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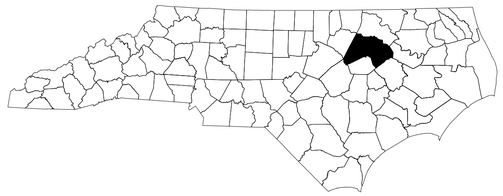
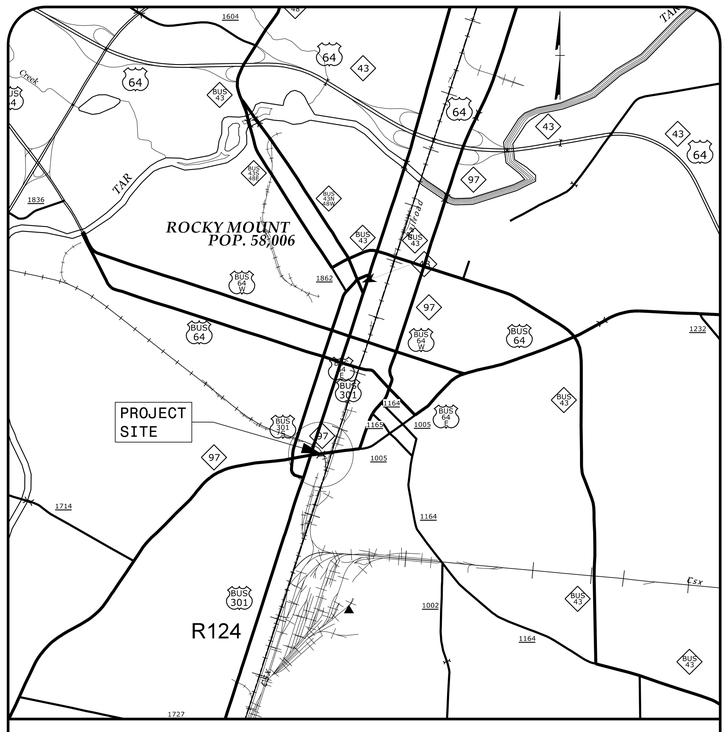
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

NASH & EDGECOMBE COUNTY





VICINITY MAP

LOCATION: *NASH BRIDGE 94 ON NC 97 (W RALEIGH BLVD) OVER BUS 301 (S CHURCH ST), CSX RAILROAD, AND S WASHINGTON ST.*

TYPE OF WORK: *BRIDGE DECK REHABILITATION: HYDRO–DEMOLITION AND LATEX MODIFIED CONCRETE OVERLAY.*

INDEX OF SHEETS

SHEET NO.
TMP–1

15.BPR.4

TIP PROJECT:

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

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) 814-5000 FAX: (919) 771-2745

J E Hummer, PhD, PE — *STATE TRAFFIC MANAGEMENT ENGINEER*

_____ — *TRAFFIC CONTROL PROJECT ENGINEER*

_____ — *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*

_____ — *TRAFFIC CONTROL DESIGN ENGINEER*

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

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PLANS PREPARED FOR THE NCDOT BY:
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www.mottmac.com/americas
LICENSE NO. F-0669

APPROVED: DocuSigned by: David W. Bissette F30C814C54B3430...

DATE: 2/15/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

2/15/2018
\\NCF-DATA\Proj\362624.East+DDC-2015\Proj\15.BPR.4 (Nash 94)\Traffic Control\TCP\DIV 4 BRIDGE MAINT_TC_TMP_01.dgn
User:bi82185

PROJ. REFERENCE NO.	SHEET NO.
15.BPR.4	TMP-1A

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 2018 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
1101.11	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	TRUCK MOUNTED ATTENUATOR
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
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
1205.11	PAVEMENT MARKINGS - RAILROAD CROSSINGS
1205.12	PAVEMENT MARKINGS - BRIDGES
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

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

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION	PAY ITEM
PA	WHITE SOLID EDGE LINE	PAINT (4")
PI	YELLOW DOUBLE CENTER	PAINT (4")

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DATE: 2/15/2018

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

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ROADWAY STANDARD DRAWINGS & LEGEND

2/15/2018
\\NCF-DATA\Proj\362624_East-DDC-2015\Proj\5.BPR.4 (Nash 94)\Traffic Control\TCP\DIV 4 BRIDGE MAINT_TC_TMP_01A.dgn
User:bis8285

PROJ. REFERENCE NO.	SHEET NO.
15.BPR.4	TMP-1B

MANAGEMENT STRATEGIES

LAW ENFORCEMENT SHALL BE USED FOR ALL NIGHT WORK.

TRAFFIC WILL RETURN TO THE EXISTING PATTERN AT THE END OF EACH WORK PERIOD.

THE CONTRACTOR WILL NOTIFY THE CITY OF ROCKY MOUNT OF ANY ROAD CLOSURES TO FACILITATE EMERGENCY RESPONSE VEHICLES.

SIGNAL TIMING ADJUSTMENTS IF NEEDED, WILL BE PERFORMED BY NCDOT AND/OR THE CITY OF ROCKY MOUNT.

USE LANE CLOSURES TO COMPLETE THE FOLLOWING:
- REMOVE THE EXISITNG BRIDGE JOINTS AND REPLACE THEM WITH SILICON JOINTS
- SUBSTRUCTURE WORK INCLUDING CLEANING AND REPAINTING THE STEEL BEAMS
- REPAIR THE SLOPE SUBSIDENCE
- REPAIR THE SIDEWALK
- INSTALL HANDRAIL BEHIND THE SIDEWALK AND CONNECT IT TO THE BRIDGE RAIL

USE NIGHTLY LANE CLOSURES TO REPLACE THE EXISTING BRIDGE RAIL WITH AN ADA COMPLIANT RAIL.

USE LANE CLOSURES TO COMPLETE THE FOLLOWING IN ONE WORK PERIOD:
- MILL THE ASPHALT SURFACE OFF THE STRUCTURE
- MILL 1″ OF THE CONCRETE SURFACE OFF THE STRUCTURE

USE NIGHTLY ROAD CLOSURES TO PLACE THE PPC OVERLAY.

USE LANE CLOSURES TO PALCE THE FINAL PAVEMENT MARKINGS AND MARKERS.

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 UNDESIRED 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
NC 97	MONDAY THROUGH FRIDAY 7:00 AM to 9:00 AM 4:00 PM to 6:00 PM
US 301	MONDAY THROUGH FRIDAY 7:00 AM to 9:00 AM 4:00 PM to 6:00 PM

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME
NC 97
US 301

HOLIDAY

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 7:00 AM DECEMBER 31st AND 6:00 PM JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 6:00 PM THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 7:00AM THURSDAY AND 6:00 PM MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 7:00 AM FRIDAY AND 6:00 PM TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 7:00 AM THE DAY BEFORE INDEPENDENCE DAY AND 6:00 PM THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 7:00 AM THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:00 PM THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 7:00 AM FRIDAY AND 6:00 PM TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 AM TUESDAY TO 6:00 PM MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 7:00 AM THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 PM THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
NC 97	MONDAY THROUGH SUNDAY 6:00 AM to 9:00 PM
US 301	MONDAY THROUGH SUNDAY 6:00 AM to 9:00 PM

LANE AND SHOULDER CLOSURE REQUIREMENTS

D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

H) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRANSPORTATION MANAGEMENT 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.

I) 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.

J) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON NC 97 AND US 301.

PAVEMENT EDGE DROP OFF REQUIREMENTS

K) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

   BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

   BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

   BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

L) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING ″UNEVEN LANES″ SIGNS (W8-11) 200 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

M) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

N) 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.

O) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRANSPORTATION MANAGEMENT PLANS.

P) PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRANSPORTATION MANAGEMENT PLANS.

Q) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

R) COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

S) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

T) INSTALL BLACK ON ORANGE ″DIP″ SIGNS (W8-2) AND/OR ″BUMP″ SIGNS (W8-1) 200 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

U) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FT 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.

V) PLACE TYPE III BARRICADES, WITH ″ROAD CLOSED″ SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

W) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

APPROVED: DocuSigned by: David W. Bissette F30CB74C54B3430...
DATE: 2/15/2018

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

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TRANSPORTATION OPERATIONS PLAN

2/15/2018
\\NCF-DATA\Proj\362624_East-DDC-2015\Proj\15.BPR.4 (Nash 94)\Traffic Control\TCP\DIV 4 BRIDGE MAINT_TC_TMP_01B.dgn
User:bis8285

PROJ. REFERENCE NO.	SHEET NO.
15.BPR.4	TMP-1C

GENERAL NOTES

PAVEMENT MARKINGS AND MARKERS

X) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
NC 97	PAINT	NONE
US 301	PAINT	NONE

Y) 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.

Z) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

AA) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

BB) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

CC) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 400 FT AND 200 FT RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

DD) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.

EE) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).

APPROVED: David W. Bissette
DocuSigned by: F30CB14C54B3430...

DATE: 2/15/2018

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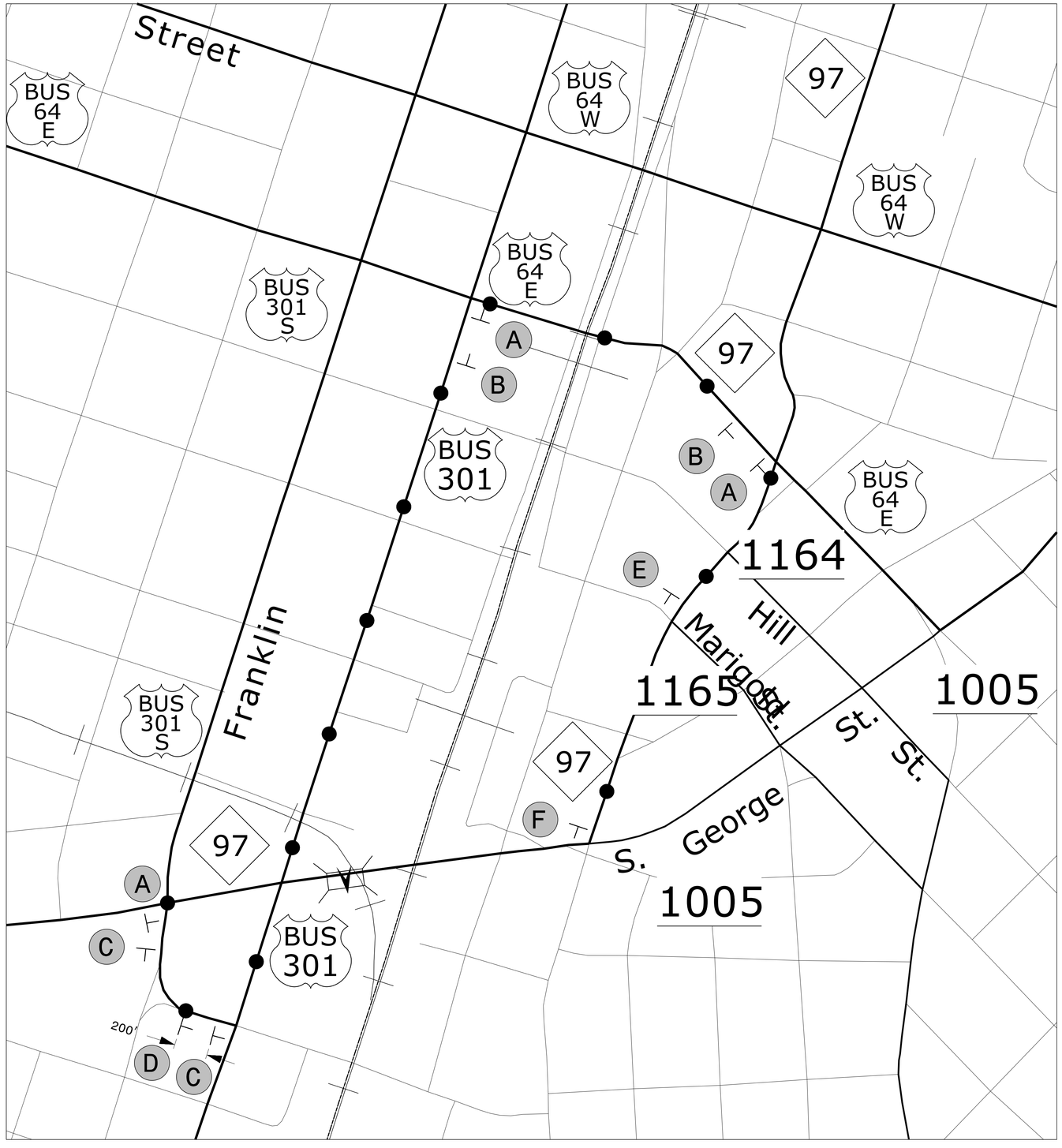
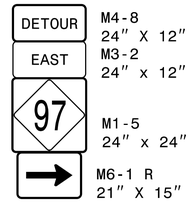
TRANSPORTATION OPERATIONS PLAN

PROJ. REFERENCE NO.	SHEET NO.
15.BPR.4	TMP-2





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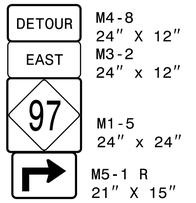

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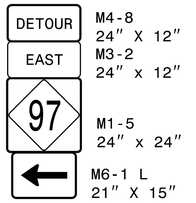

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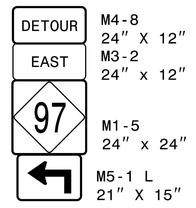

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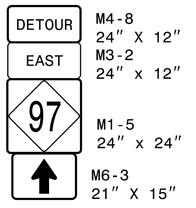

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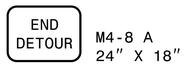

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P30CB14C54B3430...

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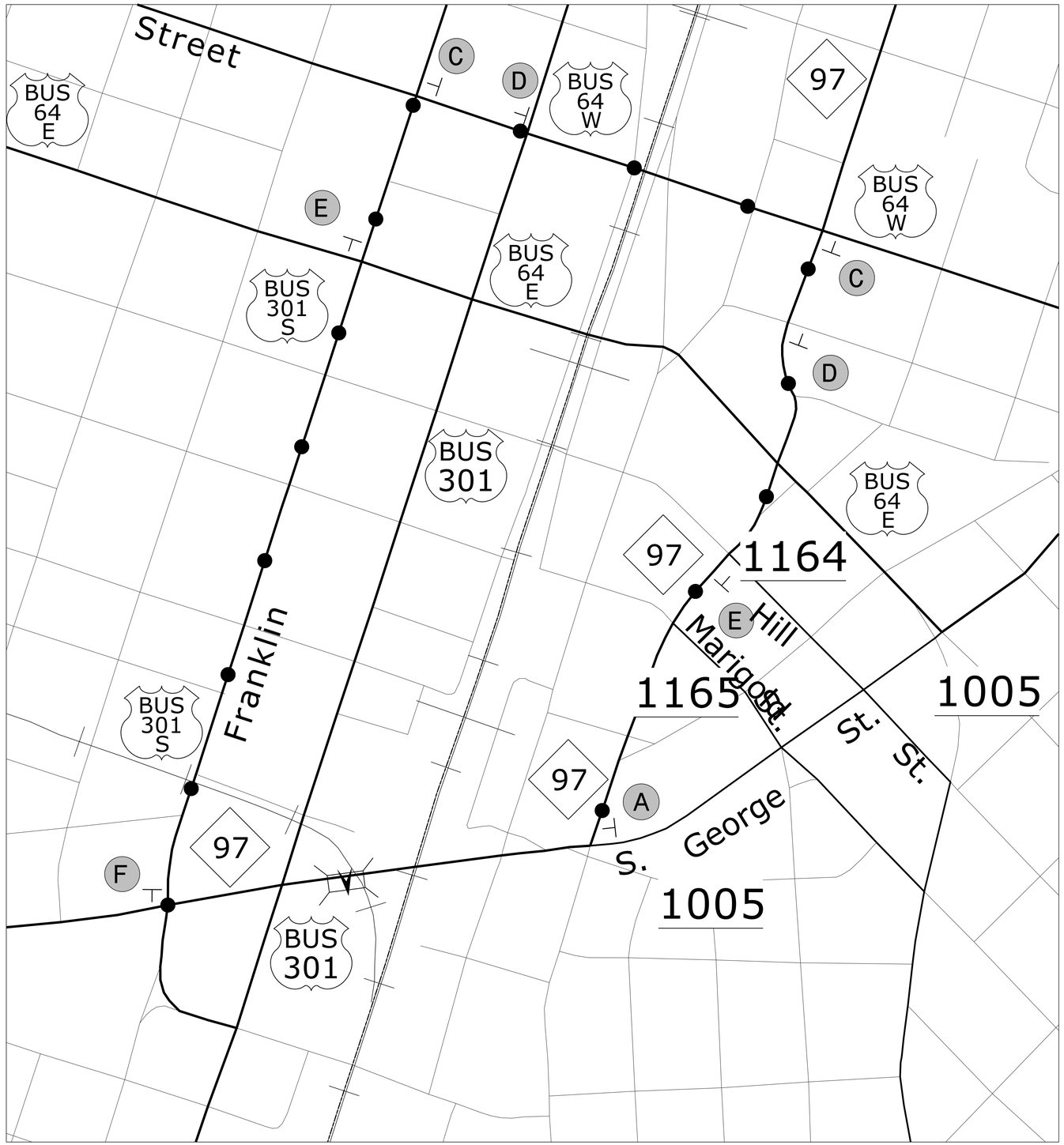
OFF-SITE DETOUR
EAST NC 97

PROJ. REFERENCE NO.	SHEET NO.
15.BPR.4	TMP-2A



DETOUR
WEST
97
M4-8 24″ X 12″
M3-4 24″ x 12″
M1-5 24″ x 24″
M6-1 R 21″ X 15″

A

DETOUR
WEST
97
M4-8 24″ X 12″
M3-4 24″ x 12″
M1-5 24″ x 24″
M5-1 R 21″ X 15″

B

DETOUR
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M3-4 24″ x 12″
M1-5 24″ x 24″
M6-1 L 21″ X 15″

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DETOUR
WEST
97
M4-8 24″ X 12″
M3-4 24″ x 12″
M1-5 24″ x 24″
M6-3 21″ X 15″

E

END DETOUR
M4-8 A 24″ X 18″

F

APPROVED: David W. Bissette
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DATE: 2/15/2018

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OFF-SITE DETOUR
WEST NC 97

PROJ. REFERENCE NO.	SHEET NO.
15.BPR.4	TMP-3

PHASING

- LAW ENFORCEMENT SHALL BE USED FOR ALL NIGHT WORK.
- RETURN TRAFFIC TO THE EXISTING PATTERN AT THE END OF EACH WORK PERIOD UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER.
- NOTIFY THE CITY OF ROCKY MOUNT THIRTY (30) CALENDAR DAYS PRIOR TO ANY ROAD CLOSURE. NOTIFY THE CITY OF ROCKY MOUNT OF ANY CHANGES TO THE ROAD CLOSURE SCHEDULE.
- SIGNAL TIMING ADJUSTMENTS IF NEEDED, WILL BE PERFORMED BY NCDOT AND/OR THE CITY OF ROCKY MOUNT.

STEP 1. USING RSD 1101.02 (SHEETS 1, 2, 3, AND 7 OF 14) AS NEEDED, INSTALL WORK ZONE ADVANCE WARNING SIGNS. (SEE RSD 1101.01 SHEET 3 OF 3)

STEP 2. USING RSD 1101.02 (SHEETS 1, 2, 3, AND 7 OF 14) AS NEEDED, INSTALL LANE CLOSURES AND BEGIN THE FOLLOWING:
- SUBSTRUCTURE WORK INCLUDING CLEANING AND REPAINTING THE STEEL BEAMS (SEE STRUCTURE PLANS)
- REPAIR THE SLOPE SUBSIDENCE AND SIDEWALK NEAR THE SOUTH EAST CORNER OF THE BRIDGE
- INSTALL HANDRAIL BEHIND THE SIDEWALK AND CONNECT IT TO THE BRIDGE RAIL

STEP 3. USING RSD 1101.02 (SHEETS 1, 2, 3, AND 7 OF 14) AS NEEDED, INSTALL NIGHTLY LANE CLOSURES BETWEEN 6:00 PM AND 7:00 AM. BEGIN THE REMOVAL OF THE EXISTING METAL BRIDGE RAIL. REPLACE THE RAIL WITH ADA COMPLIANT METAL BRIDGE RAIL. (SEE STRUCTURE PLANS)

COMPLETE THE WORK REQUIRED OF STEP 4 IN ONE WEEKEND BETWEEN THE HOURS OF 6:00 PM FRIDAY AND 7:00 AM THE FOLLOWING MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 4. USING RSD 1101.02 (SHEETS 1, 2, 3, AND 7 OF 14) INSTALL LANE CLOSURES AND COMPLETE THE FOLLOWING BETWEEN 6:00 PM ON FRIDAY AND 7:00 AM THE FOLLOWING MONDAY:
- MILL THE COMPLETE ASPHALT SURFACE OFF THE STRUCTURE. (SEE STRUCTURE PLANS)
- MILL THE CONCRETE DECK SURFACE 1″ IN DEPTH BELOW THE ORIGINAL CONCRETE SURFACE GRADE. (SEE STRUCTURE PLANS)
- PLACE TEMPORARY PAVEMENT MARKINGS IN THE EXISTING PATTERN AND REOPEN NC 97 TO TRAFFIC.

STEP 5. USING TRAFFIC MANAGEMENT PLANS SHEETS TMP-4 THRU TMP-8, AND ROADWAY STANDARD DRAWINGS 1101.03 SHEET 2 OF 9 INSTALL NIGHTLY ROAD CLOSURES ON NC 97 BETWEEN 9:00 PM AND 6:00 AM. PLACE TRAFFIC ON THE OFF-SITE DETOURS SHOWN ON TMP-2 AND TMP-2A. PLACE THE PPC OVERLAY. PLACE TEMPORARY PAVEMENT MARKINGS AND REOPEN NC 97 TO TRAFFIC EACH MORNING.

STEP 6. USING RSD 1101.02 (SHEETS 1, 2, 3, AND 7 OF 14) AS NEEDED, INSTALL LANE CLOSURES AND REMOVE THE EXISTING BRIDGE JOINTS AND REPLACE THEM WITH SILICON JOINTS. (SEE STRUCTURE PLANS)

STEP 7. USING RSD 1101.02 (SHEETS 1, 2, 3, AND 7 OF 14) AS NEEDED, COMPLETE THE WORK BEGAN IN STEPS 2 AND 3.

STEP 8. USING RSD 1101.02 (SHEETS 1, 2, 3, AND 7 OF 14) AS NEEDED, PLACE THE FINAL PAVEMENT MARKINGS AND MARKERS. REOPEN ALL LANES TO TRAFFIC.

STEP 9. USING RSD 1101.02 (SHEETS 1, 2, 3, AND 7 OF 14) AS NEEDED, REMOVE ALL REMAINING TEMPORARY TRAFFIC CONTROL DEVICES.

APPROVED: David W. Bissette
Docu Signed by:
F30CB14C54B3430...
DATE: 2/15/2018

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED FOR THE NCDOT BY:

MOTT MACDONALD
PO Box 700
Raleigh, NC 27626
(919) 520-0300
(919) 532-2254 (Fax)
www.mottmac.com/americas
LICENSE NO. F-0669

PHASING

PROJ. REFERENCE NO.	SHEET NO.
15.BPR.4	TMP-4

S HOWELL

WALNUT ST

NC 97 (W RALEIGH BLVD)

GARVIS ST

S GRACE ST

M4-8 A
24" X 18"

END DETOUR

25.0'

500'

460.0'

275.0'

MATCH LINE TMP-05

PETER ST

LINDSEY ST

ROAD CLOSED AHEAD
W20-3
48" X 48"

DETOUR 1500 FT
W20-2
48" X 48"

PLACE SIGN JUST BEFORE THE WRIGHT'S CENTER APPROXIMIATELY 1040' FROM THE STOP BAR AT NC 97 AND US 301

M5-1 R
21" X 15"

M1-5
24" x 24"

97

M3-2
24" x 12"

EAST

DETOUR

M4-8
24" X 12"

S GRACE ST

WEST END ST

CLYDE ST

LUPER ST

S GRACE ST

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F30C814C5483430...

DATE: 2/15/2018

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W BISSETTE

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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL DETAIL

2/15/2018
\\NCF-DATA\Proj\362624.East-DDC-2015\Proj\15.BPR.4 (Nash 94)\Traffic Control\TCP\DIV 4 BRIDGE MAINT_TC_TMP_04.dgn
User:bj582185

PROJ. REFERENCE NO.	SHEET NO.
15.BPR.4	TMP-05

ROCKY ST

ROCKY ST

S PEARL ST

MATCH LINE TMP-04

NC 97 (W RALEIGH BLVD)

HIGH ST

BUS US 301 (S FRANKLIN ST)

ANDREWS ST

BUS US 301 (S CHURCH ST)

NC 97 (W RALEIGH BLVD)

BUS US 301 (S FRANKLIN ST)

LEFT LANE CLOSED AHEAD
W20-5b
48" X 48"

200.0'

200.0'

W4-2L
48" X 48"

35.0'

245.0'

60.0'

120.0'

25.0'

RIGHT LANE MUST TURN RIGHT
EXISTING SIGN

M6-1 R
21" X 15"

M1-5
24" X 24"

97

EAST

DETOUR

M4-8
24" X 12"

M3-2
24" X 12"

M6-1 L
21" X 15"

M1-5
24" X 24"

97

EAST

DETOUR

M4-8
24" X 12"

M3-2
24" X 12"

M4-8 A
24" X 18"

END DETOUR

25.0'

25.0'

TYPE III BARRICADE(S)

DETOUR

ROAD CLOSED

R11-2
48" X 30"

M4-10R
48" X 18"

ROAD CLOSED

W20-3
48" X 48"

R3-2
24" X 24"

100.0'

ROAD CLOSED

W20-3
48" X 48"

R3-2
24" X 24"

APPROVED: DocuSigned by: David W. Bissette F30C814C54B3450...

DATE: 2/15/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

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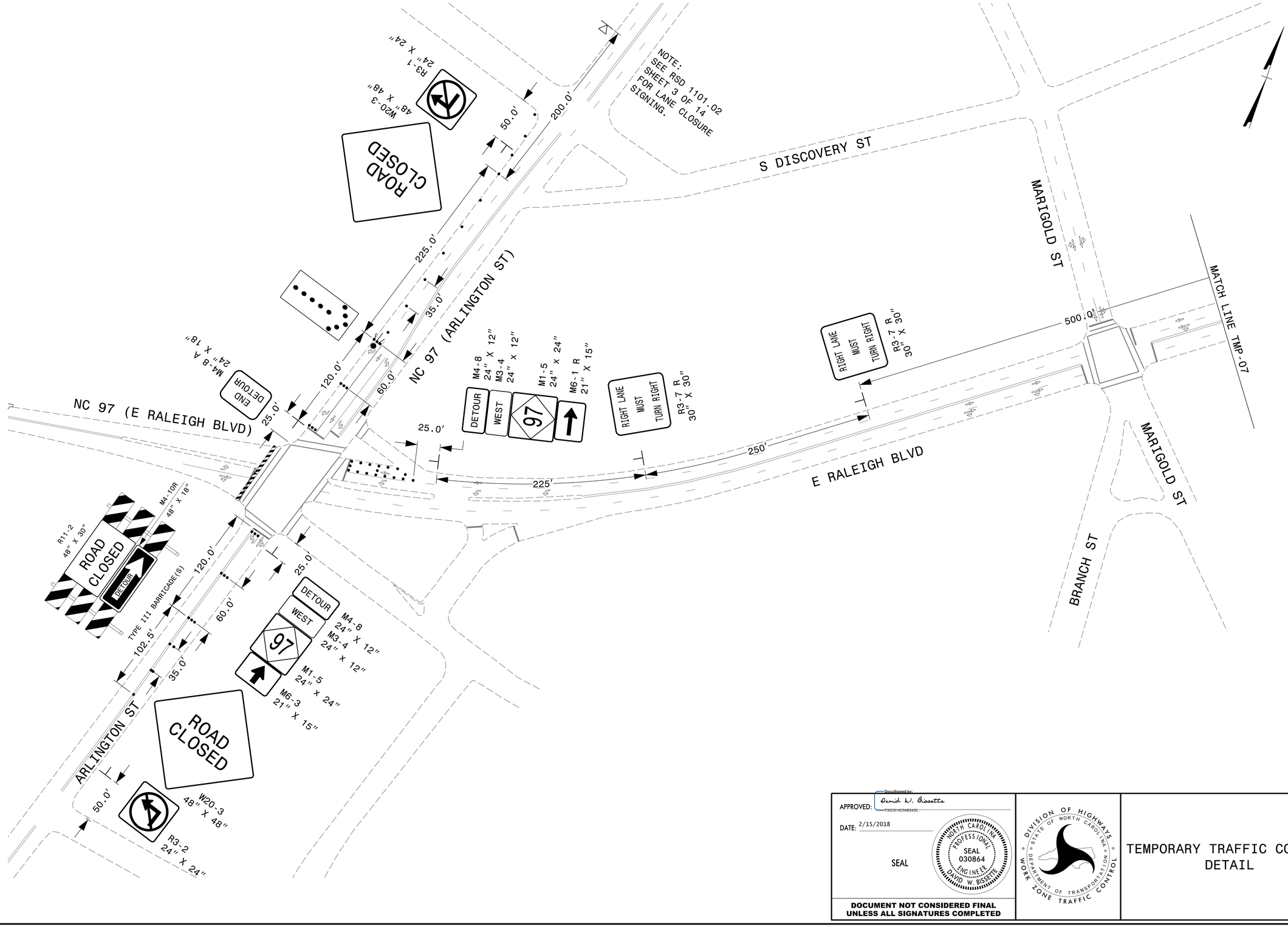
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL DETAIL

2/15/2018
\\NCF-DATA\Proj\362624_East-DDC-2015\Proj\5.BPR.4 (Nash 94)\Traffic Control\TCP\DIV 4 BRIDGE MAINT_TC_TMP_05.dgn
User:ds8285

PROJ. REFERENCE NO.	SHEET NO.
15.BPR.4	TMP-06



APPROVED: DocuSigned by: David W. Bissette F30CB14C54B3430...

DATE: 2/15/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W. BISSETTE

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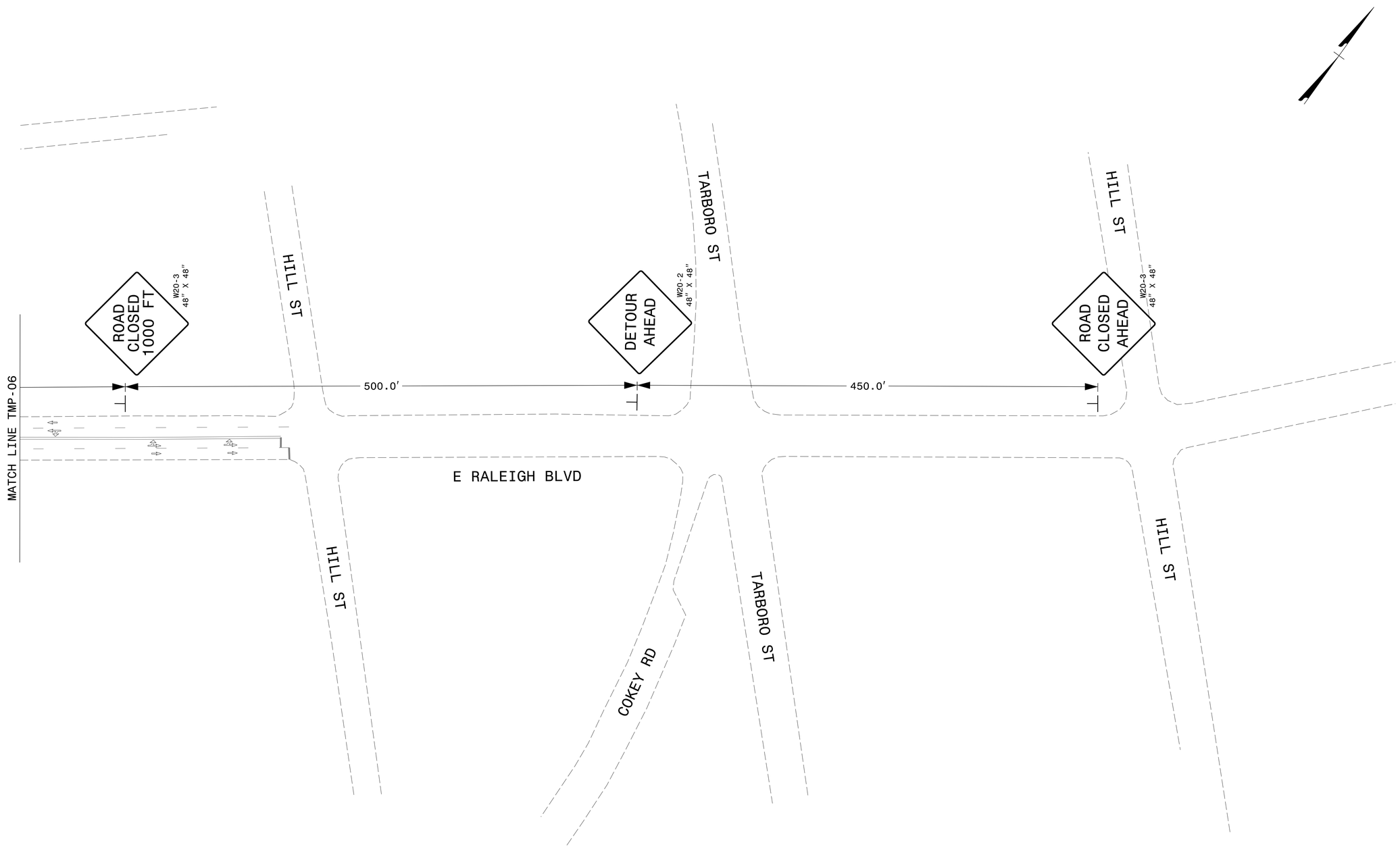
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL DETAIL

2/15/2018
\\NCF-DATA\Proj\362624_East-DOC-2015\Proj\15.BPR.4 (Nash 94)\Traffic Control\TCP\DIV 4 BRIDGE MAINT_TC_TMP_06.dgn
User:bl582185

PROJ. REFERENCE NO.	SHEET NO.
15.BPR.4	TMP-07



APPROVED: David W. Bissette
F30C814C54B3430...
DATE: 2/15/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030864 ENGINEER DAVID W BISSETTE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL DETAIL

2/15/2018
\\NCF-DATA\Proj\362624_East-DDC-2015\Proj\15.BPR.4 (Nash 94)\Traffic Control\TCP\DIV 4 BRIDGE MAINT_TC_TMP_07.dgn
User:bs82185

PROJECT: 15BPR.4

CONTRACT: DD00228

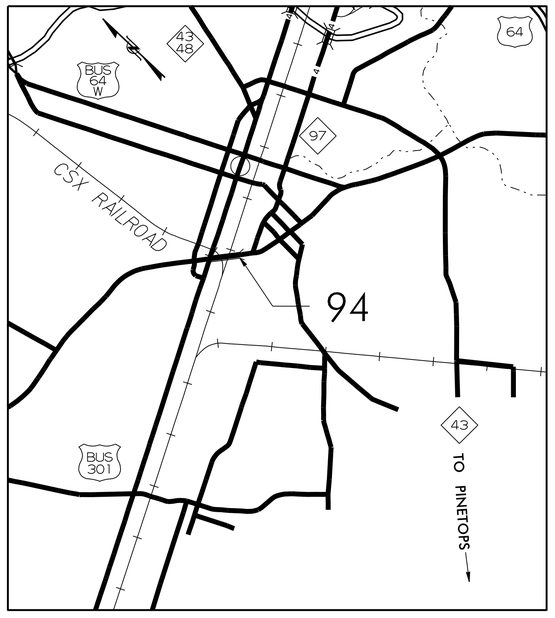
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NASH COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.4	1	62
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
15BPR.4		P.E.	
15BPR.4		CONST.	

