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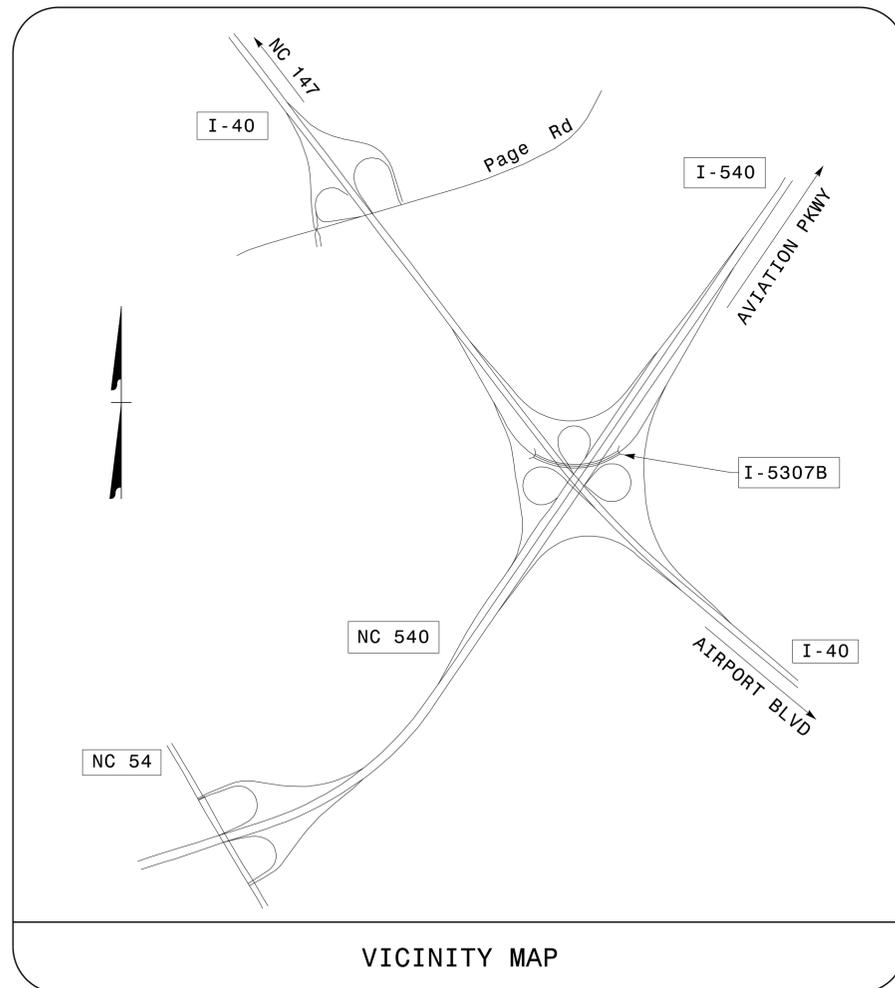
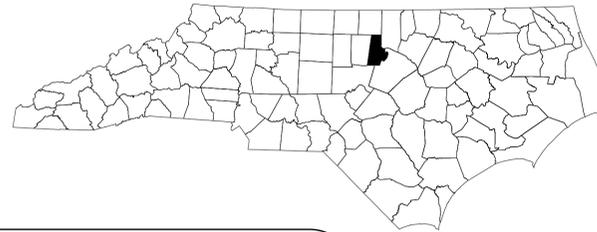
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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**DURHAM COUNTY**



**LOCATION: I-540 FLYOVER BRIDGE OVER I-40 IN DURHAM**

**TYPE OF WORK: REPLACEMENT OF MODULAR JOINTS AT  
END BENT NO. 2 AND BENT NO. 3**

**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-2	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, AND LOCAL NOTES)
TMP-3	PHASING
TMP-4 AND TMP-5	INSIDE LANE JOINT REPLACEMENT
TMP-6	EXIT 279 ADVANCED DEVICES AND DETOUR ROUTE
TMP-7 AND TMP-7A	EXIT 283 CLOSURE DEVICES AND DETOUR ROUTE
TMP-8	EXIT 284A AND EXIT 285 DEVICES AND DETOUR ROUTE

SHEET NO.

TMP-1

**I-5307B**

**TIP PROJECT:**

4/15/2016 R:\tip\projects\I5307B\Traffic\TrafficControl\TCP\I5307B\_TC\_tmp01.dgn User:derichardson



**N.C.D.O.T. WORK ZONE TRAFFIC CONTROL**  
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561  
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)  
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, PE STATE TRAFFIC MANAGEMENT ENGINEER  
D. W. BISSETTE, PE TRAFFIC CONTROL PROJECT ENGINEER  
H. SHYU, PE TRAFFIC CONTROL PROJECT DESIGN ENGINEER  
D. E. RICHARDSON TRAFFIC CONTROL DESIGN ENGINEER



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APPROVED:   
DATE: 4/15/2016

SEAL



# ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN 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
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
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	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.03	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMPS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1205.11	PAVEMENT MARKINGS - RAILROAD CROSSINGS
1205.12	PAVEMENT MARKINGS - BRIDGES
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

# LEGEND

## GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)



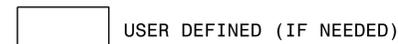
WORK AREA



REMOVAL



USER DEFINED (IF NEEDED)



USER DEFINED (IF NEEDED)

## SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

## PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

## TRAFFIC CONTROL DEVICES

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

## TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

## PAVEMENT MARKERS

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

## PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

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APPROVED: DATE: 4/15/2016			<b>ROADWAY STANDARD DRAWINGS &amp; LEGEND</b>
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## MANAGEMENT STRATEGIES

- USING NIGHTLY LANE CLOSURES REPLACE BRIDGE JOINTS ON THE INSIDE LANE.
- USING MULTIPLE DETOUR ROUTES CLOSE THE I-40 EAST BOUND FLYOVER RAMP TO I-540 EAST BOUND OVER THE LABOR DAY WEEKEND AND COMPLETE BRIDGE JOINTS REPLACEMENT.
- USING MULTIPLE DETOUR ROUTES CLOSE THE I-40 EAST BOUND FLYOVER RAMP TO I-540 EAST BOUND OVER THE WEEKEND FOLLOWING LABOR DAY WEEKEND AND CONDUCT LEAK TEST.

## GENERAL NOTES

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

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

### TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
I-40 AND I-540 INCLUDING RAMPS AND LOOPS	MONDAY THRU THURSDAY FROM 7:00 AM TO 9:00 PM FRIDAY FROM 7:00 AM TO 10:00 PM SATURDAY AND SUNDAY FROM 11:00 AM TO 8:00 PM

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- B) 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.
- C) 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.
- D) 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 USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- E) 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 USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- G) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

- H) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON I-40 AND I-540.
- I) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

### TRAFFIC PATTERN ALTERATIONS

- J) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.
- K) NOTIFY DURHAM AND WAKE COUNTY EMS THIRTY (30) CALENDAR DAYS PRIOR TO RAMP CLOSURE

### SIGNING

- L) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- M) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- N) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.
- O) PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE(S) AS SHOWN IN THE TRANSPORTATION MANAGEMENT PLANS.
- P) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURES ARE NOT IN OPERATION.
- Q) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED FOR THE OFF-SITE DETOUR(S) WHEN THE DETOUR(S) ARE NOT IN OPERATION.

### TRAFFIC CONTROL DEVICES

- R) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

### MISCELLANEOUS

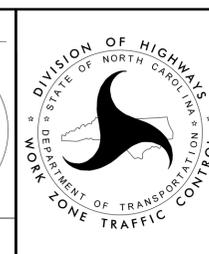
- S) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.
- T) NOTIFY THE ENGINEER IN WRITING A MINIMUM OF TWO (2) MONTHS BEFORE A TRAFFIC SIGNAL TIMING MODIFICATION IS REQUIRED.
- U) COORDINATE WITH STATE TRANSPORTATION OPERATIONS CENTER (STOC) TO UTILIZE EXISTING DMS TO PROVIDE NOTIFICATION OF I-540 RAMP CLOSURE AND DETOUR ROUTES VIA NC-147 AND NC-54.

APPROVED:   
DocuSigned by: David Bisette  
ECCD098C872348C

DATE: 4/15/2016



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**TRANSPORTATION  
OPERATIONS  
PLAN**

## PHASING

STEP 1 - INSTALL WORK ZONE ADVANCE WARNING SIGNS. SEE RSD 1101.01.

STEP 2 - USING RSD 1101.02, SHEETS 4 AND 5 OF 15 AND SHEETS TMP-4 THRU TMP-5, CONDUCT INSIDE JOINT REPLACEMENT WORK AS MUCH AS POSSIBLE.

STEP 3 - COORDINATE WITH STOC AND SHOW ADVANCE WARNING DMS MESSAGE AT LEAST FOURTEEN (14) CALENDAR DAYS PRIOR TO ROAD CLOSURE.  
- INSTALL AND COVER ALL DETOUR SIGNS.

CONTRACTOR SHALL COMPLETE THE CONSTRUCTION, DESCRIBED IN STEPS 4 THRU 6, BETWEEN 10:00 P.M. OF THE FRIDAY BEFORE LABOR DAY AND 7:00 A.M. OF THE FOLLOWING TUESDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 4 - UNCOVER ALL DETOUR SIGNS AND USING TMP-6 THRU TMP-8, CLOSE I-540 FLYOVER BRIDGE OVER I-40.

STEP 5 - AWAY FROM TRAFFIC, CONDUCT ALL REMAINING JOINT REPLACEMENT WORK.

STEP 6 - COVER ALL DETOUR SIGNS AND OPEN I-540 FLYOVER BRIDGE OVER I-40 TO TRAFFIC.

CONTRACTOR SHALL COMPLETE THE CONSTRUCTION, DESCRIBED IN STEPS 7 THRU 9, BETWEEN 10:00 P.M. OF THE FRIDAY AFTER LABOR DAY AND 7:00 A.M. OF THE FOLLOWING MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 7 - UNCOVER ALL DETOUR SIGNS AND USING TMP-6 THRU TMP-8, CLOSE I-540 FLYOVER BRIDGE OVER I-40.

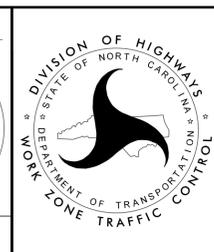
STEP 8 - AWAY FROM TRAFFIC, CONDUCT ALL WATER TESTING WORK.

STEP 9 - COVER OR REMOVE ALL DETOUR SIGNS AND OPEN I-540 FLYOVER BRIDGE OVER I-40 TO TRAFFIC.

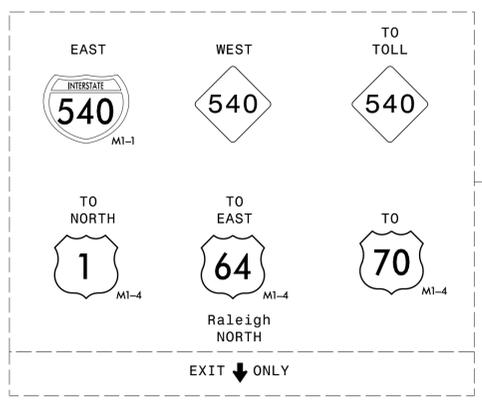
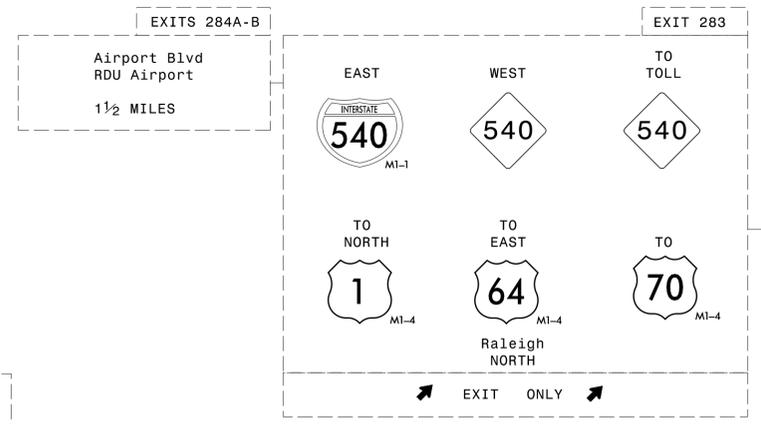
STEP 10 - REMOVE ALL REMAINING WORK ZONE TRAFFIC CONTROL DEVICES.

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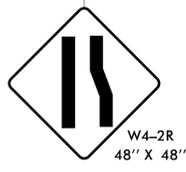
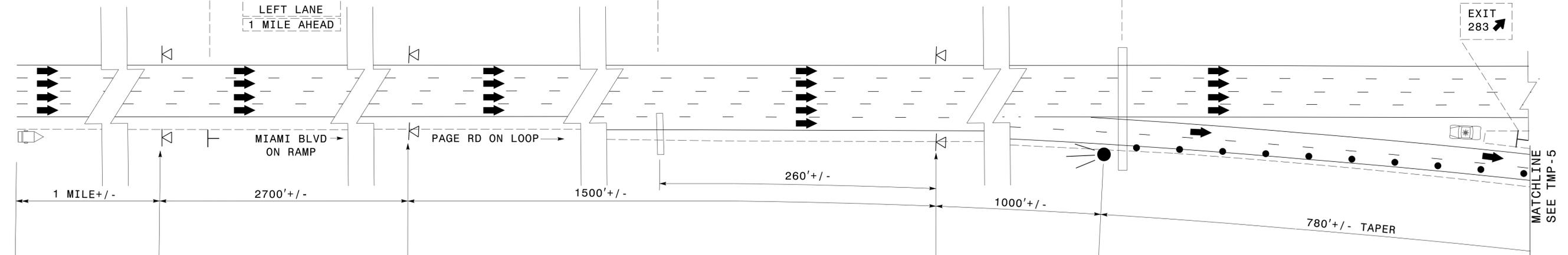
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PHASING



I-40  
NO TRUCKS  
3 AXELS  
OR MORE  
LEFT LANE  
1 MILE AHEAD



RIGHT LANE CLOSED      MERGE LEFT

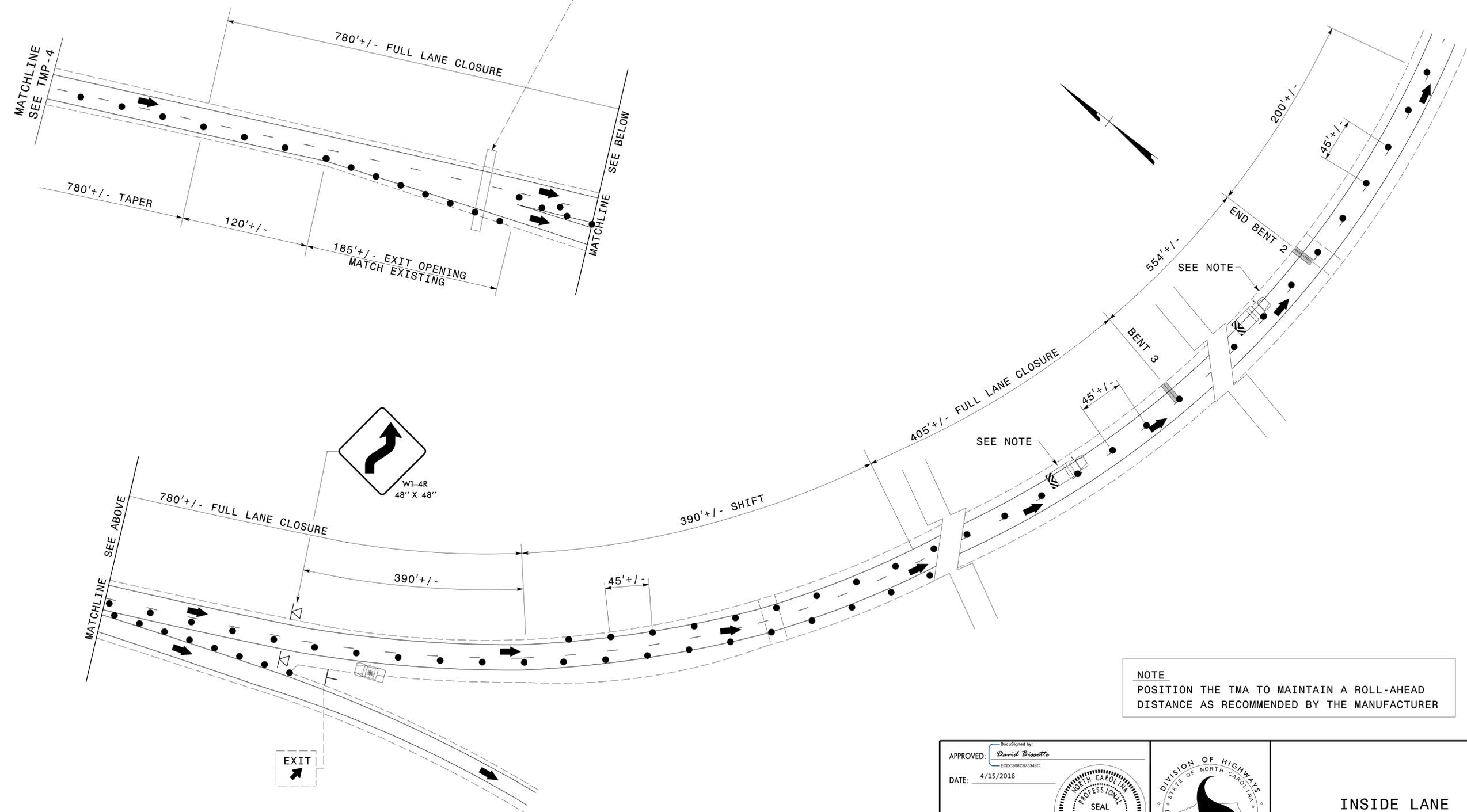
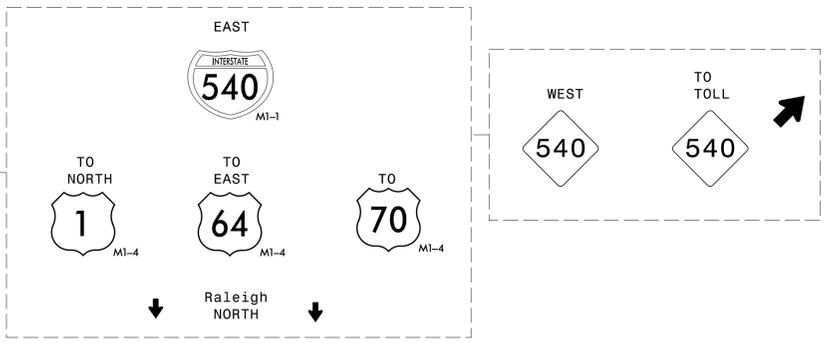
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**INSIDE LANE  
BENT REPLACEMENT**

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NOTE  
 POSITION THE TMA TO MAINTAIN A ROLL-AHEAD DISTANCE AS RECOMMENDED BY THE MANUFACTURER

