



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

J. ERIC BOYETTE  
SECRETARY

December 22, 2022

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

NC Division of Water Resources  
Transportation Permitting Branch  
1617 Mail Service Center  
Raleigh NC 27699-1617

ATTN: Mr. Monte Matthews  
NCDOT Coordinator

Ms. Amy Chapman  
NCDOT Coordinator

Subject: **Request for Modification for Section 404 Individual Permit and Section 401 Water Quality Certification** for the I-40/I-77 interchange improvements including I-40 from west of SR 2003 (Radio Road) to SR 2158 (Old Mocksville Road) and I-77 from south of SR 2321 (East Broad Street) to south SR 2171 (Jane Sowers Road) in Iredell County. Division 12, TIP I-3819B. Debit \$570.00 from WBS 34192.3.2

**Reference:** 1) Section 404 Individual Permit, Action ID No. SAW-2018-01504, issued January 21, 2020, modified February 25, 2021 and December 14, 2021; 2) Section 401 General Water Quality Certification No. WQC004203, NCDWR Project No. 20191006, issued November 19, 2019 and revised January 30, 2020, and modified February 12, 2021 and December 9, 2021.

Dear Sir and Madam:

The purpose of this letter is to request modification of the United States Army Corps of Engineers (USACE) Section 404 Individual Permit and associated North Carolina Division of Water Resources (NCDWR) Section 401 Water Quality Certification for the above referenced project.

Revisions resulting in changes to permitted impacts are proposed at two impact sites (Sites 22 and 23). Two new impact sites (Sites 22A and 22B) have been added within the footprint of the previously permitted Site 22. The changes to these sites are described below.

Previously permitted stream impacts included 3,305 linear feet of permanent stream impacts (which includes 1,139 linear feet of stream bank stabilization) and 482 linear feet (0.10 acre) of temporary stream impacts. All permitted stream impacts were related to roadway construction; there were no stream impacts related to utilities.

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

*Telephone:* (919) 707-6000  
*Fax:* (919) 250-4224  
*Customer Service:* 1-877-368-4968  
*Website:* [www.ncdot.gov](http://www.ncdot.gov)

*Location:*  
1000 BIRCH RIDGE DRIVE  
RALEIGH NC 27610

The total permanent wetland impacts previously permitted for roadway construction were 1.40 acres (including 1.07 acres for wetland fill and 0.33 acre for mechanized clearing). The total permanent wetland impacts previously permitted for utilities was 0.16 acre (including <0.01 acre for wetland fill and 0.16 acre for mechanized clearing). The previously permitted temporary wetland impacts for roadway construction was 2.64 acres. The previously permitted temporary wetland impacts for utilities was 0.27 acre. Hand clearing of <0.01 acre for utilities was also previously permitted.

The revised stream impacts for the project total 2,527 linear feet of permanent stream impacts (which includes 361 linear feet of stream bank stabilization impacts) and 469 linear feet (0.10 acre) of temporary stream impacts. All stream impacts are related to roadway construction; there are no stream impacts resulting from utilities. There are no changes to wetland impacts for roadway construction or utilities.

This modification will result in the reduction of 778 linear feet of permanent stream channel impacts, including a reduction of 778 linear feet of stream bank stabilization impacts. There is also a reduction of 13 linear feet of temporary stream channel impacts. Please see the enclosed revised permit drawings and roadway sheet. A summary of the changes is shown in Table 1 below. A narrative describing the revisions made to each permit impact site are presented below.

**Table 1 – Summary of changes to impacts\***

| <b>Impact Type</b>                | <b>Previously Permitted Impacts</b> | <b>Proposed Permit Modification</b> | <b>Difference</b> |
|-----------------------------------|-------------------------------------|-------------------------------------|-------------------|
| <b>Roadway Impacts</b>            |                                     |                                     |                   |
| Permanent Stream Impacts          | 3,305                               | 2527                                | -778              |
| <i>Bank Stabilization Impacts</i> | <i>1,139</i>                        | <i>361</i>                          | <i>-778</i>       |
| Temporary Stream Impacts          | 482                                 | 469                                 | -13               |
| Permanent Wetland Fill            | 1.07                                | 1.07                                | 0                 |
| Mechanized Clearing in Wetlands   | 0.33                                | 0.33                                | 0                 |
| Hand Clearing in Wetlands         | 0                                   | 0                                   | 0                 |
| Temporary Wetland Fill            | 2.64                                | 2.64                                | 0                 |
|                                   |                                     |                                     |                   |
| <b>Utility Impacts</b>            |                                     |                                     |                   |
| Permanent Wetland Fill            | < 0.01                              | < 0.01                              | 0                 |
| Mechanized Clearing in Wetlands   | 0.16                                | 0.16                                | 0                 |
| Hand Clearing in Wetlands         | < 0.01                              | < 0.01                              | 0                 |
| Temporary Wetland Fill            | 0.27                                | 0.27                                | 0                 |

\*Stream impacts are in linear feet. Wetland impacts are in acres.

**Permit Impact Site Modifications (shown in revised permit drawings):**

**Site 22**

The previously permitted design at Site 22 included 901 linear feet of permanent stream impact from bank stabilization (Class II riprap) along stream ST, 185 linear feet of permanent stream bed stabilization impacts, 45 linear feet of 9' x 11' reinforced concrete box culvert (RCBC) extension, and 225 linear feet of permanent new channel stream (i.e., channel change) impacts. Per guidance from NCDWR, the 901 linear feet of proposed rip rap stream bank stabilization along ST has been eliminated from Site 22; instead the project now includes stabilization of the banks with black willow (*Salix nigra*) live stakes. Live stakes were installed in spot locations along the stream banks and no grading of the stream banks was conducted, therefore this activity is not a Section 404-regulated activity. Live staking was also installed beyond the jurisdictional limits of the stream between the top of bank and the retaining wall in this area. All other impacts at Site 22 remain unchanged. Sites 22A and 22B, discussed below, include minor riprap stream

bank stabilization within the previously permitted Site 22.

Note that the 225 linear feet of new channel (i.e., channel change) impacts originally approved at Sta. 72+89 – 75+10-Y were inadvertently mislabeled as stream bank stabilization in the Wetland and Stream Impact Summary Table in the October 20, 2021 permit modification #2 submittal. Although incorrectly labeled, the overall amount of permanent stream impacts and stream bank stabilization impacts for the entire project were correctly calculated and reported. The attached Wetland and Stream Impact Summary Table has corrected the impact type for this location.

#### Site 22A

Site 22A is situated within the former stream bank stabilization portion of Site 22. At Site 22A, 20 linear feet of stream bank stabilization may be required at Stream ST to allow the contractor to stabilize the slope, if needed, following possible removal of an existing 15-inch reinforced concrete pipe (RCP).

#### Site 22B

Site 22B is situated within the former stream bank stabilization portion of Site 22. At Site 22B, 25 linear feet of stream bed stabilization and 25 linear feet of stream bank stabilization will be required at Stream ST, associated with the extension of a 48-inch RCP.