LOCATION: NASH COUNTY: ***BRIDGE #94 ON NC 97 OVER US 301 BUS. – NBL, AND SCL RAILROAD***

TYPE OF WORK: ***CONCRETE BRIDGE DECK REHABILITATION BY SCARIFICATION, SHOT BLAST CLEANING, AND PLACEMENT OF POLYESTER POLYMER CONCRETE; DEMOLITION AND RECONSTRUCTION OF BRIDGE DECK JOINTS AND SEALS; CLEANING AND PAINTING OF SUPERSTRUCTURE STEEL; SUBSTRUCTURE CONCRETE REPAIRS WITH SHOTCRETE, EPOXY RESIN INJECTION AND EPOXY COATING OF TOP OF SUBSTRUCTURE CAPS; 2 BAR METAL RAIL RETROFIT; SIDEWALK REPAIRS; AND REINFORCED CONCRETE DECK GIRDER REPAIR.***



VICINITY MAP : NASH COUNTY

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DESIGN DATA

NASH COUNTY

BRIDGE #94 ADT 2013 = 17,000

PROJECT LENGTH

BRIDGE #94 = 0.1962 MILES

Prepared in the Office of:

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT – PRESERVATION & REPAIR GROUP
1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610

GREG DICKEY, P.E.
PROJECT ENGINEER

2018 STANDARD SPECIFICATIONS

LETTING DATE:
FEBRUARY 27, 2018

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

ASTER G. ABRAHA, P.E.
PROJECT DESIGN ENGINEER

TOTAL BILL OF MATERIAL

INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	ASPHALT BINDER FOR PLANT MIX	GROOVING BRIDGE FLOORS	2 BAR METAL RAIL	* CLASS II SURFACE PREPARATION	SCARIFYING BRIDGE DECK	SHOTBLASING BRIDGE DECK	* CONCRETE DECK REPAIR FOR PPC OVERLAY	CLEANING AND PAINTING OF BRIDGE	PPC MATERIALS	PLACING AND FINISHING PPC OVERLAY	POLLUTION CONTROL	PAINTING CONTAINMENT	SILICONE JOINT SEAL	PARTIAL REMOVAL OF EXISTING STRUCTURE	** EPOXY RESIN INJECTION	EPOXY COATING	SHOTCRETE REPAIRS	CONCRETE REPAIRS	CONCRETE ATTACHMENT POST	BRIDGE JACKING TYPE I	CLASS A CONCRETE	CLEANING & PAINTING EXISTING BEARINGS WITH HRCSA	PEDESTRIAN SAFETY RAIL
SQ. YD.	TONS	TONS	SQ. FT.	LN. FT.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	LUMP SUM	CU. YD.	SQ. YD.	LUMP SUM	LUMP SUM	LIN. FT.	SQ. YD.	LIN. FT.	SQ. FT.	CU. FT.	CU. FT.	LIN. FT.	EA.	CU. YD.	EA.	LIN. FT.
1,934.0	162.5	9.6	25,816.0	1,964.0	40.0	3221.5	3221.5	40.0	LUMP SUM	89.5	3221.5	LUMP SUM	LUMP SUM	1061.0	23.0	1000.0	2,691.0	1,093.0	386.0	70.0	21	3.8	250	64.0

* TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES, IN CASE UNANTICIPATED CONCRETE REPAIRS AREAS ARE ENCOUNTERED.

** THE QUANTITY OF EPOXY RESIN INJECTION HAS BEEN INCREASED FOR UNANTICIPATED REPAIRS. THE ANTICIPATED REPAIRS AMOUNT TO 227.0 LINEAR FEET.

GENERAL 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 ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

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

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

FOR SILICONE JOINT SEAL, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

FOR PAINTING EXISTING STRUCTURE, SEE SPECIAL PROVISION.

FOR 2 BAR METAL RAIL RETROFIT, SEE SPECIAL PROVISION.

FOR CONCRETE REPAIR FOR PPC OVERLAY, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE, SEE SPECIAL PROVISIONS.

FOR POLYESTER POLYMER CONCRETE BRIDGE DECK OVERLAY, SEE SPECIAL PROVISIONS.

FOR RC DECK GIRDER REPAIR, SEE "CONCRETE REPAIRS" SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR CLEANING & PAINTING EXISTING BEARINGS WITH HRCSA, SEE SPECIAL PROVISIONS.

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.

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

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABARAHA

Digitally signed by: Aster Abraha

DDA094AED5104FD...

2/27/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL NOTES & TOTAL BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			61

DRAWN BY : S. T. SANDOR DATE : 08/2017

CHECKED BY : A. G. ABARAHA DATE : 10/2017

27-FEB-2018 17:20
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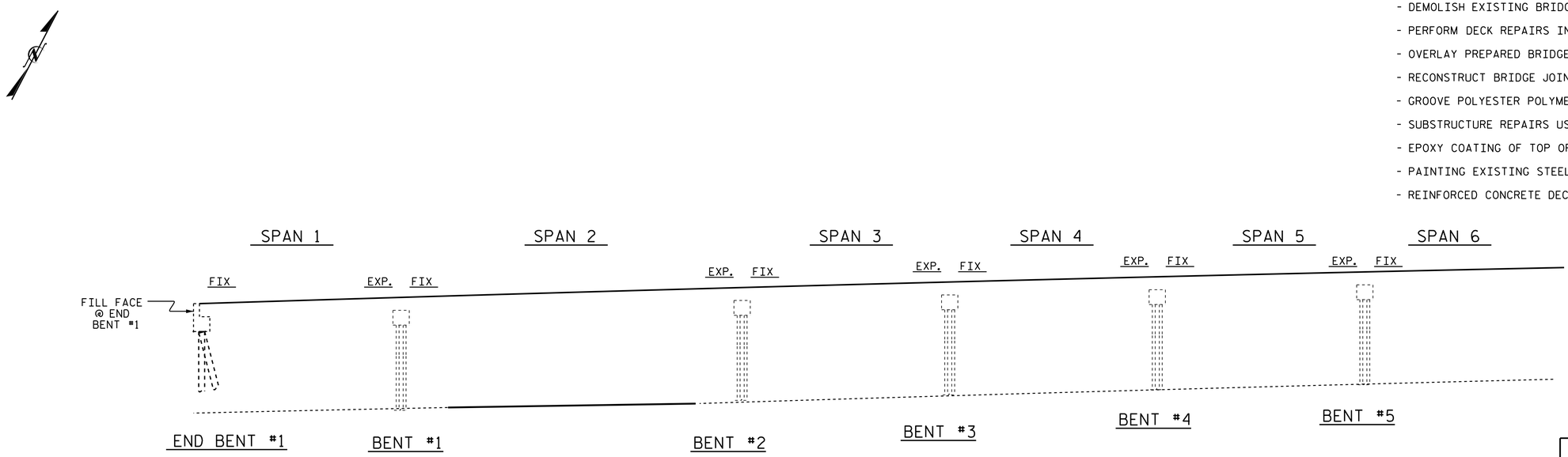
aabraha

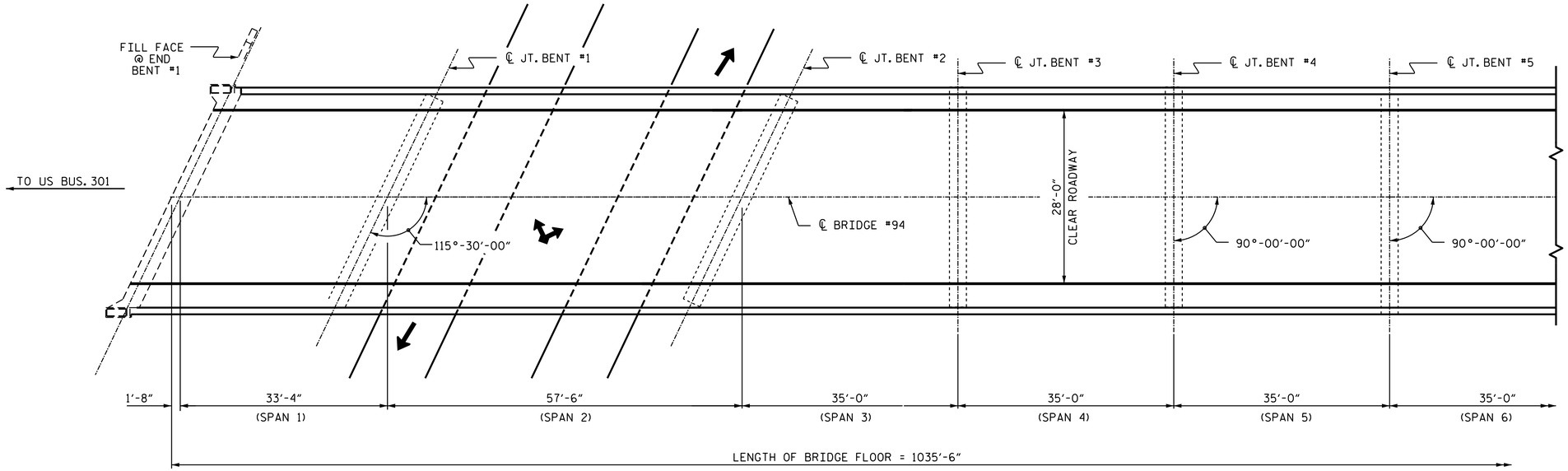
SCOPE OF WORK

- PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- DEMOLISH EXISTING BRIDGE DECK JOINTS.
- PERFORM DECK REPAIRS IN PREPARED AREAS.
- OVERLAY PREPARED BRIDGE DECK WITH POLYESTER POLYMER CONCRETE.
- RECONSTRUCT BRIDGE JOINTS AND INSTALL SILICONE JOINT SEALS.
- GROOVE POLYESTER POLYMER CONCRETE.
- SUBSTRUCTURE REPAIRS USING EPOXY RESIN INJECTION AND SHOTCRETE.
- EPOXY COATING OF TOP OF CAPS.
- PAINTING EXISTING STEEL GIRDER.
- REINFORCED CONCRETE DECK GIRDER REPAIR.



ELEVATION

(SECTION ALONG ℄ ROADWAY)



PLAN

(COLUMNS & FOOTINGS NOT SHOWN IN PLAN VIEW FOR CLARITY)

I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer Date

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON NC 97 OVER US 301 BUS., NBL AND SCL RAILROAD

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			61

DRAWN BY : S. T. SANDOR DATE : 07/2017
CHECKED BY : A. G. ABRAHA DATE : 09/2017

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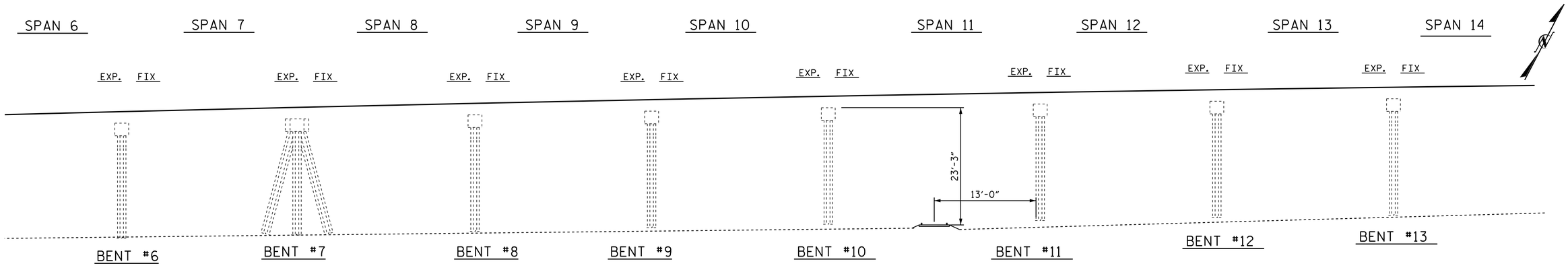
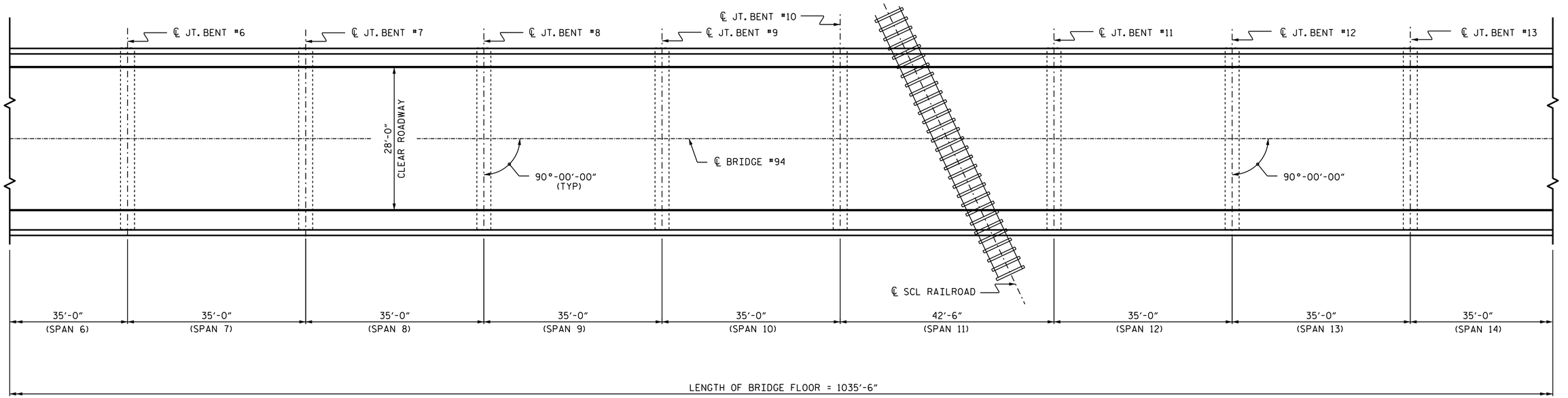


ELEVATION

(SECTION ALONG ℄ ROADWAY)



PLAN

(COLUMNS & FOOTINGS NOT SHOWN IN PLAN VIEW FOR CLARITY)

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

SHEET 2 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON NC 97 OVER US 301 BUS., NBL AND SCL RAILROAD

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			61

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CHECKED BY : A. G. ABRAHA DATE : 09/2017

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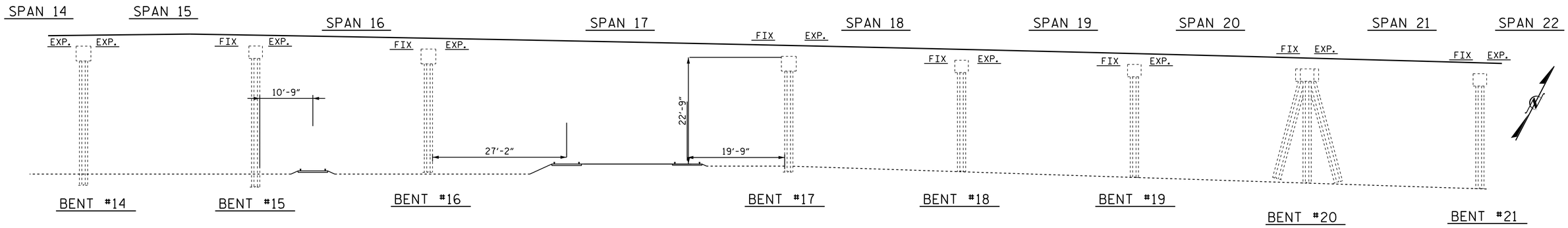
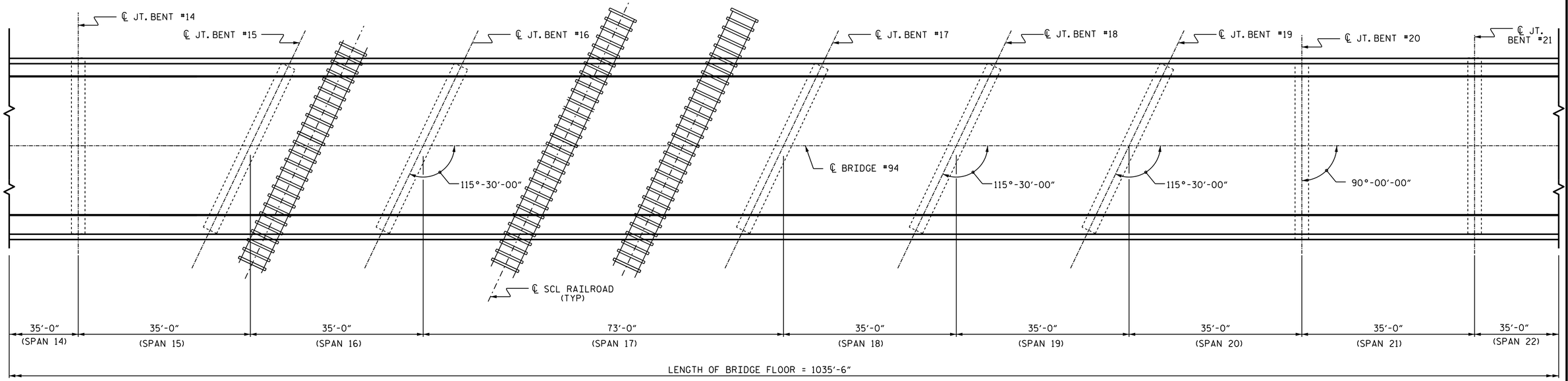


ELEVATION

(SECTION ALONG ℄ ROADWAY)



PLAN

(COLUMNS & FOOTINGS NOT SHOWN IN PLAN VIEW FOR CLARITY)

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

SHEET 3 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON NC 97
OVER US 301 BUS., NBL
AND SCL RAILROAD

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			61

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : S. T. SANDOR DATE : 07/2017
CHECKED BY : A. G. ABRAHA DATE : 09/2017

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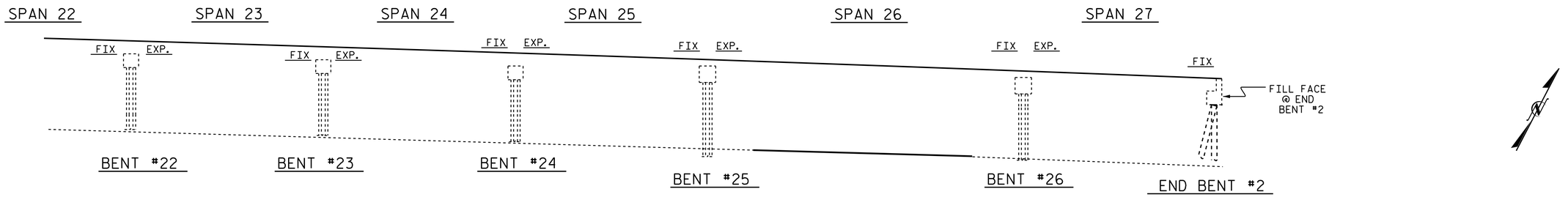
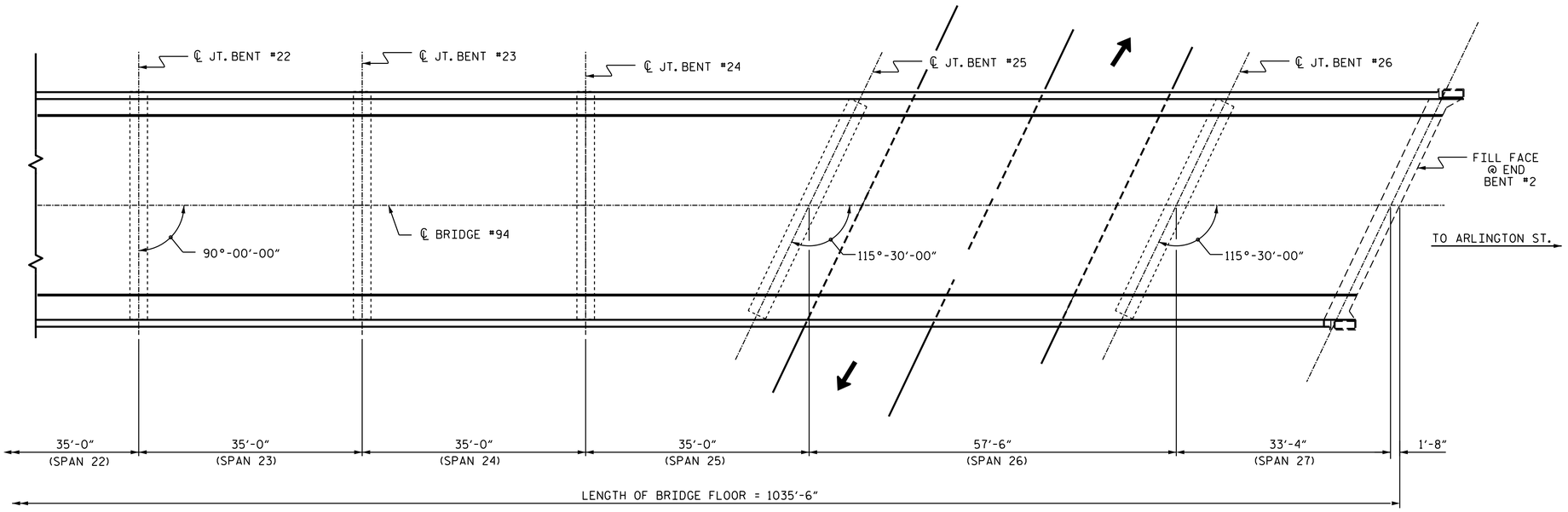


ELEVATION

(SECTION ALONG ℄ ROADWAY)



PLAN

(COLUMNS & FOOTINGS NOT SHOWN IN PLAN VIEW FOR CLARITY)

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

SHEET 4 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON NC 97
OVER US 301 BUS., NBL
AND SCL RAILROAD

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			61

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : S. T. SANDOR DATE : 07/2017
CHECKED BY : A. G. ABRAHA DATE : 09/2017

12-FEB-2018 14:47
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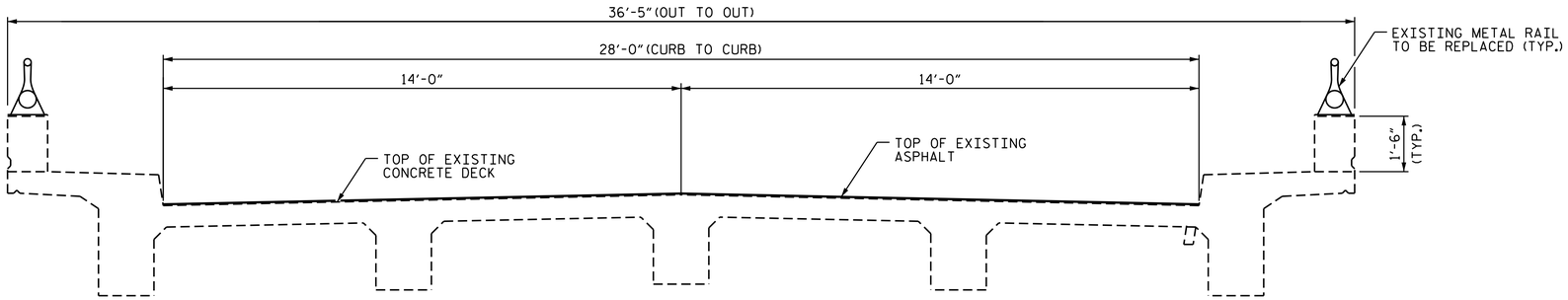
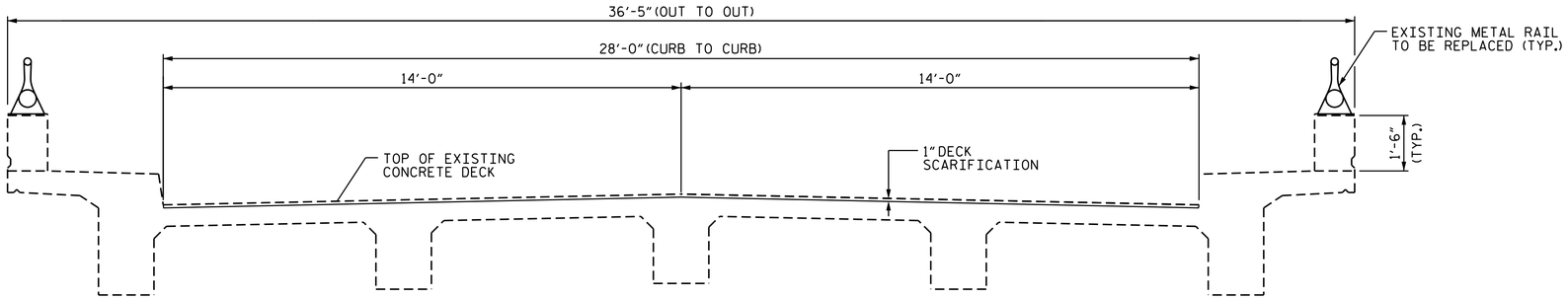


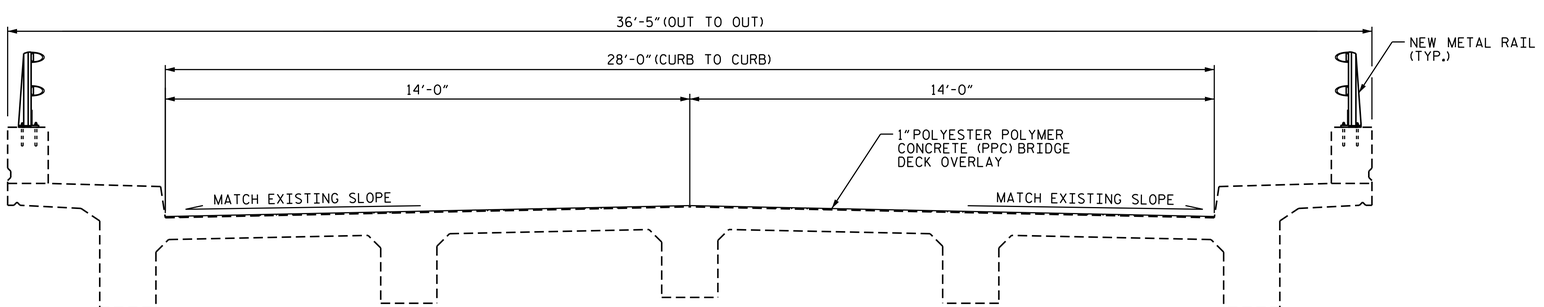
TYPICAL SECTION

(EXISTING)



TYPICAL SECTION

(AFTER EXISTING ASPHALT IS REMOVED DOWN TO ORIGINAL CONCRETE DECK SURFACE)



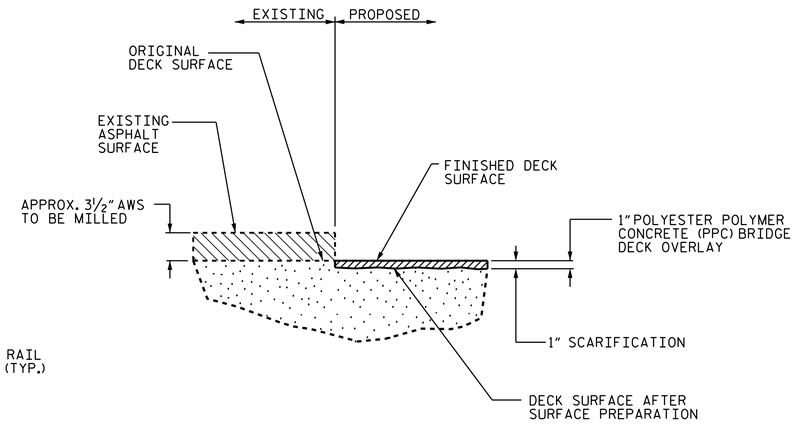
TYPICAL SECTION

(PROPOSED)

NOTES

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYESTER POLYMER CONCRETE (PPC) SYSTEM AND SURFACE PREPARATION.

EXISTING BRIDGE IS COVERED WITH ASPHALT OVERLAY, INCIDENTAL MILLING OF THE APPROACH ROADWAY IS REQUIRED.



DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION
SPANS 1, 3-10, 12-16, 18-25, & 27

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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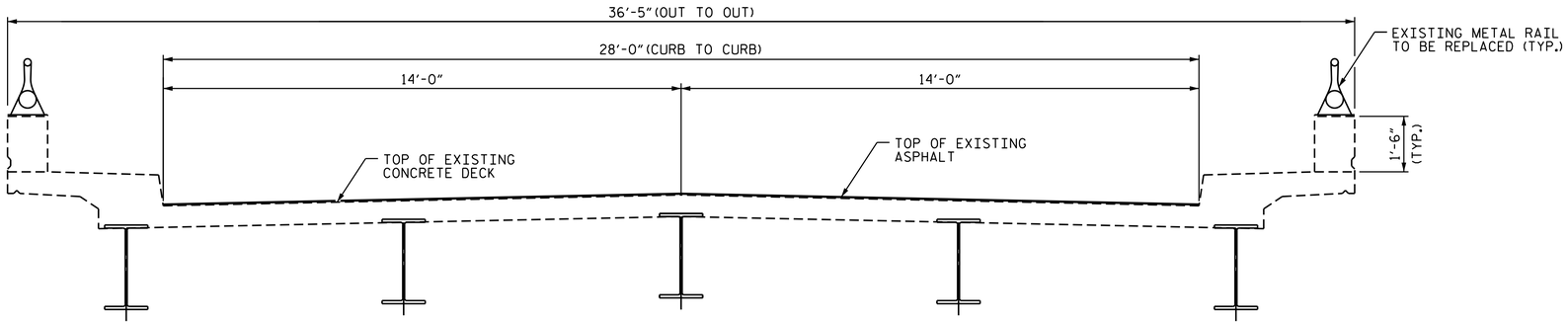
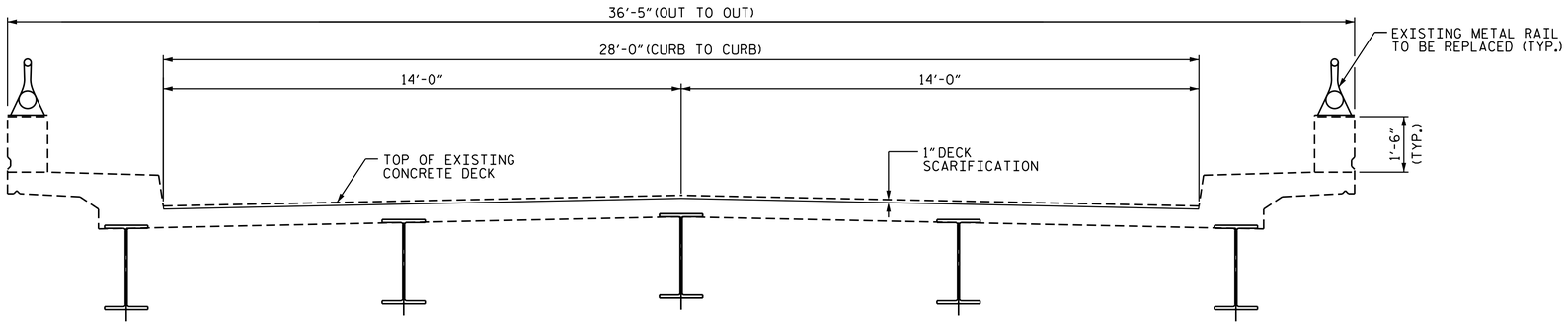
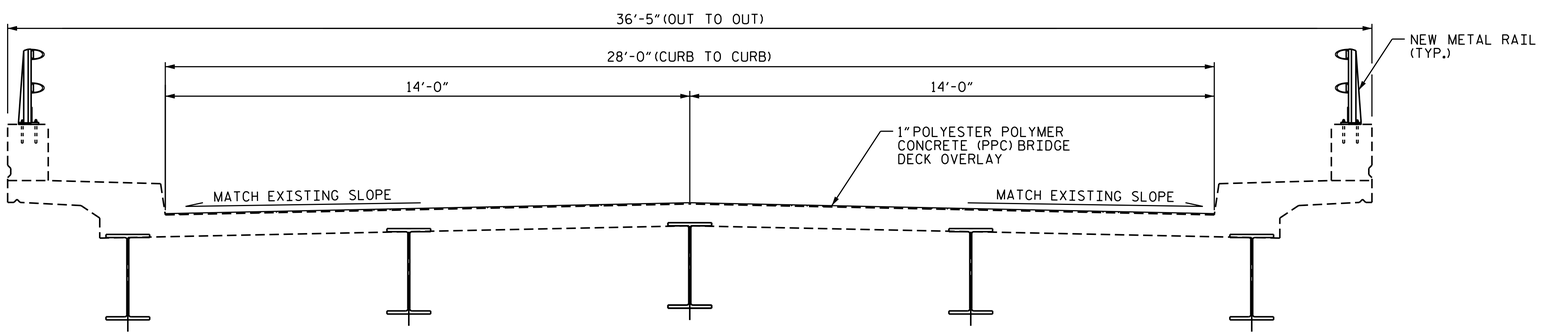


TYPICAL SECTION
(EXISTING)



TYPICAL SECTION
(AFTER EXISTING ASPHALT IS REMOVED DOWN TO ORIGINAL CONCRETE DECK SURFACE)

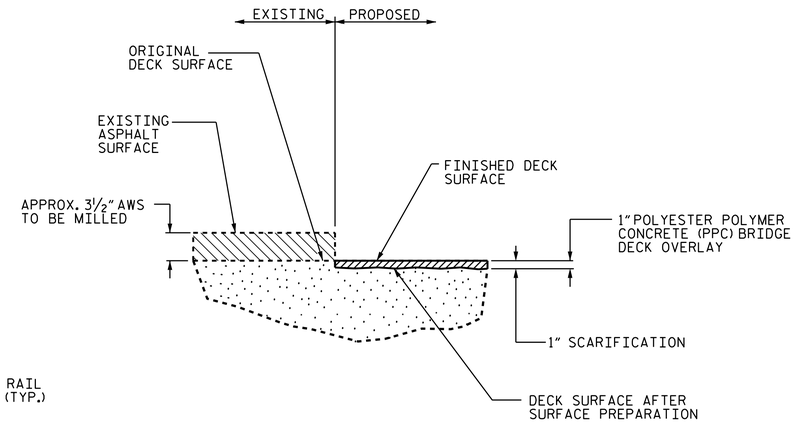


TYPICAL SECTION
(PROPOSED)

NOTES

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYESTER POLYMER CONCRETE (PPC) SYSTEM AND SURFACE PREPARATION.

EXISTING BRIDGE IS COVERED WITH ASPHALT OVERLAY, INCIDENTAL MILLING OF THE APPROACH ROADWAY IS REQUIRED.



DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION
SPANS 2, 11, 17 & 26

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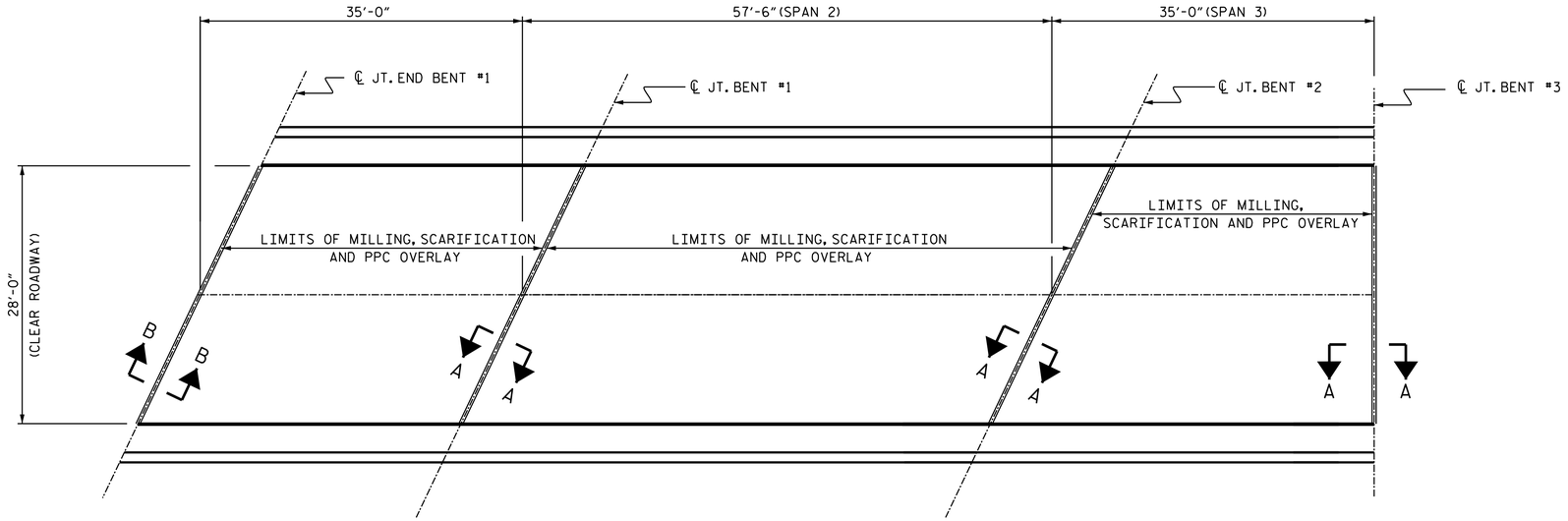


PLAN OF SPANS

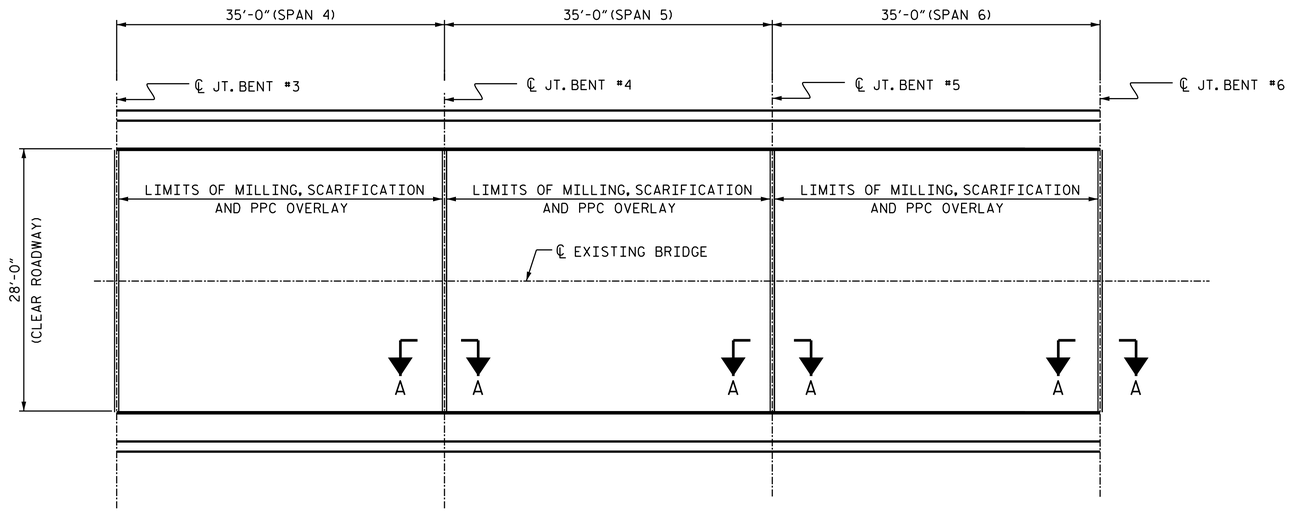
(FOR SECTIONS A-A & B-B,
SEE "JOINT DETAILS" SHEET S-12)

SUMMARY OF QUANTITIES

SPANS 1 THRU 6

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	723.5 SY	
CLASS II SURFACE PREPARATION	✱10.0 SY	
SHOTBLASTING BRIDGE DECK	723.5 SY	
PPC MATERIALS	20.1 CY	
PLACING & FINISHING PPC OVERLAY	723.5 SY	
BRIDGE DECK GROOVING	5,762.5 SF	

✱ CLASS II SURFACE PREPARATION FOR PPC OVERLAY IS ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE FOR REPAIR AREAS THAT ARE ENCOUNTERED.