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**INSIDE LANE  
 BENT REPLACEMENT**

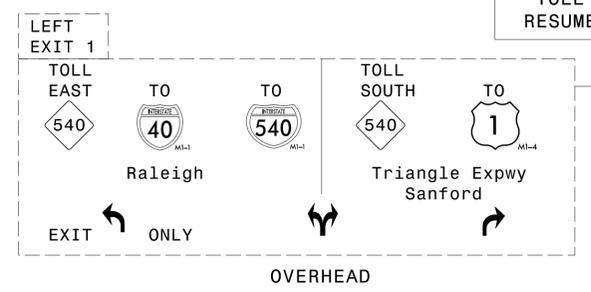
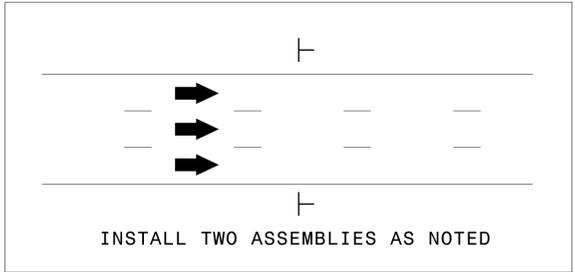
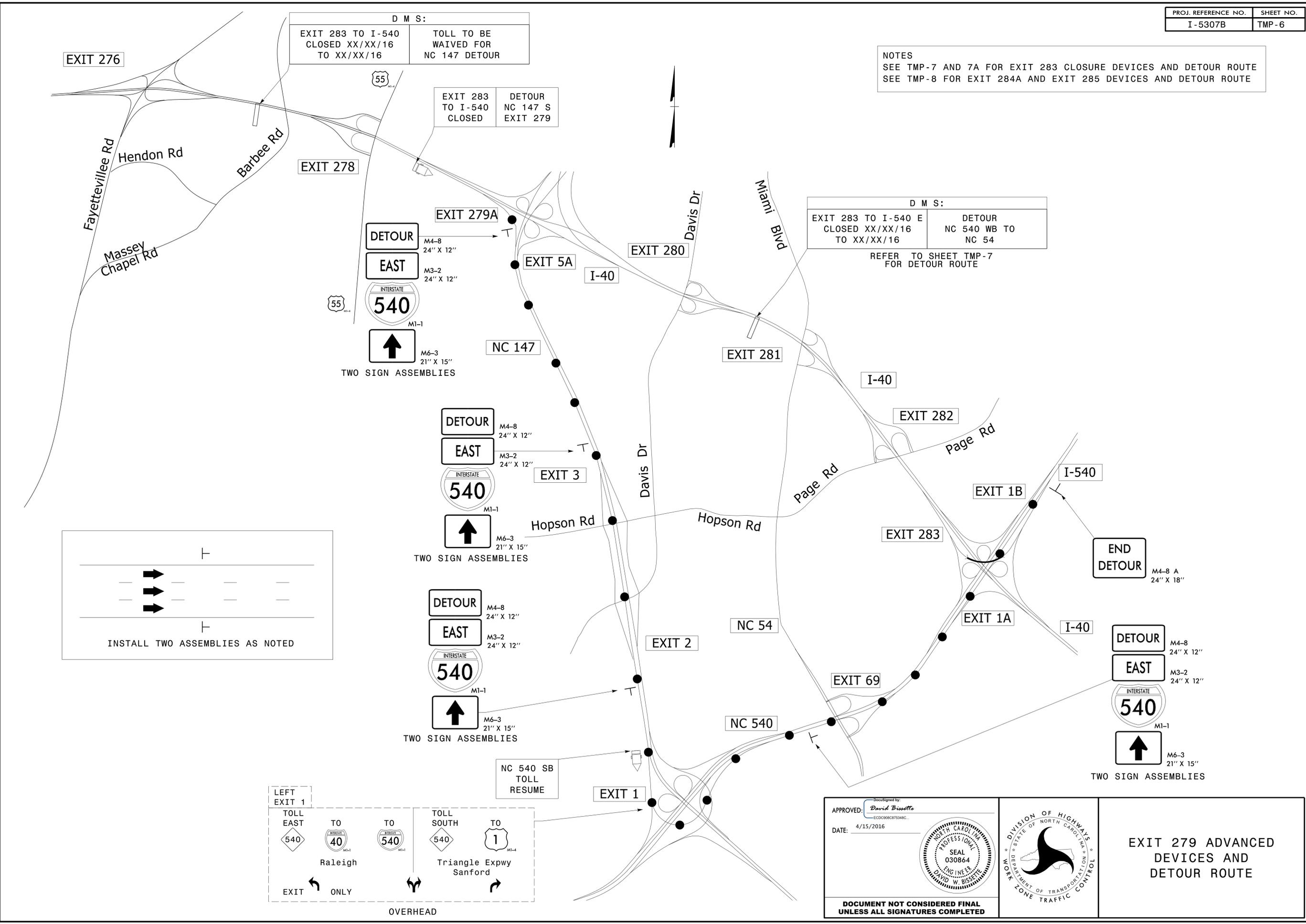
NOTES  
 SEE TMP-7 AND 7A FOR EXIT 283 CLOSURE DEVICES AND DETOUR ROUTE  
 SEE TMP-8 FOR EXIT 284A AND EXIT 285 DEVICES AND DETOUR ROUTE

D M S:  
 EXIT 283 TO I-540  
 CLOSED XX/XX/16  
 TO XX/XX/16  
 TOLL TO BE  
 WAIVED FOR  
 NC 147 DETOUR

EXIT 283  
 TO I-540  
 CLOSED  
 DETOUR  
 NC 147 S  
 EXIT 279

D M S:  
 EXIT 283 TO I-540 E  
 CLOSED XX/XX/16  
 TO XX/XX/16  
 DETOUR  
 NC 540 WB TO  
 NC 54

REFER TO SHEET TMP-7  
 FOR DETOUR ROUTE



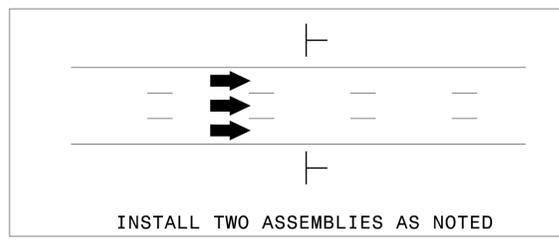
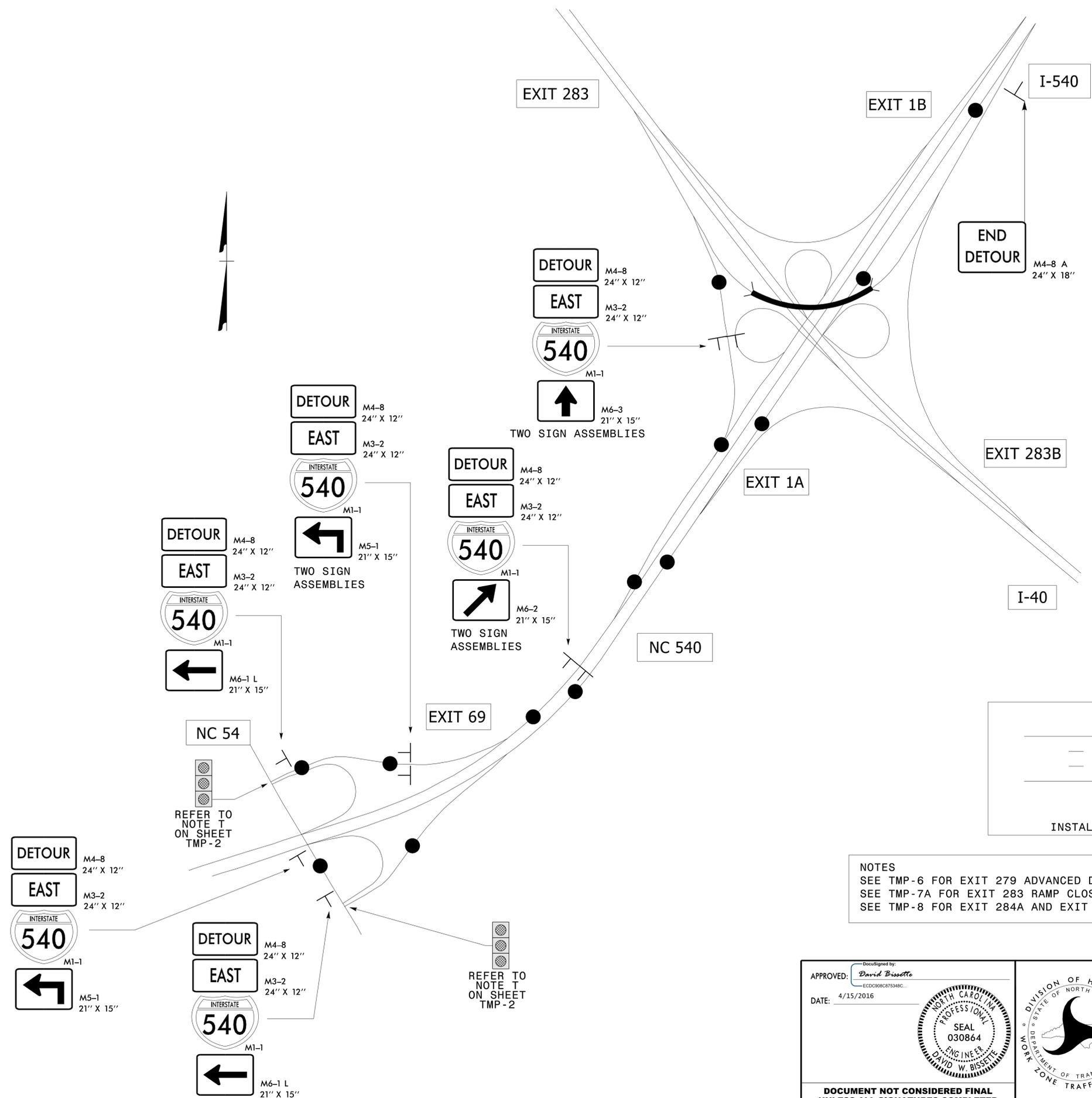
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 SEAL 030864  
 ENGINEER  
 DAVID W. BISSETTE

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**EXIT 279 ADVANCED  
 DEVICES AND  
 DETOUR ROUTE**

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**NOTES**  
 SEE TMP-6 FOR EXIT 279 ADVANCED DEVICES AND DETOUR ROUTE  
 SEE TMP-7A FOR EXIT 283 RAMP CLOSURE DETAIL  
 SEE TMP-8 FOR EXIT 284A AND EXIT 285 DEVICES AND DETOUR ROUTE

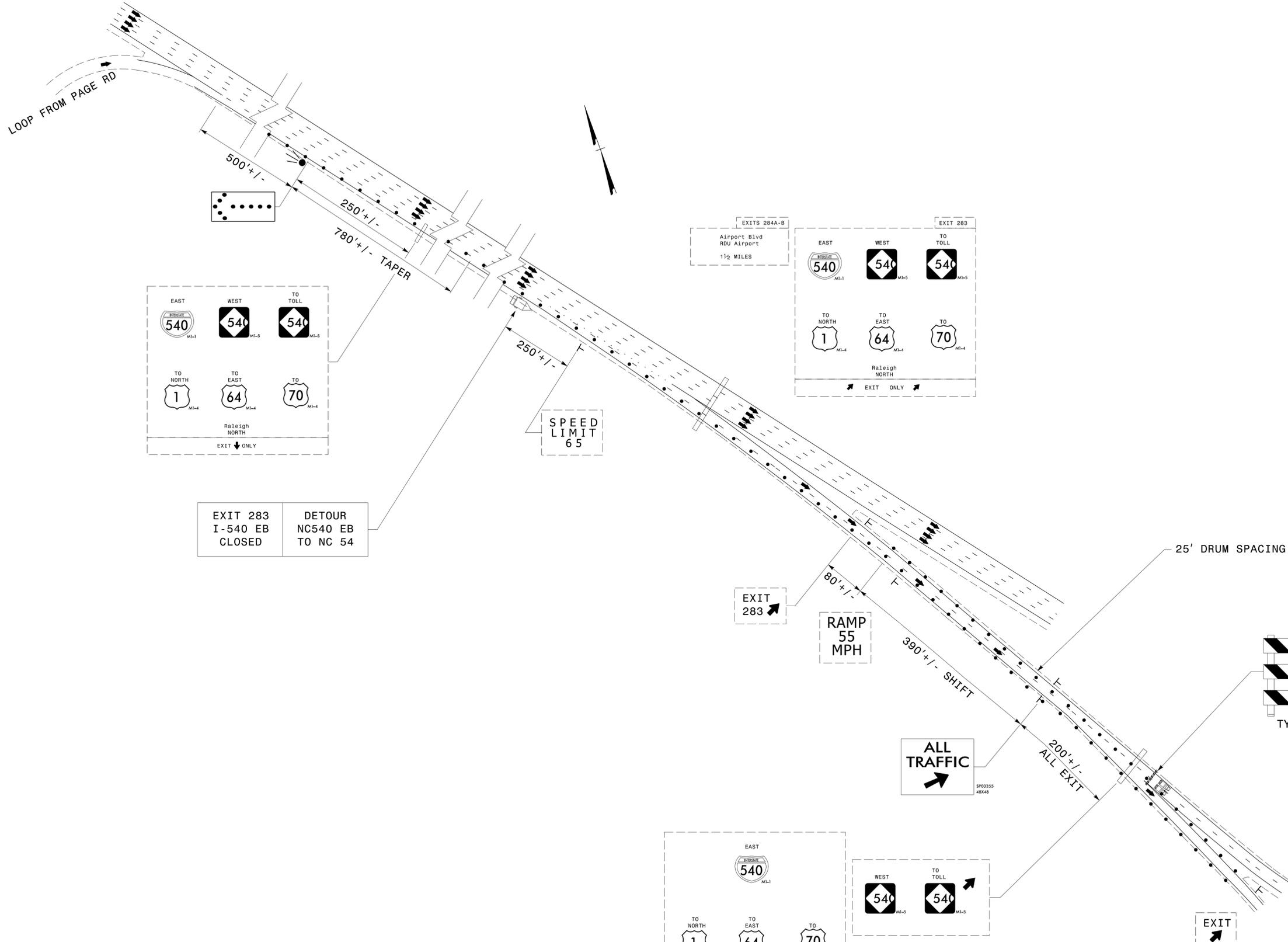
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**EXIT 283 CLOSURE  
 DEVICES AND  
 DETOUR ROUTE**

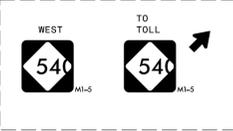
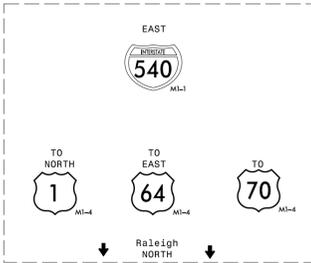
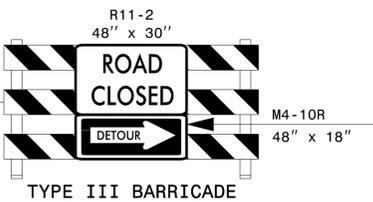


EXIT 283 I-540 EB CLOSED	DETOUR NC540 EB TO NC 54
--------------------------------	--------------------------------

EXIT 283

RAMP  
55  
MPH

ALL  
TRAFFIC



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SEAL  
030864  
ENGINEER  
DAVID W. BISSETTE

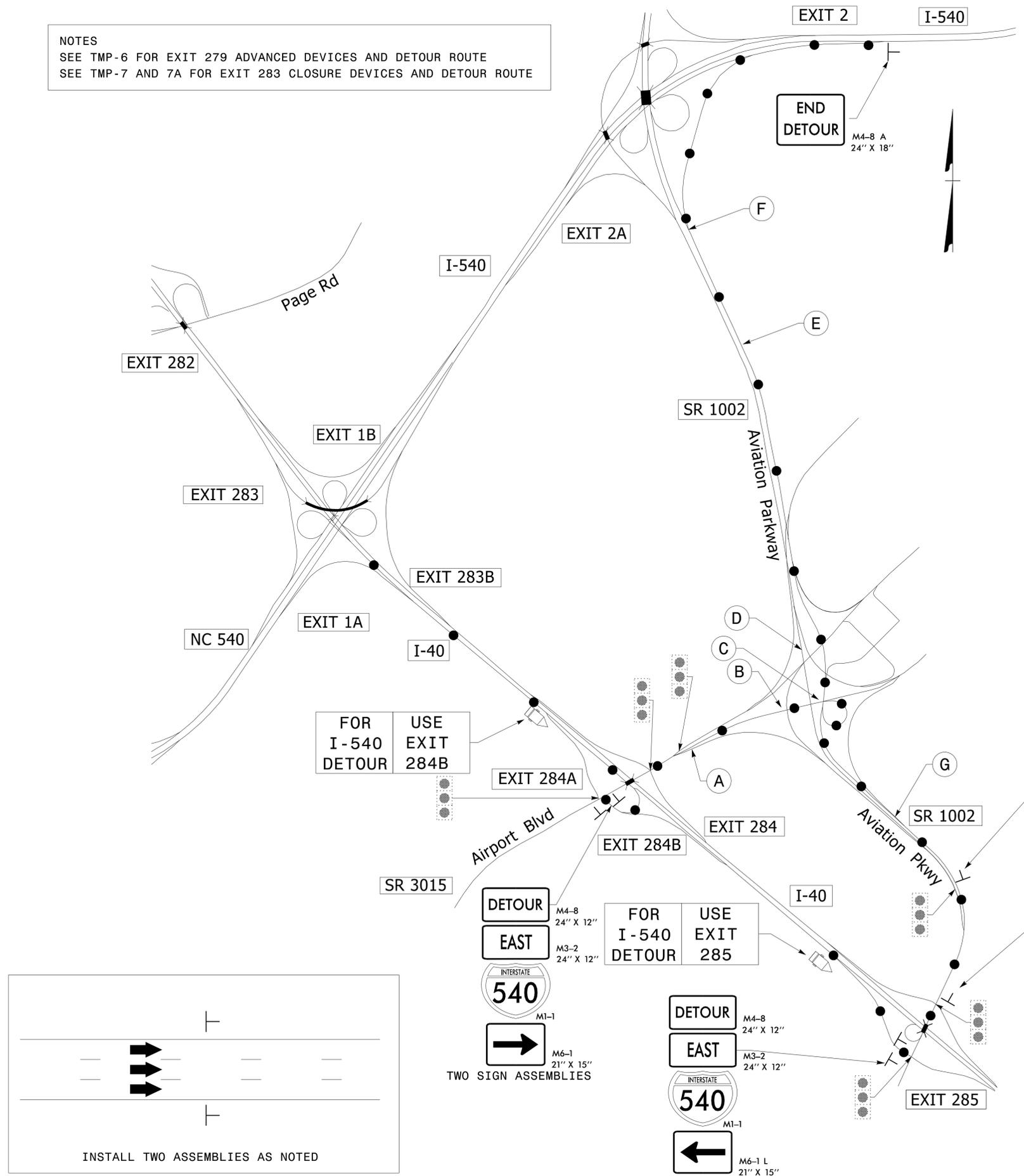
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**EXIT 283 CLOSURE  
DEVICES AND  
DETOUR ROUTE**

