



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

J. ERIC BOYETTE  
SECRETARY

July 6, 2022

U.S. Army Corps of Engineers  
Raleigh Regulatory Field Office  
3331 Heritage Trade Drive, Suite 105  
Wake Forest, NC 27587

N.C. Division of Water Resources  
1617 Mail Service Center  
Raleigh, NC 27699

Attn: Mr. Andrew Williams  
NCDOT Coordinator

Mr. Rob Ridings  
NCDOT Coordinator

Subject: **Revised Modification Request for Section 404 Individual Permit, Section 401 Water Quality Certification and Neuse Riparian Buffer Authorization** for Interstate 40 Widening and Improvements from I-440/US 64 (Exit 301) to just north of SR 1525 (Cornwallis Road), including improvements to NC 42 and SR 1010 (Cleveland Road) in Wake and Johnston Counties, Federal Aid Project No. IMNHF-040-4(139)301; TIP Numbers I-5111 and I-4739, Division 5. Debit \$570 from WBS Element 42346.3.1.

Dear Sirs:

As you are aware, the North Carolina Department of Transportation (NCDOT) applied for permits for the subject project on May 7, 2019, and modifications on December 20, 2019, May 28, 2020, August 31, 2020, January 21, 2022, and June 21, 2022. The Corps of Engineers issued the Section 404 permit for the project on September 6, 2019, and modifications on February 11, June 11, October 1, 2020, and March 22, 2022, respectively. The North Carolina Division of Water Resources issued the 401 Water Quality Certification for the project on July 10, 2019 (NCDWR Project No. 20190593) and modifications on January 22, June 3, September 16, 2020, and January 26, 2022, respectively. This correspondence is to request modification to Sites 14A, 14B, and 55 and replaces the request for modification submitted on June 21, 2022.

Site 14A: The pipe was installed at this site on June 22<sup>nd</sup>, and field conditions dictated that additional bank stabilization is needed. NCDOT asked that rip rap be placed upstream of the pipe outlet, in addition to the bank stabilization that was originally permitted. This change will result in the following changes in impacts:

- 15 linear feet increase in permanent stream impacts (bank stabilization)
- 400 square feet increase in mitigable buffer zone 1 impacts
- 186 square feet increase in mitigable buffer zone 2 impacts

**MAILING ADDRESS:**  
NC DEPARTMENT OF TRANSPORTATION  
ENVIRONMENTAL ANALYSIS UNIT  
1598 MAIL SERVICE CENTER  
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6000  
FAX: 919-212-5785  
WEBSITE: [NCDOT.GOV](http://NCDOT.GOV)

**LOCATION:**  
CENTURY CENTER, BUILDING A  
1000 BIRCH RIDGE DRIVE  
RALEIGH NC, 27610-4328

Site 14B: Similar to site 14A, the pipe installation at this site requires additional bank stabilization upstream of the new pipe. This is in addition to the originally permitted bank stabilization below the new pipe. This change will result in the following changes in impacts:

- 12 linear feet increase in permanent stream impacts (bank stabilization)
- 12 linear feet decrease in temporary stream impacts (bank stabilization)
- No changes in buffer impacts.

Site 55: Due to repeating erosion events and the general instability of the channel below the outlet of Site 55, the Design Build Team proposes rip rap be added to the flow line to match the length of the previously permitted bank stabilization. This will result in the following changes:

- 40 linear feet decrease in bank stabilization impacts
- 40 linear feet increase in permanent stream impacts
- No changes in buffer impacts

Attached are the following revised permit drawings depicting the affected area, all of which have a revision date of either June 1, 2022 or June 27, 2022:

- Permit Drawing 7: Ditch detail sheet
- Permit Drawing 31: plan sheet 17 without contours
- Permit Drawing 32: plan sheet 17 with contours
- Permit Drawing 111: plan sheet 49 without contours
- Permit Drawing 112: plan sheet 49 with contours
- Permit Drawing 122: summary table
- Permit Drawing 125: summary table
- Buffer Drawing 15: buffer plan sheet 17
- Buffer Drawing 41: buffer plan sheet 49
- Buffer Drawing 47: buffer summary table
- Buffer Drawing 51: buffer summary table

### **Compensatory Mitigation**

Compensatory mitigation for the additional jurisdictional stream impacts has been debited from the Marks Creek Mitigation Site. The revised debit ledger is included with this modification request..

### **REGULATORY APPROVALS**

**Section 404:** NCDOT requests modification to the USACE Individual 404 Permit for the project as required for the above-described activities.

**Section 401:** We are also requesting modification of the Section 401 Individual Water Quality Certification and Neuse River Buffer Authorization from NCDWR. We are providing this request to NCDWR, for their approval. Authorization to debit the \$570.00 Permit Application Fee from TIP No. I-5111/I-4739/WBS 42346.3.1 is hereby given.

A copy of the permit modification request and its distribution list will be posted at <https://xfer.services.ncdot.gov/pdea/PermApps/>.

If you have any questions or need additional information, please contact Chris Rivenbark at crivenbark@ncdot.gov or 919-707-6152.

Sincerely,

DocuSigned by:

*Mack C. Rivenbark III*

AAAD1248B309416...

for Philip S. Harris, III, P.E., C.P.M.  
Environment Analysis Unit Head

cc: NCDOT Permit Application Standard Distribution List

Marks Creek Mitigation Site  
ONEID 092-011

The Marks Creek Mitigation Site is located in Wake County within the USGS hydrologic unit 03020201 of the Neuse River. NCDOT acquired the 66 acre site to mitigate for unavoidable, jurisdictional impacts associated with TIP R-2547. Monitoring requirements were performed from 2004 to 2008 and the site was closed out in 2009. Table 1 shows the final mitigation quantities approved for the site. The site has been placed on the NCDOT On-site Debit Ledger for use within HUC 03020201. Tables 2-5 indicate all mitigation debits that have occurred per regulatory agency approval.

To offset unavoidable stream impacts associated with T.I.P. I-5111, the Marks Creek Mitigation Site will be debited 80 linear feet of credit to offset 40 linear feet of stream impacts and 1479 square feet of buffer mitigation to offset 400 square feet of impacts in zone 1 at a 2:1 ratio and 186 square feet of impacts in zone 2 at a 1.5:1. This debit is reflected in the debit ledger below.

Table 1. Mitigation Quantities Approved

| HUC     | Mitigation Type               | Starting Amount | Additional Notes         |
|---------|-------------------------------|-----------------|--------------------------|
| 3020201 | Stream Preservation           | 3247 (Ln.Ft.)   |                          |
| 3020201 | Riparian Wetland Restoration  | 3.33 (Ac.)      |                          |
| 3020201 | Riparian Wetland Preservation | 11 (Ac.)        | No Debit as of 8/18/2014 |
| 3020201 | Riparian Wetland Enhancement  | 13 (Ac)         |                          |
| 3020201 | Buffer Restoration            | 324700 (Sq.Ft.) |                          |

Table 2. Mitigation Debits – Stream Restoration

| Mitigation Type    | Debit Amount (Ln.Ft.) | Status    | Site TIP                     | Action ID#        | NOTES                                              |
|--------------------|-----------------------|-----------|------------------------------|-------------------|----------------------------------------------------|
| Stream Restoration | 2873                  | Close Out | R-2814A&B Mod (Sep 21, 2010) | 2008-01316        | Modification decreased impacts by 268 lf.          |
| Stream Restoration | 80                    | Close Out | I-5338 (Areas 1, 2A, and 2b) | Permit By Default | Impacts were 40 lin. Ft. @ 2:1 ratio               |
| Stream Restoration | 25                    | Closeout  | I-5338                       |                   | NW18 being permitted separately for stream impacts |
| Stream Restoration | 80                    | Close Out | I-5111                       |                   | 40 lf of impacts at 2:1 ratio                      |

