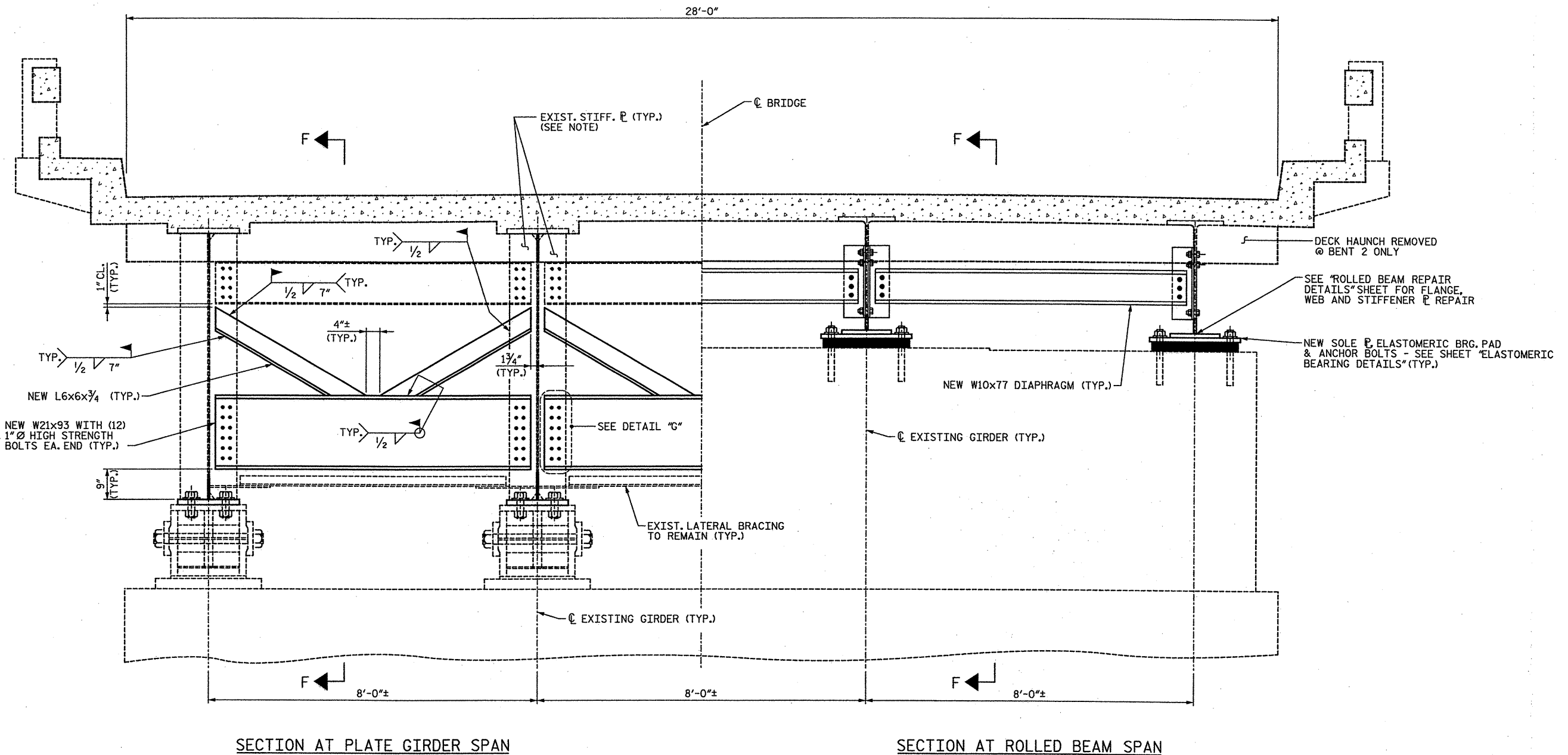


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 CHECKED BY : TJT      DATE : 7-11

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 NC LICENSE NO. F-0991

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-21
1			3			TOTAL SHEETS
2			4			S-29

I:\PROJ\DEV\Constr\Division\Contractor\WIP\PROJ\NC DOT 2011\BP-12B2 Catawba\Info\06 Proposed Repairs At Bents 2 & 7.dgn  
pkelly  
3/30/2012



SECTION AT PLATE GIRDER SPAN

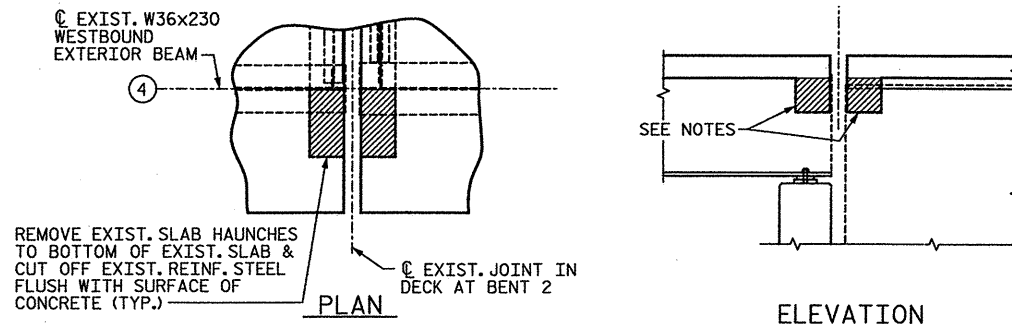
SECTION AT ROLLED BEAM SPAN

**NOTES:**

- SEE SHEET "PROPOSED GIRDER DETAILS AT BENTS 1, 2, 6 & 7" FOR ADDITIONAL NOTES.
- DIAPHRAGM MODIFICATIONS SHALL BE COMPLETED ONE BAY AT A TIME.
- THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO ENSURE THE BEARING STIFFENERS AND DIAPHRAGM MEMBERS ARE NOT DAMAGED WHEN REMOVING THE EXISTING DIAGONAL BRACING MEMBERS.
- CLEAN ALL LOOSE PAINT AND RUST FROM EXISTING STIFFENER PLATES WHERE NEW DIAPHRAGMS ARE TO BE PLACED. HOLES SHALL BE DRILLED INTO EXISTING STIFFENER PLATES AS SHOWN IN THE DETAILS.
- PLUG WELD AND GRIND SMOOTH ALL OPEN HOLES THAT WILL NOT BE REUSED IN EXISTING STIFFENER PLATES WHERE BOLTS HAVE BEEN REMOVED.
- SEE SHEET "DIAPHRAGM DETAILS AT BENTS 2 & 7" FOR DETAILS & SECTIONS.

**SECTION AT PROPOSED END DIAPHRAGMS**

(EXISTING STEEL STIFFENER PS AND DIAPHRAGM BEAMS NOT SHOWN FOR CLARITY)

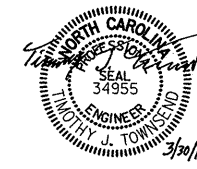


DECK HAUNCH REMOVAL / WEB REPAIR DETAILS

REMOVE EXIST. SLAB EDGE HAUNCHES TO BOTTOM OF EXIST. SLAB & CUT OFF EXIST. REINF. STEEL FLUSH WITH BOTTOM SLAB.

WELD NEW 12"x12"x3/8" P ONTO EXIST. BEAM WEB AS DIRECTED BY THE ENGINEER.

COAT EXPOSED REINFORCEMENT WITH AN EPOXY BASED CORROSION INHIBITER.