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NOTES  
 SEE TMP-6 FOR EXIT 279 ADVANCED DEVICES AND DETOUR ROUTE  
 SEE TMP-7 AND 7A FOR EXIT 283 CLOSURE DEVICES AND DETOUR ROUTE



EXISTING SIGNS FOR DETOUR USE

- (A) 

Raleigh-Durham International Airport	TO  Aviation Pkwy NORTH EXIT 1/2 MILE	Aviation Pkwy SOUTH Park and Ride (3)
--------------------------------------	---------------------------------------	---------------------------------------

 OVERHEAD
- (B) 

TO	Aviation Pkwy NORTH	NEXT RIGHT
----	---------------------	------------

 RIGHT SHOULDER
- (C) 

TO	Aviation Pkwy NORTH	
----	---------------------	--

 RIGHT SHOULDER
- (D) 

TO	Aviation Pkwy	
----	---------------	--

 OVERHEAD
- (E) 

TO	TO	TO
Apex North Raleigh EXIT 1/2 MILE		

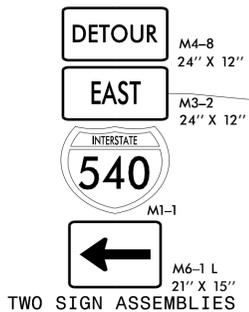
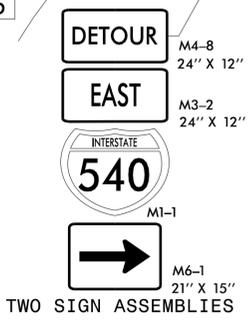
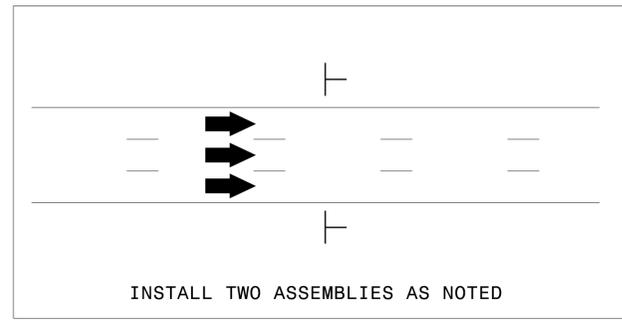
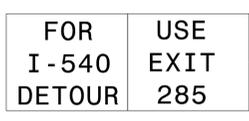
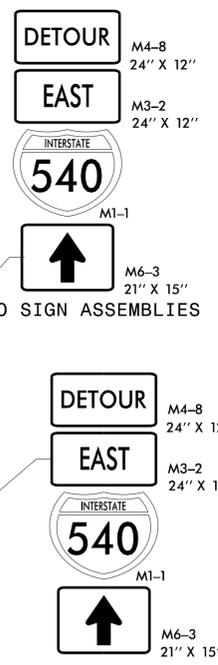
 OVERHEAD
- (F) 

WEST	TO	EAST	TO
Apex EXIT 1/2 MILE North Raleigh			

 OVERHEAD
- (G) 

TO	Rental Car Return Exit 1/2 MILE	Terminals Parking EXIT ONLY
----	---------------------------------	-----------------------------

 OVERHEAD



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 DATE: 4/15/2016  
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

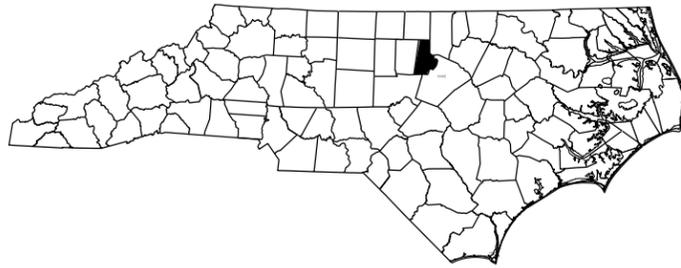


EXIT 284A & EXIT 285 DEVICES AND DETOUR ROUTE

4/15/2016  
 R:\TIP\Projects\I-5307B\Traffic\TrafficControl\TCP\I5307B\_TC\_tmp08.dgn  
 User: dcharlson

**PROJECT: I-5307B**

**WBS NO.: 47030.3.3**



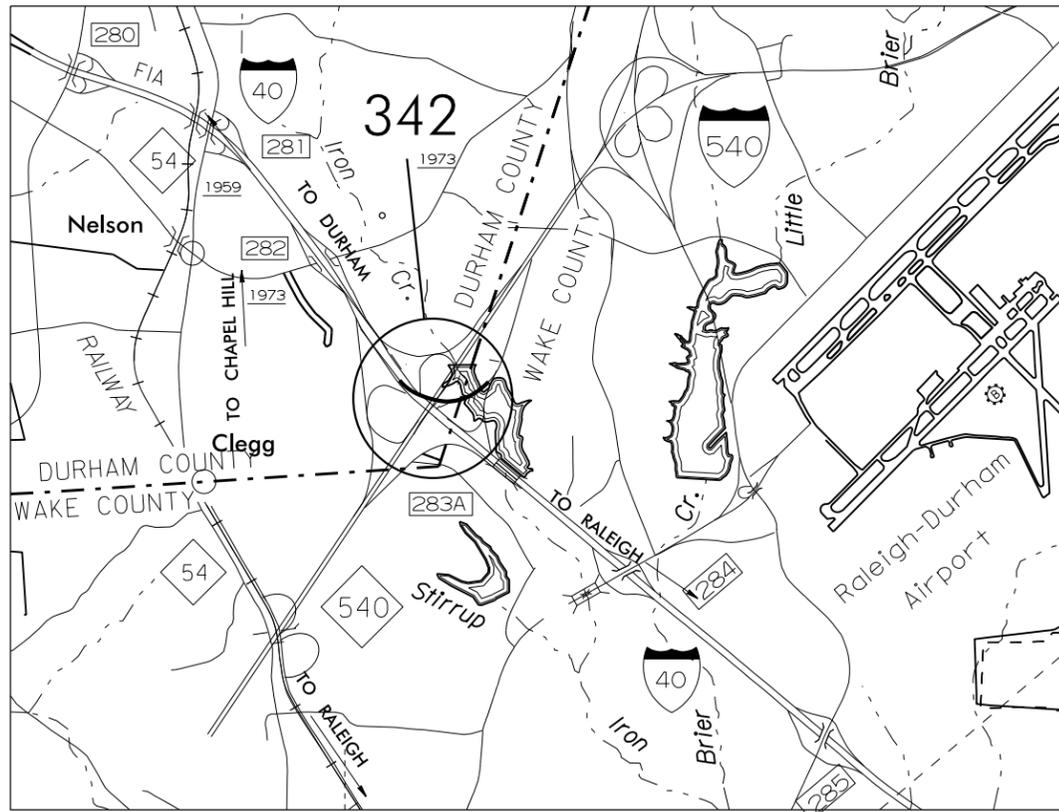
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**DURHAM COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5307B	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
47030.3.3	IM-0540(32)	P.E.	
47030.3.3	IM-0540(32)	CONST.	

**LOCATION:** BRIDGE #342 ON I-540 OVER I-40 & NW EXPRESSWAY.

**TYPE OF WORK:** REPLACEMENT OF MODULAR JOINTS AT END BENT #2 AND BENT #3.



**DESIGN DATA**  
BRIDGE # 342 - ADT 2012 = 29,000

**PROJECT LENGTH**  
BRIDGE # 342 - 0.20 MILE

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

**J. M. BAILEY, P.E.**  
PROJECT ENGINEER

2012 STANDARD SPECIFICATIONS

**LETTING DATE:**  
May 25, 2016

DocuSigned by:  
*J. A. Asefnia*  
E06B406C4AC465

**FARZIN ASEFNIA, P.E.**  
PROJECT DESIGN ENGINEER

\$DATE\$ \$TIME\$ \$FILE\$

**CONTRACT: 47030.3.3**

**PROJECT: I-5307B**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

***DURHAM COUNTY***

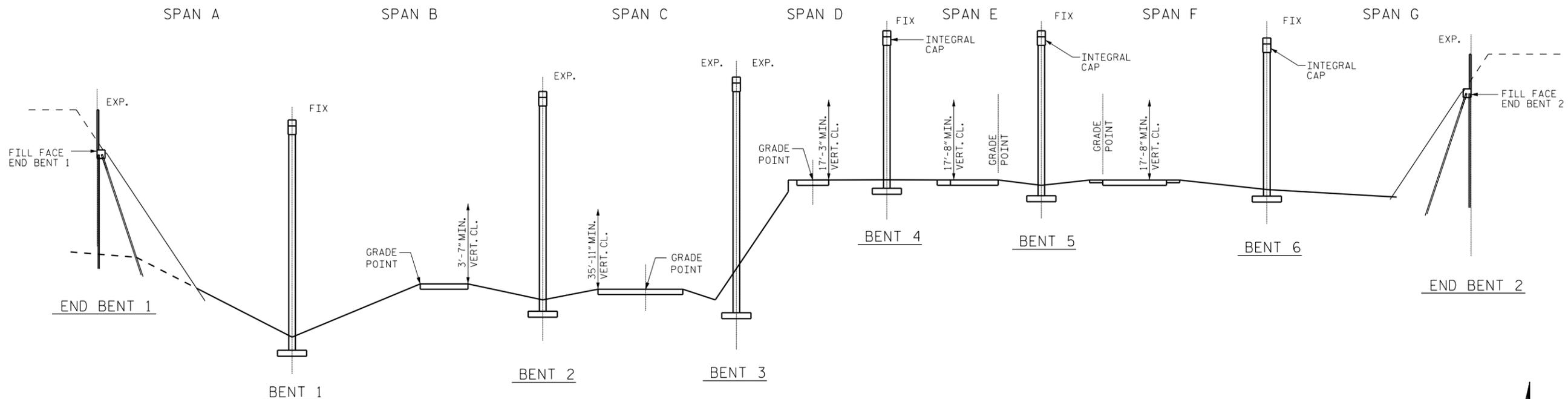
*LOCATION: BRIDGE #342 ON I-540 OVER I-40 & NW EXPRESSWAY.*

*TYPE OF WORK: REPLACEMENT OF MODULAR JOINTS AT END BENT #2 AND BENT #3.*

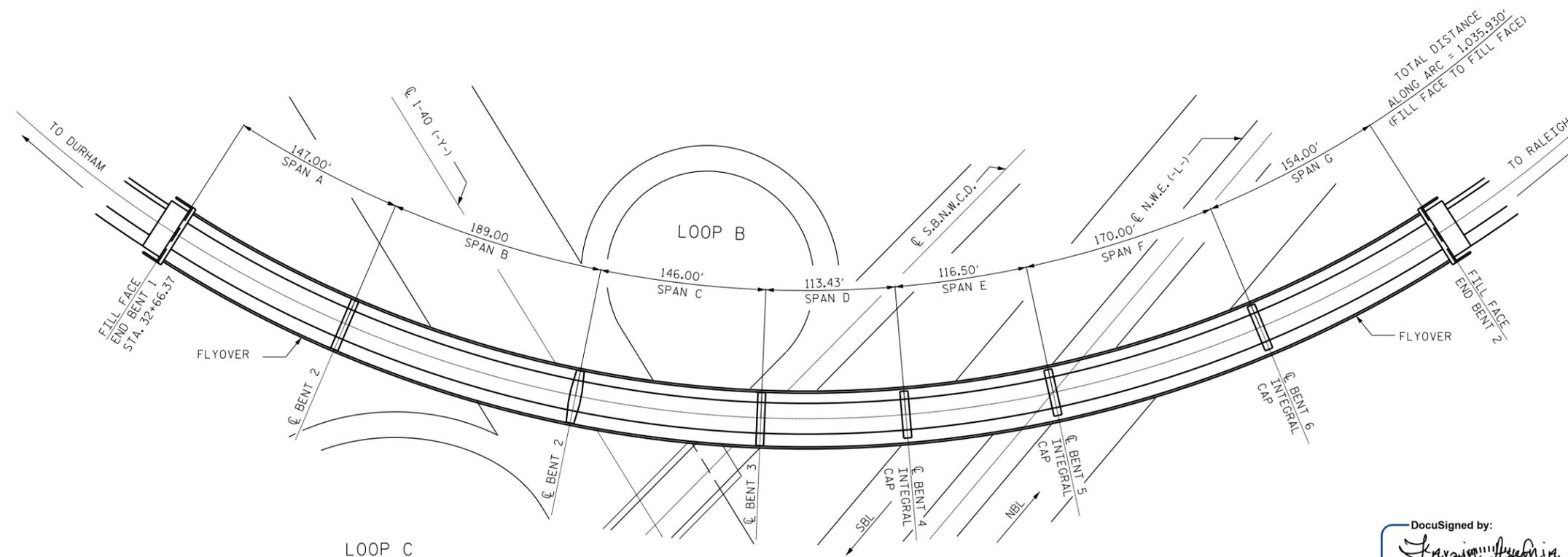
***INDEX OF SHEETS***

1	TITLE SHEET
1A	INDEX OF SHEETS
S-1 – S-15	BRIDGE #342
SN	STRUCTURAL STANDARD NOTES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5307B	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
47030.3.3	IM-0540(32)	P.E.	
47030.3.3	IM-0540(32)	CONST.	



SECTION ALONG C ROADWAY



PLAN

PROJECT NO. I-5307B  
DURHAM COUNTY  
 BRIDGE NO: 342

SHEET 1 OF 2

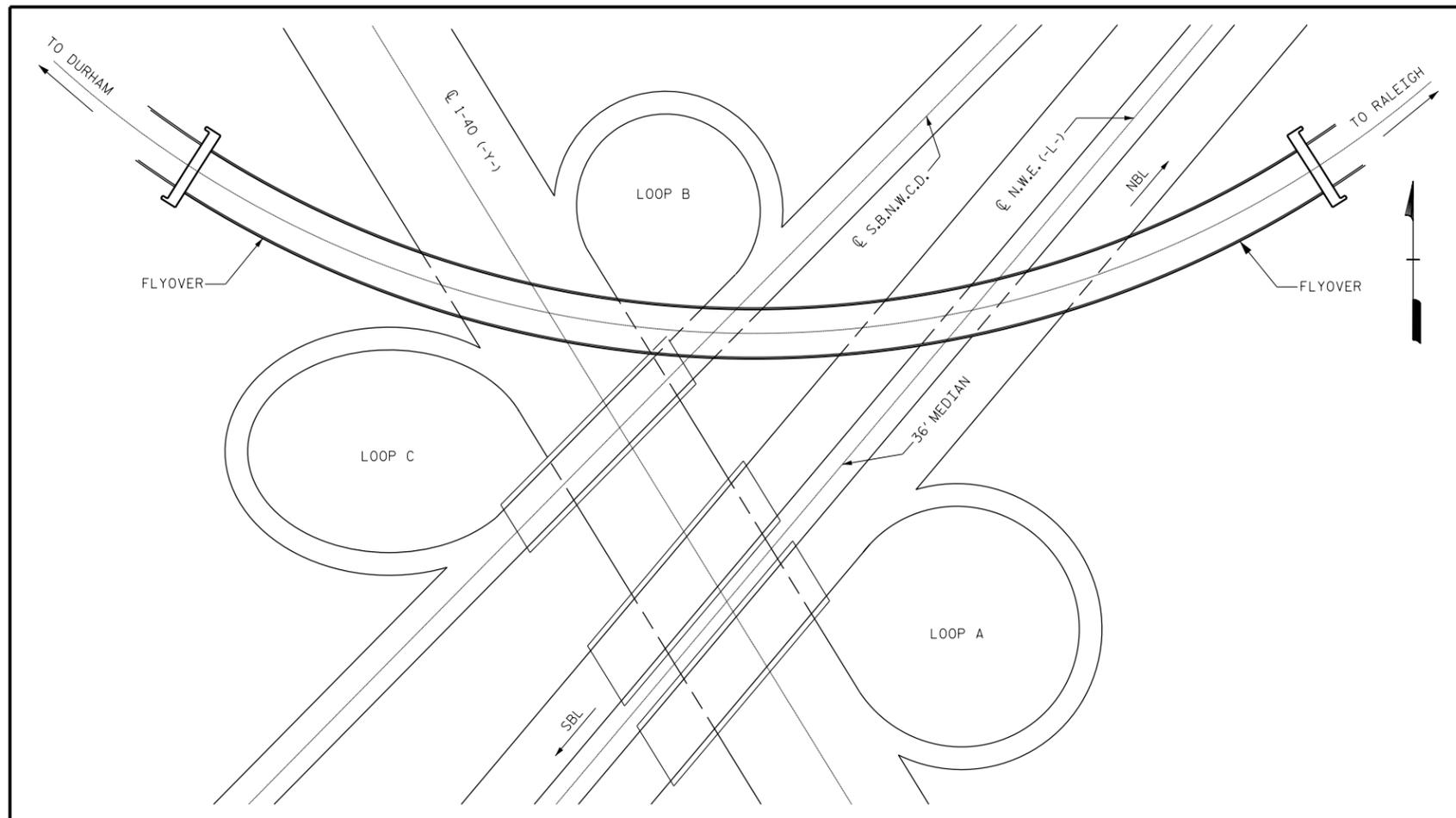
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 BRIDGE #342 ON  
 I-540 OVER I-40  
 & NW EXPRESSWAY

DocuSigned by:  
*Farzin Asefnia*  
 NORTH CAROLINA  
 PROFESSIONAL  
 SEAL  
 20103  
 ENGINEER  
 FARZIN ASEFNIA

4/21/2016

DRAWN BY : M. WELDON DATE : 7/2015  
 CHECKED BY : F. ASEFNIA DATE : 7/2015

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



LOCATION SKETCH

**NOTES**

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

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.

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

EXISTING MODULAR JOINT AND DECK REINFORCING STEEL SHOWN IS BASED ON BEST INFORMATION AVAILABLE.

ALL PROPOSED EXPANSION JOINT DIMENSIONS, OPENINGS AND BLOCKOUTS ARE SHOWN AT 60°F. CONTRACTOR SHALL FOLLOW MANUFACTURER'S INSTALLATION GUIDELINES AND MAKE ANY NECESSARY ADJUSTMENTS.

ADHESIVE ANCHOR BOLTS AND HARDWARE FOR THE PROPOSED EXPANSION JOINT SHALL BE GALVANIZED PER ASTM A153 AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

TOTAL THERMAL MOVEMENT MEASURED PARALLEL TO THE CENTERLINE OF THE ROADWAY IS ( EXPANSION AND CONTRACTION)

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

PRIOR TO BEGINNING WORK, CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.