Table 3. Mitigation Debits – Riparian Wetland Enhancement

| Mitigation Type              | Debit Amount (Ac) | Status    | Site TIP  | Action ID# | NOTES                                             |
|------------------------------|-------------------|-----------|-----------|------------|---------------------------------------------------|
| Riparian Wetland Enhancement | 10.9              | Close Out | R-2000F&G | 199920387  | Unable to confirm in permits. From old DOT ledger |
| Riparian Wetland Enhancement | 0.98              | Close Out | R-3825A   | 201101695  | 0.49 @2:1                                         |
| Riparian Wetland Enhancement | 1.08              | Close Out | U-5748    |            | 0.36 acres of impacts at 3:1 ratio                |

Table 4. Mitigation Debits – Buffer Restoration

| Mitigation Type    | Debit Amount (Sq.Ft.) | Status    | Site TIP                     | Action ID#        | NOTES                                                                                                                           |
|--------------------|-----------------------|-----------|------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Buffer Restoration | 114659                | Close Out | U-3804                       | 200421647         |                                                                                                                                 |
| Buffer Restoration | 114                   | Close Out | R-2814-B Mod                 | 2008-01316        |                                                                                                                                 |
| Buffer Restoration | 75581                 | Close Out | B-3528                       | 2008-00153        |                                                                                                                                 |
| Buffer Restoration | 1655                  | Close Out | B-4944                       | 2009-00207        |                                                                                                                                 |
| Buffer Restoration | 34683                 | Close Out | I-5338 (Areas 1, 2A, and 2b) | Permit By Default | 6,915 sq ft of impacts for zone 1 and 9292 sq ft of zone 2 totaling 34,683 sq ft with 3:1 ratio for zone 1 and 1.5:1 for zone 2 |
| Buffer Restoration | 12,914                | Close Out | B-4659                       |                   | NCDOT was required to use a 3:1 ratio for zone 1 and a 1.5:1 ratio for zone 2.                                                  |

| Mitigation Type    | Debit Amount (Sq.Ft.) | Status    | Site TIP | Action ID# | NOTES                                                                          |
|--------------------|-----------------------|-----------|----------|------------|--------------------------------------------------------------------------------|
| Buffer Restoration | 4,947                 | Close Out | B-5121   |            | NCDOT was required to use a 3:1 ratio for zone 1 and a 1.5:1 ratio for zone 2. |
| Buffer Restoration | 5322                  | Close Out | B-5656   |            | Impacts of 1699 sq ft zone 1 @3:1 and 150 sq ft zone 2 @1.5:1                  |
| Buffer Restoration | 54,672                | Close Out | I-5700   |            | zone 1 (14,723 @3:1 = 44,169)<br>zone 2 (7,002 @1.5:1 = 10,503)                |
| Buffer Restoration | 1479                  | Close Out | I-5111   |            | Zone 1: 440 sq ft @ 3:1<br>Zone 2: 186 sq ft @1.5:1                            |

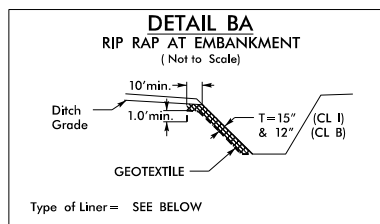
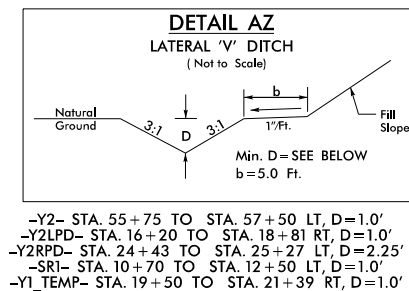
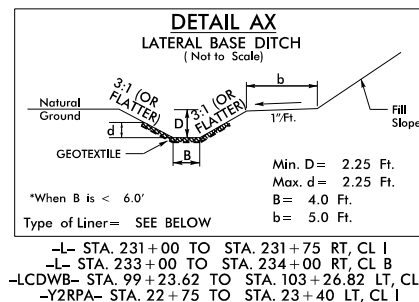
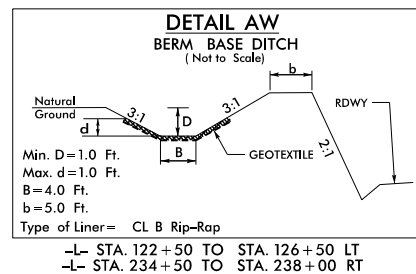
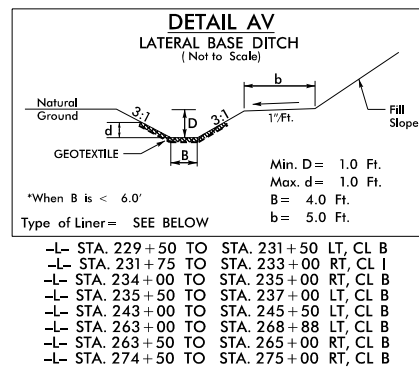
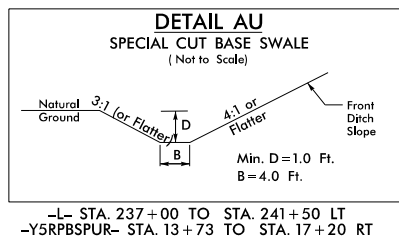
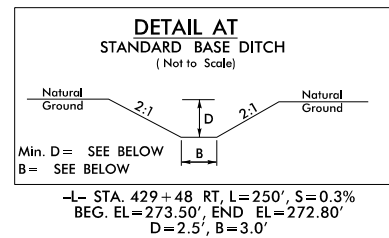
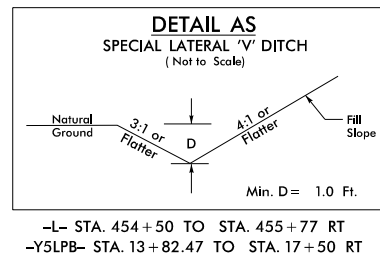
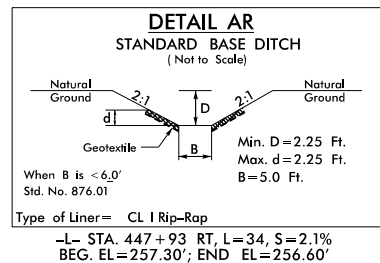
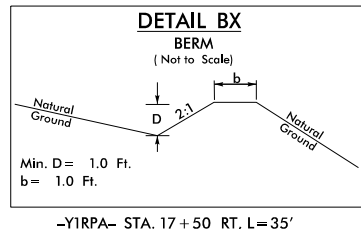
Table 5. Mitigation Debits – Riparian Wetland Restoration

| Mitigation Type              | Debit Amount (Ln.Ft.) | Status    | Site TIP      | Action ID# | NOTES                                                                                                                                                   |
|------------------------------|-----------------------|-----------|---------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Riparian Wetland Restoration | 3.33                  | Close Out | R-2547/R-2641 | 200220819  | The permit states that R-2547 will debit 4.4 ac of wetland restoration from Mark's Creek. The remaining 1.07 acres was debited from Wiggins Mill at 2:1 |

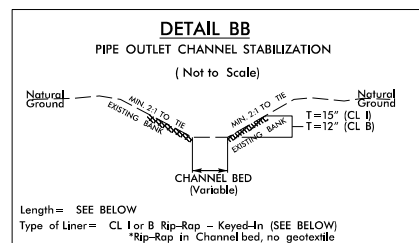
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| PROJECT REFERENCE NO.                                            | SHEET NO.                |
| 1-5111/1-4739                                                    | 2D-6                     |
| ROADWAY DESIGN ENGINEER                                          | PAVEMENT DESIGN ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |                          |

PERMIT DRAWING  
SHEET 7 OF 125

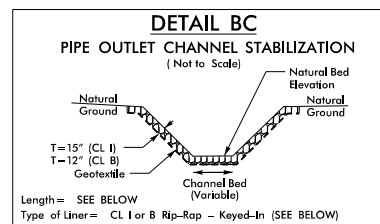
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REVISED 6/1/2022