#### Site 23

The previously permitted design at Site 23 included 33 linear feet of temporary stream impact in stream ST to accommodate construction of the retaining wall along I-77. Per guidance provided in the field by NCDWR, the design at this site has been revised to include 78 linear feet of permanent stream impacts from stream bank stabilization and 20 linear feet (<0.01 acre) of temporary stream impacts.

Please see the enclosed revised permit drawings and roadway plans where revisions resulted in design and/or impact changes to permitted impact sites. Note that additional Sites 22A and 22B are included in the revised roadway permit drawings. A summary of the revised stream impact sites is shown in Table 2 below.

**Table 2: Changes at Sites 22, 22A, 22B, and 23**

| Permit Site | Stream Name/<br>NRTR ID  | Status/<br>Class | Permanent                        |                                     | Temporary<br>Channel<br>Impacts<br>ac<br>(lf) | USACE<br>Required<br>Mitigation<br>lf | NCDWR<br>Required<br>Mitigation<br>lf |
|-------------|--------------------------|------------------|----------------------------------|-------------------------------------|-----------------------------------------------|---------------------------------------|---------------------------------------|
|             |                          |                  | Channel<br>Impacts<br>lf<br>(ac) | Bank<br>Stabilization<br>lf<br>(ac) |                                               |                                       |                                       |
| 22          | UT to Fourth Creek<br>ST | Perennial<br>C   | 430<br>(0.18)<br>455<br>(0.18)   | 0<br>(0.0)<br>904<br>(0.34)         | --                                            | --                                    | --                                    |
| 22A         | UT to Fourth Creek<br>ST | Perennial<br>C   | --                               | 20<br>(<0.01)                       | --                                            | --                                    | --                                    |
| 22B         | UT to Fourth Creek<br>ST | Perennial<br>C   | 25<br>(<0.01)                    | 25<br>(<0.01)                       | --                                            | 25                                    | 25                                    |
| 23          | UT to Fourth Creek<br>ST | Perennial<br>C   | --                               | 78<br>(0.03)                        | (<0.01)<br>20<br>(<0.01)<br>(33)              | --                                    | --                                    |

**Revised Compensatory Mitigation**

The North Carolina Division of Mitigation Services (NCDMS) previously provided compensatory mitigation for 2,166 linear of permanent stream impacts and 1.56 acre of permanent riparian wetland impacts.

Of the revised permanent stream impacts totaling 2,527 linear feet for this modification, 361 linear feet are the result of bank stabilization and are not considered loss of waters and therefore do not require mitigation from USACE or NCDWR. After the revisions, permanent stream impacts that require mitigation from USACE for this project have not changed from the previous DMS mitigation acceptance. Permanent wetland impacts that require mitigation from USACE for this project have also not changed from the previous DMS mitigation acceptance.

No changes have occurred to special commitments for this project.

NCDOT requests to modify the permit for this project. Application is hereby made for modification of the USACE 404 permit and the 401 WQC from NCDWR. We have provided a method of debiting \$570.00 to be submitted to the NCDWR for processing the WQC modification for I-3819B, as noted in the subject line of this application.

A copy of this permit application and its distribution list will be posted in the NCDOT website at <http://connect.ncdot.gov/resources/Environmental>. Thank you for your assistance with this project. If you have any questions or need additional information, please contact Erin Cheely at either [ekcheely@ncdot.gov](mailto:ekcheely@ncdot.gov) or (919) 323-5192.

Sincerely,



Michael A. Turchy  
Environmental Coordination and Permitting Group Leader

cc:

NCDOT Permit Application Standard Distribution List

# 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:**

12/9/2021

## Project Contact Information

**Name:**

Erin Cheely

*Who is submitting the information?*

**Email Address: \***

ekcheely@ncdot.gov

## Project Information

**Existing ID #: \***

20191006

*20170001 (no dashes)*

**Existing Version: \***

3

*1*

**Project Name: \***

I-3819 B

**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-3819 B

**WBS#:**

34192.3.2

*(Applies to DOT projects only)*

**County (ies) \***

Iredell

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

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

I-3819B Modification Iredell December 22 2022.pdf 14.42MB

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

**Describe the attachments or add comments:**

Individual Permit Modification Request

\* ☒ 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 "Michael Turchy".

**Submittal Date:**

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

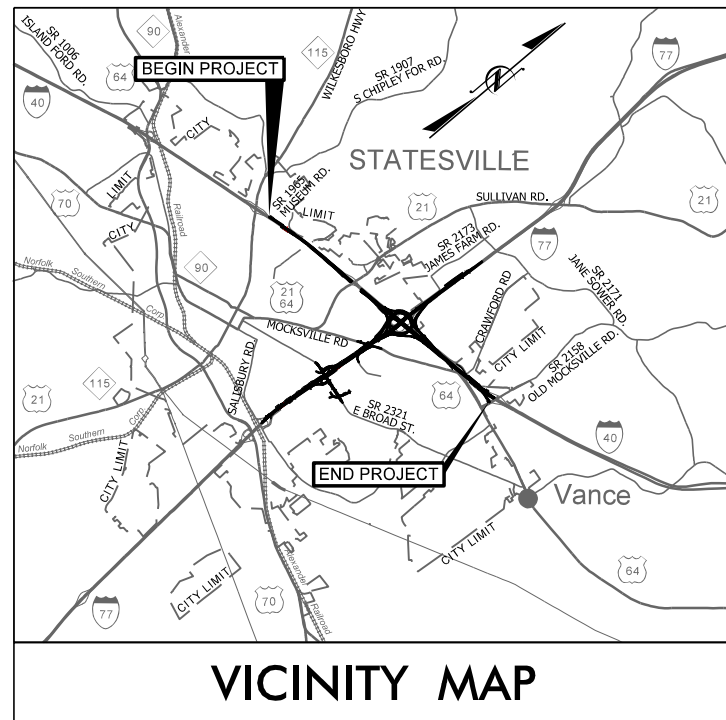
***IREDELL COUNTY***

**LOCATION: I-40/I-77 INTERCHANGE INCLUDING I-40 FROM WEST OF  
SR 2003 (RADIO RD.) TO SR 2158 (OLD MOCKSVILLE RD.) & I-77 FROM SOUTH OF  
SR 2321 (EAST BROAD ST.) TO SOUTH OF SR 2171 (JANE SOWERS RD.)**

***TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES,  
RETAINING WALLS, NOISE WALLS, AND TRAFFIC CONTROL***

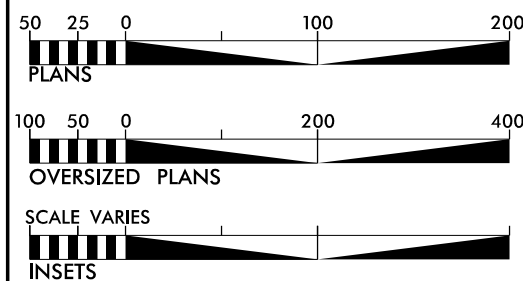
PERMIT DRAWING  
SHEET 1 OF 67

Rev. 11/29/2022



## VICINITY MAP

THIS PROJECT IS WITHIN THE MUNICIPAL  
BOUNDARIES OF THE CITY OF STATESVILLE  
AND THE TOWNSHIP OF BETHANY



**BEGIN SEGMENT "A"**  
**END SEGMENT "B"**  
**-L- STA. 92+00**

**BEGIN TIP PROJECT I-3819B**

**-L- STA. 7+83.00**

END SEGMENT "A"

**BEGIN SEGMENT "B"**  
**-Y N- STA. 175+00**

END CONSTRUCTION  
-Y- POT STA. 205+00.00

## WETLAND AND SURFACE WATER IMPACT PERMITS

DATE: November 29, 2022  
(Note: The sites highlighted in RED are modified in this submittal.)