PLAN OF SPANS

(FOR SECTIONS A-A, SEE
"JOINT DETAILS" SHEET S-12)

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 1 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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2/12/2018

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SUPERSTRUCTURE

SURFACE PREPARATION & PPC OVERLAY

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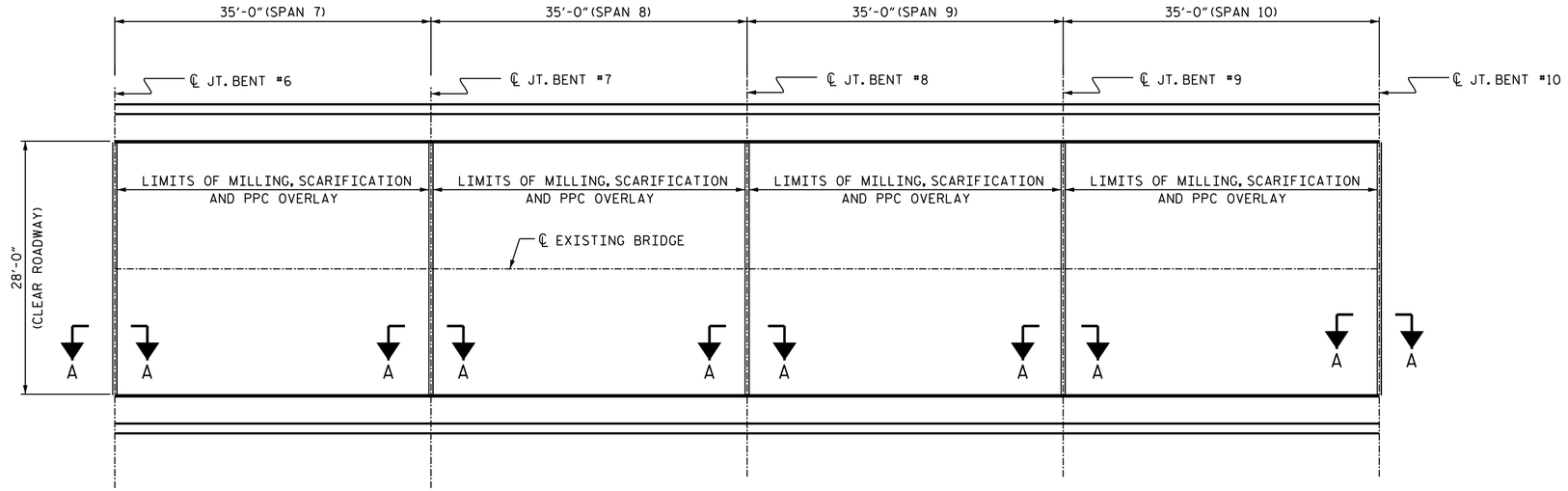
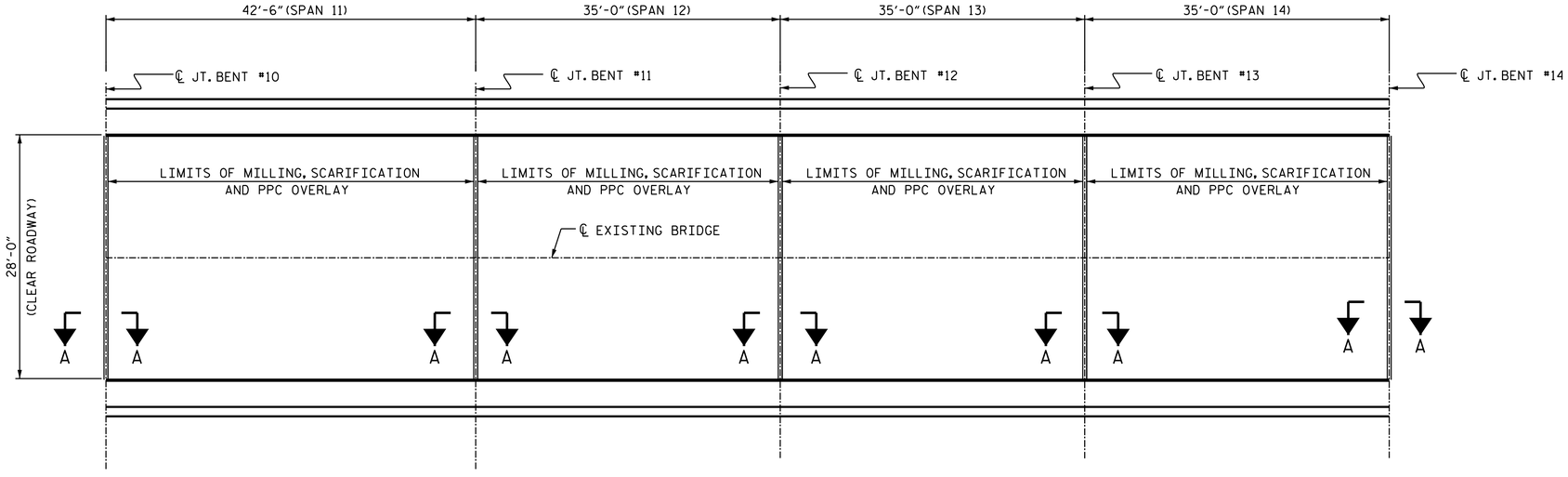


PLAN OF SPANS

(FOR SECTION A-A, SEE "JOINT DETAILS" SHEET S-12)



PLAN OF SPANS

(FOR SECTIONS A-A, SEE "JOINT DETAILS" SHEET S-12)

SUMMARY OF QUANTITIES

SPANS 7 THRU 14

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	894.0 SY	
CLASS II SURFACE PREPARATION	✱ 10.0 SY	
SHOTBLASTING BRIDGE DECK	894.0 SY	
PPC MATERIALS	24.8 CY	
PLACING & FINISHING PPC OVERLAY	894.0 SY	
BRIDGE DECK GROOVING	7,121.0 SF	

✱ CLASS II SURFACE PREPARATION FOR PPC OVERLAY IS ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE FOR REPAIR AREAS THAT ARE ENCOUNTERED.

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 2 OF 4

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RALEIGH

SUPERSTRUCTURE

SURFACE PREPARATION & PPC OVERLAY

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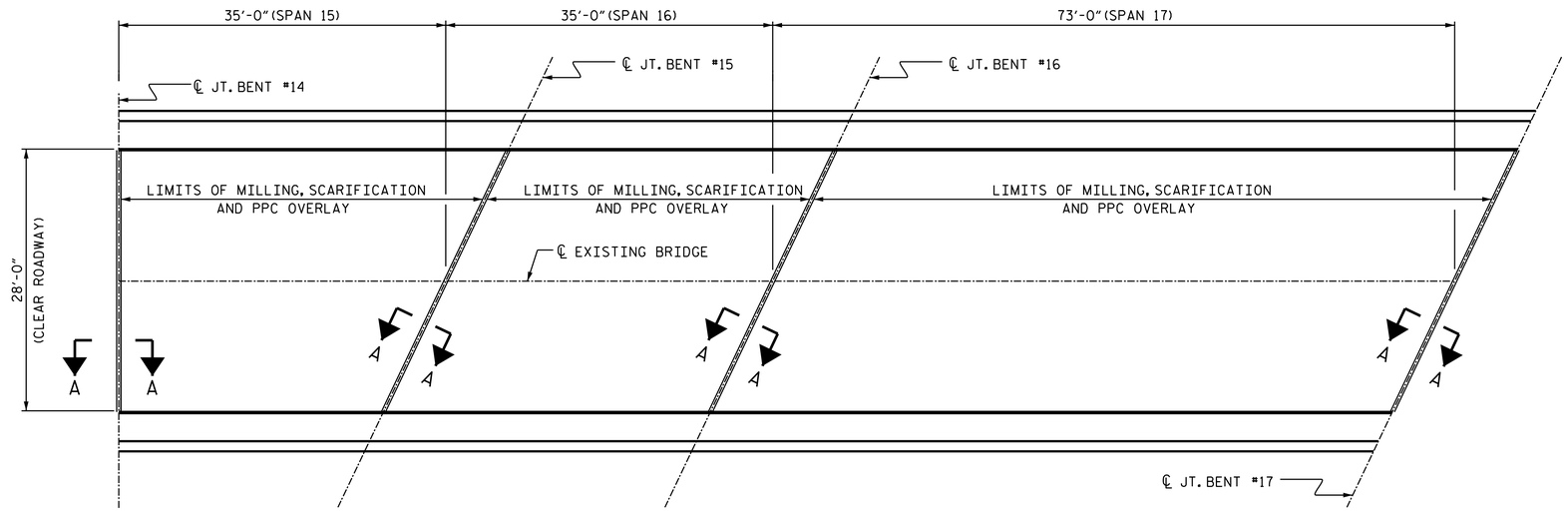
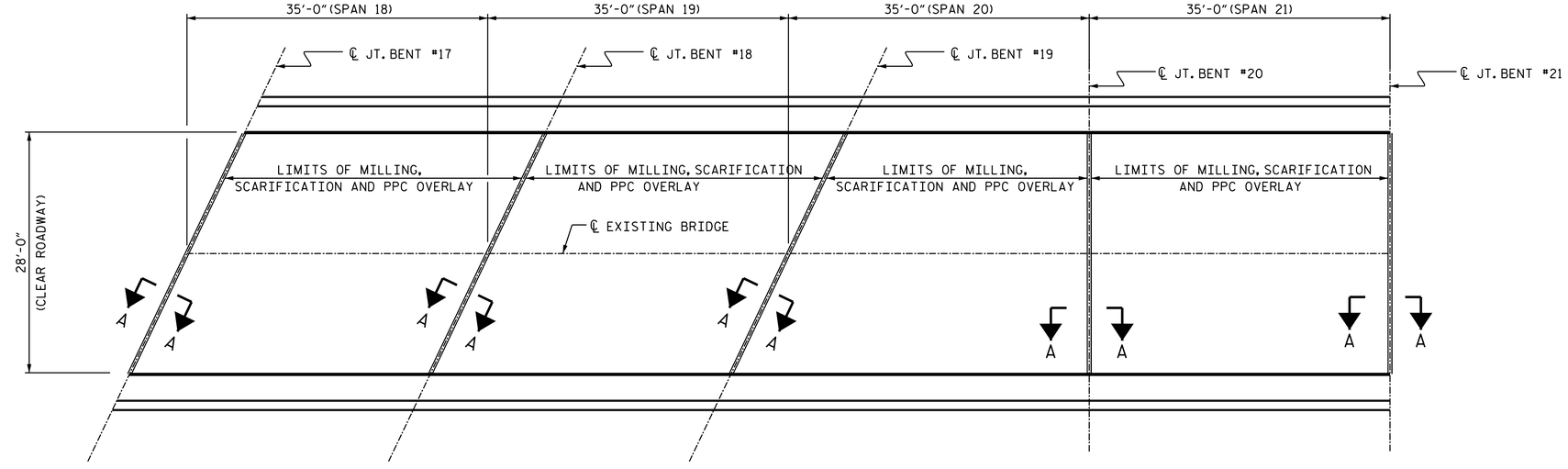


PLAN OF SPANS

(FOR SECTIONS A-A, SEE "JOINT DETAILS" SHEET S-12)



PLAN OF SPANS

(FOR SECTIONS A-A & B-B, SEE "JOINT DETAILS" SHEET S-12)

SUMMARY OF QUANTITIES

SPANS 15 THRU 21

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	880.5 SY	
CLASS II SURFACE PREPARATION	✱10.0 SY	
SHOTBLASTING BRIDGE DECK	880.5 SY	
PPC MATERIALS	24.5 CY	
PLACING & FINISHING PPC OVERLAY	880.5 SY	
BRIDGE DECK GROOVING	7,170.0 SF	

✱ CLASS II SURFACE PREPARATION FOR PPC OVERLAY IS ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE FOR REPAIR AREAS THAT ARE ENCOUNTERED.

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 3 OF 4

STATE OF NORTH CAROLINA
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RALEIGH

SUPERSTRUCTURE

SURFACE PREPARATION & PPC OVERLAY

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER C. ABRAHA

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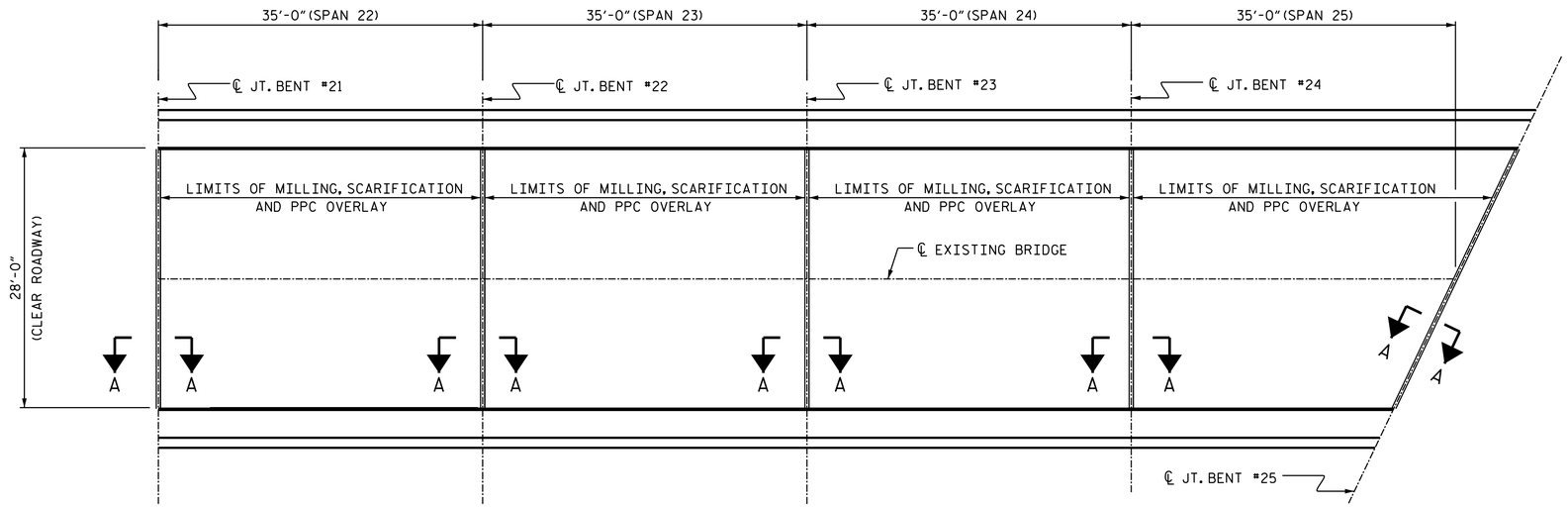
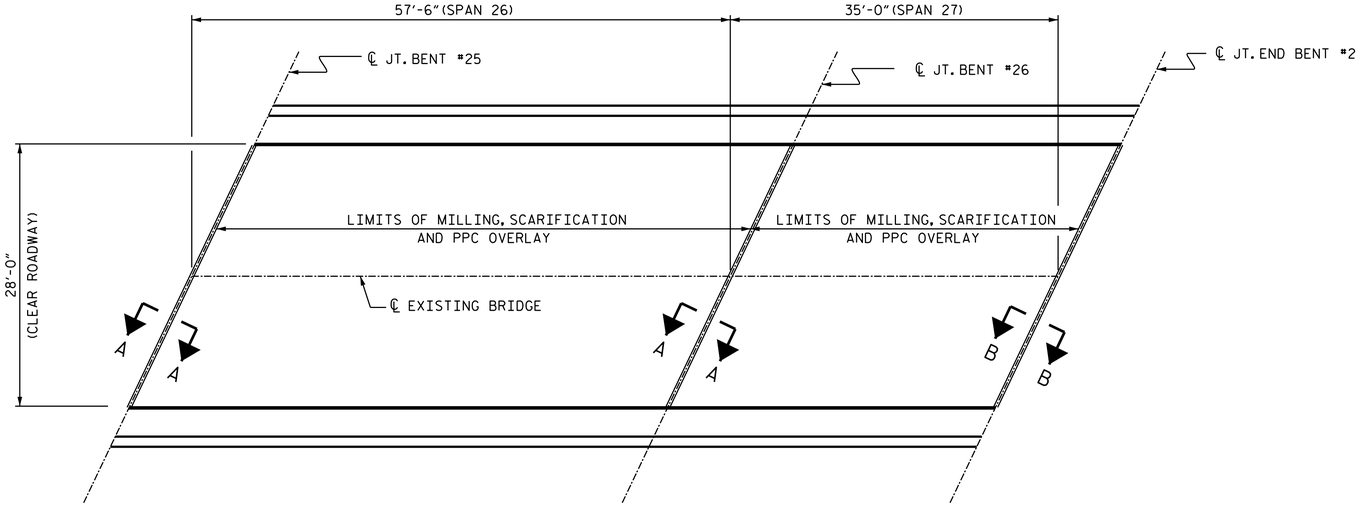


PLAN OF SPANS

(FOR SECTIONS A-A, SEE "JOINT DETAILS" SHEET S-12)



PLAN OF SPANS

(FOR SECTIONS A-A & B-B, SEE "JOINT DETAILS" SHEET S-12)

SUMMARY OF QUANTITIES

SPANS 22 THRU 27

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	723.5 SY	
CLASS II SURFACE PREPARATION	✱10.0 SY	
SHOTBLASTING BRIDGE DECK	723.5 SY	
PPC MATERIALS	20.1 CY	
PLACING & FINISHING PPC OVERLAY	723.5 SY	
BRIDGE DECK GROOVING	5,762.5 SF	

✱ CLASS II SURFACE PREPARATION FOR PPC OVERLAY IS ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE FOR REPAIR AREAS THAT ARE ENCOUNTERED.

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 4 OF 4

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SURFACE PREPARATION & PPC OVERLAY

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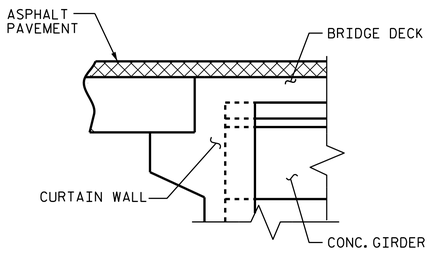

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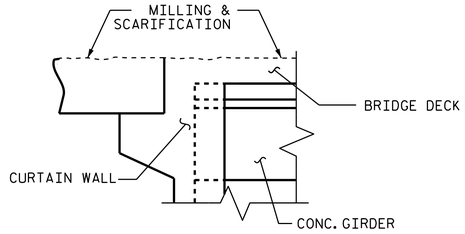

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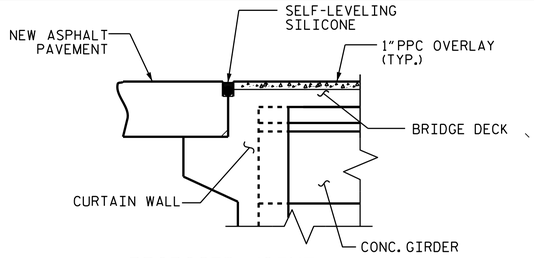
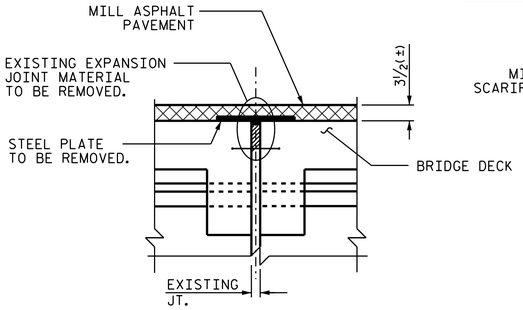


PROPOSED JOINT

JOINT INSTALLATION SEQUENCE AT END BENTS

(SECTION B-B)



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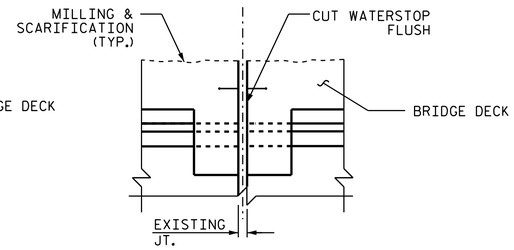
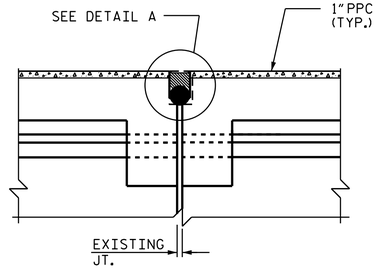


MINIMUM EXISTING JOINT DEMOLITION



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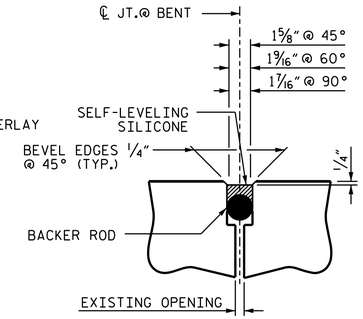
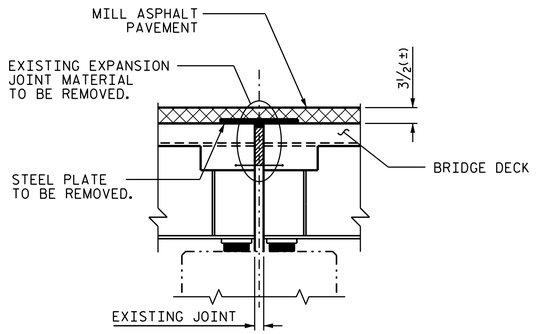


DETAIL A

(PROPOSED)

JOINT INSTALLATION SEQUENCE AT BENTS

(SECTION A-A)



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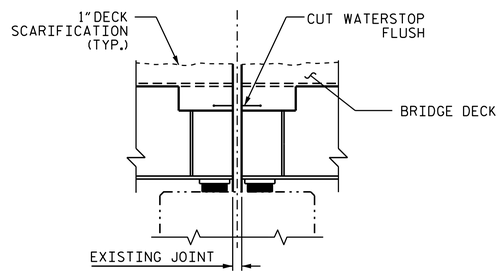
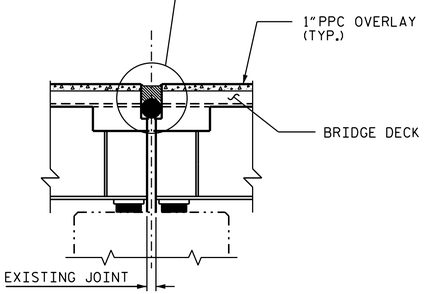


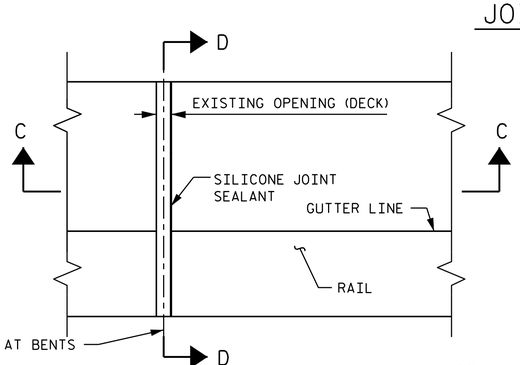
MINIMUM EXISTING JOINT DEMOLITION



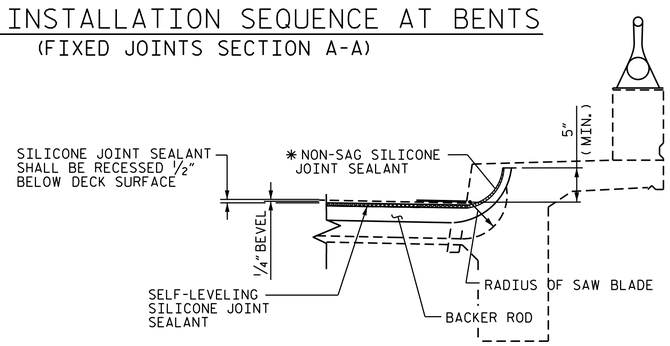
PROPOSED JOINT

JOINT INSTALLATION SEQUENCE AT BENTS

(FIXED JOINTS SECTION A-A)



PLAN



SECTON D-D

JOINT DETAILS AT SIDEWALKS

NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.

UNLESS NOTED OTHERWISE RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

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

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

FOR SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

SILICONE JOINT SEALANT AND BACKER ROD SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION.

SILICONE JOINT SEALANT
LIN. FT
1061.0

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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JOINT DETAILS

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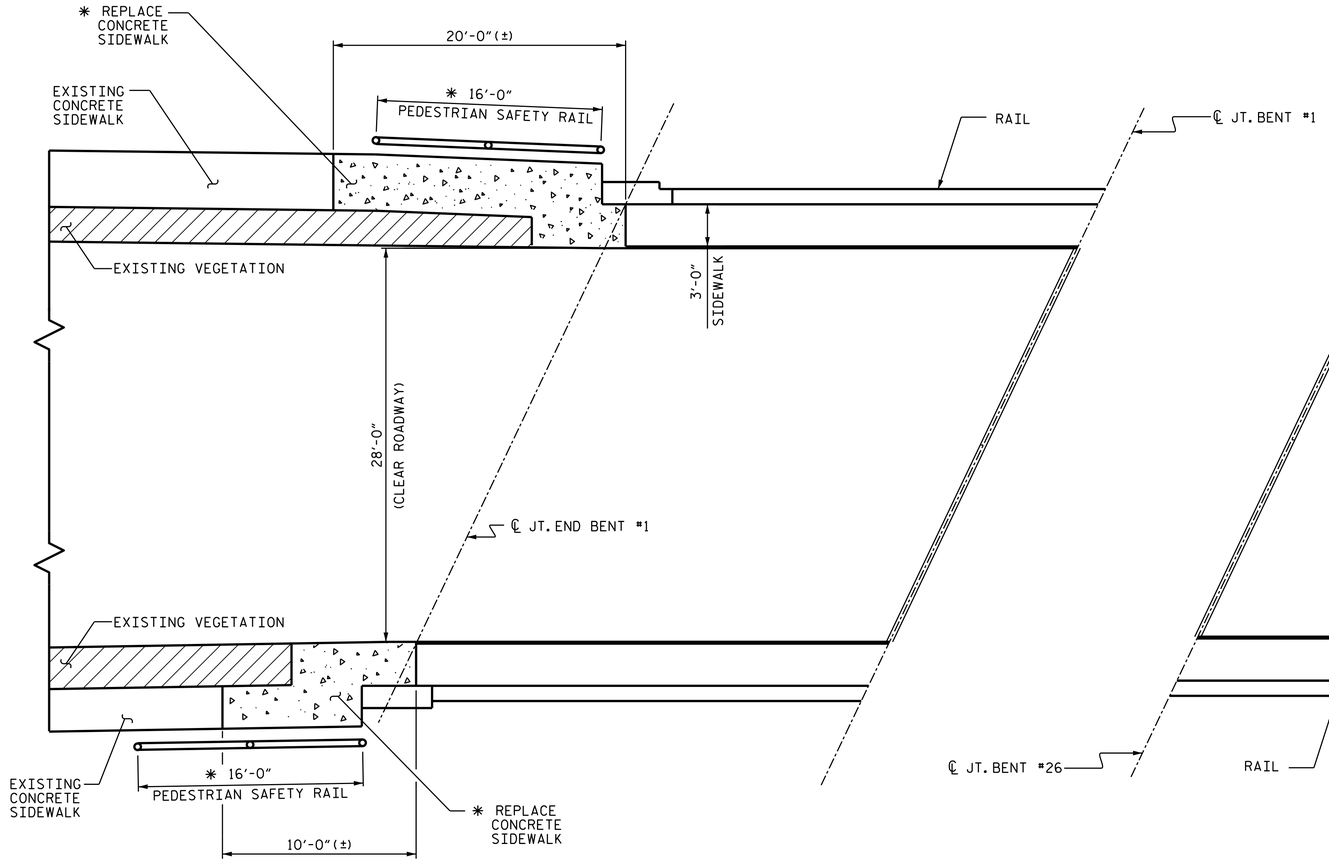
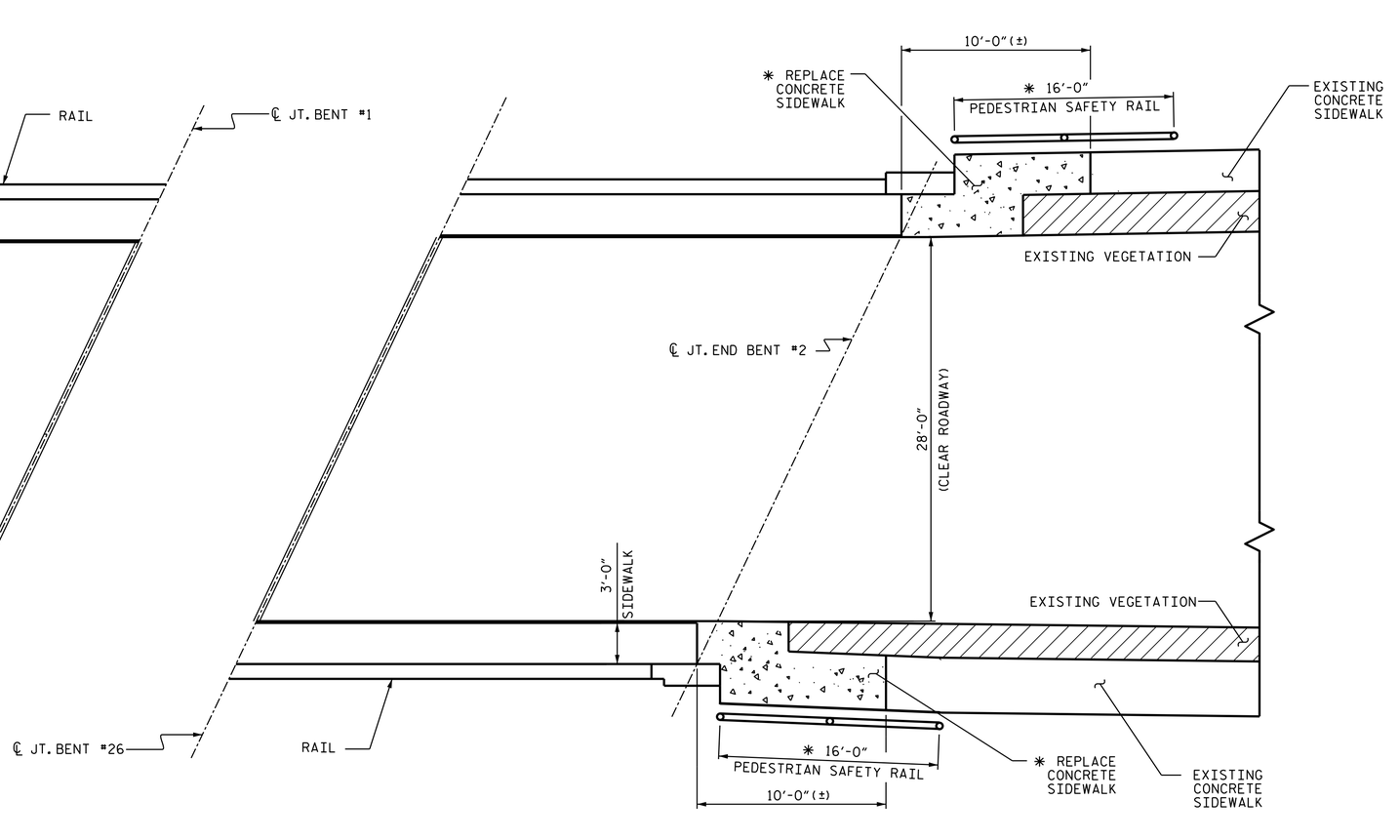


PLAN VIEW
(APPROACH @ END BENT 1)



PLAN VIEW
(APPROACH @ END BENT 2)

* APPROXIMATE DIMENSIONS OF SIDEWALKS AND LENGTH OF PEDESTRIAN SAFETY RAILS IS PROVIDED. ACTUAL DIMENSIONS AND LOCATION OF THE SAFETY RAILS SHALL BE DETERMINED BY THE FIELD ENGINEER. SEE SHEET S-14 FOR PEDESTRIAN SAFETY RAIL DETAILS.