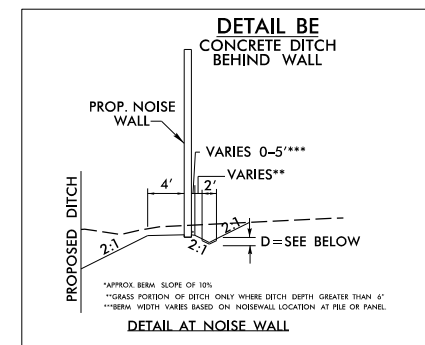
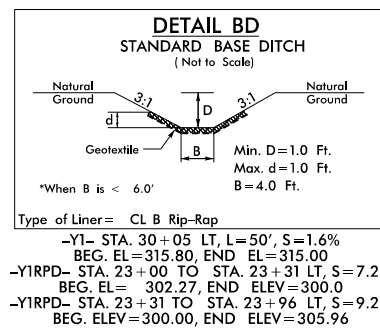
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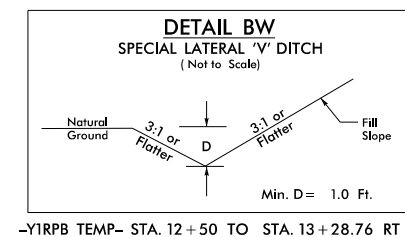
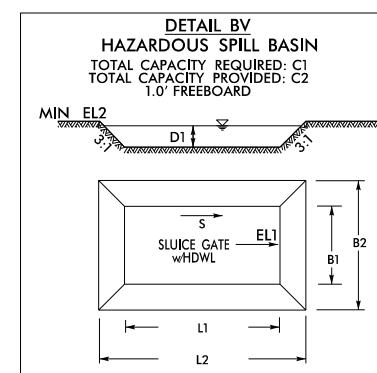
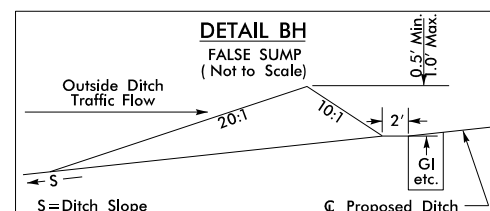
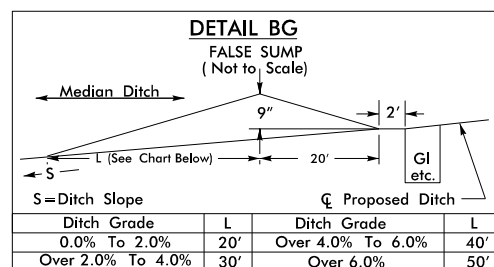
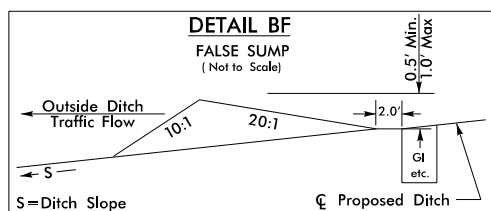
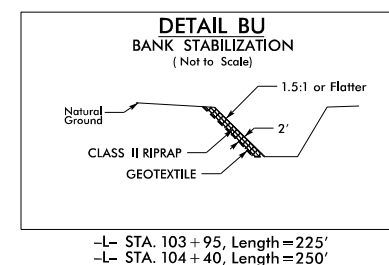
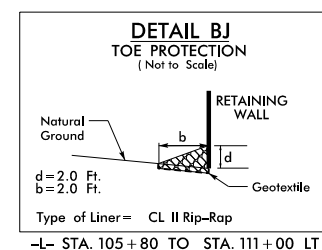
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- L- STA. 111+82 LT, L=35', CL I RIPRAP\*
- L- STA. 144+04 LT, L=40', CL I RIPRAP\*
- L- STA. 168+38 LT, L=40', CL I RIPRAP\*
- L- STA. 171+49 LT, L=55', CL I RIPRAP
- L- STA. 205+30 RT, L=55', CL I RIPRAP
- L- STA. 233+34 LT, L=45', CL I RIPRAP\*
- L- STA. 234+09 LT, L=40', CL I RIPRAP\*
- L- STA. 247+67 LT, L=50', CL I RIPRAP\*
- L- STA. 270+61 LT, L=33', CL I RIPRAP



- L- STA. 245+56 RT, L=20', CL I RIPRAP
- L- STA. 290+70 LT, L=35', CL I RIPRAP
- L- STA. 121+50 RT, L=20', CL B RIPRAP
- L- STA. 124+36 RT, L=30', CL I RIPRAP
- L- STA. 126+90 RT, L=30', CL I RIPRAP
- L- STA. 275+43 LT, L=25', CL I RIPRAP



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**RK&K**

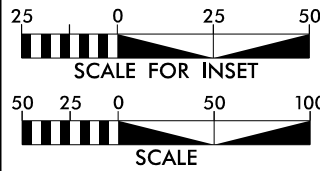
P: (919) 878-9560  
8601 Sk Forks Road, Forum 1, Suite 700  
Raleigh, North Carolina 27615-3960  
NC License No. F-0112

Engineers | Construction Managers | Planners | Scientists

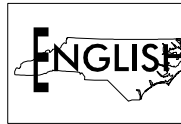
www.rkk.com

Responsive People | Creative Solutions

8/17/99



PERMIT DRAWING  
SHEET 31 OF 125



REVISED 6/27/2022

SS DENOTES IMPACTS IN  
SURFACE WATER

TS DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER

MARTIN MARIETTA MATERIAL INC.  
MAPPED PER WAKE CO. G.I.S.

14

SITE 14B

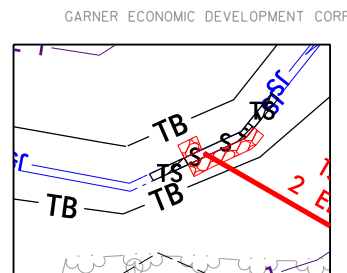
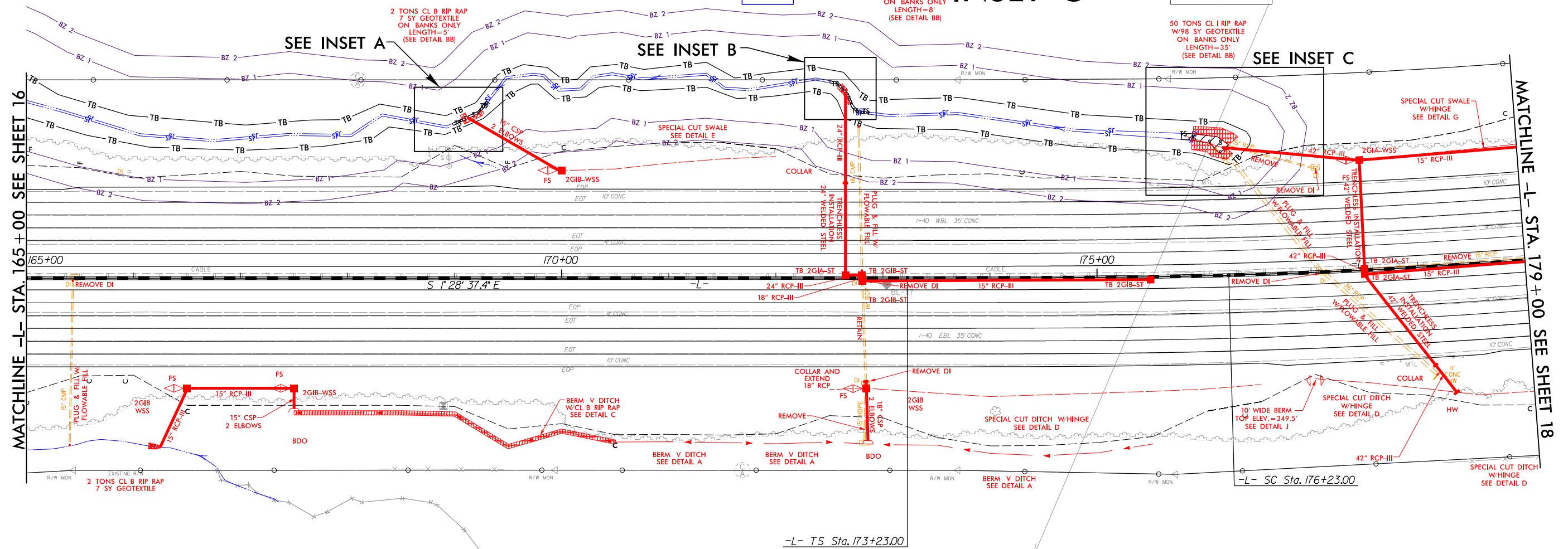
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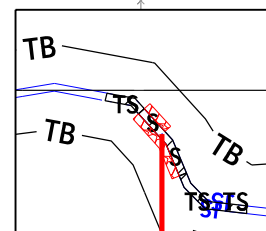
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SITE 14C

