

# 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 Information

Before submitting this form please ensure you have submitted the Pre-Filing Meeting Request Form as we will not be able to accept your application without this important first step. The Pre-Filing Meeting Request Form is used in accordance with 40 C.F.R. Section 121.4(a) "At least 30 days prior to submitting a certification request, the project proponent shall request a pre-filing meeting with the certifying agency" and in accordance with 40 C.F.R. Section 121.5(b)(7), and (c)(5) all certification requests shall include documentation that a pre-filing meeting request was submitted to the certifying authority at least 30 days prior to submitting the certification request. Click [here](#) to read more information on when this form is needed prior to application submission or [here](#) to view the form.

**Attach documentation of Pre-Filing Meeting Request here:** \* 401 Pre-filing\_ R- 216.4.. 5021.pdf

**Date for Meeting Request** \* 10/8/2020

| ID# | Version |
|-----|---------|
|-----|---------|

## Project Contact Information

**Name:** Gordon Cashin  
*Who is submitting the information?*

**Email Address:** \* gcashin@ncdot.gov

## Project Information

|                         |                            |
|-------------------------|----------------------------|
| <b>Existing ID #:</b> * | <b>Existing Version:</b> * |
| 20181014                | 1                          |
| 20170001 (no dashes)    | 1                          |

**Project Name:** \* NC 211 Brunswick County, R-5021

**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#:**

R-5021

**WBS#:**

41582.1.1

(Applies to DOT projects only)

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**County (ies) \***

Brunswick

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

Click the upload button or drag and drop files here to attach document

|                                         |         |
|-----------------------------------------|---------|
| R-5021 Permit Drawings complete.pdf     | 38.66MB |
| R-5021 Permit Drawings revised only.pdf | 6.48MB  |
| R-5021 Utility Drawings permitted.pdf   | 10.1MB  |
| R-5021 Additional - NRW - CF 05.pdf     | 558.9KB |

Only pdf or kmz files are accepted.

**Describe the attachments or add comments:**

USACE Action ID: SAW-2007-03647-010

Modification/Reissuance Request as GP 50

The project plans have been revised from the original permit. These revisions incorporate 5 ft of mechanized clearing (MC) on the backslope of the 4 ft base ditch for constructability purposes. The additional MC added 0.09 acres of permanent impact to the project so a revised acceptance letter from DMS is required. Ten of the project permit drawings have been revised to reflect these changes: 29, 30, 35, 36, 47, 48, 52, 53, 94 and 95, of 95.

T&E surveys for will be updated for rough-leaved loosestrife and Cooley's meadowrue in the appropriate survey window prior to construction.

\* ☒ 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: \***

*Hack C. Riverbank, III*



**Submittal Date:**

Is filled in automatically once submitted.

**From:** [Herndon, T. Mason](#)  
**To:** [Rivenbark, Chris](#)  
**Subject:** FW: R-5021  
**Date:** Monday, November 23, 2020 7:55:24 AM  
**Attachments:** [image001.png](#)

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**Mason Herndon**  
Environmental Program Supervisor  
Division 3  
NCDOT- Division of Highways

910-341-2036 office  
910-604-0050 mobile  
[tmherndon@ncdot.gov](mailto:tmherndon@ncdot.gov)

5501 Barbados Blvd  
Castle Hayne, NC 28429



*Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties*

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**From:** Steenhuis, Joanne <[joanne.steenhuis@ncdenr.gov](mailto:joanne.steenhuis@ncdenr.gov)>  
**Sent:** Thursday, October 8, 2020 8:43 AM  
**To:** Herndon, T. Mason <[tmherndon@ncdot.gov](mailto:tmherndon@ncdot.gov)>  
**Subject:** RE: R-5021

Mason,  
I will put this in our data base as your 30 day meeting request notice. You will most likely need to reference today's date in your application. Thanks!

---

**From:** Herndon, T. Mason <[tmherndon@ncdot.gov](mailto:tmherndon@ncdot.gov)>  
**Sent:** Thursday, October 8, 2020 8:05 AM  
**To:** Steenhuis, Joanne <[joanne.steenhuis@ncdenr.gov](mailto:joanne.steenhuis@ncdenr.gov)>  
**Subject:** R-5021

Good Morning, just a reminder that we discussed the renewal of the R-5021 expired permit yesterday as our 30 day pre-filing. Thanks!

**Mason Herndon**  
Environmental Program Supervisor  
Division 3

NCDOT- Division of Highways

910-341-2036 office

910-604-0050 mobile

[tmherndon@ncdot.gov](mailto:tmherndon@ncdot.gov)

5501 Barbados Blvd

Castle Hayne, NC 28429



*Email correspondence to and from this address is subject to the  
North Carolina Public Records Law and may be disclosed to third parties*

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Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.



NORTH CAROLINA  
Environmental Quality

ROY COOPER  
Governor

MICHAEL S. REGAN  
Secretary

TIM BAUMGARTNER  
Director

March 12, 2021

Mr. Philip S. Harris, P.E., CPM  
Environmental Analysis Unit  
North Carolina Department of Transportation  
1598 Mail Service Center  
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: DMS Mitigation Acceptance Letter:

**R-5021**, NC 211 from SR 1500 (Midway Road) to NC 87, Brunswick County

References: USACE 404 General Permit 31 issued October 2, 2018 (USACE Action ID 2007-03647)

NCDWR 401 Water Quality Certification issued September 10, 2018 (ID 2018-1014)

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the additional compensatory wetland mitigation for the subject project. Based on the information supplied by you on March 4, 2021, the additional impacts are located in CU 03030005 of the Cape Fear River basin in the Southern Outer Coastal Plain (SOCP) Eco-Region, and are as follows:

**Table 1 – Additional Impacts (feet / acres)**

| Cape Fear<br>03030005<br>SOCP | Stream |      |      | Wetlands |                  |                  | Buffer (Sq. Ft.) |        |
|-------------------------------|--------|------|------|----------|------------------|------------------|------------------|--------|
|                               | Cold   | Cool | Warm | Riparian | Non-<br>Riparian | Coastal<br>Marsh | Zone 1           | Zone 2 |
| Impacts (feet/acres)          | 0      | 0    | 0    | 0        | 0.10             | 0                | 0                | 0      |

\*NOTE: Some of the stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

This additional impact and associated mitigation needs were not projected by the NCDOT in the 2021 impact data. DMS is currently providing stream and wetland mitigation for the impacts associated with this project located in cataloging unit 03030005 of the Cape Fear River basin and 03040207 of the Lumber River Basin as required by the 404 and 401 permits issued in October 2018 and September 2018, respectively, as shown in the below table (in mitigation credits):



**Table 2 – Current Permitted Impacts and Associated Mitigation Requirements provided by DMS (based on issued permits) and Revised Anticipated Impacts (based on mitigation request)**

| Service Area          | Impact Type                 | Total Permitted Impacts (feet / acre) | Mitigation Provided by DMS per Issued Permits (Credits) | Additional Impact (for approval) | Revised Total Impacts* |
|-----------------------|-----------------------------|---------------------------------------|---------------------------------------------------------|----------------------------------|------------------------|
| Cape Fear<br>03030005 | Stream – Warm               | 825.0                                 | 1,650.0                                                 | 0.00                             | 825.0                  |
|                       | Riparian Wetland            | 1.60                                  | 3.20                                                    | 0.00                             | 1.60                   |
|                       | <b>Non-Riparian Wetland</b> | <b>12.1</b>                           | <b>24.20</b>                                            | <b>0.10</b>                      | <b>12.20</b>           |
| Lumber<br>03040207    | Stream – Warm               | 306.0                                 | 612.0                                                   | 0.00                             | 306.0                  |
|                       | Riparian Wetland            | 1.60                                  | 3.20                                                    | 0.00                             | 1.60                   |
|                       | Non-Riparian Wetland        | 3.90                                  | 7.80                                                    | 0.00                             | 3.90                   |

\*Some of the additional wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details. DMS will provide the amount of mitigation as determined by the regulatory agencies.

DMS commits to implementing additional sufficient compensatory wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,



James B. Stanfill  
Asset Management Supervisor

cc: Mr. Monte Matthews, USACE – Raleigh Regulatory Field Office  
Ms. Amy Chapman, Division of Water Resources, Wetlands/401 Unit  
File: R-5021 Additional



TIP PROJECT: R-5021

CONTRACT:

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

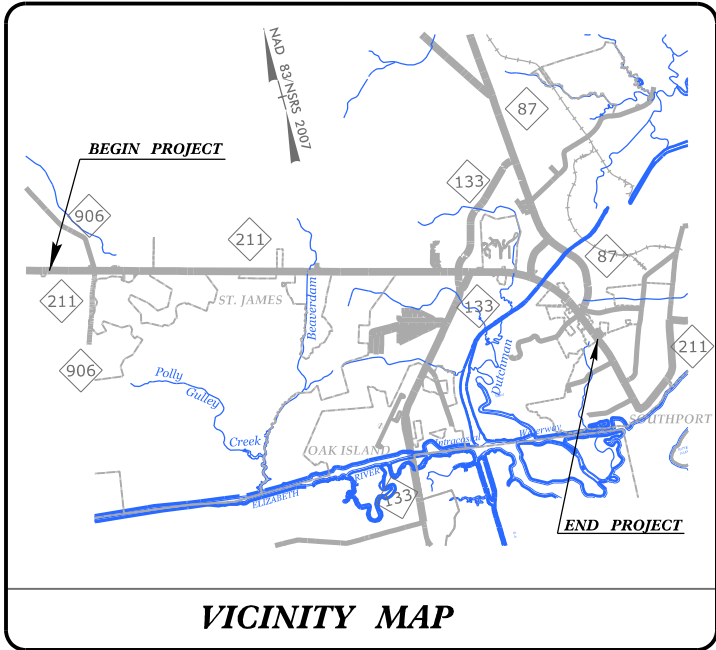
LOCATION: NC 211 FROM WEST OF NC 906 (MIDWAY ROAD)  
TO EAST OF NC 87

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERTS & SIGNALS

WETLAND AND SURFACE WATER IMPACTS PERMIT

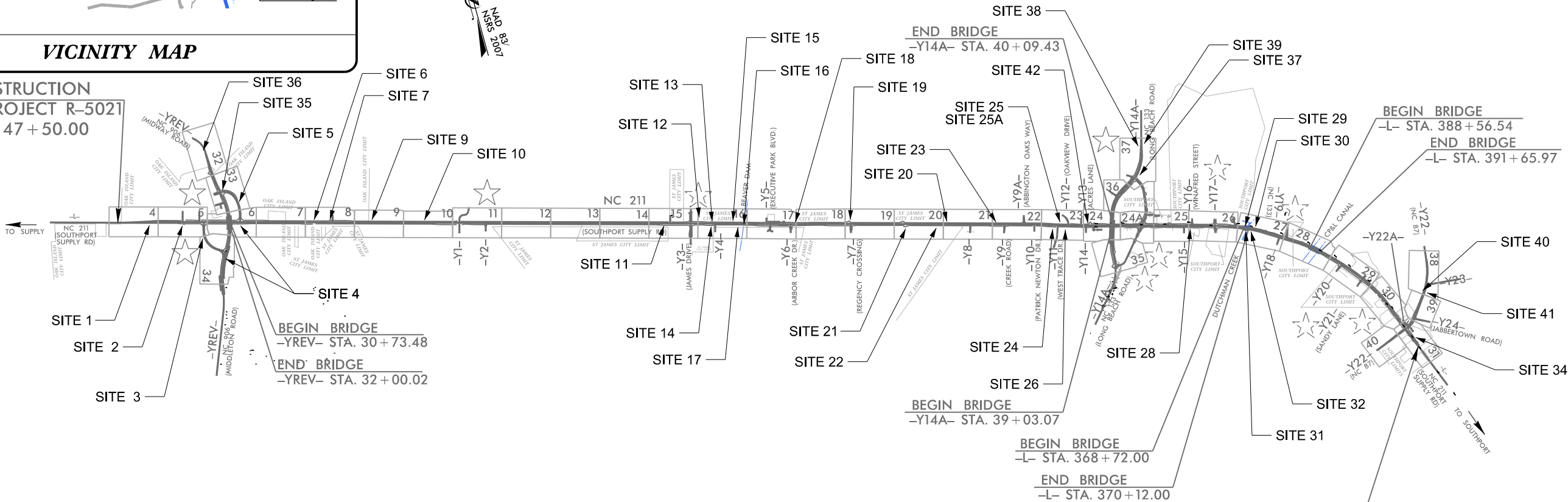
| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C.            | R-5021                      | 1           |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |              |
| 41582.1.1       | STP-0211(21)                | PE          |              |
| 41582.2.2       | STP-0211(21)                | UTILITIES   |              |
| 41582.2.3       | STP-0211(21)                | R/W         |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |

PERMIT DRAWING  
SHEET 1 OF 95



VICINITY MAP

BEGIN CONSTRUCTION  
BEGIN TIP PROJECT R-5021  
-L- POT STA. 47+50.00

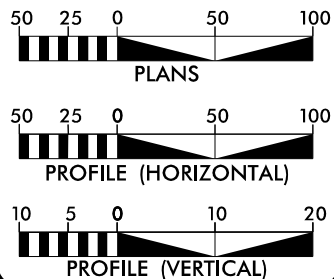


NOTES:

1. This is a partial controlled-access project with access being limited to points as shown on the plans.
2. A portion of this project is within the municipal boundaries of Oak Island, St. James, and Southport.
3. Clearing on this project shall be performed to the limits established by Modified Method III.

END CONSTRUCTION  
END TIP PROJECT R-5021  
-L- POT STA. 430+97.32

GRAPHIC SCALES



DESIGN DATA

ADT 2018 = 28,000  
ADT 2038 = 44,000  
K = 8 %  
D = 55 %  
T = 6 % \*  
V = 40-60 MPH  
\* (TTST 2% + DUAL 4%)  
FUNC CLASS =  
RURAL MAJOR COLLECTOR  
REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY T.I.P. PROJECT R-5021 = 7.178 MILES  
LENGTH OF STRUCTURES T.I.P. PROJECT R-5021 = 0.085 MILES  
TOTAL LENGTH OF T.I.P. PROJECT R-5021 = 7.263 MILES

ALL LENGTH BASED ON -L- CENTERLINE

Prepared in the Office of:  
**HNTB NORTH CAROLINA, P.C.**  
343 E. Six Forks Road, Raleigh NC, 27609

2018 STANDARD SPECIFICATIONS  
**RIGHT OF WAY DATE:**  
JANUARY 28, 2016

**LETTING DATE:**  
DECEMBER 18, 2018

**DOUG WHEATley, PE**  
PROJECT ENGINEER

**ANDY HALL, EI**  
PROJECT DESIGN ENGINEER

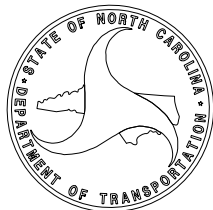
**DAVID LEONARD, PE**  
NCDOT ROADWAY PROJECT ENGINEER

HYDRAULICS ENGINEER

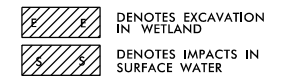
SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN  
ENGINEER**

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



LEGEND



50' 0' 50' 100' 150'

GRAPHIC SCALE

**NOTE:**

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 41  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

WATCH LINE -L- SIA 39+00  
SEE SHEET 5

SITE 2

**SITE 1**

$$\begin{aligned} Q_{10} &= 91.0 \text{ cfs} \\ V_{10} &= 1.9 \text{ fps} \end{aligned}$$

SOUTH SHORE  
REAL ESTATE, LLC

**DETAIL J**  
**LATERAL BASE DITCH**  
(Not to Scale)

The diagram shows a cross-section of a road with a central ditch. The ditch has a bottom width labeled 'B' and a depth labeled 'D'. The ditch slopes are indicated by a ratio of 3:1 on both sides. A top width labeled 'b' is shown at a height of 1 foot from the ditch bottom. To the left of the ditch is the 'Natural Ground' line. To the right is a sloped embankment labeled 'Fill Slope'.

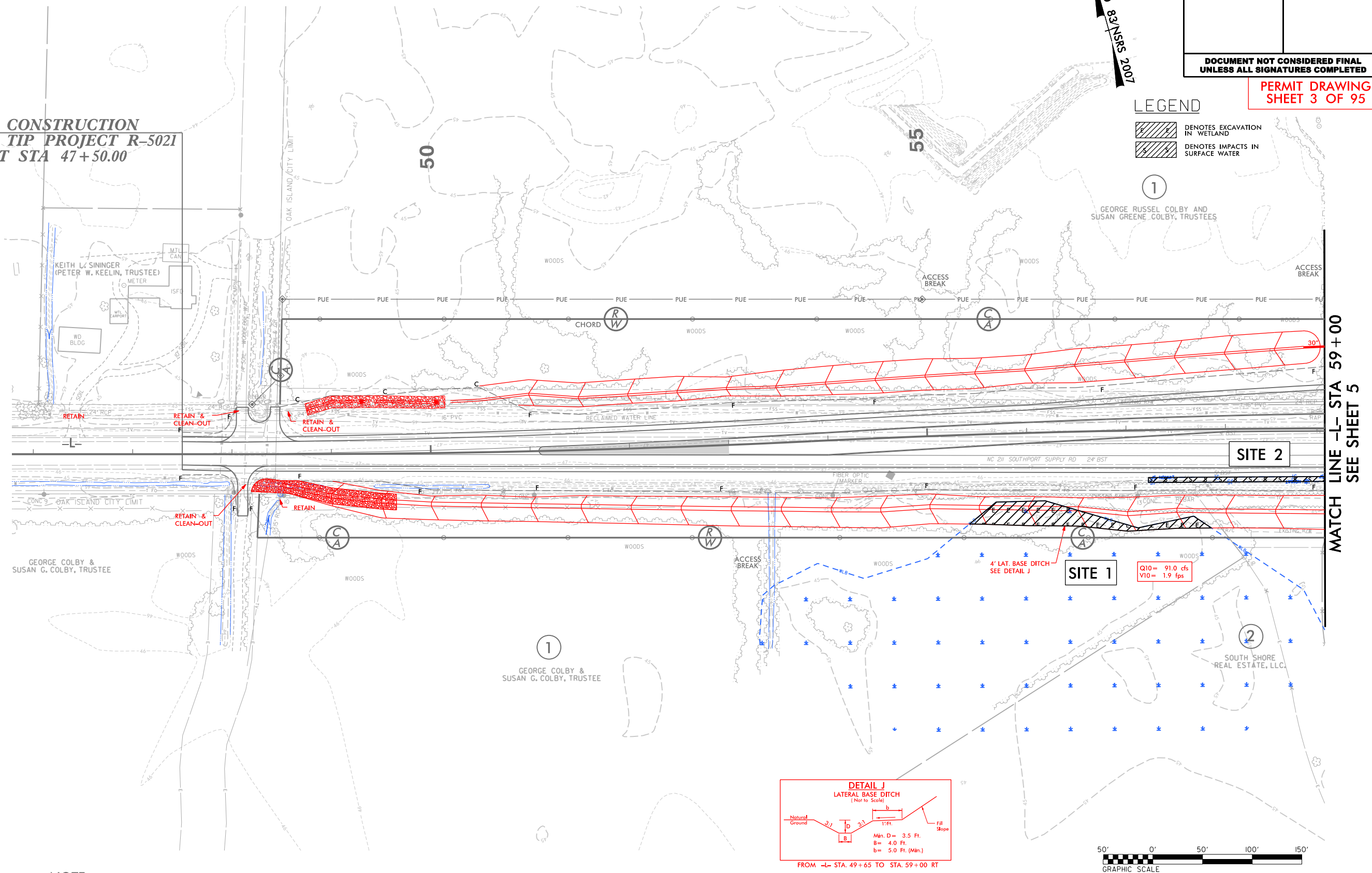
Min. D = 3.5 Ft.  
B = 4.0 Ft.  
b = 5.0 Ft. (Min.)