BEGIN SEGMENT "A"  
END SEGMENT "B"  
-Y S- STA. 111+00

BEGIN SEGMENT "B"  
-Y S- STA. 25+00.09

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

THIS IS A CONTROLLED ACCESS PROJECT  
WITH ACCESS BEING LIMITED TO INTERCHANGES

**END SEGMENT "A"**  
**BEGIN SEGMENT "B"**  
**-L- STA. 178+50**

**END TIP PROJECT I-3819B**  
**-L- STA. 219+50.00**

**LANE**

**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION

## GRAPHIC SCALES

**SEE ABOVE**

| <b>DESIGN DATA</b>                |             |             |
|-----------------------------------|-------------|-------------|
|                                   | <b>I-40</b> | <b>I-77</b> |
| ADT 2018 =                        | 57,300      | 62,900      |
| ADT 2040 =                        | 72,500      | 77,500      |
| DHV =                             | 5,800       | 6,200       |
| D =                               | 55 %        | 55 %        |
| T =                               | 16 % *      | 19 % *      |
| V =                               | 60 MPH      | 60 MPH      |
| * TTST 13 + DUAL 3 (I-40)         |             |             |
| ** TTST 16 + DUAL 3 (I-77)        |             |             |
| <b>CLASSIFICATION: INTERSTATE</b> |             |             |

|                               |         |   |              |  |
|-------------------------------|---------|---|--------------|--|
| <b><i>PROJECT LENGTH</i></b>  |         |   |              |  |
| LENGTH ROADWAY TIP PROJECT    | I-3819B | = | 3.885        |  |
| LENGTH STRUCTURES TIP PROJECT | I-3819B | = | <u>0.124</u> |  |
| TOTAL LENGTH OF TIP PROJECT   | I-3819B | = | 4.009        |  |

*Prepared in the Office of:*

**WSP**

1001 Morehead Square Dr., Suite 610, Charlotte, NC 28203  
NC LIC NO. F-0165

2018 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
OCTOBER 30, 2018

**LETTING DATE:**  
**OCTOBER 30, 2018**

**CHRISTOPHER D. DAVIS, P.E.**  
*PROJECT ENGINEER*

**ERIC W. SECKINGER, P.E.**  
PROJECT DESIGN ENGINEER

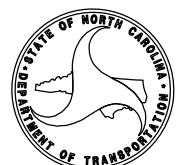
**HYDRAULICS ENGINEER**

**SIGNATURE:** \_\_\_\_\_ *P.E.*

**ROADWAY DESIGN  
ENGINEER**

**SIGNATURE:** \_\_\_\_\_ *P.E.*

## DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA



P.E.

---

STATE HIGHWAY DESIGN ENGINEER

**TIP PROJECT: I-3819B/U-6039**

**PROJECT: 34192.1.2**

PERMIT DRAWING  
SHEET 30 OF 67  
Rev. 11/29/2022

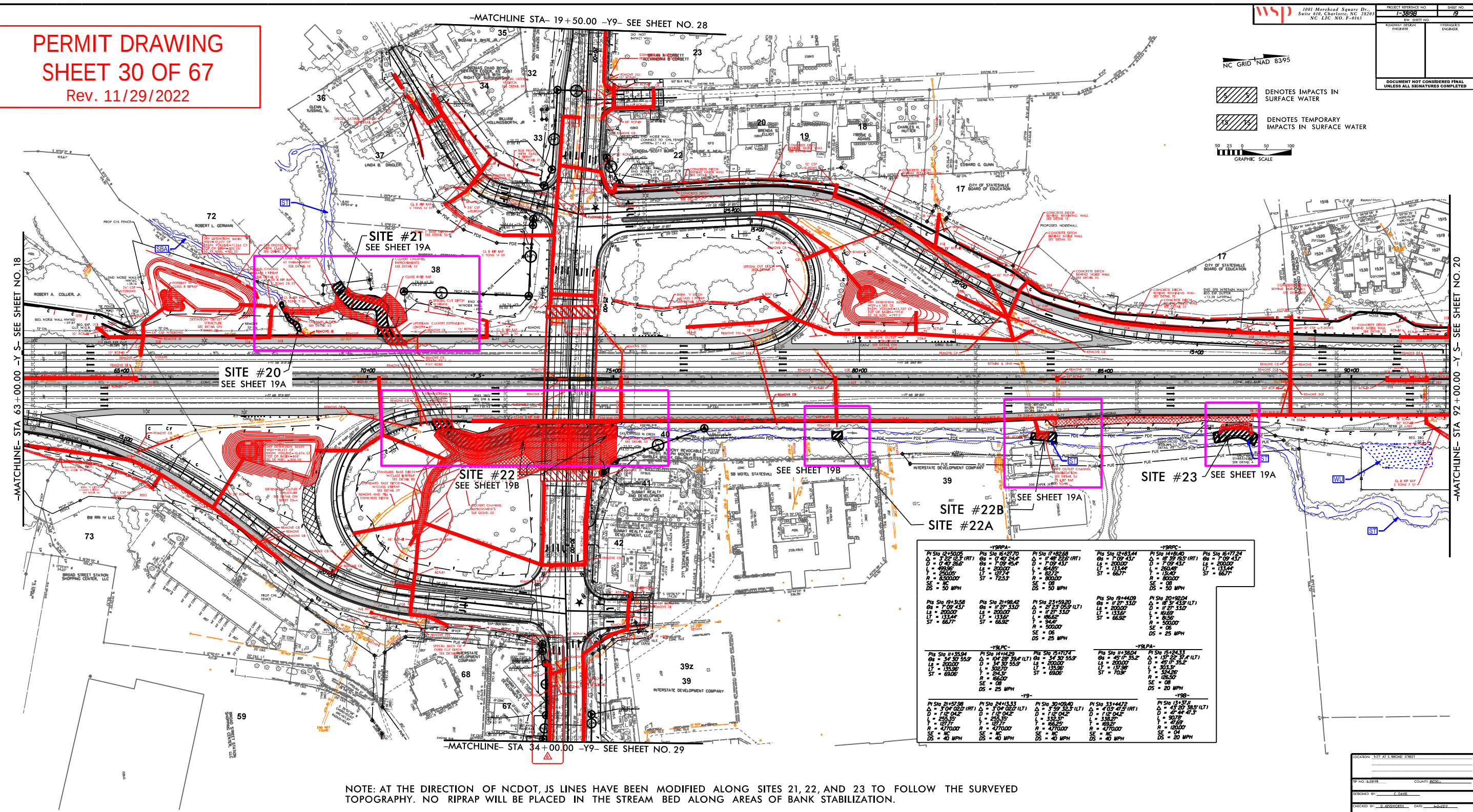
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| SHEET NO. 30                                                  |                |
| ROADWAY DESIGN ENGINEER                                       | PROJ. ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED |                |