CONTRACTOR SHALL DETERMINE EXTENT OF WORKING AREA, STAGING PROCESS, AND INSTALL COVER & ASSEMBLY AS NECESSARY TO MEET THE REQUIREMENTS OF TRAFFIC MANAGEMENT PLANS.

CONCRETE FOR DECK REPAIR SHALL BE A MATERIAL SUITABLE FOR CONCRETE BRIDGE DECK REPAIRS UNDER FAST SETTING CONDITIONS.

CONCRETE FOR DECK REPAIR SHALL REACH A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI IN 3 HOURS OR LESS. CONTRACTOR SHALL SUBMIT PROPOSED MATERIAL DOCUMENTATION TO THE ENGINEER FOR APPROVAL, SEE SPECIAL PROVISIONS.

ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST.

CONTRACTOR SHALL HAVE A REPRESENTATIVE FROM THE JOINT MANUFACTURER PRESENT DURING INSTALLATION OF PROPOSED RUBBER PLATE TYPE EXPANSION JOINT.

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

FOR EPOXY COATED REINFORCING STEEL, SEE 2012 NORTH CAROLINA STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, SECTION 425.

FOR JOINT REPAIR, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISION.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISION.

TOTAL BILL OF MATERIAL					
BRIDGE NO.	JOINT REPAIR	EPOXY COATED REINFORCING STEEL	CONCRETE FOR DECK REPAIR	VOLUMETRIC MIXER	MOLDED RUBBER SEGMENTAL EXPANSION JOINT
	SQ. FT.	LBS.	CU. FT.	LUMP SUM	LUMP SUM
342	314	1114	162	LUMP SUM	LUMP SUM
TOTAL	314	1114	162	LUMP SUM	LUMP SUM

PROJECT NO. I-5307B  
DURHAM COUNTY  
 BRIDGE NO. 342

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

BRIDGE #342 ON  
 I-540 OVER I-40  
 & NW EXPRESSWAY

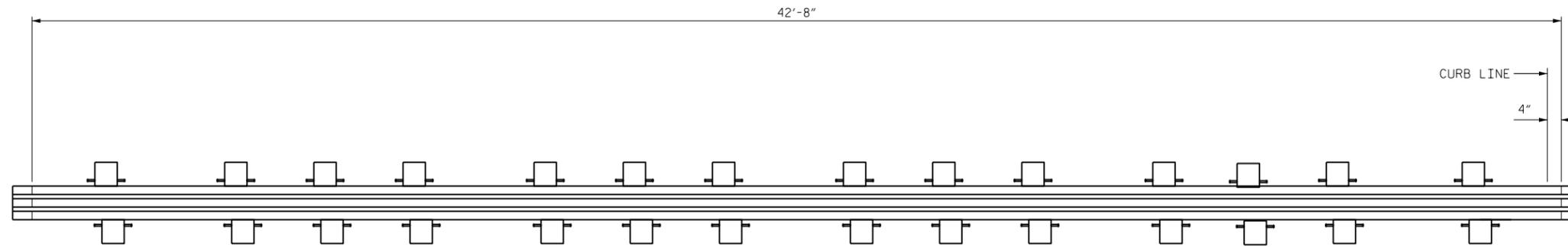
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			15
2			4			

DocuSigned by:  
*F. Asefnia*  
 E06B400C4A0297

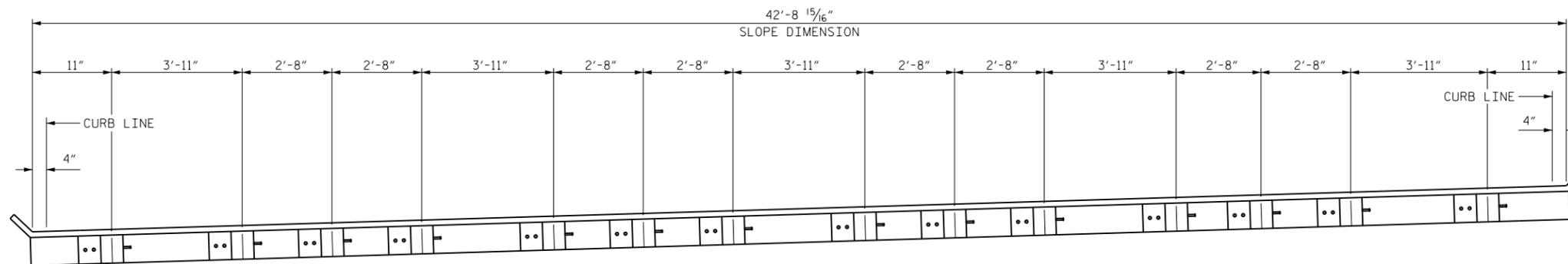
STATE OF NORTH CAROLINA  
 PROFESSIONAL ENGINEER  
 SEAL 20103  
 FARZIN ASEFNIA

4/22/2016

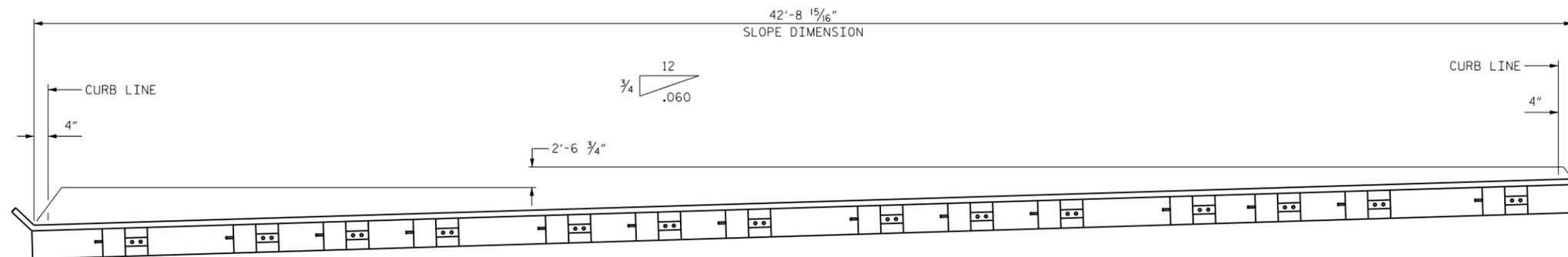
DRAWN BY : M. WELDON DATE : 7/2015  
 CHECKED BY : F. ASEFNIA DATE : 7/2015



**PLAN**  
EXISTING END BENT. 2 & BENT. 3 MODULAR JOINT BOX LOCATIONS



**ELEVATION**



**ELEVATION**

PROJECT NO. I-5307B  
DURHAM COUNTY  
 BRIDGE NO. 342

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

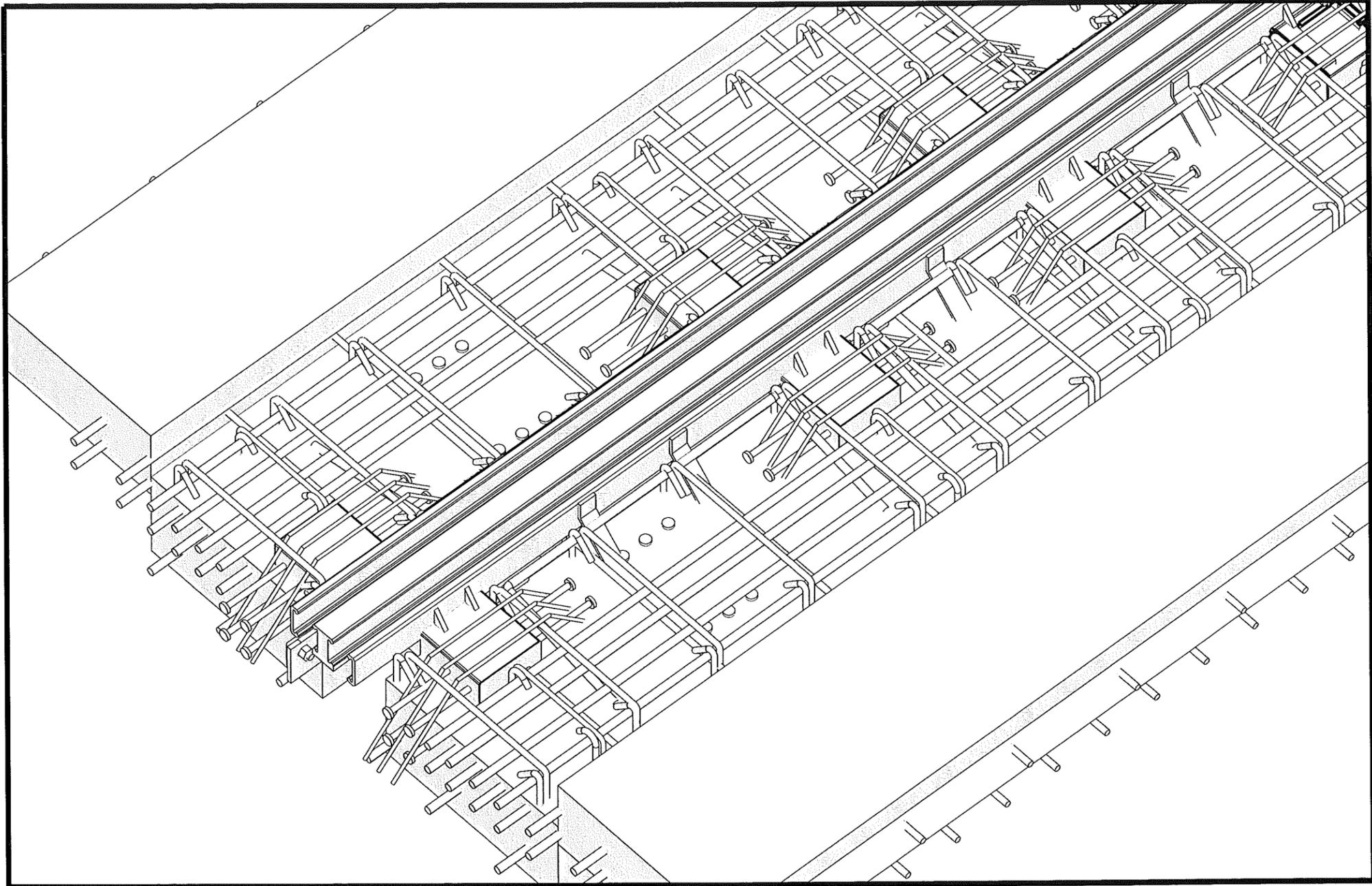
**EXISTING 2 SEAL  
 MODULAR JOINT**

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

DocuSigned by:  
*Farzin Asefma*  
 E06B3108C...  
 PROFESSIONAL ENGINEER  
 SEAL 20103  
 FARZIN ASEFMA

4/21/2016

DRAWN BY : D.V. JOYNER DATE : 6/2015  
 CHECKED BY : F. ASEFNIA DATE : 6/2015



**ISOMETRIC VIEW**

( SHOWING EXISTING MODULAR JOINT )

PROJECT NO. I-5307B

WAKE COUNTY

BRIDGE NO. 342

SHEET 1 OF 2

DocuSigned by:

*Fargis*

E06BC400



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

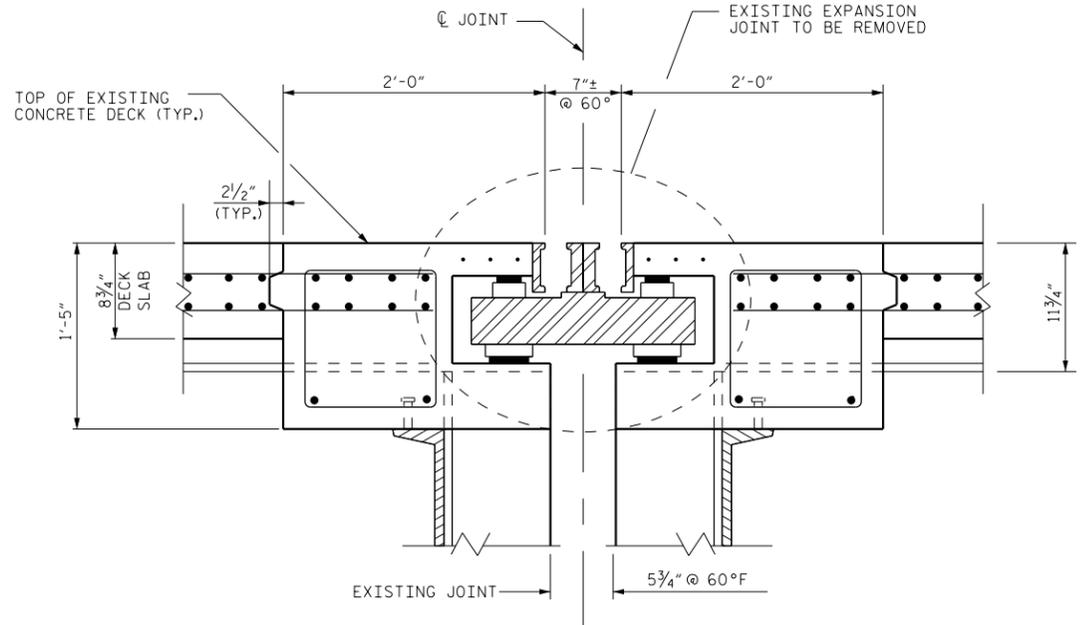
**BENT 3  
ISOMETRIC VIEW  
EXISTING**

4/21/2016

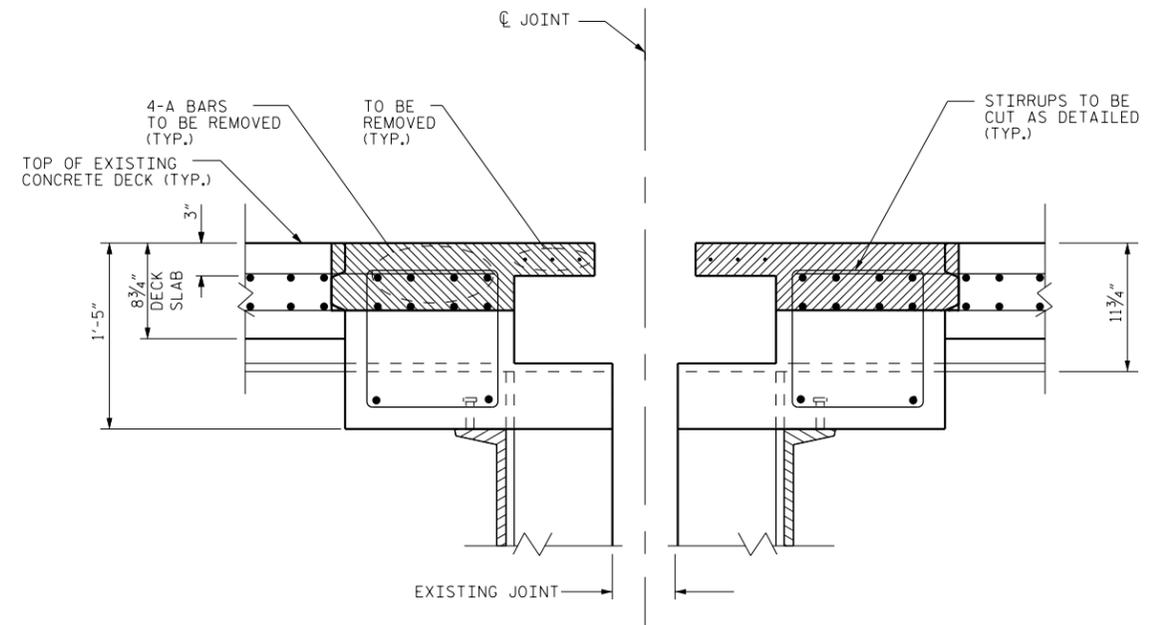
DRAWN BY : RL PUTK DATE : 03-30-16  
CHECKED BY : F. ASEFIA DATE : 03-31-16

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

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



EXISTING MODULAR JOINT  
(AT MODULAR JT. BOXES)



MODULAR JOINT REMOVED  
(AT MODULAR JT. BOXES)

**NOTE:**  
EXISTING MODULAR EXPANSION JOINT DETAIL ARE SHOWN FOR INFORMATION ONLY. ACTUAL FIELD CONDITIONS MAY VARY. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT IF ACTUAL CONDITIONS VARY FROM WHAT IS SHOWN IN THESE PLANS

THE CONTRACTOR SHALL HAVE A REPRESENTATIVE FROM THE JOINT MANUFACTURER PRESENT DURING INSTALLATION OF PROPOSED EXPANSION JOINT SEAL

ALL EXPOSED ENDS OF CUT BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT MATERIAL INSTALLATION.