PROJECT NO. 12B.101812  
CATAWBA COUNTY

BRIDGE NO.: 138

REHABILITATION OF BRIDGE NO. 138

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

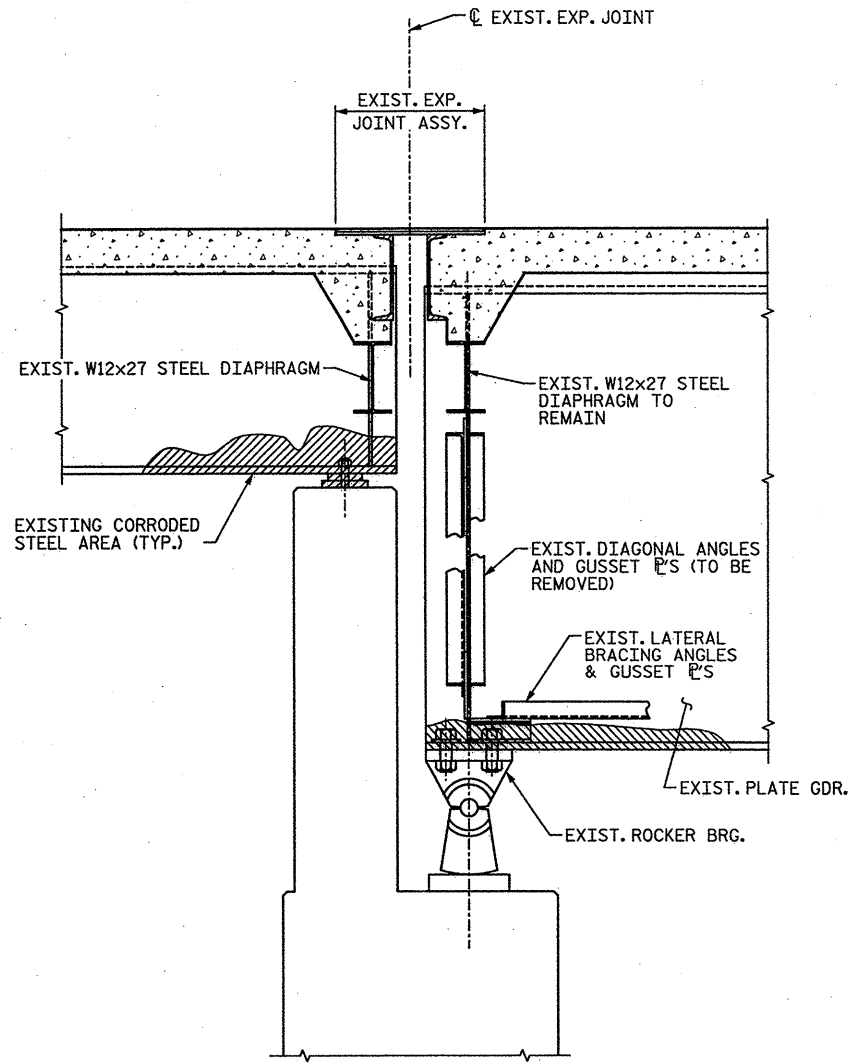
**PROPOSED REPAIRS  
AT BENTS 2 & 7**

DRAWN BY : PWP/TRL DATE : 7-11  
CHECKED BY : TJT DATE : 7-11

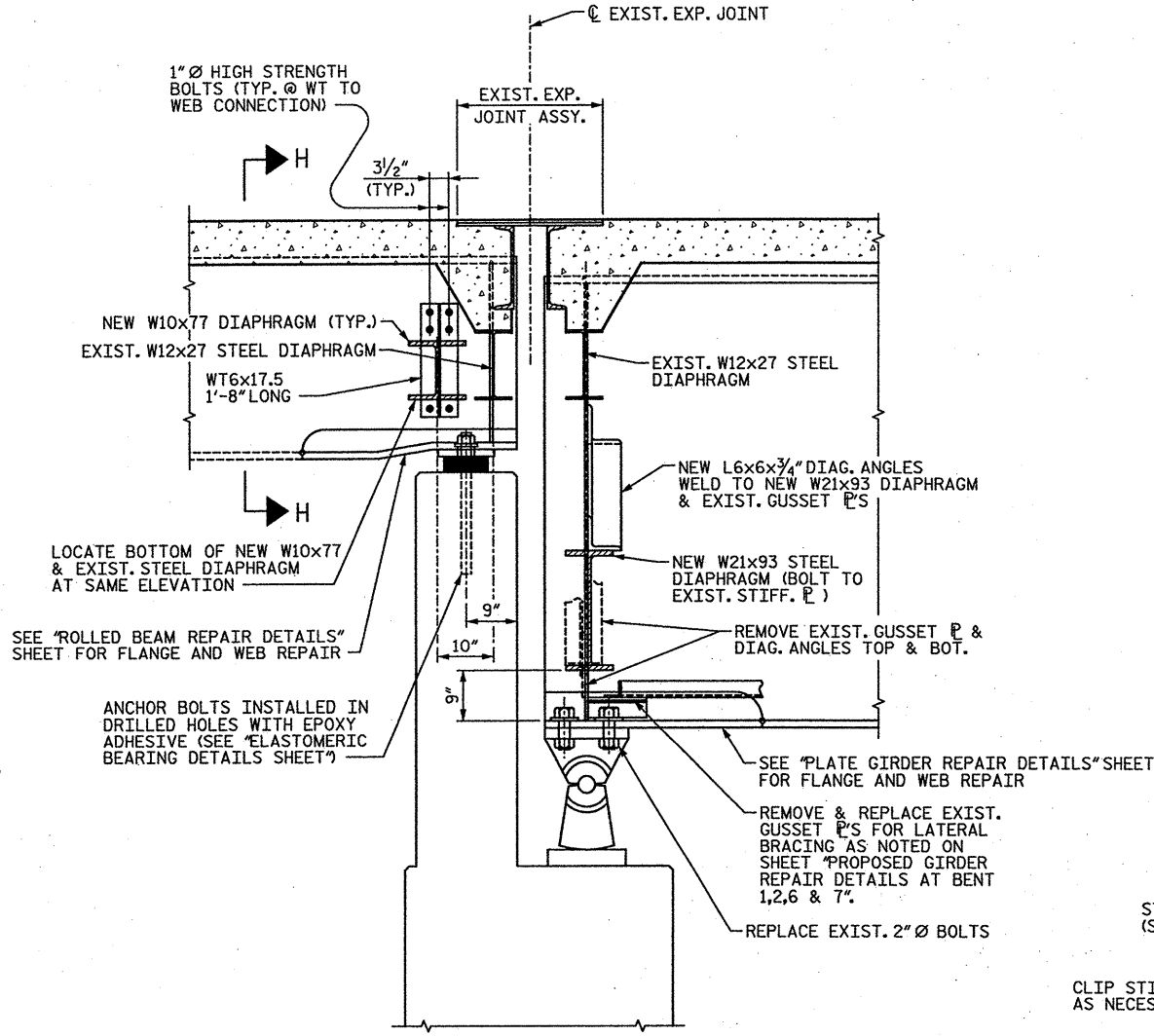
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1000 West Morehead St., Ste. 200  
Charlotte, NC 28208  
NC LICENSE NO. F-0991

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-22
1			3			TOTAL SHEETS
2			4			S-29

I:\PROJDEV\Const\Division\Contractors\WDRPROC\WDRDOT\_2011\BP-12B2\_Catawba\Ust07 Diaphragm Details of Bent 2 & 7.dgn



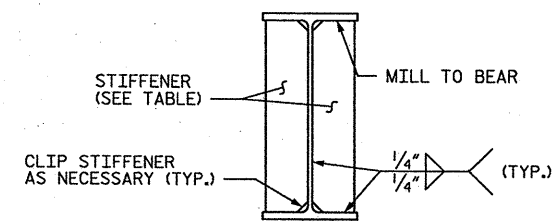
**SECTION E-E**  
(EXISTING CONDITION)



**SECTION F-F**  
(PROPOSED)

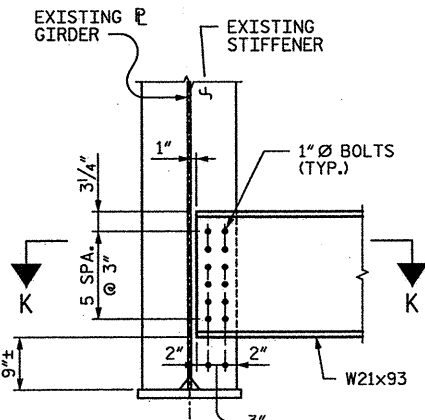
**NOTES:**

1. SEE SHEET "PROPOSED GIRDER REPAIR DETAILS AT BENTS 1, 2, 6 & 7" FOR ADDITIONAL NOTES.
2. SEE SHEET "REPAIRS AT BENT 2 & 7" FOR LOCATION OF SECTIONS AND DETAILS

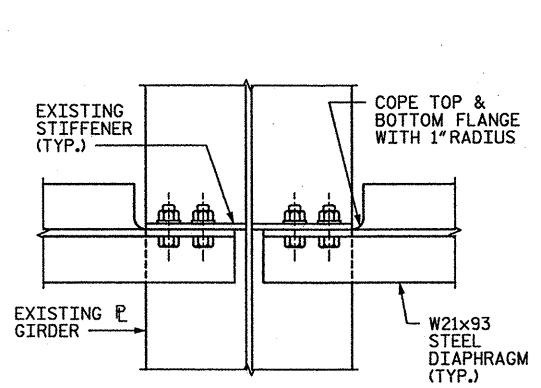


**STIFFENER DETAIL**

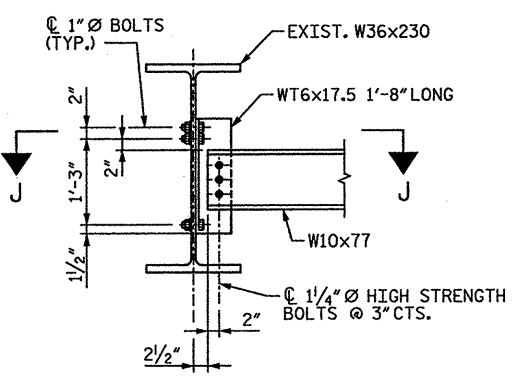
STIFFENER SIZES	
SECTION	STIFFENER
W21x93	5/8"x3 1/2"
W10x77	1"x4 1/2"
W12x27	1/2"x3"



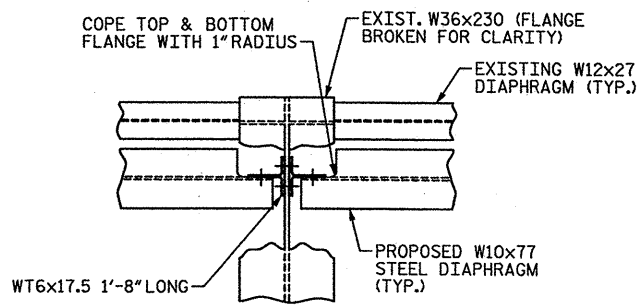
**DETAIL "G"**  
(BEARING NOT SHOWN FOR CLARITY)



**SECTION K-K**



**SECTION H-H**  
(EXISTING DIAPHRAGM AND DECK NOT SHOWN FOR CLARITY)

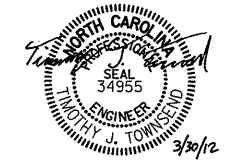


**SECTION J-J**

PROJECT NO. 12B.101812  
CATAWBA COUNTY  
 BRIDGE NO.: 138  
 REHABILITATION OF BRIDGE NO.138

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**DIAPHRAGM DETAILS AT BENT 2 & 7**