NC GRID NAD 83/95

50 100 150  
GRAPHIC SCALE

/// DENOTES IMPACTS IN SURFACE WATER

/// DENOTES TEMPORARY IMPACTS IN SURFACE WATER



NOTE: AT THE DIRECTION OF NCDOT, JS LINES HAVE BEEN MODIFIED ALONG SITES 21, 22, AND 23 TO FOLLOW THE SURVEYED TOPOGRAPHY. NO RIPRAP WILL BE PLACED IN THE STREAM BED ALONG AREAS OF BANK STABILIZATION.

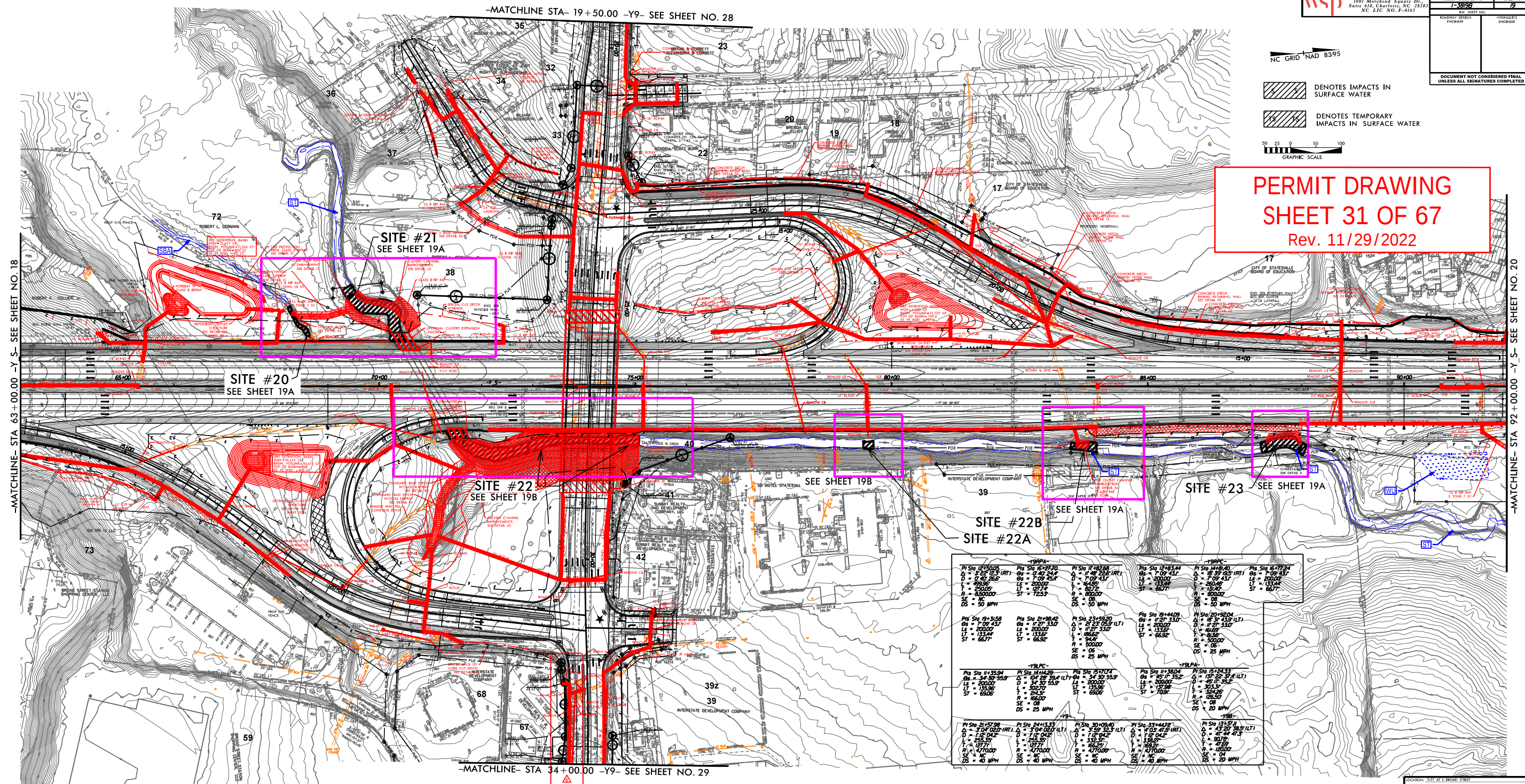
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|----------------------------------|----------------|
| LOCATION: 127 AT E. BROAD STREET |                |
| SP. NO. L-3018                   | COUNTY: JOSEPH |
| DESIGNED BY: C. DAVIS            |                |
| CHECKED BY: J. B. BARNETT        | DATE: 1-3-2019 |

NC GRID NAD 83/95

DENOTES IMPACTS IN  
SURFACE WATER  
DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER

50 100  
GRAPHIC SCALE

PERMIT DRAWING  
SHEET 31 OF 67  
Rev. 11/29/2022



NOTE: AT THE DIRECTION OF NCDOT, JS LINES HAVE BEEN MODIFIED ALONG SITES 21, 22, AND 23 TO FOLLOW THE SURVEYED TOPOGRAPHY. NO RIPRAP WILL BE PLACED IN THE STREAM BED ALONG AREAS OF BANK STABILIZATION.