|                                                                  |                        |
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| PROJECT REFERENCE NO.                                            | SHEET NO.              |
| 1-5111/1-4739                                                    | 17                     |
| R/W SHEET NO.                                                    |                        |
| ROADWAY DESIGN<br>ENGINEER                                       | HYDRAULICS<br>ENGINEER |
| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION               |                        |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |                        |



INSET A



INSET B

MARTIN MARIETTA MATERIAL INC.  
MAPPED PER WAKE CO. G.I.S.

14

RK&K

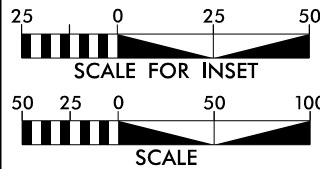
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Raleigh, North Carolina 27615-3960  
NC License No. F-0112

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FOR -L- PROFILE SEE SHT. 85

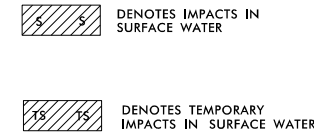
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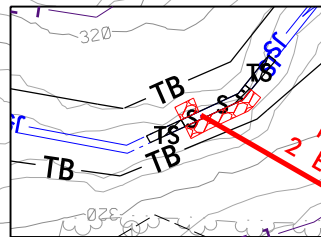
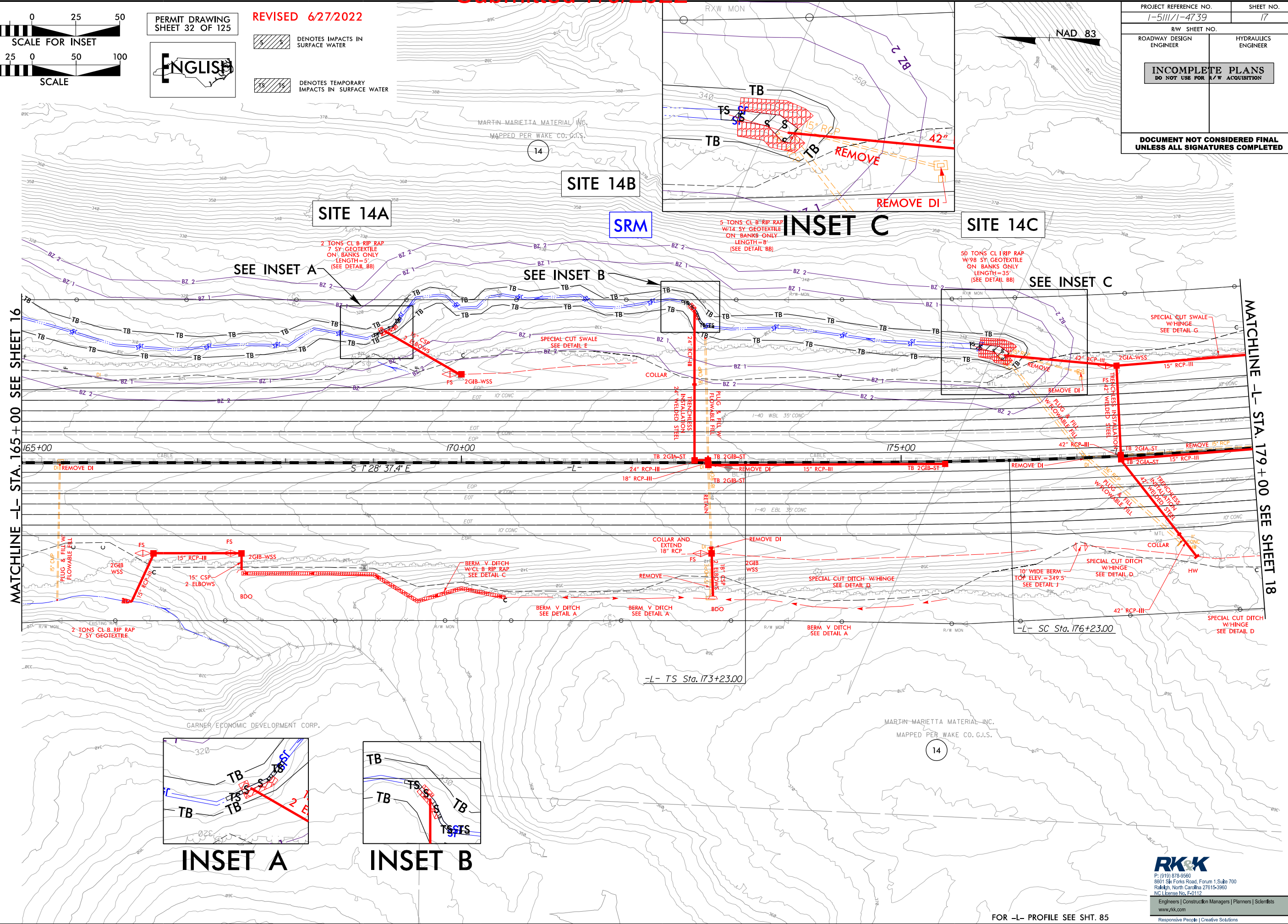
PERMIT DRAWING  
SHEET 32 OF 125



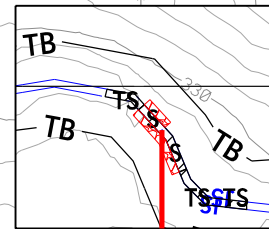
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| PROJECT REFERENCE NO.                                            | SHEET NO.           |
| 1-5111/1-4739                                                    | 17                  |
| R/W SHEET NO.                                                    |                     |
| ROADWAY DESIGN ENGINEER                                          | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION               |                     |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |                     |



INSET A



INSET B



P: (919) 878-9560  
8601 Six Forks Road, Suite 700  
Raleigh, North Carolina 27615-3960  
NC License No. F-0112

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FOR -L- PROFILE SEE SHT. 85

# Project Submittal Interim Form



Updated September 4, 2020

*Please note: fields marked with a red asterisk \* below are required. You will not be able to submit the form until all mandatory questions are answered.*

**Project Type: \***

- ☐ For the Record Only (Courtesy Copy)
- ☐ New Project
- ☒ Modification/New Project with Existing ID
- ☐ More Information Response
- ☐ Other Agency Comments
- ☐ Pre-Application Submittal
- ☐ Re-Issuance/Renewal Request
- ☐ Stream or Buffer Appeal

**Pre-Filing Meeting Date Request was submitted on:**

5/7/2019

## Project Contact Information

**Name:**

Chris Rivenbark

*Who is submitting the information?*

**Email Address: \***

crivenbark@ncdot.gov

## Project Information

**Existing ID #: \***

20190593

*20170001 (no dashes)*

**Existing Version: \***

6

*1*

**Project Name: \***

Interstate 40 Widening & Improvements (I-4739 I-5111)

**Is this a public transportation project? \***

- ☒ Yes
- ☐ No

**Is this a DOT project? \***

- ☒ Yes
- ☐ No

**Is the project located within a NC DCM Area of Environmental Concern (AEC)? \***

- ☐ Yes
- ☒ No
- ☐ Unknown

**TIP#:**

I-4739 I-5111

**WBS#:**

42346.3.1

*(Applies to DOT projects only)*

**County (ies) \***

Johnston

Wake

**Please upload all files that need to be submitted.**

[Click the upload button or drag and drop files here to attach document](#)

I-5111\_I-4739 Individual Modification Wake\_Johnston 6.14MB  
July 6 2022.pdf

[Only pdf or kmz files are accepted.](#)

**Describe the attachments or add comments:**

Revised: cover letter, debit ledger, permit drawings, and buffer drawings which replaces our 6/21/22 submittal.