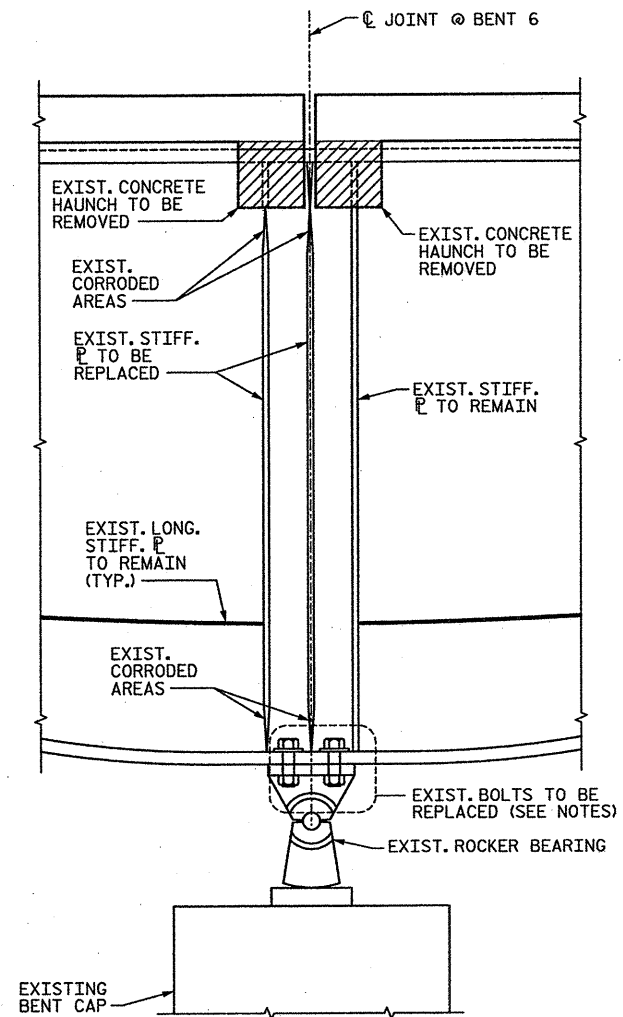


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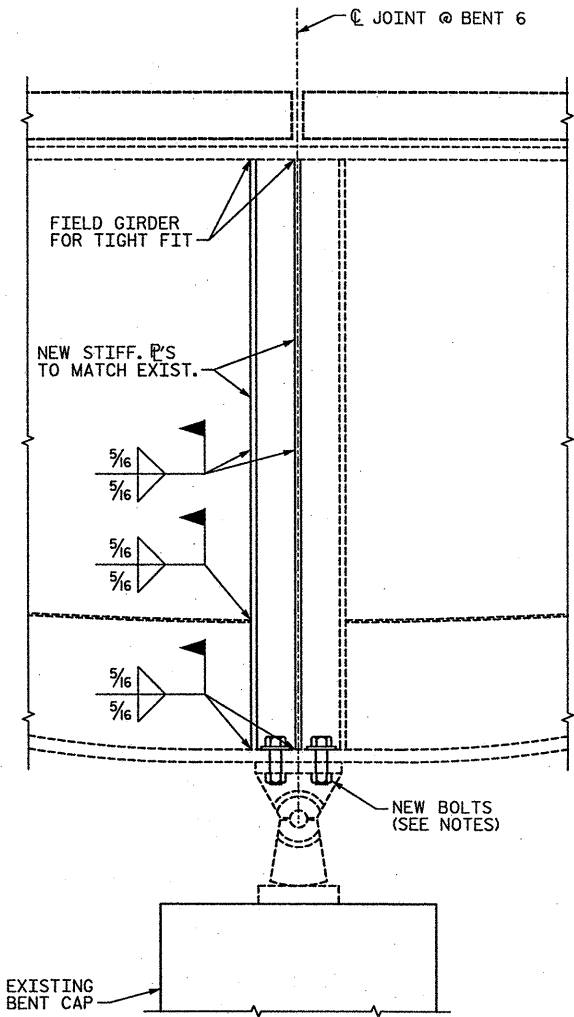
STV/Ralph Whitehead Associates, Inc.  
 1000 West Morehead St., Ste. 200  
 Charlotte, NC 28208  
 NC LICENSE NO. F-0891

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			S-29

I:\PROJ\DEV\Constr\Division\Contractors\WORLDPROC\NCDDOT 2011\BP-12B2 CATAWBA\12B2\08 Repair Details of Bent 6.dgn



EXISTING CONDITION



REPAIR DETAIL

STIFFENER PLATE REPAIR DETAILS AT BENT 6 GIRDER 4

REMOVE EXIST. SLAB EDGE HAUNCHES TO BOTTOM OF EXIST. SLAB & CUT OFF EXIST. REINF. STEEL.  
 COAT EXPOSED REINFORCEMENT WITH AN EPOXY BASED CORROSION INHIBITER.  
 CONTRACTOR SHALL EXERCISE CARE DURING REMOVAL OF EXIST. STIFF. PLATES AND HAUNCHES SO AS TO NOT DAMAGE EXIST. PLATE GIRDER WEB, FLANGES AND LONGIUDINAL STIFF. PLATE.

**NOTES:**

1. SEE SHEETS "SUPERSTRUCTURE REPAIR DETAILS FOR BRIDGE ON NC HWY 150 OVER LAKE NORMAN" AND "PROPOSED GIRDER REPAIR DETAILS AT BENTS 1, 2, 6 & 7" FOR ADDITIONAL NOTES.
2. BOLTS TO BE REPLACED SHALL BE SIZED TO MATCH EXISTING BOLTS BEING REPLACED.
3. NO BRIDGE JACKING SHALL BE PERFORMED FOR THESE REPAIRS.

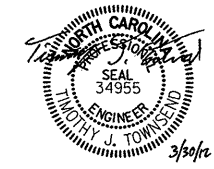
PROJECT NO. 12B.101812  
CATAWBA COUNTY

BRIDGE NO.: 138

REHABILITATION OF BRIDGE NO. 138

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

REPAIR  
 DETAILS AT  
 BENT 6

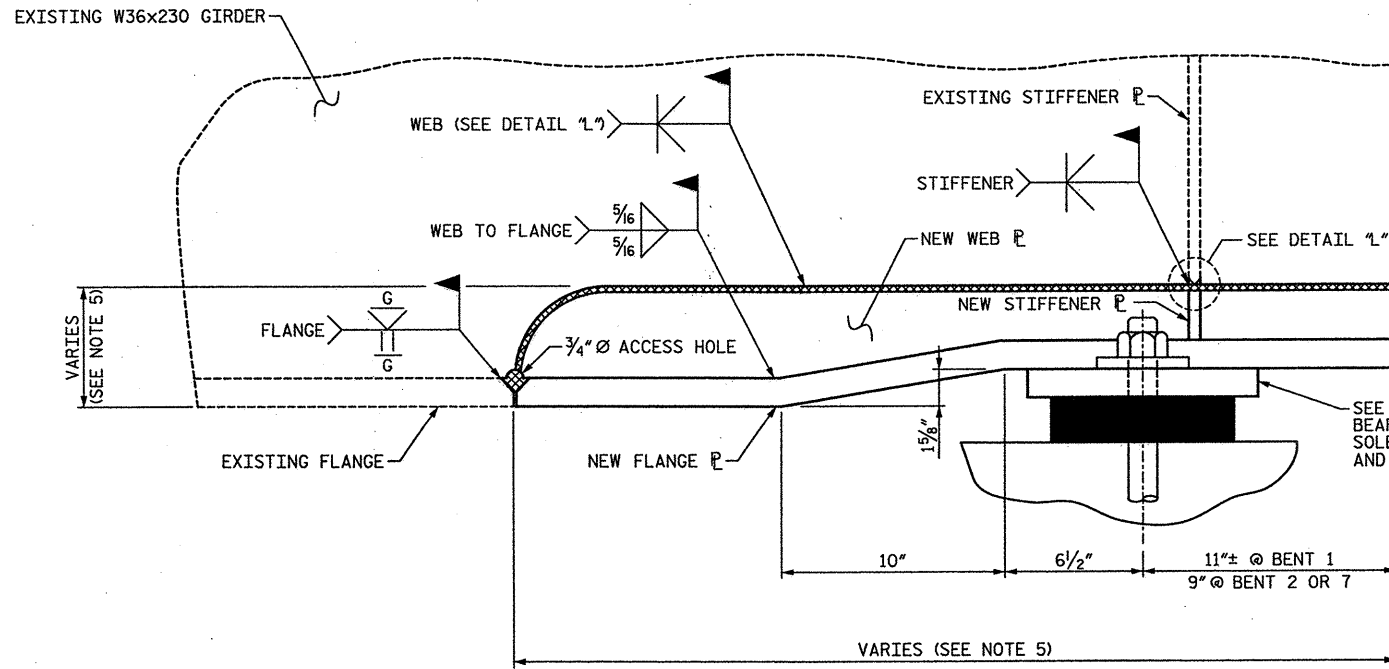


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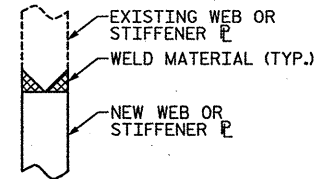
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2			4			S-29

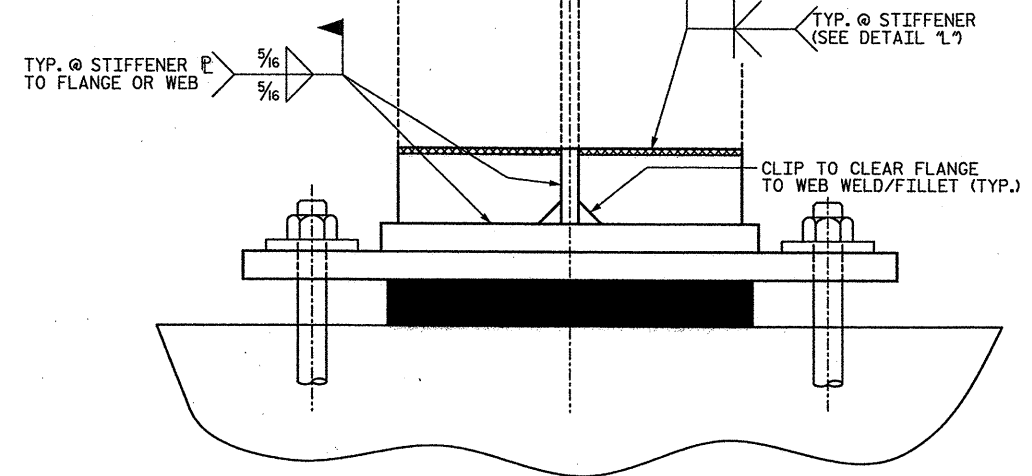
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**SIDE VIEW**  
(SHOWN AT INTERIOR GIRDERS  
SIMILAR @ EXTERIOR GIRDERS)



