

**CONTRACT DK00081 TIP NO: I-5211B**



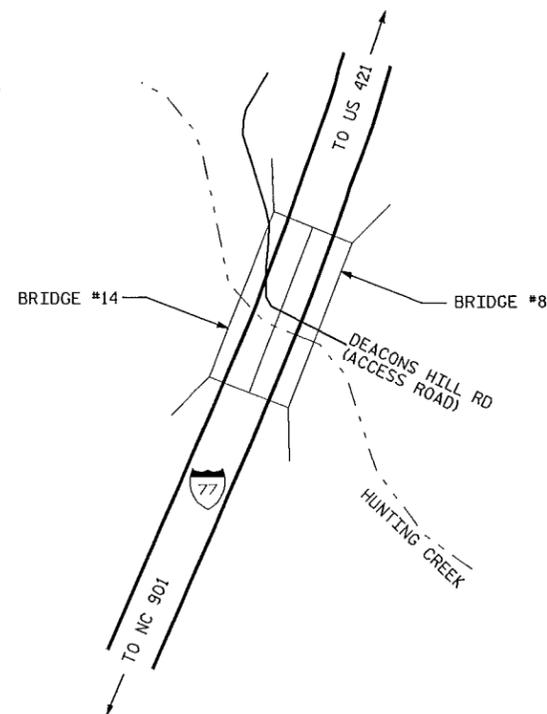
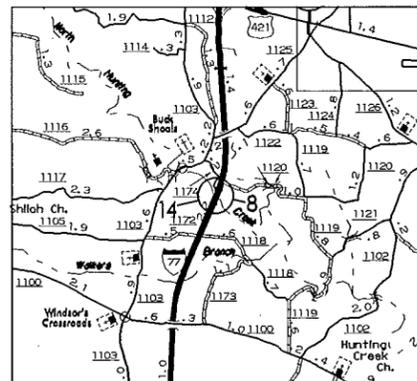
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**YADKIN COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.			
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
47057.1.3	IMPP-077(215)71	PE	
47057.1.3	IMPP-077(215)71	CONST	

LOCATION: BRIDGE #8 ON I77 NORTH OVER DEACONS HILL RD. AND HUNTING CREEK.  
BRIDGE #14 ON I77 SOUTH OVER DEACONS HILL RD. AND HUNTING CREEK.

TYPE OF WORK: BRIDGE PRESERVATION - DECK OVERLAY USING LATEX MODIFIED CONCRETE AND SUBSTRUCTURE REPAIRS



**STRUCTURES**



**DESIGN DATA**  
YADKIN COUNTY  
#8 ADT 2009 = 11,500  
#14 ADT 2010 = 12,500

**PROJECT LENGTH**  
BRIDGE YADKIN #8 = 0.06 MILE  
BRIDGE YADKIN #14 = 0.06 MILE

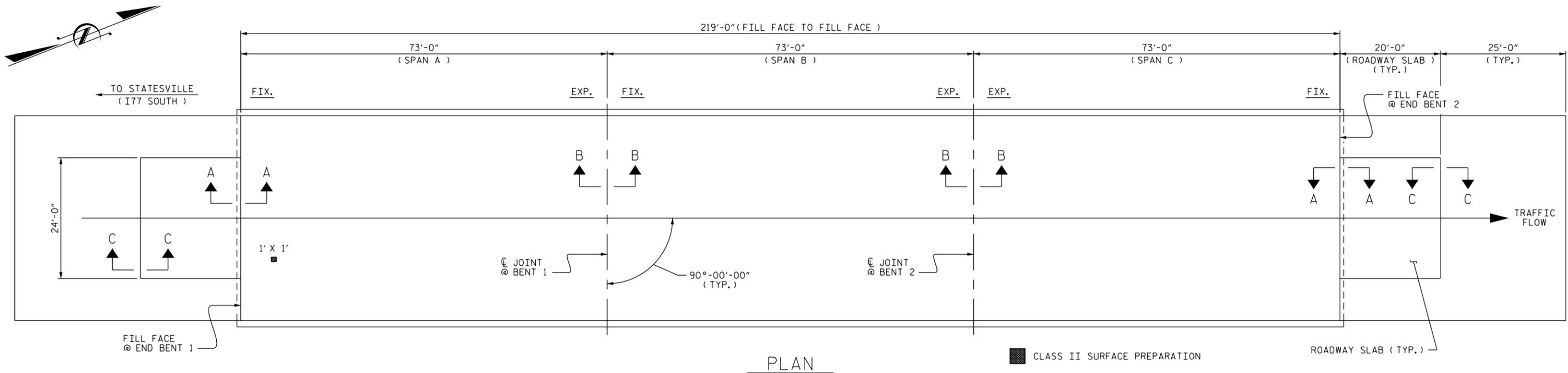
Prepared in the Office of:  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
STRUCTURES MANAGEMENT UNIT - PRESERVATION & REPAIR GROUP  
1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610

RICK NELSON, P.E.

2012 STANDARD SPECIFICATIONS

LETTING DATE:  
MARCH 21, 2013

*Timothy M. Sherrill*  
NORTH CAROLINA  
SEAL  
18565  
ENGINEER  
TIMOTHY M. SHERRILL  
03/20/13  
**TIMOTHY M. SHERRILL, P.E.**  
PROJECT DESIGN ENGINEER



**NOTES:**

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

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

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

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK, SEE "TYPICAL "BLOW THRU" CONTAINMENT AND FORMWORK" DETAIL.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE MANAGING HYDRO-DEMOLITION WATER SPECIAL PROVISION.

FOR HYDRO-DEMOLITION OF BRIDGE DECK, SEE SPECIAL PROVISIONS.

FOR OVERLAY OF BRIDGE WITH LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.

FOR SYNTHETIC RUBBER EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2".

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR SCARIFYING BRIDGE DECK, SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

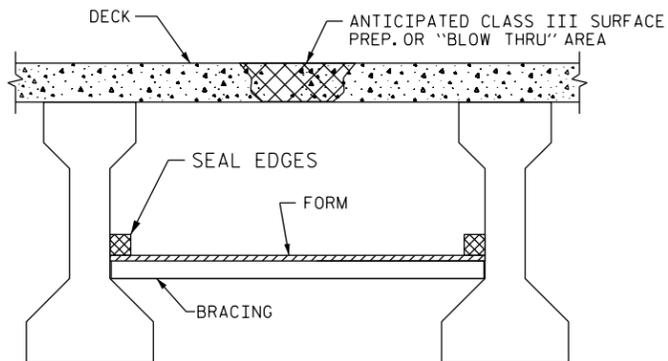
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.

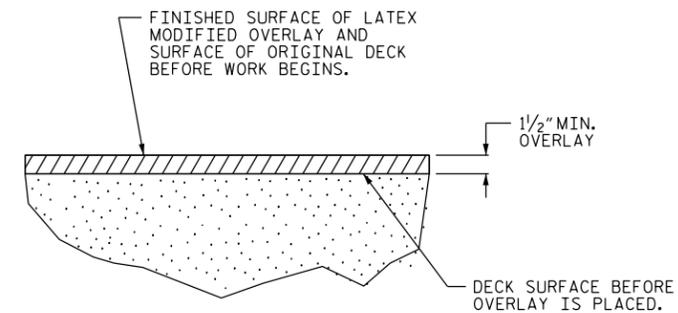


**TYP. "BLOW THRU" CONTAINMENT AND FORMWORK**

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

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

COST FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YARD OF HYDRO-DEMOLITION.



**DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY**

PROJECT NO. I-5211B  
YADKIN COUNTY  
 BRIDGE NO. 8

SHEET 1 OF 4

TOTAL BILL OF MATERIAL												
REMOVAL, REPAIR AND REPLACEMENT OF STEEL BARRIERS	SCARIFYING BRIDGE DECK	CLASS II SURFACE PREPARATION	* CLASS III SURFACE PREPARATION	HYDRO-DEMOLITION	LATEX MODIFIED CONCRETE	PLACING & FINISHING LATEX MODIFIED CONCRETE	INCIDENTAL MILLING	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	FOAM JOINT SEALS	SYNTHETIC RUBBER EXPANSION JOINT SEALS	GROOVING BRIDGE FLOOR	* CONCRETE REPAIRS
LUMP SUM	SQ.YDS.	SQ.YDS.	SQ.YDS.	SO.YDS.	C.Y.	SO.YDS.	SO.YDS.	TON	LUMP SUM	LUMP SUM	SO. FT.	CU. FT.
LUMP SUM	1080	1	0.5	1080	52.5	1080	294	25	LUMP SUM	LUMP SUM	9025	0

\* NOMINAL QUANTITY SHOWN FOR PURPOSES OF DETERMINING UNIT BID PRICE.

DRAWN BY : P.C. BREWER    DATE : 2/25/13  
 CHECKED BY : D.SNOKE    DATE : 2/25/13  
 DESIGN ENGINEER OF RECORD: \_\_\_\_\_ DATE : \_\_\_\_\_

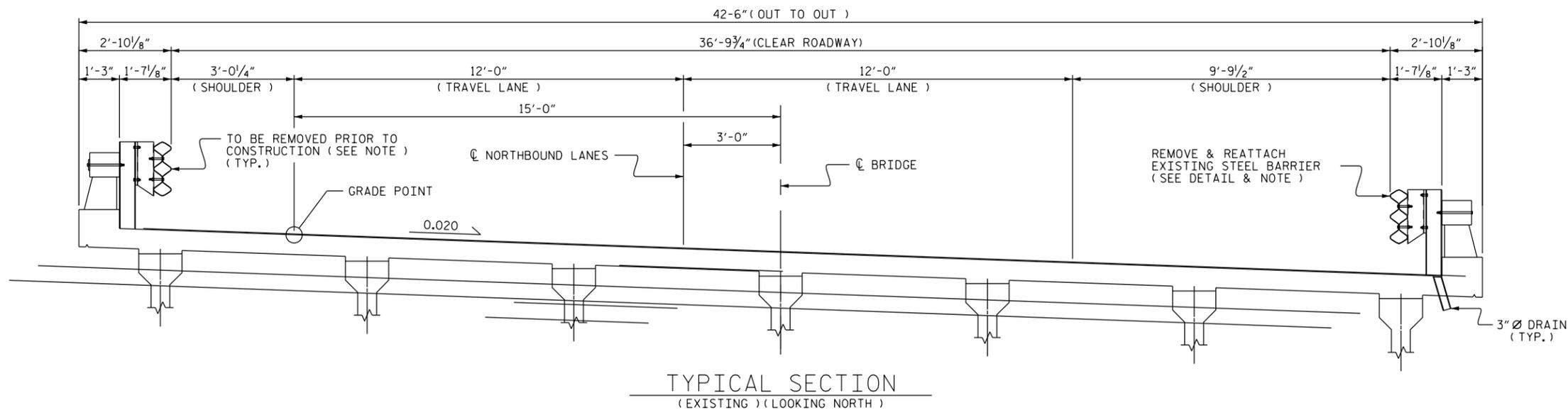
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

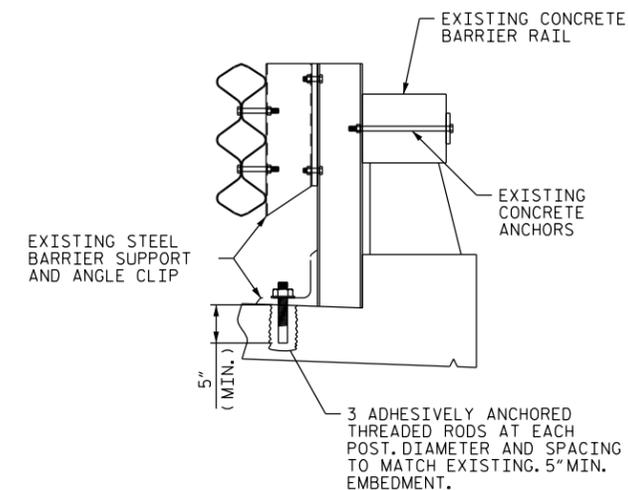
PLAN VIEW OF BRIDGE #8 ON I77 NORTH OVER DEACONS MILL RD. AND HUNTING CREEK

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

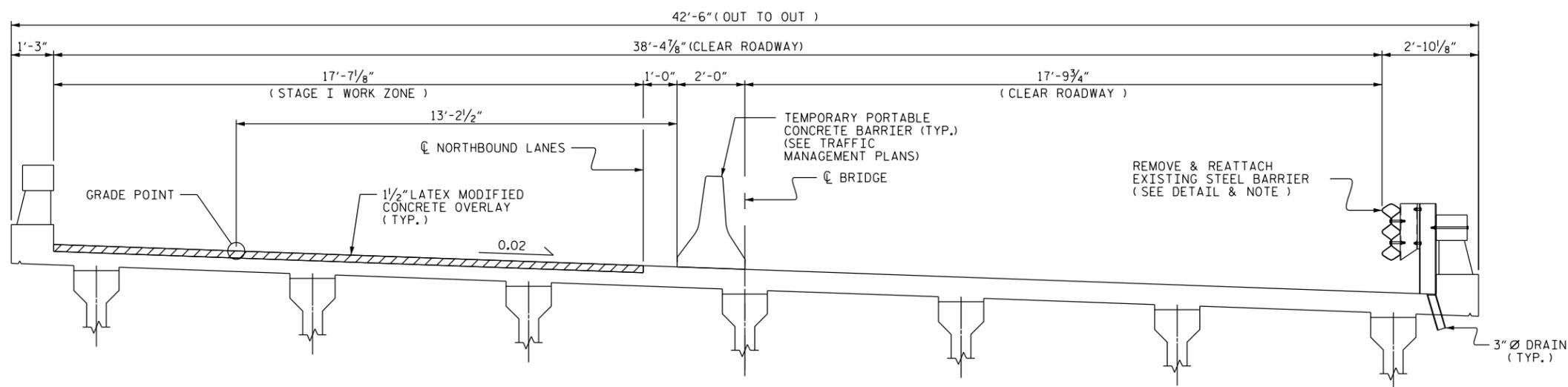


TYPICAL SECTION  
(EXISTING) (LOOKING NORTH)