FROM STA. 49+65 TO STA. 59+00 RT



### LEGEND

**BEGIN CONSTRUCTION**  
**BEGIN TIP PROJECT R-5021**  
**-L- POT STA 47+50.00**



1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 41  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

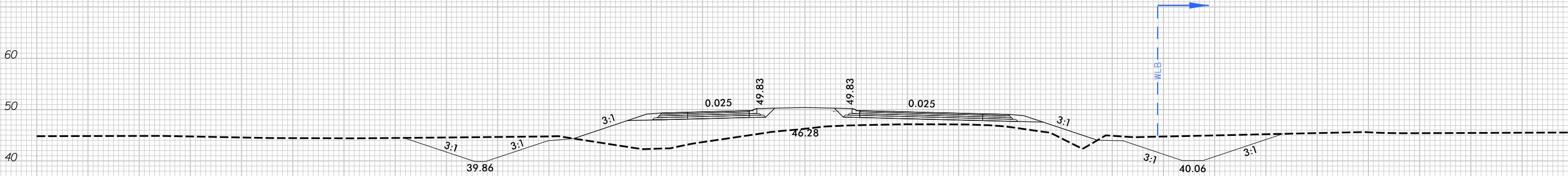


6/23/16

|     |                     |  |                                 |  |
|-----|---------------------|--|---------------------------------|--|
| 510 | PROJ. REFERENCE NO. |  | SHEET NO.                       |  |
|     | R-5021              |  | PERMIT DRAWING<br>SHEET 4 OF 95 |  |

# WETLAND CROSS SECTIONS

SITE 1  
-L- 56 + 00.00

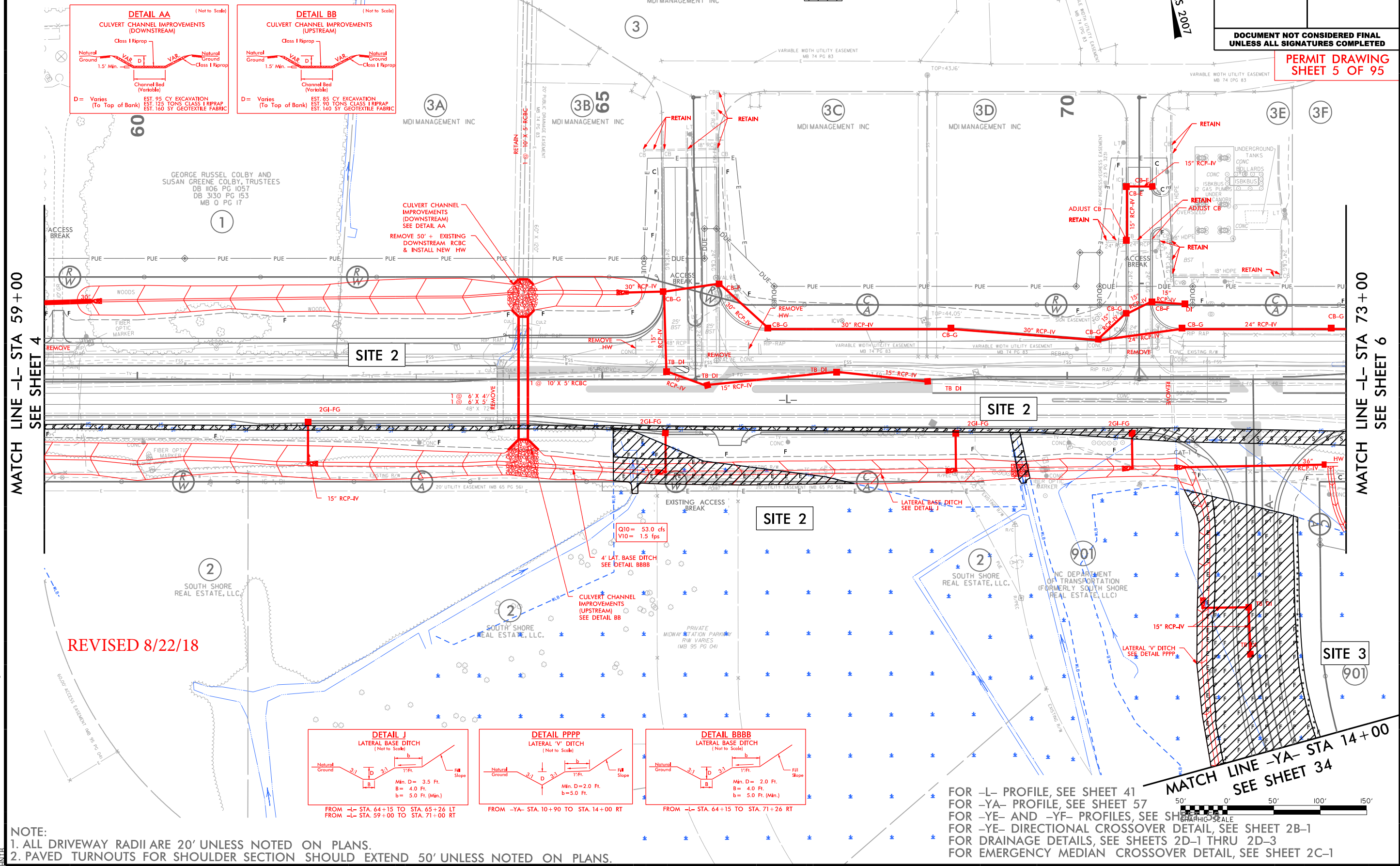


SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

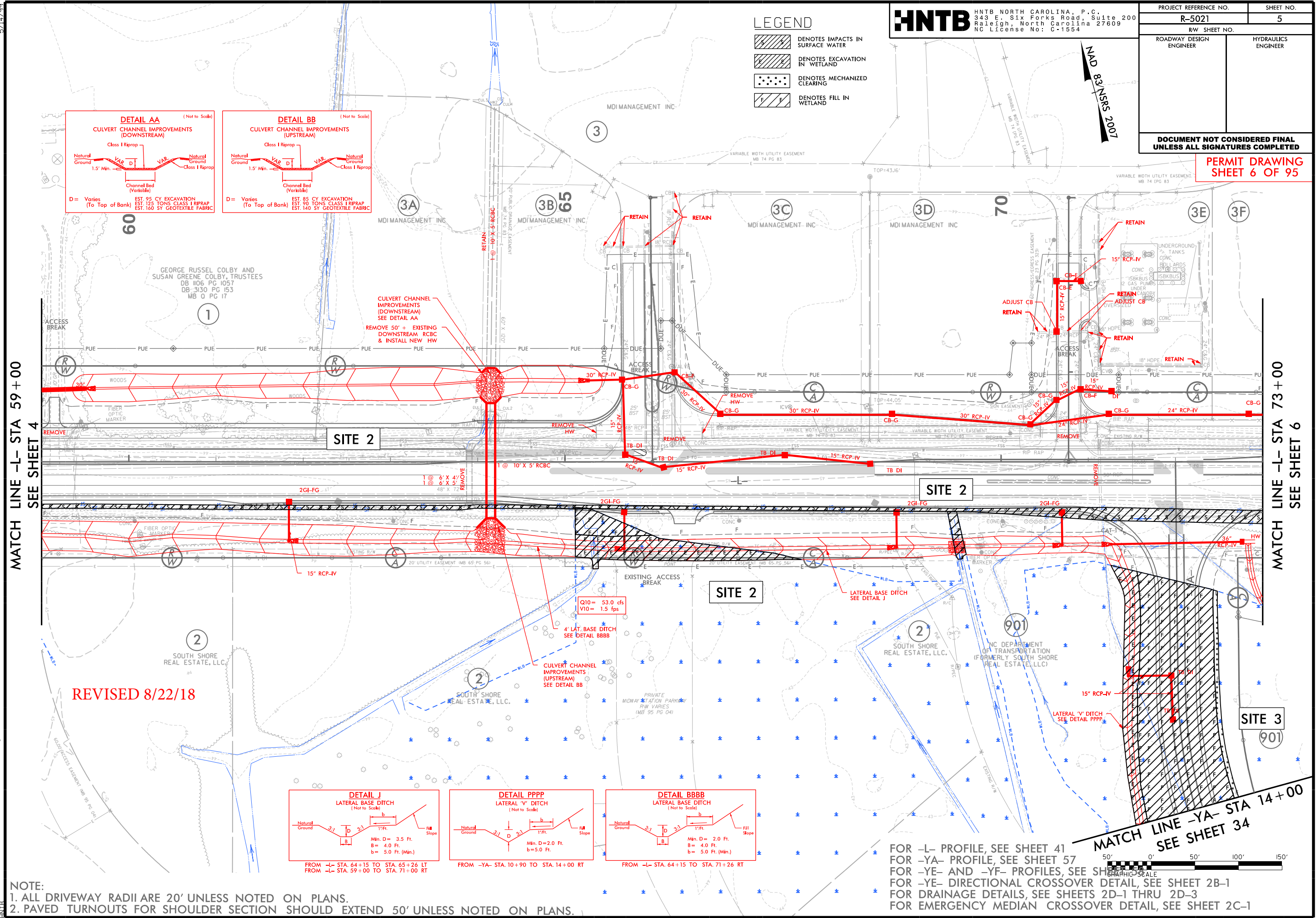
5/15/2018  
H:\Drawings\R-5021-hyd-prm-xpl.dgn  
H:\B

|                                                                                     |                                  |
|-------------------------------------------------------------------------------------|----------------------------------|
|  | DENOTES IMPACTS IN SURFACE WATER |
|  | DENOTES EXCAVATION IN WETLAND    |
|  | DENOTES MECHANIZED CLEARING      |
|  | DENOTES FILL IN WETLAND          |



|                                                                                                |  |                        |  |
|------------------------------------------------------------------------------------------------|--|------------------------|--|
| PROJECT REFERENCE NO.                                                                          |  | SHEET NO.              |  |
| R-5021                                                                                         |  | 5                      |  |
| RW SHEET NO.                                                                                   |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER                                                                     |  | HYDRAULICS<br>ENGINEER |  |
| <p align="center"><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p> |  |                        |  |

PERMIT DRAWING  
SHEET 6 OF 95



NOTE:  
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.  
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 41  
FOR -YA- PROFILE, SEE SHEET 57  
FOR -YE- AND -YF- PROFILES, SEE SHEET 58  
FOR -YE- DIRECTIONAL CROSSOVER DETAIL, SEE SHEET 2B-1  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3  
FOR EMERGENCY MEDIAN CROSSOVER DETAIL, SEE SHEET 2C-1



6/23/16

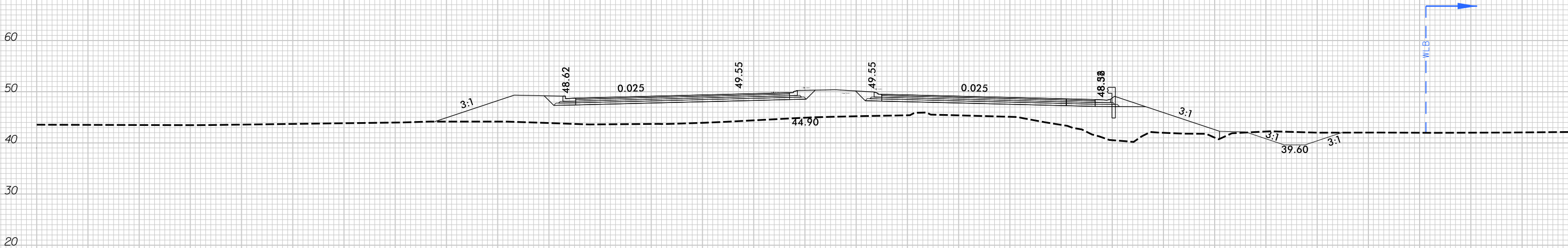
|                                 |    |                     |           |
|---------------------------------|----|---------------------|-----------|
| 5                               | 10 | PROJ. REFERENCE NO. | SHEET NO. |
|                                 |    | R-5021              |           |
| PERMIT DRAWING<br>SHEET 7 OF 95 |    |                     |           |

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 2

-L- 70 + 50.00



**SCALE**  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

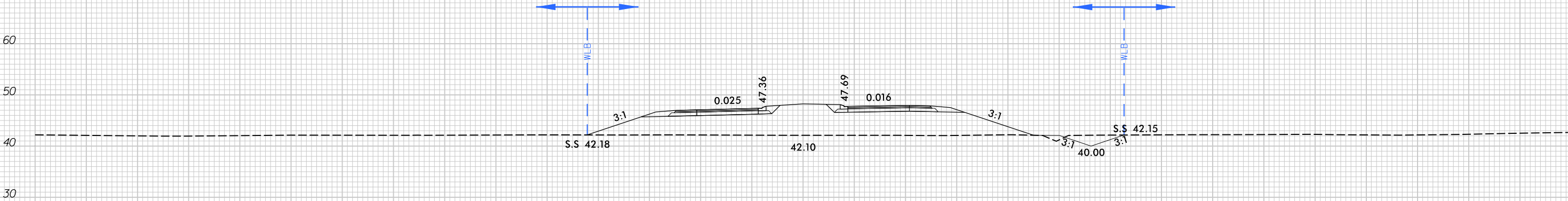
5/15/2018  
H:\Drawings\R-5021-hyd-prm-xpl.dgn  
11:18

6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 3  
-YA- 12 + 50.00



SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100



SKETCH OF BRIDGE IN RELATIONSHIP TO PAVEMENT

BEGIN APPROACH SLAB  
-YREV- STA 30+48.27  
BEGIN BRIDGE  
-YREV- STA 30+73.48

END BRIDGE  
-YREV- STA 32+00.02  
END APPROACH SLAB  
-YREV- STA 32+31.23

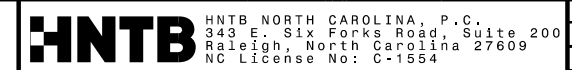
MATCH LINE -YREV- STA 28+50  
SEE SHEET 33

MATCH LINE -YB- STA 20+50.00  
SEE SHEET 33

MATCH LINE -YREV- STA 35+00.00  
SEE SHEET 34

MATCH LINE -L- STA 73+00.00  
SEE SHEET 5

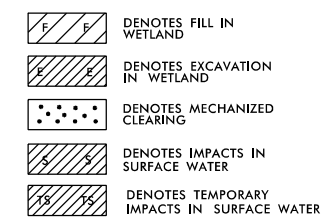
**MATCH LINE -L- STA 87+25.00 SEE SHEET 7**



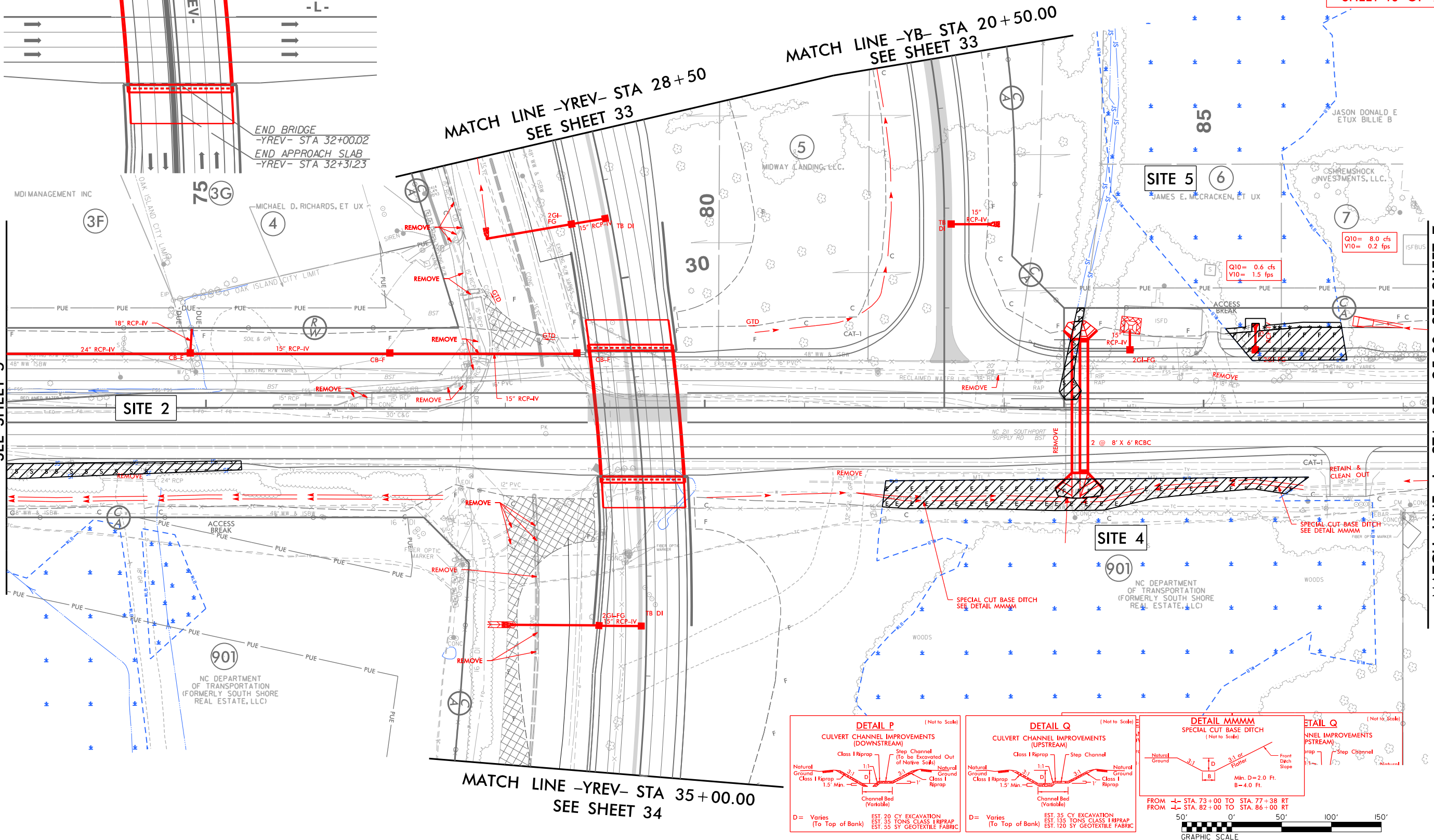
|                                                                                 |                        |
|---------------------------------------------------------------------------------|------------------------|
| PROJECT REFERENCE NO.                                                           | SHEET NO.              |
| R-5021                                                                          | 6                      |
| R/W SHEET NO.                                                                   |                        |
| ROADWAY DESIGN<br>ENGINEER                                                      | HYDRAULICS<br>ENGINEER |
| <p><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p> |                        |

PERMIT DRAWING  
SHEET 10 OF 95

LEGEND



NAD 83/NSRS 2001



GRAPHIC SCALE



SKETCH OF BRIDGE IN RELATIONSHIP TO PAVEMENT

BEGIN APPROACH SLAB  
-YREV- STA 30+48.27  
BEGIN BRIDGE  
-YREV- STA 30+73.48

END BRIDGE  
-YREV- STA 32+00.02  
END APPROACH SLAB  
-YREV- STA 32+31.23

MATCH LINE -YREV- STA 28+50  
SEE SHEET 33

MATCH LINE -YB- STA 20+50.00  
SEE SHEET 33

MATCH LINE -YREV- STA 35+00.00  
SEE SHEET 34

MATCH LINE -L- STA 73+00.00  
SEE SHEET 5

**MATCH LINE -L- STA 87+25.00 SEE SHEET 7**

# HNTB

HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
|-----------------------|-----------|

R-5021

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6

R/W SHEET NO.