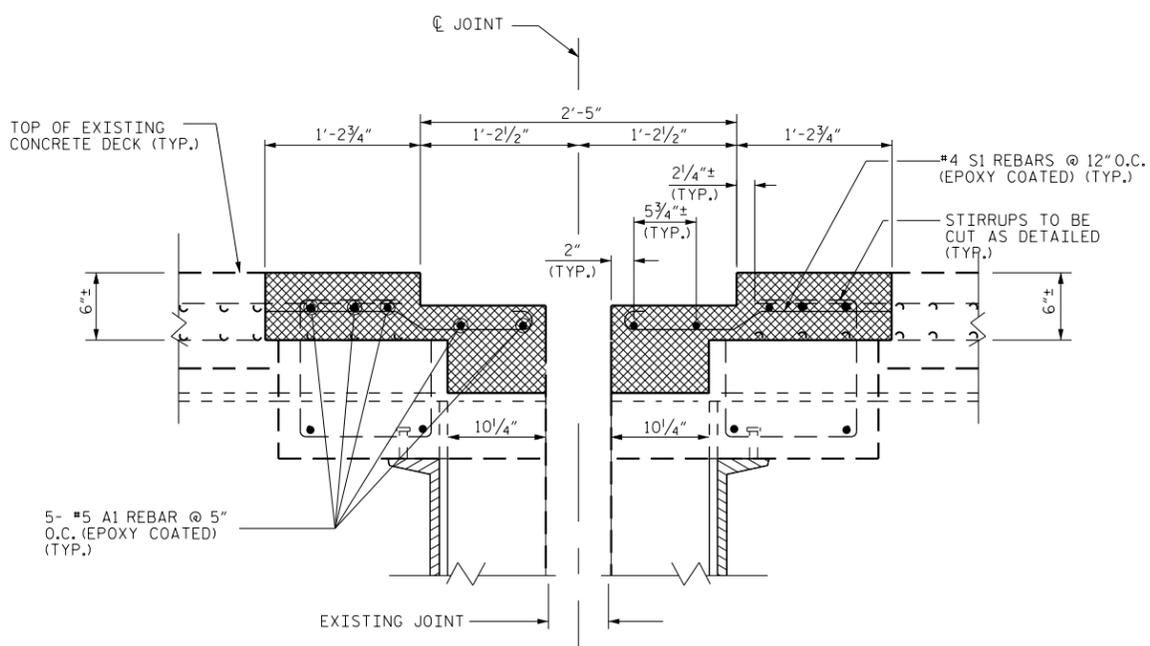
THE CONTRACTOR SHALL PREPARE THE BOTTOM SURFACE OF BLOCKOUT TO BE PARALLEL WITH THE PLANE OF THE ROADWAY AND PROVIDE A UNIFORM SURFACE

EXISTING CONCRETE TO BE REMOVED

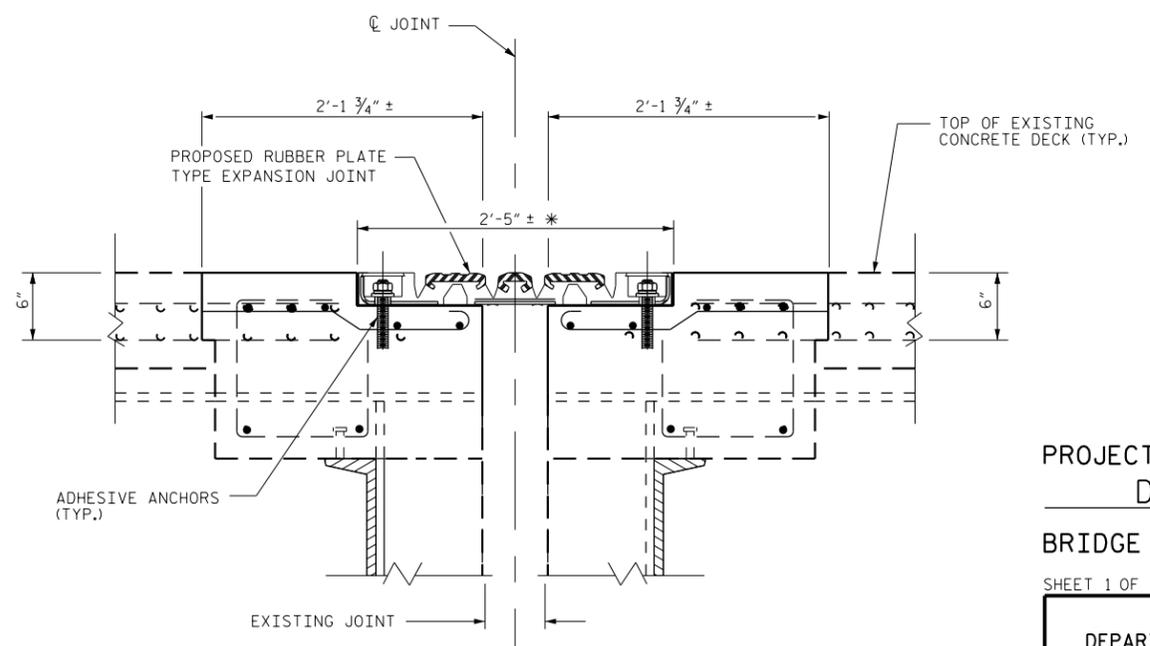
NEW CONCRETE FOR DECK BUILD UP.

\* TO BE VERIFIED BY MANUFACTURER

SECTION B-B



CONCRETE AND REBAR REMOVED  
(AT MODULAR JT. BOXES)



PROPOSED JOINT REPAIR  
(AT MODULAR JT. BOXES)  
(THE REINFORCING MAYBE SHIFTED SLIGHTLY)

PROJECT NO. I-5307B  
DURHAM COUNTY  
BRIDGE NO. 342

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

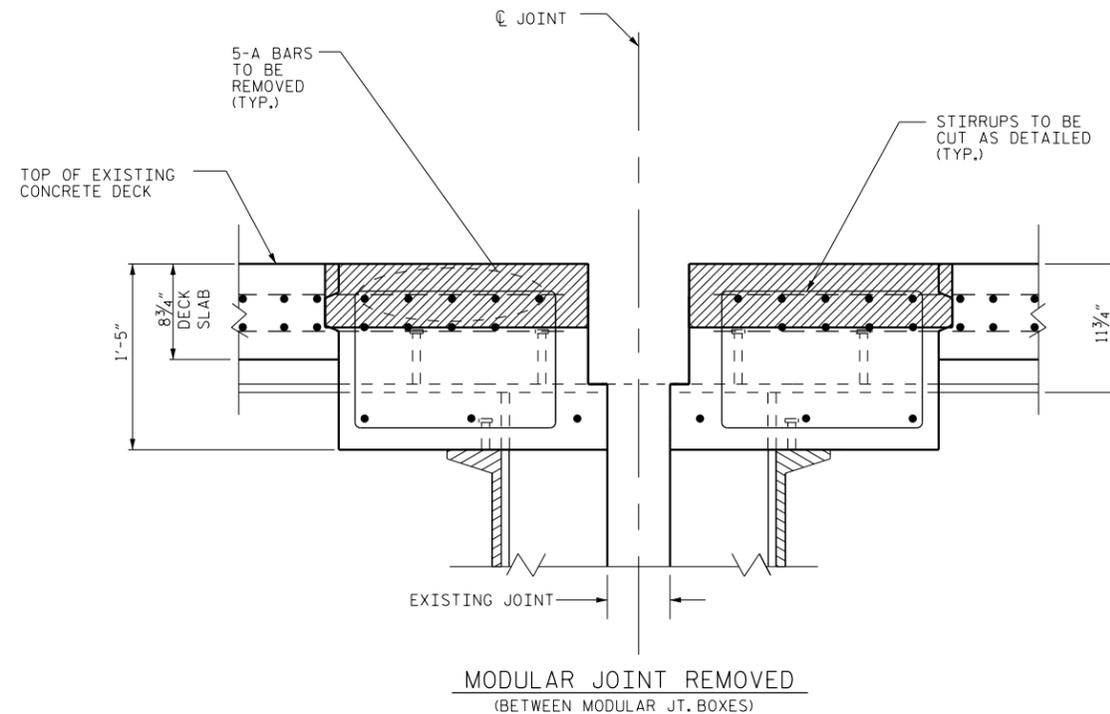
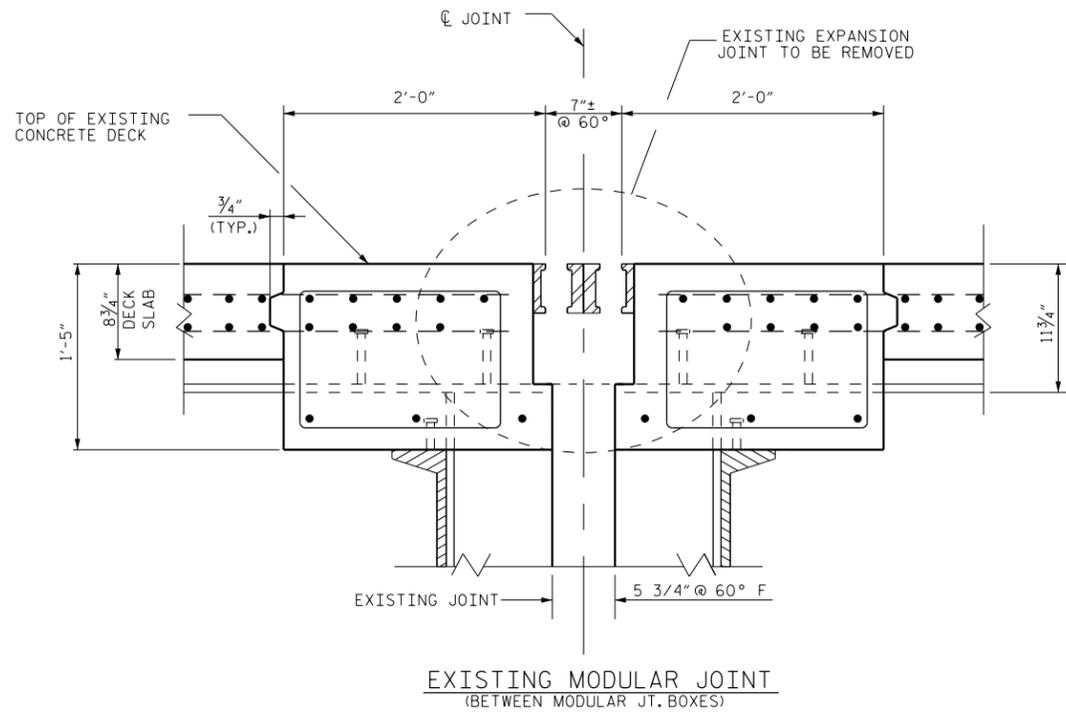
**BENT #3  
MODULAR JOINT  
REPLACEMENT**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			15

DocuSigned by:  
*Farzin Asefina*  
E06BC4806A41965  
PROFESSIONAL ENGINEER  
SEAL  
20103  
FARZIN ASEFINA

DRAWN BY : M. WELDON DATE : 2/2016  
CHECKED BY : F. ASEFINA DATE : 2/2016

4/21/2016



**NOTE:**

EXISTING MODULAR EXPANSION JOINT DETAIL ARE SHOWN FOR INFORMATION ONLY. ACTUAL FIELD CONDITIONS MAY VARY. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT IF ACTUAL CONDITIONS VARY FROM WHAT IS SHOWN IN THESE PLANS

THE CONTRACTOR SHALL HAVE A REPRESENTATIVE FROM THE JOINT MANUFACTURER PRESENT DURING INSTALLATION OF PROPOSED EXPANSION JOINT SEAL

ALL EXPOSED ENDS OF CUT BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT MATERIAL INSTALLATION.

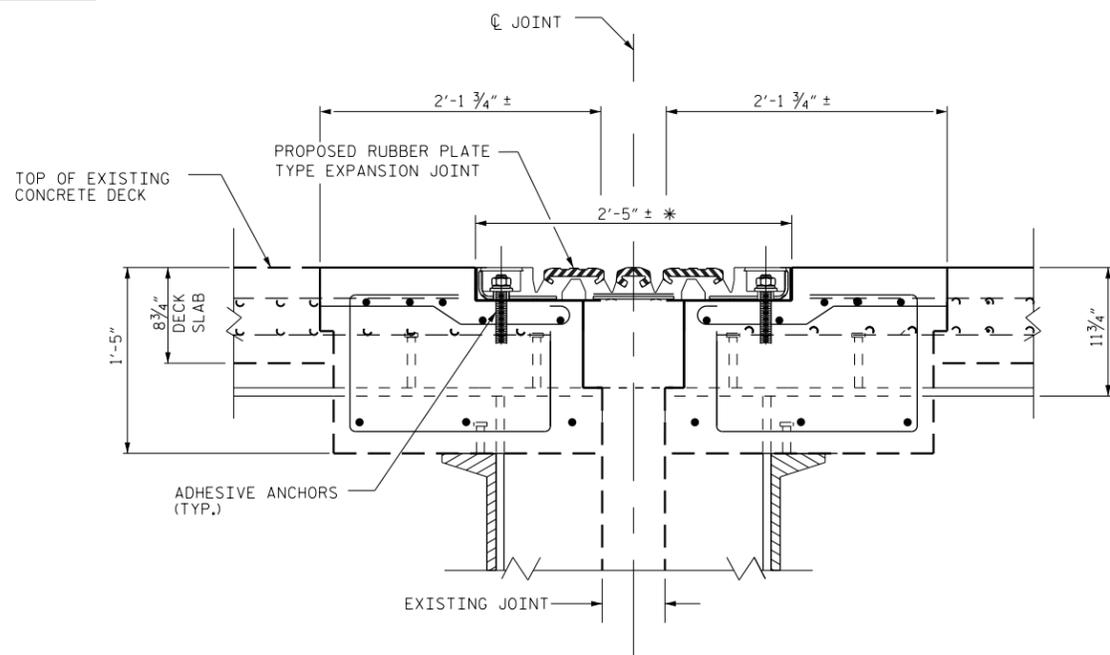
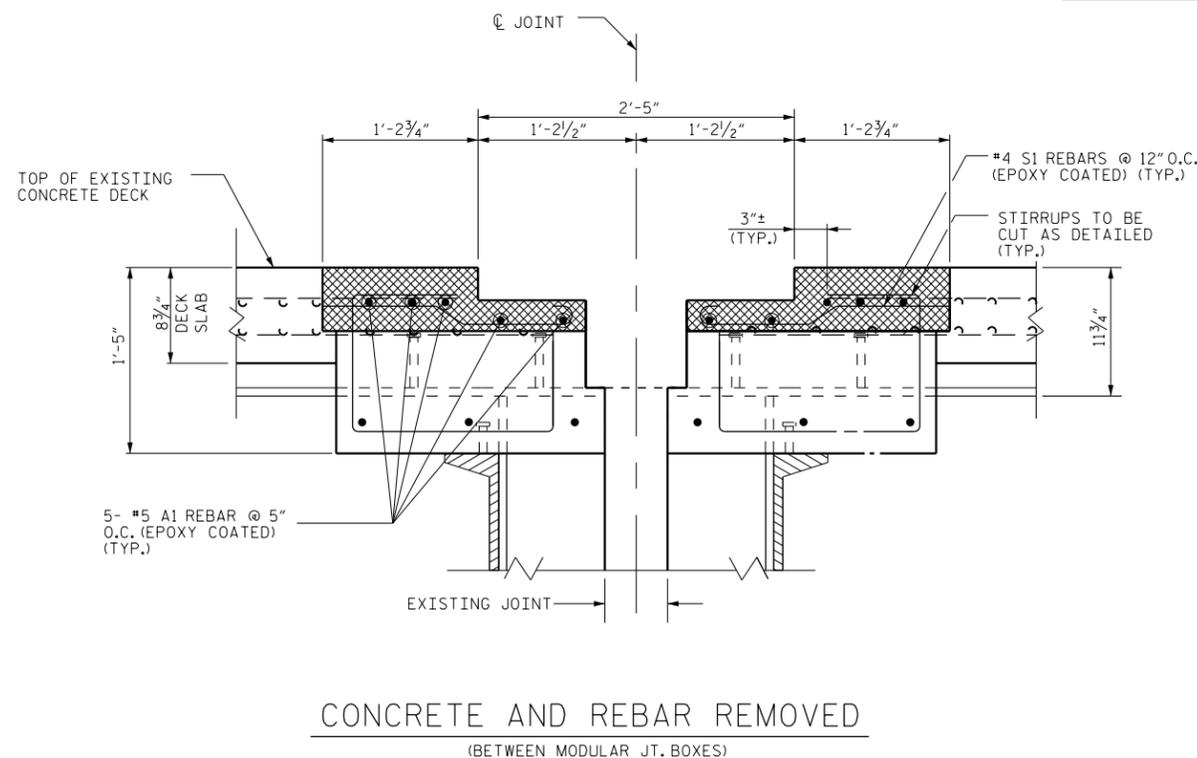
THE CONTRACTOR SHALL PREPARE THE BOTTOM SURFACE OF BLOCKOUT TO BE PARALLEL WITH THE PLANE OF THE ROADWAY AND PROVIDE A UNIFORM SURFACE

EXISTING CONCRETE TO BE REMOVED

NEW CONCRETE FOR DECK BUILD UP.

\* TO BE VERIFIED BY MANUFACTURER

**SECTION A-A**



PROJECT NO. I-5307B  
DURHAM COUNTY  
 BRIDGE NO. 342

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

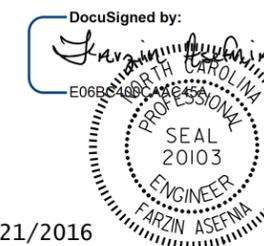
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 MODULAR JOINT  
 REPLACEMENT**

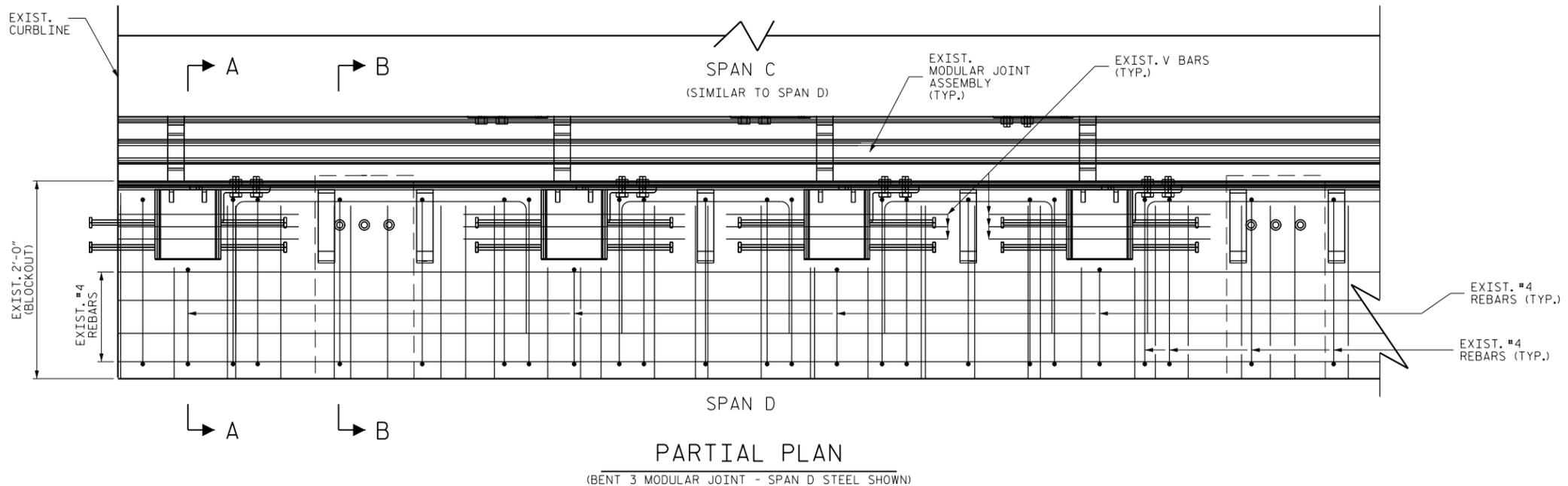
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-6	
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2			4			15	

DRAWN BY : M. WELDON DATE : 6/2015  
 CHECKED BY : F. ASEFNIA DATE : 6/2015

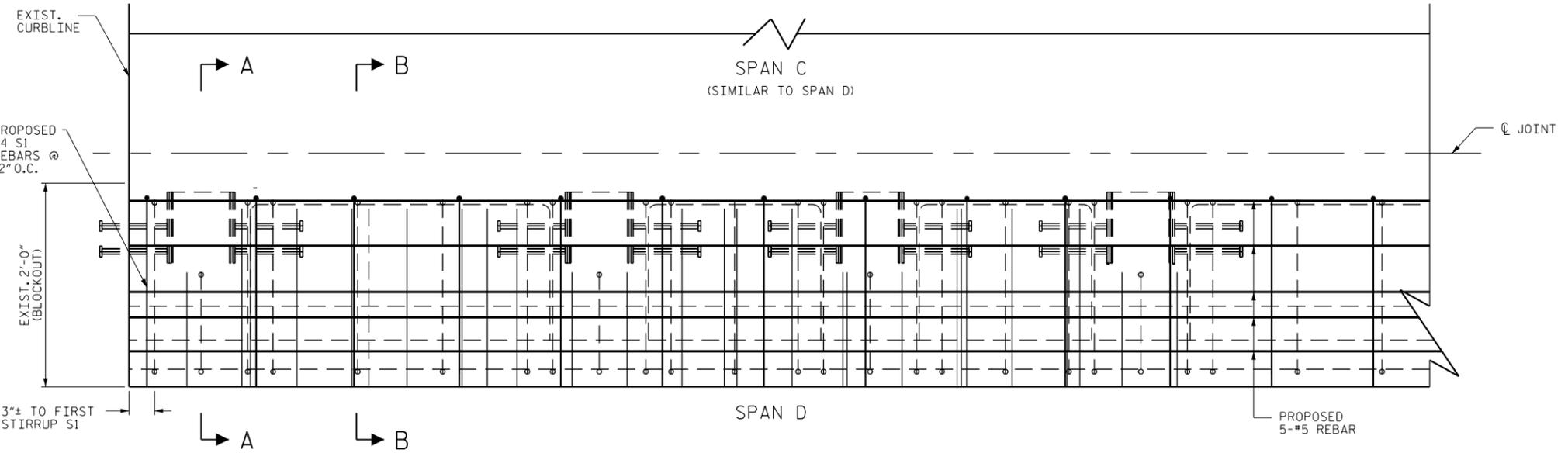
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 mweldon

4/21/2016



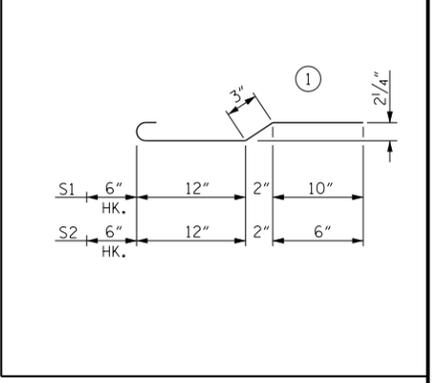


PARTIAL PLAN  
(BENT 3 MODULAR JOINT - SPAN D STEEL SHOWN)



PROPOSED PARTIAL PLAN  
(BENT 3 MODULAR JOINT - SPAN D STEEL SHOWN)

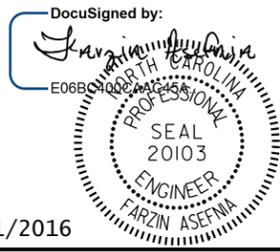
BILL OF MATERIAL					
FOR BENT 3 & EB2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	129	#4	1	2'-7"	223
S2	43	#4	1	2'-3"	65
A1	19	#5	STR	41'-8"	826
REINFORCING STEEL (EPOXY COATED): 1114 LBS.					
CONCRETE FOR DECK REPAIR: 162 CU. FT.					