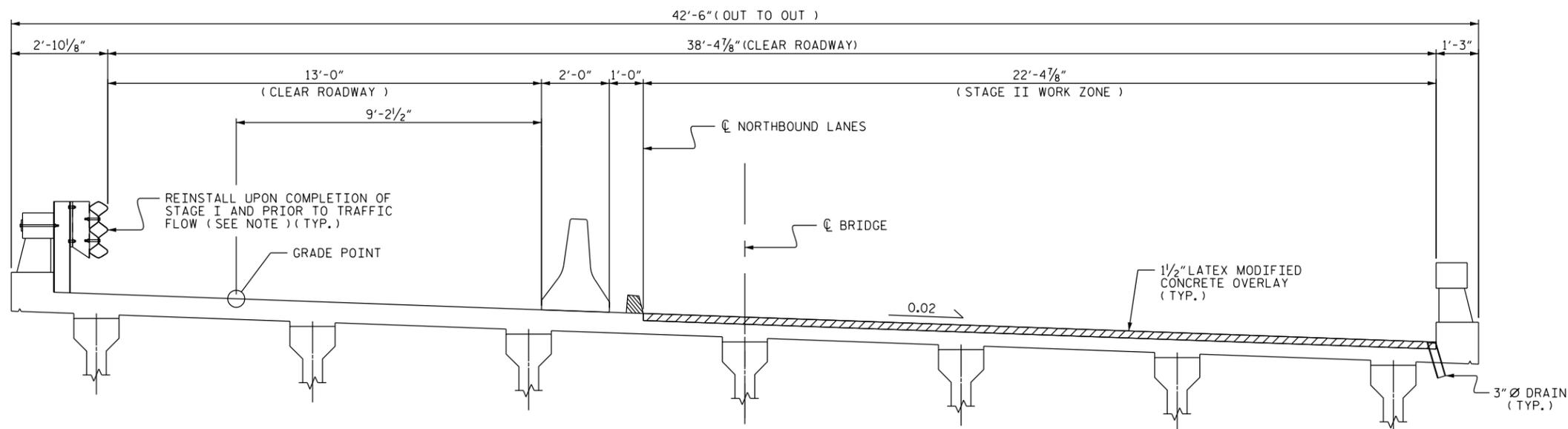
NOTE:  
 STEEL BRIDGE RAIL SHALL BE REMOVED AND RETAINED DURING STAGED CONSTRUCTION AND REPLACED UPON COMPLETION AND PRIOR TO TRAFFIC FLOW. SEE SPECIAL PROVISIONS.



STEEL BARRIER REPLACEMENT DETAIL



TYPICAL SECTION  
(STAGE I) (LOOKING NORTH)



TYPICAL SECTION  
(PHASE II) (LOOKING NORTH)

PROJECT NO. I-5211B  
 YADKIN COUNTY  
 BRIDGE NO. 8

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

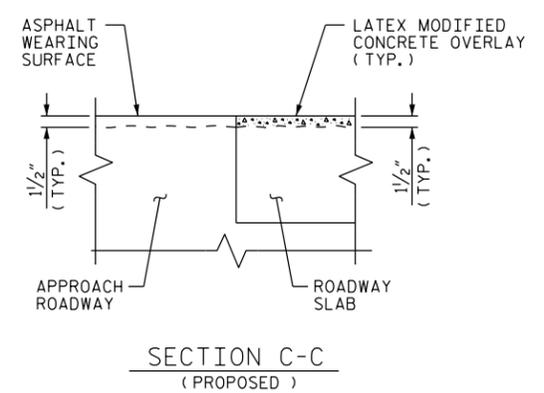
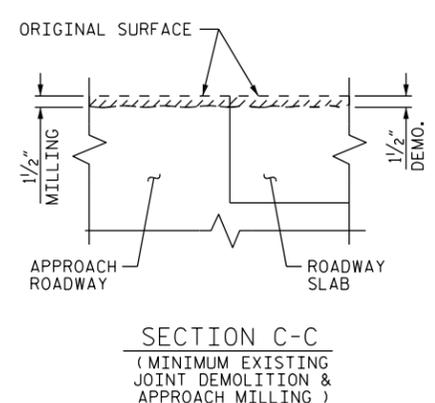
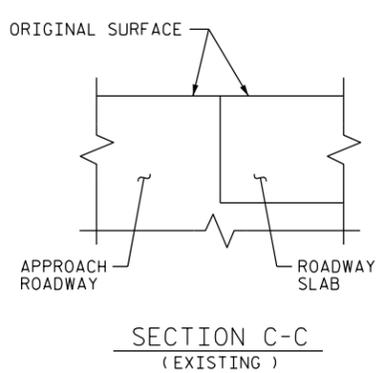
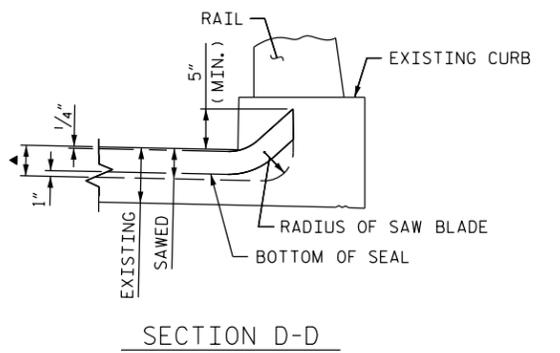
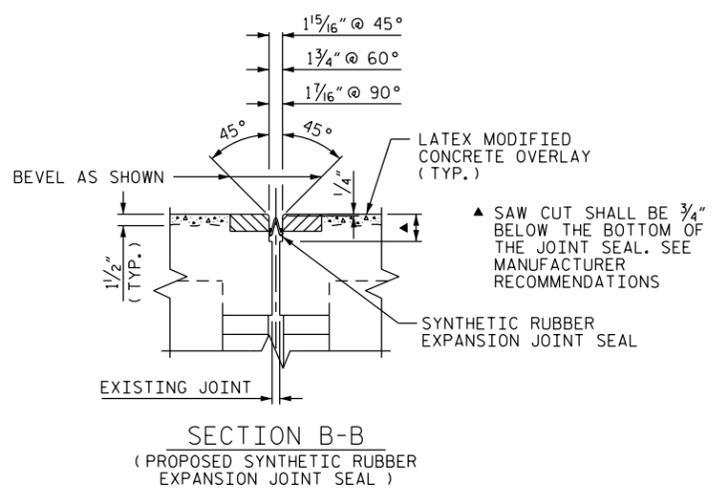
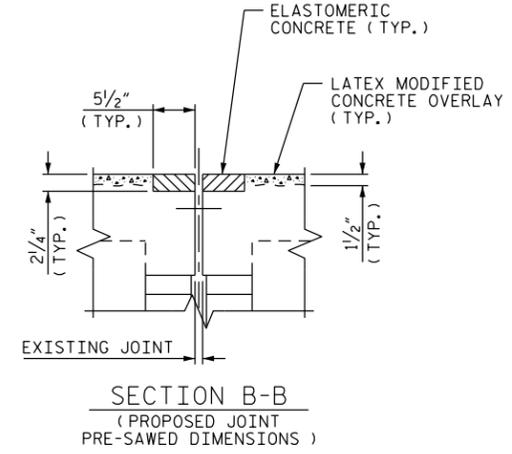
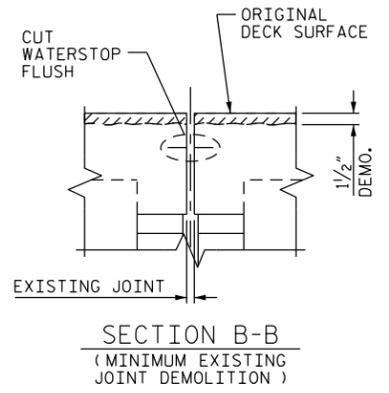
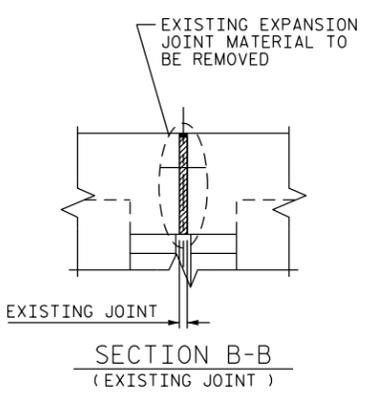
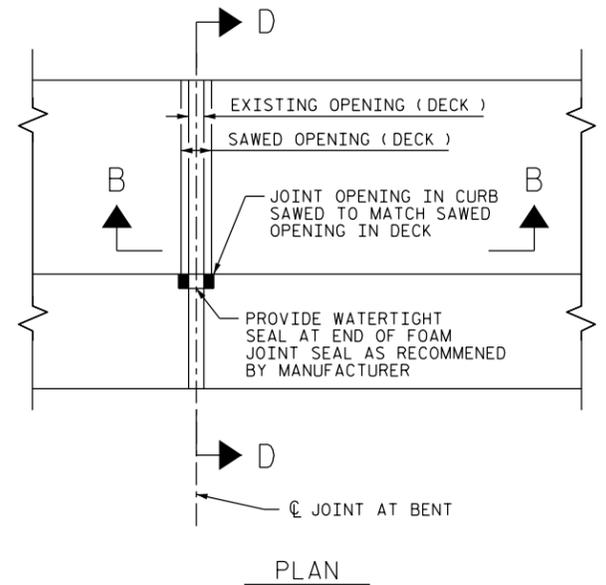
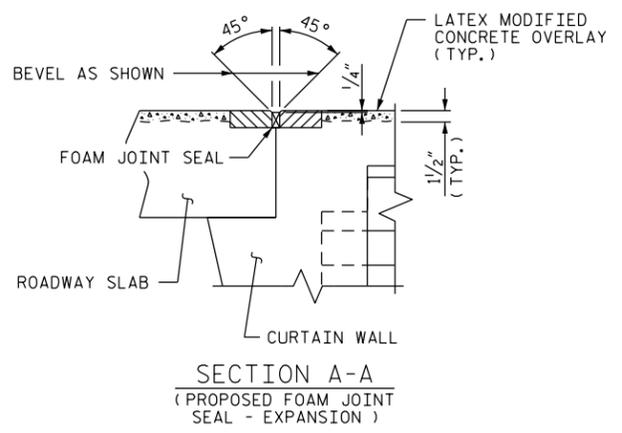
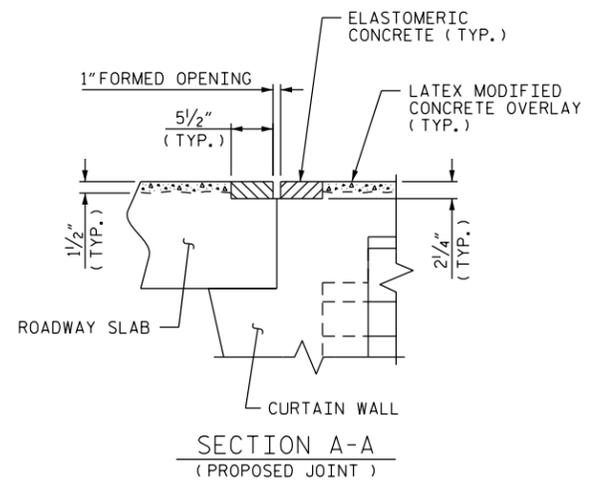
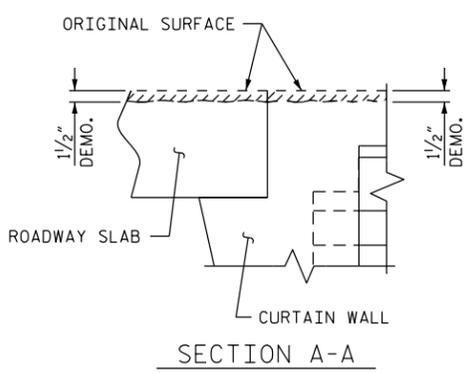
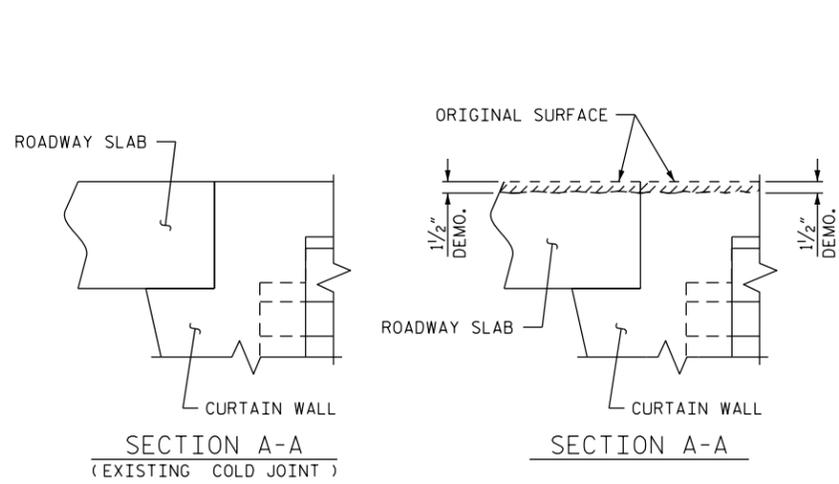
TYPICAL SECTION



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 CHECKED BY : D.SNOKE DATE : 2/25/13  
 DESIGN ENGINEER OF RECORD: DATE :

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



**NOTES:**  
 FOR FOAM JOINT SEAL SEE SPECIAL PROVISIONS.  
 THE INSTALLED FOAM JOINT SEAL SHALL BE WATER TIGHT.  
 NOMINAL UNCOMPRESSED SEAL WIDTH OF FOAM JOINT SEAL SHALL BE DETERMINED BY THE ENGINEER AS NEEDED.  
 FOR SYNTHETIC RUBBER EXPANSION JOINT SEAL, SEE SPECIAL PROVISIONS.  
 SYNTHETIC RUBBER EXPANSION JOINT SHALL ACCOMMODATE A MINIMUM 1" TOTAL MOVEMENT.  
 THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