LOCATION: 127 AT E. BROAD STREET  
SHEET NO. 1-3052 COUNTY: HUNTERDON  
DESIGNED BY: C. DATE: 11/29/2022  
CHECKED BY: R. APPROVED: DATE: 11/29/2022



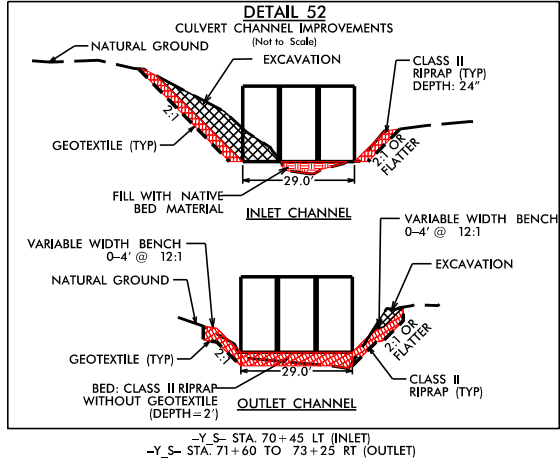
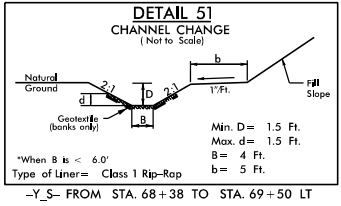
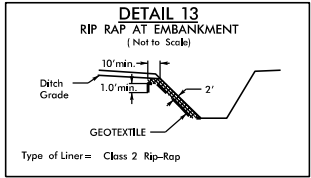
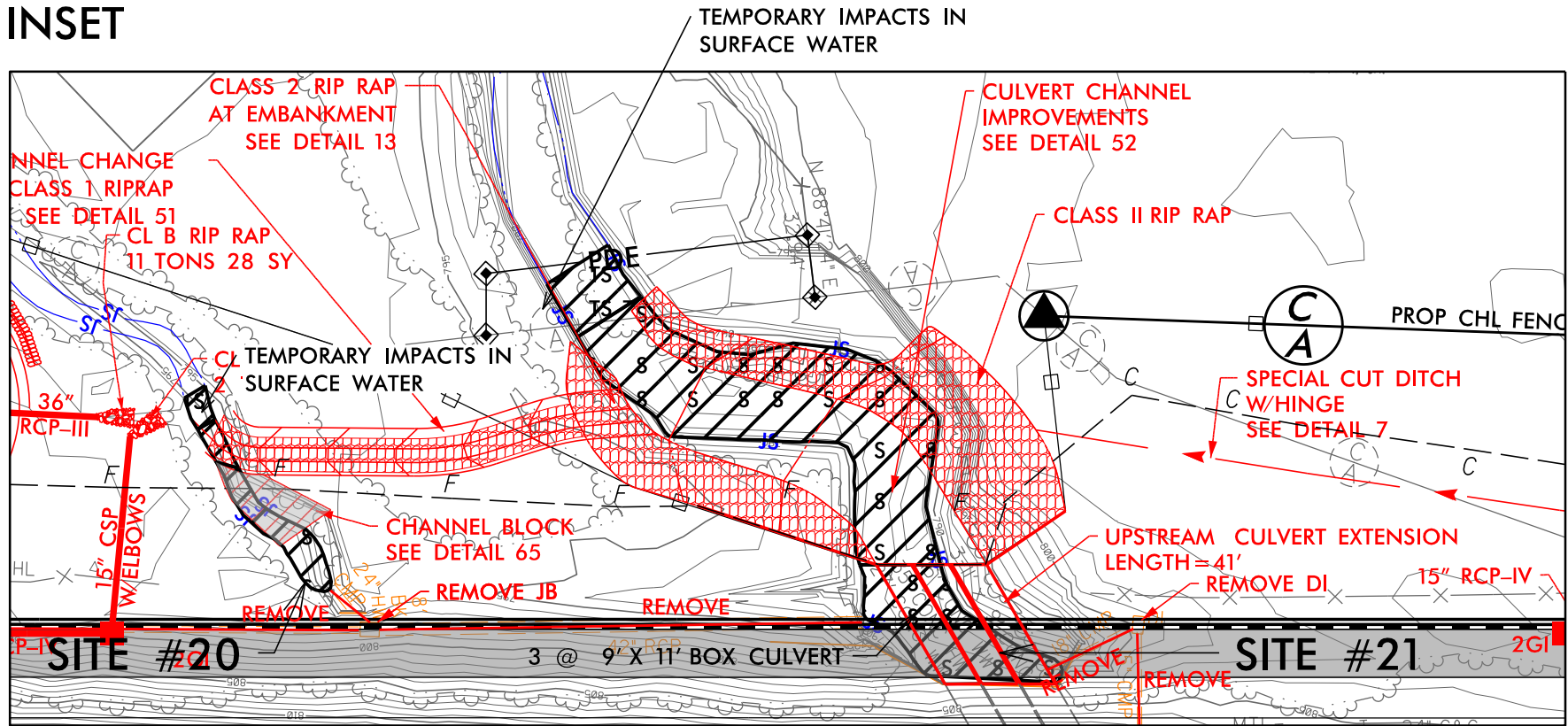
NOTE: AT THE DIRECTION OF NCDOT, JS LINES HAVE BEEN MODIFIED ALONG SITES 21, 22, AND 23 TO FOLLOW THE SURVEYED TOPOGRAPHY. NO RIPRAP WILL BE PLACED IN THE STREAM BED ALONG AREAS OF BANK STABILIZATION.

1001 Morehead Square Dr.,  
Suite 610, Charlotte, NC 28203  
NC LIC NO. F-0165

| PROJECT REFERENCE NO.                                            | SHEET NO.           |
|------------------------------------------------------------------|---------------------|
| 1-3819B                                                          | 19A                 |
| RW SHEET NO.                                                     |                     |
| ROADWAY DESIGN ENGINEER                                          | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |                     |

NC GRID NAD 83/95

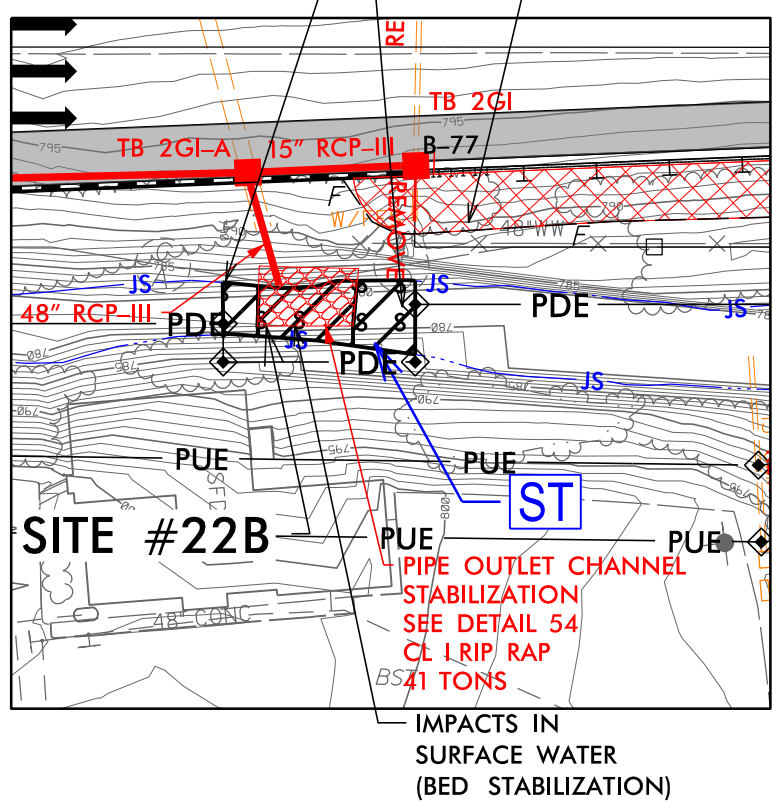
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PERMIT DRAWING  
SHEET 33 OF 67  
Rev. 11/29/2022