ALL REINFORCING STEEL SHALL BE EPOXY COATED  
ALL REINFORCING STEEL SHALL BE GRADE 60

DRAWN BY : M. WELDON DATE : 3/2016  
CHECKED BY : F. ASEFNIA DATE : 3/2016

21-APR-2016 09:58  
Y:\153078\Structures\DGN\New Dgns\401.011.I53078.SMU.S7.PP.BT3.DGN  
mweldon

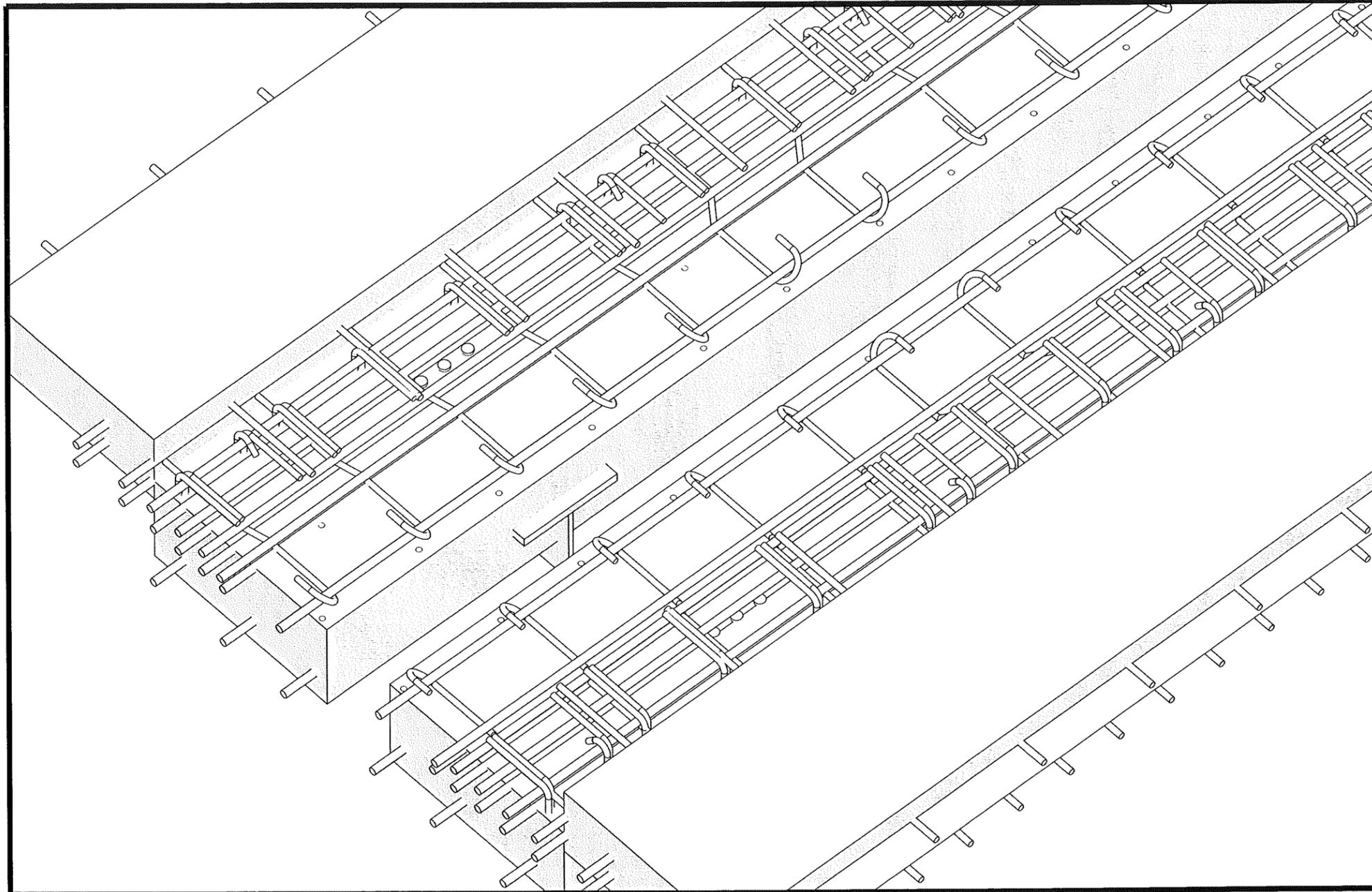


4/21/2016

PROJECT NO. I-5307B  
DURHAM COUNTY  
BRIDGE NO. 342

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PARTIAL PLAN MODULAR JOINT REPLACEMENT AT BENT 3					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-7
					TOTAL SHEETS 15



**ISOMETRIC VIEW**  
( SHOWING PROPOSED BARS )

**NOTES:**

THE REINFORCING STEEL MAYBE SHIFTED SLIGHTLY AS NECESSARY TO MAINTAIN A MINIMUM 1" OF CONCRETE COVERAGE

ALL PROPOSED REINFORCING STEEL SHALL BE EPOXY COATED  
ALL REINFORCING STEEL CAST IN THE NEW SECTIONS SHALL BE GRADE 60

ALL REMAINING COMPONENTS OF EXISTING MODULAR JOINT SHALL BE ALTERED TO PROVIDE A CLEAR AREA FOR THE REINFORCING STEEL AND FORMING OF THE NEW CONCRETE

PROJECT NO. I-5307B  
WAKE COUNTY  
BRIDGE NO. 342

SHEET 2 OF 2

DocuSigned by:  
*Fazrin Asetna*  
E06BC400



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

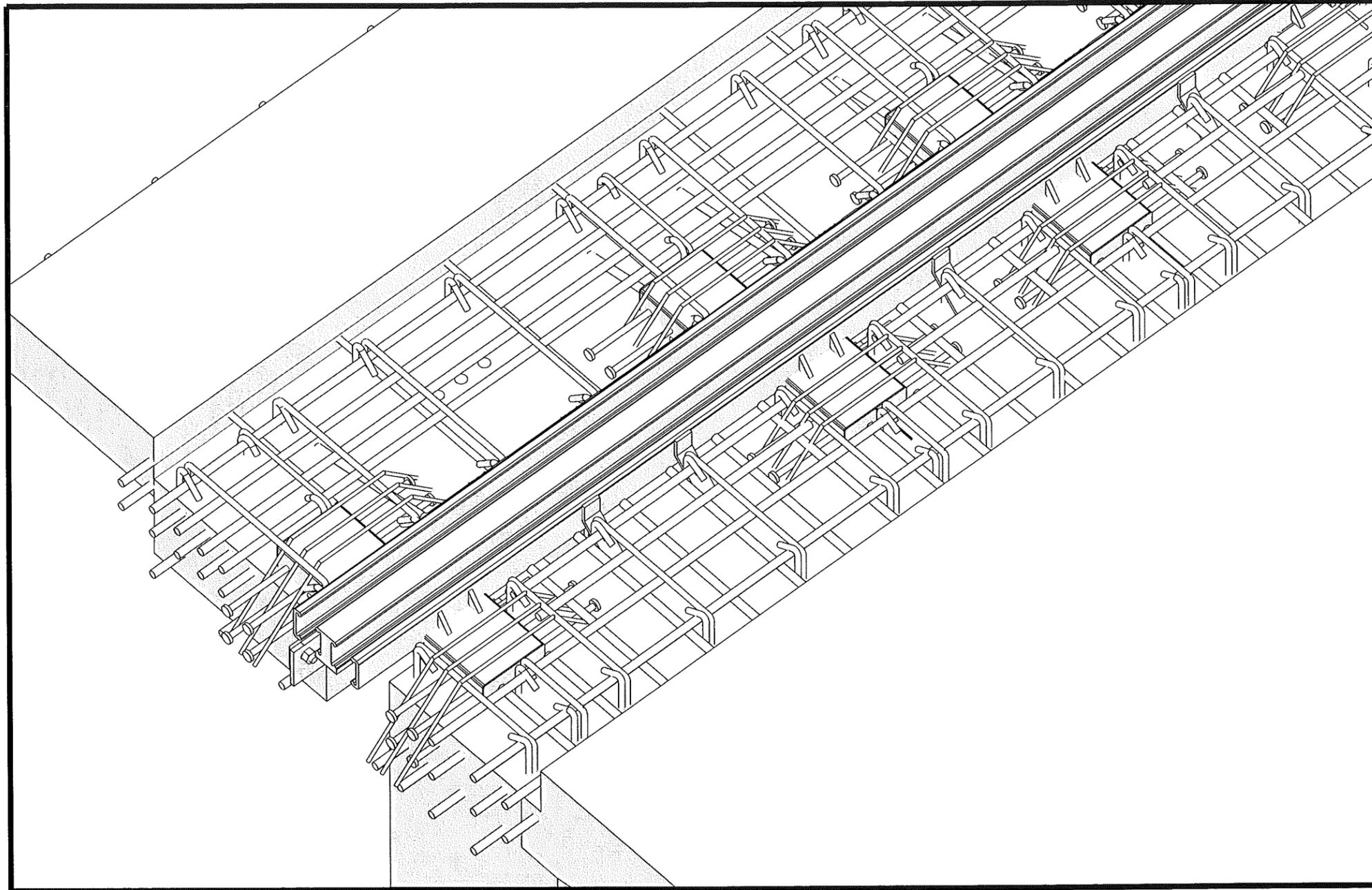
**BENT 3**  
**ISOMETRIC VIEW**  
**PROPOSED**

4/21/2016

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : B.J. PUTER DATE : 03-30-16  
CHECKED BY : F.ASEFNIA DATE : 03-31-16



**ISOMETRIC VIEW**

( SHOWING EXISTING MODULAR JOINT )

PROJECT NO. I-5307B

WAKE COUNTY

BRIDGE NO. 342

SHEET 1 OF 2

DocuSigned by:  
*Farzin Asefina*  
 E06BC400  

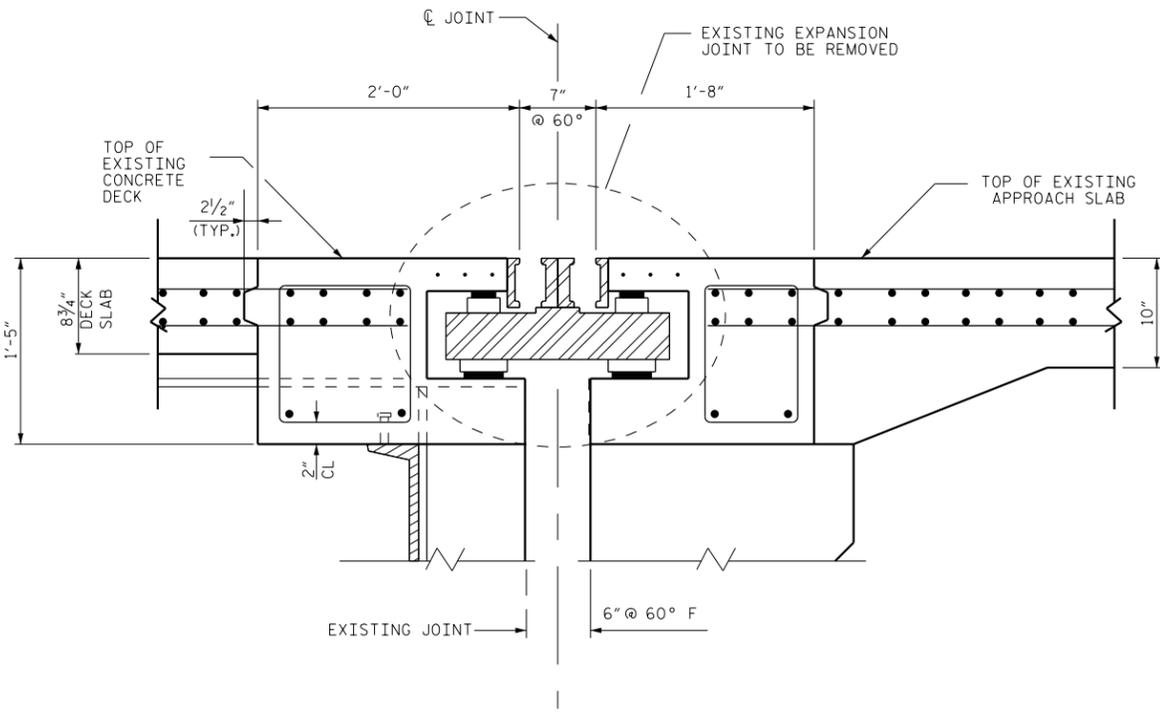

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**END BENT 2  
 ISOMETRIC VIEW  
 EXISTING**

4/21/2016

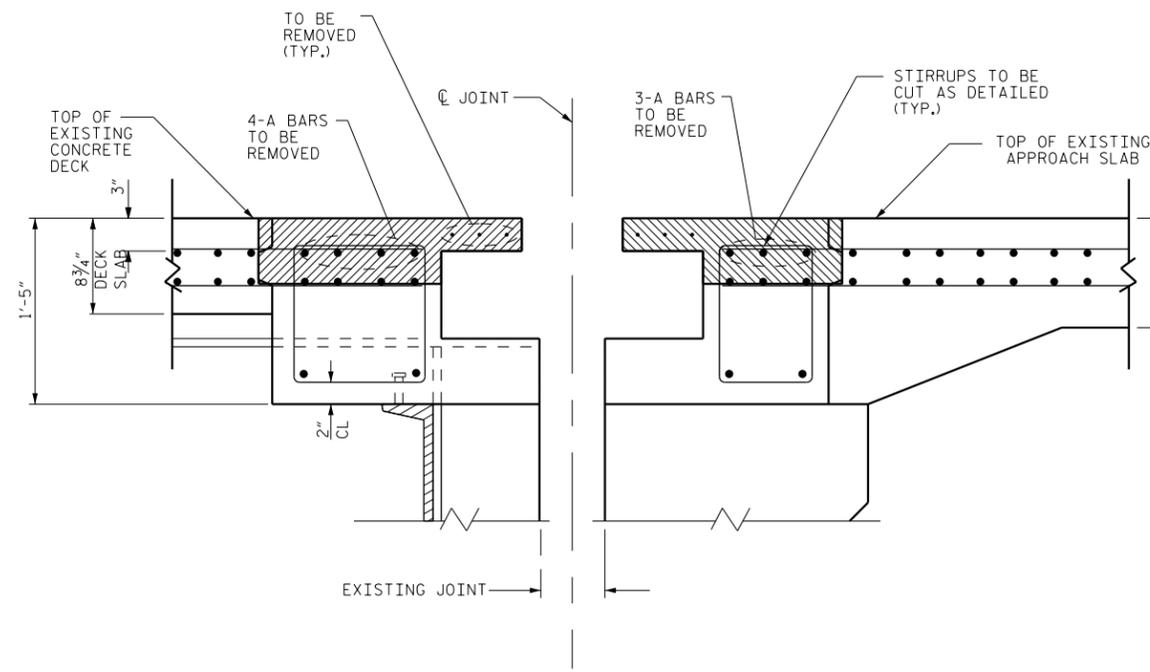
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 CHECKED BY : F. ASEFINIA DATE : 03-31-16

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

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



EXISTING MODULAR JOINT  
(AT MODULAR JT. BOXES)



MODULAR JOINT REMOVED  
(AT MODULAR JT. BOXES)