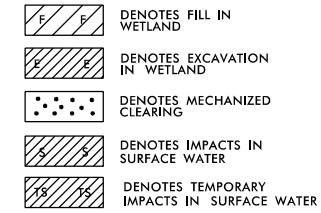
ROADWAY DESIGN  
ENGINEER

HYDRAULICS  
ENGINEER

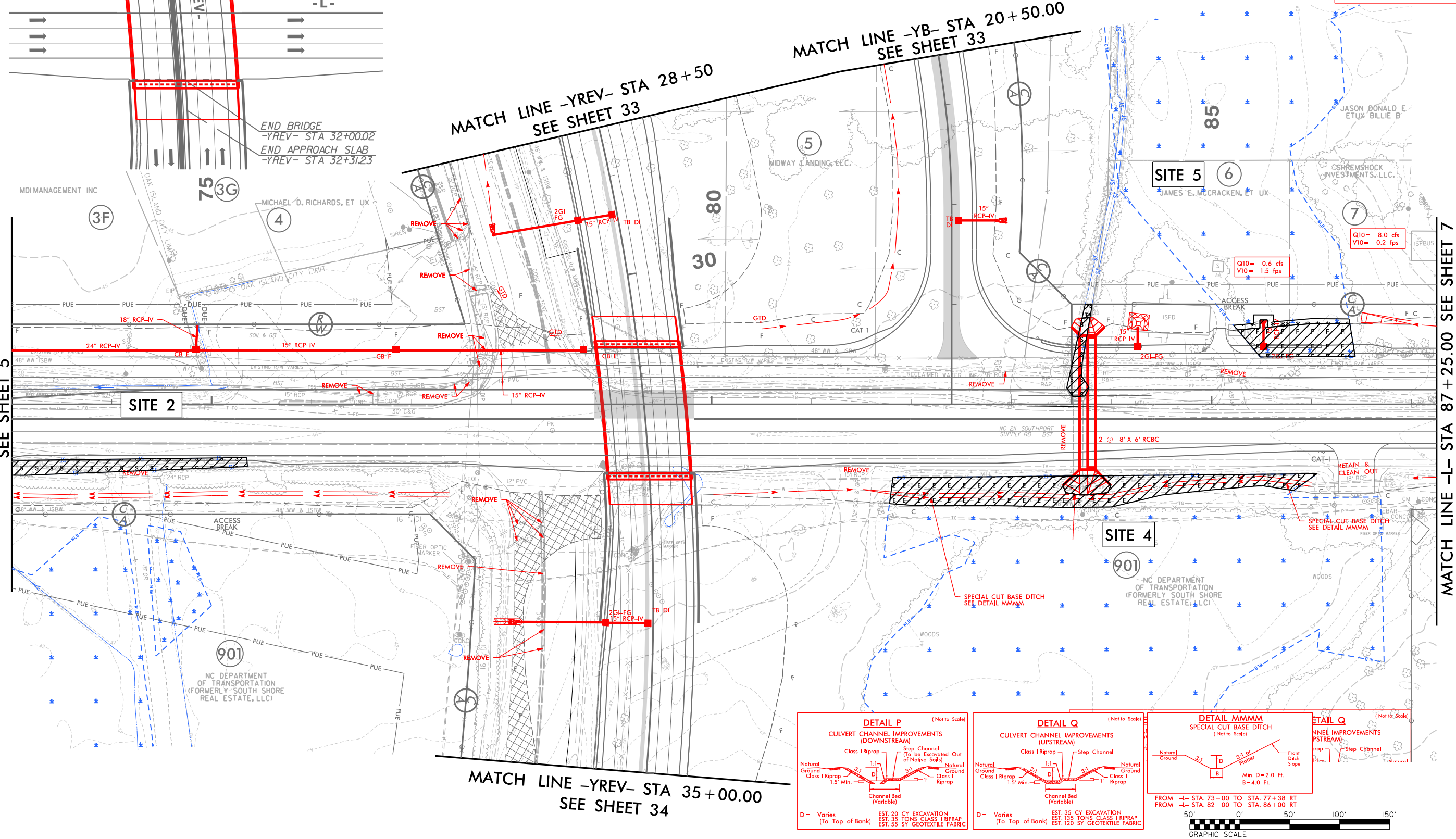
**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

PERMIT DRAWING  
SHEET 11 OF 95

### LEGEND



NAD 83/NSRS 2001





EQUITY INVESTMENTS  
ASSOCIATION, LLC.

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

|                                                                                     |                                            |
|-------------------------------------------------------------------------------------|--------------------------------------------|
|  | DENOTES FILL IN WETLAND                    |
|  | DENOTES IMPACTS IN SURFACE WATER           |
|  | DENOTES TEMPORARY IMPACTS IN SURFACE WATER |
|  | DENOTES MECHANIZED CLEARING                |

QUAINTANCE, INC

NAD 83/NSRS 2007

**MATCH LINE -L- STA 87+00.00  
SEE SHEET 6**

MAICH LINE -L- SIA 101+00.00  
SEE SHEET 8

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

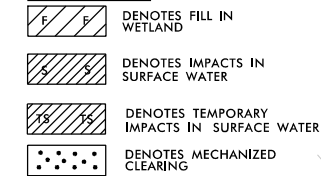
50' 0' 50' 100' 150'

GRAPHIC SCALE

FOR -L- PROFILE, SEE SHEET 42  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

5/15/2018  
R-5021-HYD\_PERMIT\_DRAWINGS\_PSH7.13 of 95.dgn  
-INTR-





**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

PERMIT DRAWING  
SHEET 14 OF 95

EQUITY INVESTMENTS  
ASSOCIATION, LLC.

MATCH LINE -L- STA 101+00.00  
SEE SHEET 8

**MATCH LINE -L- STA 87+00.00  
SEE SHEET 6**

NOTE:

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

50' 0' 50' 100' 150'

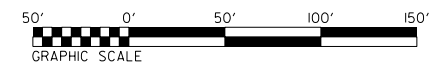
GRAPHIC SCALE

FOR -L- PROFILE, SEE SHEET 42  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

LEGEND

- |                                                                                     |                                            |
|-------------------------------------------------------------------------------------|--------------------------------------------|
|  | DENOTES FILL IN WETLAND                    |
|  | DENOTES IMPACTS IN SURFACE WATER           |
|  | DENOTES TEMPORARY IMPACTS IN SURFACE WATER |
|  | DENOTES MECHANIZED CLEARING                |

NAD 83/NSRS 2001

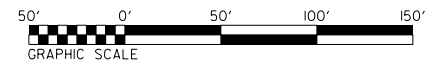




### LEGEND

- |                                                                                     |                                            |
|-------------------------------------------------------------------------------------|--------------------------------------------|
|  | DENOTES FILL IN WETLAND                    |
|  | DENOTES IMPACTS IN SURFACE WATER           |
|  | DENOTES TEMPORARY IMPACTS IN SURFACE WATER |
|  | DENOTES MECHANIZED CLEARING                |

NAD 83/NSRS 2001

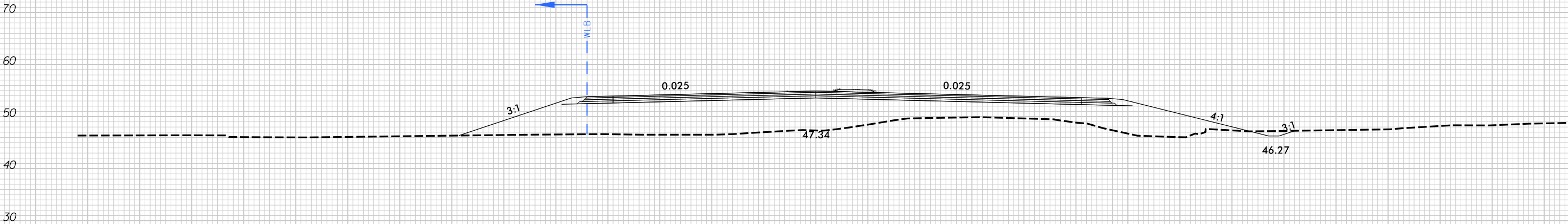


6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 6  
-L- 103 + 00.00



SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100



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Raleigh, North Carolina 27609  
NC License No: C-1554

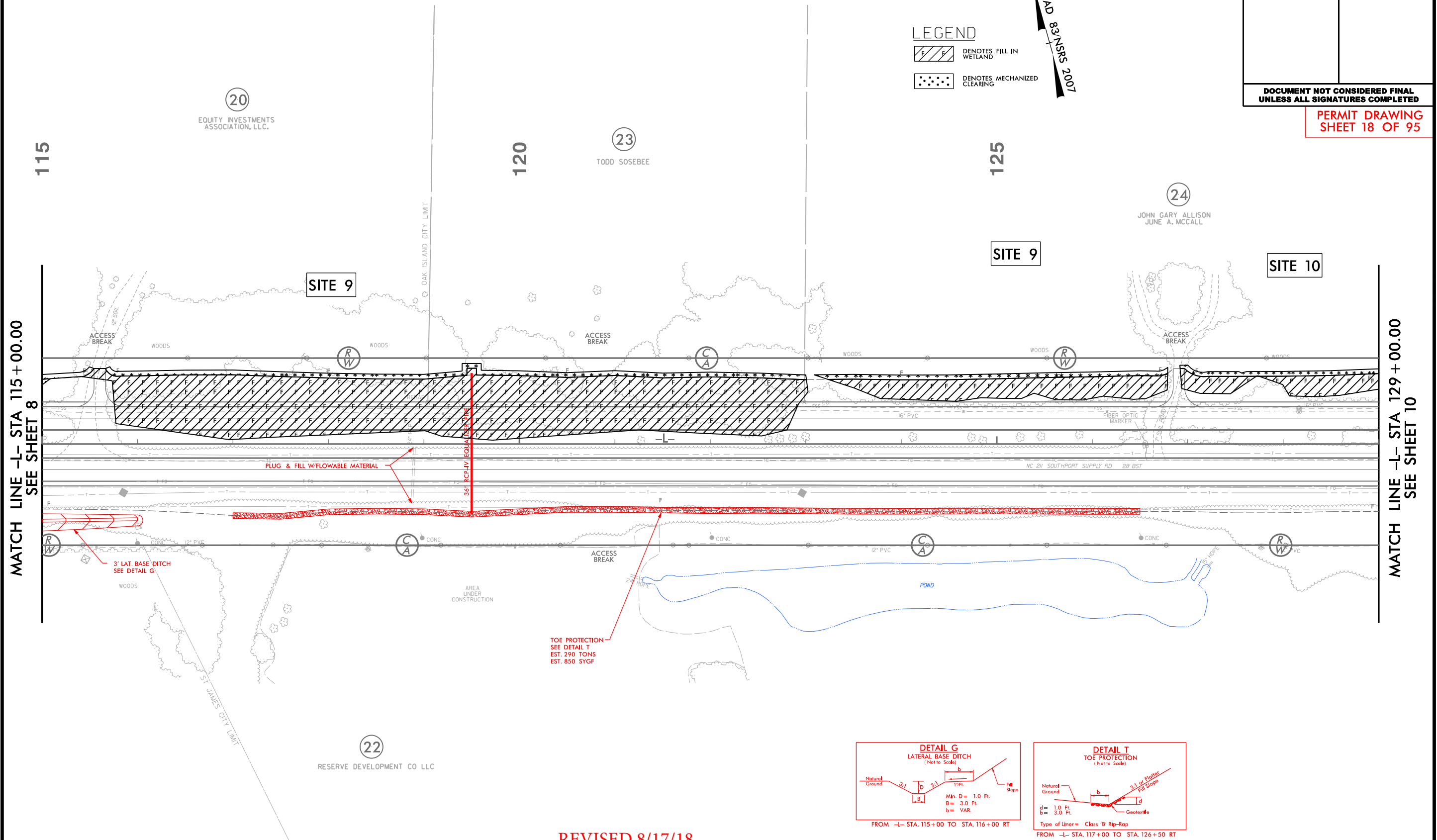
|                                                                                 |                        |
|---------------------------------------------------------------------------------|------------------------|
| PROJECT REFERENCE NO.                                                           | SHEET NO.              |
| R-5021                                                                          | 9                      |
| RW SHEET NO.                                                                    |                        |
| ROADWAY DESIGN<br>ENGINEER                                                      | HYDRAULICS<br>ENGINEER |
| <p><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p> |                        |

PERMIT DRAWING  
SHEET 18 OF 95

### LEGEND

 DENOTES FILL IN WETLAND

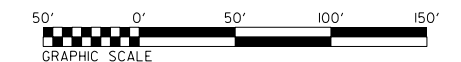
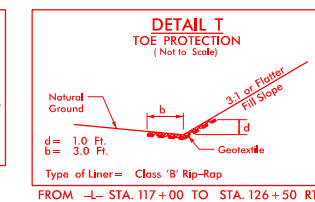
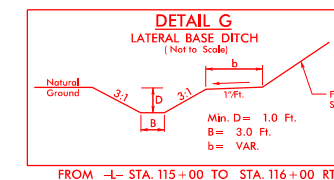
**□** DENOTES MECHANIZED CLEARING



**NOTE:**

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

REVISÉD 8/17/18



FOR -L- PROFILE, SEE SHEET 43  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3



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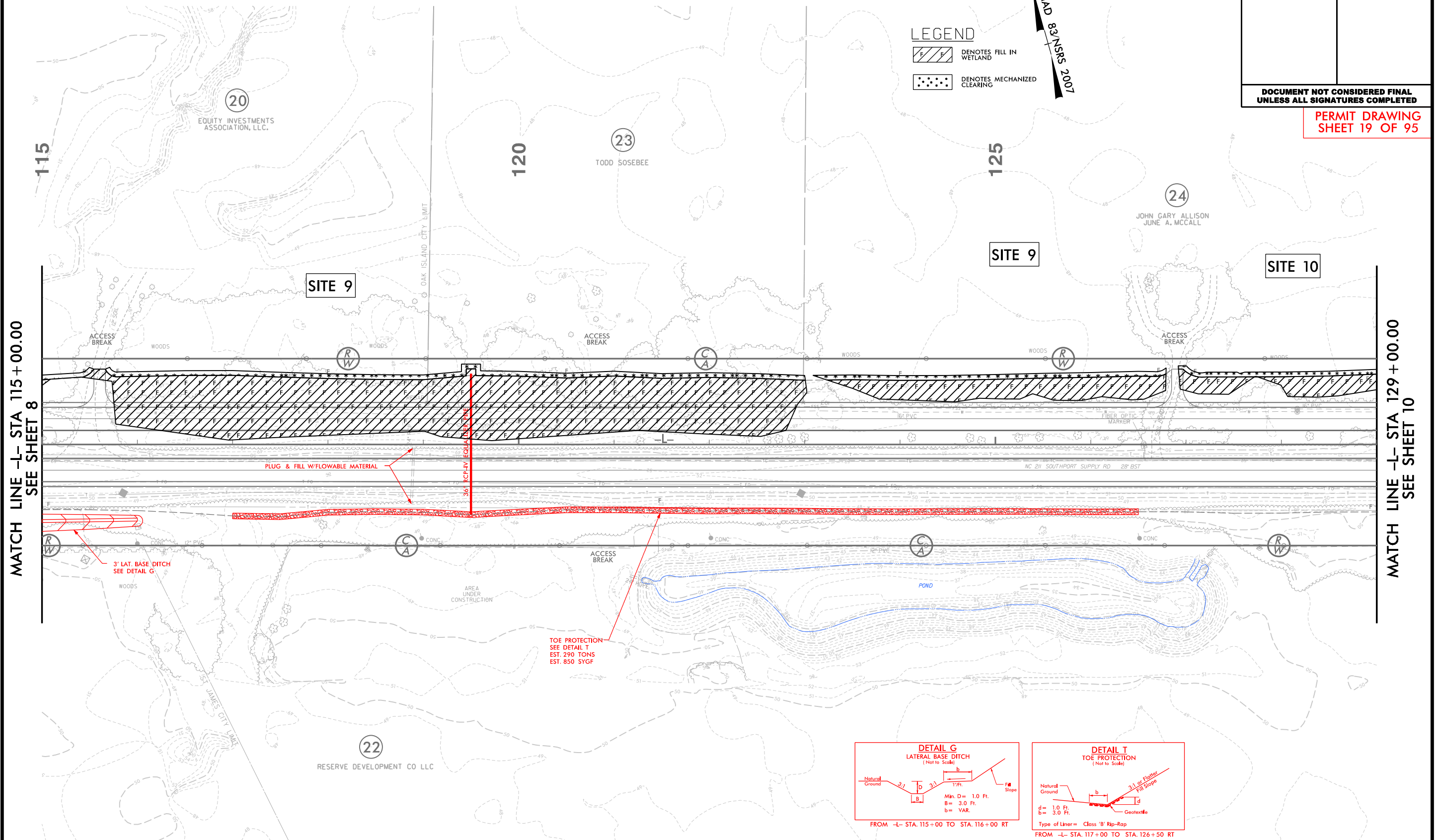
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|---------------------------------------------------------------------------------|------------------------|
| PROJECT REFERENCE NO.                                                           | SHEET NO.              |
| R-5021                                                                          | 9                      |
| RW SHEET NO.                                                                    |                        |
| ROADWAY DESIGN<br>ENGINEER                                                      | HYDRAULICS<br>ENGINEER |
| <p><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p> |                        |

PERMIT DRAWING  
SHEET 19 OF 95

### LEGEND

 DENOTES FILL IN WETLAND

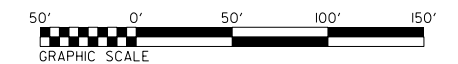
• DENOTES MECHANIZED CLEARING



**NOTE:**

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

REVISÉD 8/17/18



FOR -L- PROFILE, SEE SHEET 43  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

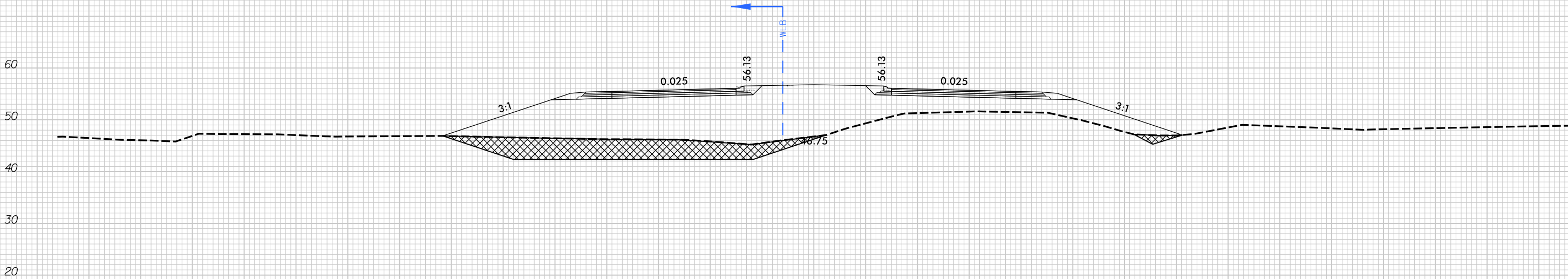


6/23/16

|                                  |  |                     |           |
|----------------------------------|--|---------------------|-----------|
| 510                              |  | PROJ. REFERENCE NO. | SHEET NO. |
|                                  |  | R-5021              |           |
| PERMIT DRAWING<br>SHEET 20 OF 95 |  |                     |           |

# WETLAND CROSS SECTIONS

SITE 9  
-L- 120 + 00.00



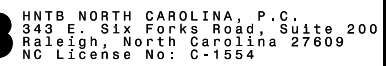
SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

UNDERCUT  
EXCAVATION

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

5/15/2018  
H:\Drawings\R-5021-hyd-prm-xpl.dgn  
11:18





PERMIT DRAWING  
SHEET 22 OF 95

 DENOTES FILL IN WETLAND  
DENOTES MECHANIZED CLEARING

NAD 83/NSRS 2001



1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.