PROJECT NO. I-5211B  
 YADKIN COUNTY  
 BRIDGE NO. 8  
 SHEET 3 OF 4



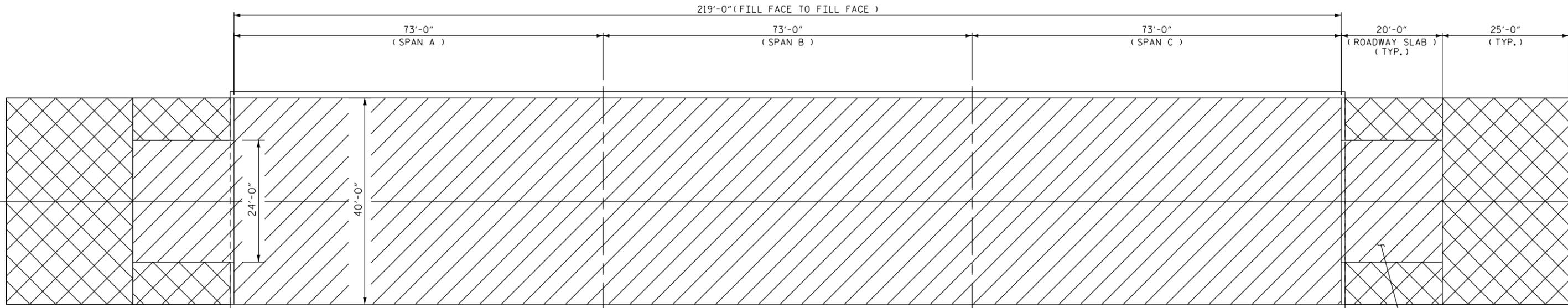
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

TYPICAL SECTION DETAILS

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

DRAWN BY : P.C. BREWER DATE : 2/25/13  
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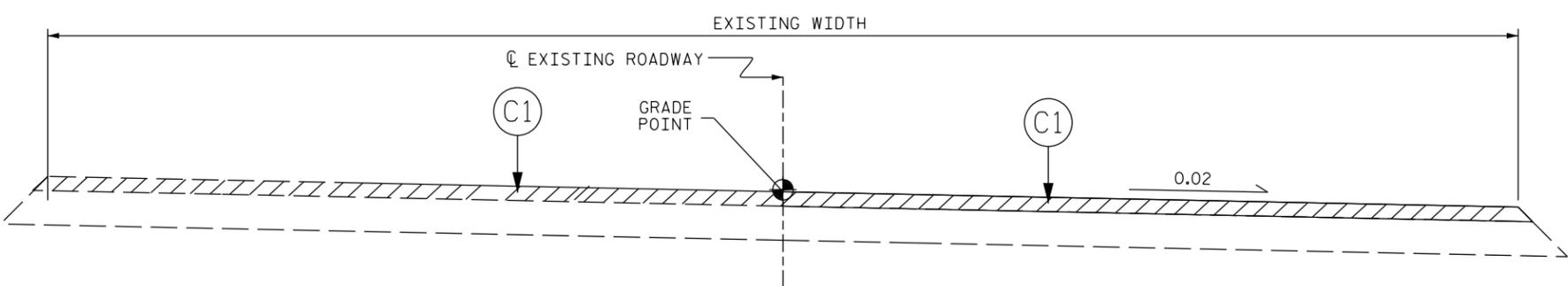


TO STATESVILLE  
( I77 SOUTH )

 SCARIFYING BRIDGE DECK  
 INCIDENTAL MILLING

PLAN

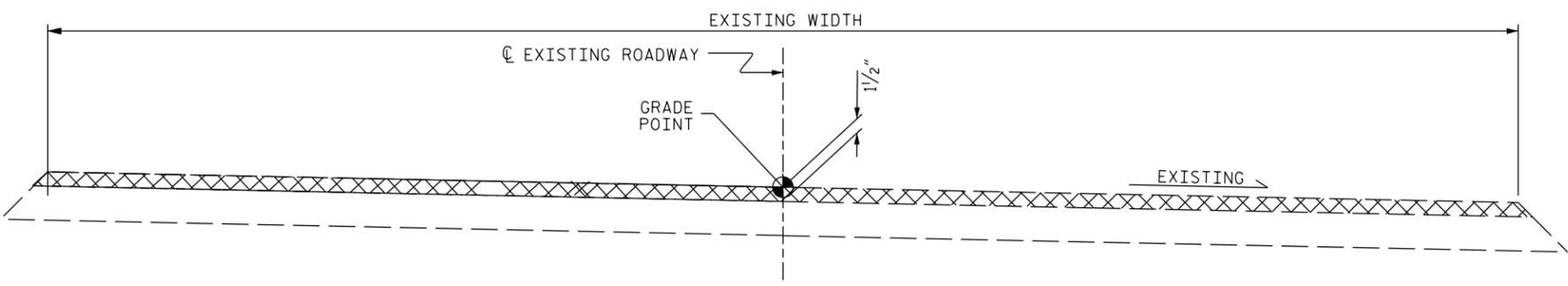
ROADWAY SLAB ( TYP. )



TYPICAL ROADWAY SECTION  
( LOOKING NORTH )

C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF 9.5C AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1 1/2" IN DEPTH.

NOTES:  
 INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1 1/2" DEPTH OF NEW ASPHALT PAVING. PROVIDE NEW ASPHALT PAVING THICKNESS TO CREATE A SMOOTH TRANSITION TO THE ROADWAY SLABS, AS SHOWN. NEW ASPHALT PAVING THICKNESS MAY EXCEED 1 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH ASPHALT PAVING.  
 INCIDENTAL MILLING SHALL BE COMPLETED IN COMPLIANCE WITH THE STAGING REQUIREMENTS OF THE TRAFFIC MANAGEMENT PLAN.



TYPICAL ROADWAY MILLING SECTION  
( MILL TO 1 1/2" DEPTH - SEE NOTE ) ( LOOKING NORTH )

NOT TO SCALE

PROJECT NO. I-5211B  
 YADKIN COUNTY  
 BRIDGE NO. 8

SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

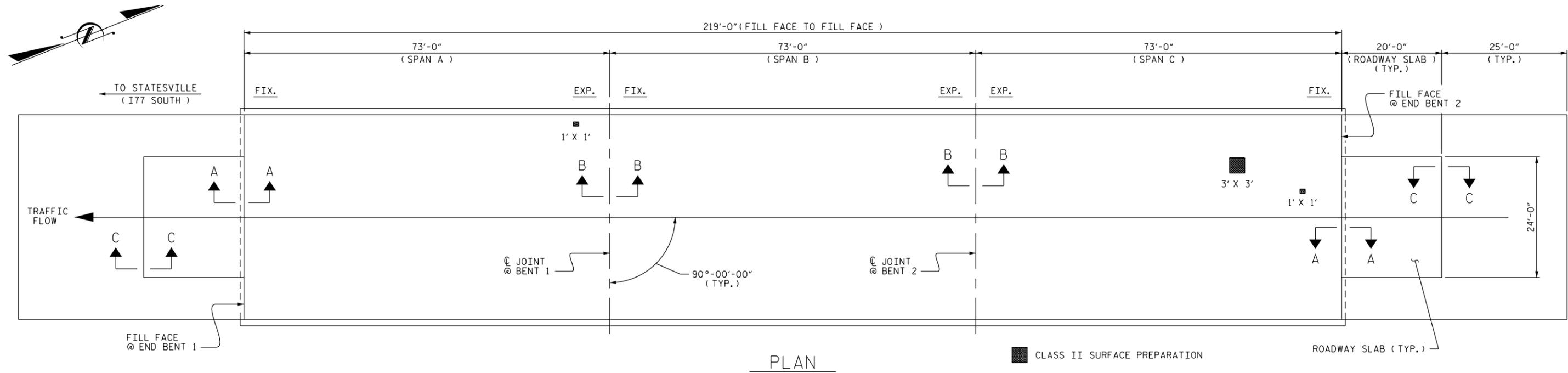
SCARIFICATION  
 AND MILLING



DRAWN BY : P.C. BREWER DATE : 2/25/13  
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			11

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**NOTES:**

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THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE MANAGING HYDRO-DEMOLITION WATER SPECIAL PROVISION.

FOR HYDRO-DEMOLITION OF BRIDGE DECK, SEE SPECIAL PROVISIONS.

FOR OVERLAY OF BRIDGE WITH LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.

FOR SYNTHETIC RUBBER EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2".

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FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

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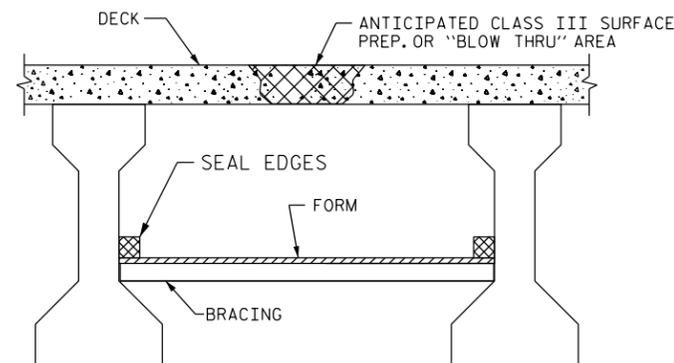
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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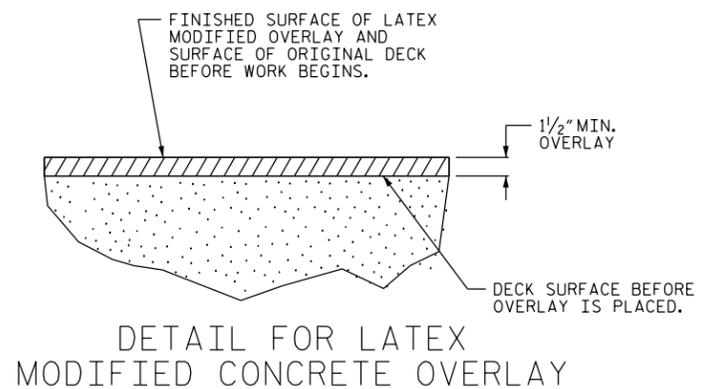


**TYP. "BLOW THRU" CONTAINMENT AND FORMWORK**

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

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

COST FOR INSTALLING AND REMOVING FORM WORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YARD OF HYDRO-DEMOLITION.



**TOTAL BILL OF MATERIAL**

REMOVAL, REPAIR AND REPLACEMENT OF STEEL BARRIERS	SCARIFYING BRIDGE DECK	CLASS II SURFACE PREPARATION	* CLASS III SURFACE PREPARATION	HYDRO-DEMOLITION	LATEX MODIFIED CONCRETE	PLACING & FINISHING LATEX MODIFIED CONCRETE	INCIDENTAL MILLING	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	FOAM JOINT SEALS	SYNTHETIC RUBBER EXPANSION JOINT SEALS	GROOVING BRIDGE FLOOR	CONCRETE REPAIRS
LUMP SUM	SO.YDS.	SO.YDS.	SO.YDS.	SO.YDS.	C.Y.	SO.YDS.	SO.YDS.	TON	LUMP SUM	LUMP SUM	SO. FT.	CU. FT.
LUMP SUM	1099	1	0.5	1099	53.5	1099	294	25	LUMP SUM	LUMP SUM	9193	4

\* NOMINAL QUANTITY SHOWN FOR PURPOSES OF DETERMINING UNIT BID PRICE.

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 DESIGN ENGINEER OF RECORD:    DATE :   

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PROJECT NO. I-5211B  
 YADKIN COUNTY  
 BRIDGE NO. 14