PARTIAL REMOVAL OF EXISTING STRUCTURE	CLASS A CONCRETE	PEDESTRIAN SAFETY RAIL
SQ. YDS.	CU. YDS.	LIN. FT.
23.0	3.8	64.0

PROJECT NO. 15BPR.4
NASH COUNTY
BRIDGE No. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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RALEIGH

SUPERSTRUCTURE

APPROACH SIDEWALK AND PEDESTRIAN RAIL

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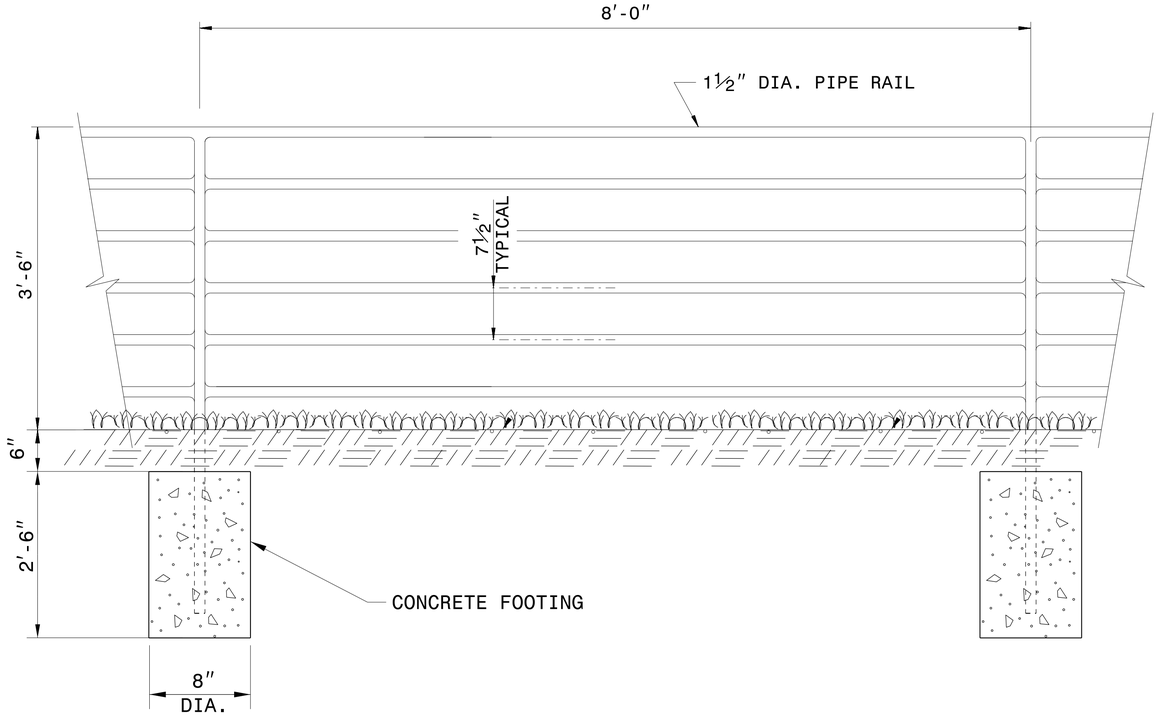
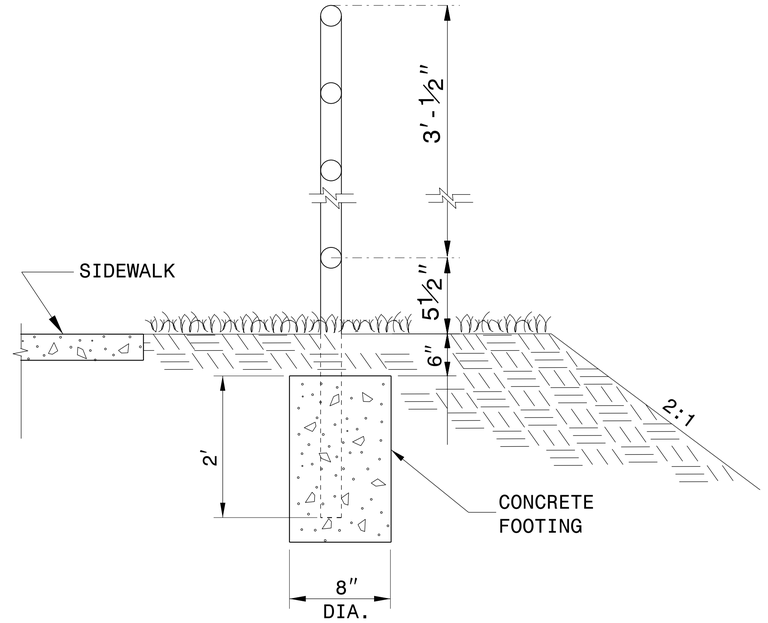
PROJECT REFERENCE NO.	SHEET NO.
15BPR.4	S-14



ELEVATION OF HANDRAIL



INSET 'A'

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1½" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

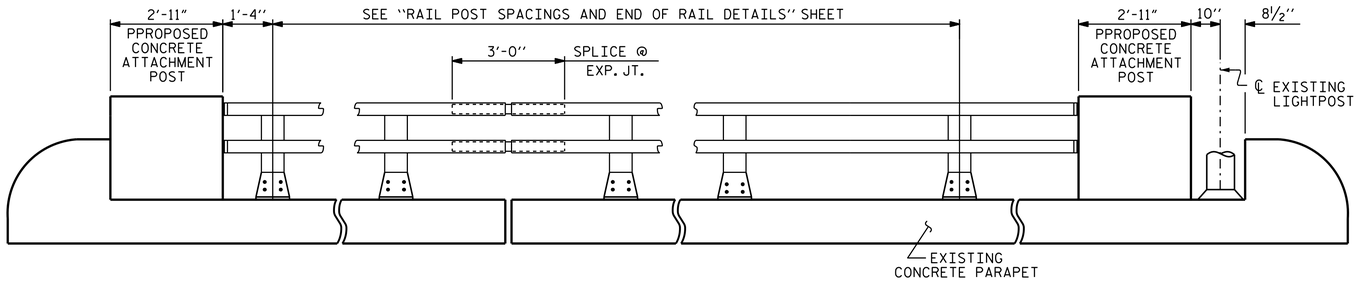
USE CLASS 'B' CONCRETE FOR HANDRAIL FOOTINGS.

PLACEMENT OF HANDRAIL IN RELATION TO SHOULDER BREAK POINT AND SIDEWALK MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

PROPOSED PEDESTRIAN SAFETY RAIL

ORIGINAL BY: E.E. WARD DATE: 12-99
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: jhowerton/handrail on retaining wall.dgn



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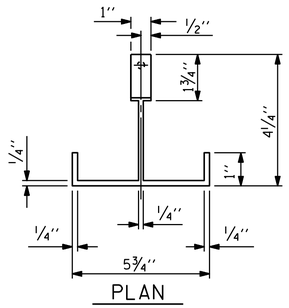
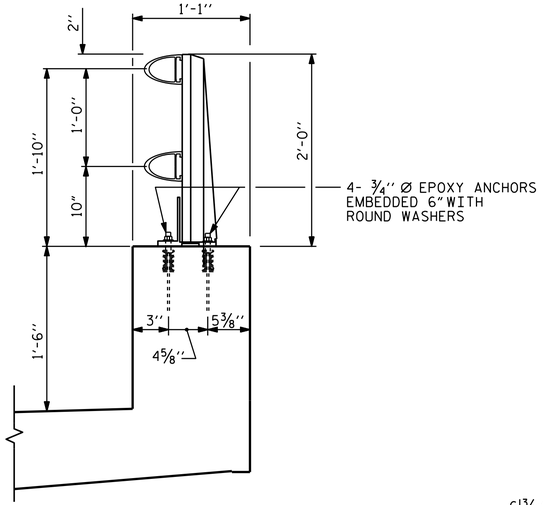
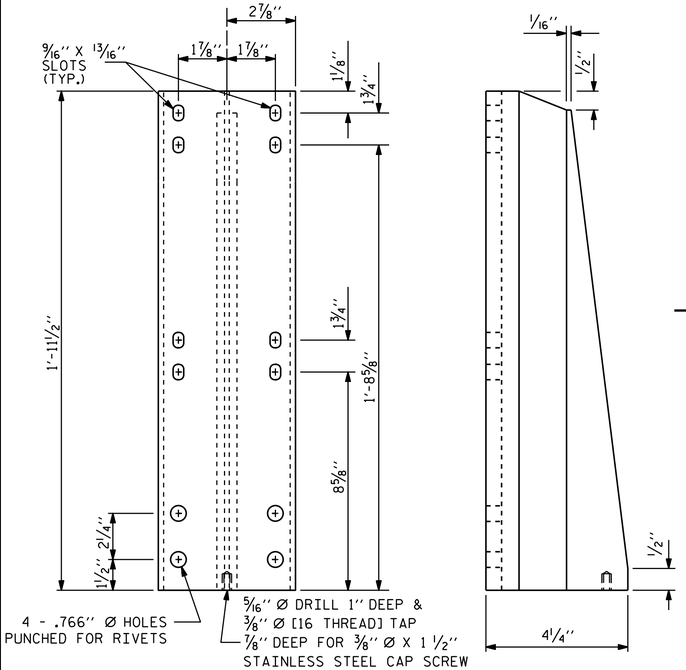


PLAN

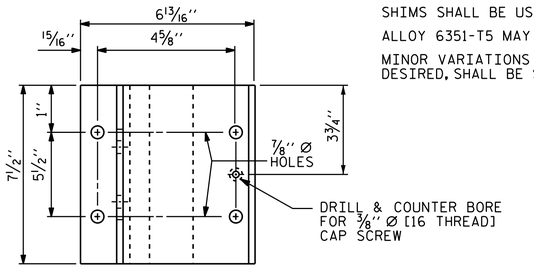


SECTION THRU PARAPET AND RAIL

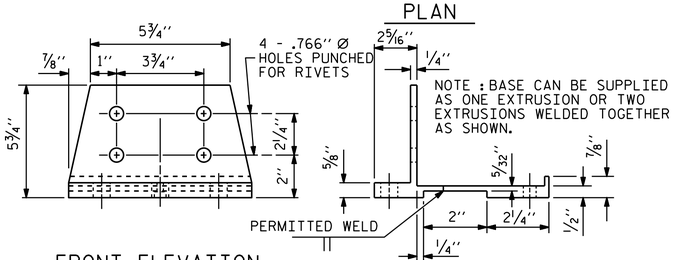


FRONT ELEVATION SIDE ELEVATION

DETAILS OF POST

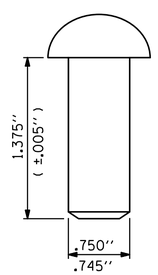


PLAN



FRONT ELEVATION SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

UNLESS OTHERWISE REQUIRED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR HAS THE OPTION TO USE AN ALTERNATE TO THE 2 BAR METAL RAIL. THE ALTERNATE RAIL SHALL MEET THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST (APL) UNDER "2 BAR METAL RAIL ALTERNATE". ADJUSTMENTS TO THE CONCRETE PARAPET WILL NOT BE ALLOWED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6.

MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM CONCRETE ATTACHMENT POST TO CONCRETE ATTACHMENT POST ALONG THE BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE ATTACHMENT POST DIMENSION, SEE "END OF RAIL DETAILS" SHEET.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

PAY LENGTH = 1,964.0 LIN. FT.

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

2 BAR METAL RAIL

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

ASSEMBLED BY :	S. T. SANDOR	DATE :	07/2017
CHECKED BY :	A. G. ASTER	DATE :	10/2017
DRAWN BY : EEM 6/94	REV. 5/1/06		TLA/GM
CHECKED BY : RGW 6/94	REV. 10/1/11		MAA/GM
	REV. 6/13		MAA/GM

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

SHEET NO. S-15

TOTAL SHEETS 61

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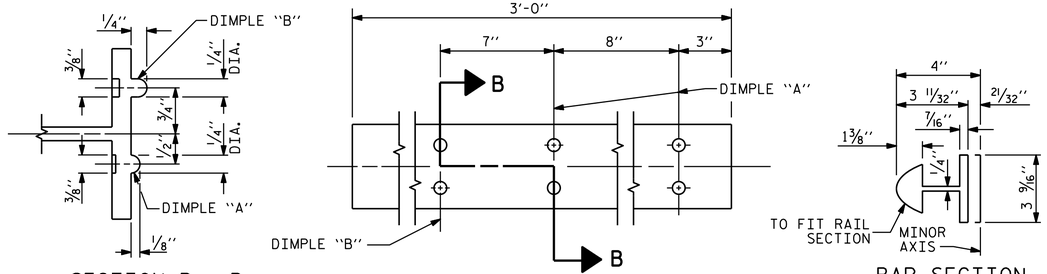
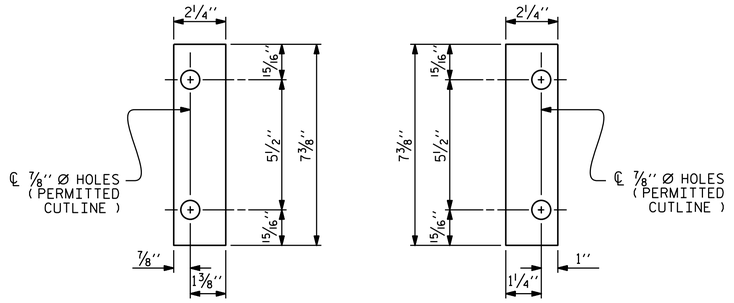


SECTION B - B

BAR SECTION

EXPANSION BAR DETAILS

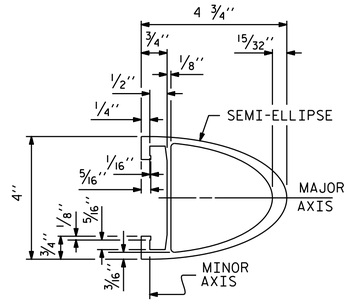


FRONT PLATE

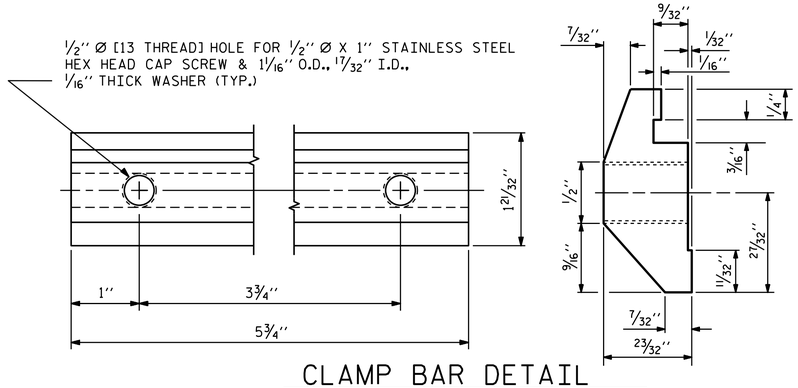
REAR PLATE

SHIM DETAILS

NOTE :
SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.

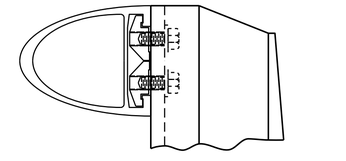


RAIL SECTION

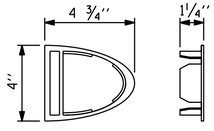


CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY



RAIL CAP

NOTES

STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2'' FOR 3/4'' FERRULES.

B. 4 - 3/4'' Ø X 2 1/2'' BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4'' Ø X 2 1/2'' GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16'' Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.

E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.

F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4''Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

2 BAR METAL RAIL

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

ASSEMBLED BY : S. T. SANDOR	DATE : 07/2017		
CHECKED BY : A. G. ABRAHA	DATE : 10/2017		
DRAWN BY : EEM 6/94	REV. 8/16/99	MAB/LES	
CHECKED BY : RGW 6/94	REV. 5/1/06R	KMM/GM	
	REV. 10/1/11	MAA/GM	

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			61

STD. NO. BMR4

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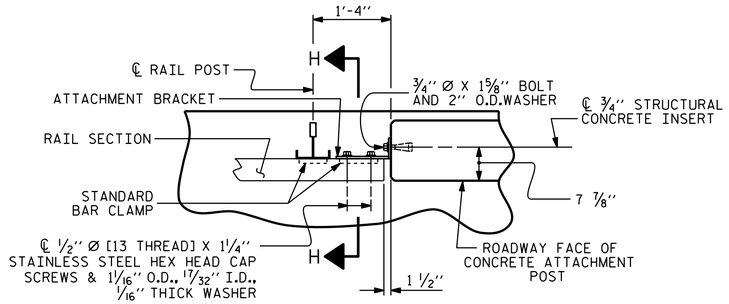
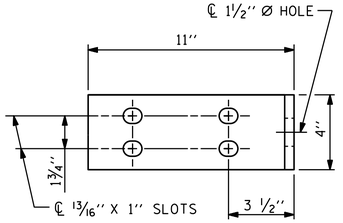


PLAN - RAIL AND ATTACHMENT POST



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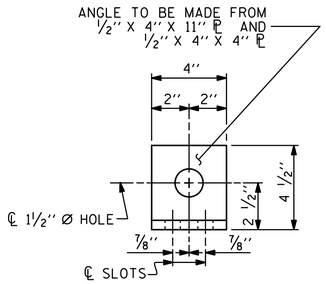
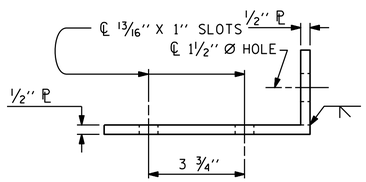
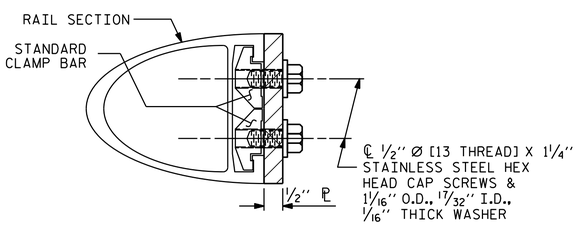


END VIEW (FIX AND EXP.)



TOP VIEW



SECTION H-H (FIX)

DETAILS FOR ATTACHING METAL RAIL TO END POST

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1½".

B. 1 - ¾" Ø X 1⅝" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE ¾" Ø X 1⅝" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO ATTACHMENT POST CONNECTION

THE METAL RAIL TO CONCRETE ATTACHMENT POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. ½" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.

B. ¾" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A ¾"Ø X 1⅝" BOLT WITH 2" O.D. WASHER IN PLACE. THE ¾"Ø X 1⅝" BOLT SHALL HAVE N. C. THREADS.

C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.

D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).

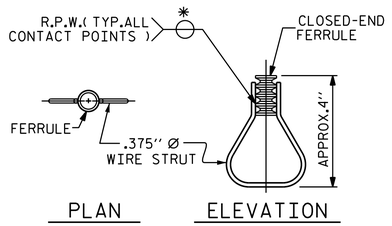
E. ½" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO ATTACHMENT POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE ¾" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE ¾" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE ½" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE ¾" Ø X 1⅝" BOLT WITH WASHER SHALL BE REPLACED WITH A ¾"Ø X 6½" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE ¾" Ø X 1⅝" BOLT SHALL APPLY TO THE ¾"Ø X 6 ½" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

END OF RAIL DETAILS
FOR TWO BAR METAL RAILS

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha
2/12/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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1			3			TOTAL SHEETS
2			4			61

ASSEMBLED BY : S. T. SANDOR	DATE : 07/2017	REV. 5/1/06	TLA/GM
CHECKED BY : A. G. ABRAHA	DATE : 10/2017	REV. 10/1/11	MAA/GM
DRAWN BY : FCJ 1/88		REV. 12/17	MAA/THC
CHECKED BY : CRK 3/89			

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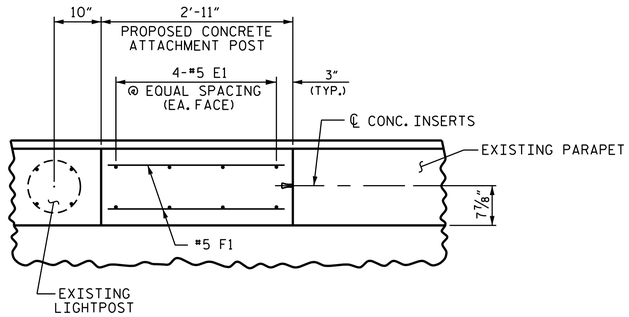
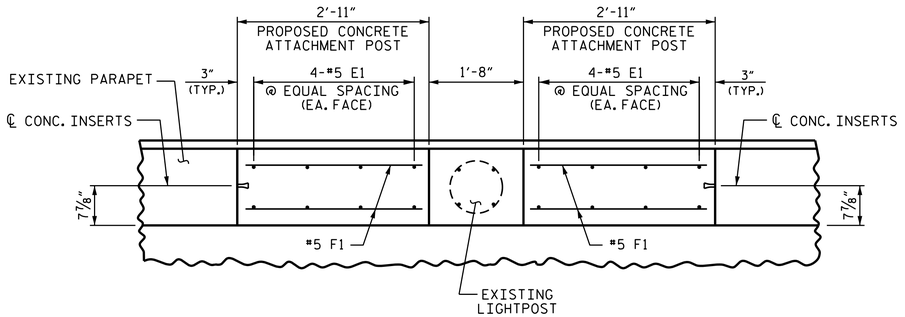
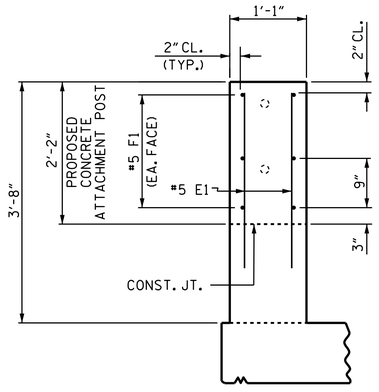
STD. NO. BMR2



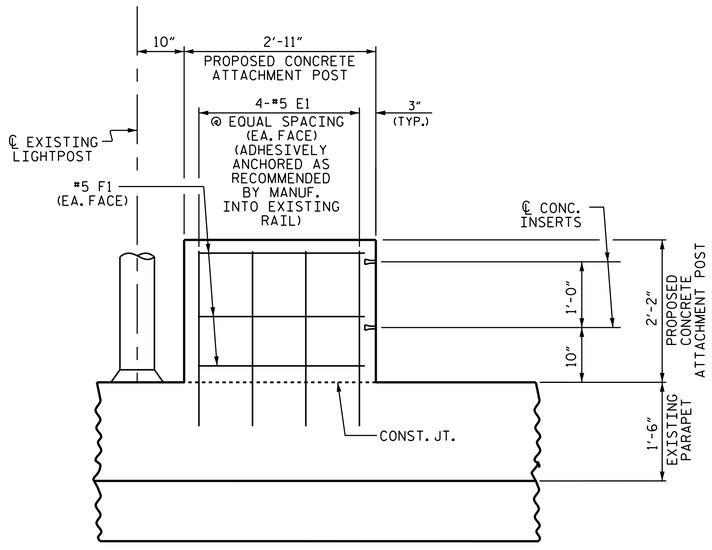
PLAN OF METAL RAIL ATTACHMENT POST @ BEGINNING /END OF BRIDGE



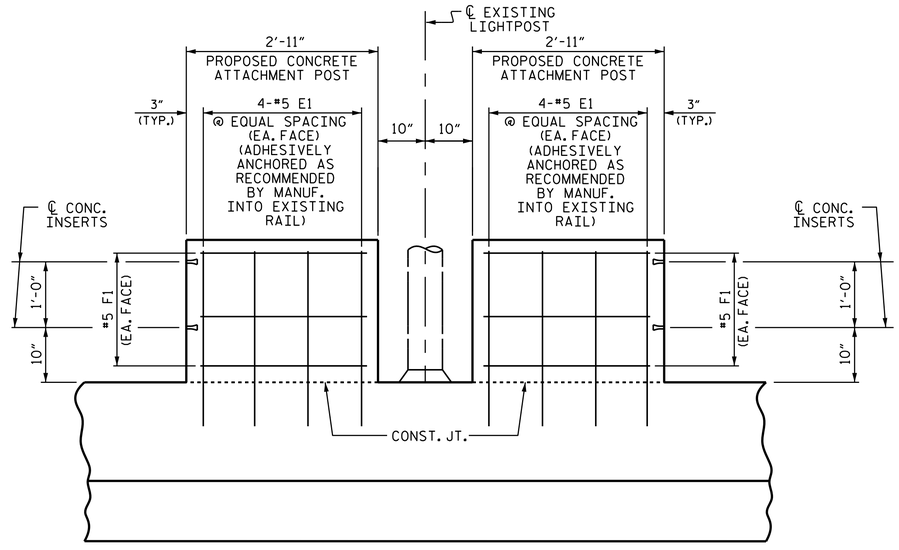
PLAN OF METAL RAIL ATTACHMENT POST ALONG BRIDGE @ LIGHTPOSTS



END VIEW



ELEVATION @ BEGINNING/END OF BRIDGE



ELEVATION ALONG BRIDGE @ LIGHTPOSTS

NOTES

ALL REINFORCING STEEL IN THE ATTACHMENT POSTS SHALL BE EPOXY COATED.

THE #5 E1 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM. THE YIELD LOAD FOR THE #5 E1 BARS IS 18.6 KIPS.

THE CONCRETE ATTACHMENT POSTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 460 OF THE STANDARD SPECIFICATIONS AND WILL BE MEASURED AND PAID FOR AS THE NUMBER OF LINEAR FEET OF 1'-1" x 2'-2" CONCRETE ATTACHMENT POST.

BILL OF MATERIAL FOR ONE ATTACHMENT POST (24 REQ'D.)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳E1	8	#5	STR	2'-8"	23
✳F1	6	#5	STR	2'-6"	16
✳EPOXY COATED REINFORCING STEEL					39
CLASS AA CONCRETE					.3 C.Y.
CONCRETE ATTACHMENT POST TOTAL					70 LIN. FT.

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ATTACHMENT POSTS FOR BRIDGE RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			61

DRAWN BY : M.K. BEARD DATE : 1/16/18
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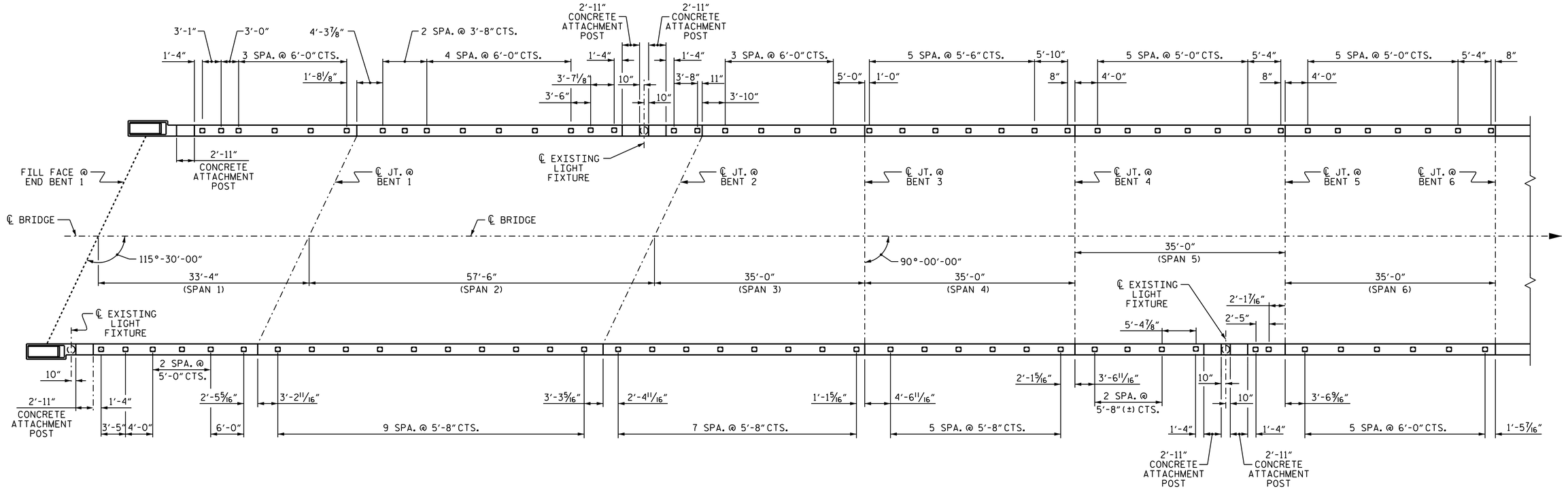

PLAN

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RAIL POST SPACINGS (SPANS 1 - 6)

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			61

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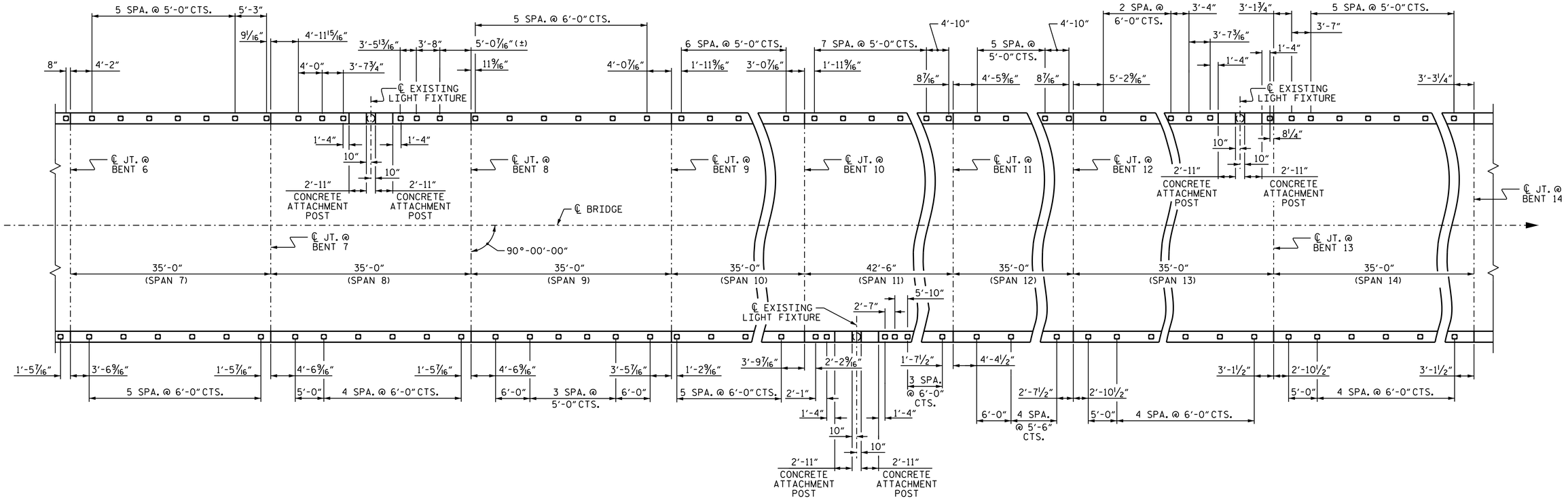

PLAN

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RAIL POST SPACINGS (SPANS 7 - 14)

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			61

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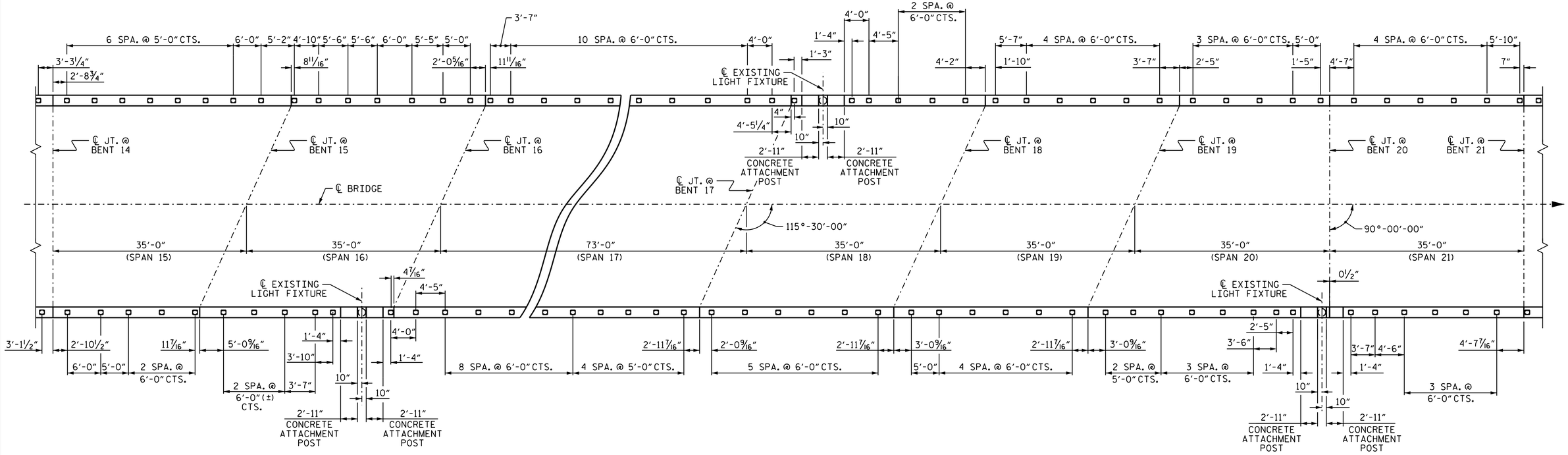

PLAN

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RAIL POST SPACINGS (SPANS 15 - 21)

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			61

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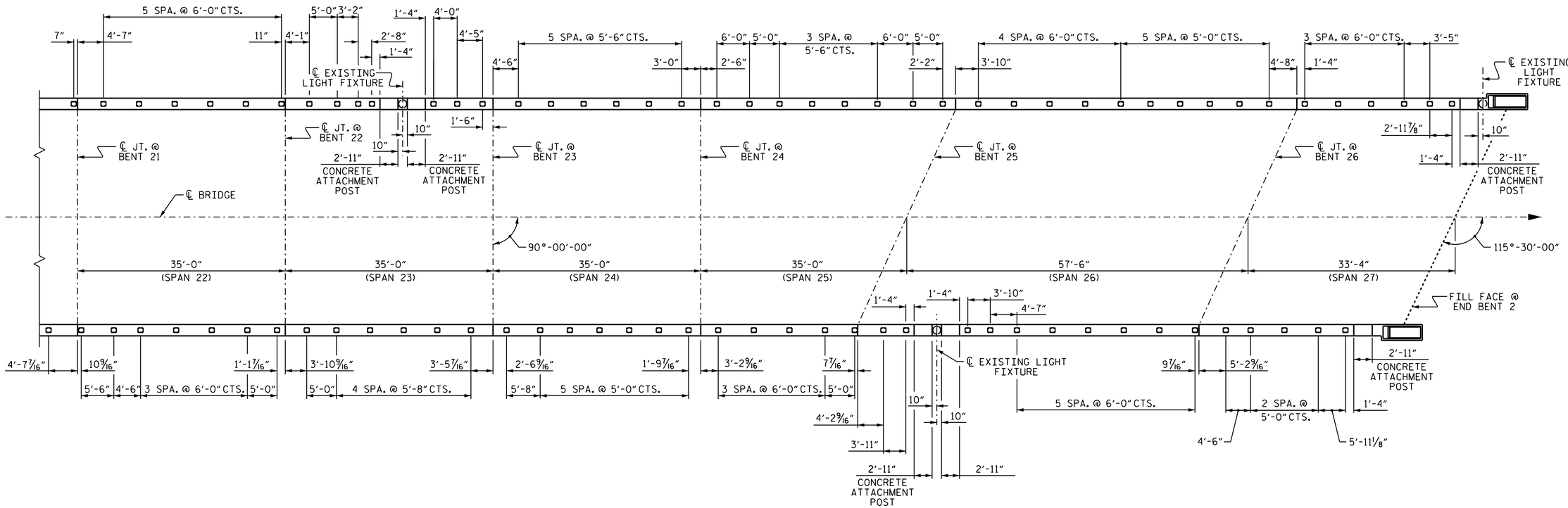

PLAN

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RAIL POST SPACINGS (SPANS 22 - 27)

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			61

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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 BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS, SEE "TYPICAL GIRDER AND DIAPHRAGM REPAIR DETAILS" SHEET.

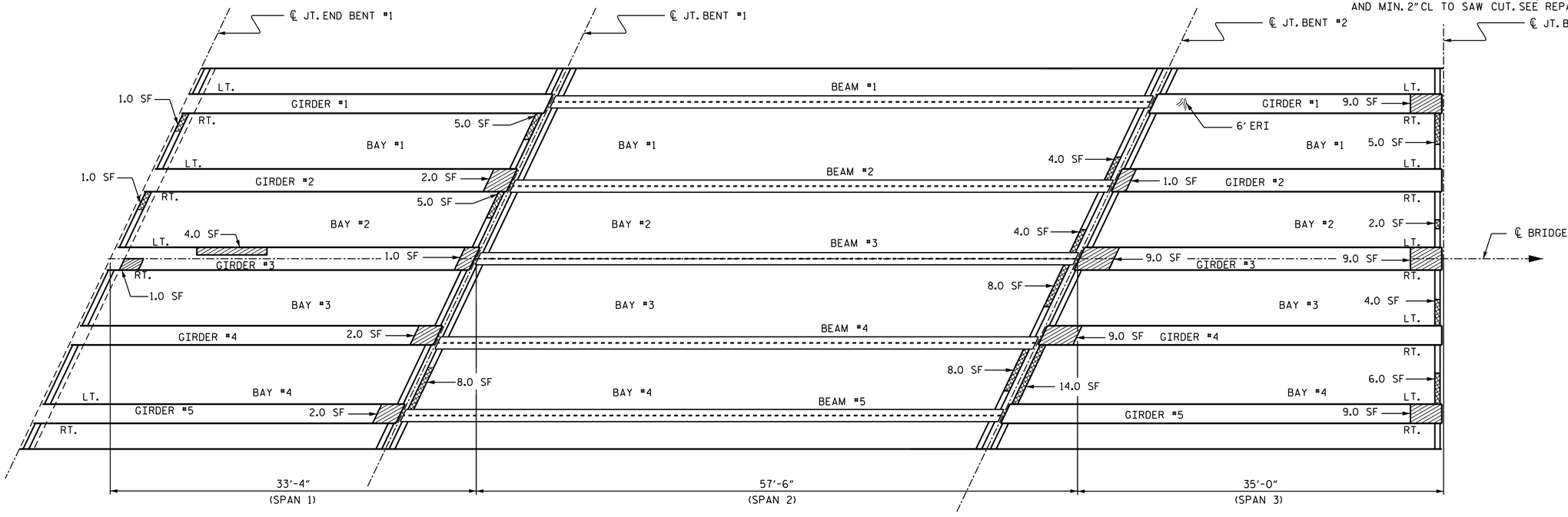
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	75.0	37.5		
GIRDER REPAIRS				
RC DECK GIRDERS	58.0	29.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
BENT DIAPHRAGMS		0.0		
GIRDERS		6.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND EXPOSED REBAR AND MIN. 2" CL TO SAW CUT. SEE REPAIR DETAILS.