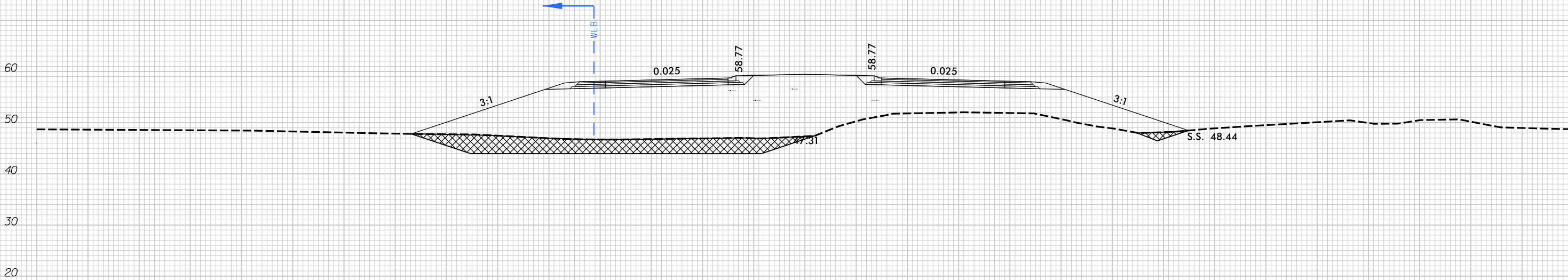
6/23/16

|                                  |    |                     |           |
|----------------------------------|----|---------------------|-----------|
| 5                                | 10 | PROJ. REFERENCE NO. | SHEET NO. |
|                                  |    | R-5021              |           |
| PERMIT DRAWING<br>SHEET 23 OF 95 |    |                     |           |

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 10  
-L- 135 + 00.00



UNDERCUT  
EXCAVATION

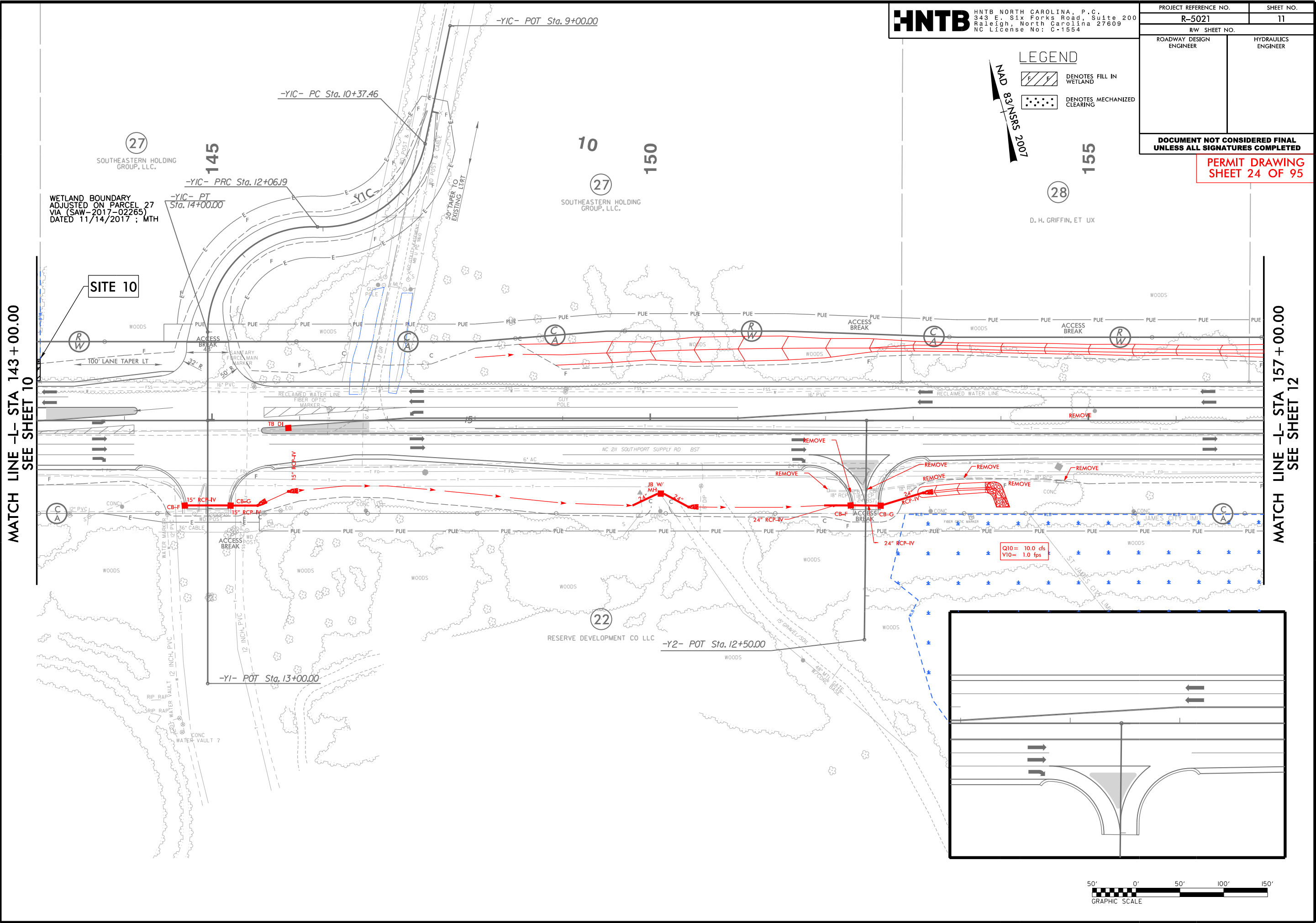
SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

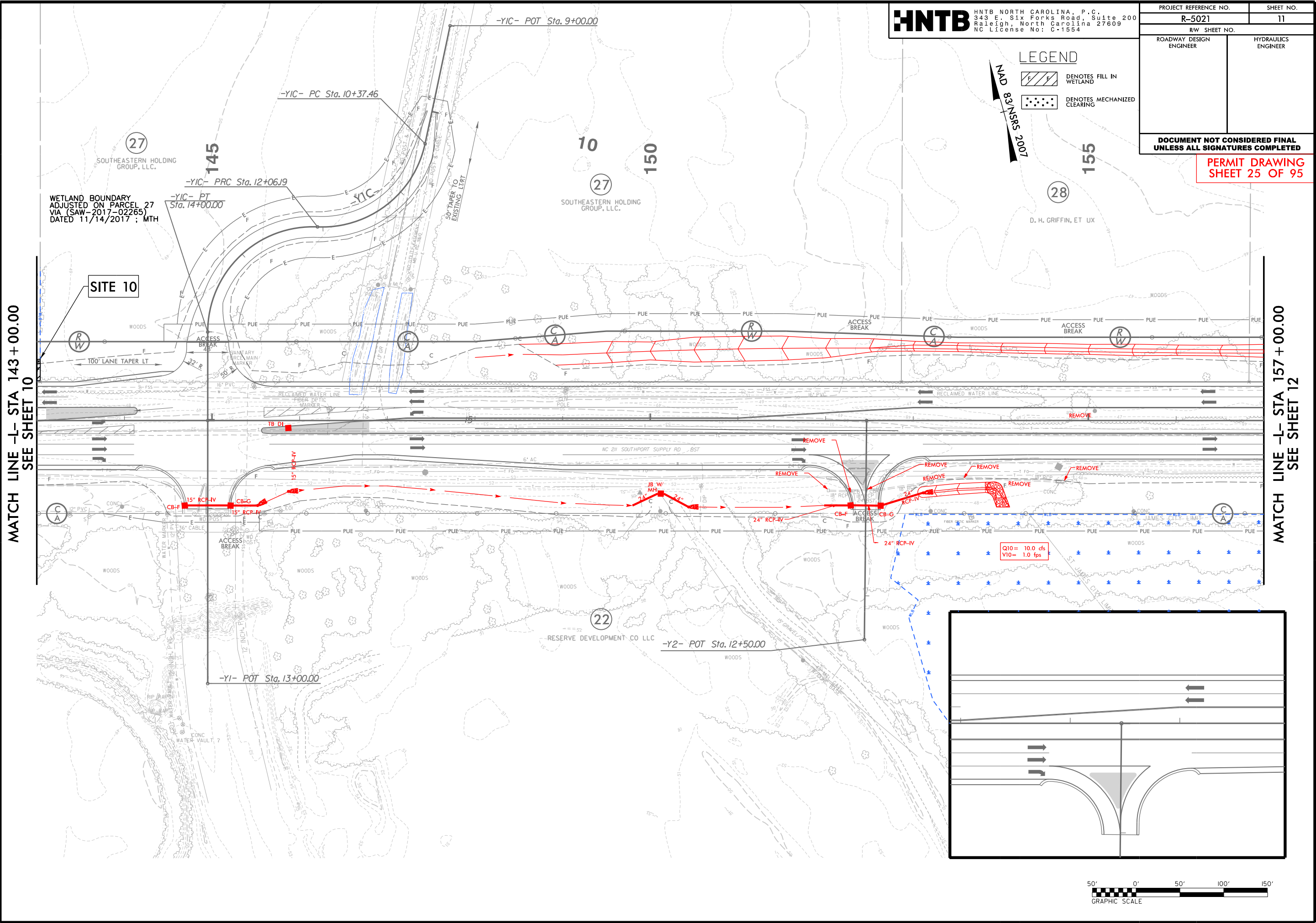


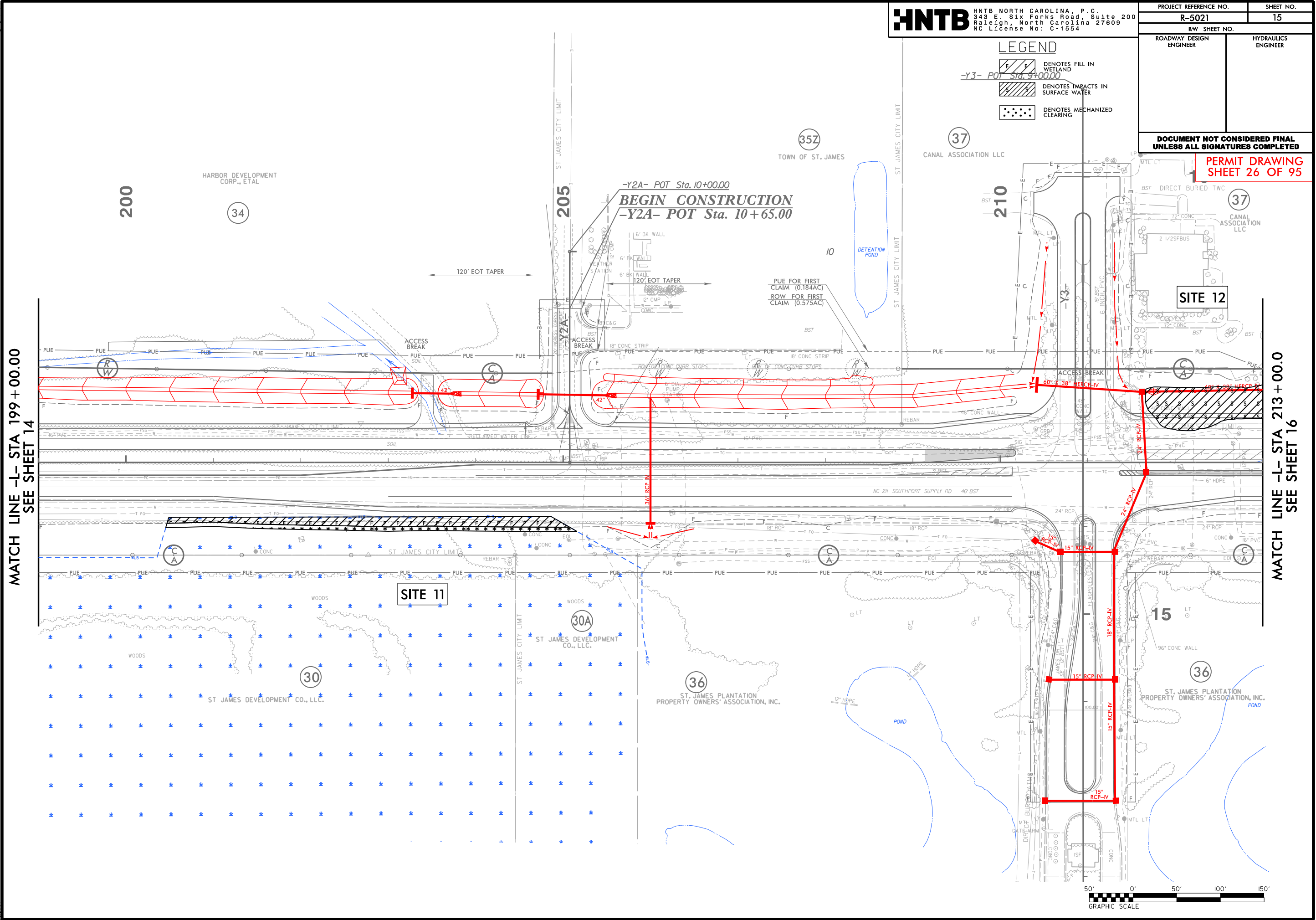
|                                                                                                                                                                                                                                                                                        |                                                                                                                         |                        |                                                                                                               |                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                        | HNTB NORTH CAROLINA, P.C.<br>343 E. Six Forks Road, Suite 200<br>Raleigh, North Carolina 27609<br>NC License No: C-1654 |                        | PROJECT REFERENCE NO.<br><div style="border: 1px solid black; padding: 2px; text-align: center;">R-5021</div> | SHEET NO.<br><div style="border: 1px solid black; padding: 2px; text-align: center;">11</div> |
|                                                                                                                                                                                                                                                                                        | RW SHEET NO.                                                                                                            |                        |                                                                                                               |                                                                                               |
|                                                                                                                                                                                                                                                                                        | ROADWAY DESIGN<br>ENGINEER                                                                                              | HYDRAULICS<br>ENGINEER |                                                                                                               |                                                                                               |
| <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 40%;"> <p style="margin-top: 5px;">DENOTES FILL IN<br/>WETLAND</p> </div> <div style="width: 40%;"> <p style="margin-top: 5px;">DENOTES MECHANIZED<br/>CLEARING</p> </div> </div> |                                                                                                                         |                        |                                                                                                               |                                                                                               |



|                                                                          |                                                                                                                         |                        |                                                                                                               |                                                                                               |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
|                                                                          | HNTB NORTH CAROLINA, P.C.<br>343 E. Six Forks Road, Suite 200<br>Raleigh, North Carolina 27609<br>NC License No: C-1654 |                        | PROJECT REFERENCE NO.<br><div style="border: 1px solid black; padding: 2px; text-align: center;">R-5021</div> | SHEET NO.<br><div style="border: 1px solid black; padding: 2px; text-align: center;">11</div> |
|                                                                          | RW SHEET NO.                                                                                                            |                        |                                                                                                               |                                                                                               |
|                                                                          | ROADWAY DESIGN<br>ENGINEER                                                                                              | HYDRAULICS<br>ENGINEER |                                                                                                               |                                                                                               |
| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b> |                                                                                                                         |                        |                                                                                                               |                                                                                               |

**PERMIT DRAWING  
SHEET 25 OF 95**







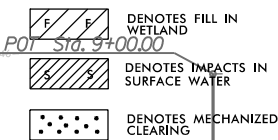


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Raleigh, North Carolina 27609  
NC License No: C-1554

|                                                                                                |  |                        |  |
|------------------------------------------------------------------------------------------------|--|------------------------|--|
| PROJECT REFERENCE NO.                                                                          |  | SHEET NO.              |  |
| R-5021                                                                                         |  | 15                     |  |
| R/W SHEET NO.                                                                                  |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER                                                                     |  | HYDRAULICS<br>ENGINEER |  |
| <p align="center"><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p> |  |                        |  |

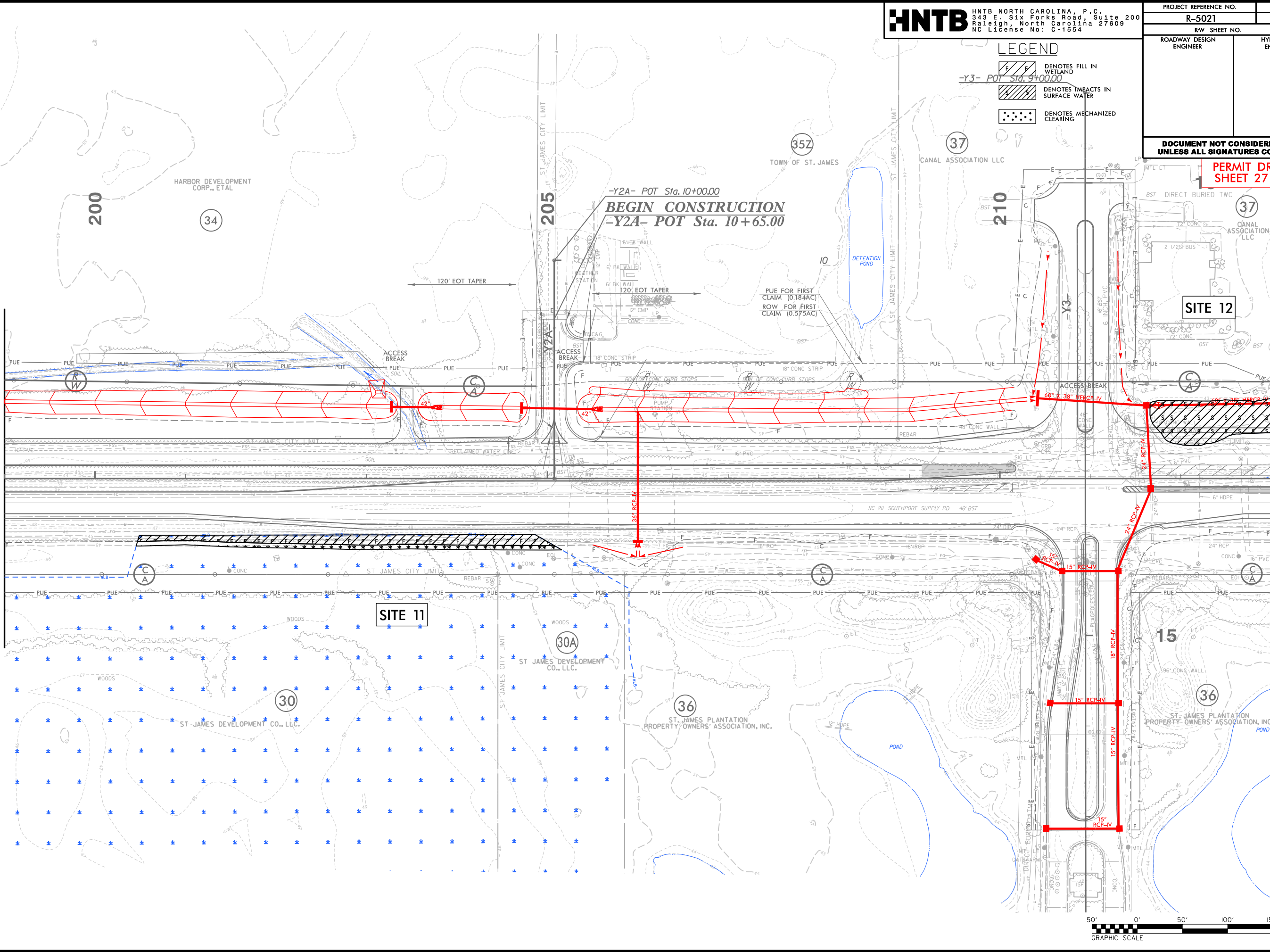
PERMIT DRAWING  
SHEET 27 OF 95

LEGEND



**MATCH LINE -L- STA 199+00.00  
SEE SHEET 14**

**MATCH LINE -L- STA 213+00.0  
SEE SHEET 16**



50' 0' 50' 100' 150'