**DETAIL "1"**



**END VIEW**  
(SHOWN AT INTERIOR GIRDERS  
SIMILAR @ EXTERIOR GIRDERS)

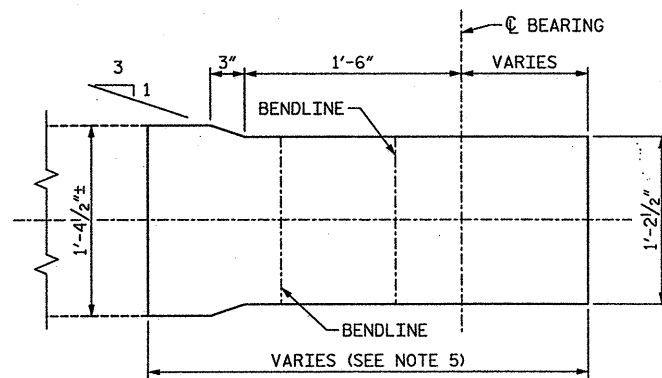
**TYPICAL ROLLED BEAM REPAIR WELD DETAILS**

**NOTES:**

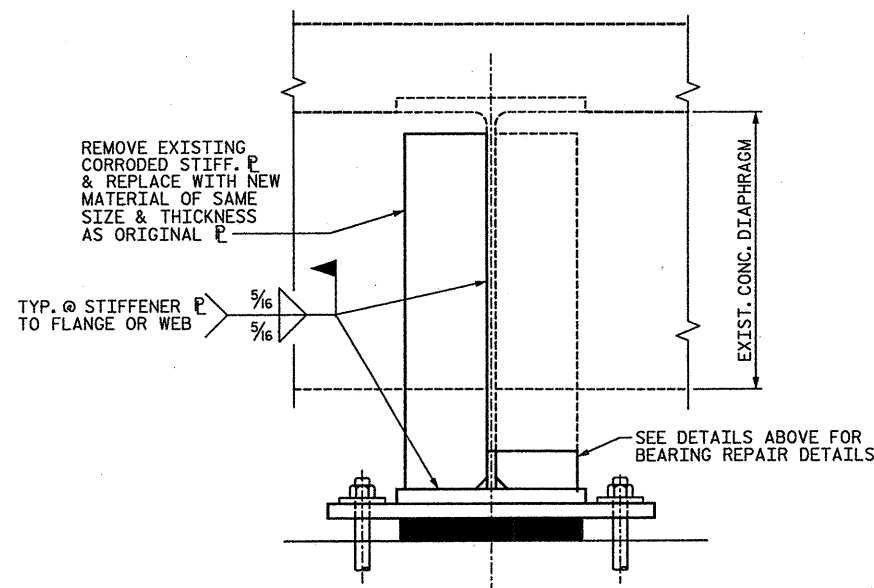
1. REPLACEMENT STEEL SHALL BE NEW AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL AND PAINTED IN ACCORDANCE WITH SYSYEM 1 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS.
2. THE ENGINEER SHALL VERIFY/DETERMINE THE EXTENT OF GIRDER REPAIR.
3. REPLACEMENT PLATES SHALL BE MANUFACTURED USING MATERIAL OF CORRESPONDING THICKNESS AND WIDTH TO MATERIAL BEING REPLACED.
4. FOR ADDITIONAL NOTES SEE SHEET "PROPOSED GIRDER REPAIR DETAILS AT BENTS 1, 2, 6 & 7".
5. SEE SHEET "PROPOSED GIRDER REPAIR DETAILS AT BENTS 1, 2, 6 & 7" FOR EXTENT OF REPAIR.

**REPAIR SEQUENCE:**

1. AREA AROUND GIRDER DAMAGE SHALL BE SAND BLASTED SUCH THAT NO CORROSION OR LOOSE PAINT IS REMAINING.
2. DAMAGED AREA SHALL BE REMOVED AND REMAINING SURFACES SHALL BE PREPARED FOR WELDING.
3. REPLACEMENT PLATES SHALL BE WELDED TO GIRDER AS SHOWN.
4. GIRDER ENDS, AND ANY DAMAGED AREAS SHALL BE PAINTED PER NOTE 1 ABOVE.



**BOTTOM FLANGE TAPER DETAIL**



**STIFFENER REPAIR DETAIL**

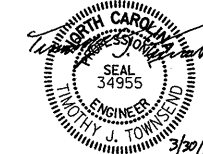
PROJECT NO. **12B.101812**  
**CATAWBA** COUNTY

BRIDGE NO.: **138**

REHABILITATION OF BRIDGE NO. 138

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**ROLLED BEAM  
REPAIR  
DETAILS**

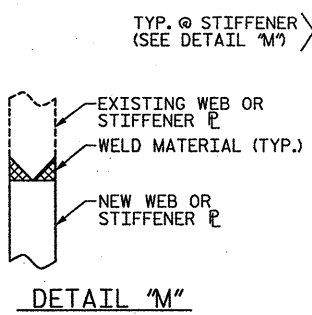
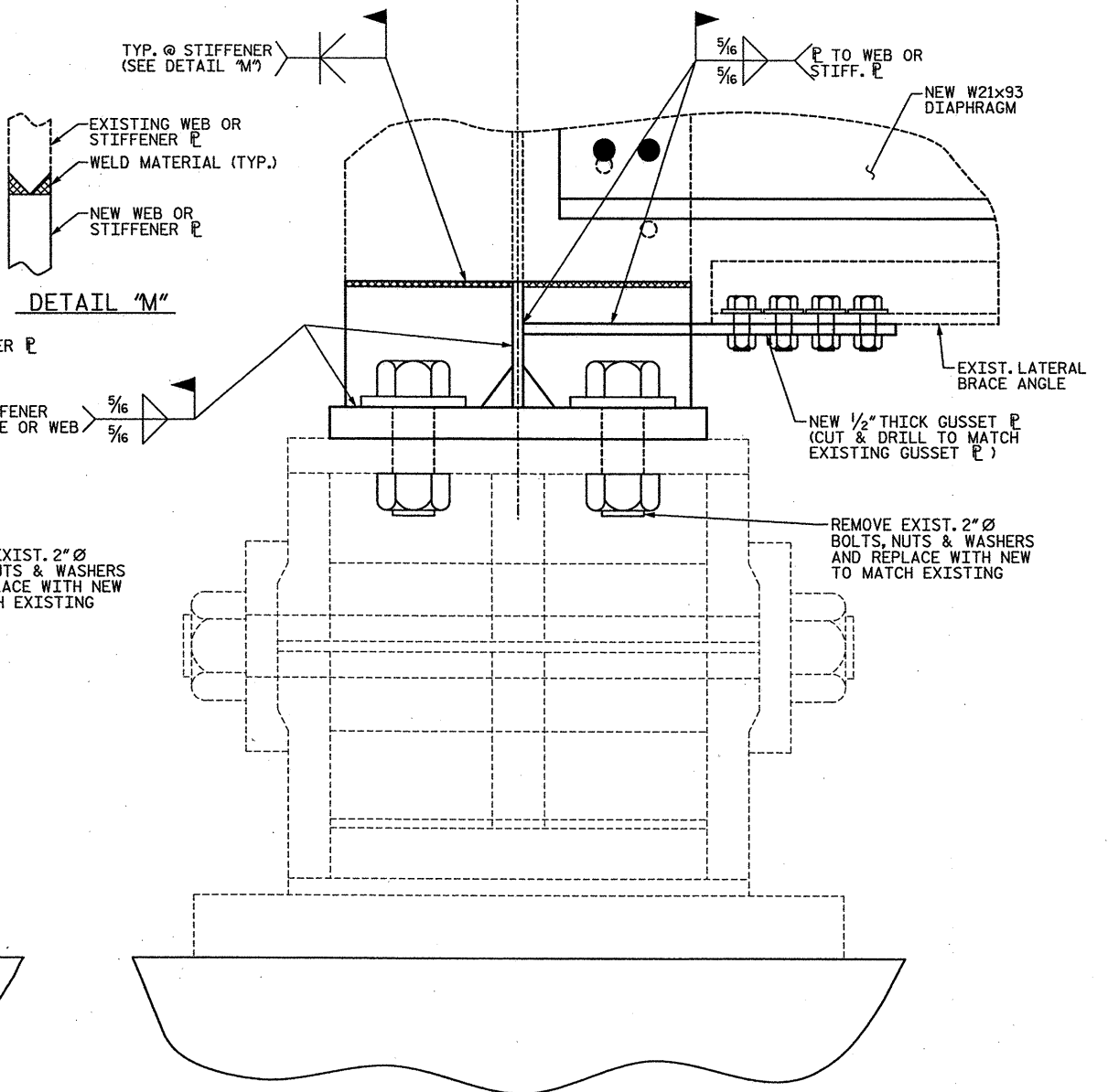
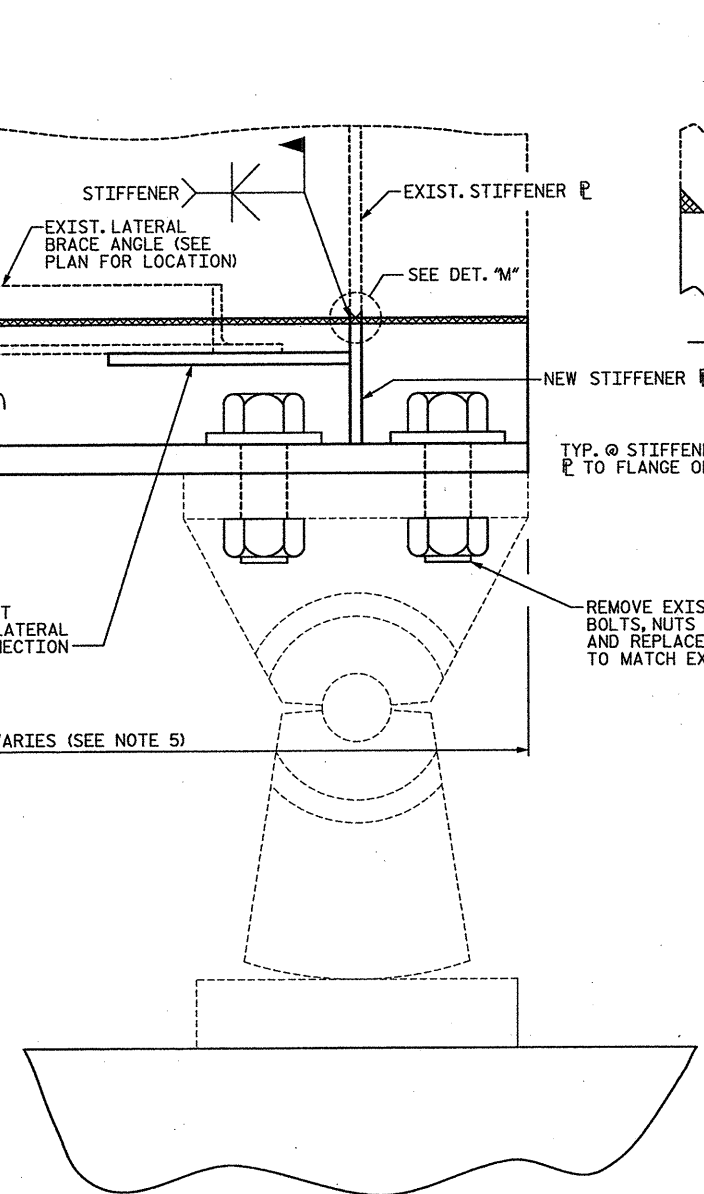
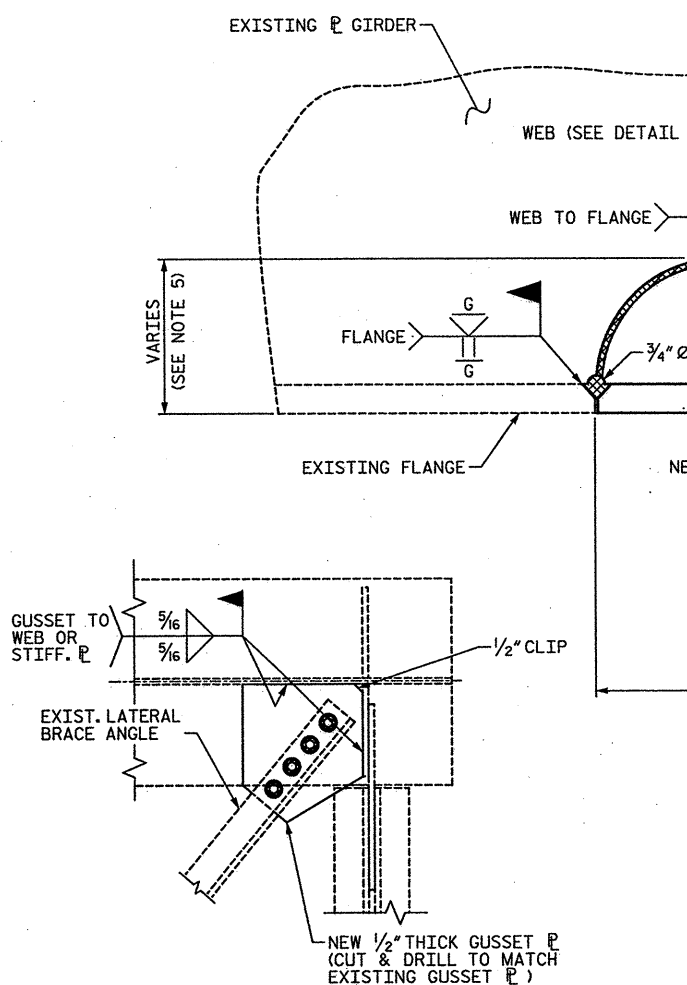