PLAN OF SPAN
(UNDERSIDE)

▨ - DIAPHRAGM REPAIR

▨ - GIRDER REPAIR

ERI - EPOXY RESIN INJECTION

LT - LEFT SIDE

RT - RIGHT SIDE

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 1 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GIRDER & DIAPHRAGM REPAIRS SPANS 1 THRU 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			61

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FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS, SEE "TYPICAL GIRDER AND DIAPHRAGM REPAIR DETAILS" SHEET.

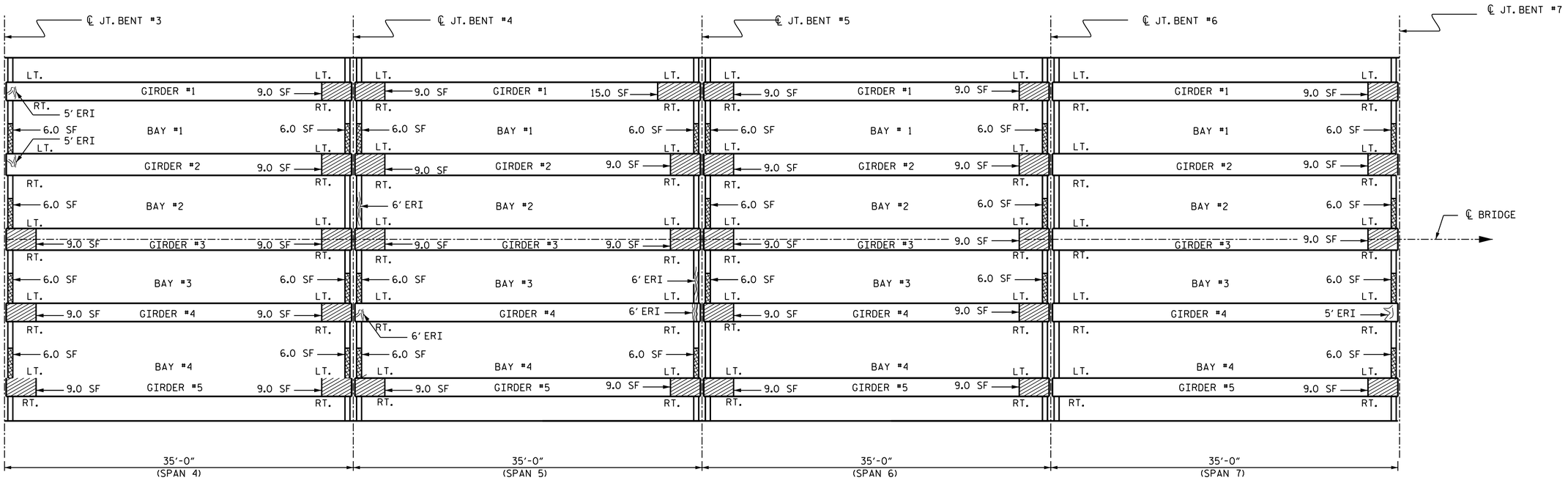
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	132.0	66.0		
GIRDER REPAIRS				
RC DECK GIRDERS	276.0	138.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
BENT DIAPHRAGMS		12.0		
GIRDERS		27.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND EXPOSED REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



PLAN OF SPAN
(UNDERSIDE)

- ▨ - DIAPHRAGM REPAIR
- ▨ - GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION
- LT - LEFT SIDE
- RT - RIGHT SIDE

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 2 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GIRDER & DIAPHRAGM REPAIRS
SPANS 4 THRU 7

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

SHEET NO. S-24
TOTAL SHEETS 61

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NOTES:

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FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS, SEE "TYPICAL GIRDER AND DIAPHRAGM REPAIR DETAILS" SHEET.

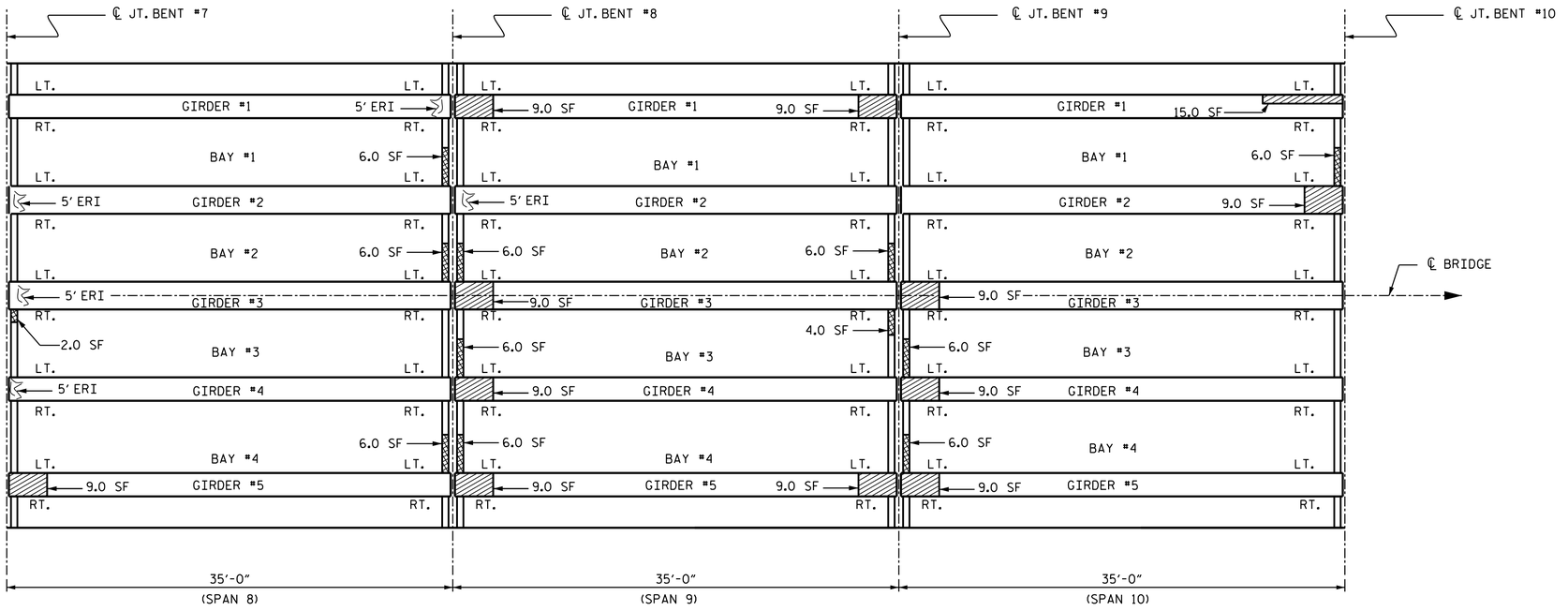
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	66.0	33.0		
GIRDER REPAIRS				
RC DECK GIRDERS	96.0	48.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
BENT DIAPHRAGMS		0.0		
GIRDERS		25.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND EXPOSED REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



PLAN OF SPAN
(UNDERSIDE)

- ▨ - DIAPHRAGM REPAIR
- ▨ - GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION
- LT - LEFT SIDE
- RT - RIGHT SIDE

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 3 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GIRDER & DIAPHRAGM REPAIR SPANS 8 THRU 10

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			61

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FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS, SEE "TYPICAL GIRDER AND DIAPHRAGM REPAIR DETAILS" SHEET.

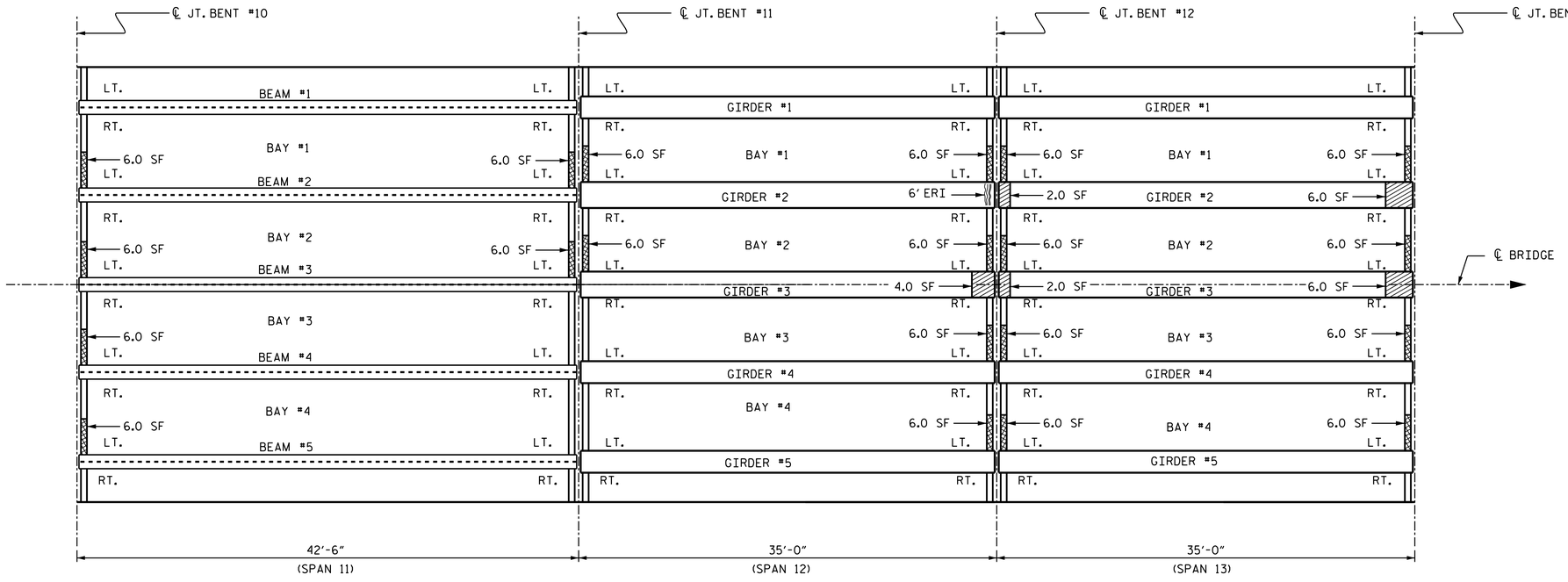
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	120.0	60.0		
GIRDER REPAIRS				
RC DECK GIRDERS	20.0	10.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
BENT DIAPHRAGMS		0.0		
GIRDERS		6.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND EXPOSED REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



PLAN OF SPAN
(UNDERSIDE)

- ▨ - DIAPHRAGM REPAIR
- ▨ - GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION
- LT - LEFT SIDE
- RT - RIGHT SIDE

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 4 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GIRDER & DIAPHRAGM REPAIR SPANS 11 THRU 13

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			61

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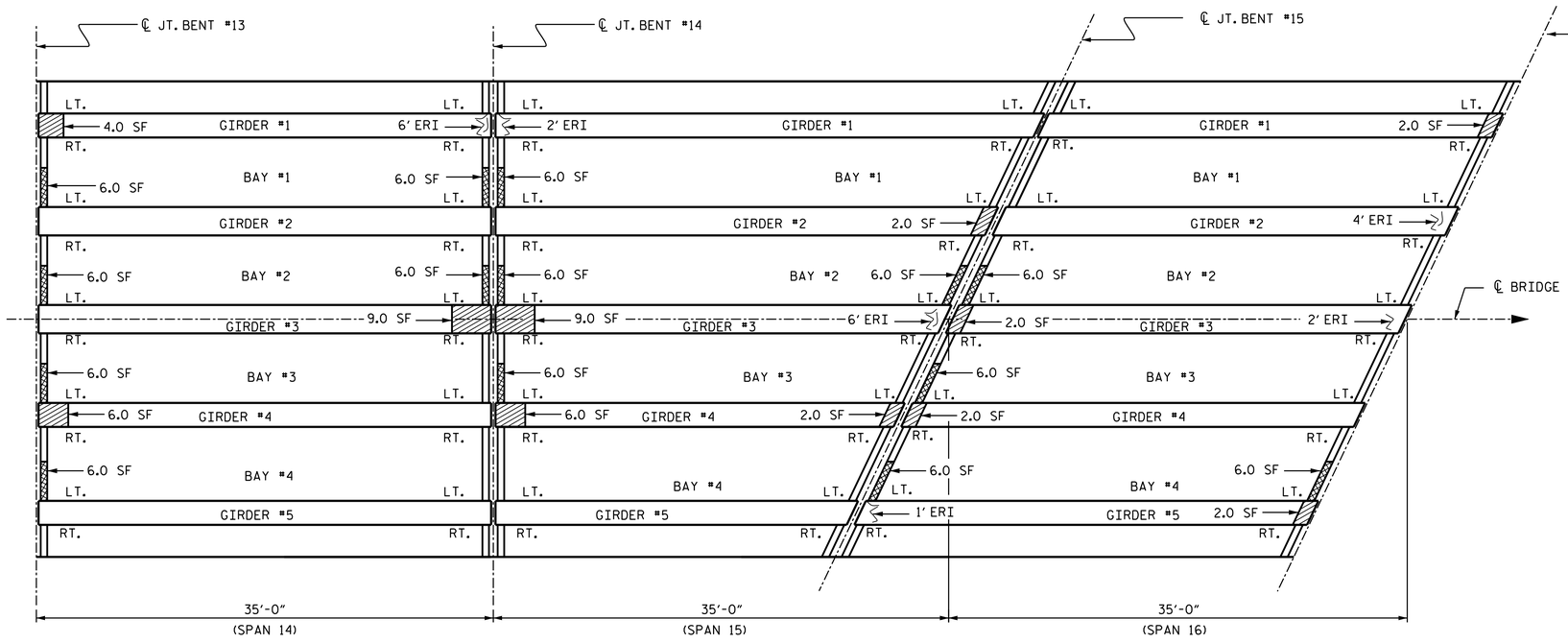
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	84.0	42.0		
GIRDER REPAIRS				
RC DECK GIRDERS	46.0	23.0		
EPOXY RESIN INJECTION		LN. FT		
BENT DIAPHRAGMS		0.0		
GIRDERS		24.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND EXPOSED REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



PLAN OF SPAN
(UNDERSIDE)

- ▨ - DIAPHRAGM REPAIR
- ▨ - GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION
- LT - LEFT SIDE
- RT - RIGHT SIDE

PROJECT NO. 15BPR.4

NASH COUNTY

94

SHEET 5 OF 9

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GIRDER & DIAPHRAGM REPAIR SPANS 14 THRU 16

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			61

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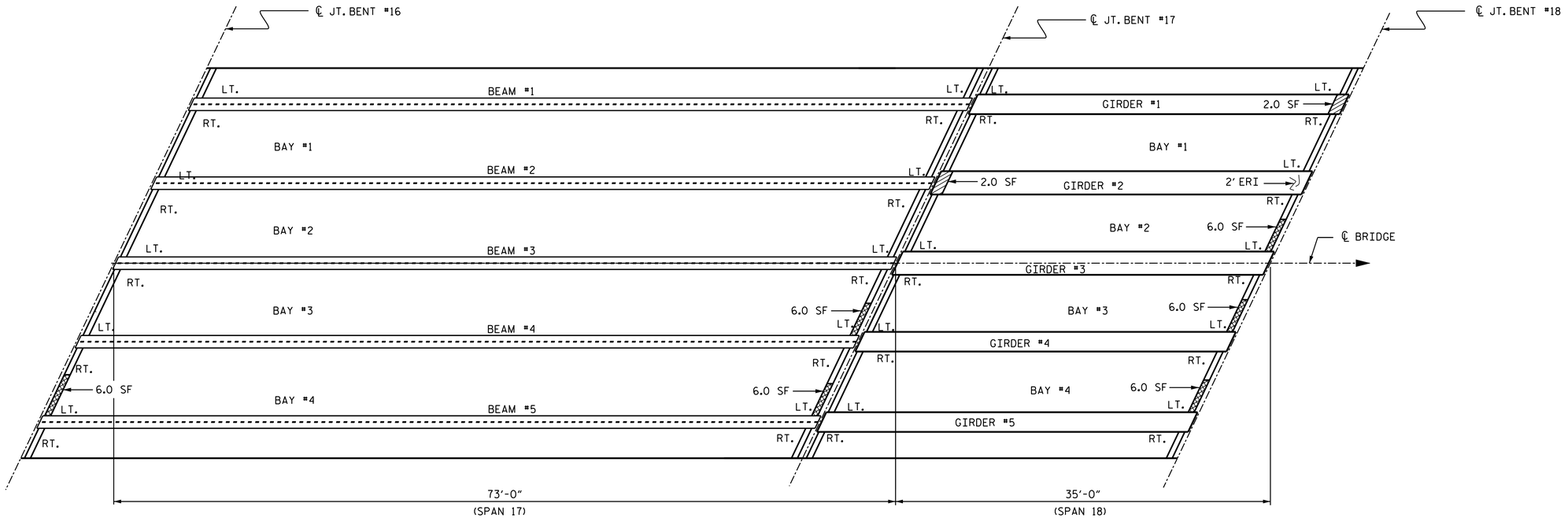
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	36.0	18.0		
GIRDER REPAIRS				
RC DECK GIRDERS	4.0	2.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
BENT DIAPHRAGMS		0.0		
GIRDERS		2.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND EXPOSED REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



PLAN OF SPAN
(UNDERSIDE)

- ▨ - DIAPHRAGM REPAIR
- ▨ - GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION
- LT - LEFT SIDE
- RT - RIGHT SIDE

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 6 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GIRDER & DIAPHRAGM REPAIR
SPANS 17 & 18

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			61

DRAWN BY : S. T. SANDOR DATE : 07/2017
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aabraha

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 BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS, SEE "TYPICAL GIRDER AND DIAPHRAGM REPAIR DETAILS" SHEET.

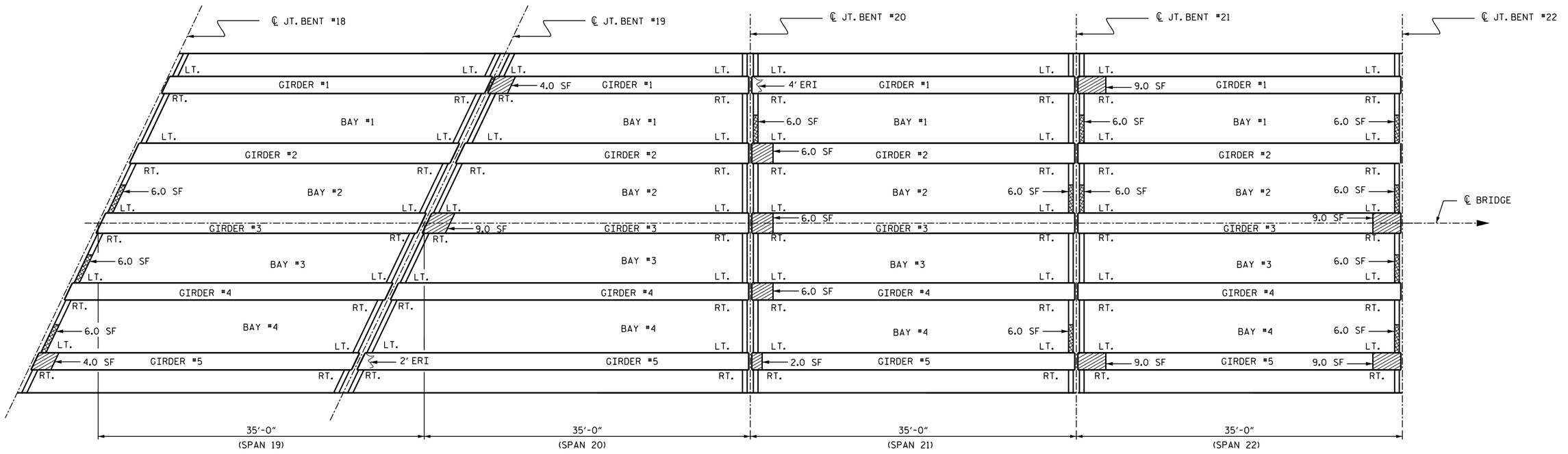
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	72.0	36.0		
GIRDER REPAIRS				
RC DECK GIRDERS	73.0	36.5		
EPOXY RESIN INJECTION		LN. FT		
BENT DIAPHRAGMS		0.0		
GIRDERS		6.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND EXPOSED REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



PLAN OF SPAN
(UNDERSIDE)

- ▨ - DIAPHRAGM REPAIR
- ▨ - GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION
- LT - LEFT SIDE
- RT - RIGHT SIDE

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abralia 2/12/2018

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PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 7 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GIRDER & DIAPHRAGM REPAIR SPANS 19 THRU 22

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			61

DRAWN BY : S. T. SANDOR DATE : 07/2017
CHECKED BY : M. AHMED DATE : 09/2017

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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 BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS, SEE "TYPICAL GIRDER AND DIAPHRAGM REPAIR DETAILS" SHEET.

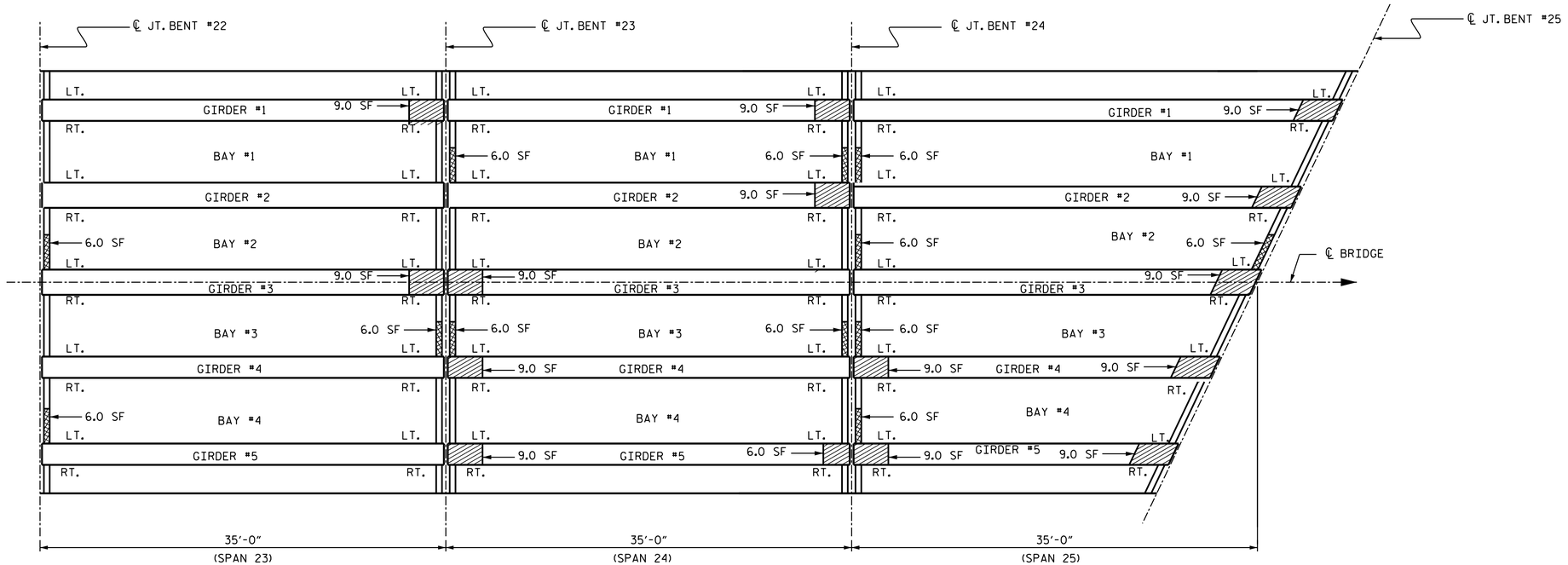
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	72.0	36.0		
GIRDER REPAIRS				
RC DECK GIRDERS	132.0	66.0		
EPOXY RESIN INJECTION		LN. FT		
BENT DIAPHRAGMS		0.0		
GIRDERS		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND EXPOSED REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



PLAN OF SPAN
(UNDERSIDE)

▨ - DIAPHRAGM REPAIR

▨ - GIRDER REPAIR

ERI - EPOXY RESIN INJECTION

LT - LEFT SIDE

RT - RIGHT SIDE

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 8 OF 9

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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STATE OF NORTH CAROLINA
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RALEIGH

SUPERSTRUCTURE

GIRDER & DIAPHRAGM REPAIR SPANS 23 THRU 25

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			61

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NOTES:

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FOR BENT DIAPHRAGM AND RC DECK GIRDER REPAIR DETAILS, SEE "TYPICAL GIRDER AND DIAPHRAGM REPAIR DETAILS" SHEET.

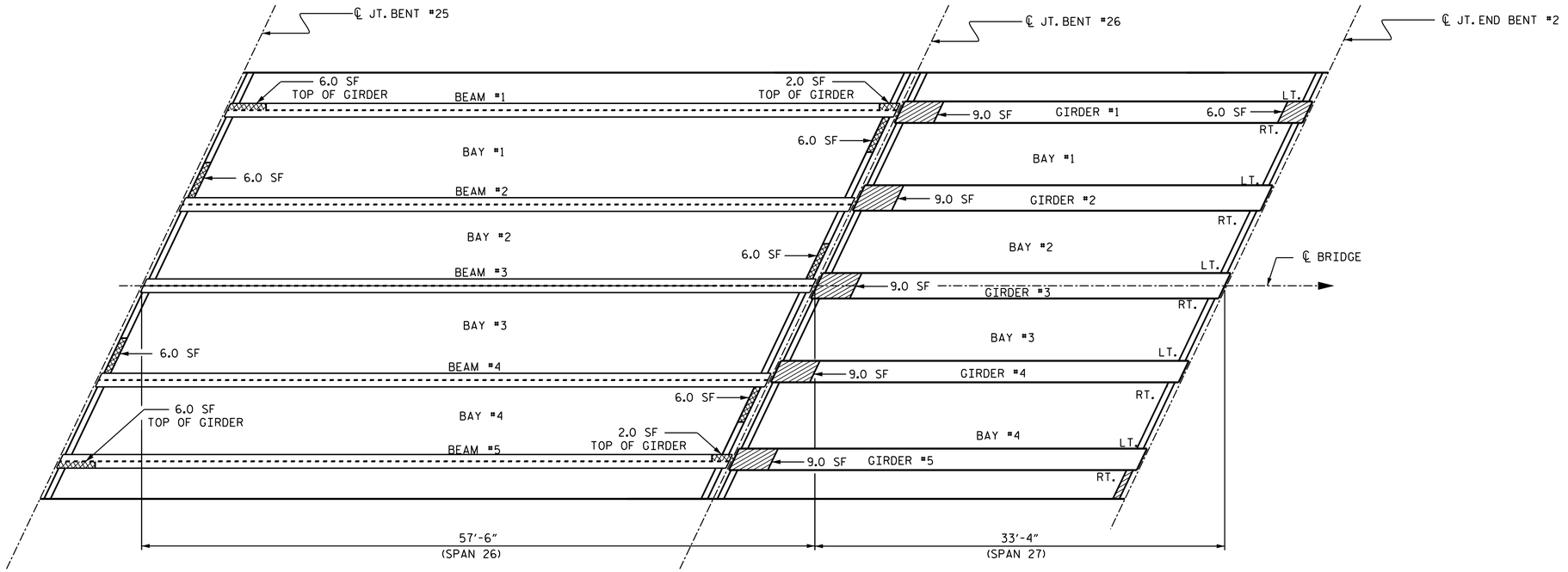
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	30.0	15.0		
GIRDER REPAIRS				
RC DECK GIRDERS	51.0	25.5		
TOP OF GIRDERS	16.0	8.0		
EPOXY RESIN INJECTION		LN. FT		
BENT DIAPHRAGMS		0.0		
GIRDERS		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND EXPOSED REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



PLAN OF SPAN
(UNDERSIDE)

- ▨ - DIAPHRAGM REPAIR
- ▨ - GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION
- LT - LEFT SIDE
- RT - RIGHT SIDE

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE No. 94

SHEET 9 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GIRDER & DIAPHRAGM REPAIR SPANS 26 & 27

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER C. ABRAHA

DocuSigned by: Aster Abraha DDA09AAE0E104FD... 2/12/2018

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			61

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NOTES:

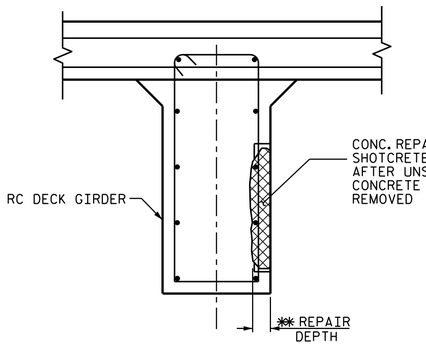
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES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

FOR DECK JOINT REPAIR DETAILS, SEE SHEET S-12.

FOR UNDERSIDE OF DECK REPAIRS, SEE "SUPERSTRUCTURE REPAIRS" SHEETS.

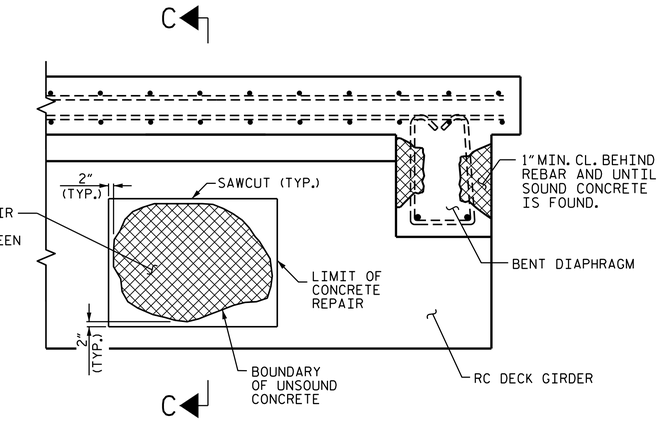
CONCRETE REPAIR MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIR WITH THE APPROVAL OF THE ENGINEER.

SHOTCRETE REPAIR MAY BE SUBSTITUTED IN LIEU OF CONCRETE REPAIR WITH THE APPROVAL OF THE ENGINEER.

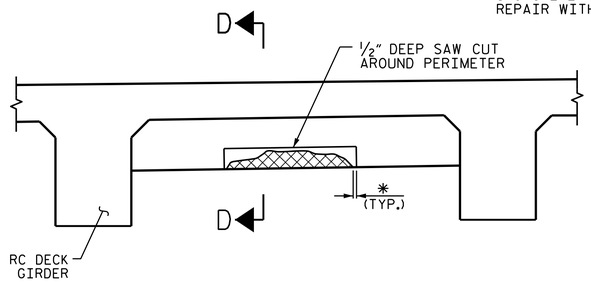


SECTION C-C

EXISTING REINFORCING STEEL LOCATIONS ARE FROM BEST INFORMATION AVAILABLE.

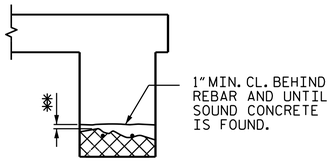


ELEVATION



TYPICAL SECTION

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



SECTION D-D

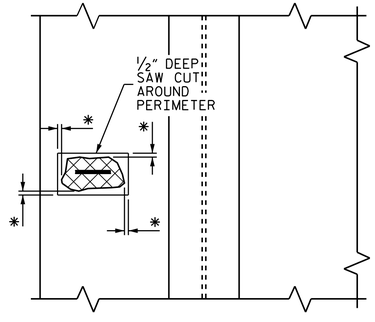
DAMAGED AREA

* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN.)

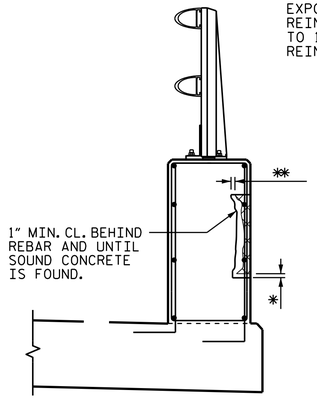
** IF REMOVAL OF UNSOUND CONCRETE RESULTS IN EXPOSING MORE THAN HALF THE DEPTH OF A REINFORCING BAR, REMOVE ADDITIONAL CONCRETE TO 1" BEHIND THE BAR WITHOUT DAMAGE TO REINFORCING BAR.