\* ☒ By checking the box and signing box below, I certify that:

- I, the project proponent, hereby certifies that all information contained herein is true, accurate, and complete to the best of my knowledge and belief.
- I, the project proponent, hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.
- I agree that submission of this online form is a "transaction" subject to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the online form.

**Signature: \***

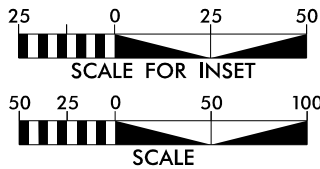
A rectangular box containing a handwritten signature in black ink that reads "Mack C. Riverbark, III".

**Submittal Date:** 7/6/2022

[Is filled in automatically once submitted.](#)

Submitted 7/6/2022

8/17/99

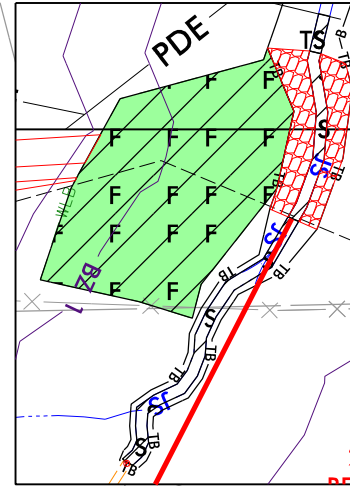


PERMIT DRAWING  
SHEET 111 OF 125

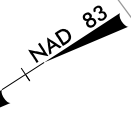
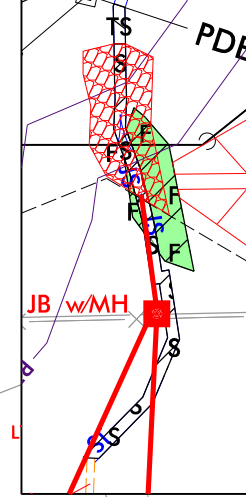


- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

INSET A

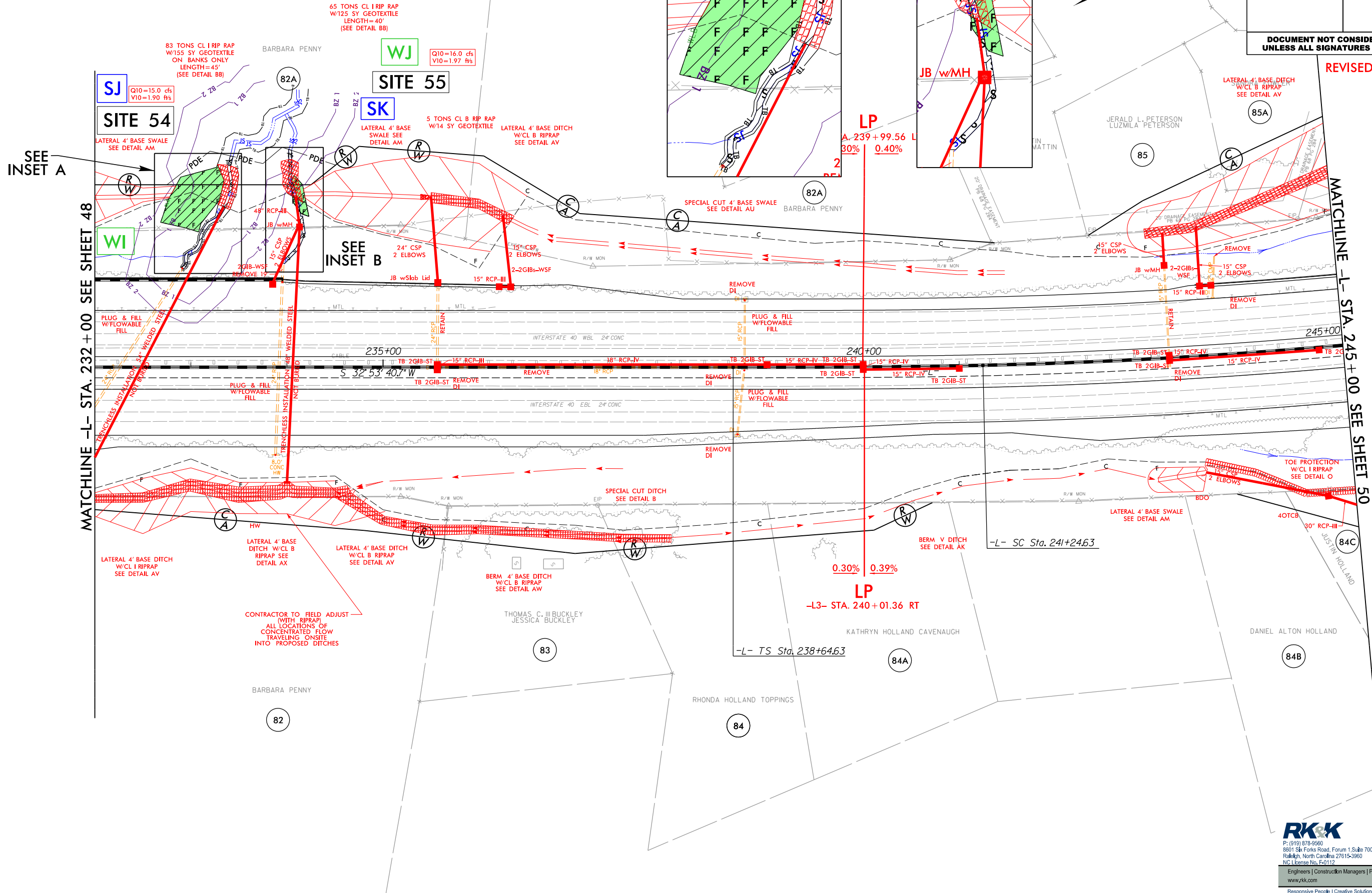


INSET B



|                                                                  |                     |
|------------------------------------------------------------------|---------------------|
| PROJECT REFERENCE NO.                                            | SHEET NO.           |
| 1-5111/1-4739                                                    | 49                  |
| R/W SHEET NO.                                                    |                     |
| ROADWAY DESIGN ENGINEER                                          | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION               |                     |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |                     |