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Charlotte, NC 28208  
NC LICENSE NO. F-0991

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-25	
1			3			TOTAL SHEETS	S-29
2			4				

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pkelly  
3/30/2012



**GUSSET PLATE REPLACEMENT DETAIL**

SIDE VIEW

END VIEW

TYPICAL PLATE GIRDER REPAIR WELD DETAILS

**NOTES:**

1. REPLACEMENT STEEL SHALL BE NEW AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL AND PAINTED IN ACCORDANCE WITH SYSYEM 1 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS.
2. THE ENGINEER SHALL VERIFY/DETERMINE THE EXTENT OF GIRDER REPAIR.
3. REPLACEMENT PLATES SHALL BE MANUFACTURED USING MATERIAL OF CORRESPONDING THICKNESS AND WIDTH TO MATERIAL BEING REPLACED.
4. FOR ADDITIONAL NOTES SEE SHEET "PROPOSED GIRDER REPAIR DETAILS AT BENTS 1, 2, 6, & 7".
5. SEE SHEET "PROPOSED GIRDER REPAIRS AT BENTS 1, 2, 6 & 7" FOR EXTENT OF REPAIR.

**REPAIR SEQUENCE:**

1. AREA AROUND GIRDER DAMAGE SHALL BE SAND BLASTED SUCH THAT NO CORROSION OR LOOSE PAINT IS REMAINING.
2. DAMAGED AREA SHALL BE REMOVED AND REMAINING SURFACES SHALL BE PREPARED FOR WELDING.
3. REPLACEMENT PLATES SHALL BE WELDED TO GIRDER AS SHOWN.
4. GIRDER ENDS, AND ANY DAMAGED AREAS SHALL BE PAINTED PER NOTE 1 ABOVE.

PROJECT NO. 12B.101812

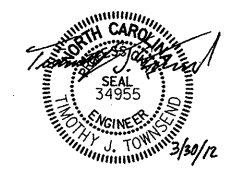
CATAWBA COUNTY

BRIDGE NO.: 138

REHABILITATION OF BRIDGE NO. 138

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**PLATE GIRDER  
REPAIR  
DETAILS**



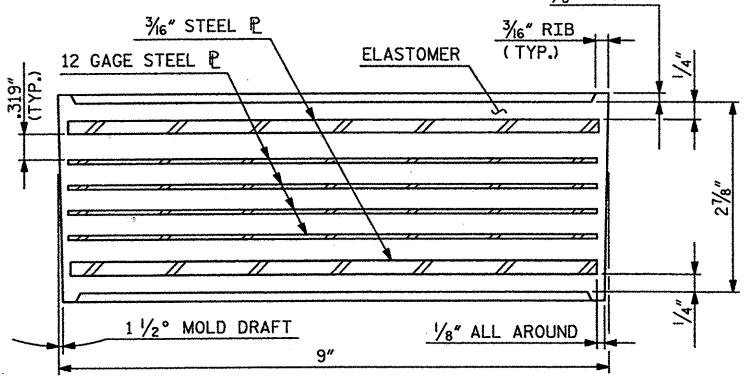
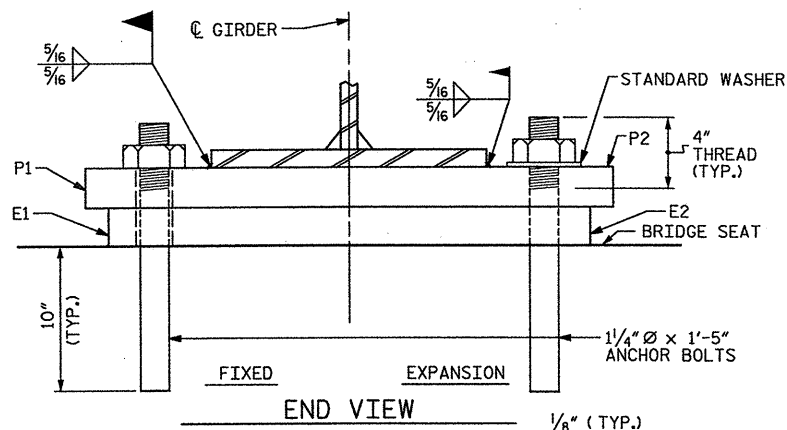
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Charlotte, NC 28208  
NC LICENSE NO. F-0991

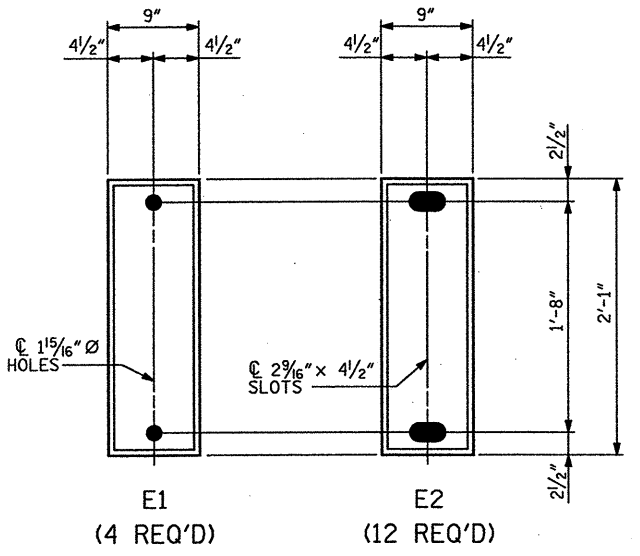
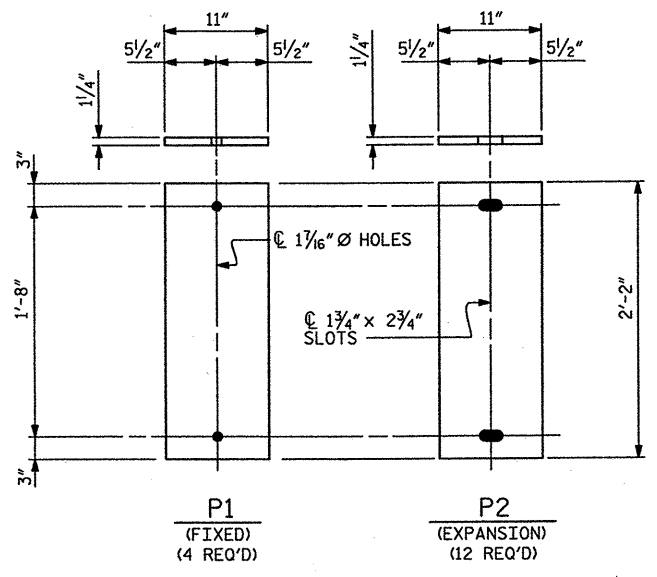
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1			3			TOTAL SHEETS
2			4			S-29



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pkelly  
3/30/2012



TYPICAL SECTION OF ELASTOMERIC BEARINGS



PLAN VIEW OF ELASTOMERIC BEARING  
TYPE III

NOTES

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.