IMPACTS IN  
SURFACE WATER  
(BANK STABILIZATION)

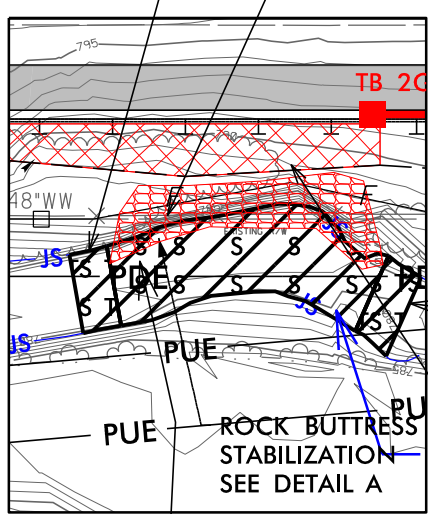
INSET



NON-STANDARD  
REINFORCED SOIL SLOPE  
(RSS) W/1.5:1 SLOPE

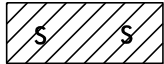
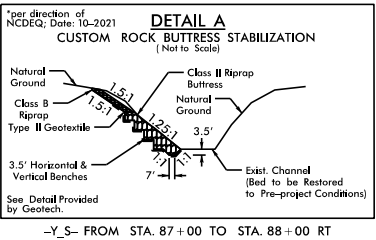
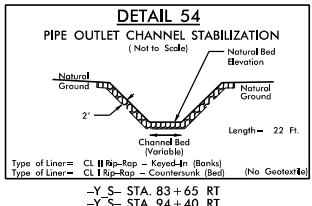
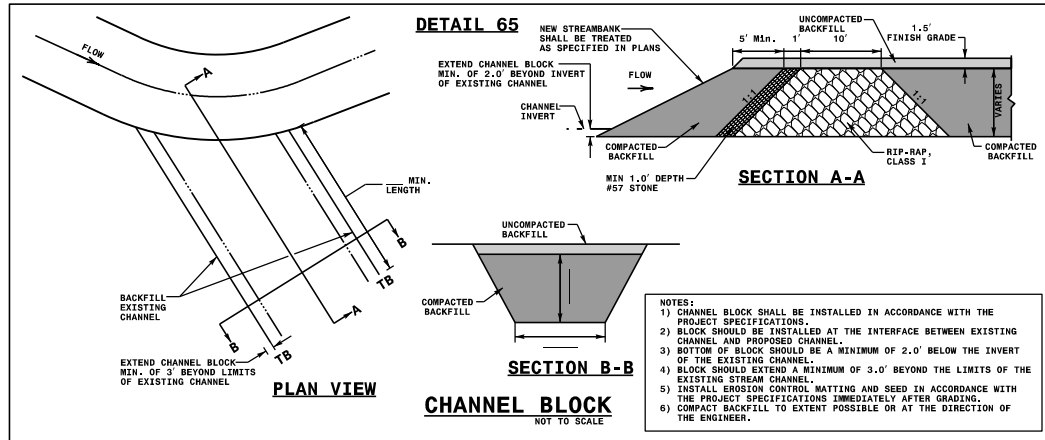
TEMPORARY IMPACTS IN  
SURFACE WATER

INSET



TEMPORARY IMPACTS IN  
SURFACE WATER

NON-STANDARD  
REINFORCED SOIL SLOPE  
(RSS) W/1.5:1 SLOPE



DENOTES IMPACTS IN  
SURFACE WATER



DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER



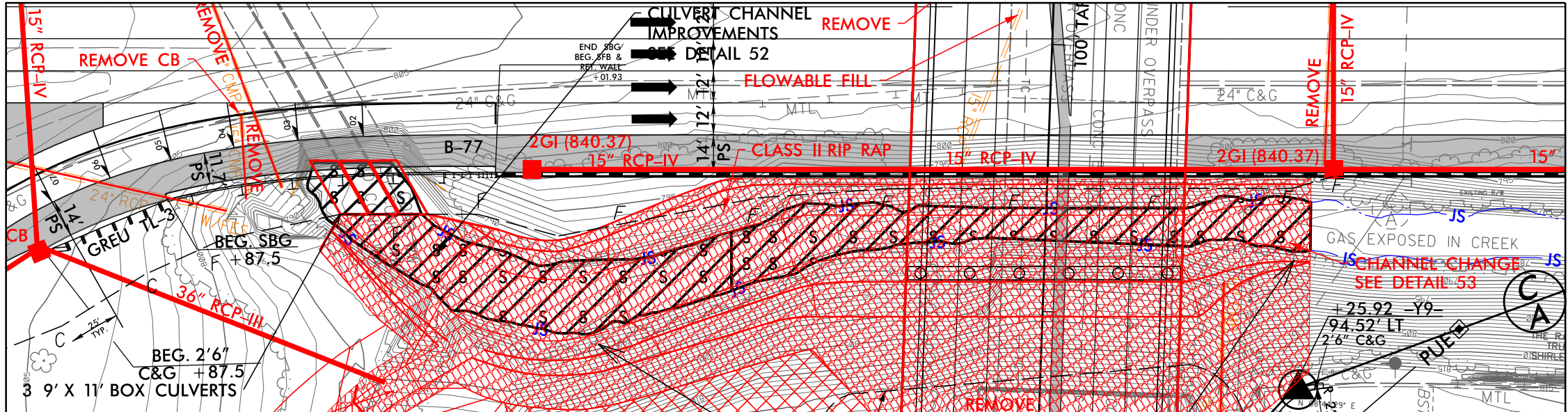


INSET

NOTE: AT THE DIRECTION OF NCDOT, JS LINES HAVE BEEN MODIFIED ALONG SITES 21, 22, AND 23 TO FOLLOW THE SURVEYED TOPOGRAPHY. NO RIPRAP WILL BE PLACED IN THE STREAM BED ALONG AREAS OF BANK STABILIZATION.