SHEET 1 OF 7

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

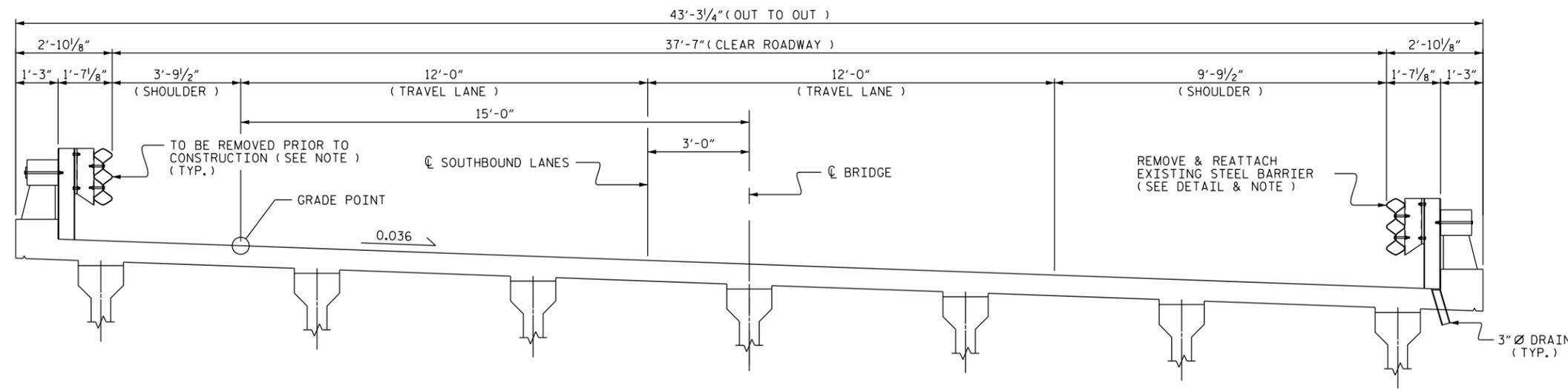
PLAN VIEW OF BRIDGE #14 ON I77 SOUTH OVER DEACONS MILL RD. AND HUNTING CREEK

38'-6 3/4" CLEAR ROADWAY    90°-00'-00" SKEW

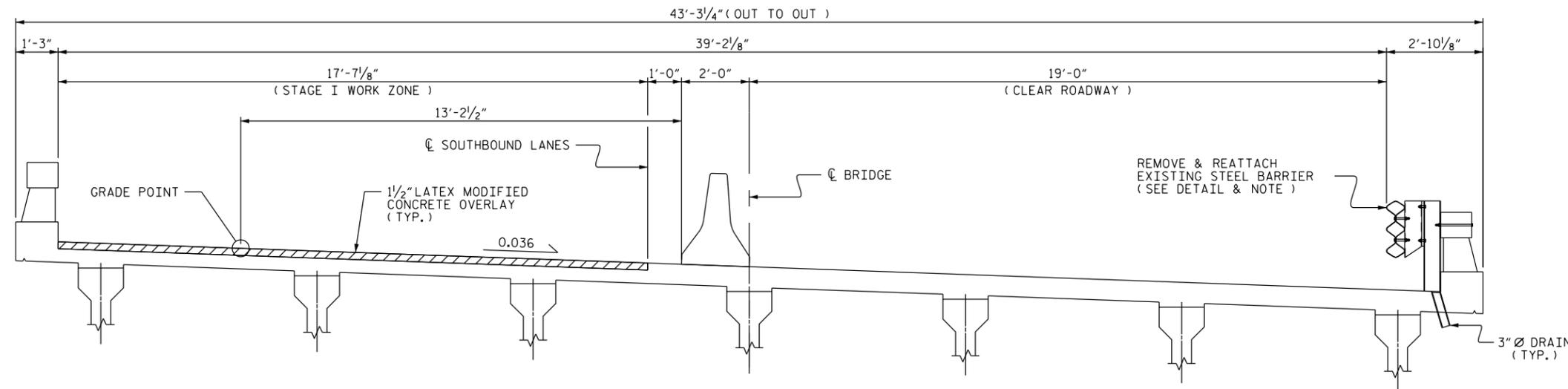
REVISIONS						SHEET NO.
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2			4			



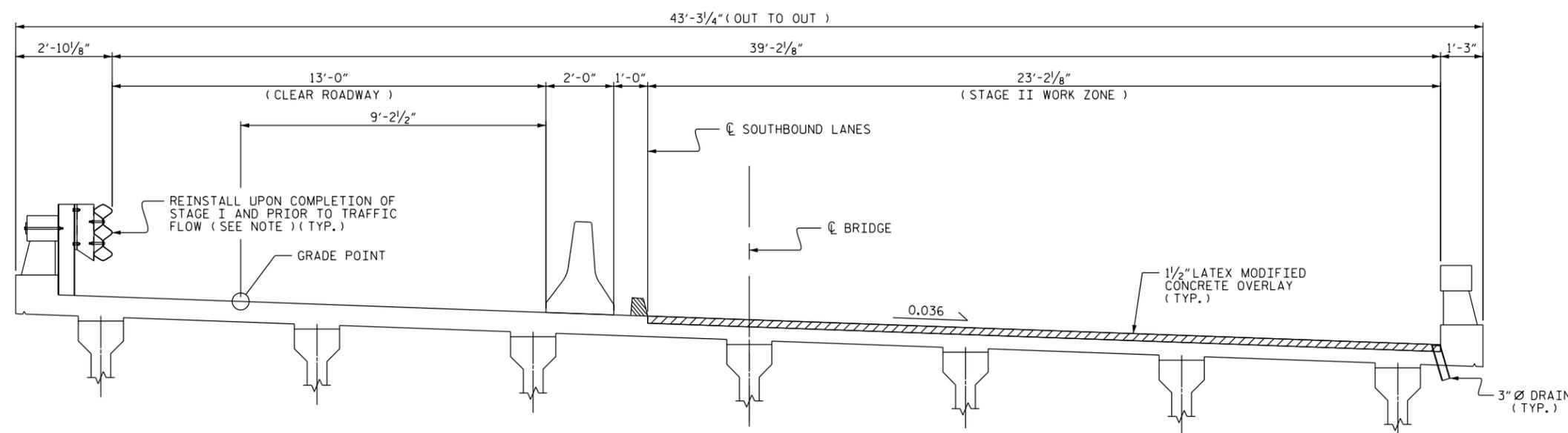
NOTE:  
 STEEL BRIDGE RAIL SHALL BE REMOVED AND  
 RETAINED DURING STAGED CONSTRUCTION AND  
 REPLACED UPON COMPLETION AND PRIOR TO  
 TRAFFIC FLOW. SEE SPECIAL PROVISIONS.



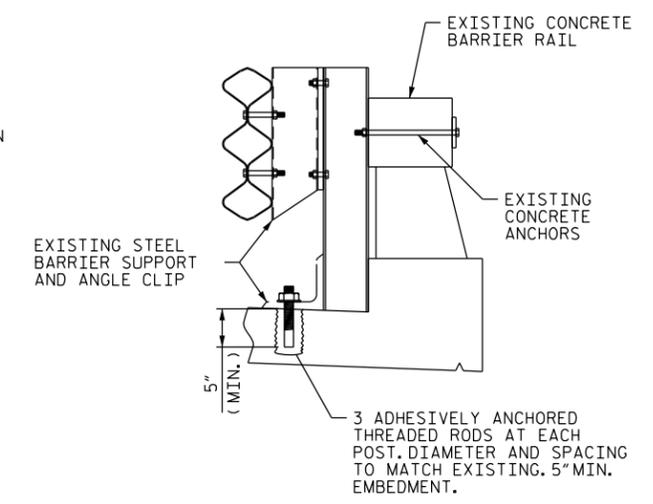
TYPICAL SECTION  
 (EXISTING) (LOOKING SOUTH)



TYPICAL SECTION  
 (STAGE I) (LOOKING SOUTH)



TYPICAL SECTION  
 (PHASE II) (LOOKING SOUTH)



STEEL BARRIER  
 REPLACEMENT DETAIL

PROJECT NO. I-5211B  
YADKIN COUNTY  
 BRIDGE NO. 14

SHEET 2 OF 7

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

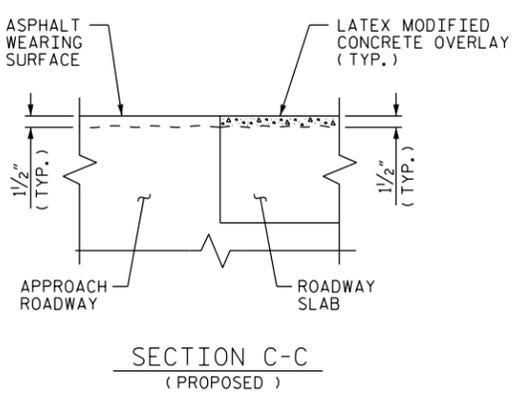
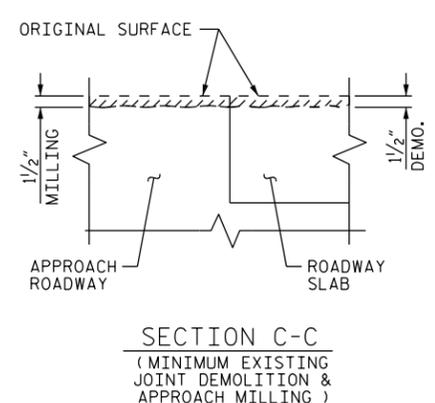
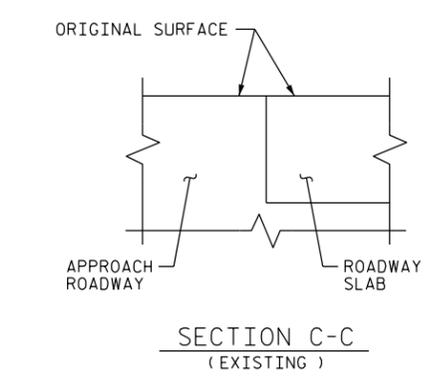
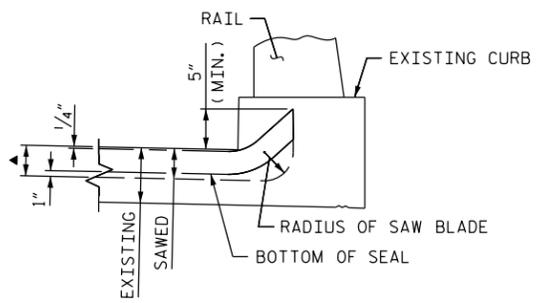
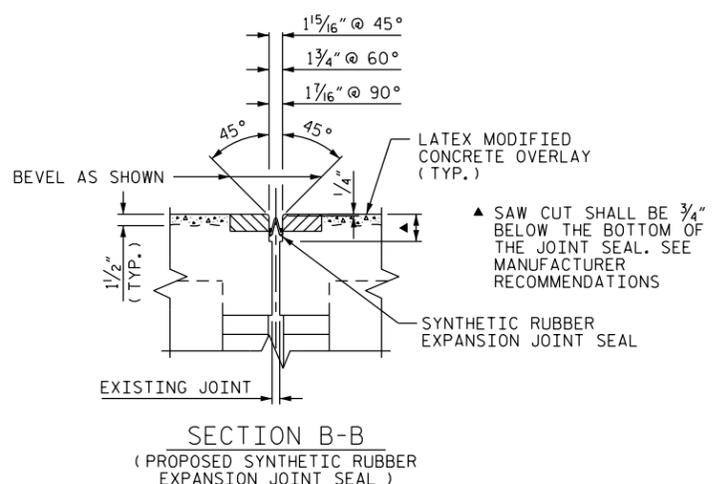
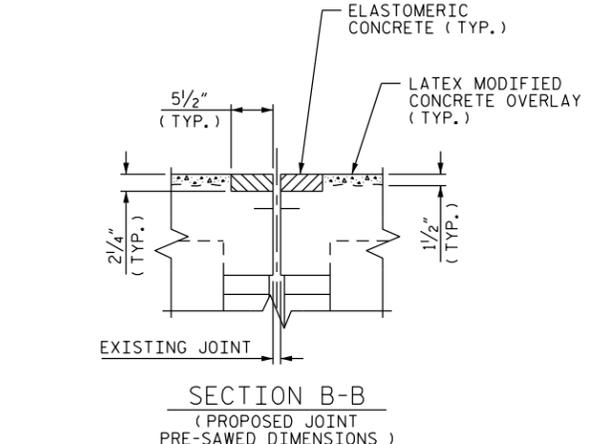
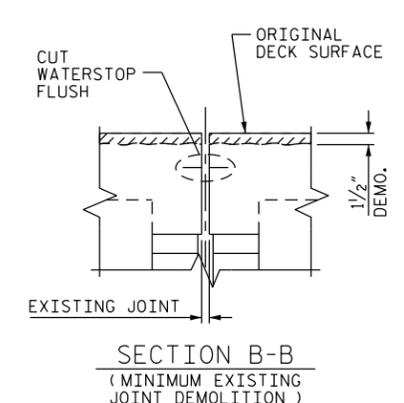
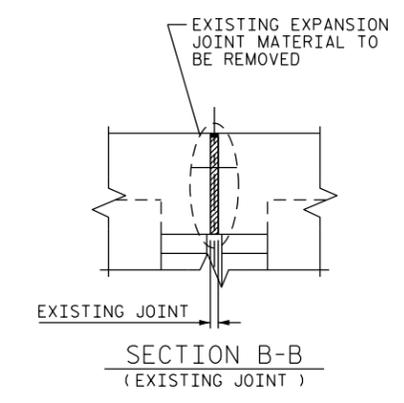
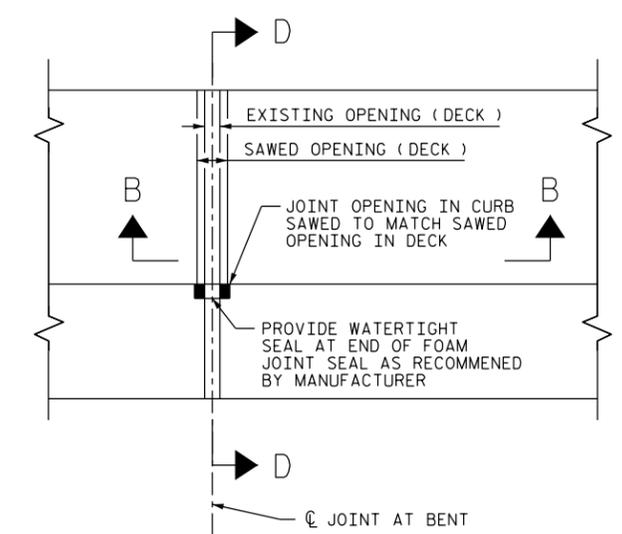
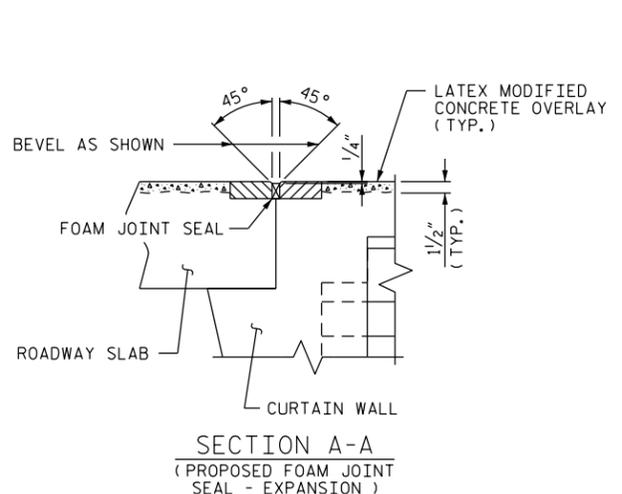
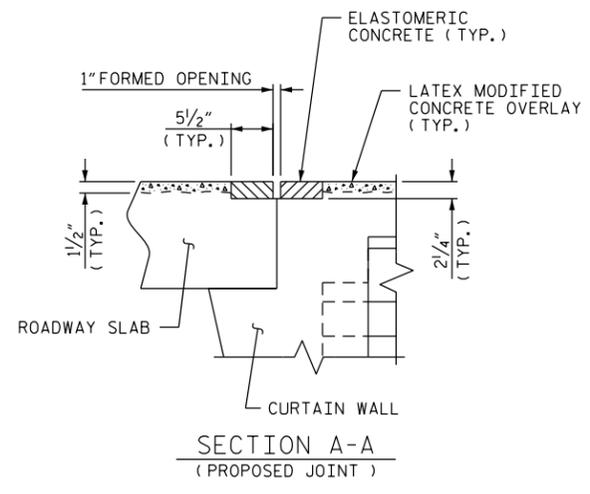
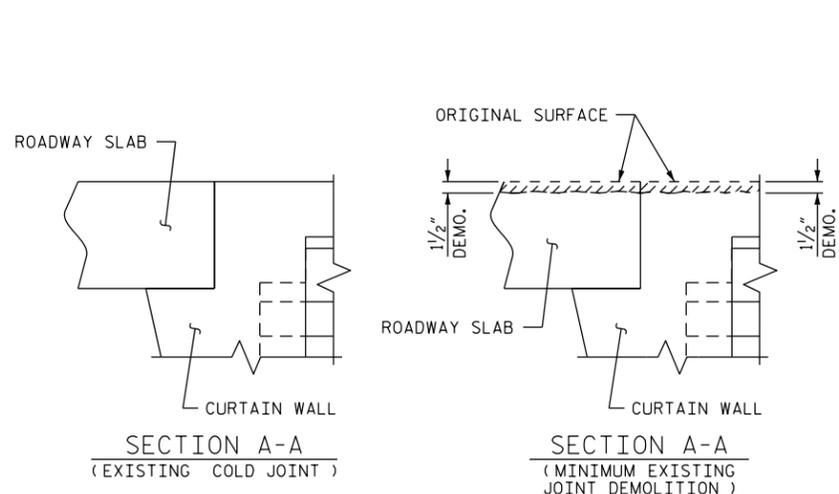
TYPICAL SECTION