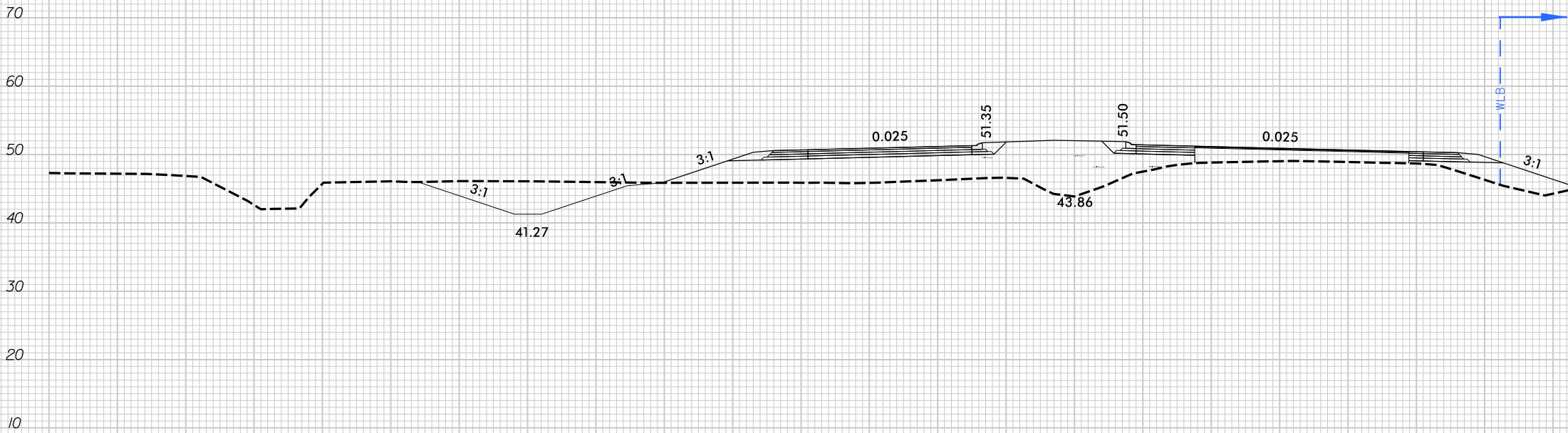
GRAPHIC SCALE



6/23/16

# WETLAND CROSS SECTIONS

**SITE 11**  
-L- 203 + 00.00



**SCALE**  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

5/14/99 2/18/2021 HYD.PERMIT.DRAWINGS\_PSH16.29 of 95.dgn

REVISED 2-19-2021

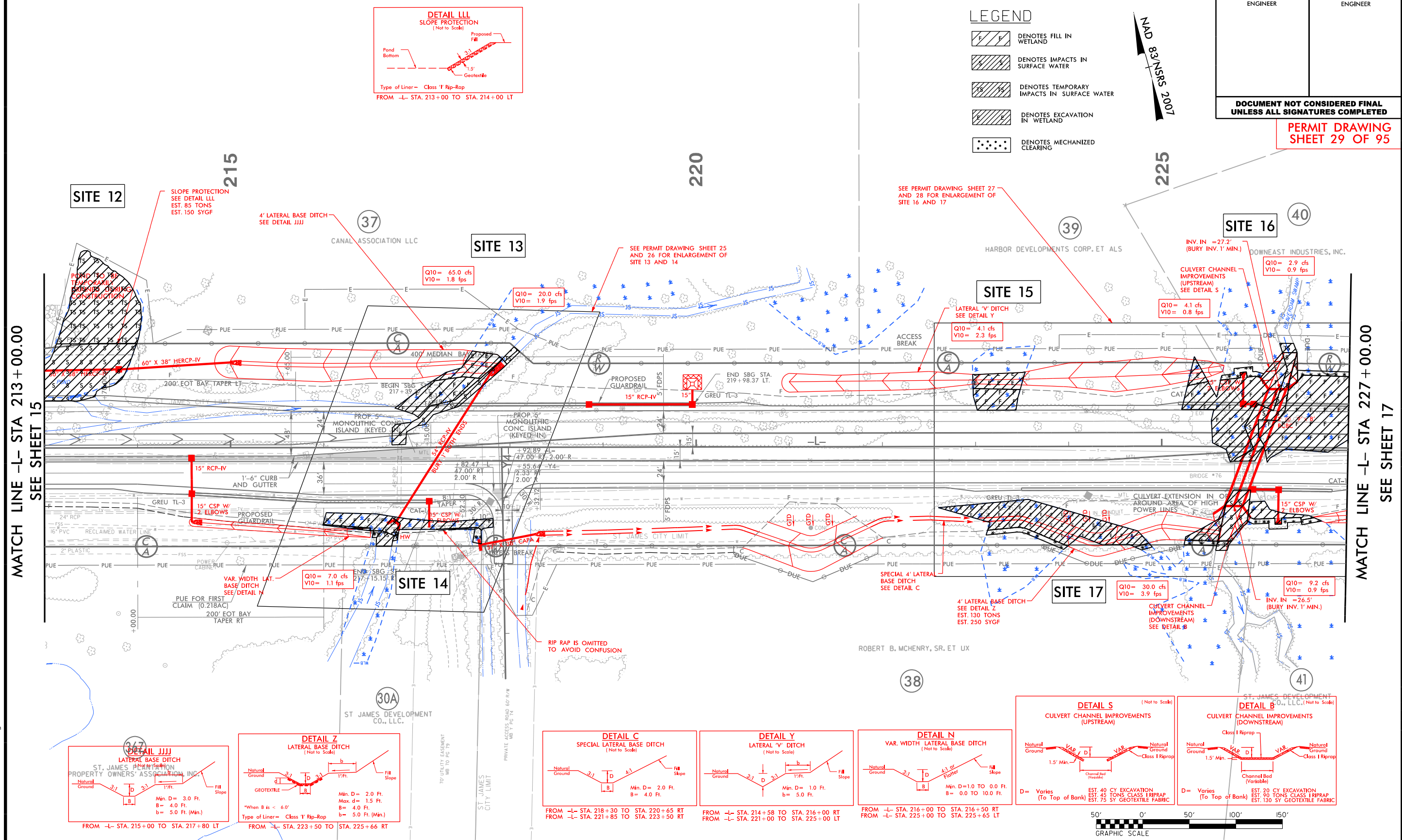
**HNTB**

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Raleigh, North Carolina 27609  
NC License No: C-1554

|                         |  |                     |  |
|-------------------------|--|---------------------|--|
| PROJECT REFERENCE NO.   |  | SHEET NO.           |  |
| R-5021                  |  | 16                  |  |
| RW SHEET NO.            |  | HYDRAULICS ENGINEER |  |
| ROADWAY DESIGN ENGINEER |  |                     |  |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING  
SHEET 29 OF 95



- NOTE:
- ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
  - PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.



5/14/99  
2/18/2021 HYD.PERMIT.DRAWINGS\_PSH16.30 of 95.dgn

REVISED 2-19-2021

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|                                                                          |  |                        |  |
|--------------------------------------------------------------------------|--|------------------------|--|
| PROJECT REFERENCE NO.                                                    |  | SHEET NO.              |  |
| R-5021                                                                   |  | 16                     |  |
| RW SHEET NO.                                                             |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER                                               |  | HYDRAULICS<br>ENGINEER |  |
|                                                                          |  |                        |  |
|                                                                          |  |                        |  |
| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b> |  |                        |  |

PERMIT DRAWING  
SHEET 30 OF 95

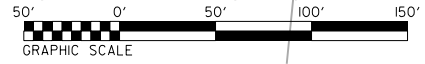
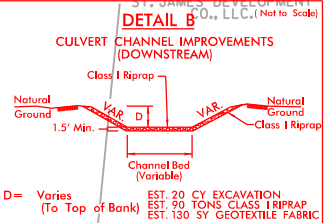
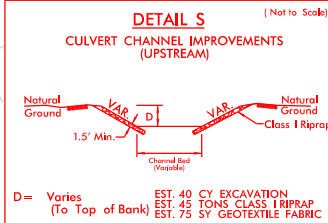
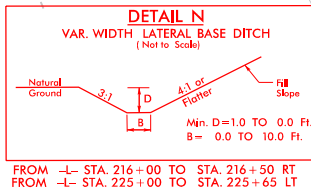
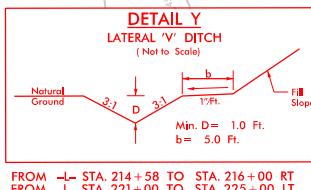
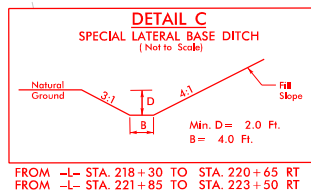
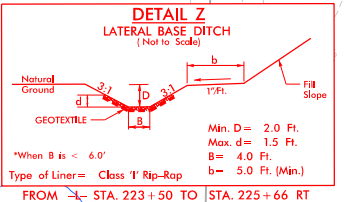
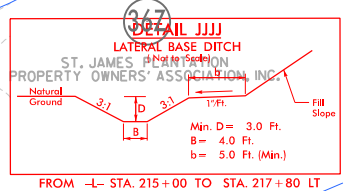
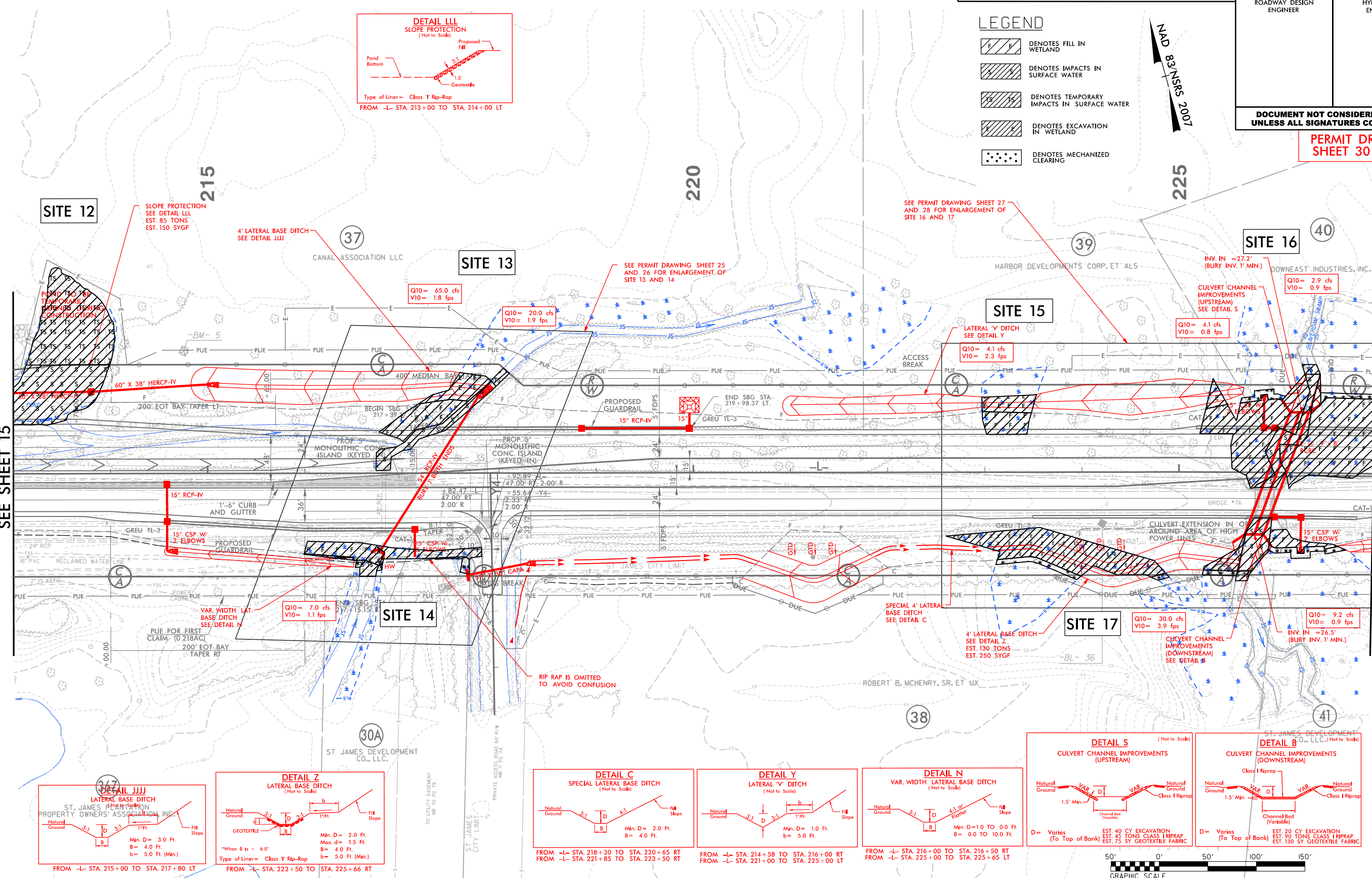
LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING

NAD 83/NSRS 2007  
83/NSRS 2007

MATCH LINE -L- STA 213+00.00  
SEE SHEET 15

MATCH LINE -L- STA 227+00.00  
SEE SHEET 17



NOTE:

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 47  
FOR -Y4- PROFILE, SEE SHEET 60  
FOR INTERSECTION DETAIL, SEE SHEET 2B-1  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3  
FOR CULVERT DETAILS, SEE SHEETS C3-1 THRU C3-5







6/23/16

|                                  |    |                     |           |
|----------------------------------|----|---------------------|-----------|
| 5                                | 10 | PROJ. REFERENCE NO. | SHEET NO. |
|                                  |    | R-5021              |           |
| PERMIT DRAWING<br>SHEET 33 OF 95 |    |                     |           |

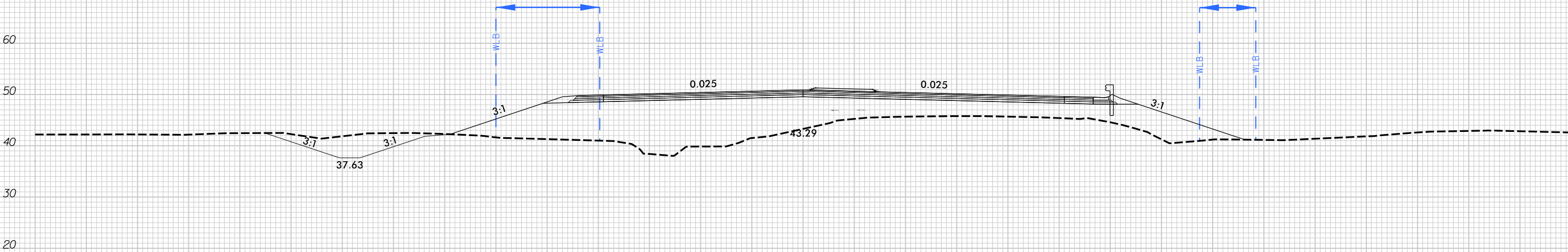
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 13

SITE 14

-L- 217 + 00.00



**SCALE**  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

5/15/2018  
H:\Drawings\R-5021-hyd-prm-xpl.dgn  
H:\B

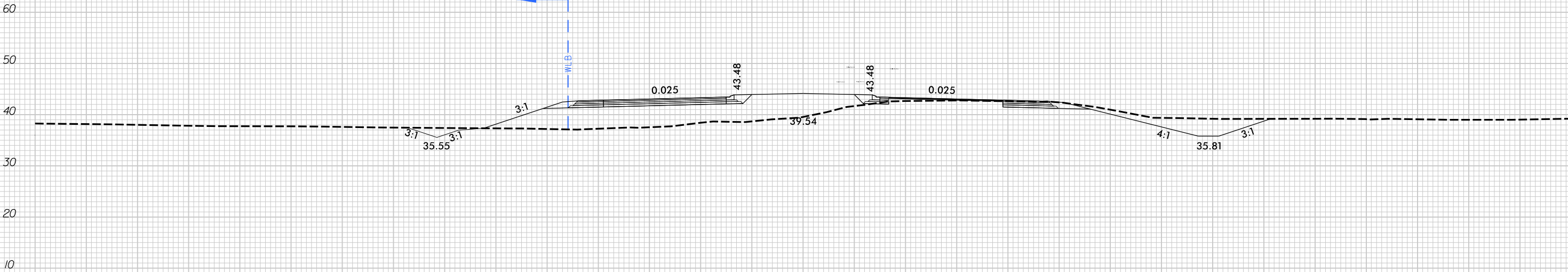
6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 15

-L- 223 + 00.00



**SCALE**  
1"=20' HORIZONTAL  
1"=20' VERTICAL

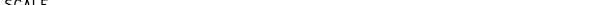
BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

## SITE 17



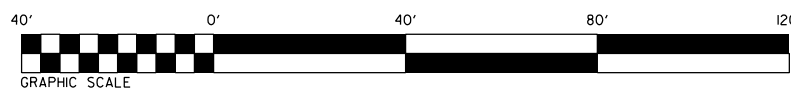
40' 0' 40' 80' 120'



GRAPHIC SCALE



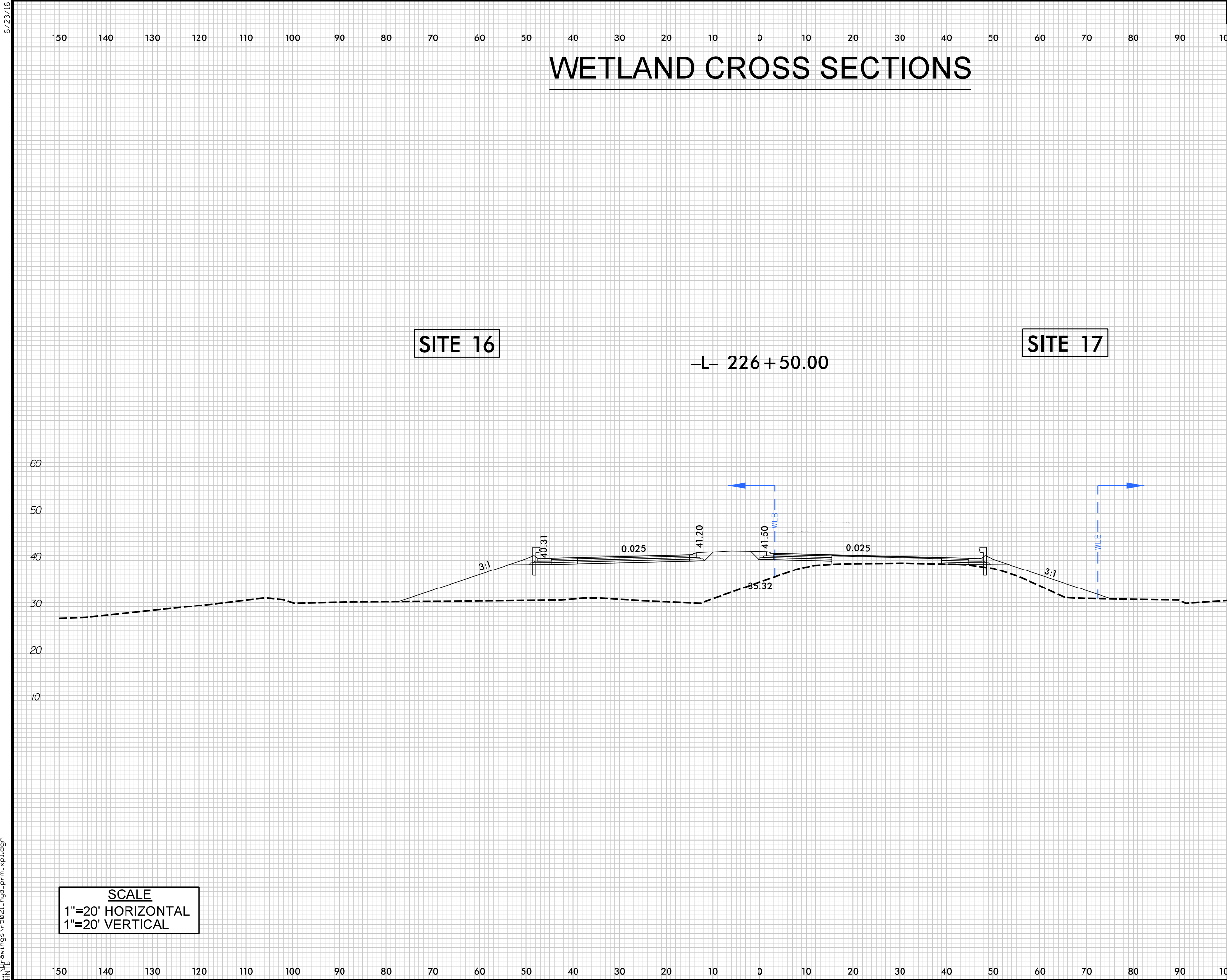
## SITE 17



NAD 83/NSRS 2007

6/23/16

|                                  |    |                     |           |
|----------------------------------|----|---------------------|-----------|
| 5                                | 10 | PROJ. REFERENCE NO. | SHEET NO. |
|                                  |    | R-5021              |           |
| PERMIT DRAWING<br>SHEET 37 OF 95 |    |                     |           |