REVISED 6/1/2022



R:\Hydraulics\PERMITS\_Environmental\Drawings\4C\Section 3\Wetland\15111-14739\_hyd\_4C\_wet\_psh49\_con.dgn



| WETLAND AND SURFACE WATER IMPACTS SUMMARY |                           |                               |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|-------------------------------------------|---------------------------|-------------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|-----------------------------------------|-------------------------------------|----------------------------|
| Site No.                                  | Station (From/To)         | Structure Size / Type         | WETLAND IMPACTS                 |                             |                             |                                      |                                | SURFACE WATER IMPACTS     |                       |                                         |                                     |                            |
|                                           |                           |                               | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 14A                                       | -L- 168+98-169+22 LT      | BANK STABILIZATION - SRM      |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 20                                      | 20                                  |                            |
| 14B                                       | -L- 172+50-172+75 LT      | BANK STABILIZATION - SRM      |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 20                                      | 31                                  |                            |
| 14C                                       | -L- 175+91-176+26 LT      | BANK STABILIZATION - SRM      |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 34                                      | 10                                  |                            |
| 15                                        | ONLY IN BUFFER SET        |                               |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 16A                                       | -Y5RPD- 22+19-22+29 RT    | EXIST. 24" CMP PLUG - SCF     |                                 |                             |                             |                                      |                                |                           | < 0.01                |                                         | 10                                  |                            |
| 16B                                       | -Y5RPD- 24+79 RT          | EXIST. 15" CMP PLUG - SCF     |                                 |                             |                             |                                      |                                |                           | < 0.01                |                                         | 15                                  |                            |
| 16C                                       | -Y5RPC- 53+31 LT          | 60" RCP - SCF, WQF            |                                 | < 0.01                      | < 0.01                      |                                      |                                | < 0.01                    | < 0.01                | 46                                      | 10                                  |                            |
| 17                                        | -Y5RCP- 54+38-54+68 RT    | 60" RCP - SOE, WQV            |                                 | < 0.01                      |                             |                                      |                                | < 0.01                    | < 0.01                | 12                                      | 21                                  |                            |
|                                           | -Y5RCP- 54+68-55+37 RT    | BANK STABILIZATION - SOE      |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 84                                      |                                     |                            |
|                                           | -L- 250+27 LT             | 60" WSP - SOE                 |                                 |                             |                             |                                      |                                | 0.01                      |                       | 87                                      |                                     |                            |
|                                           | -L- 250+27 LT             | BANK STABILIZATION - SOE      |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 40                                      |                                     |                            |
|                                           | -Y5RPA- 22+51-22+93 RT    | 60" WSP - SOE                 |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 49                                      | 5                                   |                            |
| 18                                        | -L- 256+39-257+51 LT & RT | DITCH, 66" WSP- SOI           | < 0.01                          |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 62                                      | 6                                   |                            |
|                                           | -L- 256+70 LT             | BANK STABILIZATION - SOI, WSD |                                 | 0.02                        | 0.02                        |                                      |                                | < 0.01                    | < 0.01                | 34                                      | 11                                  |                            |
| 19                                        | -L- 272+67-275+51 LT & RT | DITCH, 66" WSP - SNF          |                                 |                             |                             |                                      |                                | 0.02                      | < 0.01                | 134                                     | 14                                  |                            |
| 20                                        | -L- 281+93-284+50 LT & RT | CHANNEL CHANGE - SNH, WQE     |                                 | 0.01                        | < 0.01                      |                                      |                                | < 0.01                    | < 0.01                | 99                                      | 46                                  |                            |
|                                           | -L- 284+50 LT             | BANK STABILIZATION - SNH      |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 5                                       | 10                                  |                            |
|                                           | -L- 287+00 LT             | FILL SLOPE - WRX              |                                 |                             |                             | < 0.01                               |                                |                           |                       |                                         |                                     |                            |
| 21                                        | -L- 322+40-323+33 LT & RT | CHANNEL CHANGE, 72" RCP, SNY  |                                 |                             |                             |                                      |                                | 0.02                      | < 0.01                | 138                                     | 19                                  |                            |
| 22                                        | -L- 323+33-324+31 RT      | CHANNEL CHANGE - SOC          |                                 |                             |                             |                                      |                                | 0.01                      | < 0.01                | 108                                     | 22                                  |                            |
| 23A                                       | -L- 362+54-364+61 LT      | CHANNEL CHANGE - SLF / SEM    |                                 |                             |                             |                                      |                                | 0.01                      | < 0.01                | 204                                     | 23                                  |                            |
| 23B                                       | -L- 368+90-369+15 LT      | BANK STABILIZATION - SEM      |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 5                                       | 20                                  |                            |
| 23C                                       | -L- 374+40-379+01 LT      | CHANNEL CHANGE - SEM          |                                 |                             |                             |                                      |                                | 0.02                      | < 0.01                | 455                                     | 10                                  |                            |
|                                           | -L- 379+01-379+22 LT      | BANK STABILIZATION - SEM      |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 12                                      | 10                                  |                            |
| 24                                        | -L- 378+63-379+12 LT      | BANK STABILIZATION - SLI, WNQ | 0.02                            |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 56                                      | 15                                  |                            |
| TOTALS*:                                  |                           |                               | 0.02                            | 0.03                        | 0.02                        | < 0.01                               |                                | 0.15                      | 0.03                  | 1705                                    | 327                                 | 0                          |

\*Rounded totals are sum of actual impacts

REVISED 6/27/22

NOTES:

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
APRIL 2019  
WAKE AND JOHNSTON  
I-5111\_I-4739

| WETLAND AND SURFACE WATER IMPACTS SUMMARY |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|-------------------------------------------|----------------------|--------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|-----------------------------------------|-------------------------------------|----------------------------|
| Site No.                                  | Station (From/To)    | Structure Size / Type    | WETLAND IMPACTS                 |                             |                             |                                      |                                | SURFACE WATER IMPACTS     |                       |                                         |                                     |                            |
|                                           |                      |                          | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 54                                        | -L- 232+69-233+35 LT | 54" WSP - SJ, WI         | 0.06                            |                             |                             |                                      |                                | < 0.01                    |                       | 82                                      |                                     |                            |
|                                           | -L- 233+33-233+44 LT | BANK STABILIZATION - SJ  |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 45                                      | 10                                  |                            |
| 55                                        | -L- 233+94-234+19 LT | 48" RCP - SK, WJ         | < 0.01                          |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 118                                     | 10                                  |                            |
| 56                                        | -L- 246+22-246+77 RT | CHANNEL CHANGE - SEE     |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 102                                     | 10                                  |                            |
| 57                                        | -L- 246+73-247+65    | 60" WSP - SDD, WFF       | 0.01                            |                             |                             |                                      |                                | 0.02                      | < 0.01                | 238                                     | 10                                  |                            |
|                                           | -L- 247+59-247+78 LT | BANK STABILIZATION - SDD |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 55                                      | 9                                   |                            |
| 58                                        | -L- 269+75-270+63 LT | 36" WSP - SQ             |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 100                                     |                                     |                            |
|                                           | -L- 270+58-270+85 LT | BANK STABILIZATION - SQ  |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 33                                      | 27                                  |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                      |                          |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| TOTALS*:                                  |                      |                          | 0.09                            |                             |                             |                                      |                                | 0.06                      | < 0.01                | 773                                     | 76                                  | 0                          |
| PROJECT TOTALS*:                          |                      |                          | 0.78                            | 0.17                        | 0.11                        | 0.17                                 |                                | 1.55                      | 0.21                  | 7771                                    | 1483                                |                            |

NOTES:  
\*Rounded totals are sum of actual impacts

REVIS
08/28/2019, 12/12/19, 4/22/20, 7/2/20, 8/11/20, 7/13/21, 8/27/21, 11/19/21, 12/6/21, 6/1/22  
6/27/2022

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
DECEMBER 2021  
WAKE AND JOHNSTON  
I-5111\_I-4739  
  
SHEET 125 OF 125

8/17/99

BUFFER DRAWING  
SHEET 15 OF 52

MITIGABLE IMPACTS ZONE 1  
MITIGABLE IMPACTS ZONE 2



REVISED 6/27/2022

NAD 83

|                                                                       |  |                        |  |
|-----------------------------------------------------------------------|--|------------------------|--|
| PROJECT REFERENCE NO.                                                 |  | SHEET NO.              |  |
| 1-5/III/1-4739                                                        |  | 17                     |  |
| R/W SHEET NO.                                                         |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER                                            |  | HYDRAULICS<br>ENGINEER |  |
| <div>INCOMPLETE PLANS</div> <div>DO NOT USE FOR R/W ACQUISITION</div> |  |                        |  |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED      |  |                        |  |

MARTIN MARIETTA MATERIAL INC.  
MAPPED PER WAKE CO. G.I.S.