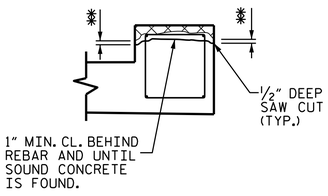
BENT DIAPHRAGM REPAIR DETAILS

RC DECK GIRDER REPAIR DETAILS



OVERHANG DETAILS

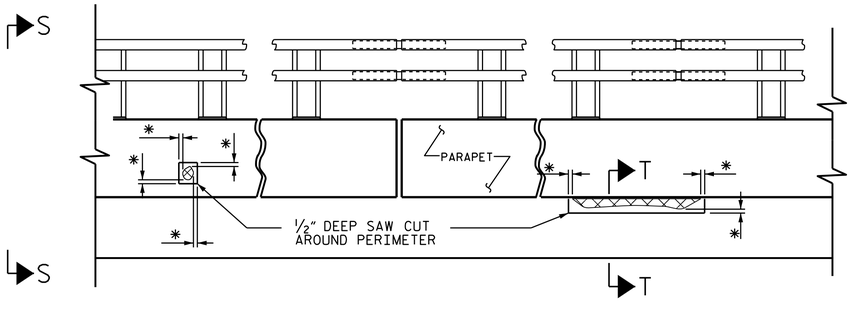




DAMAGED AREA

SECTION S-S

SECTION T-T



BRIDGE RAIL AND CURB REPAIR DETAILS

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE OVERHANG, DIAPHRAGM AND BRIDGE RAIL REPAIR DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			61

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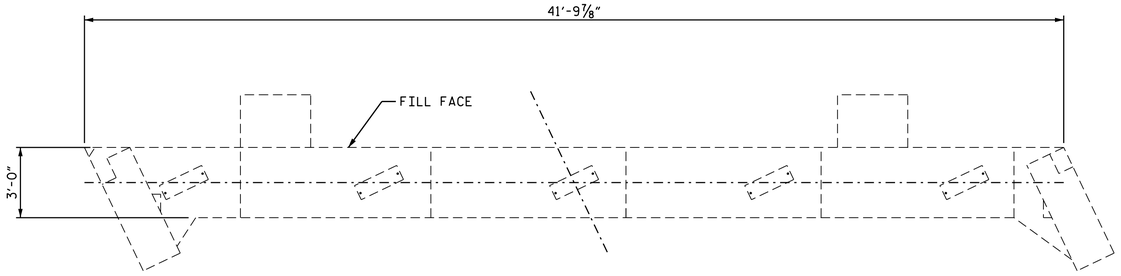
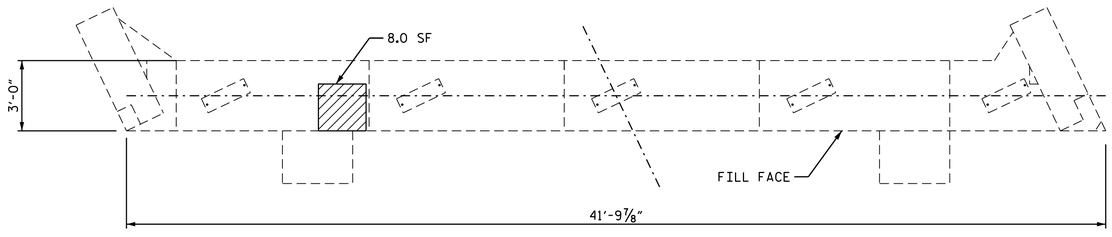
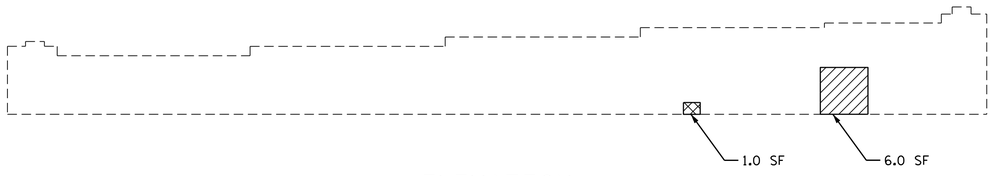


PLAN
END BENT 1

ELEVATION
END BENT 1



PLAN
END BENT 2



ELEVATION
END BENT 2

REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	20.0	10.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT.	LN. FT.	
CAP		0.0		
EPOXY COATING	AREA SF		LN. FT.	
TOP OF CAP	82.5			

REPAIRS END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	7.0	3.5		
CAP (HORIZONTAL, CORNER)	8.0	4.0		
EPOXY RESIN INJECTION		LN. FT.	LN. FT.	
CAP		1.0		
EPOXY COATING	AREA SF		LN. FT.	
TOP OF CAP	82.5			

NOTES:

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO.: 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha DOA094AE0E104FD...
2/12/2018

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 & 2

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

SHEET NO. S-33

TOTAL SHEETS 61

DRAWN BY : S. T. SANDOR DATE : 07/2017
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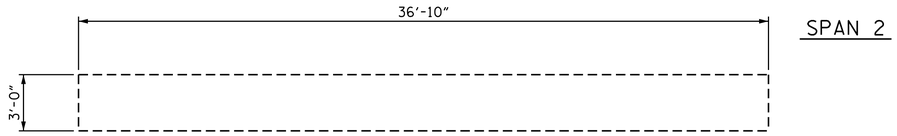

PLAN
TOP OF CAP

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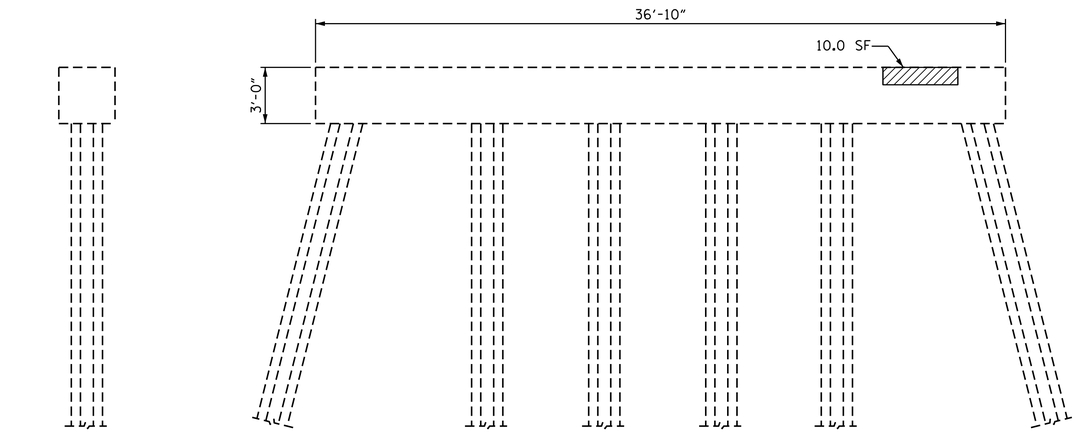
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

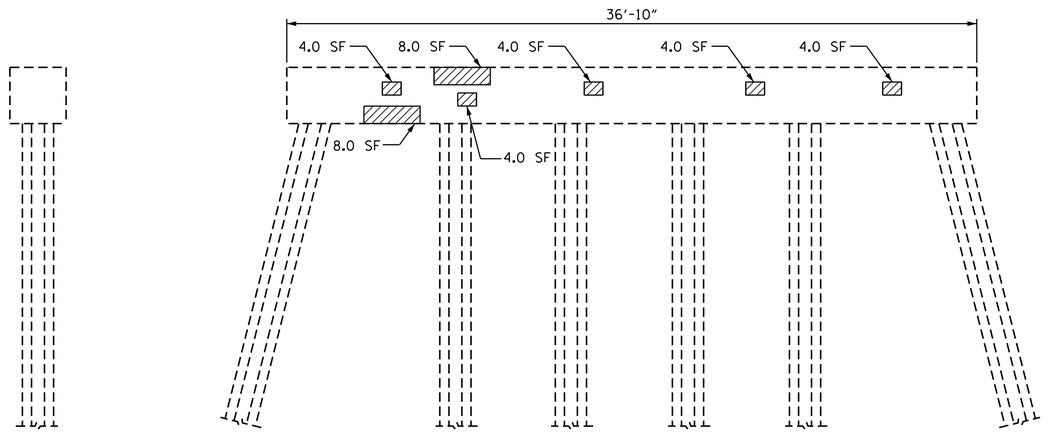
BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	34.0	17.0		
CAP (HORIZONTAL FACE, CORNER)	42.0	21.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	100.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



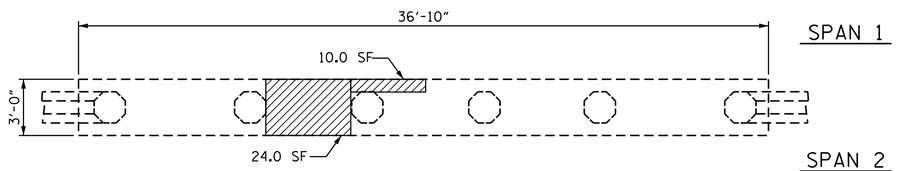
END VIEW
LEFT SIDE

ELEVATION
SPAN 1 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 2 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
1			3			TOTAL SHEETS
2			4			61

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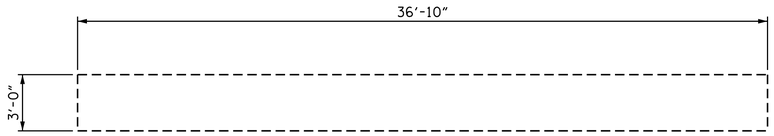

SPAN 3

SPAN 2

PLAN
TOP OF CAP

NOTES:

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FOR CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

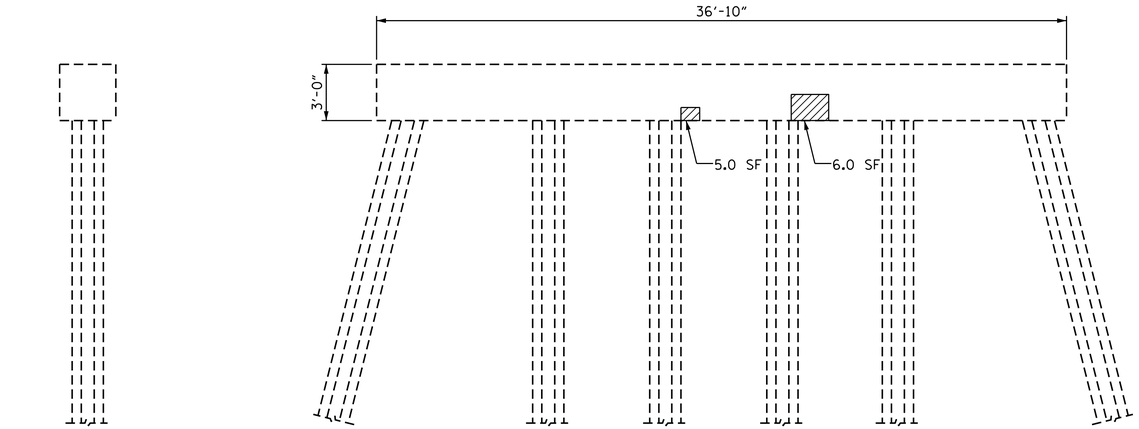
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

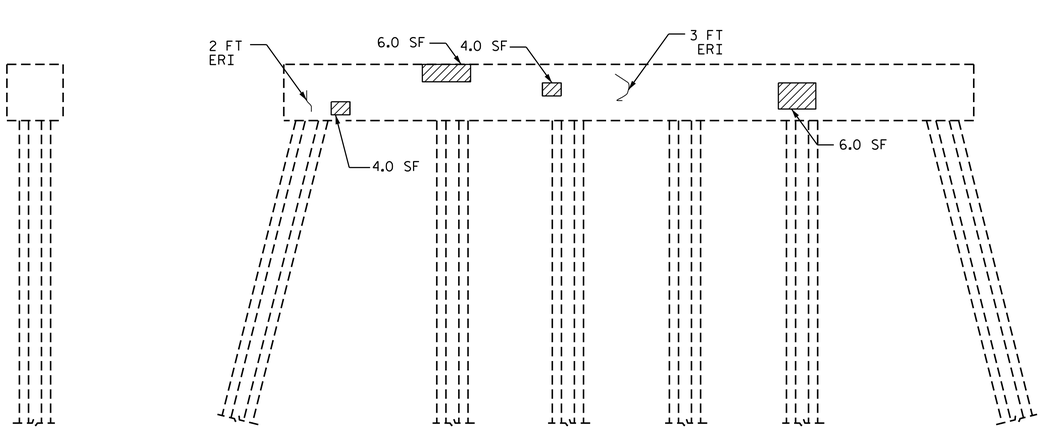
BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	31.0	15.5		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		5.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	100.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



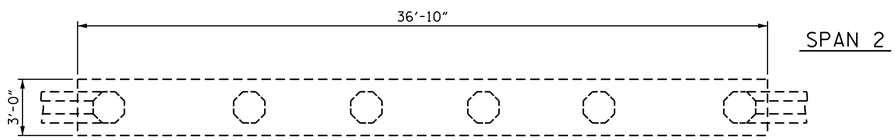
END VIEW
LEFT SIDE

ELEVATION
SPAN 2 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 3 SIDE



SPAN 2

SPAN 3

PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abralia 2/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 2

REVISIONS						SHEET NO.
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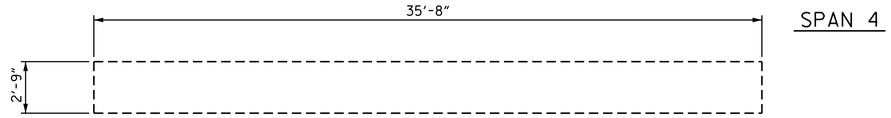

PLAN
TOP OF CAP

NOTES:

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

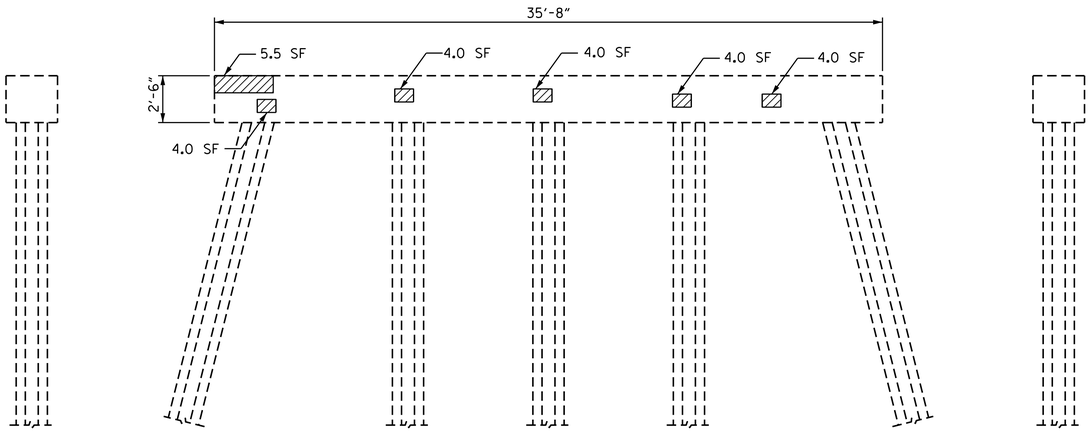
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	53.0	26.5		
CAP (HORIZONTAL FACE, CORNER)	9.0	4.5		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		10.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

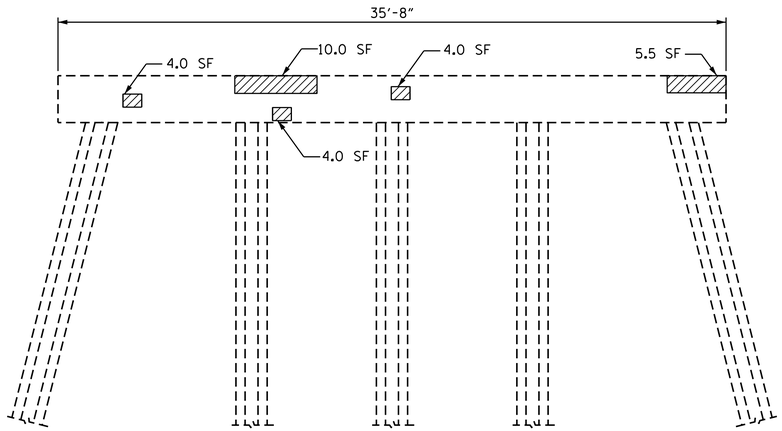
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



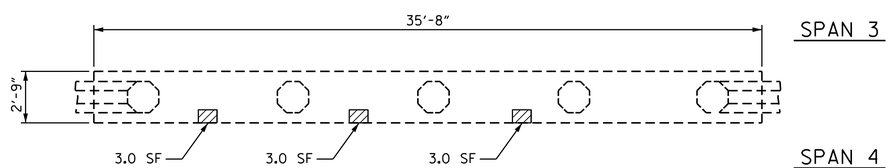
END VIEW
LEFT SIDE

ELEVATION
SPAN 3 SIDE

END VIEW
RIGHT SIDE



ELEVATION
SPAN 4 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 3

REVISIONS						SHEET NO.
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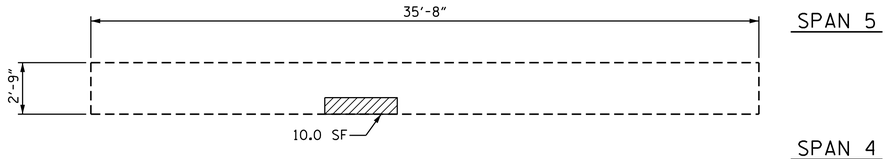

PLAN
TOP OF CAP

NOTES:

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

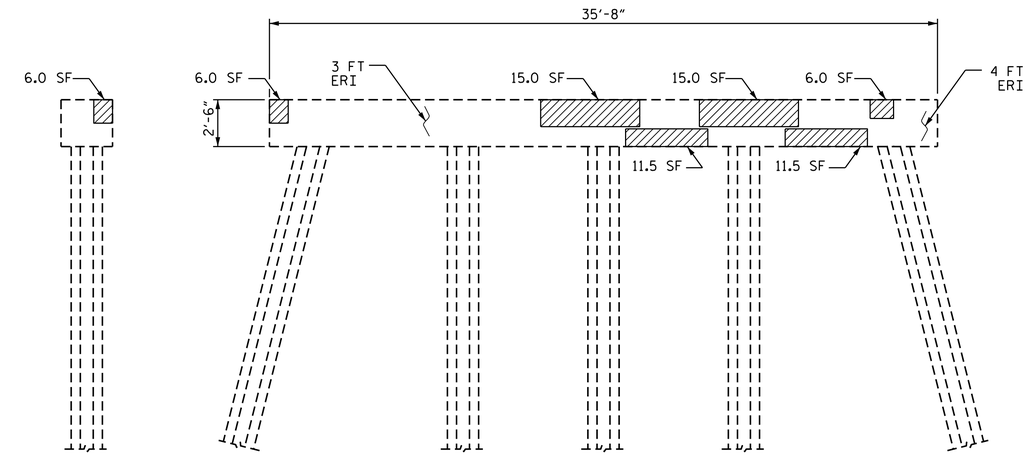
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

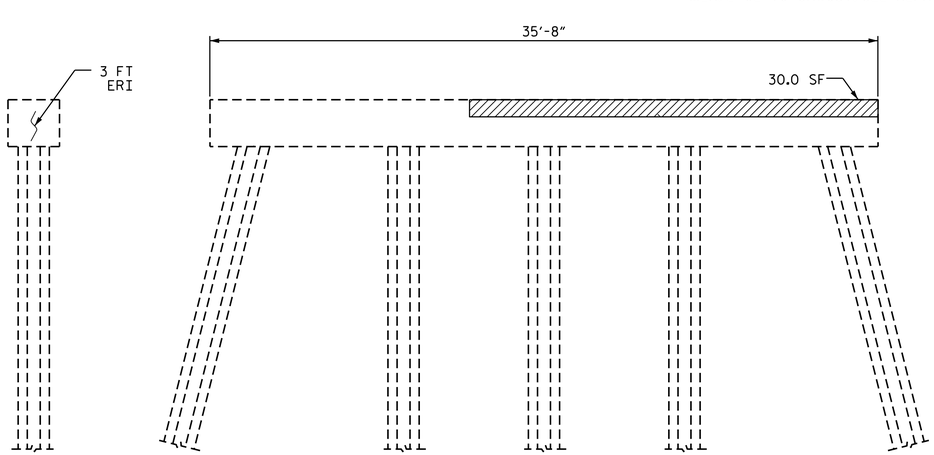
BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	95.0	47.5		
CAP (HORIZONTAL FACE, CORNER)	51.0	25.5		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		10.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



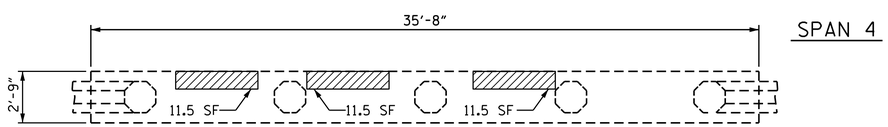
END VIEW
LEFT SIDE

ELEVATION
SPAN 4 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 5 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 4

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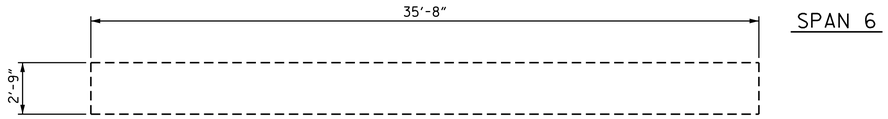

PLAN
TOP OF CAP

NOTES:

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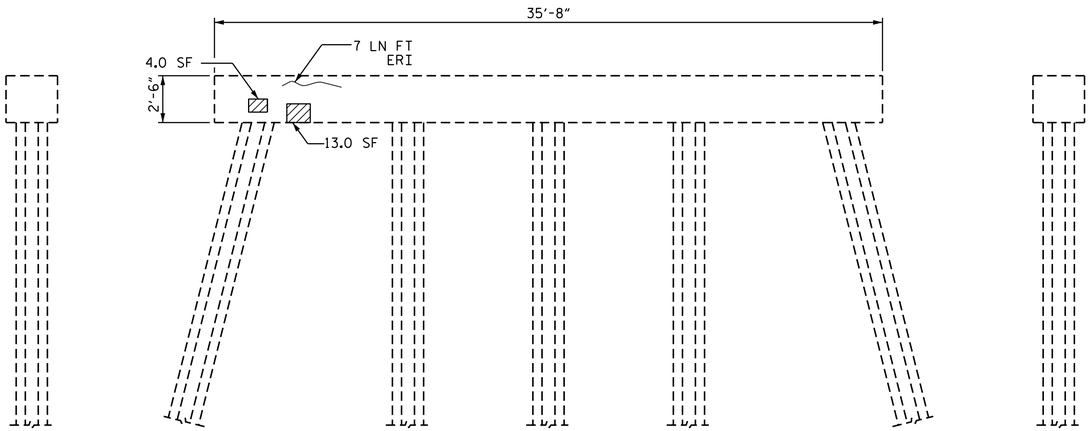
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

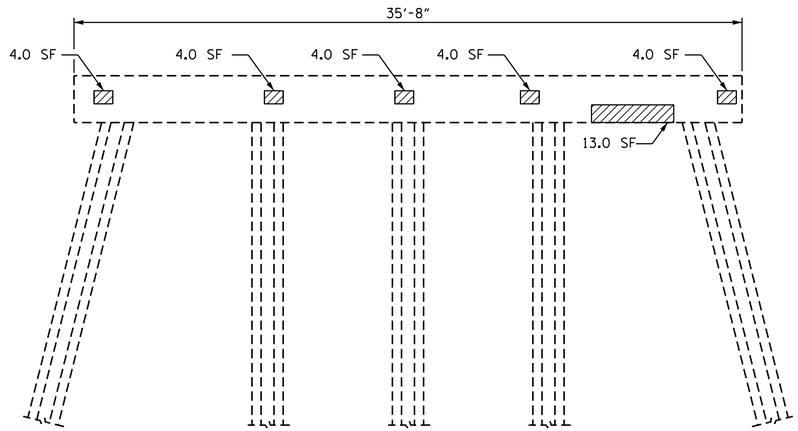
BENT 5	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	50.0	25.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		7.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



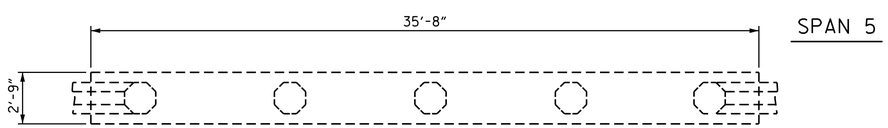
END VIEW
LEFT SIDE

ELEVATION
SPAN 5 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 6 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 5

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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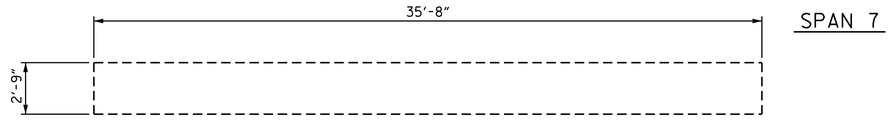

PLAN
TOP OF CAP

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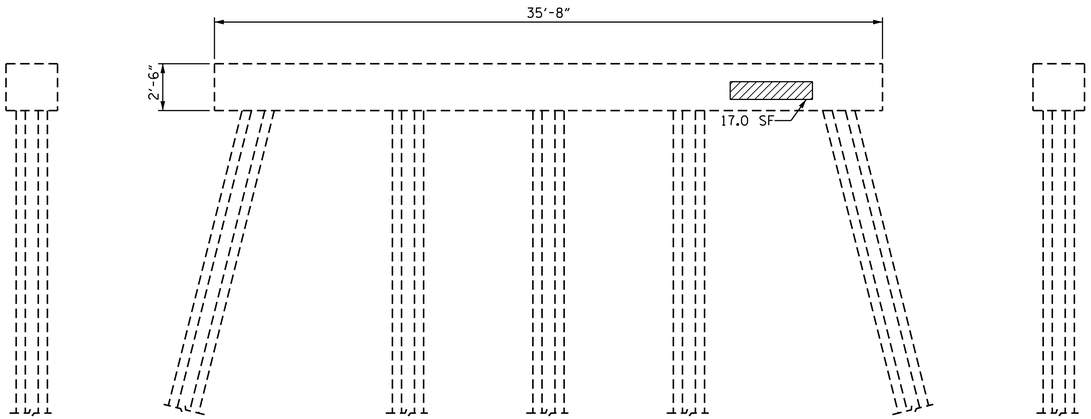
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

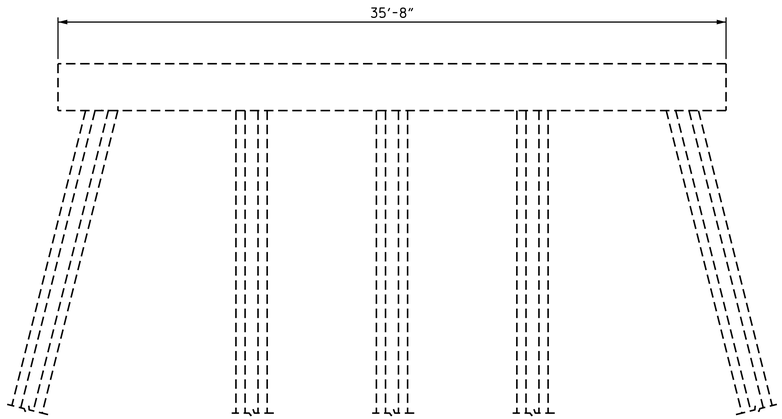
BENT 6	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	17.0	8.5		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

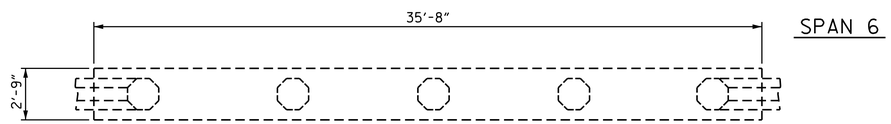


ELEVATION
SPAN 6 SIDE

END VIEW
RIGHT SIDE



ELEVATION
SPAN 7 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 6

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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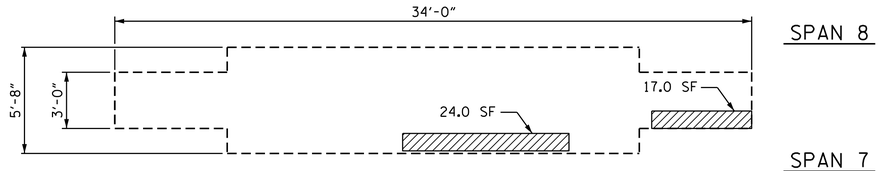

PLAN
TOP OF CAP

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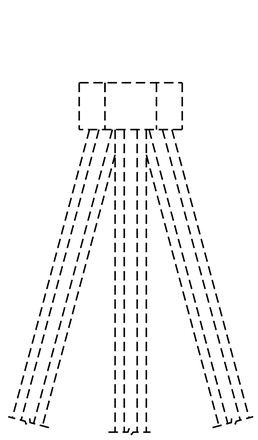
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

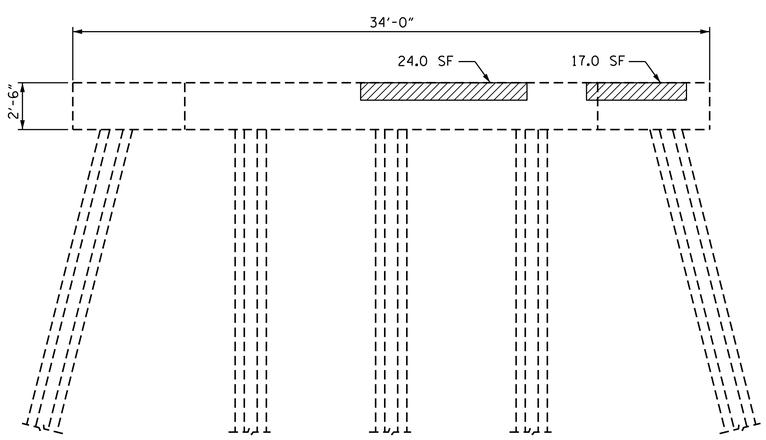
REPAIR QUANTITY TABLE

BENT 7	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	67.0	33.5		
CAP (HORIZONTAL FACE, CORNER)	41.0	20.5		
COLUMN	12.0	6.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	153.0			

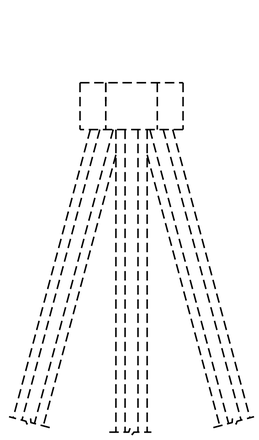
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



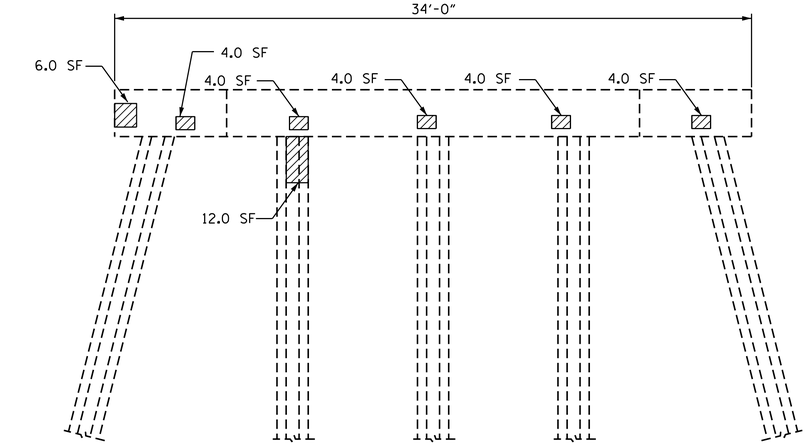
END VIEW
LEFT SIDE



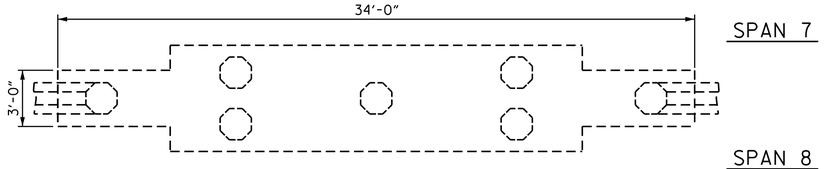
ELEVATION
SPAN 7 SIDE



END VIEW
RIGHT SIDE



ELEVATION
SPAN 8 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 7

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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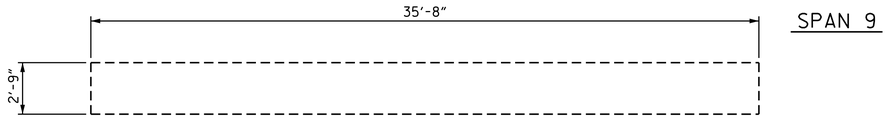


PLAN
TOP OF CAP

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 DIMENSIONS OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

FOR CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

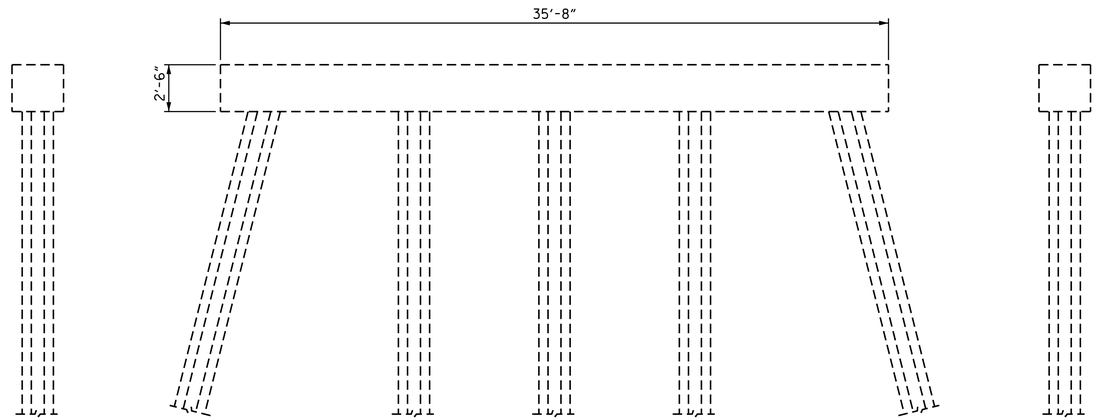
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

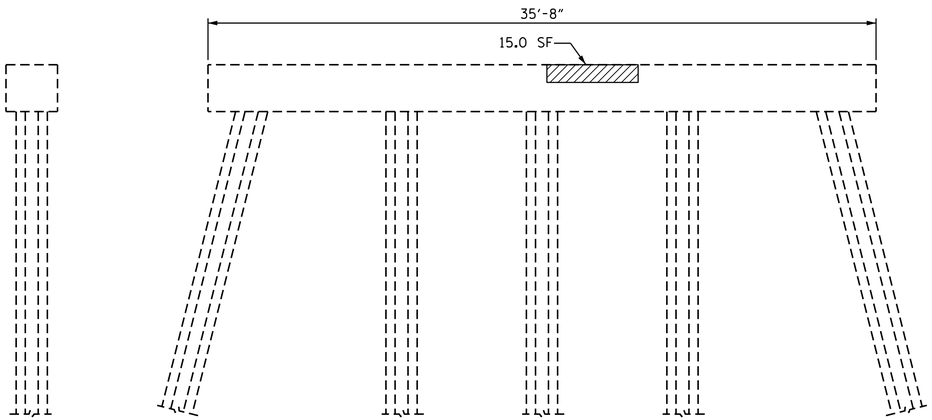
BENT 8	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	15.0	7.5		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



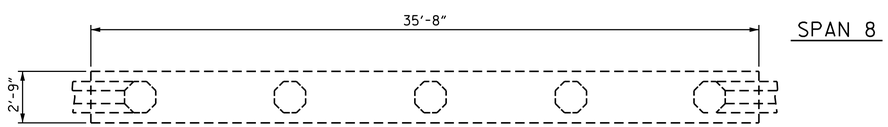
END VIEW
LEFT SIDE

ELEVATION
SPAN 8 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 9 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 8

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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NOTES:

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

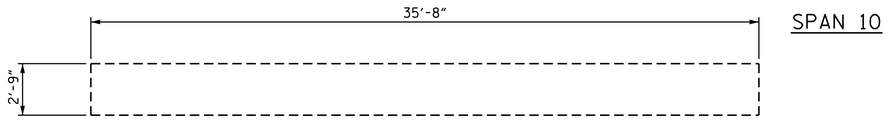
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

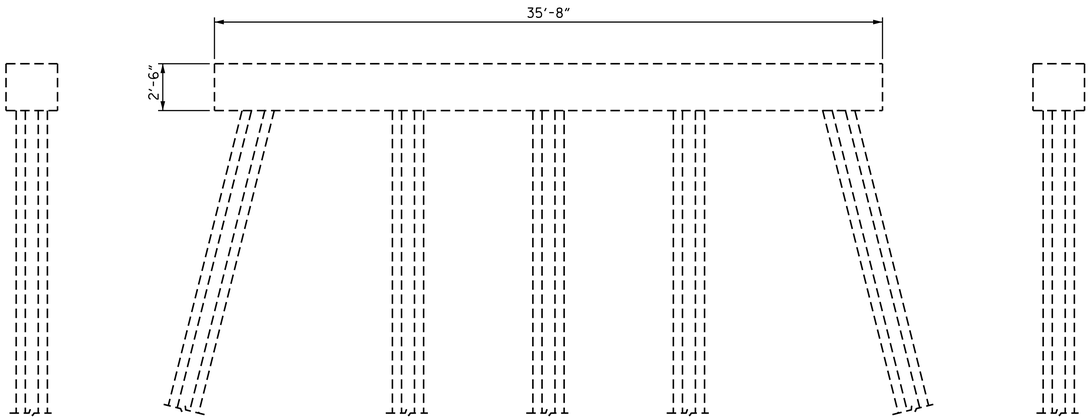
REPAIR QUANTITY TABLE

BENT 9	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	40.0	20.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

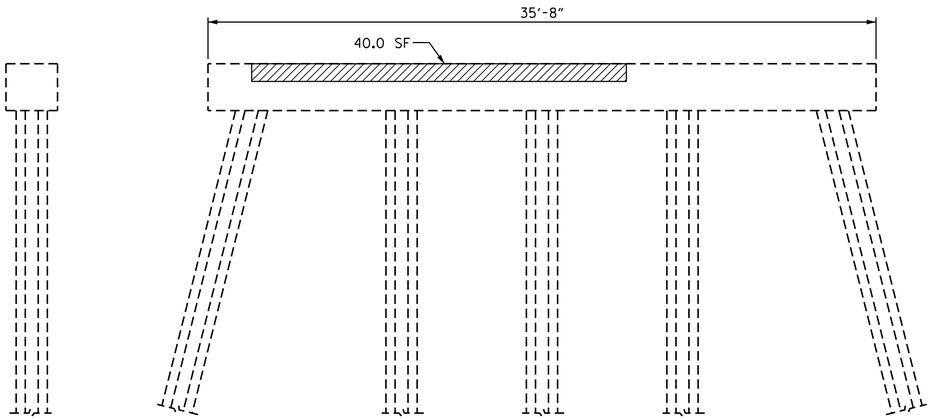


PLAN
TOP OF CAP



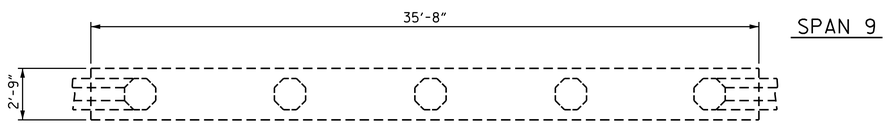
END VIEW
LEFT SIDE

ELEVATION
SPAN 9 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 10 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 9

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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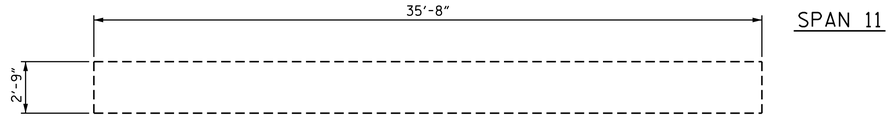