DRAWN BY : P.C. BREWER DATE : 2/25/13  
 CHECKED BY : D.SNOKE DATE : 2/25/13  
 DESIGN ENGINEER OF RECORD: - DATE : -

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			11



**NOTES:**

FOR FOAM JOINT SEAL SEE SPECIAL PROVISIONS.

THE INSTALLED FOAM JOINT SEAL SHALL BE WATER TIGHT.

NOMINAL UNCOMPRESSED SEAL WIDTH OF FOAM JOINT SEAL SHALL BE DETERMINED BY THE ENGINEER AS NEEDED.

FOR SYNTHETIC RUBBER EXPANSION JOINT SEAL, SEE SPECIAL PROVISIONS.

SYNTHETIC RUBBER EXPANSION JOINT SHALL ACCOMMODATE A MINIMUM 1" TOTAL MOVEMENT.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

PROJECT NO. I-5211B  
YADKIN COUNTY  
 BRIDGE NO. 14

SHEET 3 OF 7

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

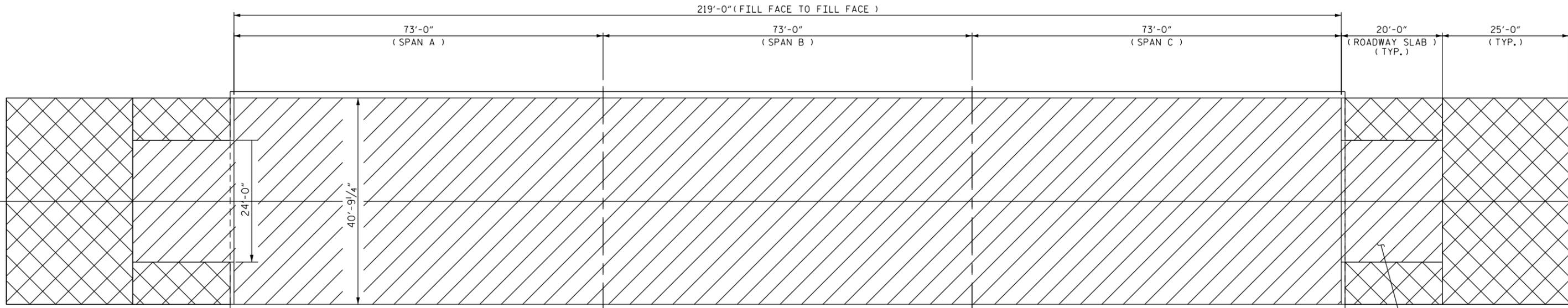
TYPICAL SECTION DETAILS



DRAWN BY : P.C. BREWER DATE : 2/25/13  
 CHECKED BY : D.SNOKE DATE : 2/25/13  
 DESIGN ENGINEER OF RECORD: DATE :

REVISIONS						SHEET NO.
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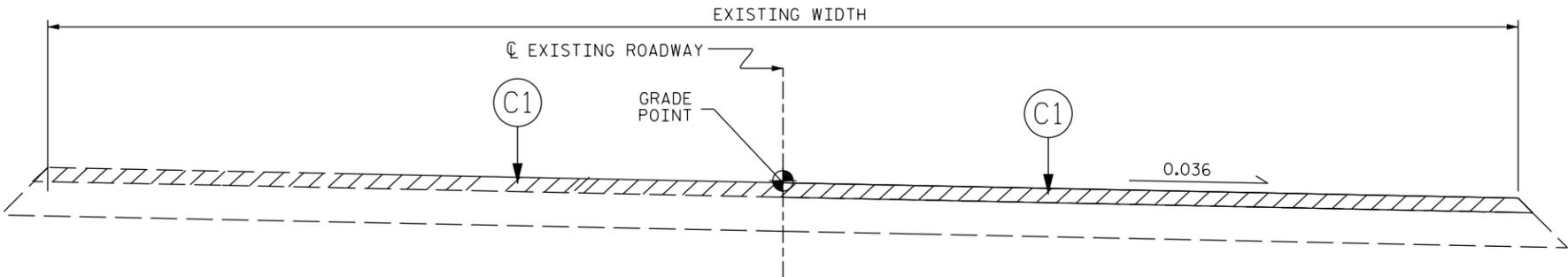


TO STATESVILLE  
( I 77 SOUTH )

 SCARIFYING BRIDGE DECK  
 INCIDENTAL MILLING

PLAN

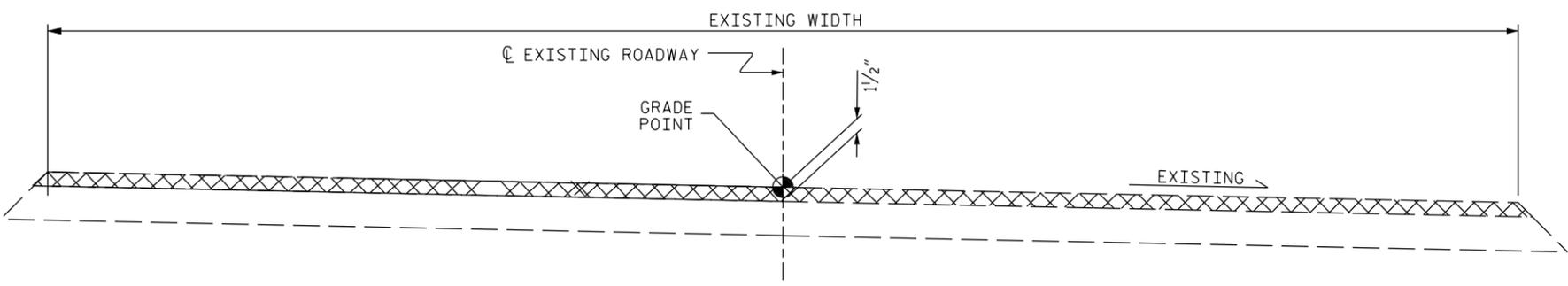
ROADWAY SLAB ( TYP. )



TYPICAL ROADWAY SECTION  
( LOOKING SOUTH )

C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF 9.5C AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1 1/2" IN DEPTH.

NOTES:  
 INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1-1/2" DEPTH OF NEW ASPHALT PAVING. PROVIDE NEW ASPHALT PAVING THICKNESS TO CREATE A SMOOTH TRANSITION TO THE ROADWAY SLABS, AS SHOWN. NEW ASPHALT PAVING THICKNESS MAY EXCEED 1-1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH ASPHALT PAVING.  
 INCIDENTAL MILLING SHALL BE COMPLETED IN COMPLIANCE WITH THE STAGING REQUIREMENTS OF THE TRAFFIC MANAGEMENT PLAN.



TYPICAL ROADWAY MILLING SECTION  
( MILL TO 1 1/2" DEPTH - SEE NOTE ) ( LOOKING SOUTH )

NOT TO SCALE ( ROADWAY SLAB ) ( TYP. )

PROJECT NO. I-5211B  
 YADKIN COUNTY  
 BRIDGE NO. 14

SHEET 4 OF 7  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

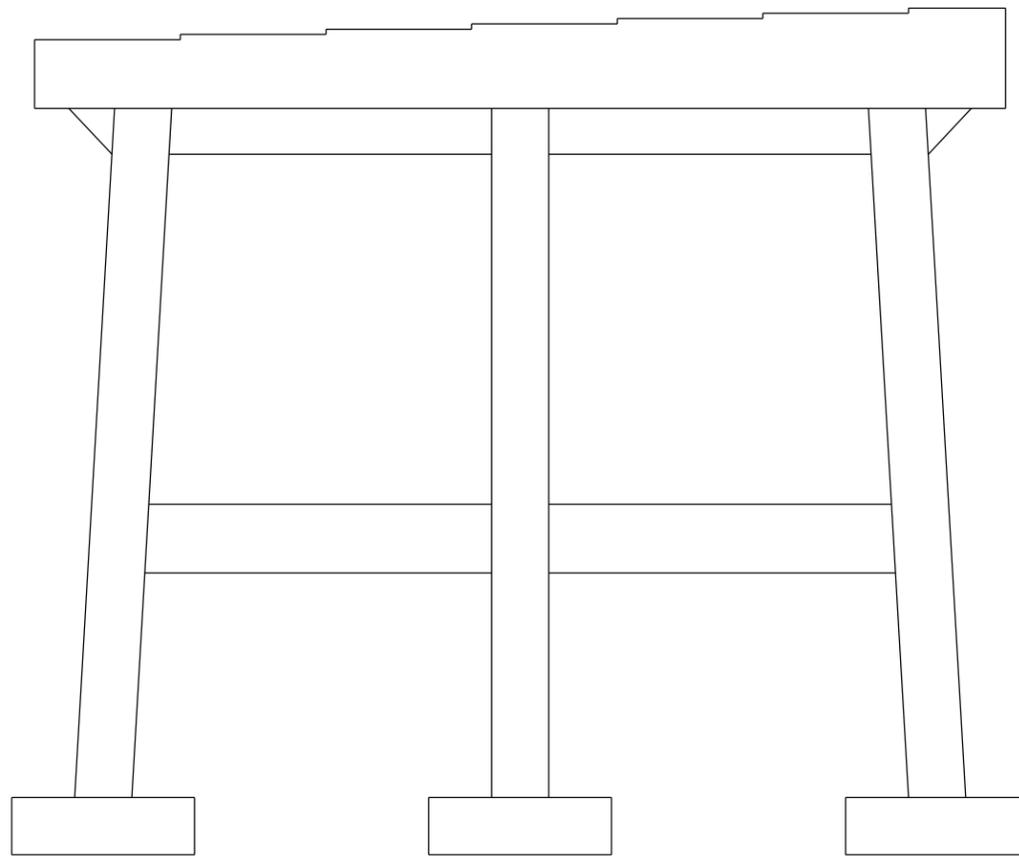
SCARIFICATION AND MILLING



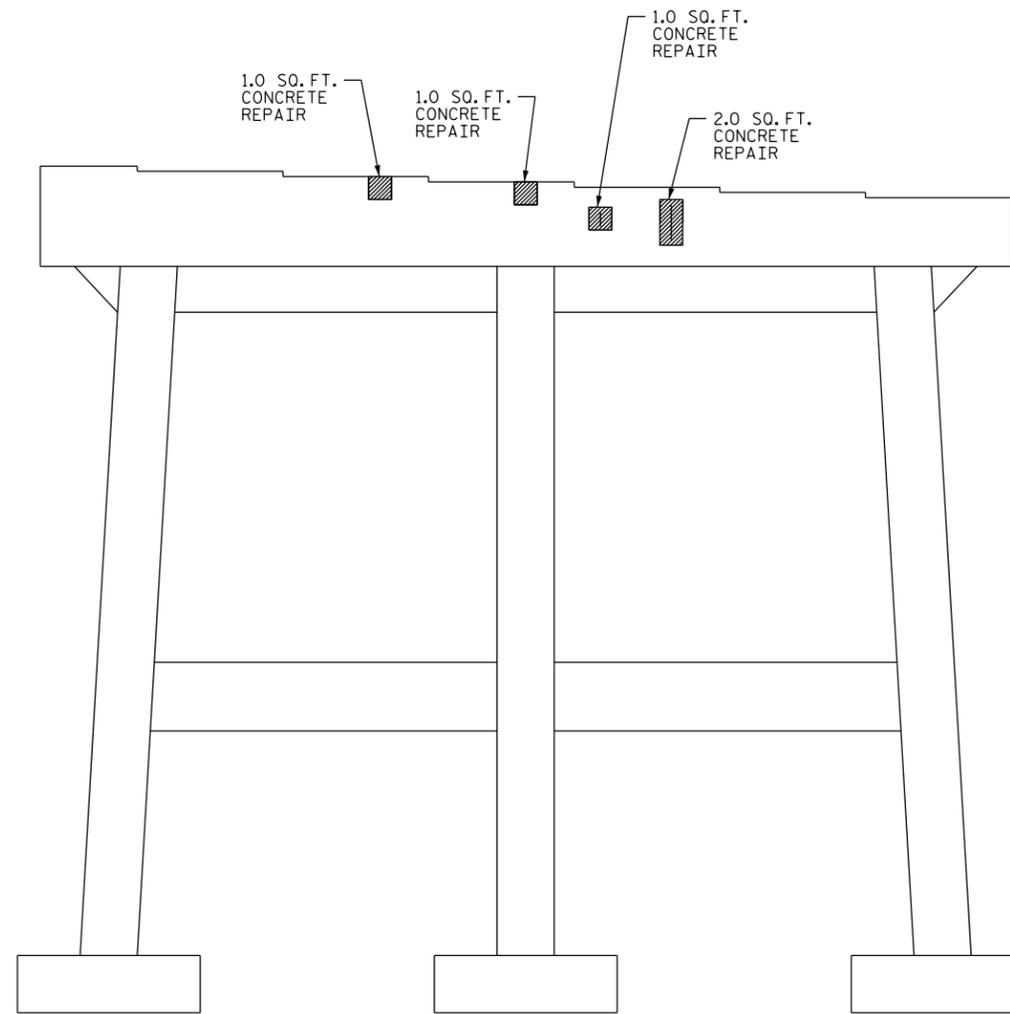
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 CHECKED BY : D. SNOKE DATE : 2/25/13  
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			11

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SPAN A SIDE



SPAN B SIDE

NOTES:

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

FOR STRUCTURE REPAIRS, SEE SHEET S-11.