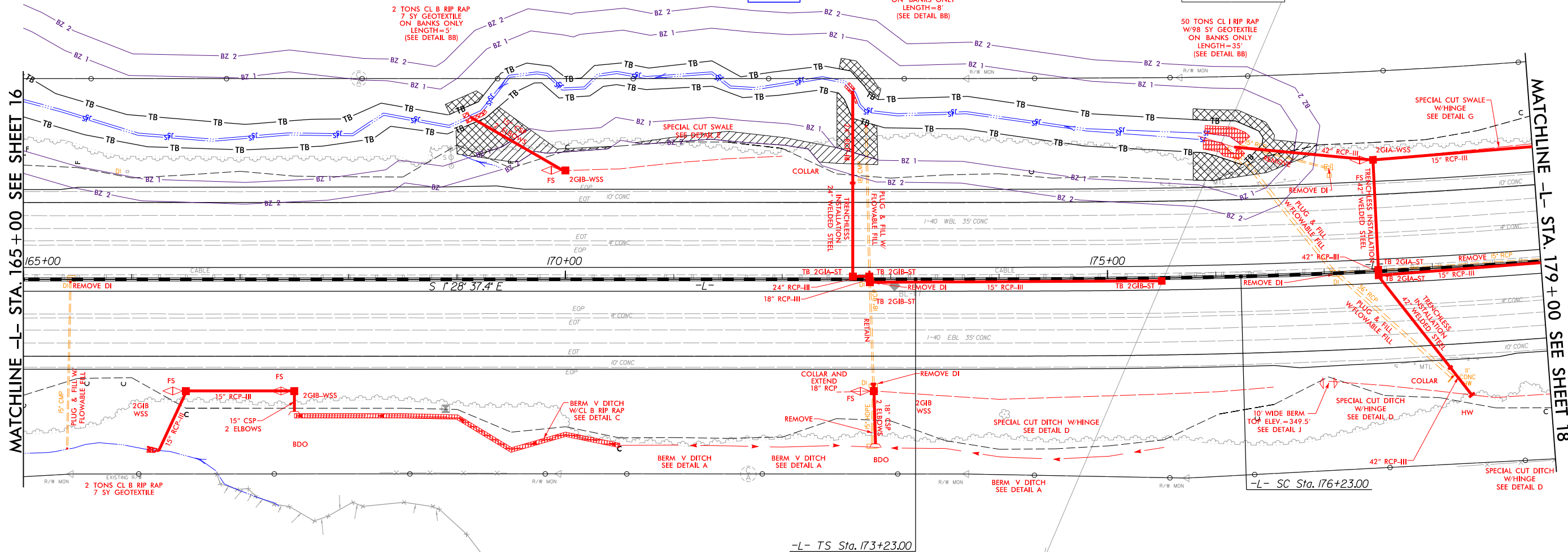
14

SITE 14B

SITE 14A

SRM

SITE 14C



GARNER ECONOMIC DEVELOPMENT CORP.

MARTIN MARIETTA MATERIAL INC.  
MAPPED PER WAKE CO. G.I.S.

14



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MATCHLINE -L- STA. 232+00 SEE SHEET 48

REVISÉ 6/1/2022

| RIPARIAN BUFFER IMPACTS SUMMARY |                                                                     |                               |               |        |                 |                           |                           |                          |                           |                           |                          |                           |                           |
|---------------------------------|---------------------------------------------------------------------|-------------------------------|---------------|--------|-----------------|---------------------------|---------------------------|--------------------------|---------------------------|---------------------------|--------------------------|---------------------------|---------------------------|
|                                 |                                                                     |                               | IMPACTS       |        |                 |                           |                           |                          |                           |                           |                          | BUFFER REPLACEMENT        |                           |
| Site No.                        | Station (From/To)                                                   | Structure Size / Type         | TYPE          |        |                 | ALLOWABLE                 |                           |                          | MITIGABLE                 |                           |                          |                           |                           |
|                                 |                                                                     |                               | ROAD CROSSING | BRIDGE | PARALLEL IMPACT | ZONE 1 (ft <sup>2</sup> ) | ZONE 2 (ft <sup>2</sup> ) | TOTAL (ft <sup>2</sup> ) | ZONE 1 (ft <sup>2</sup> ) | ZONE 2 (ft <sup>2</sup> ) | TOTAL (ft <sup>2</sup> ) | ZONE 1 (ft <sup>2</sup> ) | ZONE 2 (ft <sup>2</sup> ) |
| 14A                             | -L- 168+89-169+89 LT                                                | BANK STABILIZATION - SRM      |               |        | X               |                           |                           |                          | 2058                      | 1132                      | 3190                     |                           |                           |
| 14B                             | -L- 172+50-172+88 LT                                                | BANK STABILIZATION - SRM      |               |        | X               |                           |                           |                          | 1824                      | 1680                      | 3504                     |                           |                           |
| 14C                             | -L- 175+81-176+98 LT                                                | BANK STABILIZATION - SRM      |               |        | X               |                           |                           |                          | 2795                      | 277                       | 3071                     |                           |                           |
| 15                              | -L- 186+18-188+55 LT                                                | ROADWAY FILL - SRJ            |               |        | X               |                           |                           |                          | 0                         | 90                        | 90                       |                           |                           |
| 16A                             | -Y5RPD- 22+19-22+50 RT                                              | EXIST. 24" CMP PLUG           |               |        | X               |                           |                           |                          | 2032                      | 2231                      | 4263                     |                           |                           |
| 16B                             | -Y5RPD- 24+79 RT                                                    | EXIST. 15" CMP PLUG           |               |        | X               |                           |                           |                          | 613                       | 306                       | 918                      |                           |                           |
| 16C                             | -Y5RPC- 53+20 LT                                                    | 60" RCP - SCF, WQF            | X             |        |                 | 1489                      | 0                         | 1489                     |                           |                           |                          |                           |                           |
| 17                              | -Y5RPC- 54+38-55+47 RT,<br>-L- 250+27 LT,<br>-Y5RPA- 21+91-23+05 RT | BANK STABILIZATION - SOE, WQV | X             |        |                 |                           |                           |                          | 12732                     | 5068                      | 17800                    |                           |                           |
| 18                              | -L- 256+39-257+51 LT & RT                                           | DITCH, 66" WSP- SOI, WSD      | X             |        |                 | 6922                      | 3626                      | 10548                    |                           |                           |                          |                           |                           |
| 19                              | -L- 272+67-275+51 LT & RT                                           | DITCH, 66" WSP - SNF          | X             |        |                 | 8722                      | 5049                      | 13771                    |                           |                           |                          |                           |                           |
| 20                              | -L- 281+93-284+50 LT & RT                                           | CHANNEL CHANGE - SNH, WQE,WRX | X             |        |                 | 3953                      | 956                       | 4909                     |                           |                           |                          |                           |                           |
| 21                              | -L- 322+40-323+33 LT & RT                                           | CHANNEL CHANGE, 72" RCP, SNY  | X             |        |                 | 8579                      | 4452                      | 13031                    |                           |                           |                          |                           |                           |
| 22                              | -L- 323+52-325+32 RT                                                | CHANNEL CHANGE - SOC          |               |        | X               |                           |                           |                          | 3438                      | 1054                      | 4493                     |                           |                           |
| 23A                             | -L- 361+15-364+65 LT                                                | CHANNEL CHANGE - SLF / SEM    |               |        | X               |                           |                           |                          | 10192                     | 2082                      | 12274                    |                           |                           |
| 23B                             | -L- 368+90-369+15 LT                                                | BANK STABILIZATION - SEM      |               |        | X               |                           |                           |                          | 1037                      | 0                         | 1037                     |                           |                           |
| 23C                             | -L- 374+40-378+99 LT                                                | CHANNEL CHANGE - SEM          |               |        | X               |                           |                           |                          | 11509                     | 228                       | 11738                    |                           |                           |
| 24                              | -L- 378+63-379+21 LT                                                | BANK STABILIZATION - SLI      |               |        | X               |                           |                           |                          | 1108                      | 0                         | 1108                     |                           |                           |
| 25                              | -L- 373+59-374+08 RT                                                | ROADWAY FILL/ DITCH - SNM     |               |        | X               |                           |                           |                          | 61                        | 775                       | 836                      |                           |                           |
| 26A                             | -L- 381+90 RT                                                       | BANK STABILIZATION - SNK      |               |        | X               |                           |                           |                          | 422                       | 0                         | 422                      |                           |                           |
| 26B                             | -L- 385+01-385+81 RT                                                | ROADWAY FILL - SNK            |               |        | X               |                           |                           |                          | 1025                      | 0                         | 1025                     |                           |                           |
|                                 | -L- 385+80-386+06 RT                                                | BANK STABILIZATION - SNK      |               |        | X               |                           |                           |                          | 712                       | 0                         | 712                      |                           |                           |
| 27                              | -L- 386+06-386+88 RT                                                | BANK STABILIZATION - SNO      | X             |        |                 | 1765                      | 1079                      | 2844                     |                           |                           |                          |                           |                           |
| 28                              | -L- 387+14-387+47 LT                                                | 60" WSP - SEM                 |               |        | X               |                           |                           |                          | 1116                      | 0                         | 1116                     |                           |                           |
| TOTALS*:                        |                                                                     |                               |               |        |                 | 31431                     | 15161                     | 46592                    | 52673                     | 14924                     | 67597                    | 0                         | 0                         |