FOR PAINTED STRUCTURAL STEEL (EXCLUDING AASHTO M270 GRADE 50W), 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.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1/4\"/>

-LOAD RATINGS-	
TYPE III	144 K

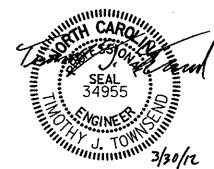
PROJECT NO. 12B.101812  
CATAWBA COUNTY

BRIDGE NO.: 138

REHABILITATION OF BRIDGE NO. 138

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

ELEASTOMERIC  
BEARING  
DETAILS

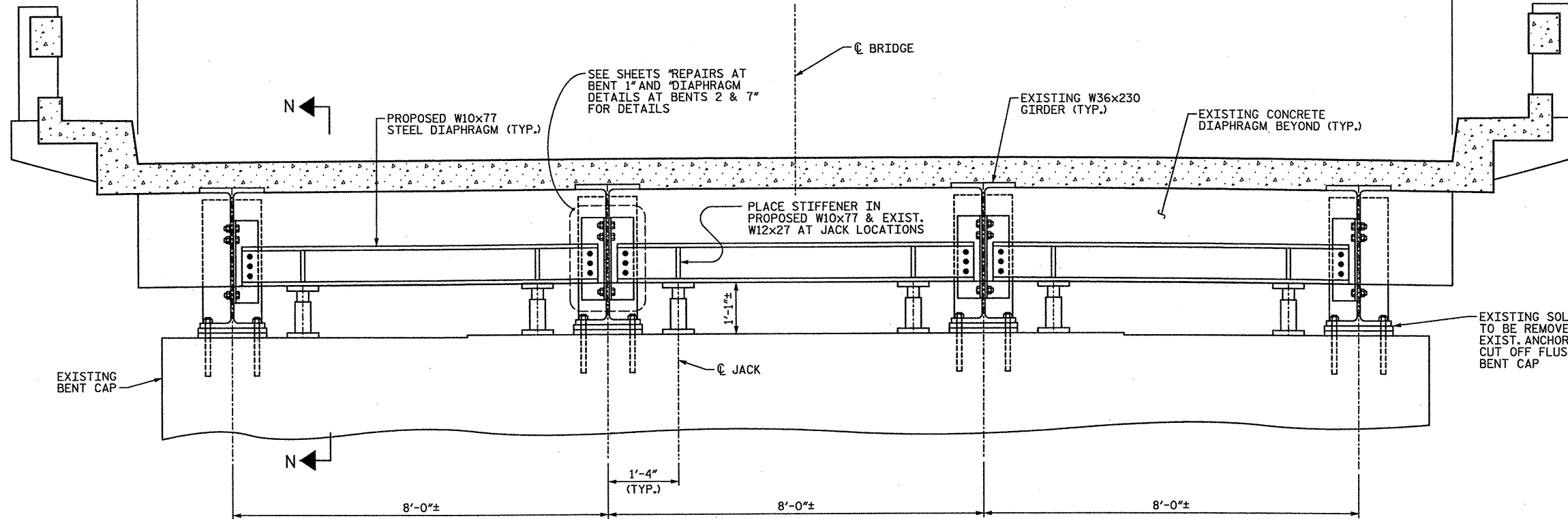


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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			S-29

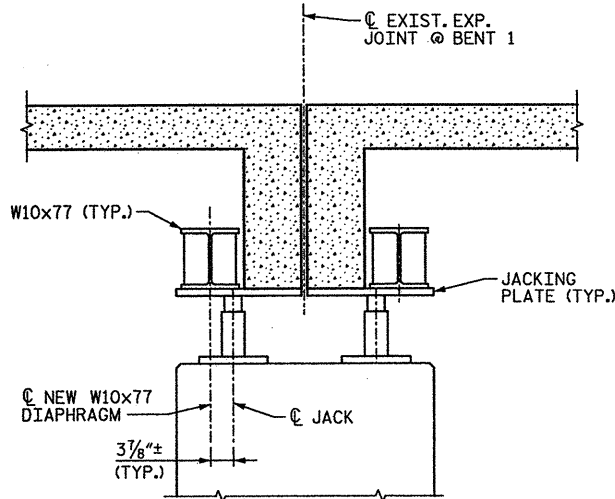
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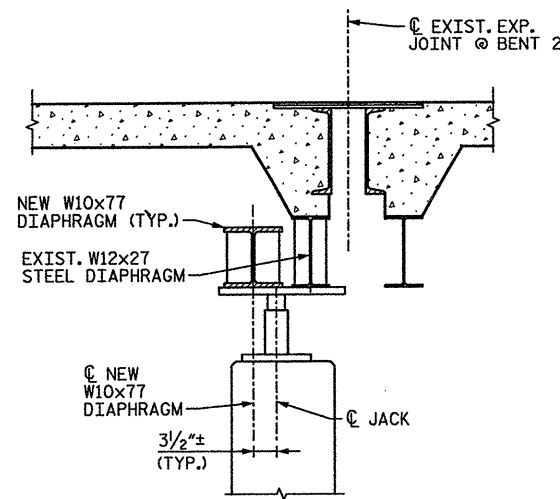
**NOTES:**

1. SEE SHEET "PROPOSED GIRDER REPAIR DETAILS AT BENTS 1, 2, 6, & 7" FOR ADDITIONAL NOTES.

**SECTION SHOWING JACKING OF BEAMS AT BENT 1**  
(BENT 2 SPAN B AND BENT 7 SPAN H SIMILAR)



**SECTION N-N AT BENT 1**



**SECTION N-N AT BENT 2**  
(SECTION AT BENT 7 SIMILAR)

**JACKING NOTES:**

DRILL HOLES INTO EXISTING BENT CAPS AND INSTALL NEW ANCHOR BOLTS FOR ROLLED BEAMS AT BENTS 1, 2 & 7 BEFORE OTHER REPAIR WORK BEGINS.

PRIOR TO JACKING, ALL DIAPHRAGM MODIFICATIONS, DIAPHRAGM REPLACEMENTS, AND STIFFENER REPAIRS SHALL BE COMPLETED. SEE SHEETS TITLED "REPAIRS AT BENT 1", "PROPOSED REPAIRS AT BENTS 2 & 7" AND "DIAPHRAGM DETAILS AT BENT 2 & 7" FOR DETAILS.

JACKING SHALL BE PERFORMED AT BENTS 1, 2 AND 7.

BLOCKING FOR JACKS AT ALL SPANS SHALL CONSIST OF STEEL PLATES AND STRUCTURAL SHAPES. TIMBER BLOCKING SHALL NOT BE PERMITTED. THE CONTRACTOR SHALL SUBMIT A BLOCKING PLAN, FOR ALL SPANS LIFTED, TO THE ENGINEER FOR APPROVAL.

EACH JACK SHALL HAVE A MINIMUM SAFE WORKING CAPACITY OF 60 TONS FOR SPANS A, B AND H.

JACKS THAT REMAIN IN PLACE DURING THE ENTIRE JACKING AND REPAIR OPERATION SHALL HAVE MECHANICAL LOCK OFF CAPABILITIES.

THE CONTRACTOR SHALL JACK ALL GIRDERS ON AN INDIVIDUAL BENT SIMULTANEOUSLY BY MEANS OF A DUAL-FLOW PRESSURIZED PUMP CONTROLLING THE JACKS.

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 ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY. THE MONITORING SYSTEM SHALL BE APPROVED BY THE ENGINEER.

JACKING WILL BE CONDUCTED DURING PERIODS OF LOW TRAFFIC FLOW AT THE DISCRETION OF THE ENGINEER.