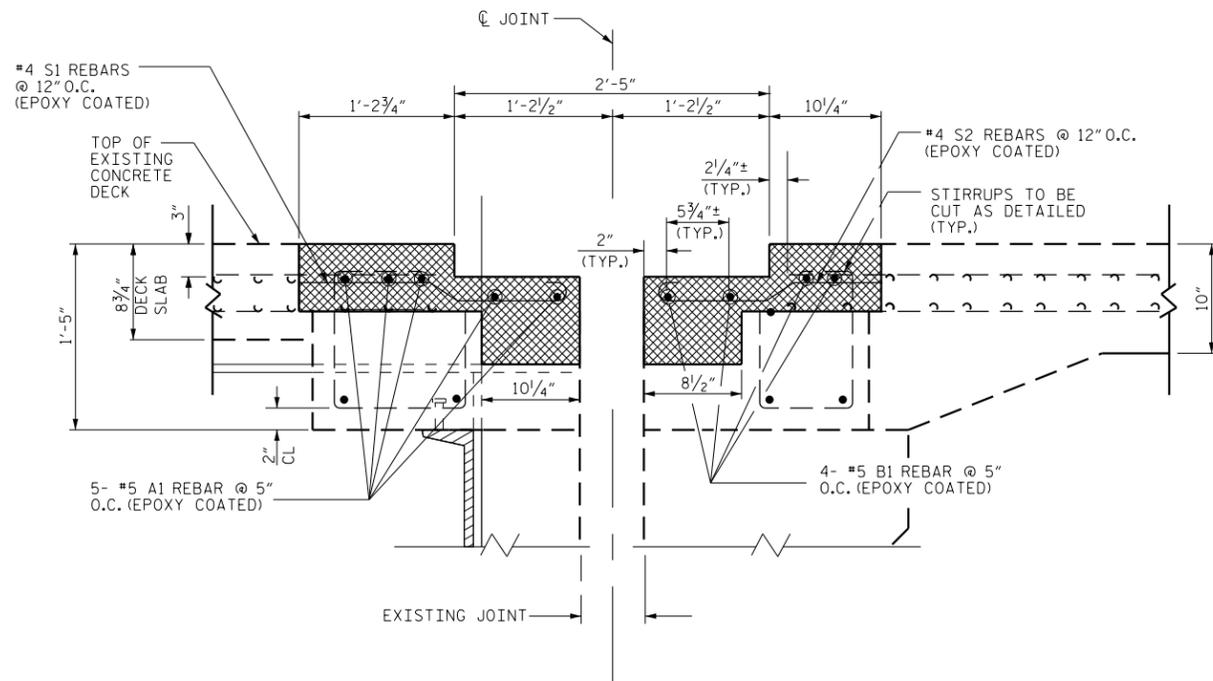
**NOTE:**

EXISTING MODULAR EXPANSION JOINT DETAIL ARE SHOWN FOR INFORMATION ONLY. ACTUAL FIELD CONDITIONS MAY VARY. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT IF ACTUAL CONDITIONS VARY FROM WHAT IS SHOWN IN THESE PLANS

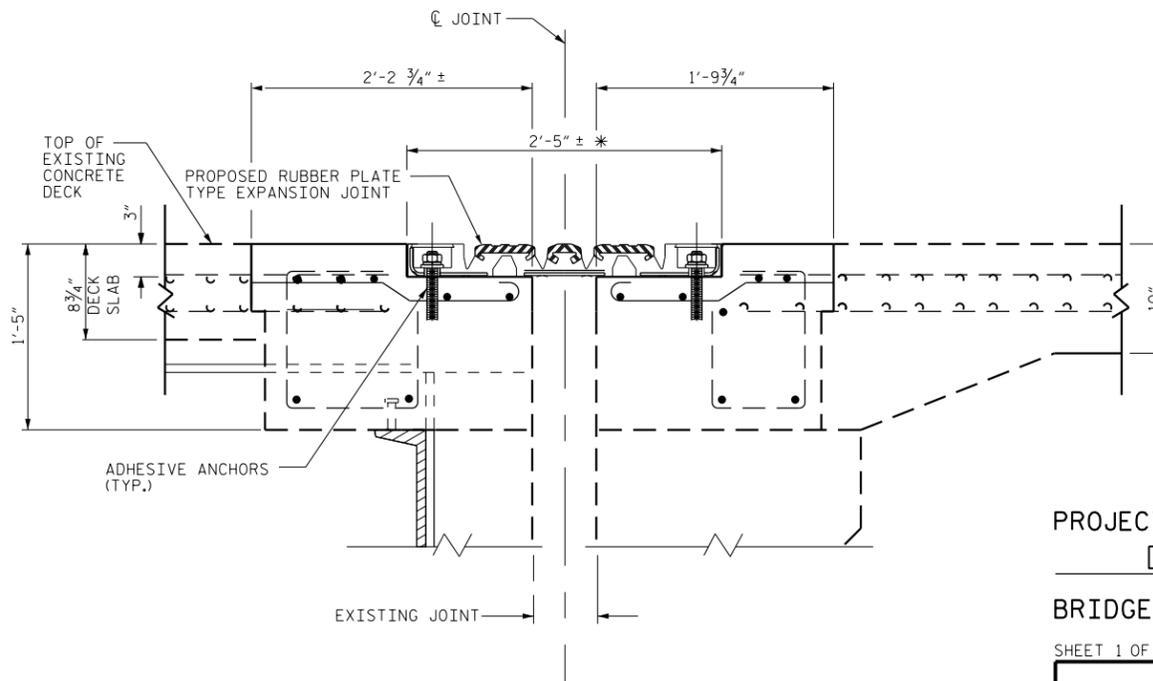
THE CONTRACTOR SHALL HAVE A REPRESENTATIVE FROM THE JOINT MANUFACTURER PRESENT DURING INSTALLATION OF PROPOSED EXPANSION JOINT SEAL

ALL EXPOSED ENDS OF CUT BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT MATERIAL INSTALLATION.

THE CONTRACTOR SHALL PREPARE THE BOTTOM SURFACE OF BLOCKOUT TO BE PARALLEL WITH THE PLANE OF THE ROADWAY AND PROVIDE A UNIFORM SURFACE



CONCRETE AND REBAR REMOVED  
(AT MODULAR JT. BOXES)



PROPOSED JOINT REPAIR  
(AT MODULAR JT. BOXES)  
(THE REINFORCING MAY BE SHIFTED SLIGHTLY)

EXISTING CONCRETE TO BE REMOVED

NEW CONCRETE FOR DECK BUILD UP.

\* TO BE VERIFIED BY MANUFACTURER

PROJECT NO. I-5307B  
DURHAM COUNTY  
BRIDGE NO. 342

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**END BENT #2  
MODULAR JOINT  
REPLACEMENT**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			15

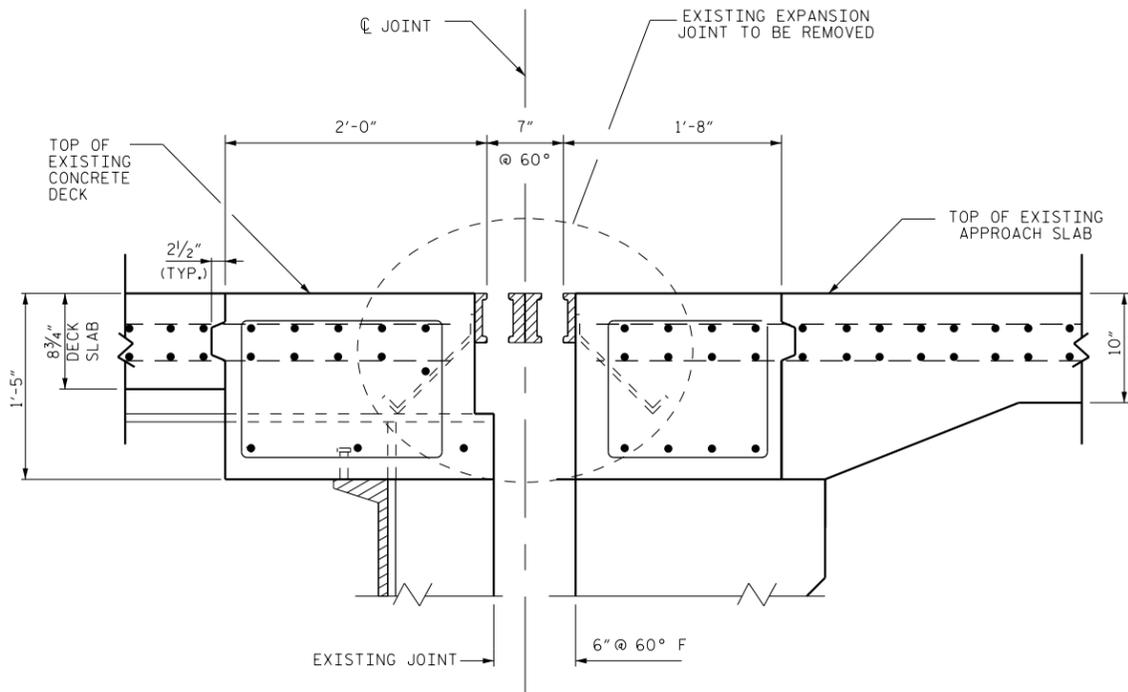
DRAWN BY: M. WELDON DATE: 6/2015  
CHECKED BY: F. ASEFNIA DATE: 6/2015

21-APR-2016 09:58  
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mweldon

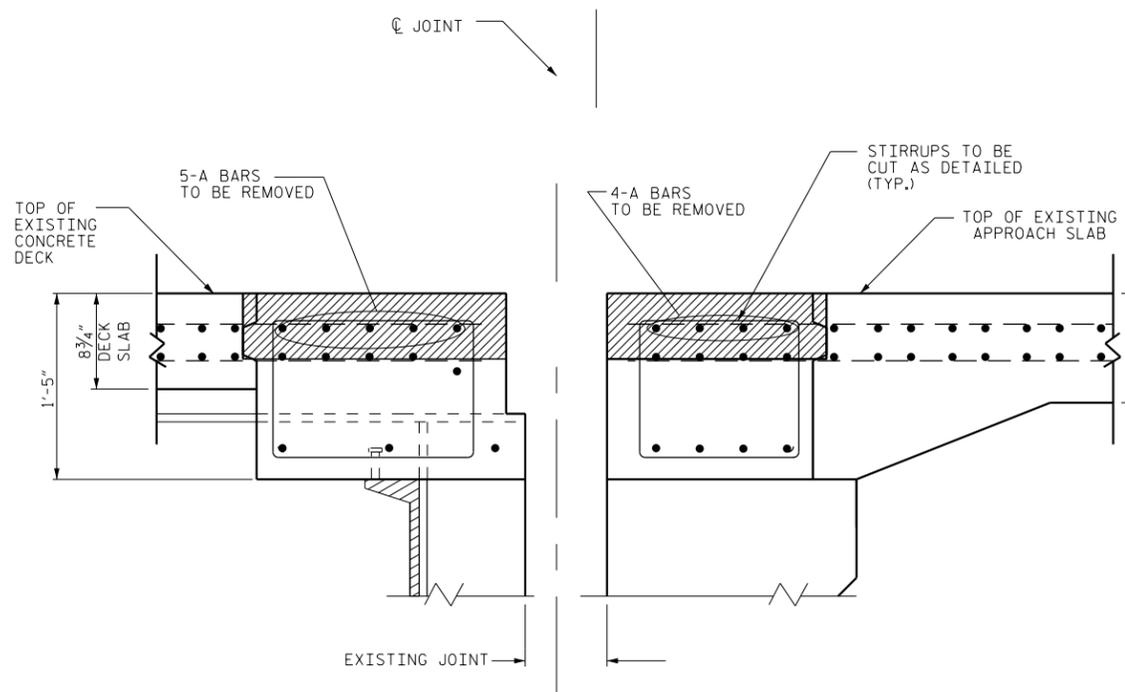
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4/21/2016



**EXISTING MODULAR JOINT**  
(BETWEEN MODULAR JT. BOXES)



**MODULAR JOINT REMOVED**  
(BETWEEN MODULAR JT. BOXES)

**NOTE:**

EXISTING MODULAR EXPANSION JOINT DETAIL ARE SHOWN FOR INFORMATION ONLY. ACTUAL FIELD CONDITIONS MAY VARY. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT IF ACTUAL CONDITIONS VARY FROM WHAT IS SHOWN IN THESE PLANS

THE CONTRACTOR SHALL HAVE A REPRESENTATIVE FROM THE JOINT MANUFACTURER PRESENT DURING INSTALLATION OF PROPOSED EXPANSION JOINT SEAL

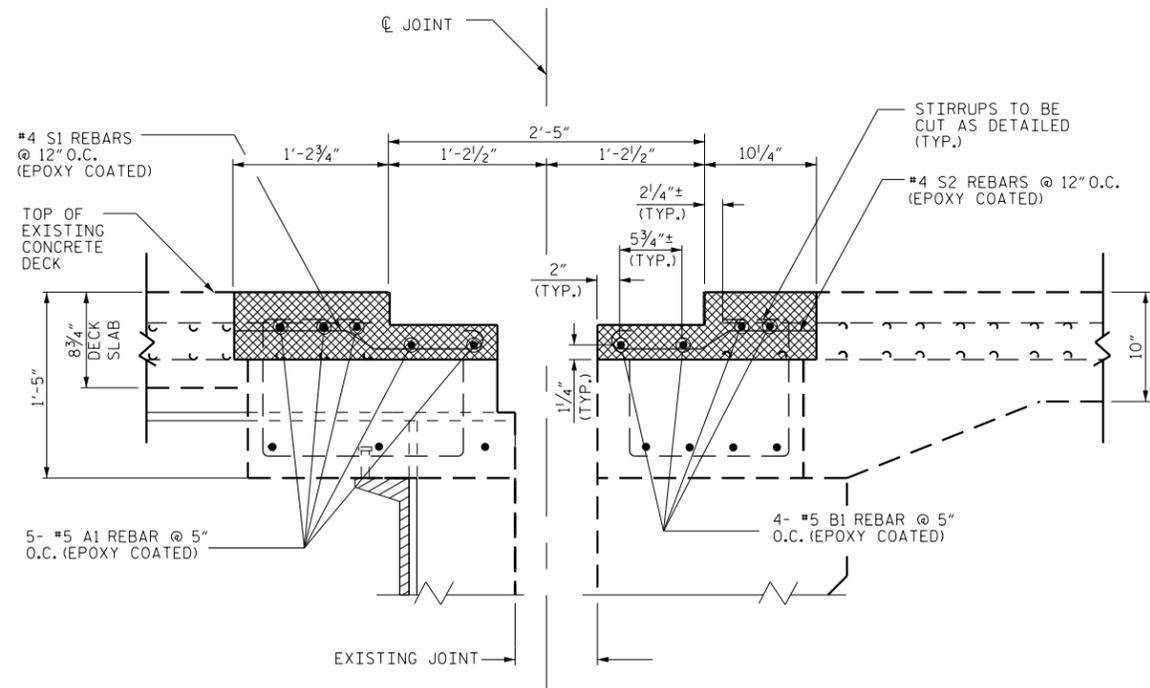
ALL EXPOSED ENDS OF CUT BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT MATERIAL INSTALLATION.

THE CONTRACTOR SHALL PREPARE THE BOTTOM SURFACE OF BLOCKOUT TO BE PARALLEL WITH THE PLANE OF THE ROADWAY AND PROVIDE A UNIFORM SURFACE

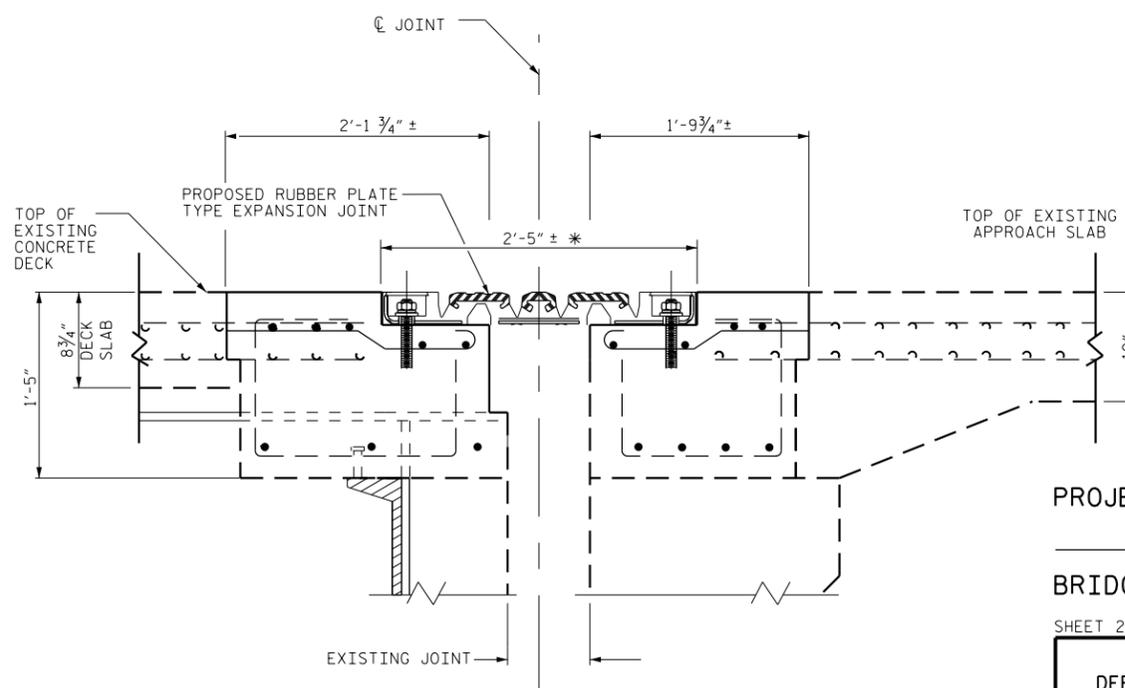
EXISTING CONCRETE TO BE REMOVED

NEW CONCRETE FOR DECK BUILD UP.