SITE 16

-L- 226 + 50.00

SITE 17

SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

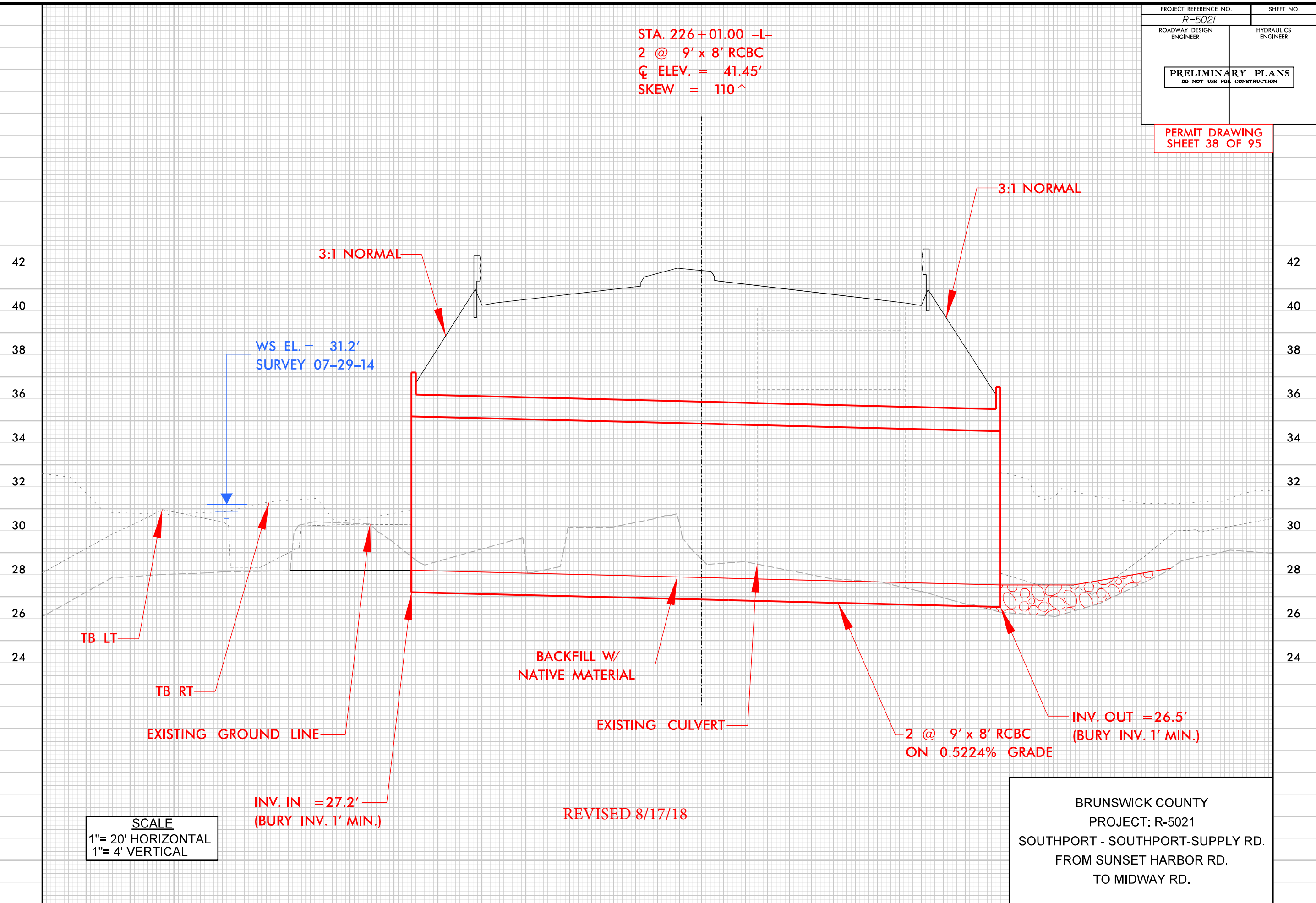
5/15/2018 11:18:11 AM I:\Drawings\R-5021-hyd-prm-xpl.dgn

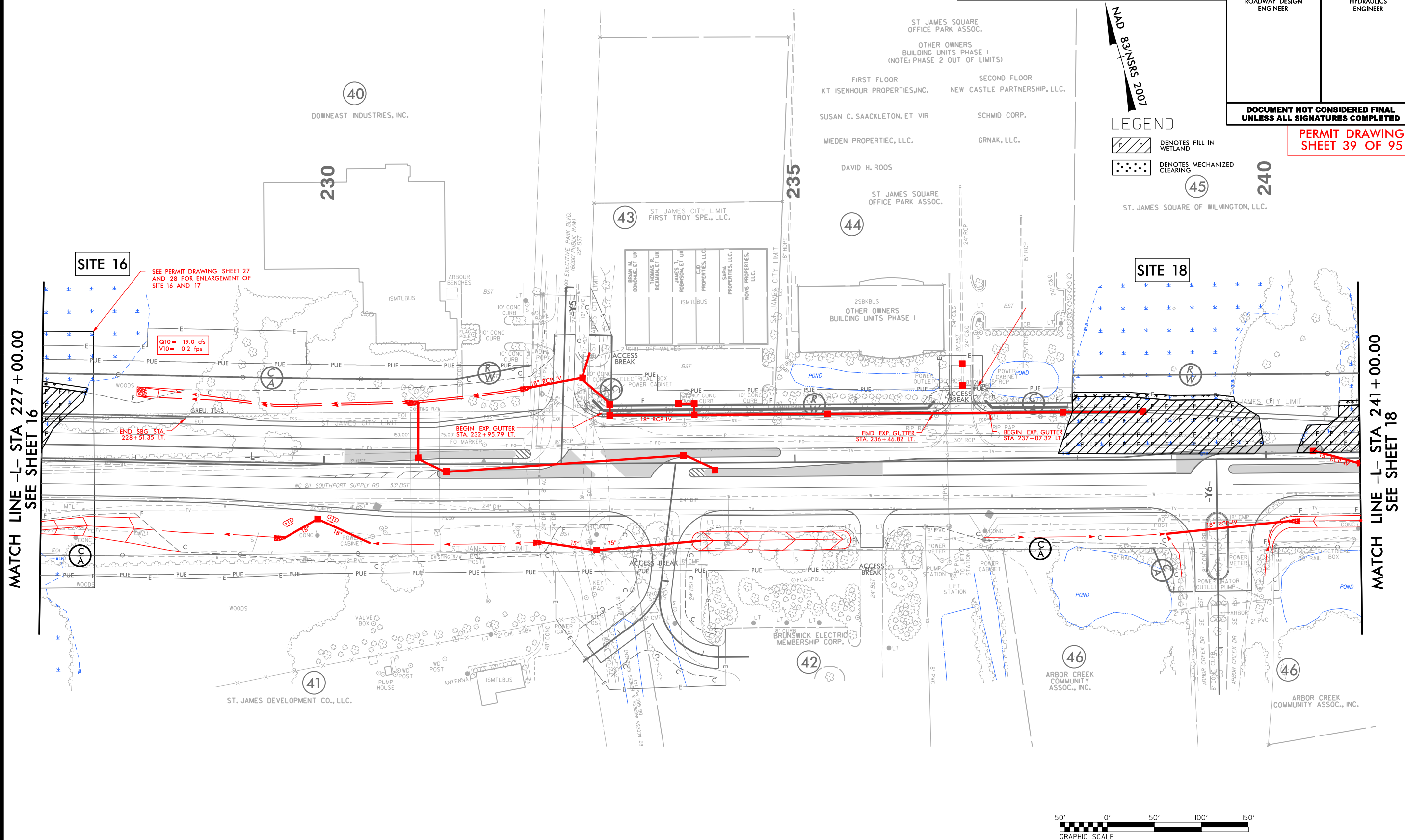
5/14/99

8/17/2018  
R-5021-HYD-PERMIT\_DRAWINGS\_PSH16\_38 of 95\_Cul\_PFL.dgn  
HNTB

|                                                  |                        |           |
|--------------------------------------------------|------------------------|-----------|
| PROJECT REFERENCE NO.                            |                        | SHEET NO. |
| R-5021                                           |                        |           |
| ROADWAY DESIGN<br>ENGINEER                       | HYDRAULICS<br>ENGINEER |           |
| PRELIMINARY PLANS<br>DO NOT USE FOR CONSTRUCTION |                        |           |

PERMIT DRAWING  
SHEET 38 OF 95





**NOTE:**

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 47

FOR -Y5- & -Y6- PROFILES, SEE SHEET 58

FOR -Y5- & -Y6- INTERSECTION DETAILS, SEE SHEET 2B-2

FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3



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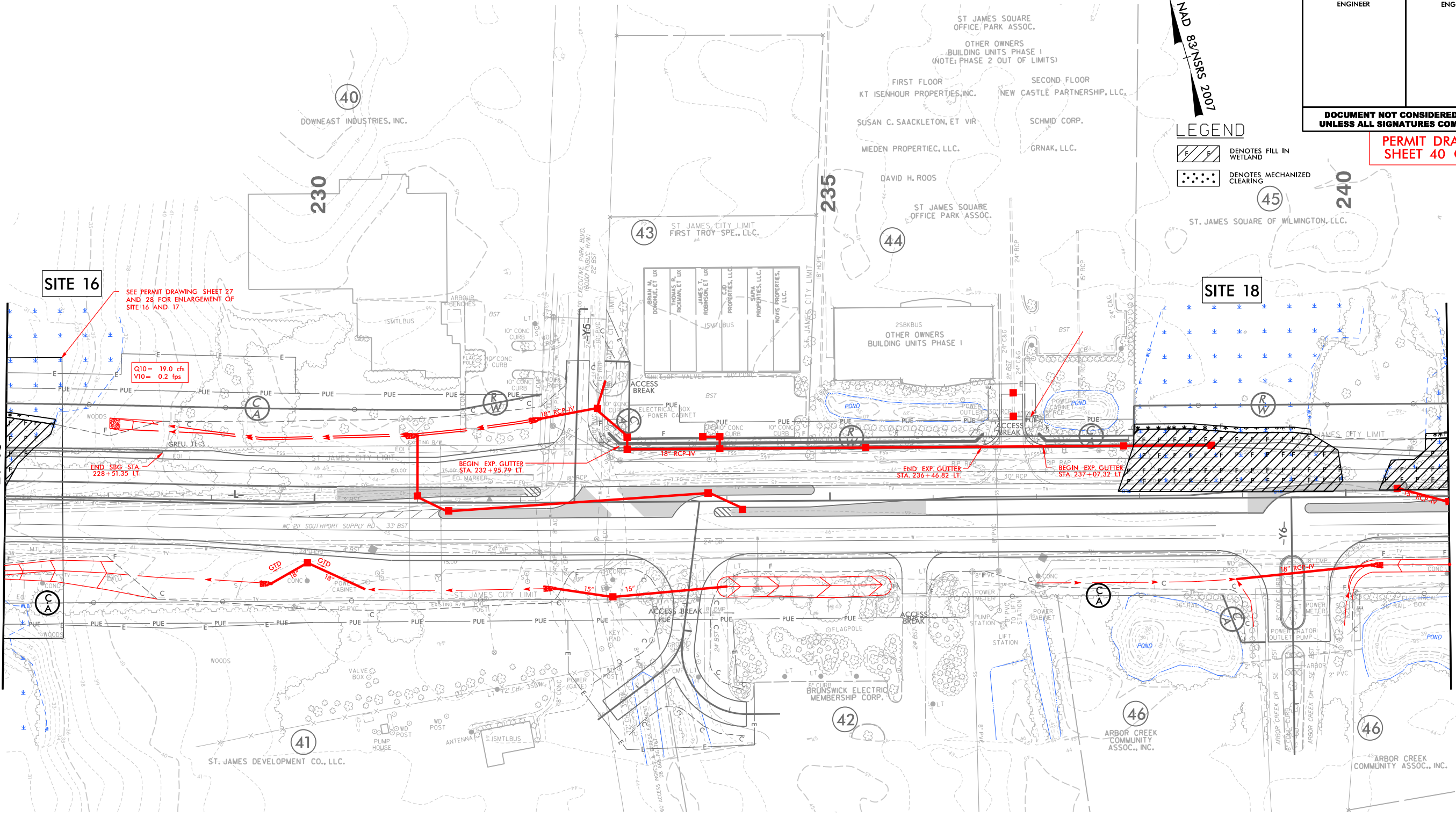
|                         |                     |           |
|-------------------------|---------------------|-----------|
| PROJECT REFERENCE NO.   |                     | SHEET NO. |
| R-5021                  |                     | 17        |
| RW SHEET NO.            |                     |           |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |           |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING  
SHEET 40 OF 95

MATCH LINE -L- STA 227 + 00.00  
SEE SHEET 16

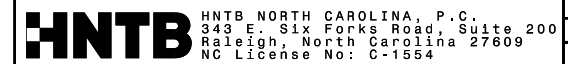
MATCH LINE -L- STA 241 + 00.00  
SEE SHEET 18



- NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
  2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

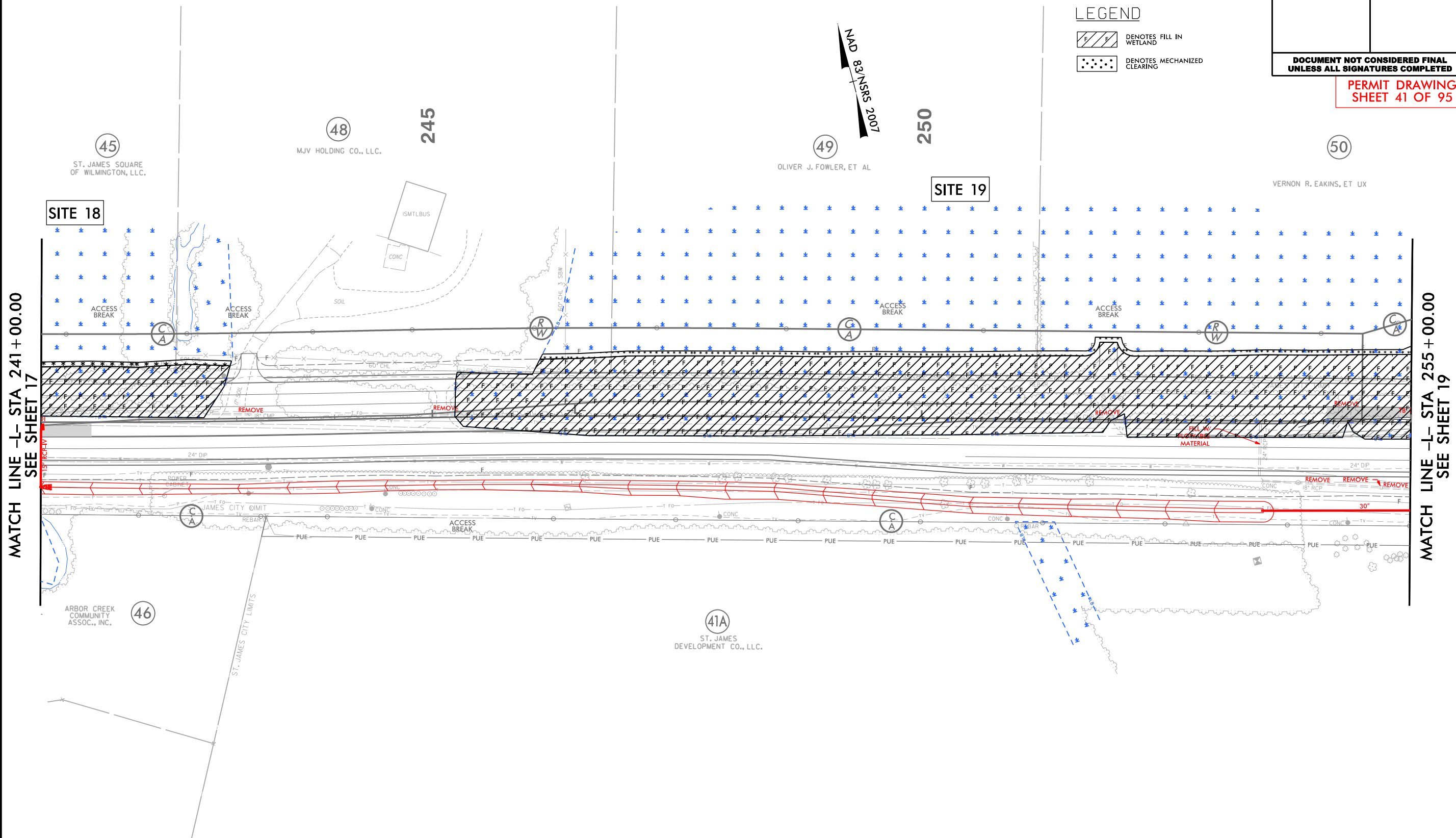


FOR -L- PROFILE, SEE SHEET 47  
FOR -Y5- & -Y6- PROFILES, SEE SHEET 58  
FOR -Y5- & -Y6- INTERSECTION DETAILS, SEE SHEET 2B-2  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3



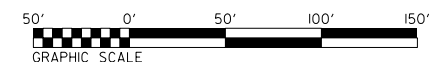
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|------------------------------------------------------------------------------------------------|------------------------|
| PROJECT REFERENCE NO.                                                                          | SHEET NO.              |
| R-5021                                                                                         | 18                     |
| R/W SHEET NO.                                                                                  |                        |
| ROADWAY DESIGN<br>ENGINEER                                                                     | HYDRAULICS<br>ENGINEER |
| <p align="center"><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p> |                        |

PERMIT DRAWING  
SHEET 41 OF 95



**NOTE:**

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

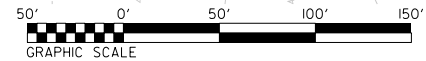


FOR -L- PROFILE, SEE SHEET 48  
FOR DETAIL FOR DIRECTIONAL CROSS OVER, SEE SHEET 2B-2  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3



**MATCH LINE -L- STA 241+00.00  
SEE SHEET 17**

**MATCH LINE -L- STA 255+00.00  
SEE SHEET 19**



1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 48  
FOR DETAIL FOR DIRECTIONAL CROSS OVER, SEE SHEET 2B-2  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

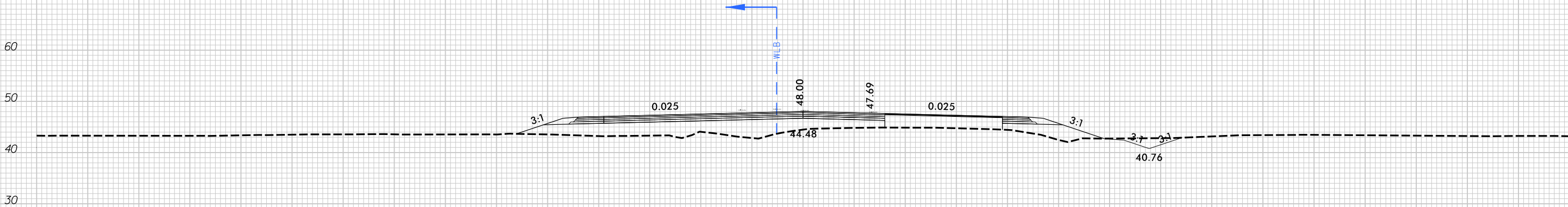
6/23/16

|     |  |                                  |           |
|-----|--|----------------------------------|-----------|
| 510 |  | PROJ. REFERENCE NO.              | SHEET NO. |
|     |  | R-5021                           |           |
|     |  | PERMIT DRAWING<br>SHEET 43 OF 95 |           |

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 18  
-L- 242 + 00.00



SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

5/15/2018  
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11:18



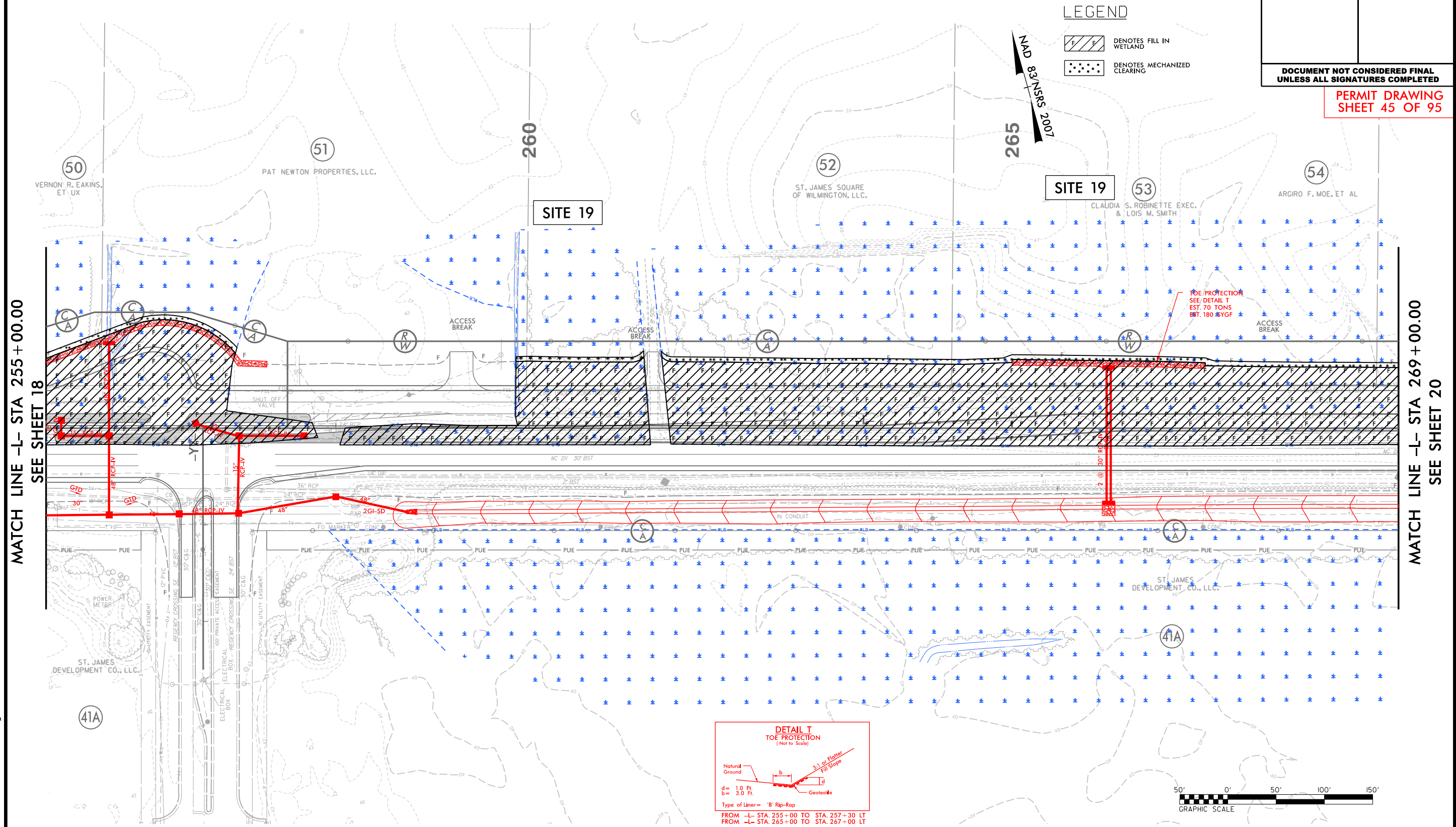
**LEGEND**

 DENOTES FILL IN WETLAND

 DENOTES MECHANIZED CLEARING



FOR -L- PROFILE, SEE SHEET 48  
FOR -Y7- PROFILE, SEE SHEET 58  
FOR INTERSECTION DETAIL AND DIRECTIONAL CROSS OVER, SEE SHEET 2B-2  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3