REPAIR QUANTITY TABLE						
REPAIRS BENT 1	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	5.0	0.417	2.1			
CAP (HORIZONTAL, CORNER)	0	0	0			
COLUMN	0	0	0			
STRUT (VERTICAL FACE)	0	0	0			
STRUT (HORIZONTAL, CORNER)	0	0	0			
EPOXY RESIN INJECTION			LN. FT	LN. FT		
CAP			0			
COLUMN			0			
STRUT			0			

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

PROJECT NO. I-5211B  
YADKIN COUNTY  
 BRIDGE NO. 14

SHEET 5 OF 7

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 1

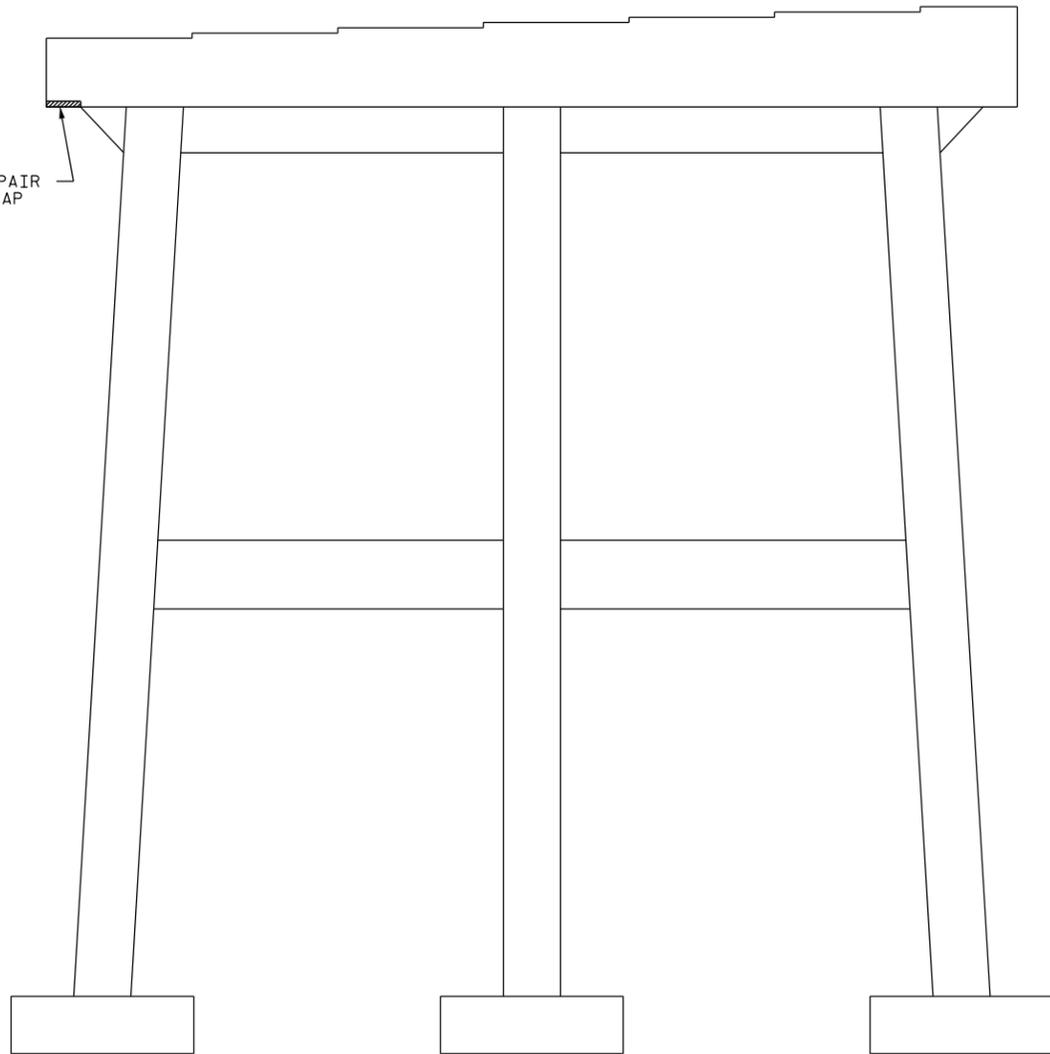


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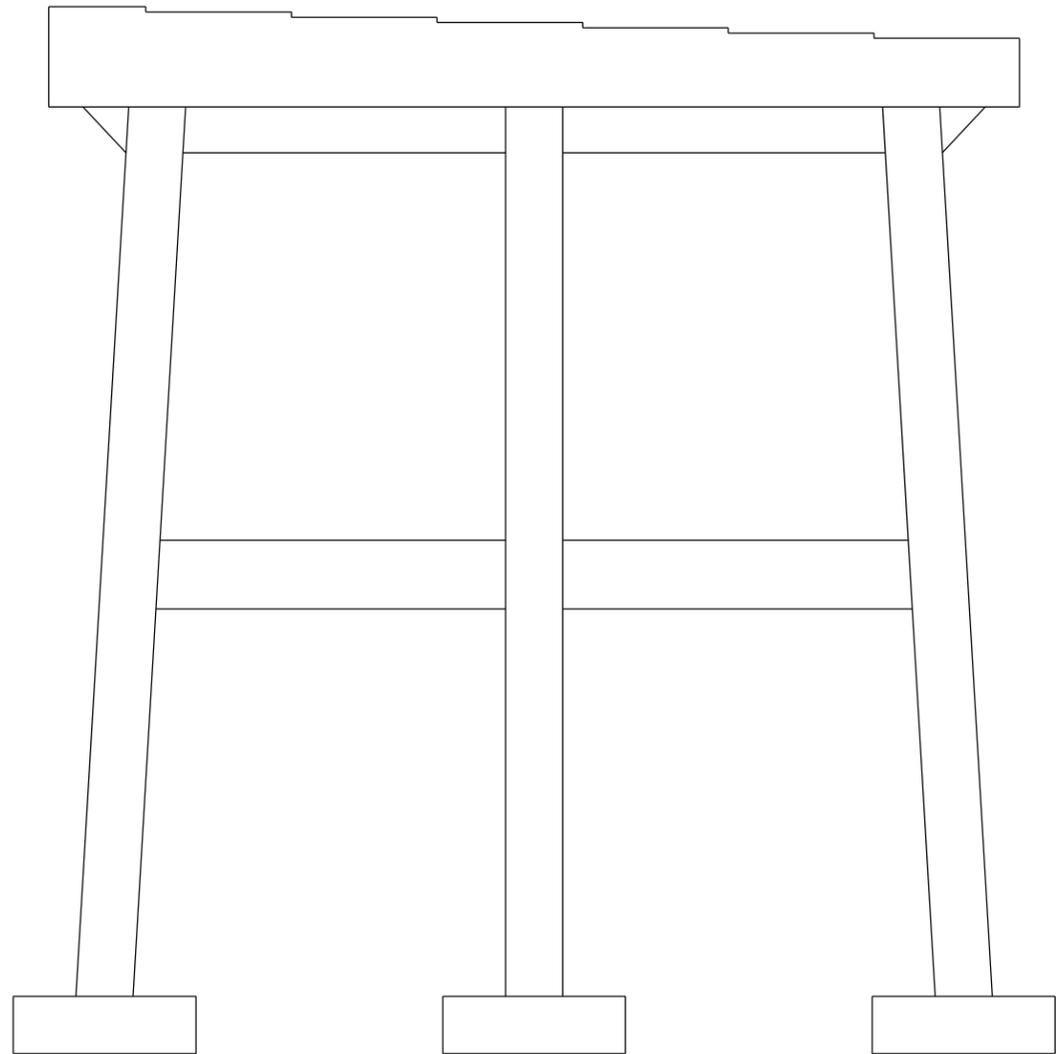
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			11

4.5 SQ. FT.  
CONCRETE REPAIR  
BOTTOM OF CAP



SPAN B SIDE



SPAN C SIDE

NOTES:

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

FOR STRUCTURE REPAIRS, SEE SHEET S-11.

REPAIR QUANTITY TABLE						
REPAIRS BENT 2	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL FACE)	0	0	0			
CAP (HORIZONTAL, CORNER)	4.5	0.417	1.9			
COLUMN	0	0	0			
STRUT (VERTICAL FACE)	0	0	0			
STRUT (HORIZONTAL, CORNER)	0	0	0			
EPOXY RESIN INJECTION			LN. FT		LN. FT	
CAP			0			
COLUMN			0			
STRUT			0			

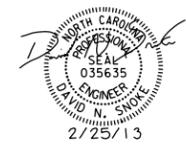
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. I-5211B  
YADKIN COUNTY  
 BRIDGE NO. 14