PLAN
TOP OF CAP

NOTES:

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

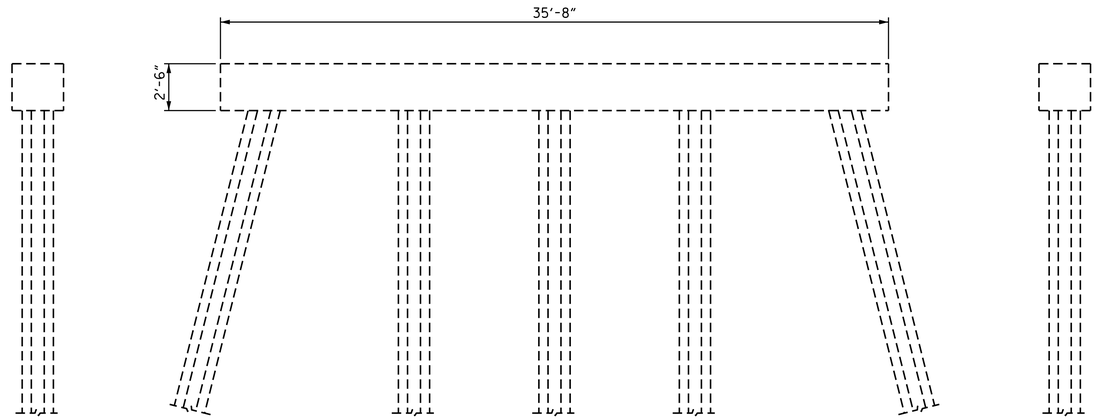
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

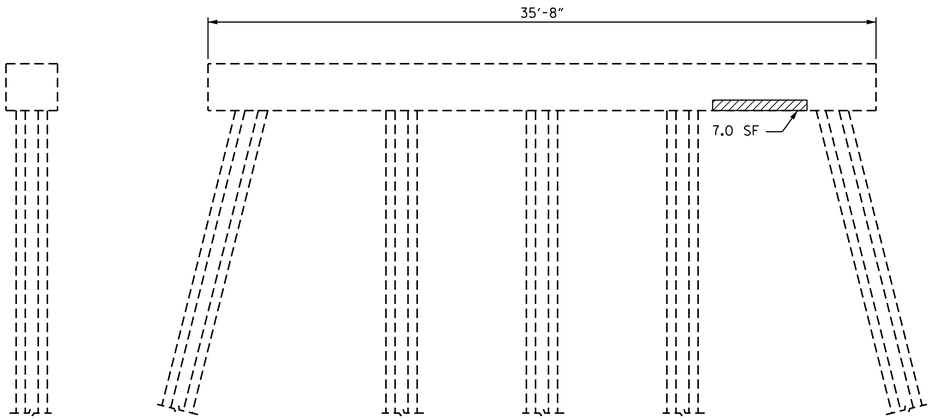
BENT 10	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	7.0	3.5		
CAP (HORIZONTAL FACE, CORNER)	15.0	7.5		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



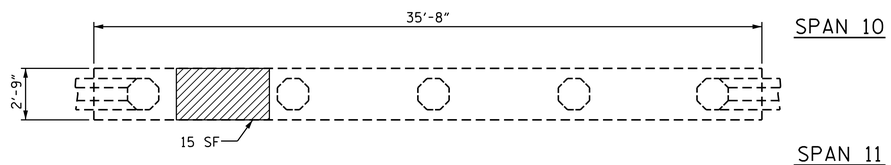
END VIEW
LEFT SIDE

ELEVATION
SPAN 10 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 11 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 10

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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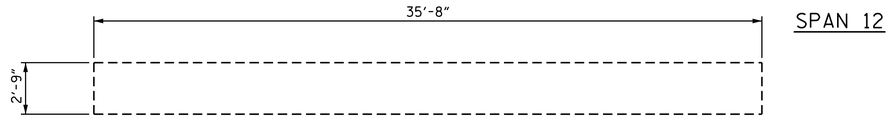

PLAN
TOP OF CAP

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

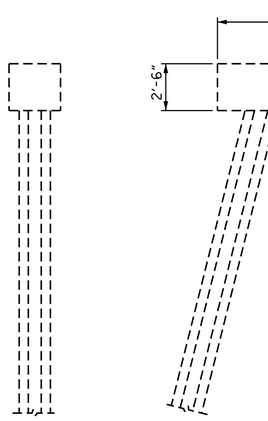
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

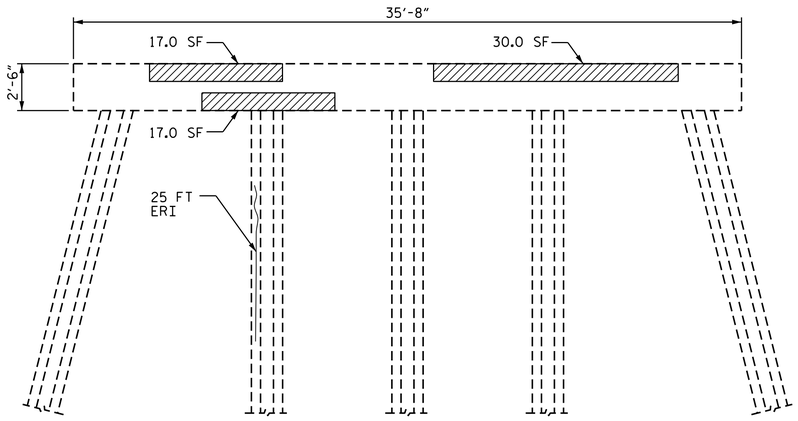
REPAIR QUANTITY TABLE

BENT 11	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	92.0	46.0		
CAP (HORIZONTAL FACE, CORNER)	20.0	10.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		25.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

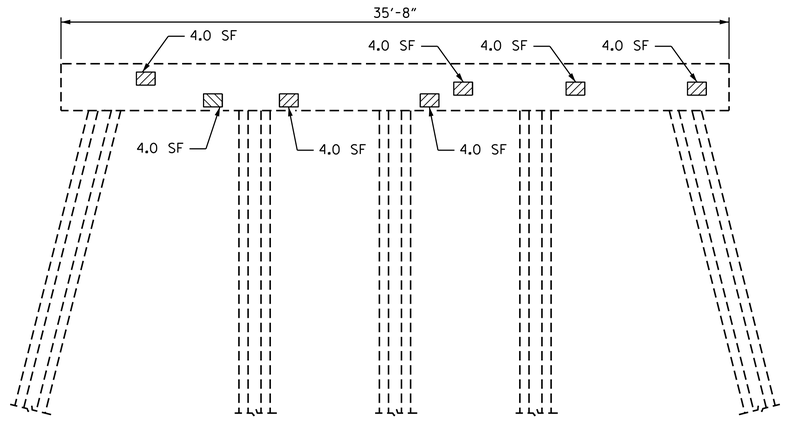


END VIEW
LEFT SIDE

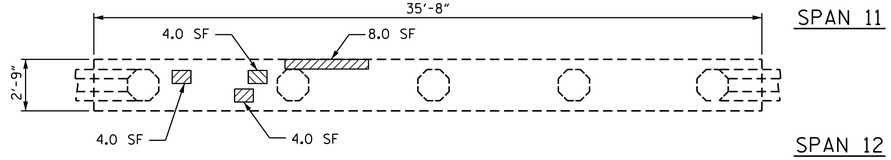


ELEVATION
SPAN 11 SIDE

END VIEW
RIGHT SIDE



ELEVATION
SPAN 12 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 11

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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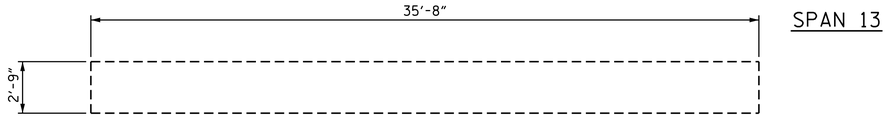

PLAN
TOP OF CAP

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

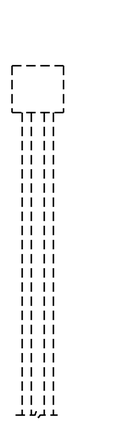
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

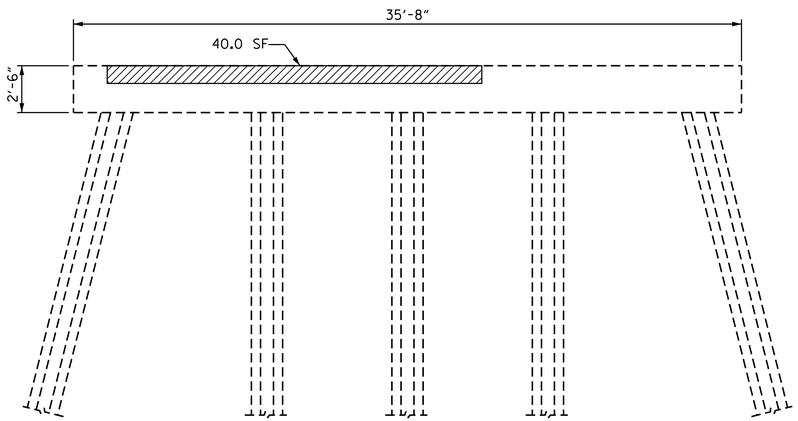
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

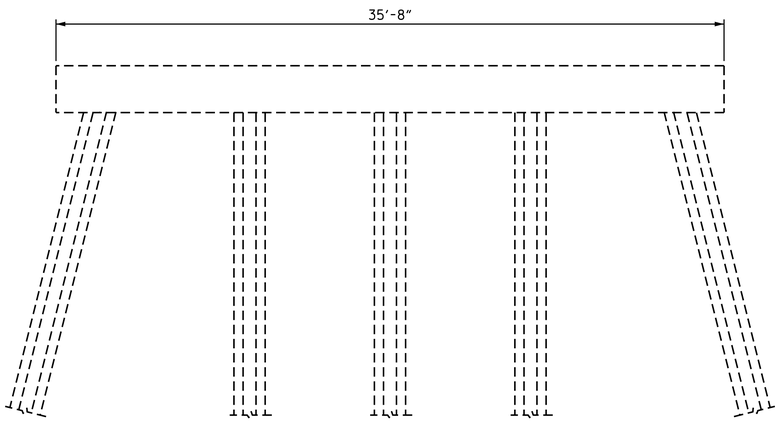
REPAIR QUANTITY TABLE

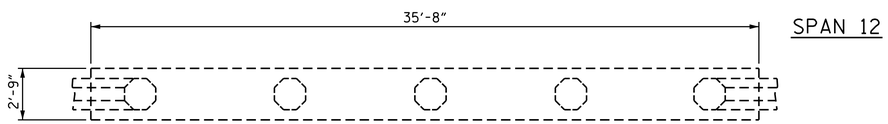
BENT 12	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	40.0	20.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.









PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 12

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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NO REPAIRS NOTED DURING INSPECTION BY STRUCTURES MANAGEMENT UNIT. THE CONTRACTOR AND ENGINEER SHALL REINSPECT THE SUBSTRUCTURE FOR POTENTIAL REPAIRS.

NOTES:

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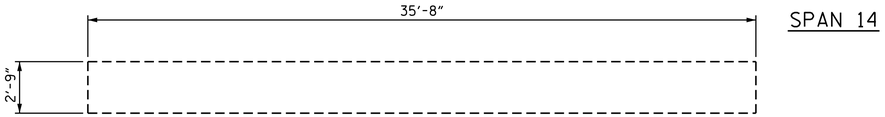
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

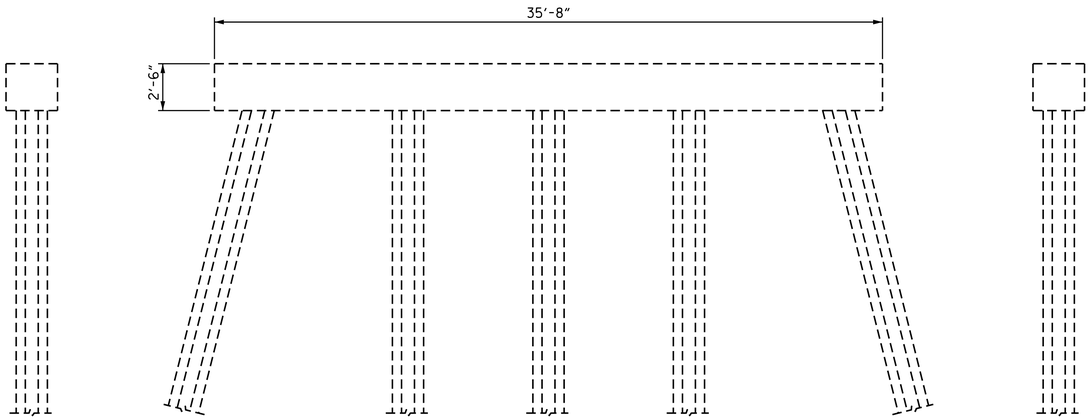
REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

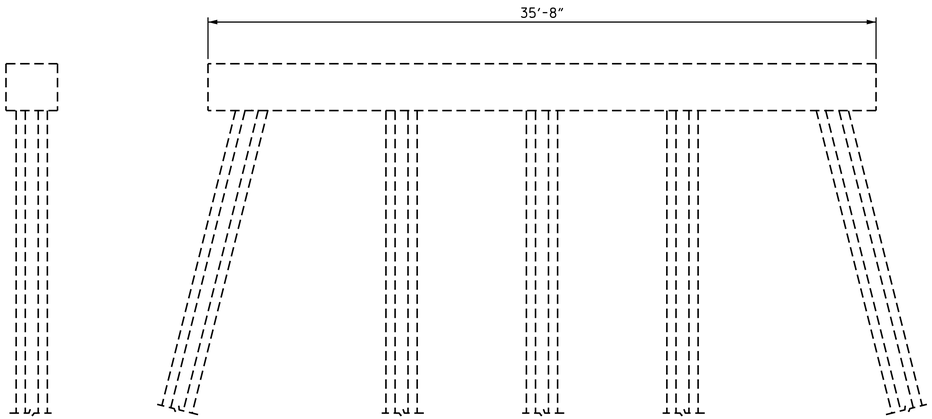


PLAN
TOP OF CAP



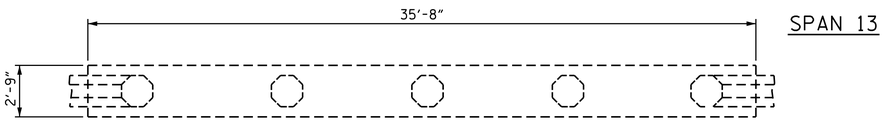
END VIEW
LEFT SIDE

ELEVATION
SPAN 13 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 14 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 13

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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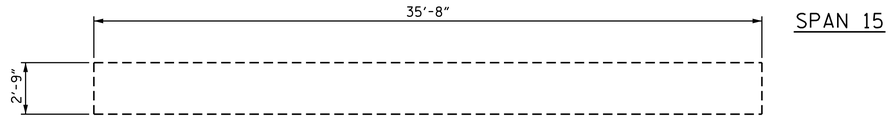


PLAN
TOP OF CAP

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 CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

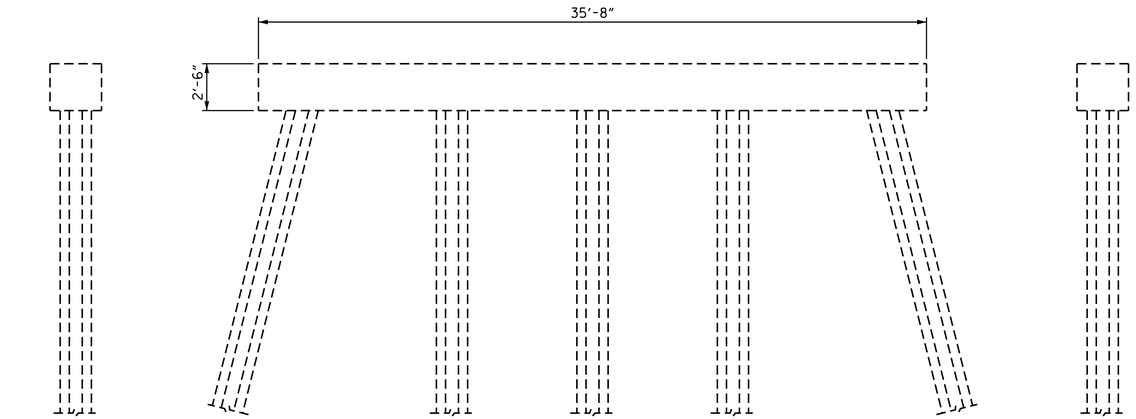
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

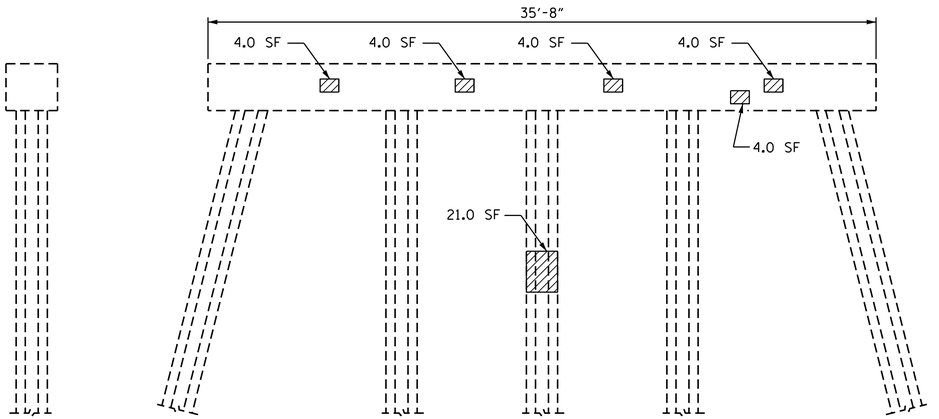
BENT 14	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	20.0	10.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	21.0	10.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



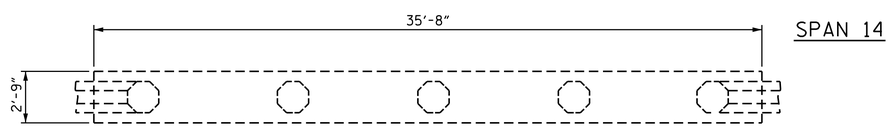
END VIEW
LEFT SIDE

ELEVATION
SPAN 14 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 15 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 14

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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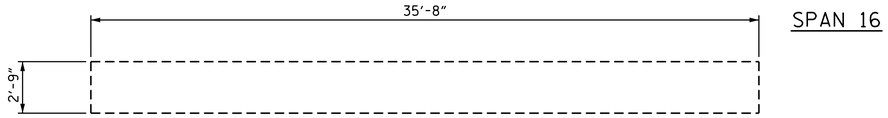


PLAN
TOP OF CAP

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 CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

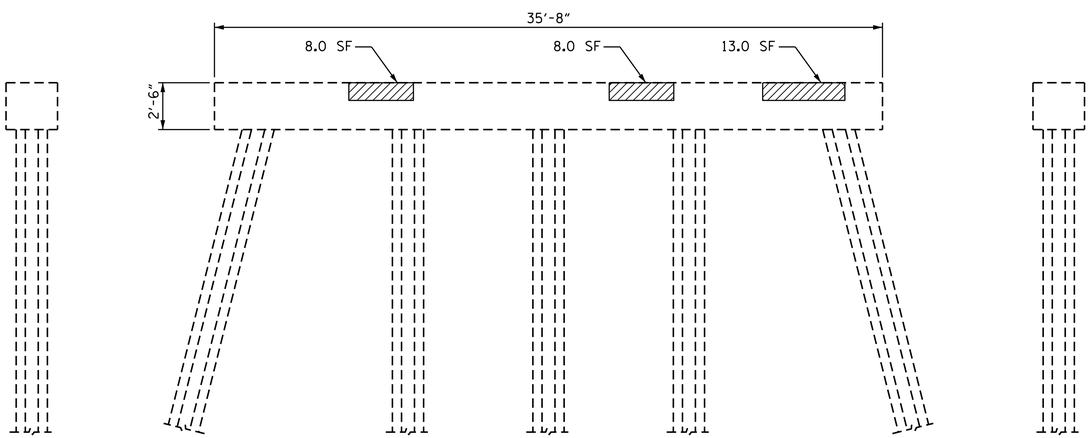
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

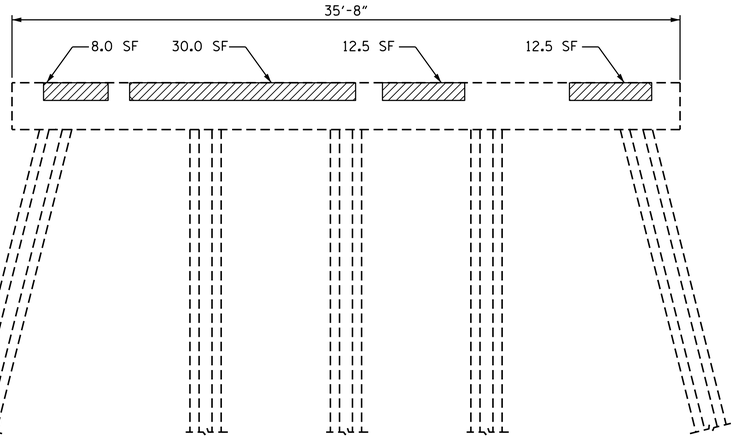
BENT 15	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	92.0	48.0		
CAP (HORIZONTAL FACE, CORNER)	6.0	3.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

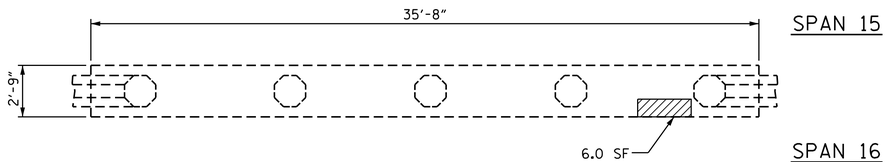


ELEVATION
SPAN 15 SIDE

END VIEW
RIGHT SIDE



ELEVATION
SPAN 16 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 15

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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NO REPAIRS NOTED DURING INSPECTION BY STRUCTURES MANAGEMENT UNIT. THE CONTRACTOR AND ENGINEER SHALL REINSPECT THE SUBSTRUCTURE FOR POTENTIAL REPAIRS.

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.

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

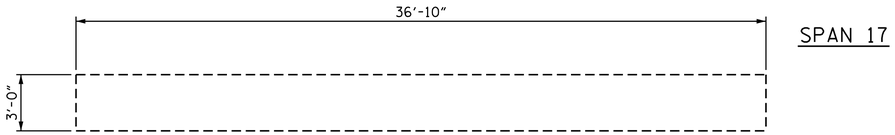
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

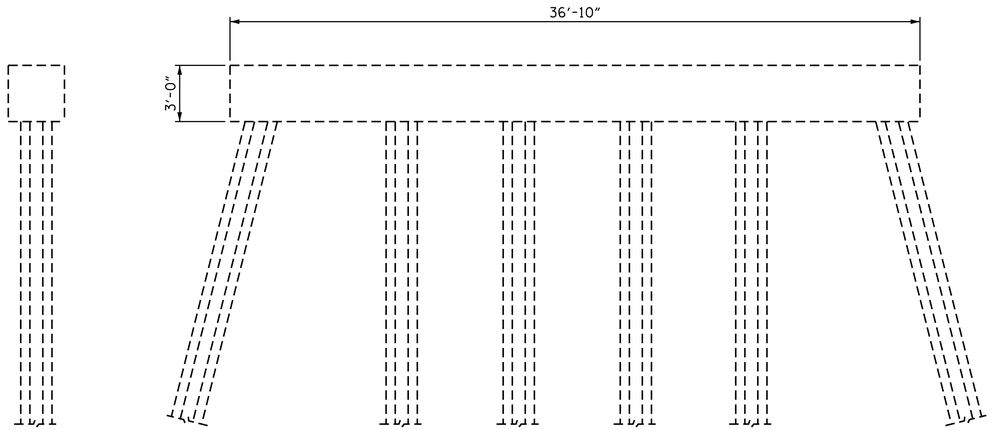
REPAIR QUANTITY TABLE

BENT 16	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	100.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

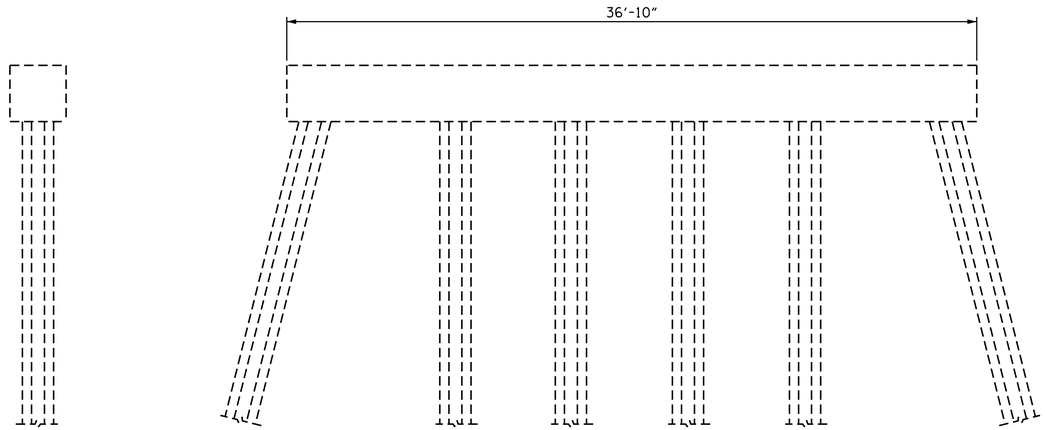


PLAN
TOP OF CAP



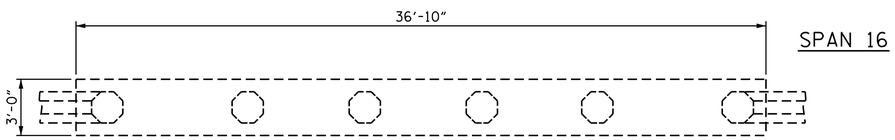
END VIEW
LEFT SIDE

ELEVATION
SPAN 16 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 17 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 16

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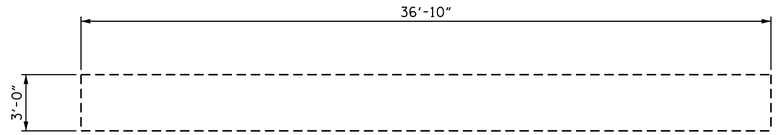

SPAN 18

SPAN 17

PLAN
TOP OF CAP

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.

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

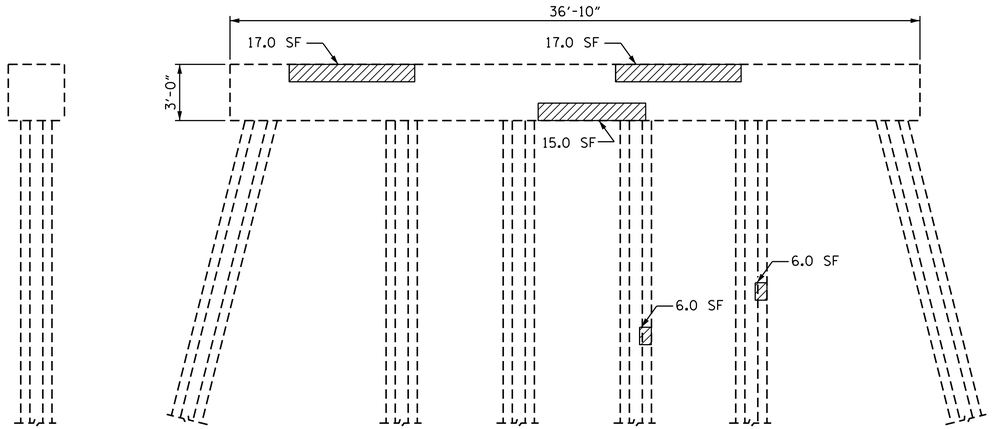
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

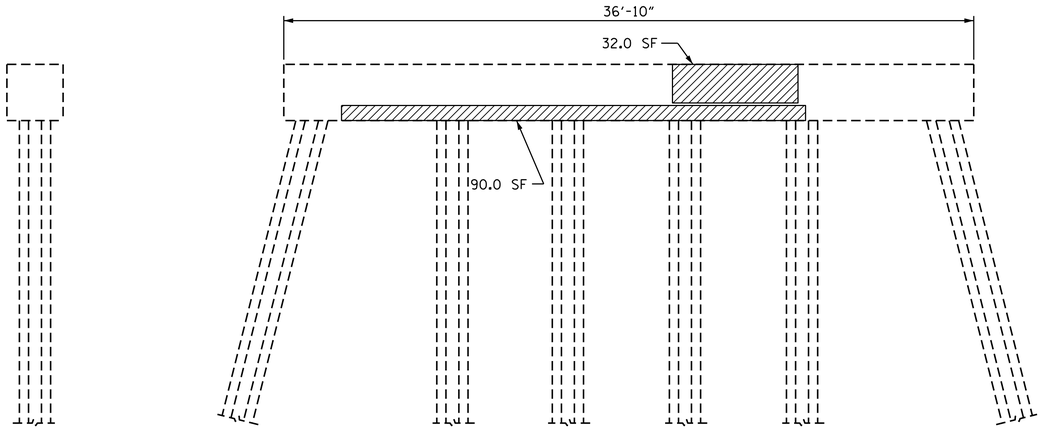
BENT 17	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	171.0	85.5		
CAP (HORIZONTAL FACE, CORNER)	47.0	23.5		
COLUMN	12.0	6.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	100.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



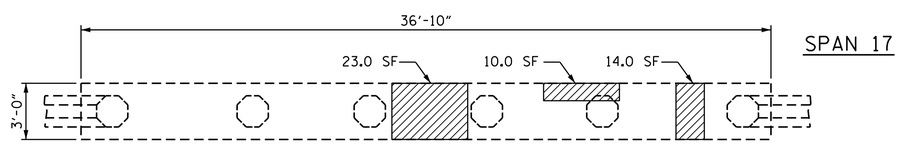
END VIEW
LEFT SIDE

ELEVATION
SPAN 17 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 18 SIDE



SPAN 17

SPAN 18

PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 17

REVISIONS						SHEET NO.
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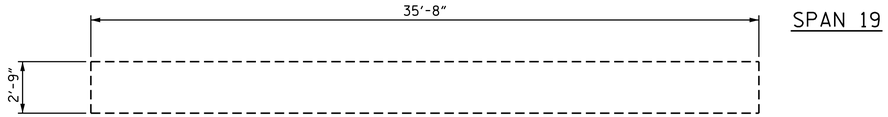

SPAN 19

SPAN 18

PLAN
TOP OF CAP

NOTES:

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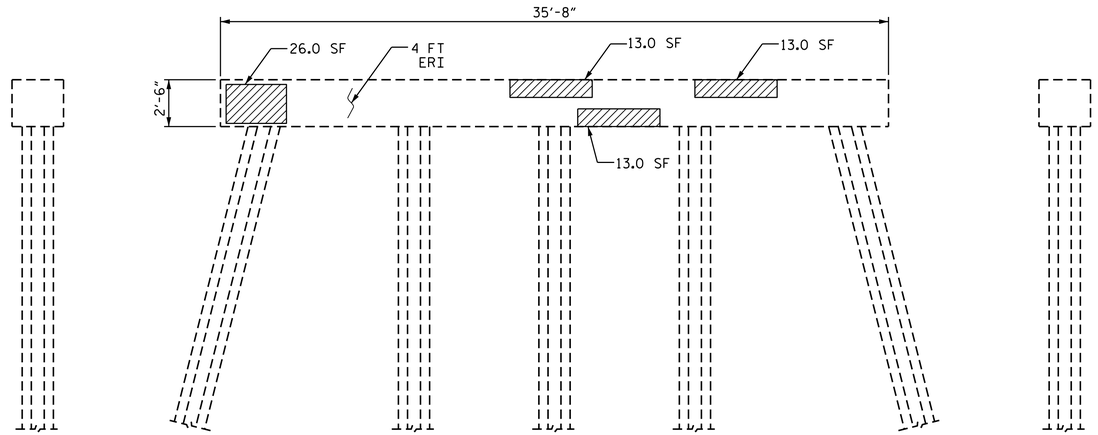
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

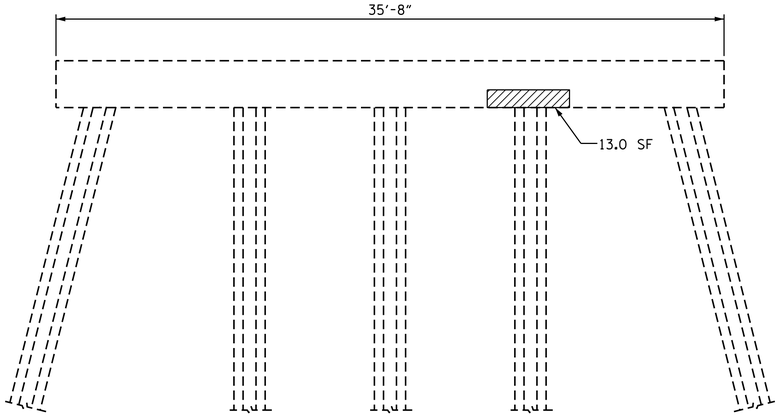
BENT 18	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	78.0	39.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		4.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



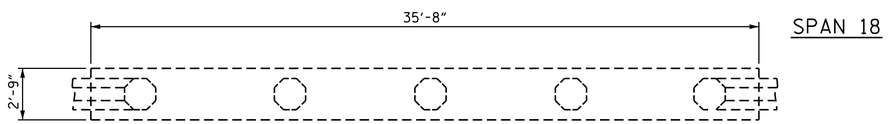
END VIEW
LEFT SIDE

ELEVATION
SPAN 18 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 19 SIDE



SPAN 18

SPAN 19

PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 18

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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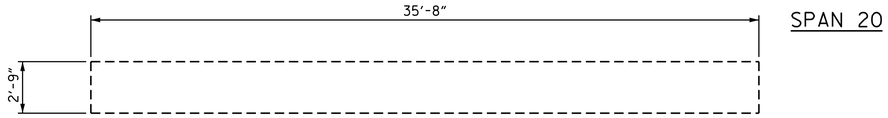

PLAN
TOP OF CAP

NOTES:

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FOR CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

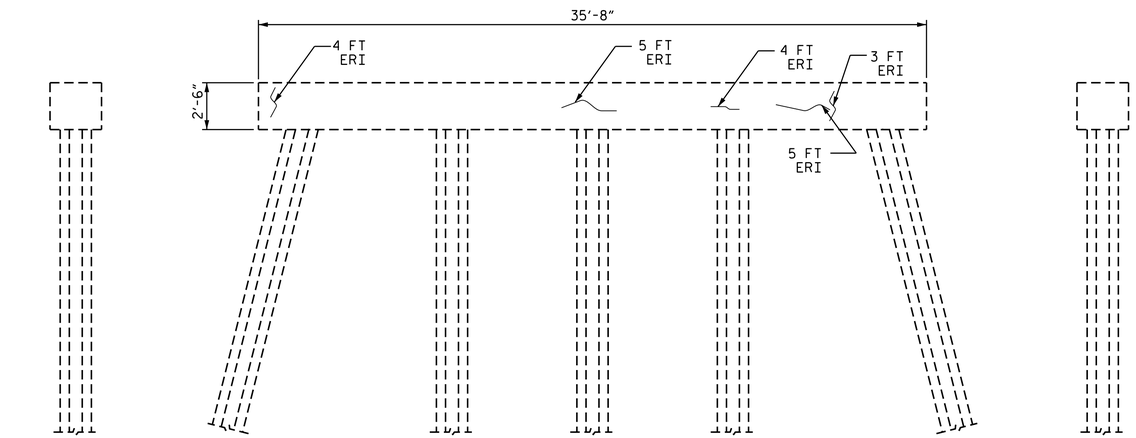
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