1001 Morehead Square Dr.,  
Suite 610, Charlotte, NC 28203  
NC LIC NO. F-0165

|                                                                  |                     |
|------------------------------------------------------------------|---------------------|
| PROJECT REFERENCE NO.                                            | SHEET NO.           |
| 1-3819B                                                          | 19B                 |
| R/W SHEET NO.                                                    |                     |
| ROADWAY DESIGN ENGINEER                                          | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |                     |

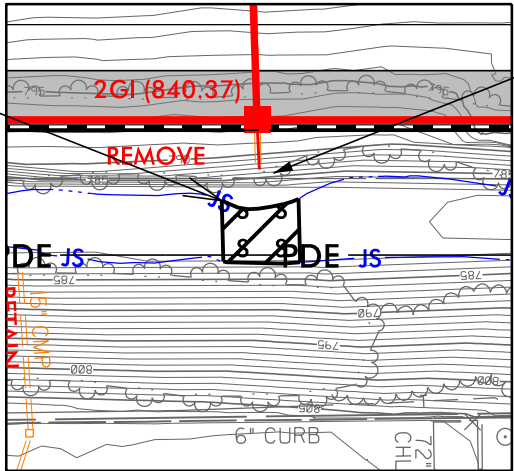


PERMIT DRAWING  
SHEET 35 OF 67  
Rev. 11/29/2022

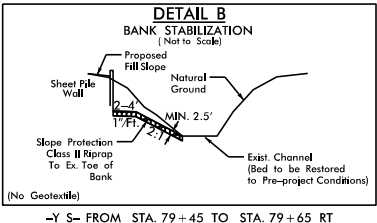
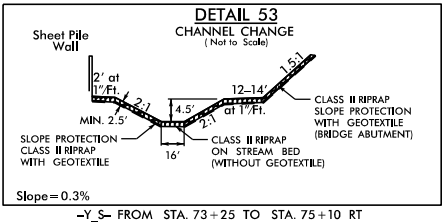
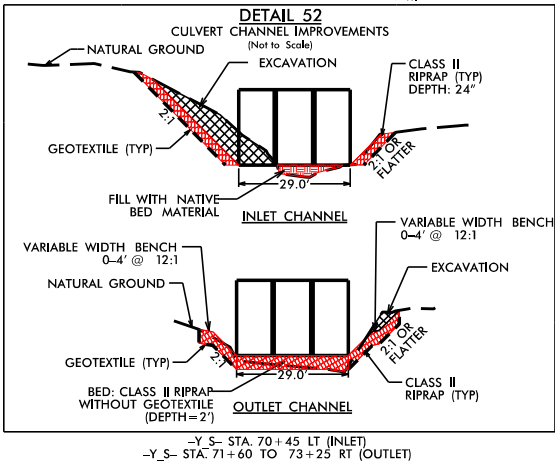
SITE #22A

INSET

SITE #22



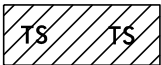
BANK STABILIZATION MAY BE NEEDED AFTER EXISTING PIPE IS REMOVED. USE DETAIL B AS NEEDED\*.



NC GRID NAD 83/95



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



11/29/2022  
C:\projects\19B\19B.dgn  
19B.dgn

| WETLAND AND SURFACE WATER IMPACTS SUMMARY |                   |                           |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|-------------------------------------------|-------------------|---------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|-----------------------------------------|-------------------------------------|----------------------------|
|                                           |                   |                           | WETLAND IMPACTS                 |                             |                             |                                      |                                | SURFACE WATER IMPACTS     |                       |                                         |                                     |                            |
| Site No.                                  | Station (From/To) | Structure Size / Type     | 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) |
| 18                                        | 47+50-Y-          | 54" RCP Extension         |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 39                                      |                                     |                            |
| 18                                        | 47+50-Y-          | Stream Bed Stabilization  |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 33                                      | 10                                  |                            |
| 19                                        | 46+00-Y-          | Roadway Fill              |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 34                                      |                                     |                            |
| 20                                        | 68+50-Y-          | New Channel               |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 13                                      | 10                                  |                            |
| 20                                        | 68+50-Y-          | Roadway Fill              |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 48                                      |                                     |                            |
| 21                                        | 70+20-Y-          | 3@9'X11" RCBC Extension   |                                 |                             |                             |                                      |                                | 0.02                      |                       | 39                                      |                                     |                            |
| 21                                        | 69+20-70+20-Y-    | Stream Bed Stabilization  |                                 |                             |                             |                                      |                                | 0.08                      | < 0.01                | 137                                     | 21                                  |                            |
| 22                                        | 71+30-71+90-Y-    | 3@9'X11" RCBC Extension   |                                 |                             |                             |                                      |                                | 0.02                      |                       | 45                                      |                                     |                            |
| 22                                        | 71+90-72+89-Y-    | Stream Bed Stabilization  |                                 |                             |                             |                                      |                                | 0.08                      |                       | 160                                     |                                     |                            |
| 22                                        | 72+89-75+10-Y-    | New Channel               |                                 |                             |                             |                                      |                                | 0.08                      |                       | 225                                     |                                     |                            |
| 22A                                       | 79+45-79+65-Y-    | Stream Bank Stabilization |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 20                                      |                                     |                            |
| 22B                                       | 83+50-83+59-Y-    | Stream Bank Stabilization |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 9                                       |                                     |                            |
| 22B                                       | 83+59-83+84-Y-    | Stream Bed Stabilization  |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 25                                      |                                     |                            |
| 22B                                       | 83+84-84+00-Y-    | Stream Bank Stabilization |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 16                                      |                                     |                            |
| 23                                        | 87+21-88+09-Y-    | Stream Bank Stabilization |                                 |                             |                             |                                      |                                | 0.03                      | < 0.01                | 78                                      | 20                                  |                            |
| 24                                        | 93+75-Y-          | 66" RCP Extension         |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 49                                      | 10                                  |                            |
| 25                                        | 94+50-Y-          | 66" RCP Extension         |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 10                                      |                                     |                            |
| 25                                        | 94+50-Y-          | Stream Bed Stabilization  |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 21                                      | 21                                  |                            |
| 26                                        | 116+70-120+10-Y-  | Roadway Fill              | 0.09                            |                             |                             | 0.04                                 |                                |                           |                       |                                         |                                     |                            |
| 27                                        | 210+00-Y-         | 60" RCP Extension         |                                 |                             |                             |                                      |                                | < 0.01                    |                       | 29                                      |                                     |                            |
| 27                                        | 210+00-Y-         | Stream Bed Stabilization  |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 19                                      | 10                                  |                            |
| 28                                        | 24+00-Y15RPB-     | Stream Bed Stabilization  |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 16                                      | 11                                  |                            |
| SHEET 66 SUBTOTAL                         |                   |                           | 0.98                            | 2.64                        | 0.00                        | 0.29                                 | 0.00                           | 0.16                      | 0.07                  | 1462                                    | 356                                 | 0.00                       |
| SHEET 67 SUBTOTAL                         |                   |                           | 0.09                            | 0.00                        | 0.00                        | 0.04                                 | 0.00                           | 0.38                      | 0.03                  | 1065                                    | 113                                 | 0.00                       |
| PROJECT TOTALS*:                          |                   |                           | 1.07                            | 2.64                        | 0.00                        | 0.33                                 | 0.00                           | 0.54                      | 0.10                  | 2527                                    | 469                                 | 0.00                       |

\*Rounded totals are sum of actual impacts for entire project area

NC DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

11/29/2022

IREDELL

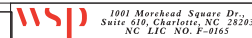
TIP NO. I-3819B

WBS NO.