SHEET 6 OF 7

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

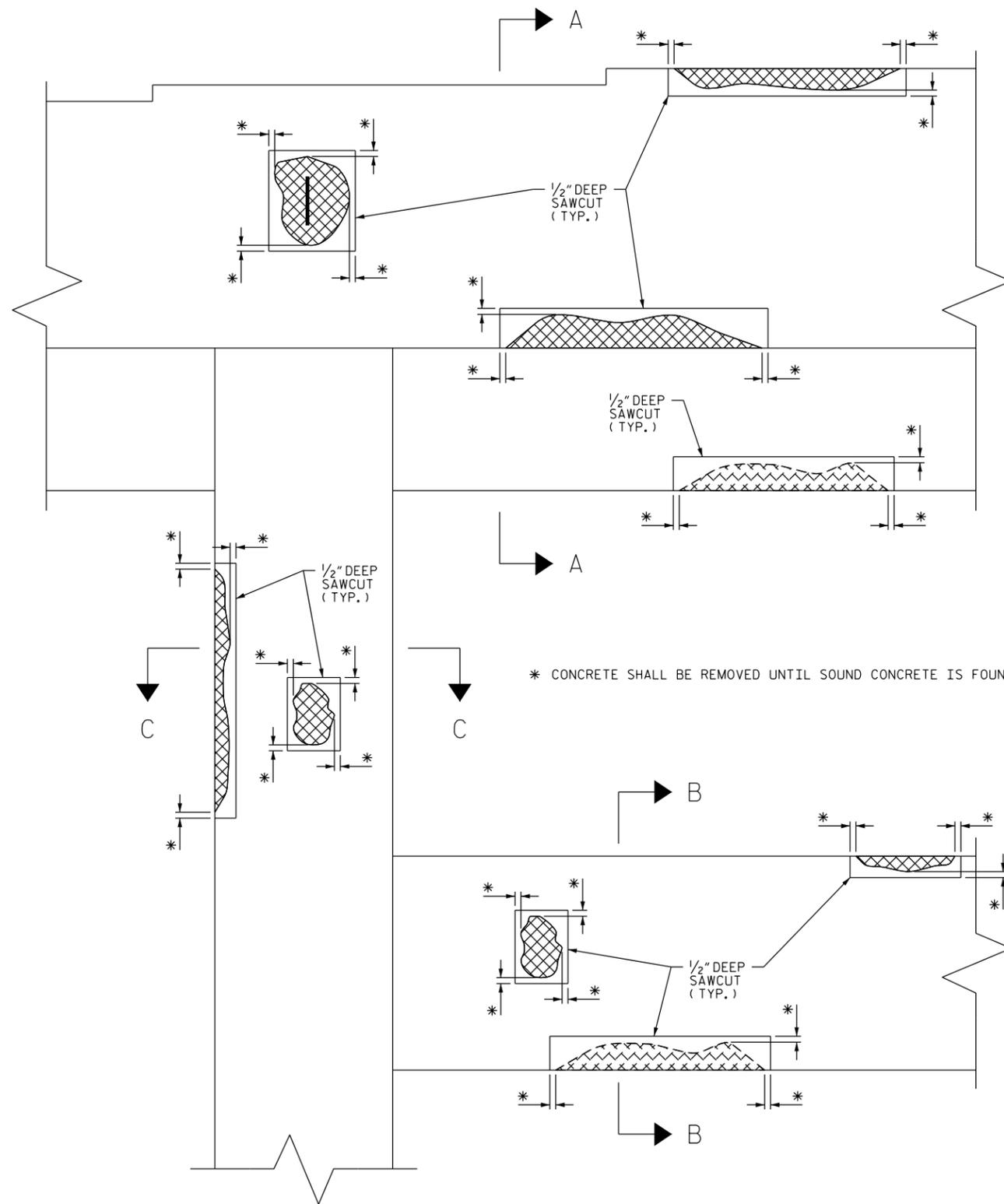
BENT 2



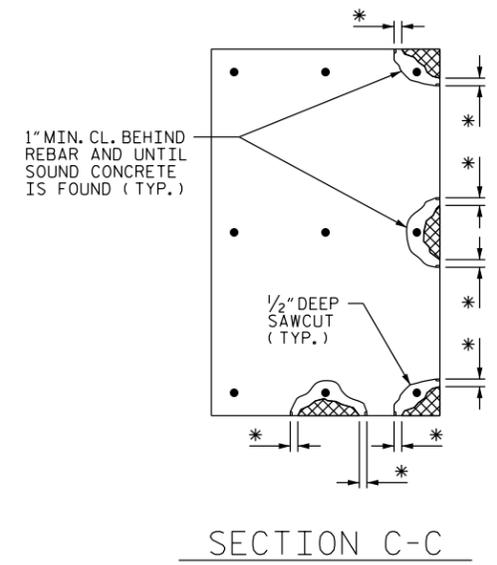
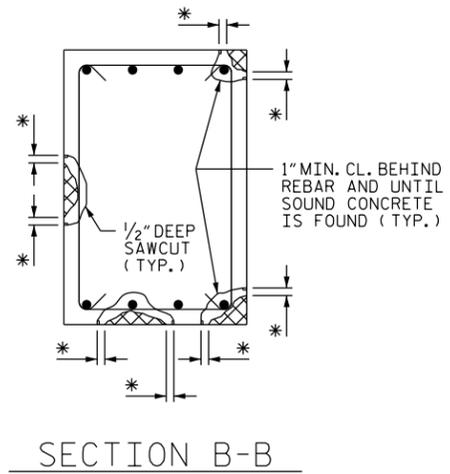
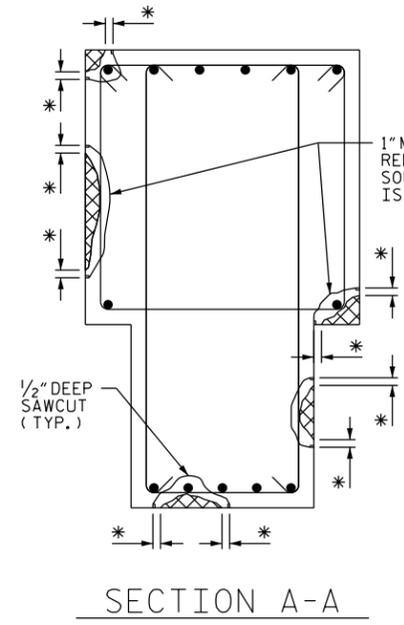
DRAWN BY : P.C. BREWER DATE : 2/25/13  
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1			3			TOTAL SHEETS
2			4			11



\* CONCRETE SHALL BE REMOVED UNTIL SOUND CONCRETE IS FOUND (MIN. OF 1").



BENT CAP, COLUMN, & STRUT REPAIR DETAIL

PROJECT NO. I-5211B  
YADKIN COUNTY  
 BRIDGE NO. 14

SHEET 7 OF 7

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

CAP & COLUMN REPAIR DETAILS



DRAWN BY : P.C. BREWER DATE : 2/25/13  
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			11

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**YADKIN COUNTY**

**DIVISION II**



**BRIDGE #8 - I-77 NORTH OVER NORTH HUNTING CREEK**  
**BRIDGE #14 - I-77 SOUTH OVER NORTH HUNTING CREEK**

**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
TMP-3	PHASING
TMP-4	BRIDGES #8 & #14 - LEFT LANE WORK AREA
TMP-5	BRIDGES #8 & #14 - RIGHT LANE WORK AREA

SHEET NO.  
TMP-1

**WBS: 47057.1.3**

**TRAFFIC MANAGEMENT STRATEGY**

PROPOSED LMC OVERLAY ON BRIDGES #8 AND #14 WILL BE STAGE CONSTRUCTED USING TEMPORARY PORTABLE CONCRETE BARRIER UNDER INTERMEDIATE CONTRACT TIMES. REFER TO SHEET TMP-3 FOR PHASING.

**TIP: I-5211B**



PLAN PREPARED FOR NCDOT STRUCTURES 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: 2/20/13



## 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
- AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)
- FLASHING ARROW BOARD (TYPE C)
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- WORK ZONE SIGN-PORTABLE
- WORK ZONE SIGN-STATIONARY
- WORK ZONE SIGN-STATIONARY OR PORTABLE
- TEMPORARY SHORING
- TEMPORARY CRASH CUSHION

### TEMPORARY BARRIERS

- ABBREVIATIONS: PORTABLE CONCRETE BARRIER (PCB)    WATER-FILLED BARRIER (WFB)
- UN-ANCHORED PORTABLE CONCRETE BARRIER
  - ANCHORED PORTABLE CONCRETE BARRIER
  - WATER-FILLED BARRIER

### 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:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	PORTABLE CONCRETE BARRIER
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

2/2/2013 14:14:11 TrafficControl\5211B YADKIN 8 and 14\TCP\Plan Sheets\5211B\_TC\_TMP\_01A\_RDWYS\TDS\LEGEND.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-0672</p>	<p>APPROVED: _____ DATE: _____</p>	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL</p>	<p>LEGEND &amp; ROADWAY STANDARD DRAWINGS</p>
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## 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:

<u>ROAD NAME</u>	<u>DAY AND TIME RESTRICTIONS</u>
ALL ROADS	6:00 A.M. - 7:00 P.M. MONDAY THRU SUNDAY (EVERY DAY)

B) DO NOT CLOSE OR NARROW A LANE OF TRAFFIC, DETAIN AND/OR ALTER THE TRAFFIC FLOW ON OR DURING HOLIDAYS, HOLIDAY WEEKENDS, OR ANY OTHER TIME WHEN TRAFFIC IS UNUSUALLY HEAVY, INCLUDING THE FOLLOWING SCHEDULES:

ROAD NAME  
ALL ROADS

### HOLIDAY & HOLIDAY WEEKEND LANE CLOSURE TIME RESTRICTIONS

- 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.
- 9) FOR NASCAR SPRINT CUP EVENTS AT CHARLOTTE MOTOR SPEEDWAY IN CHARLOTTE, NC, BETWEEN 24 HOURS BEFORE THE EVENT AND 24 HOURS AFTER THE EVENT.

### MISCELLANEOUS

- C) ALL DIMENSIONS AND STATIONS IN THE TRANSPORTATION MANAGEMENT PLAN AND PHASING ARE APPROXIMATE (+/-); FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
- D) PLACE ALL CHANGEABLE MESSAGE SIGNS AS NEEDED IN THE LOCATIONS AND WITH THE WORD MESSAGES AS SHOWN IN THE PLAN OR AS DIRECTED BY THE ENGINEER TO PROVIDE ADVANCE WARNING TO THE PUBLIC DURING CONSTRUCTION.
- E) ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919) 733-4740 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- F) 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.
- G) INSTALL ALL LANE CLOSURES ACCORDING TO THE PLANS, ROADWAY STANDARD DRAWINGS (1101.02), OR AS DIRECTED BY THE ENGINEER.
- H) 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.
- I) 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.
- J) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

### TEMPORARY TRAFFIC BARRIER

- K) INSTALL TEMPORARY BARRIER ACCORDING TO THE PLANS A MAXIMUM OF ONE(1) WEEK PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION, UNLESS OTHERWISE STATED IN THE PLANS OR DIRECTED BY THE ENGINEER.
- L) DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.
- M) INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW, BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW, BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.
- N) INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.
- O) PROTECT THE APPROACH END OF PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

### PAVEMENT MARKINGS AND MARKERS

- P) RECORD ALL LOCATIONS AND TYPES OF EXISTING PAVEMENT MARKINGS AS THEY WILL BE REPLACED IN THE SAME LOCATION ON THE NEW SURFACE.
- Q) UPON COMPLETION OF ALL OTHER CONSTRUCTION OPERATIONS INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

<u>ROAD NAME</u>	<u>MARKING</u>	<u>PAVEMENT MARKER</u>
I-77	THERMOPLASTIC	SNOWPLOWABLE

- R) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- S) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BEFORE OPENING LANES/ROADWAY TO TRAFFIC.

 <b>Stantec</b>	Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27608 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672	APPROVED: _____ DATE: _____ 	
<b>GENERAL NOTES</b>			

## PHASING

AREA 1 IS BRIDGE #8 (I-77 NB OVER HUNTING CREEK) AND AREA 2 IS BRIDGE #14 (I-77 SB OVER HUNTING CREEK). WORK MAY OCCUR IN BOTH AREAS AT THE SAME TIME. INTERMEDIATE CONTRACT TIMES FOR AREA 1 MAY COINCIDE OR OVERLAP WITH INTERMEDIATE CONTRACT TIMES FOR AREA 2.

AREA 1: BRIDGE #8, I-77 NB

PHASE 1

INTERMEDIATE CONTRACT TIME SPECIAL PROVISION

COMPLETE THE WORK REQUIRED OF AREA 1, PHASE 1, STEPS 1 AND 2 IN A CONTINUOUS OPERATION WITHIN A PERIOD OF 15 CALENDAR DAYS.

STEP 1: IMPLEMENT LEFT LANE CLOSURES, PLACE PORTABLE CONCRETE BARRIER, AND PERFORM BRIDGE DECK OVERLAY WORK ON LEFT LANE OF I-77 NB, PER SHEET TMP-4.

STEP 2: EITHER REMOVE PORTABLE CONCRETE BARRIER AND OPEN ALL TRAVEL LANES TO TRAFFIC, OR, RESET BARRIER TO PHASE 2 PATTERN AND IMMEDIATELY BEGIN WORK ON PHASE 2.

PHASE 2

INTERMEDIATE CONTRACT TIME SPECIAL PROVISION

COMPLETE THE WORK REQUIRED OF AREA 1, PHASE 2, STEPS 1 AND 2 IN A CONTINUOUS OPERATION WITHIN A PERIOD OF 15 CALENDAR DAYS.

STEP 1: IMPLEMENT RIGHT LANE CLOSURES, PLACE PORTABLE CONCRETE BARRIER (OR RESET FROM PHASE 1), AND PERFORM BRIDGE DECK OVERLAY WORK ON RIGHT LANE OF I-77 NB, PER SHEET TMP-5.

STEP 2: REMOVE PORTABLE CONCRETE BARRIER AND OPEN ALL TRAVEL LANES TO TRAFFIC.

NOTE: THE ORDER OF PHASES 1 AND 2 MAY BE REVERSED.

PHASE 3

PERFORM JOINT WORK, GROOVING, AND PERMANENT PAVEMENT MARKINGS USING LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02 SHEETS 4, 5, AND/OR 6. SEE NOTE \*A\* FOR APPLICABLE LANE CLOSURE TIME RESTRICTIONS.

AREA 2: BRIDGE #14, I-77 SB

PHASE 1

INTERMEDIATE CONTRACT TIME SPECIAL PROVISION

COMPLETE THE WORK REQUIRED OF AREA 2, PHASE 1, STEPS 1 AND 2 IN A CONTINUOUS OPERATION WITHIN A PERIOD OF 15 CALENDAR DAYS.

STEP 1: IMPLEMENT LEFT LANE CLOSURES, PLACE PORTABLE CONCRETE BARRIER, AND PERFORM BRIDGE DECK OVERLAY WORK ON LEFT LANE OF I-77 SB, PER SHEET TMP-4.

STEP 2: EITHER REMOVE PORTABLE CONCRETE BARRIER AND OPEN ALL TRAVEL LANES TO TRAFFIC, OR, RESET BARRIER TO PHASE 2 PATTERN AND IMMEDIATELY BEGIN WORK ON PHASE 2.

PHASE 2

INTERMEDIATE CONTRACT TIME SPECIAL PROVISION

COMPLETE THE WORK REQUIRED OF AREA 2, PHASE 2, STEPS 1 AND 2 IN A CONTINUOUS OPERATION WITHIN A PERIOD OF 15 CALENDAR DAYS.

STEP 1: IMPLEMENT RIGHT LANE CLOSURES, PLACE PORTABLE CONCRETE BARRIER (OR RESET FROM PHASE 1), AND PERFORM BRIDGE DECK OVERLAY WORK ON RIGHT LANE OF I-77 SB, PER SHEET TMP-5.

STEP 2: REMOVE PORTABLE CONCRETE BARRIER AND OPEN ALL TRAVEL LANES TO TRAFFIC.

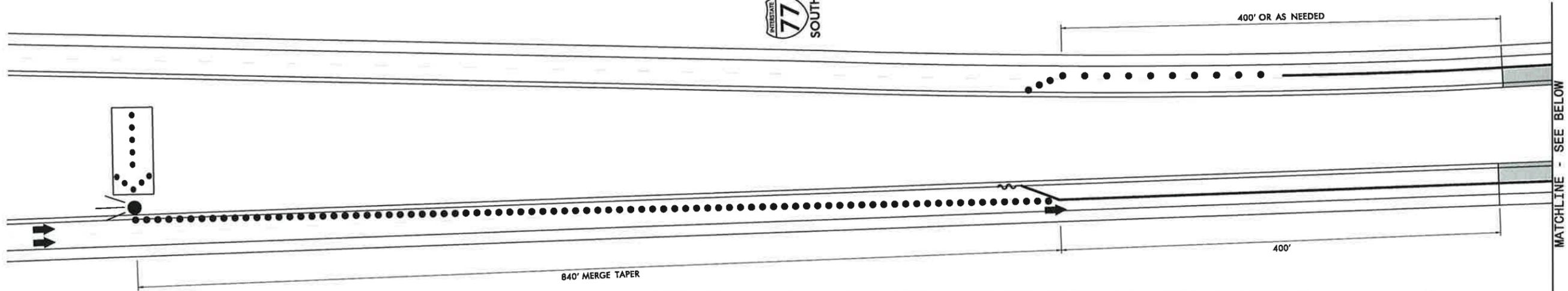
NOTE: THE ORDER OF PHASES 1 AND 2 MAY BE REVERSED.