PROJECT NO. **12B.101812**

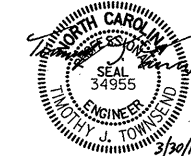
**CATAWBA** COUNTY

BRIDGE NO.: **138**

REHABILITATION OF BRIDGE NO. 138

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**JACKING DETAILS  
FOR ROLLED BEAM SPANS**



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28	
1			3			TOTAL SHEETS S-29	
2			4				

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NC LICENSE NO. F-0591

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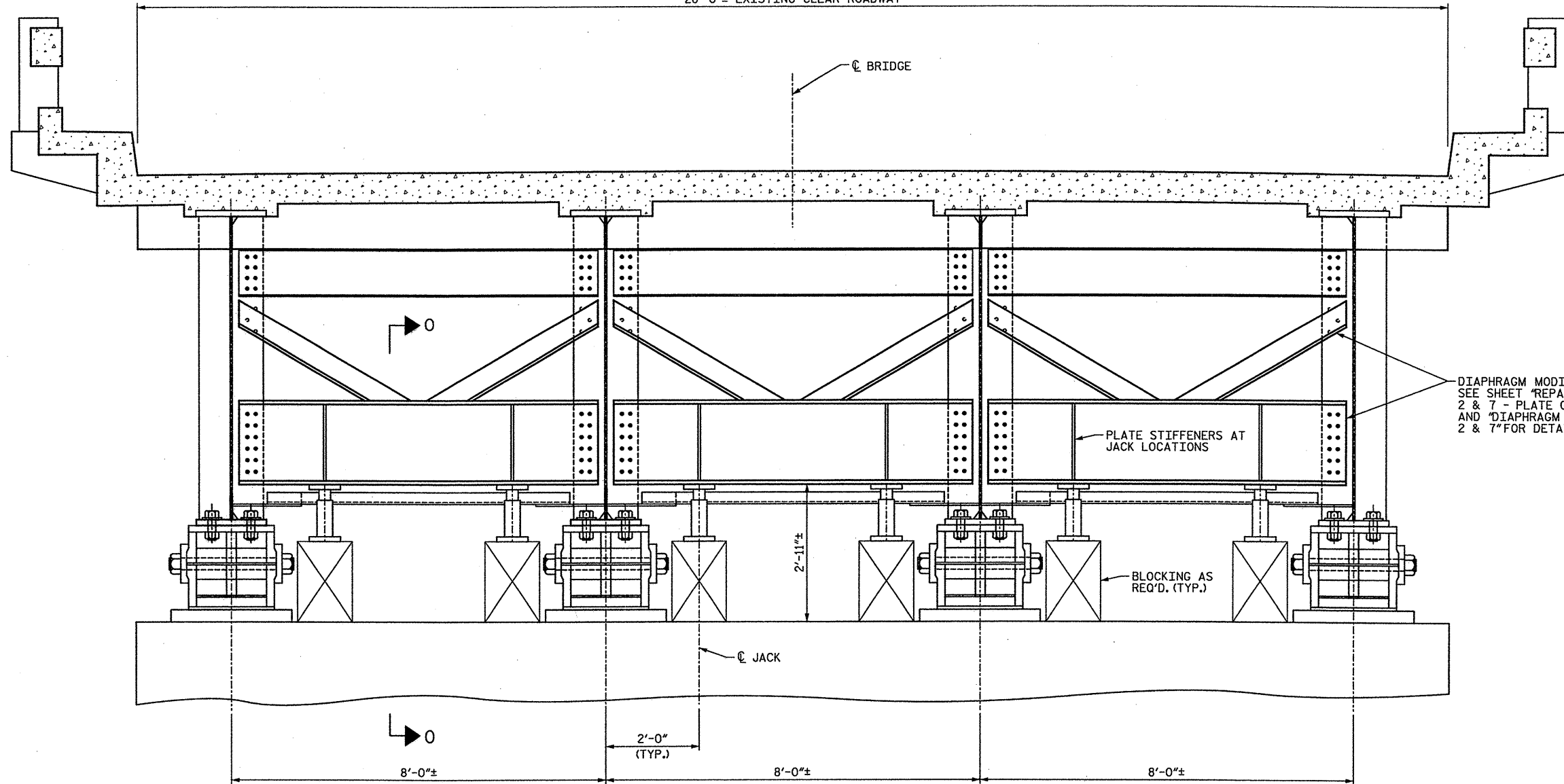
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3/30/2012

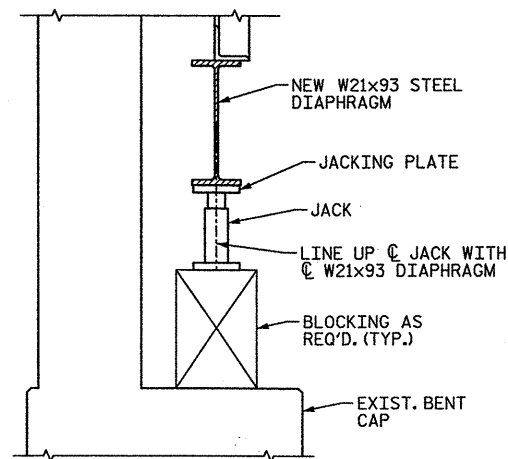
28'-0"± EXISTING CLEAR ROADWAY

**NOTES:**

1. SEE SHEET "PROPOSED GIRDER REPAIR DETAILS AT BENTS 1, 2, 6, & 7" FOR ADDITIONAL NOTES.



**SECTION SHOWING JACKING AT BENT 2 SPAN C AND BENT 7 SPAN G**



**SECTION 0-0**

**JACKING NOTES:**

PRIOR TO JACKING, ANY DIAPHRAGM/STIFFENER REPAIR/REPLACEMENTS SHALL BE PERFORMED.

JACKING SHALL BE PERFORMED AT BENTS 2 AND 7.

BLOCKING FOR JACKS AT ALL SPANS SHALL CONSIST OF STEEL PLATES AND STRUCTURAL SHAPES. TIMBER BLOCKING SHALL NOT BE PERMITTED. THE CONTRACTOR SHALL SUBMIT A BLOCKING PLAN, FOR ALL SPANS LIFTED, TO THE ENGINEER FOR APPROVAL.

EACH JACK SHALL HAVE A MINIMUM SAFE WORKING CAPACITY OF 150 TONS FOR SPANS C AND G.

JACKS THAT REMAIN IN PLACE DURING THE ENTIRE JACKING AND REPAIR OPERATION SHALL HAVE MECHANICAL LOCK OFF CAPABILITIES.

THE CONTRACTOR SHALL JACK ALL GIRDERS ON AN INDIVIDUAL BENT SIMULTANEOUSLY BY MEANS OF A DUAL-FLOW PRESSURIZED PUMP CONTROLLING THE JACKS.

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 ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY. THE MONITORING SYSTEM SHALL BE APPROVED BY THE ENGINEER.

JACKING WILL BE CONDUCTED DURING PERIODS OF LOW TRAFFIC FLOW AT THE DISCRETION OF THE ENGINEER.

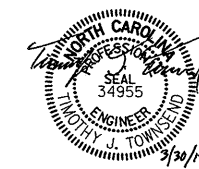
PROJECT NO. 12B.101812  
CATAWBA COUNTY

BRIDGE NO.: 138

REHABILITATION OF BRIDGE NO. 138

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**JACKING DETAILS  
 FOR PLATE GIRDER SPANS**



STV / Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC LICENSE NO. F-0891		REVISIONS NO. BY DATE NO. BY DATE 1 3 2 4			SHEET NO. S-29 TOTAL SHEETS S-29
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 3/30/2012  
 pkelly

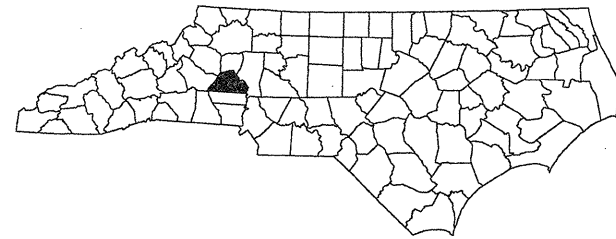
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 CHECKED BY : TJT DATE : 7-11

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**CATAWBA COUNTY**

**DIVISION 12**



**BRIDGE PRESERVATION**

**BRIDGE #138 – NC 150 OVER LAKE NORMAN**

**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LEGEND AND LIST OF ROADWAY STANDARD DRAWINGS
TMP-2	GENERAL NOTES & PHASING
TMP-3	DETAIL OF FLAGGING OPERATION

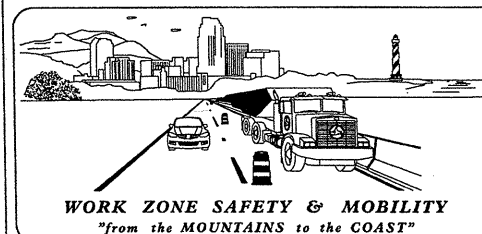
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TMP-1

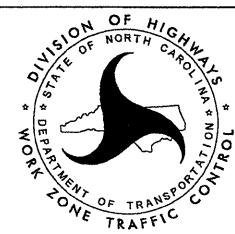
**WBS 17BP.12.P.2 AND 12B.101812**

**TRAFFIC MANAGEMENT STRATEGY**

PROPOSED REPAIRS TO BRIDGE #138 WILL BE PERFORMED USING TIME RESTRICTED LANE CLOSURES.



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 SR. TRANSPORTATION DESIGNER

APPROVED: *Betsy L. Watson*  
DATE: 3/30/12

SEAL







## LEGEND

-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  WORK AREA
-  PAVEMENT REMOVAL
-  NORTH ARROW
-  TYPE III BARRICADE
-  CONE
-  DRUM
-  SKINNY DRUM
-  TUBULAR MARKER
-  CHANGEABLE MESSAGE SIGN (CMS)
-  FLAGGER
-  FLASHING ARROW BOARD (TYPE C)
-  LAW ENFORCEMENT
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  PORTABLE CONCRETE BARRIER (PCB)
-  TEMPORARY CRASH CUSHION
-  TEMPORARY SHORING
-  WORK ZONE SIGN-PORTABLE
-  WORK ZONE SIGN-STATIONARY
-  WORK ZONE SIGN-STATIONARY OR PORTABLE




### 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)
-  PAVEMENT MARKING ALPHANUMERIC CHARACTERS

### PAVEMENT MARKERS

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

## ROADWAY STANDARD DRAWINGS

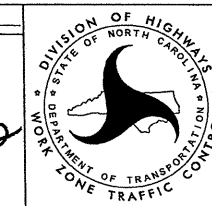
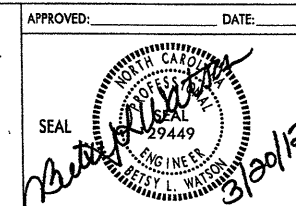
THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

<u>STD. NO.</u>	<u>TITLE</u>
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE

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LEGEND  
&  
ROADWAY STANDARD DRAWINGS

## GENERAL NOTES

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 UNDESIRED 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
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NC 150	6:00 A.M. - 7:00 P.M. MONDAY THRU SUNDAY (EVERYDAY)
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WITH THE EXCEPTION THAT FOUR (4) EXTENDED LANE CLOSURE PERIODS WILL BE ALLOWED BETWEEN THE HOURS OF 7 P.M. FRIDAY TO 6 A.M. MONDAY TO REPLACE THE BRIDGE FINGER JOINTS. DO NOT IMPLEMENT THE EXTENDED LANE CLOSURE PERIODS DURING THE HOLIDAY RESTRICTIONS IN NOTE B.