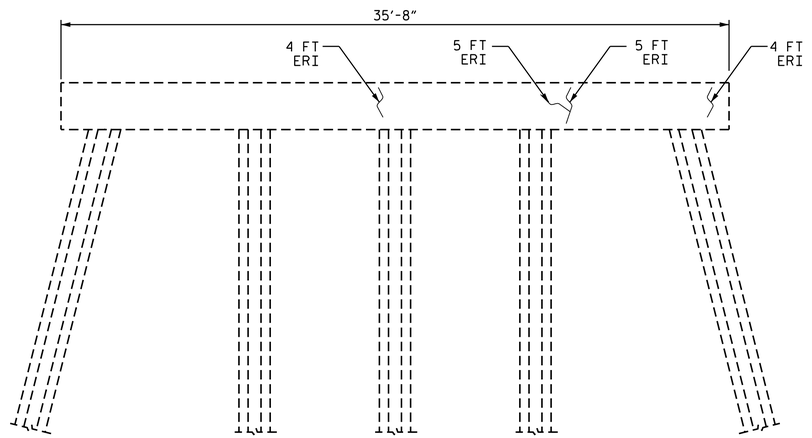
BENT 19	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		39.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



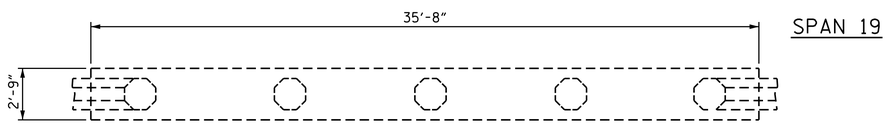
END VIEW
LEFT SIDE

ELEVATION
SPAN 19 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 20 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 19

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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REVISIONS						SHEET NO.
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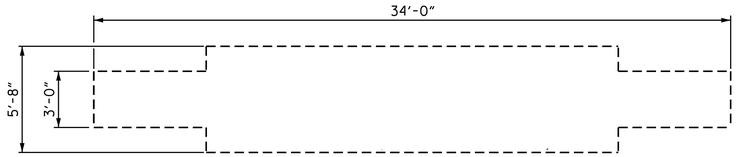

SPAN 21

SPAN 20

PLAN
TOP OF CAP

NOTES:

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

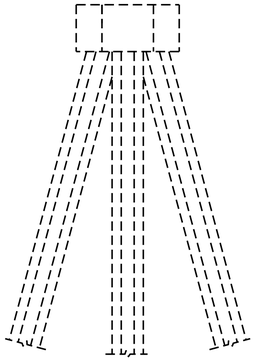
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

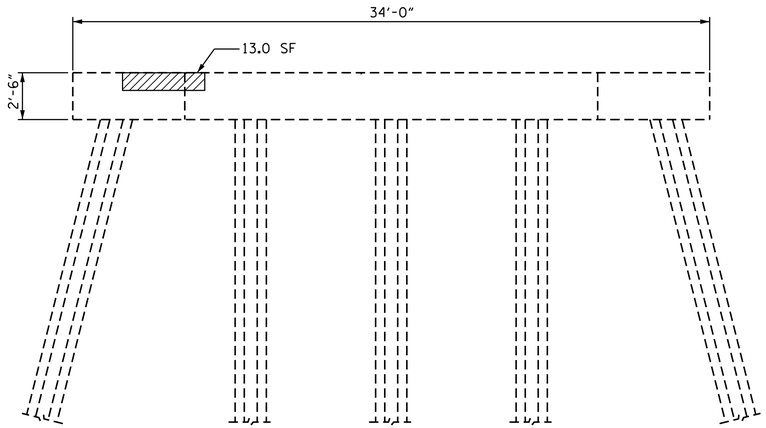
REPAIR QUANTITY TABLE

BENT 20	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	33.0	16.5		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		10.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	153.0			

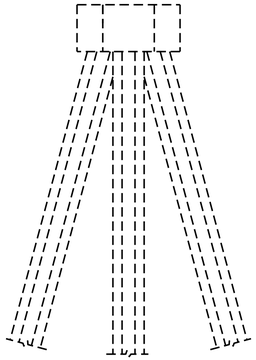
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



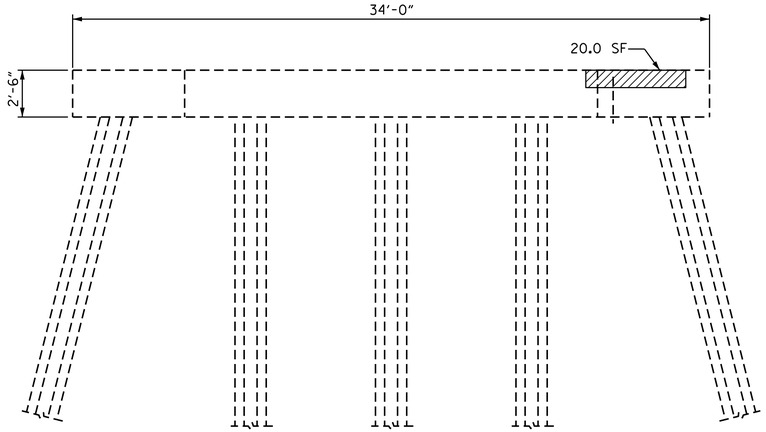
END VIEW
LEFT SIDE



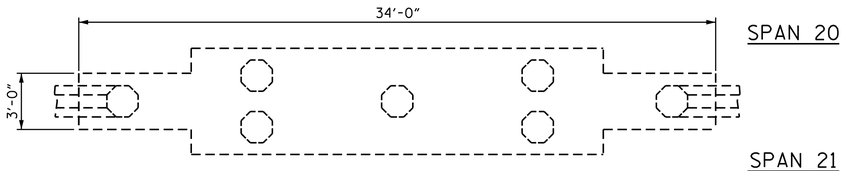
ELEVATION
SPAN 20 SIDE



END VIEW
RIGHT SIDE



ELEVATION
SPAN 21 SIDE



SPAN 20

SPAN 21

PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 20

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NO REPAIRS NOTED DURING INSPECTION BY STRUCTURES MANAGEMENT UNIT. THE CONTRACTOR AND ENGINEER SHALL REINSPECT THE SUBSTRUCTURE FOR POTENTIAL REPAIRS.

NOTES:

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

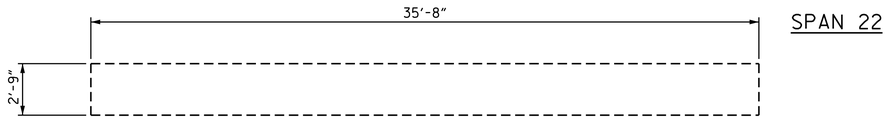
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

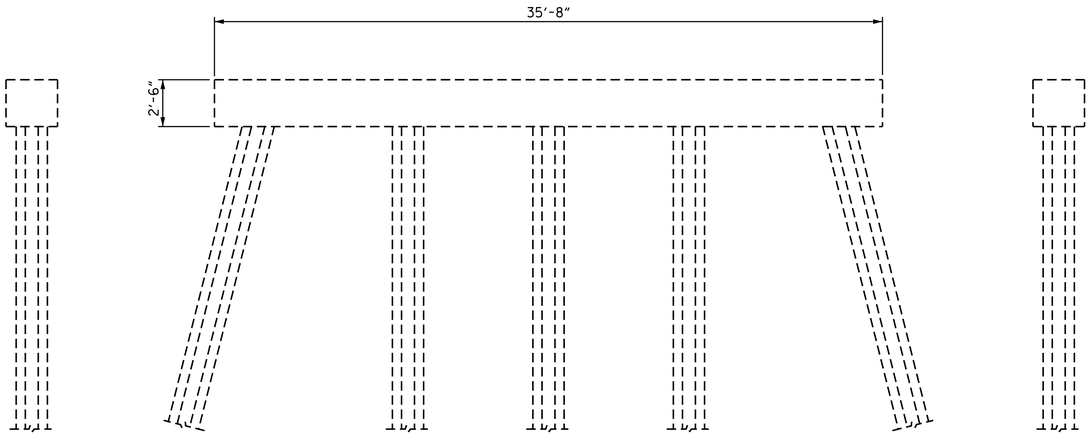
REPAIR QUANTITY TABLE

BENT 21	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

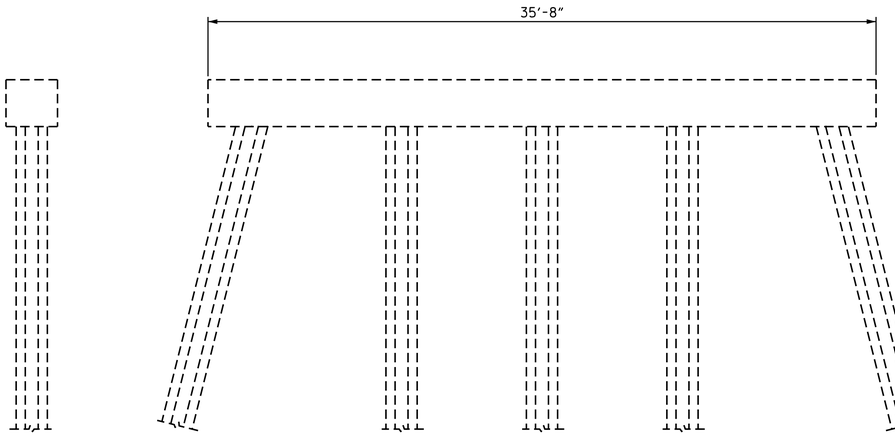


PLAN
TOP OF CAP



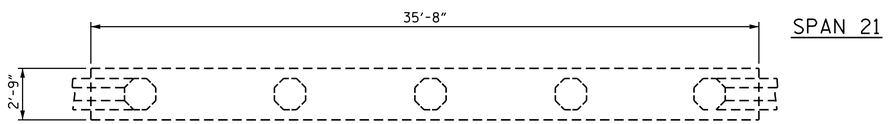
END VIEW
LEFT SIDE

ELEVATION
SPAN 21 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 22 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 21

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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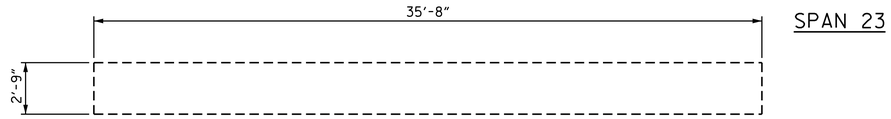

PLAN
TOP OF CAP

NOTES:

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

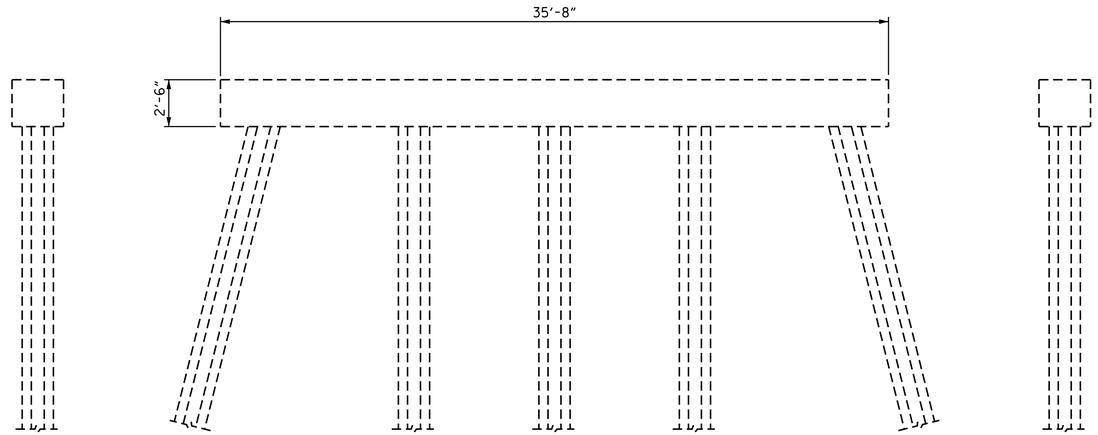
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

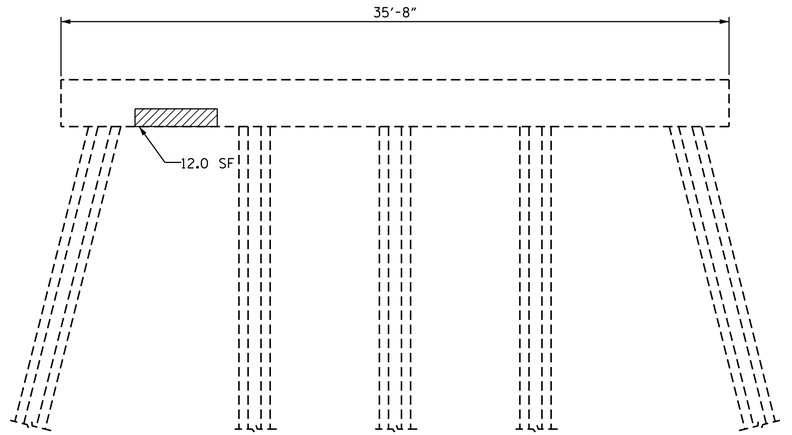
BENT 22	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	12.0	6.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



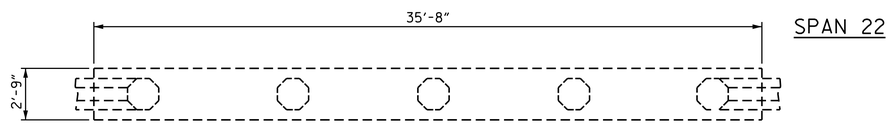
END VIEW
LEFT SIDE

ELEVATION
SPAN 22 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 23 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 22

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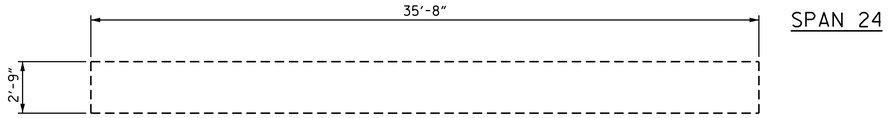

PLAN
TOP OF CAP

NOTES:

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

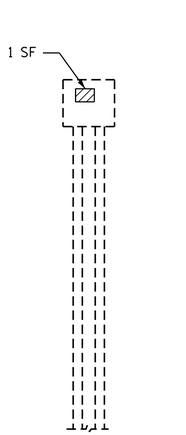
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

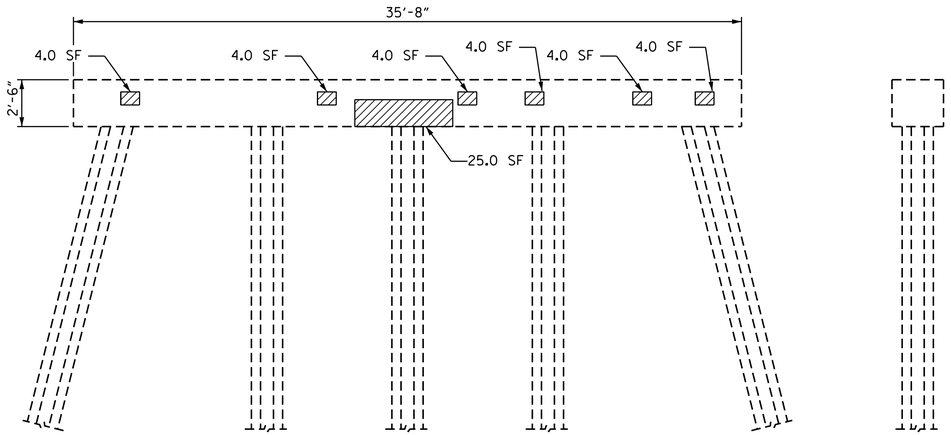
REPAIR QUANTITY TABLE

BENT 23	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	73.0	36.5		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

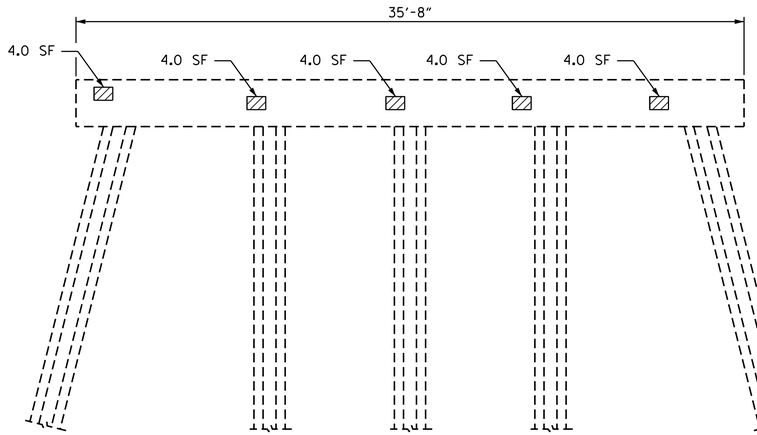


END VIEW
LEFT SIDE

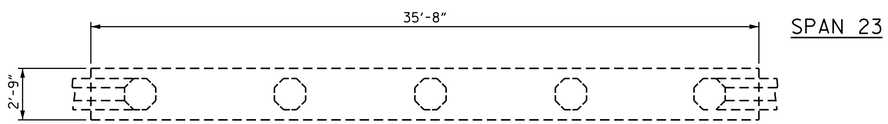


ELEVATION
SPAN 23 SIDE

END VIEW
RIGHT SIDE



ELEVATION
SPAN 24 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 23

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

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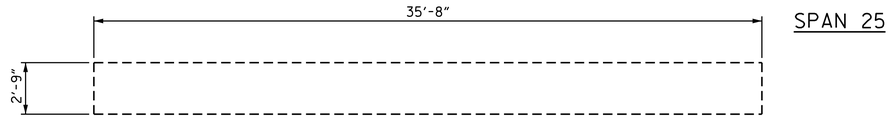

PLAN
TOP OF CAP

NOTES:

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

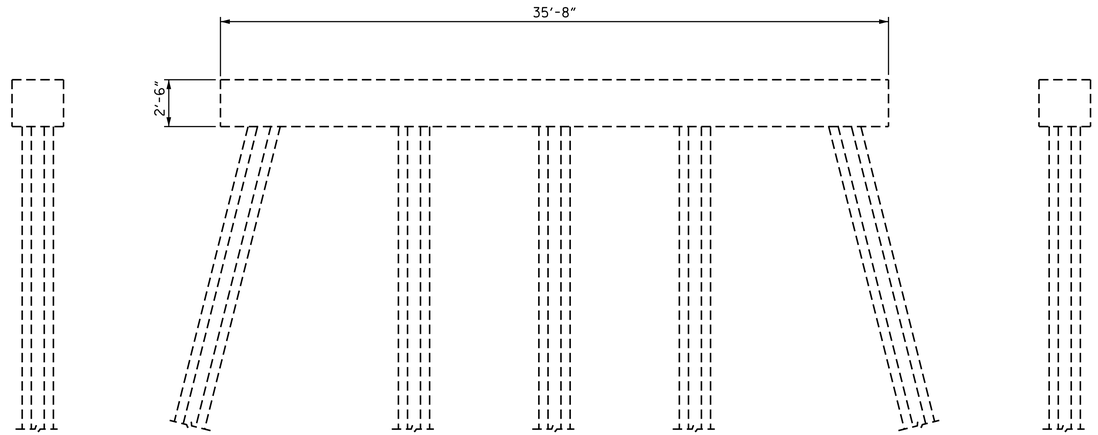
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

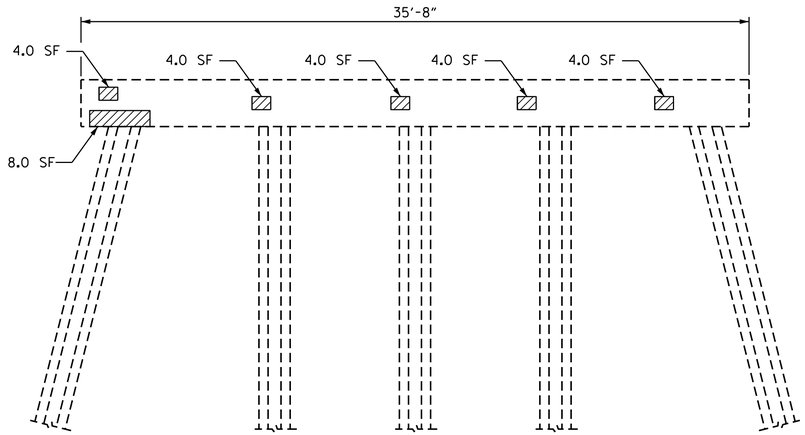
BENT 24	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	28.0	14.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	90.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



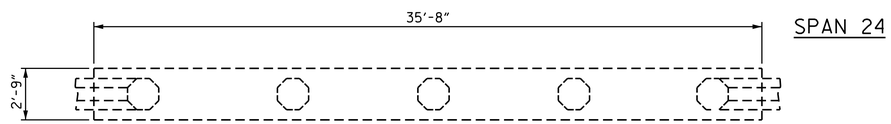
END VIEW
LEFT SIDE

ELEVATION
SPAN 24 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 25 SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 24

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

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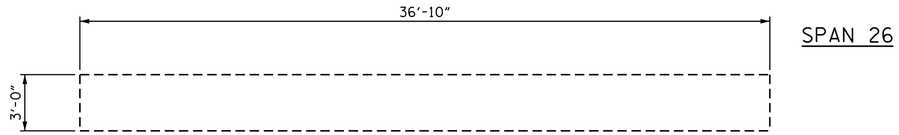


SPAN 26

SPAN 25

PLAN
TOP OF CAP

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 CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

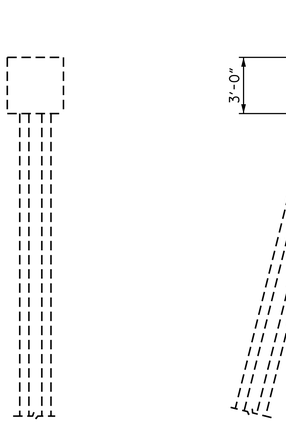
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

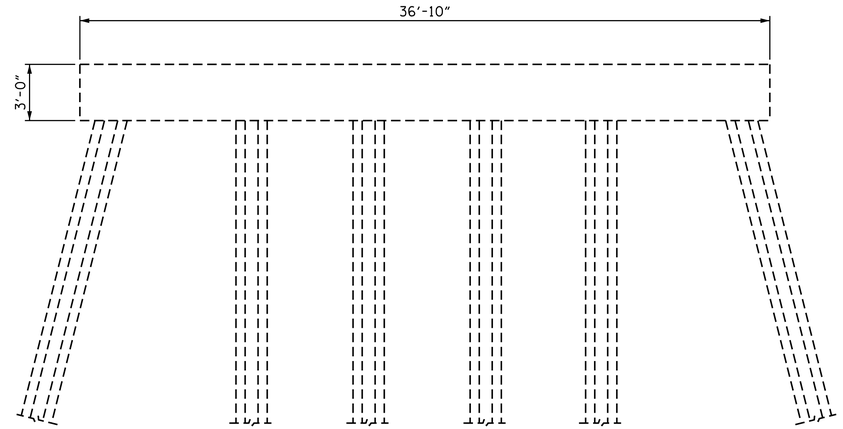
REPAIR QUANTITY TABLE

BENT 25	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	30.0	15.0		
CAP (HORIZONTAL FACE, CORNER)	32.0	16.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	100.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

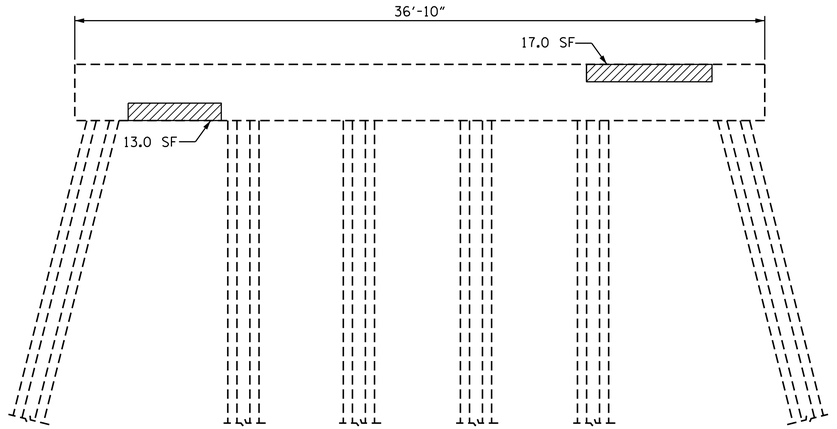


END VIEW
LEFT SIDE

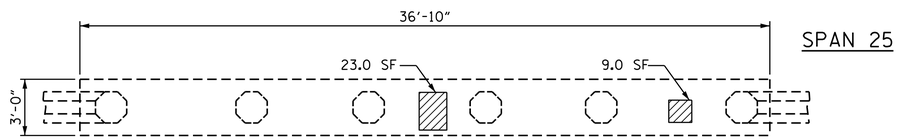


ELEVATION
SPAN 25 SIDE

END VIEW
RIGHT SIDE



ELEVATION
SPAN 26 SIDE



SPAN 25

SPAN 26

PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 25

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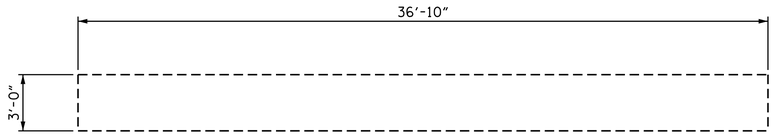


SPAN 27

SPAN 26

PLAN
TOP OF CAP

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 CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

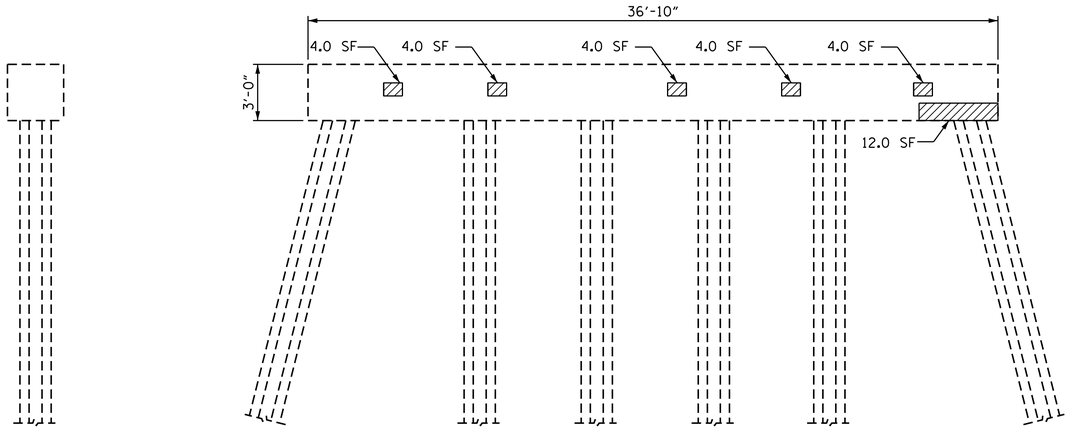
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

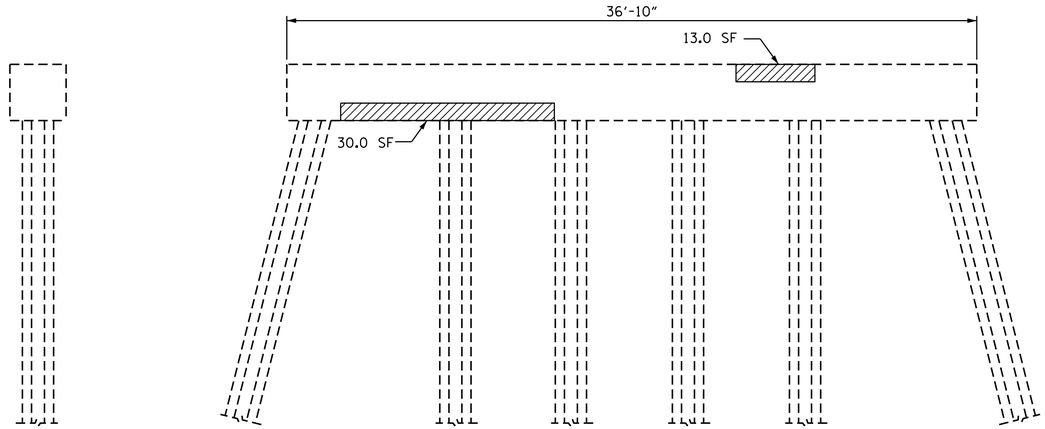
BENT 26	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	75.0	37.5		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	100.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



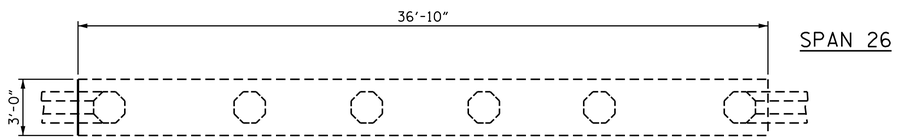
END VIEW
LEFT SIDE

ELEVATION
SPAN 26 SIDE



END VIEW
RIGHT SIDE

ELEVATION
SPAN 27 SIDE



SPAN 26

SPAN 27

PLAN
BOTTOM OF CAP
(LOOKING UP)

CONCRETE REPAIRS

SHOTCRETE REPAIRS

ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR BENT 26

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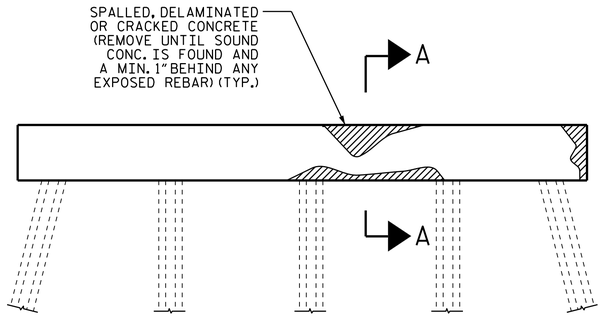
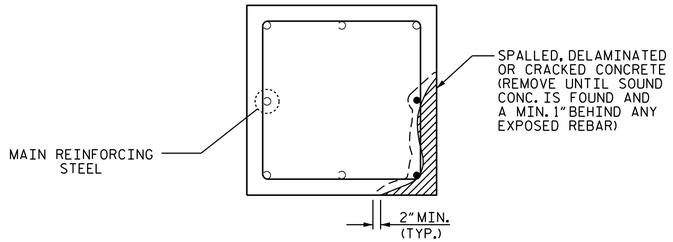
NOTES:

CONCRETE REPAIR MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIR WITH THE APPROVAL OF THE ENGINEER.

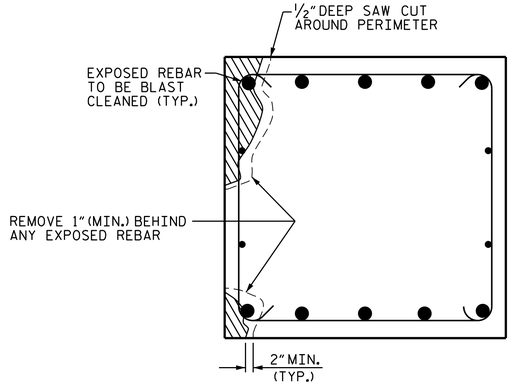
FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.



BENT CAP REPAIRS



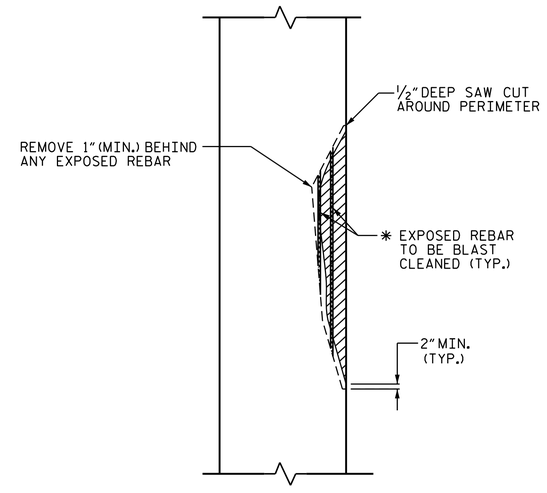
PLAN OF COLUMN



SECTION A-A

CAP REPAIR

* DUE TO LACK OF CONFINEMENT STEEL, REPAIR LENGTH SHALL NOT EXCEED 10'-0" AT ONE TIME, UNLESS APPROVED BY THE ENGINEER.



ELEVATION OF COLUMN

COLUMN REPAIR

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER G. ABRAHA

DocuSigned by: Aster Abraha 2/12/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

TYPICAL CAP AND COLUMN REPAIR DETAILS

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2			4		

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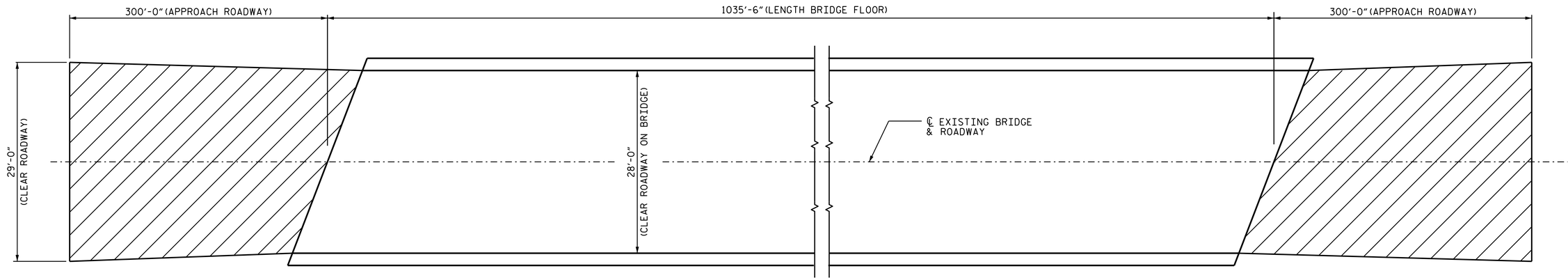
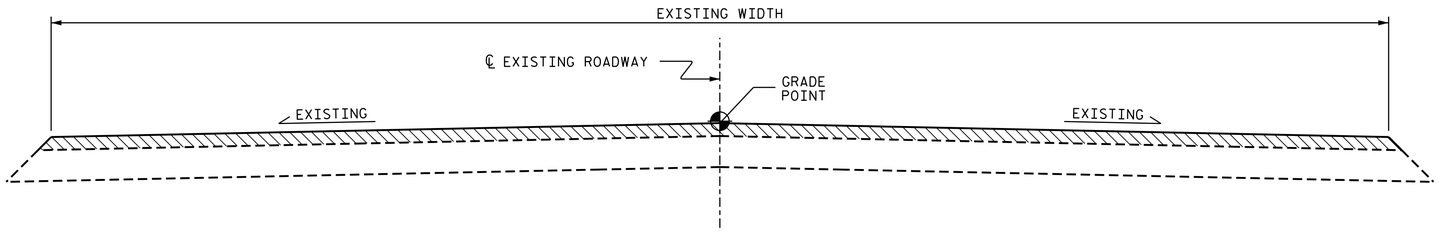
NOTES:

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1½"DEPTH OF NEW ASPHALT PAVING. PROVIDE NEW ASPHALT PAVING THICKNESS TO CREATE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. NEW ASPHALT PAVING THICKNESS MAY EXCEED 1½" DUE TO SETTLEMENT OF THE EXISTING APPROACH ASPHALT PAVING.



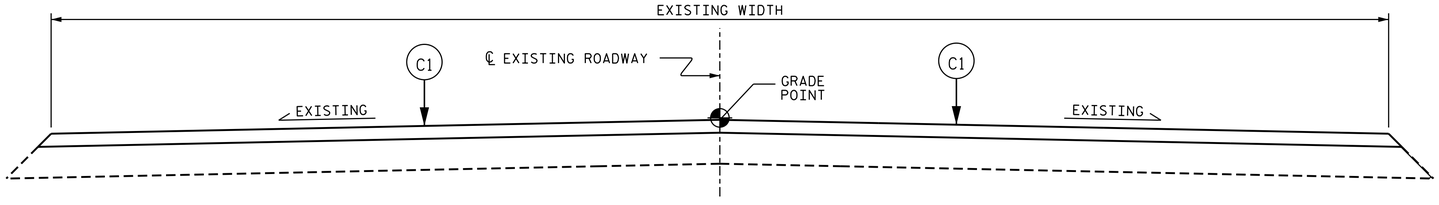
PLAN



TYPICAL ROADWAY MILLING SECTION

SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
INCIDENTAL MILLING	1934.0 SQ. YDS.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	162.5 TONS	
ASPHALT BINDER FOR PLANT MIX	9.6 TONS	

C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1"DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.



TYPICAL PROPOSED ROADWAY SECTION

PROJECT NO. 15BPR.4

NASH COUNTY

BRIDGE NO. 94

NORTH CAROLINA PROFESSIONAL SEAL 030024 ENGINEER ASTER C. ABRAHA

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH MILLING AND TYPICAL ROADWAY SECTIONS

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