PHASE 3

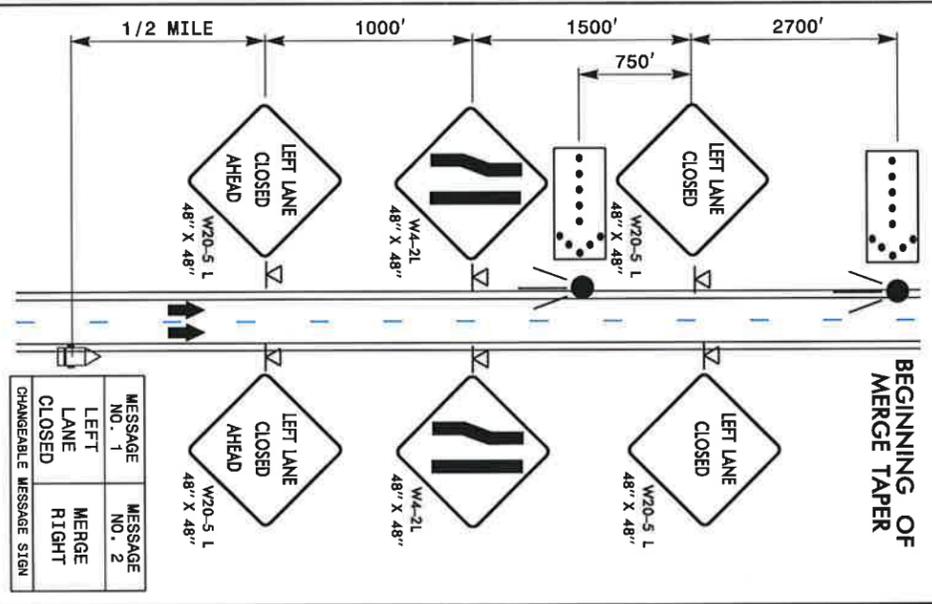
PERFORM JOINT WORK, GROOVING, AND PERMANENT PAVEMENT MARKINGS USING LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02 SHEETS 4, 5, AND/OR 6. SEE NOTE \*A\* FOR APPLICABLE LANE CLOSURE TIME RESTRICTIONS.

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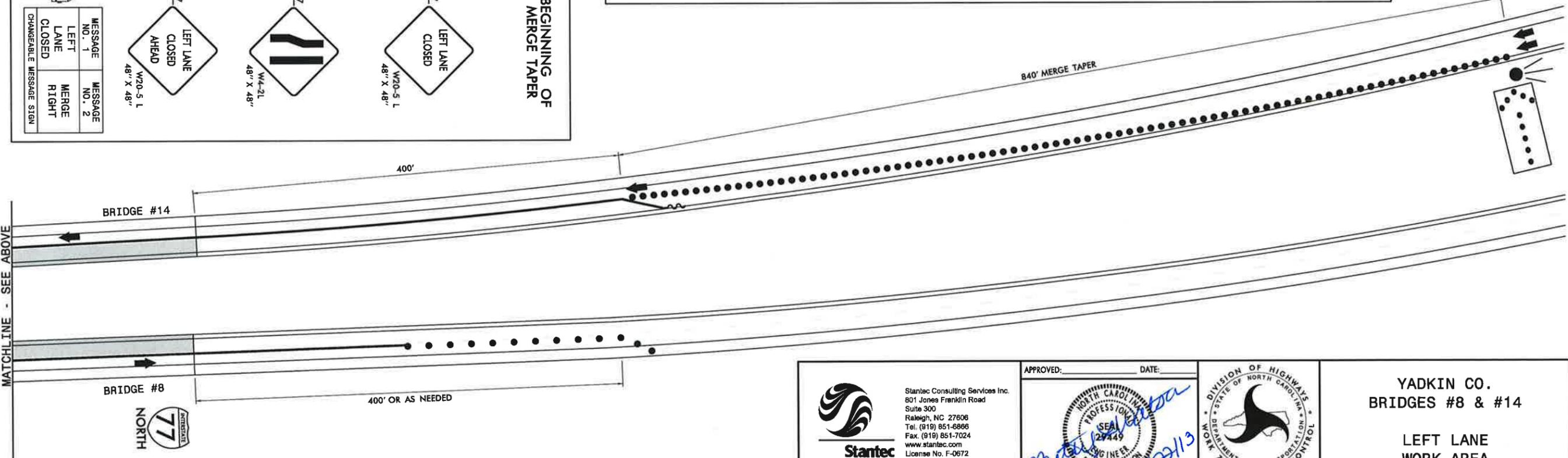
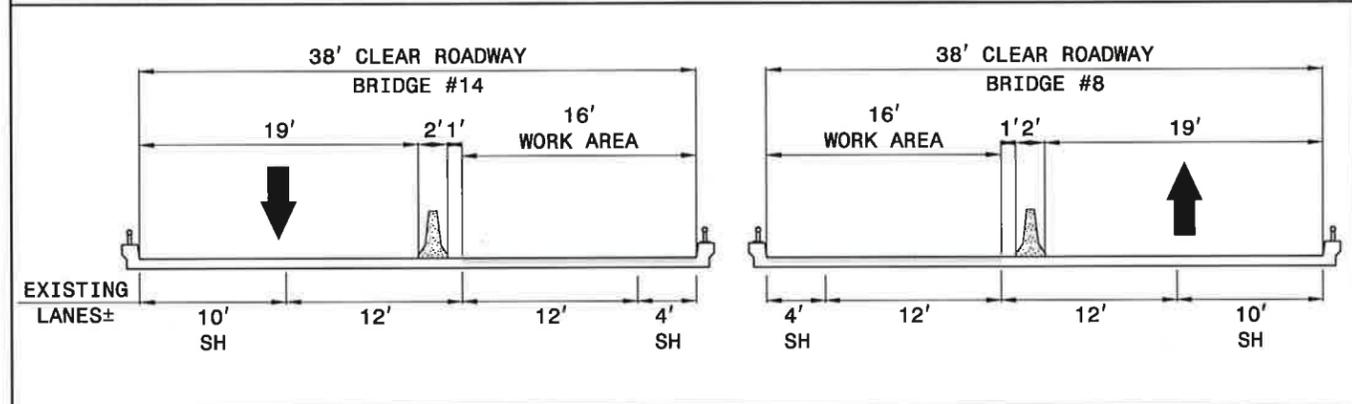
 <p style="font-size: 8px;">Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel: (919) 851-6866 Fax: (919) 851-7024 www.stantec.com License No. F-0672</p>	<p>APPROVED: _____ DATE: _____</p> 		<h1 style="margin: 0;">PHASING</h1>
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**SIGNING IN ADVANCE OF LEFT LANE CLOSURE**

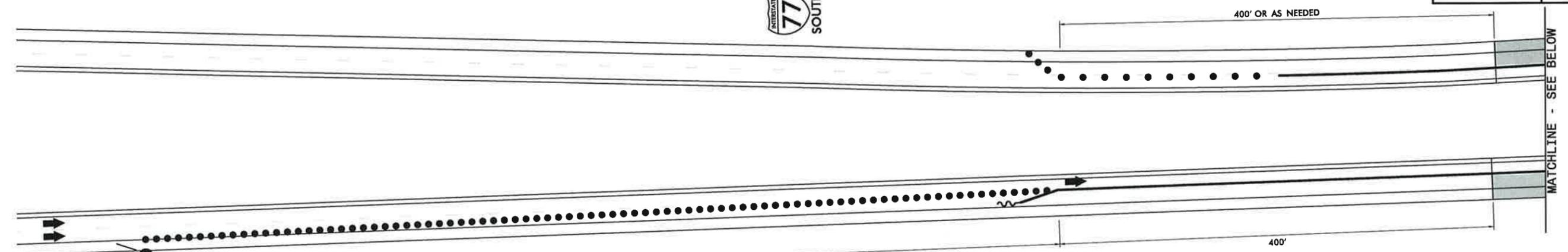


**I-77 LEFT LANE WORK AREAS**

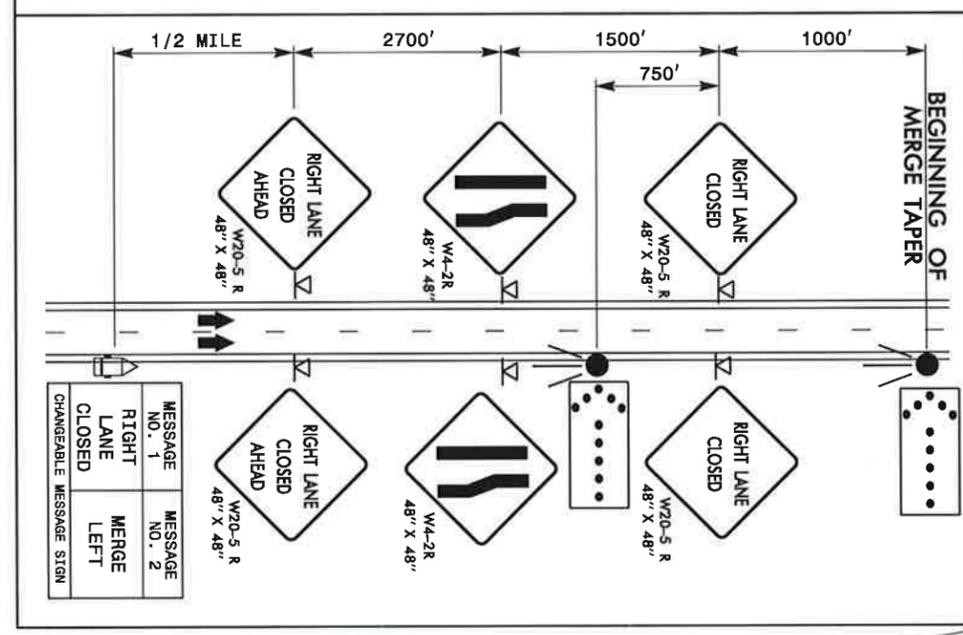


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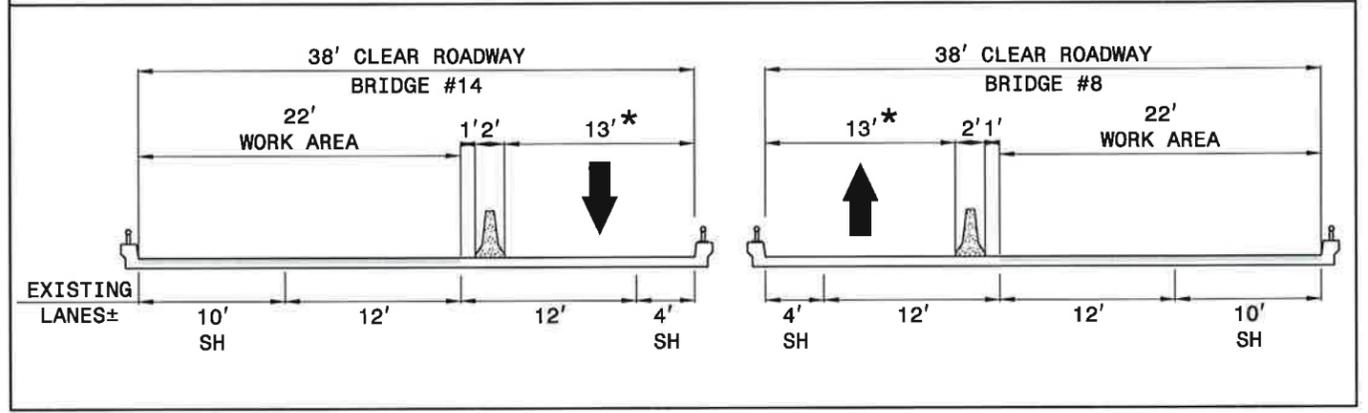
<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-8866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL</p>	<p><b>YADKIN CO. BRIDGES #8 &amp; #14</b></p> <p><b>LEFT LANE WORK AREA</b></p>



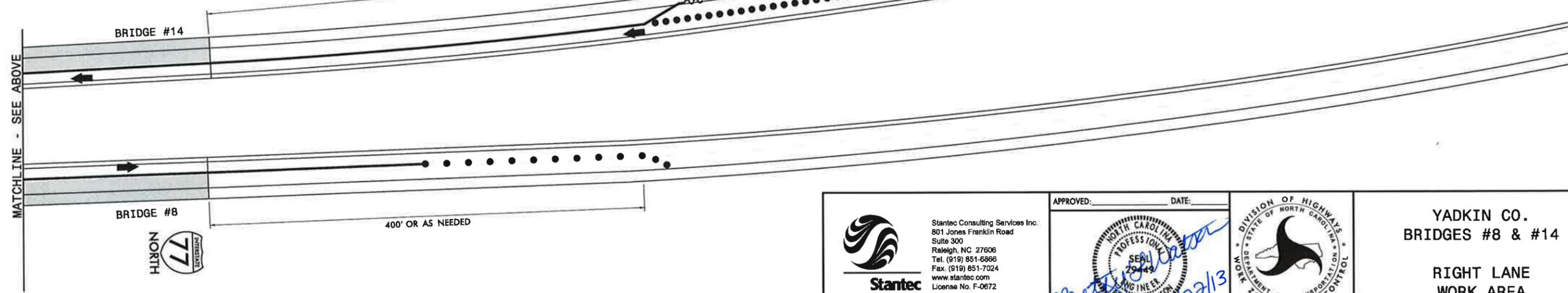
### SIGNING IN ADVANCE OF RIGHT LANE CLOSURE



### I-77 RIGHT LANE WORK AREAS



\* NOTE: ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919-733-4740) HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS, PARTICULARLY THE EXACT DATES OF THE 13' CLEAR WIDTH CONDITION, THROUGH THE DIVISION OFFICE.



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