\* TO BE VERIFIED BY MANUFACTURER



**CONCRETE AND REBAR REMOVED**  
(BETWEEN MODULAR JT. BOXES)



**PROPOSED JOINT REPAIR**  
(BETWEEN MODULAR JT. BOXES)  
(THE REINFORCING MAY BE SHIFTED SLIGHTLY)

PROJECT NO. I-5307B  
DURHAM COUNTY  
BRIDGE NO. 342

SHEET 2 OF 2

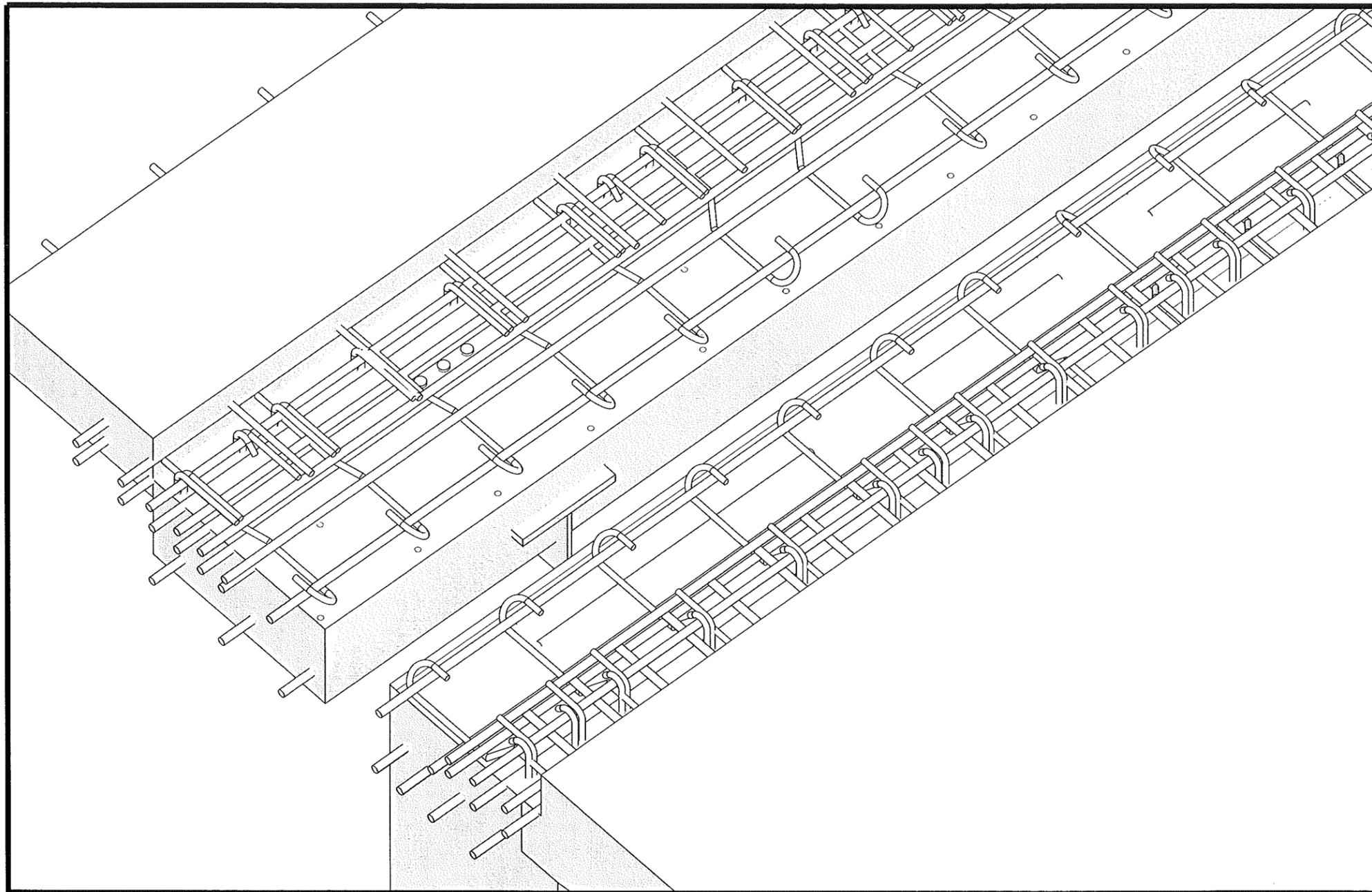
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>END BENT #2 MODULAR JOINT REPLACEMENT</b>					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-11
TOTAL SHEETS					15

DocuSigned by:  
*Farzin Asefnia*  
E06BC4005A4C4A  
PROFESSIONAL ENGINEER  
SEAL 20103  
FARZIN ASEFNIA

4/21/2016

DRAWN BY: M. WELDON DATE: 6/2015  
CHECKED BY: F. ASEFNIA DATE: 6/2015





**ISOMETRIC VIEW**  
( SHOWING PROPOSED BARS )

**NOTES:**

THE REINFORCING STEEL MAYBE SHIFTED SLIGHTLY AS NECESSARY TO MAINTAIN A MINIMUM 1" OF CONCRETE COVERAGE

ALL PROPOSED REINFORCING STEEL SHALL BE EPOXY COATED

ALL REINFORCING STEEL CAST IN THE NEW SECTIONS SHALL BE GRADE 60

ALL REMAINING COMPONENTS OF EXISTING MODULAR JOINT SHALL BE ALTERED TO PROVIDE A CLEAR AREA FOR THE REINFORCING STEEL AND FORMING OF THE NEW CONCRETE

PROJECT NO. I-5307B  
WAKE COUNTY  
BRIDGE NO. 342

SHEET 2 OF 2

DocuSigned by:

*F. Asefina*  
E06BC400



4/21/2016

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

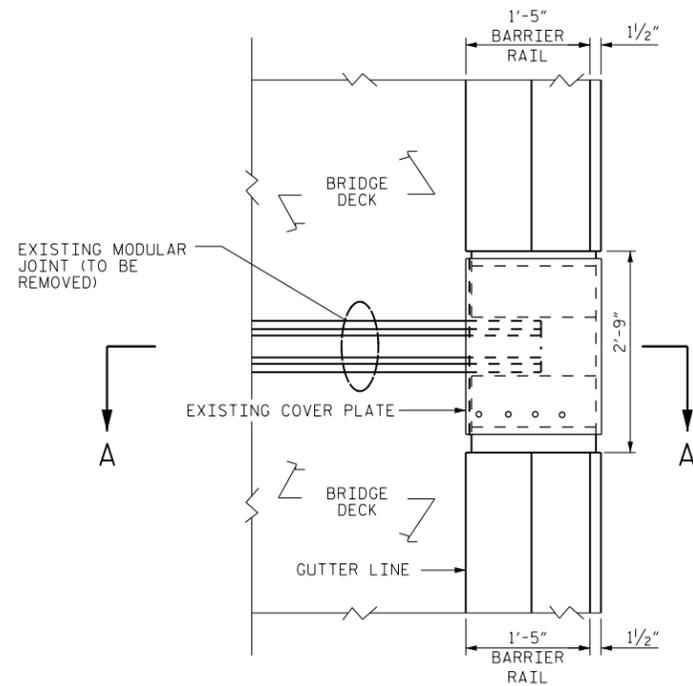
**END BENT 2  
ISOMETRIC VIEW  
PROPOSED**

DRAWN BY : R.J. PUTER DATE : 03-30-16  
CHECKED BY : F. ASEFINA DATE : 03-31-16

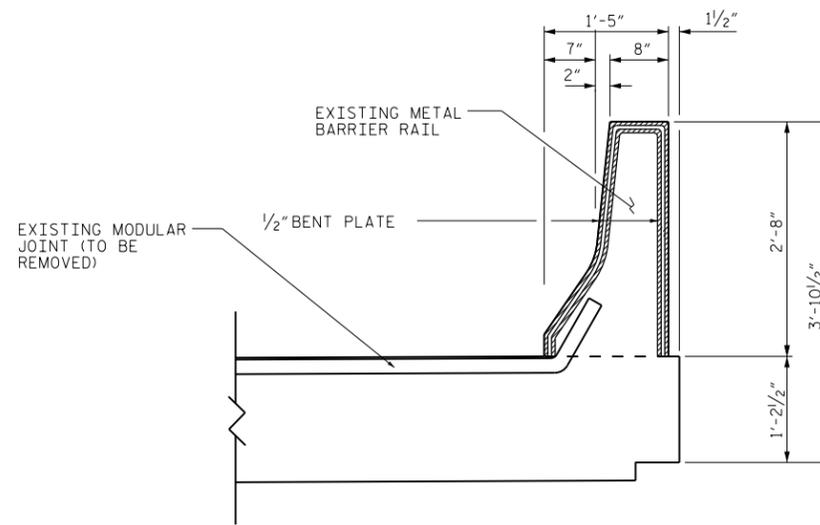
DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			5-13
2			4			15

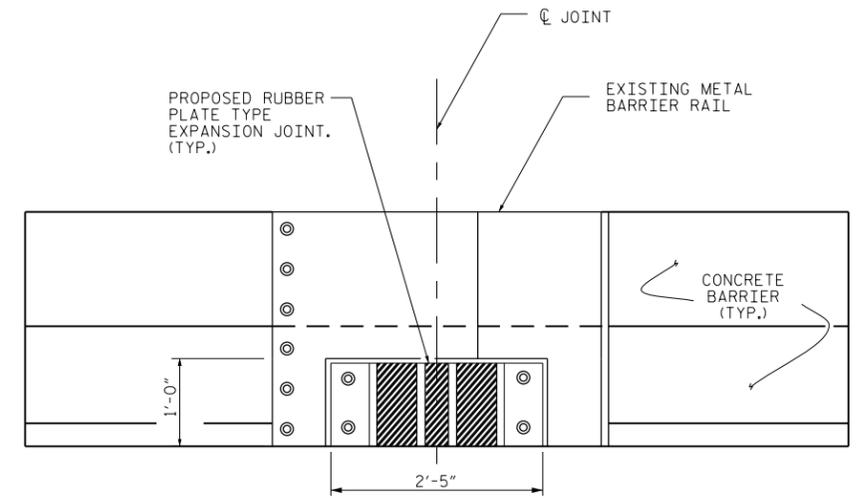
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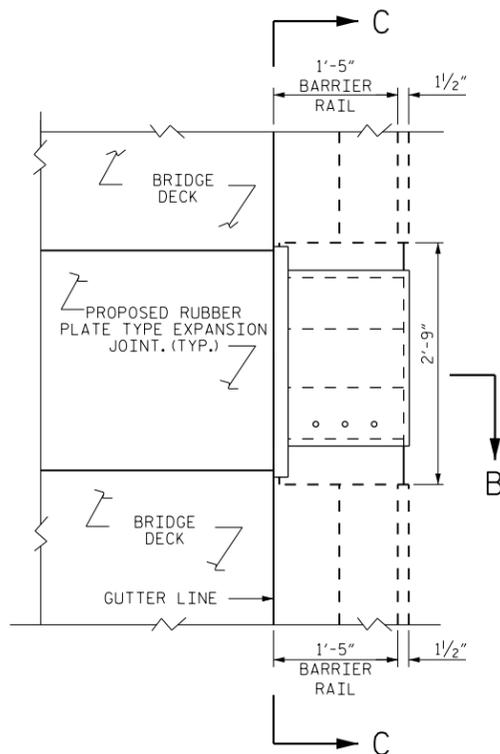
PLAN OF EXISTING MODULAR EXPANSION JOINT SEAL



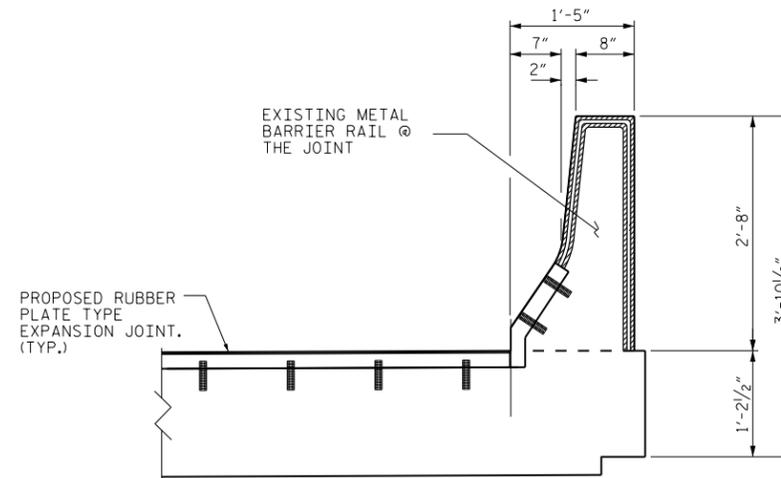
SECTION A-A



SECTION C-C



PLAN OF PROPOSED EXPANSION JOINT SEAL



SECTION B-B  
(THE NEW JOINT SHALL TERMINATE AND SEAL AT THE FACE OF THE BARRIER)

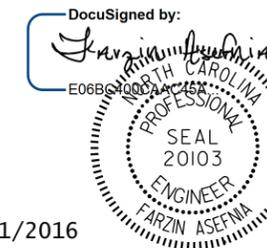
NOTES:

- THE CONTRACTOR SHALL CUT ANY EXISTING LONGITUDINAL REBARS WITHIN THE LIMIT OF THE PROPOSED RUBBER PLATE JOINT. ALL EXPOSED ENDS OF THESE BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT MATERIAL INSTALLATION.
- THE CONTRACTOR SHALL CUT THE EXISTING METAL BARRIER RAIL TO A VERY CLOSE CONFORMITY TO FIT THE PROPOSED RUBBER PLATE JOINT TURN UP. NO OVER CUTTING SHALL BE ALLOWED.

PROJECT NO. I-5307B  
DURHAM COUNTY  
 BRIDGE NO. 342

SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
JOINT DETAIL AT THE BARRIER RAIL BENT 3					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-14
TOTAL SHEETS					15

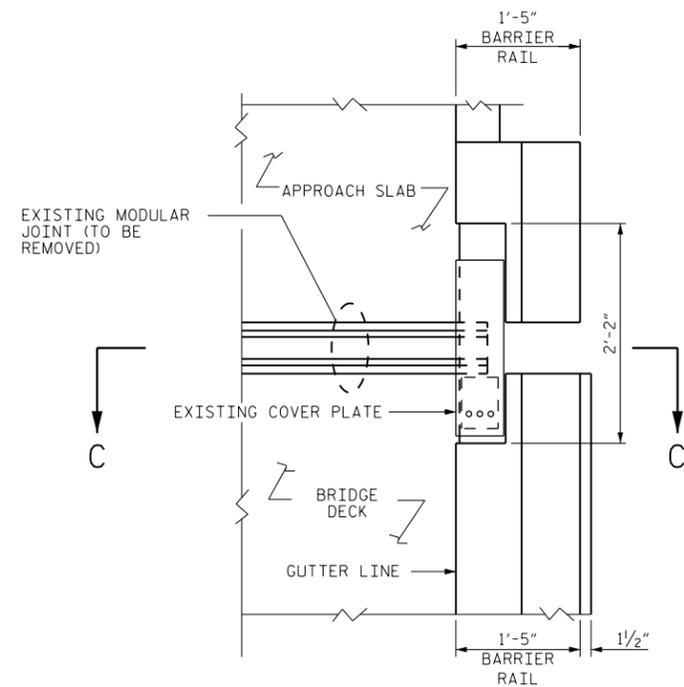


4/21/2016

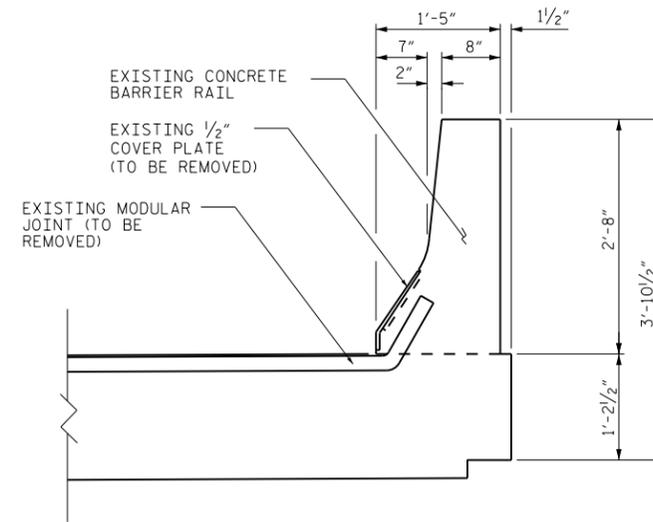
DRAWN BY : M. WELDON DATE : 6/2015  
 CHECKED BY : F. ASEFNIA DATE : 6/2015

NOTES:

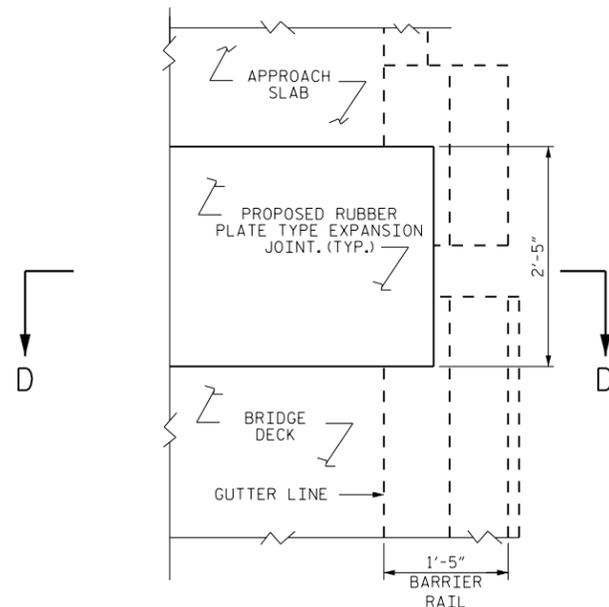
THE CONTRACTOR SHALL CUT THE EXISTING #5 "S1" REBARS EXTENDING INTO THE BARRIER FROM THE DECK AND THE LONGITUDINAL #5 REBAR WITHIN THE LIMIT OF THE PROPOSED RUBBER PLATE JOINT. ALL EXPOSED ENDS OF THESE BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT MATERIAL INSTALLATION.



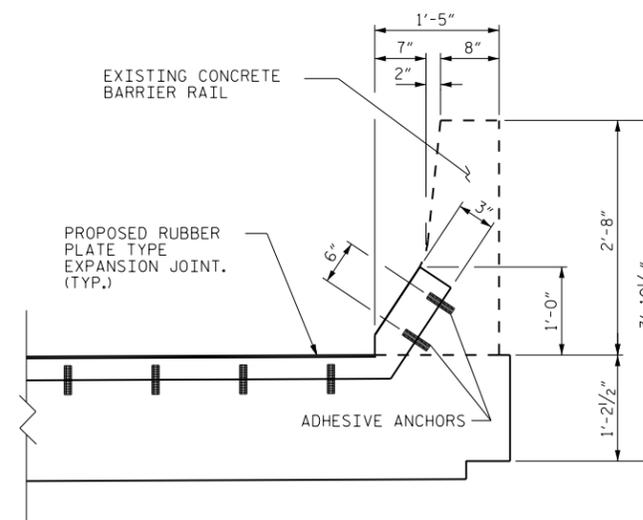
PLAN OF EXISTING MODULAR EXPANSION JOINT SEAL



SECTION C-C



PLAN OF PROPOSED EXPANSION JOINT SEAL



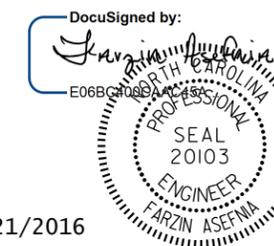
SECTION D-D

(THE NEW RUBBER PLATE BRIDGE JOINT SHALL BE TURNED UP AND FLUSH WITH THE FACE OF THE BARRIER)

PROJECT NO. I-5307B  
DURHAM COUNTY  
 BRIDGE NO. 342

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
JOINT DETAIL AT THE BARRIER RAIL END BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-15
TOTAL SHEETS					15



4/21/2016

DRAWN BY : M. WELDON DATE : 6/2015  
 CHECKED BY : F. ASEFNIA DATE : 6/2015

## STANDARD NOTES

### EXISTING STRUCTURES:

DRAWINGS SHOWN ON THESE PLANS HAVE BEEN DRAWN PER AS-BUILT DRAWINGS.

### 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 50W	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,600 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT.
		(MINIMUM)

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

### CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

### CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

### ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### SPECIAL NOTES:

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

PROJECT NO. I-5307B  
DURHAM COUNTY  
BRIDGE NO.: 342

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
STANDARD NOTES					
REVISIONS					SHEET NO. SN
NO.	BY:	DATE:	NO.	BY:	
1			3		
2			4		
TOTAL SHEETS					

DRAWN BY : M. WELDON DATE : 07/2015  
CHECKED BY : F. ASEFNIA DATE : 07/0215