### HOLIDAY & HOLIDAY WEEKEND LANE CLOSURE TIME RESTRICTIONS

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

ROAD NAME
-----------

NC 150
--------

- 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) 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. COVER OR LAY DOWN SIGNS, AND TURN OFF ARROW BOARDS AND MESSAGE BOARDS.
- E) 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.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

### PAVEMENT MARKINGS AND MARKERS

- G) RECORD ALL LOCATIONS AND TYPES OF EXISTING PAVEMENT MARKINGS AS THEY WILL BE REPLACED IN THE SAME LOCATION ON THE NEW SURFACE.
- H) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- I) UPON COMPLETION OF ALL OTHER CONSTRUCTION OPERATIONS INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	PAVEMENT MARKER
NC 150	POLYUREA	SNOWPLOWABLE
- J) REPLACE ANY PAVEMENT MARKINGS ERADICATED OR DAMAGED BY CONSTRUCTION OPERATIONS BEFORE OPENING LANES TO TRAFFIC. A THIN LAYER OF PAINT MAY BE USED INITIALLY UNTIL FINAL MARKINGS ARE PLACED.

### MISCELLANEOUS

- K) ALL DIMENSIONS AND STATIONS IN THE TRAFFIC MANAGEMENT PLAN AND PHASING ARE APPROXIMATE (+/-); FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
- L) ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919) 733-4740 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.

## PHASING

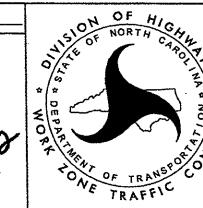
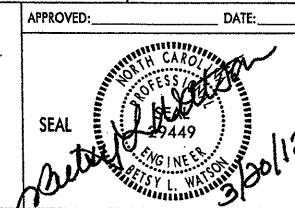
BRIDGE #138 - NC 150 OVER LAKE NORMAN

PERFORM ALL WORK ON BRIDGE #138 USING FLAGGER CONTROLLED TEMPORARY LANE CLOSURES AS SHOWN ON SHEET TMP-3.

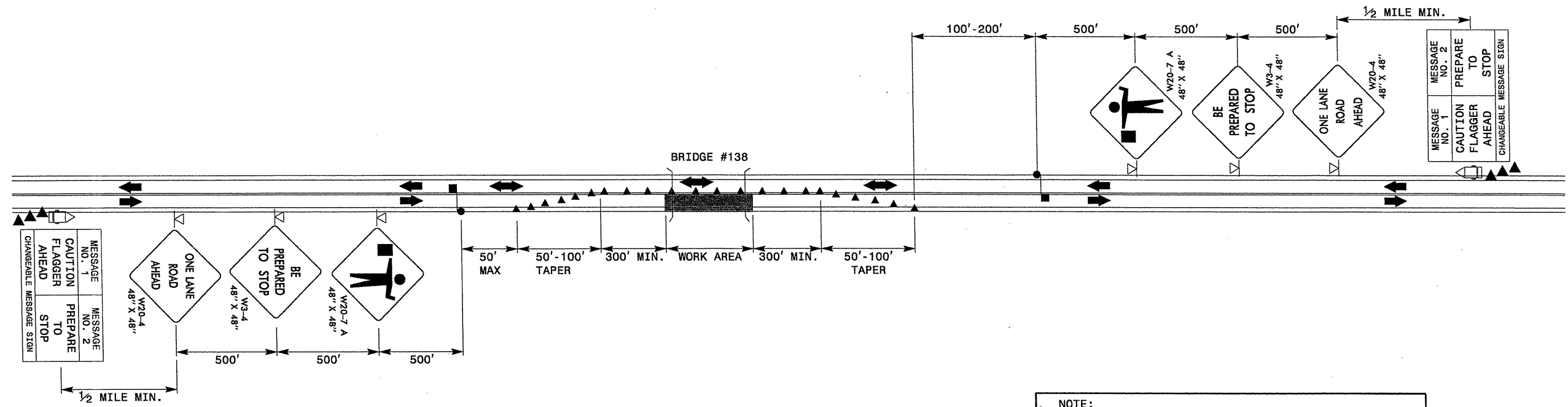
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GENERAL NOTES  
& PHASING



**NOTES:**

- 1) 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.
- 2) LOCATE FLAGGER STATIONS SUCH THAT APPROACHING TRAFFIC WILL HAVE SUFFICIENT DISTANCE TO STOP AT THE INTENDED STOPPING POINT. IF NEEDED, EXTEND THE LANE CLOSURE SUCH THAT THE FLAGGER STATION IS POSITIONED BEFORE A HORIZONTAL OR CREST VERTICAL CURVE WHERE ADEQUATE STOPPING SIGHT DISTANCE TO THE FLAGGER IS PROVIDED. REFER TO ROADWAY STANDARD DRAWING 1101.11 SHEET 2.
- 3) FLAGGERS SHALL NOT STAND IN A LANE USED BY MOVING TRAFFIC. FLAGGERS SHALL STAND ON THE SHOULDER, WITHIN A CLOSED LANE, OR IN A LANE ONLY ONCE TRAFFIC IS STOPPED.
- 4) DO NOT LOCATE FLAGGER STATIONS ON THE BRIDGE. EXTEND THE LANE CLOSURE AS NEEDED SUCH THAT THE FLAGGER STATIONS ARE LOCATED OFF THE BRIDGE.
- 5) DO NOT STOP TRAFFIC FOR MORE THAN 5 MINUTES AT A TIME.
- 6) USE FLAGGERS TO CONTROL VEHICLES AT INTERSECTIONS OR RAILROAD GRADE CROSSINGS AFFECTED BY THE LANE CLOSURE. USE FLAGGER SIGN W20-7A IN ADVANCE OF ALL FLAGGER STATIONS. WHEN AN INTERSECTION IS SIGNALIZED HAVE AUTHORIZED PERSONNEL PLACE THE SIGNAL IN FLASH MODE WHEN DIRECTED BY THE ENGINEER.
- 7) PROVIDE ILLUMINATION FOR FLAGGER STATIONS DURING NIGHT HOURS. ILLUMINATION FOR FLAGGER STATIONS WILL NOT BE PAID FOR SEPARATELY AND WILL BE CONSIDERED INCIDENTAL TO OTHER ITEMS IN THE CONTRACT.
- 8) PLACE CHANNELIZING DEVICES FOR FLAGGER OPERATION LANE CLOSURES AT A MAXIMUM SPACING OF 20 FEET IN TAPERS AND AT A MAXIMUM SPACING OF 80 FEET ALONG THE BUFFER SPACE AND WORK AREA.
- 9) DRUMS OR SKINNY DRUMS MAY BE USED INSTEAD OF CONES AT NO ADDITIONAL COST.
- 10) USE PILOT VEHICLES IN CONJUNCTION WITH FLAGGERS WHEN SHOWN IN THE PLAN OR WHEN DIRECTED BY THE ENGINEER. MOUNT SIGN G20-4 "PILOT CAR FOLLOW ME" AT A VISIBLE LOCATION ON THE REAR OF PILOT VEHICLES.
- 11) ADVISE RESIDENTS AND BUSINESSES AFFECTED BY THE LANE CLOSURE ABOUT METHODS OF SAFE INGRESS AND EGRESS FROM DRIVEWAYS DURING FLAGGING AND PILOT CAR OPERATIONS.
- 12) CHANGEABLE MESSAGE SIGN MESSAGES SHOWN ARE EXAMPLES. OTHER MESSAGES MAY BE USED AS CONDITIONS WARRANT. ALL MESSAGES AND LOCATIONS MUST BE APPROVED BY THE ENGINEER PRIOR TO INCORPORATING. ADDITIONAL MESSAGES MAY BE REQUIRED SUCH AS FOR PUBLIC INFORMATION OR DURING SPECIAL EVENTS.

**NOTE:**

DURING PERIODS WHEN LANE CLOSURES ARE NOT IN EFFECT, THE CHANGEABLE MESSAGE SIGNS MAY BE USED TO INFORM THE PUBLIC OF UPCOMING TRAFFIC CONDITIONS. SOME EXAMPLE MESSAGES ARE SHOWN BELOW. ALL PUBLIC INFO USE, LOCATIONS AND MESSAGES ARE TO BE APPROVED BY THE ENGINEER.

MESSAGE NO. 1	MESSAGE NO. 2
LANE CLOSURES TUESDAY	PLAN FOR DELAYS
CHANGEABLE MESSAGE SIGN	

3/19/2012 10:49:11 AM U:\TrafficControl\TCP\WBS 17BP.12.P.2 Catowba 138 Preservation\TCP\Plan Sheets\17BP.12.P.2.TC.TMP.03\_FLAGGING.dgn

<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0572</p>	<p>APPROVED: _____ DATE: _____</p> <p>SEAL</p>	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL</p>	<p>CATAWBA BRIDGE #138</p> <p>FLAGGER CONTROLLED TEMPORARY LANE CLOSURE</p>
	<p>3/20/12</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 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. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990