SHEET67OF67



-MATCHLINE- STA 34+00.00 -Y9- SEE SHEET NO. 29



|                                                                                     |  |                                                                                     |  |
|-------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------|--|
| PROJECT ESTIMATION NO.                                                              |  | SHEET NO.                                                                           |  |
| 1-3819B                                                                             |  | 19                                                                                  |  |
| REV. SHEET NO.                                                                      |  |                                                                                     |  |
| ROADWAY DESIGN<br>ENGINEER                                                          |  | HYDRAULICS<br>ENGINEER                                                              |  |
|  |  |  |  |
| <p><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p>     |  |                                                                                     |  |

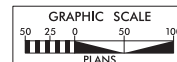


ESTIMATES  
ASSOCIATION  
069 00 00

—MATCHLINE— STA 92 + 00.00 —Y S— SEE SHEET NO. 20

Bank Stabilization limits revised.  
See permit drawings for additional  
information

| -Y9RPA-                      |                               |                              |  | -Y9RPC-                      |                               |     |    |
|------------------------------|-------------------------------|------------------------------|--|------------------------------|-------------------------------|-----|----|
| Pis Sta 12+50.05             | Pis Sta 16+27.70              | Pi Sta 17+82.68              |  | Pis Sta 12+83.44             | Pis Sta 14+81.40              | Pis |    |
| $\Delta$ = 7' 42" 55.9" (RT) | $\Delta$ = 4' 04" 24.4"       | $\Delta$ = 11' 28" 22.1"     |  | $\Delta$ = 7' 09" 43.1"      | $\Delta$ = 18' 39" 30.7" (RT) |     | LT |
| Ls = 200.00                  | Ls = 200.00                   | Ls = 200.00                  |  | Ls = 200.00                  | Ls = 200.00                   |     | ST |
| LT = 139.66                  | LT = 139.66                   | LT = 139.66                  |  | LT = 133.44                  | LT = 133.44                   |     | SE |
| ST = 66.71                   | ST = 66.71                    | ST = 66.71                   |  | ST = 66.71                   | ST = 66.71                    |     | SE |
| R = 8,500.00'                | ST = 72.53'                   | R = 8,000.00'                |  |                              | R = 8,000.00'                 |     | SE |
| SE = 06                      | SE = 06                       | SE = 06                      |  |                              | SE = 06                       |     | SE |
| DS = 50 MPH                  | DS = 50 MPH                   | DS = 50 MPH                  |  |                              | DS = 50 MPH                   |     | DS |
|                              |                               |                              |  |                              |                               |     |    |
| Pis Sta 19+31.58             | Pis Sta 21+98.42              | Pi Sta 23+59.20              |  | Pis Sta 19+44.09             | Pis Sta 20+92.04              | Pis |    |
| $\Delta$ = 7' 12" 33.0"      | $\Delta$ = 7' 12" 33.0"       | $\Delta$ = 7' 12" 33.0" (LT) |  | $\Delta$ = 18' 37" 33.0"     | $\Delta$ = 18' 37" 43.9" (LT) |     | LT |
| Ls = 200.00                  | Ls = 200.00                   | Ls = 200.00                  |  | LT = 113.61                  | LT = 113.61                   |     | ST |
| LT = 133.44                  | LT = 133.44                   | LT = 133.44                  |  | ST = 66.92                   | ST = 66.92                    |     | SE |
| ST = 66.71                   | ST = 66.92                    | R = 500.00'                  |  |                              | R = 500.00'                   |     | SE |
|                              |                               | R = 25.00'                   |  |                              | R = 25.00'                    |     | SE |
|                              |                               | DS = 25 MPH                  |  |                              | DS = 25 MPH                   |     | DS |
|                              |                               |                              |  |                              |                               |     |    |
| -Y9LPC-                      |                               |                              |  | -Y9LPA-                      |                               |     |    |
| Pis Sta 11+35.94             | Pi Sta 14+14.28               | Pis Sta 15+77.74             |  | Pi Sta 11+38.04              | Pis Sta 15+24.33              | Pis |    |
| $\Delta$ = 5' 47" 55.9"      | $\Delta$ = 10' 47" 55.9" (LT) | $\Delta$ = 5' 47" 55.9"      |  | $\Delta$ = 45' 45" 35.2"     | $\Delta$ = 45' 45" 35.2" (LT) |     | LT |
| Ls = 200.00                  | Ls = 200.00                   | Ls = 200.00                  |  | LT = 127.08                  | LT = 127.08                   |     | ST |
| LT = 135.66                  | LT = 130.70                   | LT = 135.96                  |  | LT = 303.11                  | LT = 303.11                   |     | SE |
| ST = 65.06                   | ST = 64.30                    | ST = 63.08                   |  | ST = 70.97                   | ST = 70.97                    |     | SE |
|                              | R = 160.00'                   |                              |  |                              | R = 126.50'                   |     | SE |
|                              | SE = 08                       |                              |  |                              | SE = 08                       |     | SE |
|                              | DS = 25 MPH                   |                              |  |                              | DS = 20 MPH                   |     | DS |
|                              |                               |                              |  |                              |                               |     |    |
| -Y9-                         |                               |                              |  | -Y9B-                        |                               |     |    |
| Pi Sta 21+57.98              | Pi Sta 24+33.33               | Pi Sta 30+09.40              |  | Pi Sta 33+44.72              | Pi Sta 33+37.41               | Pis |    |
| $\Delta$ = 3' 04" 02.7" (RT) | $\Delta$ = 1' 02" 04.2" (LT)  | $\Delta$ = 3' 59" 35.9" (LT) |  | $\Delta$ = 1' 02" 47.3" (RT) | $\Delta$ = 1' 02" 47.3" (RT)  |     | LT |
| Ls = 255.33                  | Ls = 171.04                   | Ls = 255.33                  |  | Ls = 138.27                  | Ls = 138.27                   |     | ST |
| LT = 125.39                  | LT = 125.39                   | LT = 125.39                  |  | LT = 166.92                  | LT = 166.92                   |     | SE |
| R = 4770.00'                 | R = 4770.00'                  | R = 4770.00'                 |  | R = 4770.00'                 | R = 4770.00'                  |     | SE |
| SE = 04                      | SE = 04                       | SE = 04                      |  | SE = 04                      | SE = 04                       |     | SE |
| DS = 40 MPH                  | DS = 40 MPH                   | DS = 40 MPH                  |  | DS = 40 MPH                  | DS = 20 MPH                   |     | DS |



LOCATION: I-77 AT E. BROAD STREET

TIP NO.: 38198 COUNTY: REDELL

DESIGNED BY: C. DAVIS

CHECKED BY: D. AINSWORTH      DATE: 4-2-2019