NOTES:

REVISED 12/12/2019  
8/3/2020  
6/27/2022

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
AUGUST 2020  
WAKE / JOHNSTON  
I-5111 / I-4739  
42346.3.1  
SHEET 47 OF 52

| RIPARIAN BUFFER IMPACTS SUMMARY |                           |                                   |               |        |                 |                           |                           |                          |                           |                           |                          |                           |                           |
|---------------------------------|---------------------------|-----------------------------------|---------------|--------|-----------------|---------------------------|---------------------------|--------------------------|---------------------------|---------------------------|--------------------------|---------------------------|---------------------------|
|                                 |                           |                                   | IMPACTS       |        |                 |                           |                           |                          |                           |                           |                          | BUFFER REPLACEMENT        |                           |
| Site No.                        | Station (From/To)         | Structure Size / Type             | TYPE          |        |                 | ALLOWABLE                 |                           |                          | MITIGABLE                 |                           |                          |                           |                           |
|                                 |                           |                                   | ROAD CROSSING | BRIDGE | PARALLEL IMPACT | ZONE 1 (ft <sup>2</sup> ) | ZONE 2 (ft <sup>2</sup> ) | TOTAL (ft <sup>2</sup> ) | ZONE 1 (ft <sup>2</sup> ) | ZONE 2 (ft <sup>2</sup> ) | TOTAL (ft <sup>2</sup> ) | ZONE 1 (ft <sup>2</sup> ) | ZONE 2 (ft <sup>2</sup> ) |
| 39                              | ONLY IN PERMIT SET        |                                   |               |        |                 |                           |                           |                          |                           |                           |                          |                           |                           |
| 40                              | -L- 99+00-107+44 LT & RT  | BRIDGE                            |               | X      |                 | 14449                     | 7030                      | 21479                    | 1104                      | 2993                      | 4097                     |                           |                           |
| 41                              | ONLY IN PERMIT SET        |                                   |               |        |                 |                           |                           |                          |                           |                           |                          |                           |                           |
| 42                              | -L- 106+42-107+44 RT      | ROADWAY FILL - SDN, WEN           |               |        | X               |                           |                           |                          | 7169                      | 5126                      | 12295                    |                           |                           |
| 43                              | -L- 109+63-114+04 RT      | ROADWAY FILL - SEO                |               |        | X               |                           |                           |                          | 7471                      | 4557                      | 12028                    |                           |                           |
| 44                              | -L- 110+99-115+29 LT & RT | 60" RCP- SEQ, WEO(1) <sup>1</sup> | X             |        |                 |                           |                           |                          | 12849                     | 6826                      | 19675                    |                           |                           |
| 45                              | -L- 143+25-145+12 LT      | 48" CSP - SEU                     | X             |        |                 |                           |                           |                          | 11384                     | 6539                      | 17923                    |                           |                           |
| 46                              | -L- 164+25-164+78 RT      | 30" CSP / 36" RCP - SEA, WOE      | X             |        |                 |                           |                           |                          | 10987                     | 7345                      | 18332                    |                           |                           |
| 47                              | -Y1RPA- 16+15-17+72 RT    | 54" CSP - SLV                     | X             |        |                 | 5620                      | 2993                      | 8613                     |                           |                           |                          |                           |                           |
| 48                              | ONLY IN PERMIT SET        |                                   |               |        |                 |                           |                           |                          |                           |                           |                          |                           |                           |
| 49                              | -L- 170+95-175+40 LT & RT | 66" WSP / 66" RCP - SLU, WC, WOB  | X             |        |                 |                           |                           |                          | 20163                     | 9924                      | 30087                    |                           |                           |
| 50                              | -L- 178+00-184+97 LT&RT   | 60" CSP, CHANNEL CHANGE - SLS,WOA | X             |        |                 |                           |                           |                          | 38684                     | 25634                     | 64318                    |                           |                           |
| 51                              | -L- 199+51-205+31         | ROADWAY FILL, 66" RCP - SLR, WNZ  | X             |        |                 |                           |                           |                          | 17316                     | 9930                      | 27247                    |                           |                           |
| 52                              | ONLY IN PERMIT SET        |                                   |               |        |                 |                           |                           |                          |                           |                           |                          |                           |                           |
| 53                              | -L- 209+51-217+29 LT & RT | 54" RCP / 66" RCP - MILL BRANCH   | X             |        |                 |                           |                           |                          | 27804                     | 17778                     | 45582                    |                           |                           |
| 54                              | -L- 232+37-234+37 LT      | 54" WSP - SJ, WI, WJ              | X             |        |                 | 8694                      | 5213                      | 13907                    |                           |                           |                          |                           |                           |
| 55                              | ONLY IN PERMIT SET        |                                   |               |        |                 |                           |                           |                          |                           |                           |                          |                           |                           |
| 56                              | ONLY IN PERMIT SET        |                                   |               |        |                 |                           |                           |                          |                           |                           |                          |                           |                           |
| 57                              | -L- 246+11-248+25 LT & RT | 60" WSP - SDD, WFF                | X             |        |                 |                           |                           |                          | 15680                     | 9394                      | 25074                    |                           |                           |
| 58                              | -L- 269+75-270+63 LT      | 36" WSP - SQ                      | X             |        |                 |                           |                           |                          | 10972                     | 7749                      | 18721                    |                           |                           |
|                                 |                           |                                   |               |        |                 |                           |                           |                          |                           |                           |                          |                           |                           |
|                                 |                           |                                   |               |        |                 |                           |                           |                          |                           |                           |                          |                           |                           |
| TOTALS*:                        |                           |                                   |               |        |                 | 28762                     | 15236                     | 43999                    | 181583                    | 113795                    | 295378                   | 0                         | 0                         |

|                  |        |       |        |        |        |        |   |   |
|------------------|--------|-------|--------|--------|--------|--------|---|---|
| PROJECT TOTALS*: | 115552 | 55966 | 171518 | 302860 | 169677 | 472537 | 0 | 0 |
|------------------|--------|-------|--------|--------|--------|--------|---|---|

NOTES:

1. SEQ under fill slope RT is a total take, 765sf of Mitigable BZ2 Impacts accounted for in totals but not hatched in plan view due to location outside PDE

REVISED 8/28/20198/27/2021

12/12/201911/19/2021

7/2/20201/6/2022

8/11/20206/27/2022

7/13/2021

8/11/2021

NC DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

JANUARY 2022

WAKE / JOHNSTON

I-5111 / I-4739

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