**NOTE:**

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 48

FOR -Y7- PROFILE, SEE SHEET 58

FOR INTERSECTION DETAIL AND DIRECTIONAL CROSS OVER, SEE SHEET 2B-2

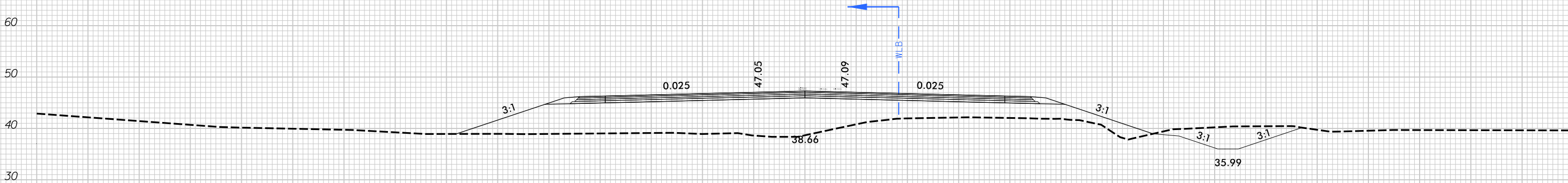
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

6/23/16

|     |                     |  |                                  |  |
|-----|---------------------|--|----------------------------------|--|
| 510 | PROJ. REFERENCE NO. |  | SHEET NO.                        |  |
|     | R-5021              |  | PERMIT DRAWING<br>SHEET 46 OF 95 |  |

# WETLAND CROSS SECTIONS

SITE 19  
-L- 265 + 00.00



**SCALE**  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

5/15/2018  
H:\Drawings\R-5021-hyd-prm-xpl.dgn  
11:18



5/14/99 2/18/2021 HYD\_PERMIT\_DRAWINGS\_PSH20\_47 of 95.dgn

REVISED 2-19-2021

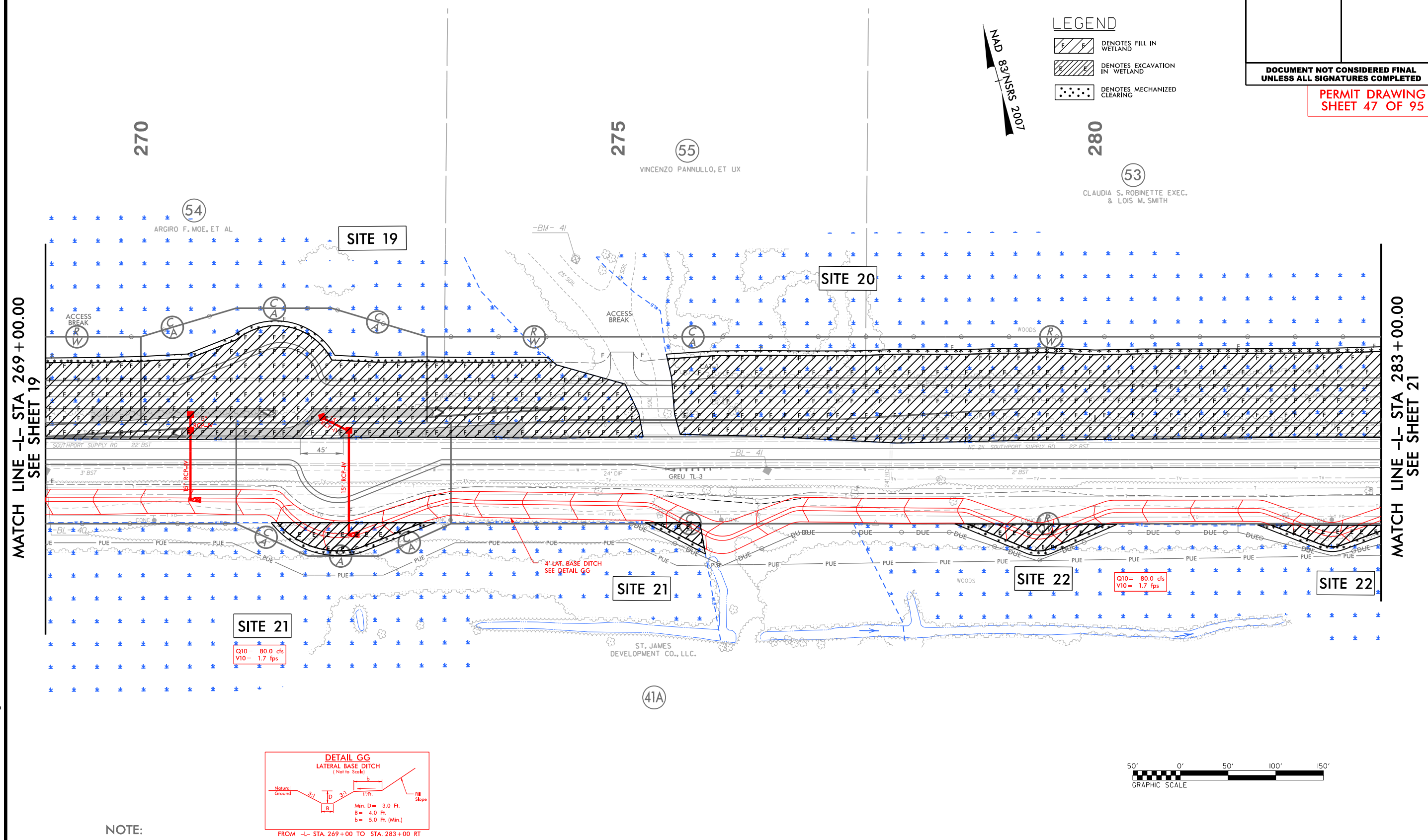
**HNTB**

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Raleigh, North Carolina 27609  
NC License No: C-1554

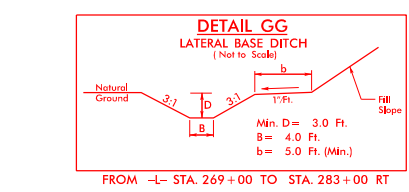
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|-------------------------|---------------------|-----------|
| PROJECT REFERENCE NO.   |                     | SHEET NO. |
| R-5021                  |                     | 20        |
| RW SHEET NO.            |                     |           |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |           |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING  
SHEET 47 OF 95

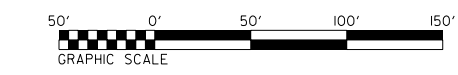


- NOTE:
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
  2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.



LEGEND

- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING



FOR -L- PROFILE, SEE SHEET 49  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3



5/14/99  
2/13/2021 HYD\_PERMIT\_DRAWINGS\_PSH20\_48 of 95.dgn  
HNTB

REVISED 2-19-2021

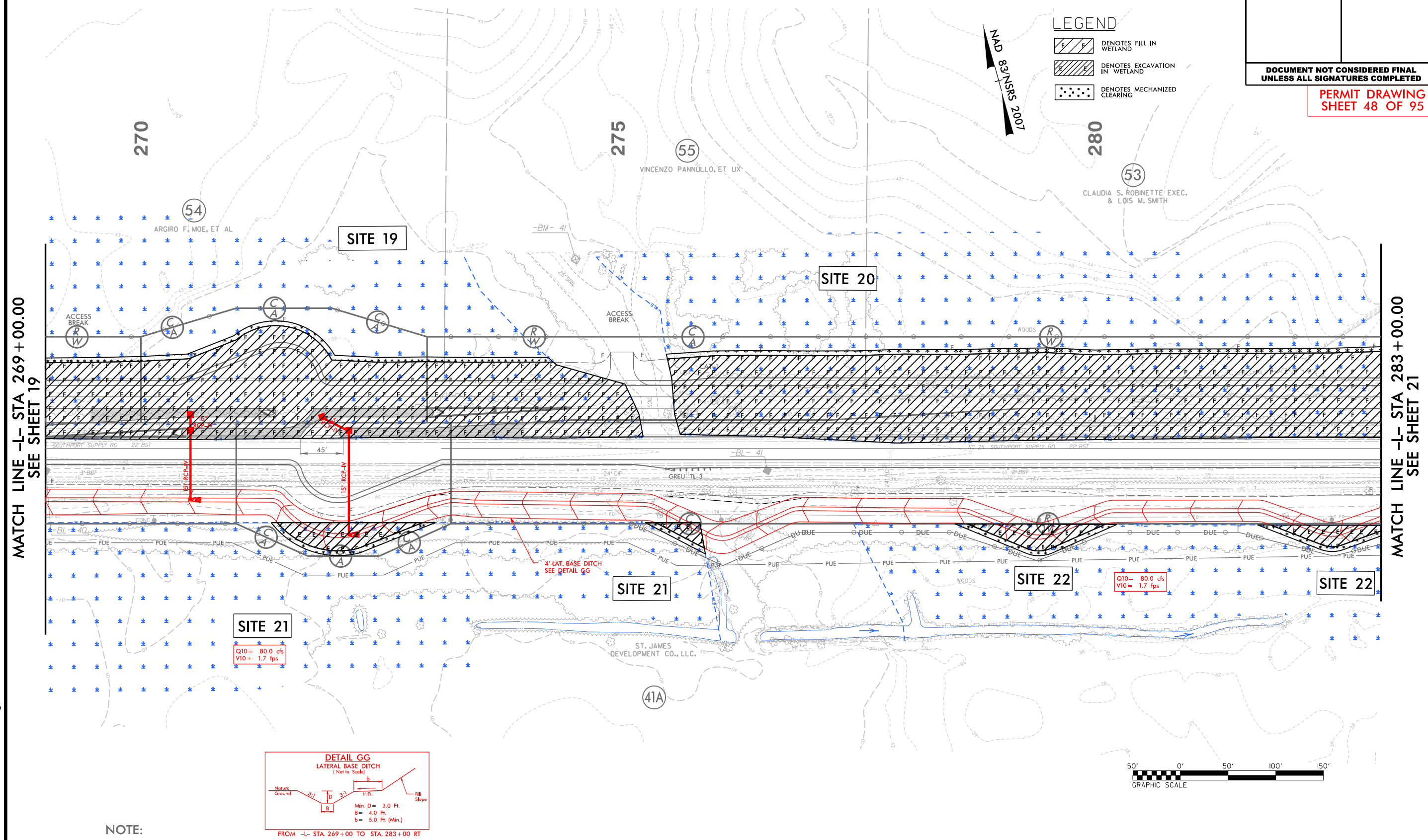
**HNTB**

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NC License No: C-1554

|                         |  |                     |  |
|-------------------------|--|---------------------|--|
| PROJECT REFERENCE NO.   |  | SHEET NO.           |  |
| R-5021                  |  | 20                  |  |
| RW SHEET NO.            |  |                     |  |
| ROADWAY DESIGN ENGINEER |  | HYDRAULICS ENGINEER |  |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING  
SHEET 48 OF 95

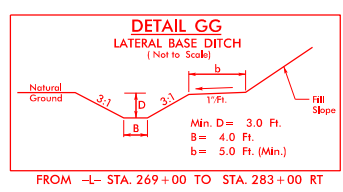


**LEGEND**

- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES MECHANIZED CLEARING

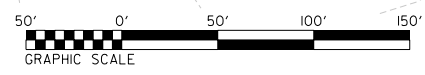
**SITE 21**  
Q10= 80.0 cfs  
V10= 1.7 fps

Q10= 80.0 cfs  
V10= 1.7 fps



- NOTE:**
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
  2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 49  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

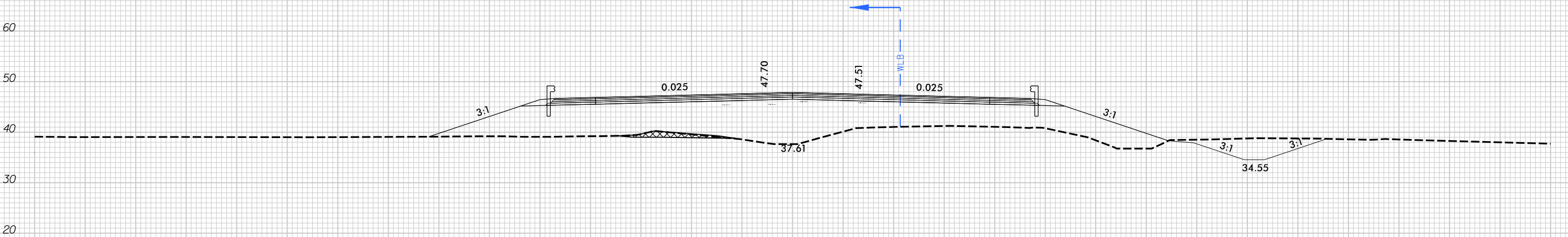


6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 20  
-L- 278 + 00.00

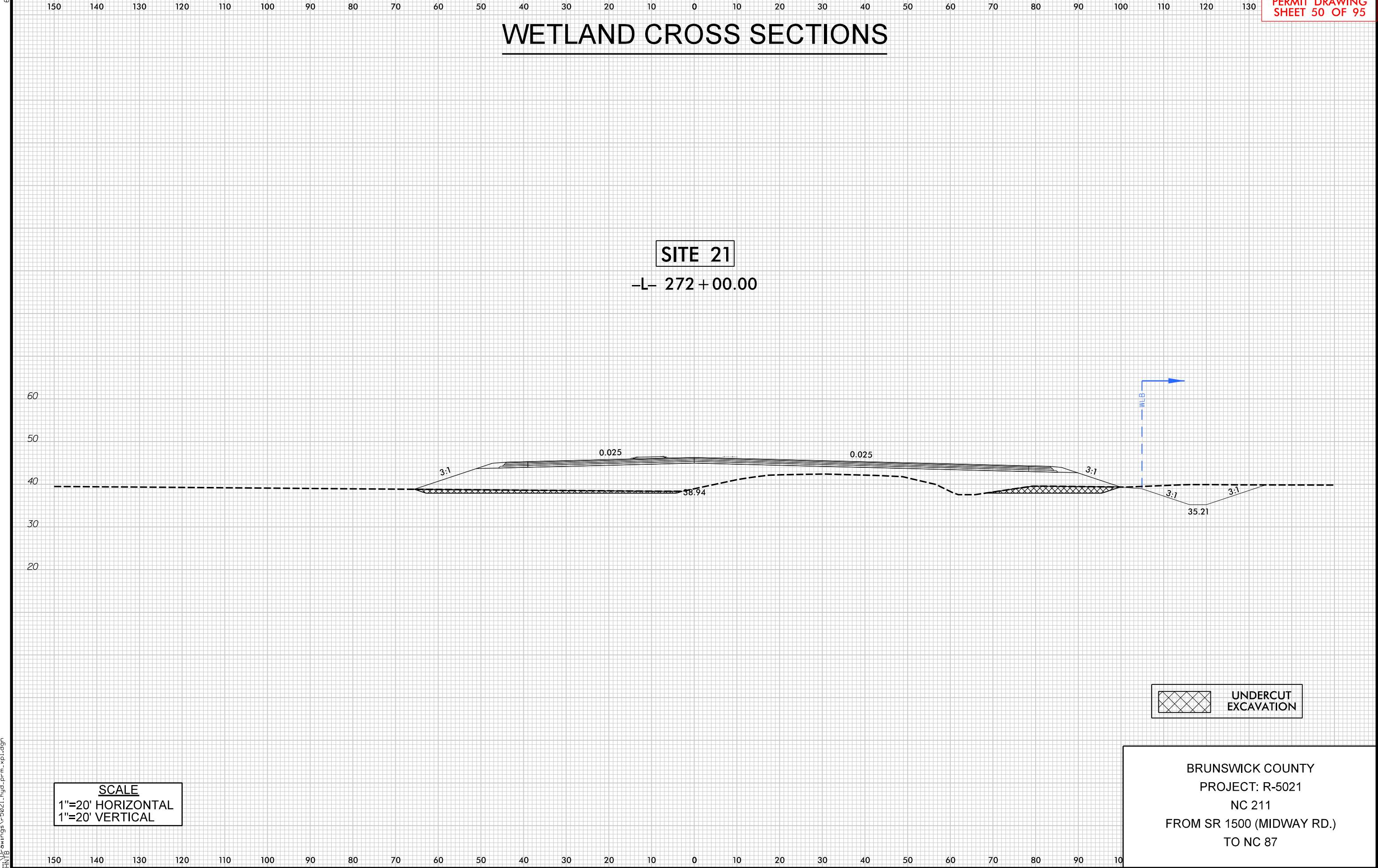


SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

6/23/16

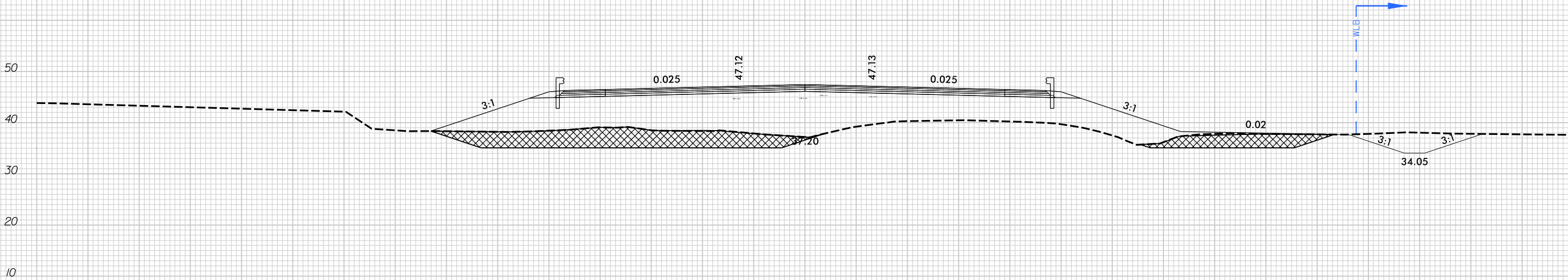


6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 22  
-L- 282 + 50.00



UNDERCUT  
EXCAVATION

SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100



5/14/99 2/18/2021 HYD.PERMIT.DRAWINGS.PSH21.52 of 95.dgn HNTB

REVISED 2-19-2021

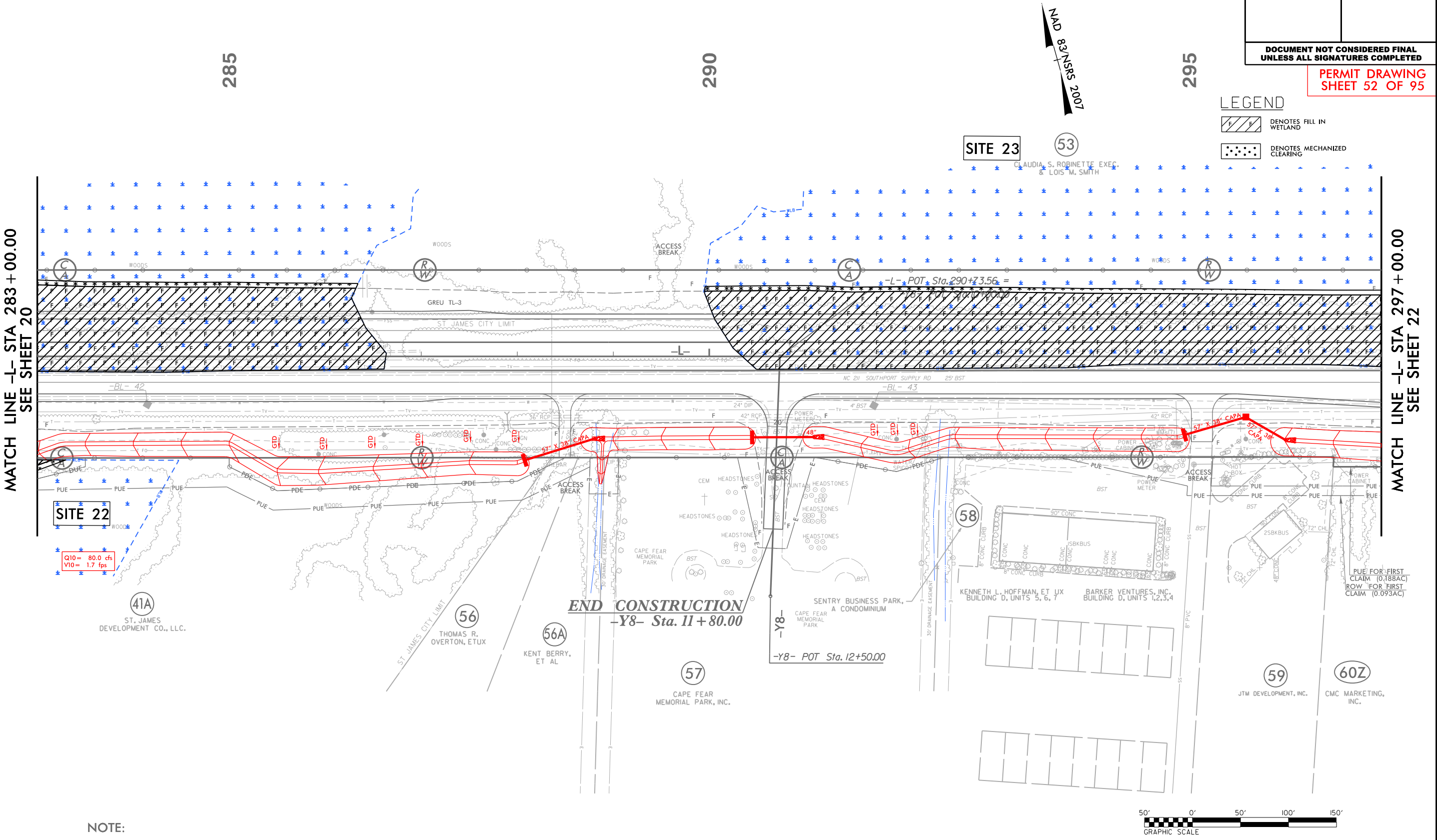
**HNTB**

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NC License No: C-1554

|                         |                     |           |
|-------------------------|---------------------|-----------|
| PROJECT REFERENCE NO.   |                     | SHEET NO. |
| R-5021                  |                     | 21        |
| RW SHEET NO.            |                     |           |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |           |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING  
SHEET 52 OF 95



- NOTE:
- 1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
  - 2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 49  
FOR -Y8- PROFILE, SEE SHEET 62  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

5/14/99

2/18/2021 HYD.PERMIT.DRAWINGS.PSH21.53 of 95.dgn

REVISED 2-19-2021

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Raleigh, North Carolina 27609  
NC License No: C-1554

| PROJECT REFERENCE NO.                                            |  | SHEET NO.           |
|------------------------------------------------------------------|--|---------------------|
| R-5021                                                           |  | 21                  |
| RW SHEET NO.                                                     |  |                     |
| ROADWAY DESIGN ENGINEER                                          |  | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |  |                     |

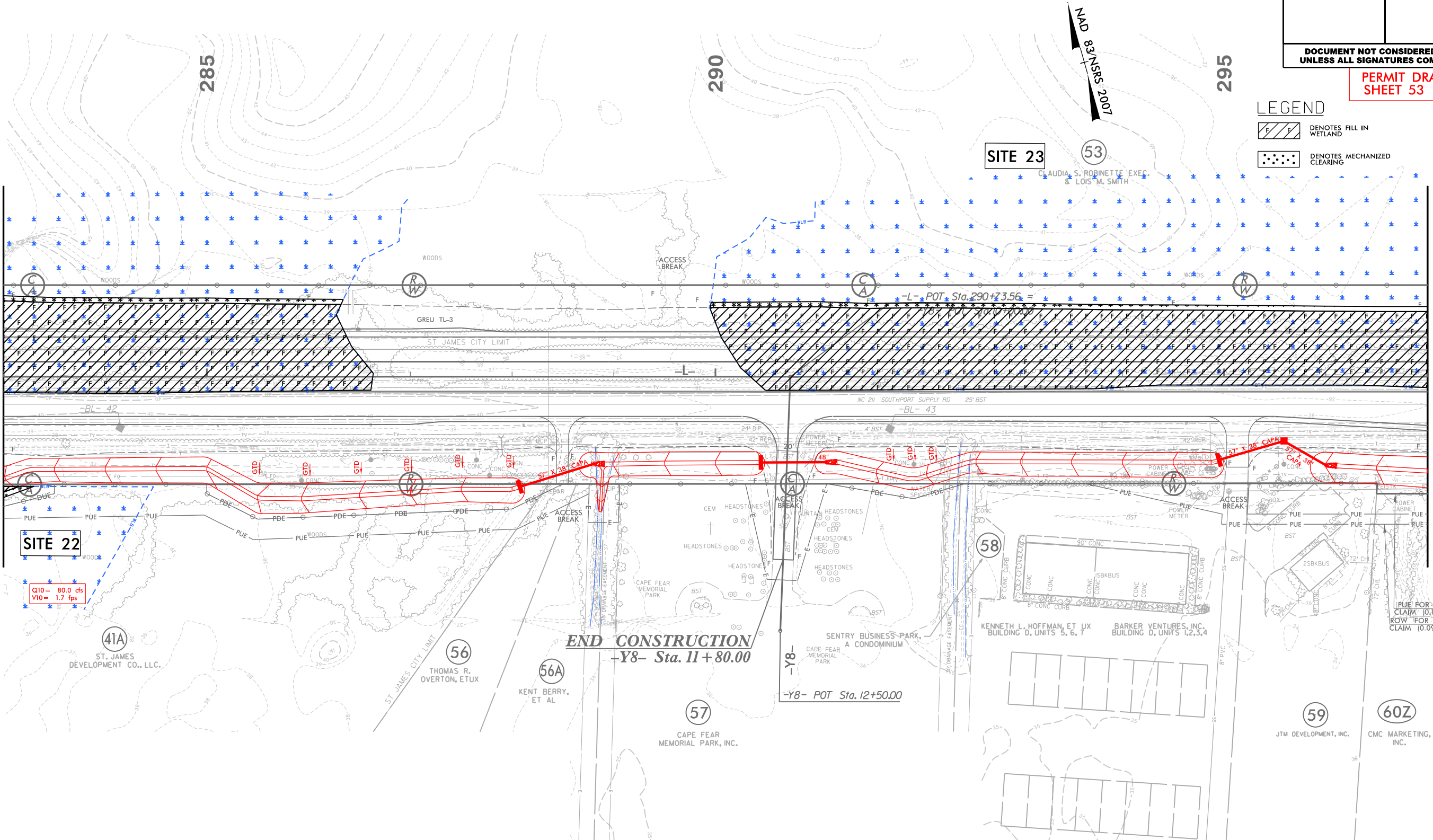
PERMIT DRAWING  
SHEET 53 OF 95

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

MATCH LINE -L- STA 283+00.00  
SEE SHEET 20

MATCH LINE -L- STA 297+00.00  
SEE SHEET 22



NOTE:

- ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
- PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 49  
FOR -Y8- PROFILE, SEE SHEET 62  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

**LEGEND**

**13**

 DENOTES FILL IN WETLAND

 DENOTES MECHANIZED CLEARING



FOR -L- PROFILE, SEE SHEET 50  
FOR -Y9- & -Y10- PROFILES, SEE SHEET 59  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3





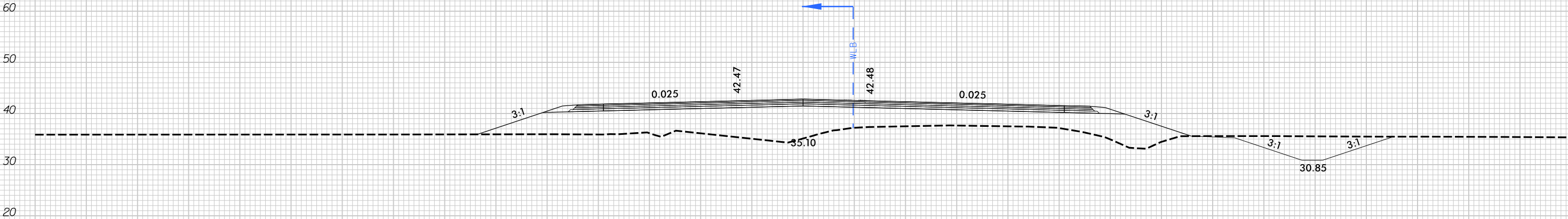


6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

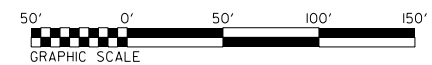
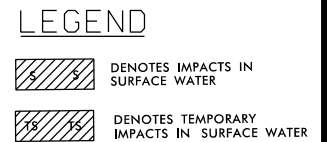
SITE 23  
-L- 298 + 00.00



SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

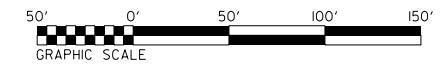
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 DENOTES IMPACTS IN SURFACE WATER

 DENOTES TEMPORARY IMPACTS IN SURFACE WATER







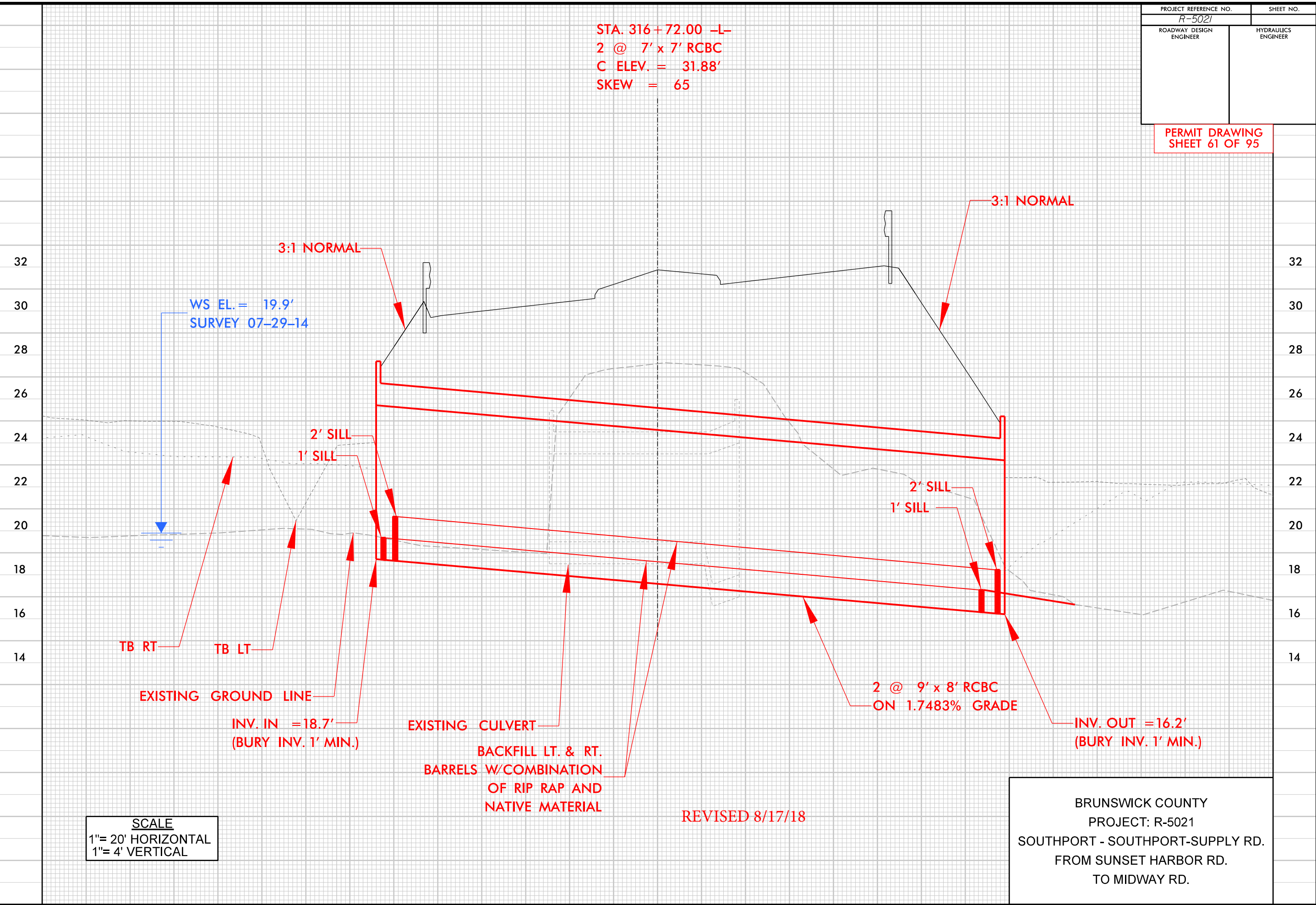


5/14/99

8/17/2018  
R-5021-HYD-PERMIT\_DRAWINGS\_PSH23.61 of 95\_Cul\_PFL.dgn  
HNTB

| PROJECT REFERENCE NO.   |                     | SHEET NO. |
|-------------------------|---------------------|-----------|
| R-5021                  |                     |           |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |           |

PERMIT DRAWING  
SHEET 61 OF 95



 DENOTES EXCAVATION  
IN WETLAND

SCALE: 1" = 40'

END SBG STA. 41+45.72

END PROP. RETAINING WALL +11.17 39.625' RT

END APPROACH SLAB -Y14A- STA 40+40.63

END BRIDGE -Y14A- STA 40+09.43

BEGIN SBG STA. 40+39.00

BEGIN MSE WALL STA. 40+07.61

BEGIN SBG STA. 40+42.28

BEGIN MSE WALL STA. 40+11.24

40

100' MEDIAN BAY TAVER LT

END MSE WALL STA. 39+01.26

END SBG STA. 38+70.16

BEGIN BRIDGE -Y14A- STA 39+03.07

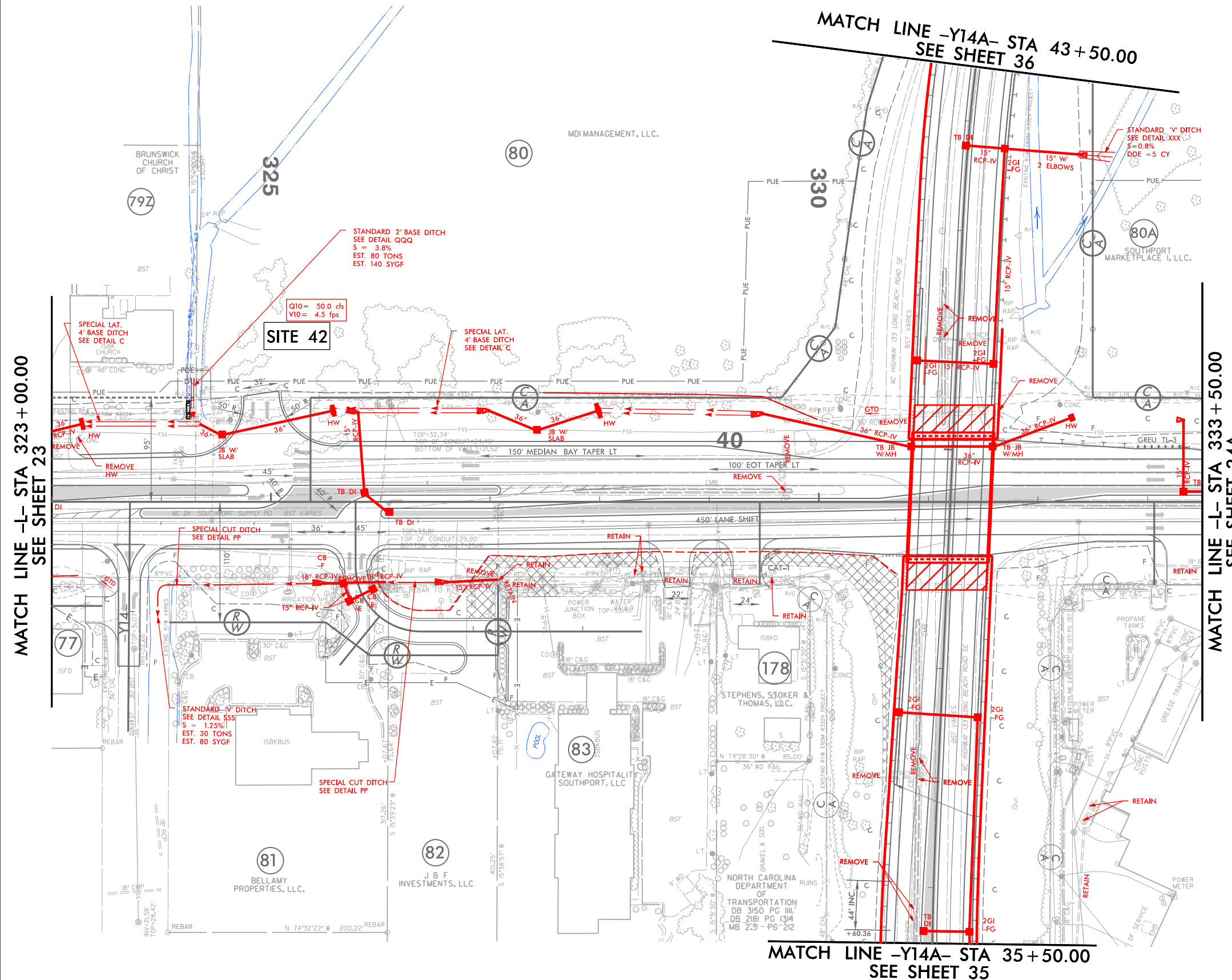
BEGIN APPROACH SLAB -Y14A- STA 38+71.81

PROP. 5" MONOLITHIC CONC. ISLAND (SURFACE MOUNTED)

133 HIGHWAY / 133 LONG BEACH ROAD SE

-Y14A-

SEE SHEET 14A









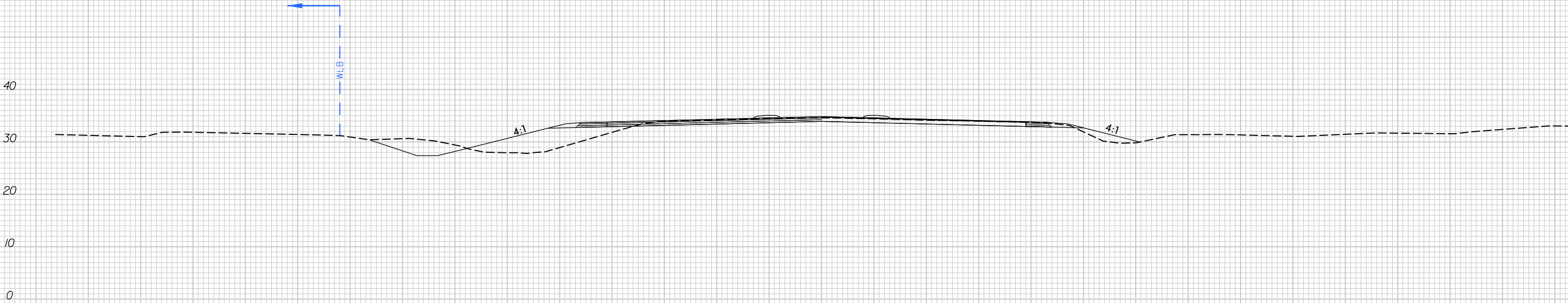
6/23/16

|     |  |                                  |           |
|-----|--|----------------------------------|-----------|
| 510 |  | PROJ. REFERENCE NO.              | SHEET NO. |
|     |  | R-5021                           |           |
|     |  | PERMIT DRAWING<br>SHEET 64 OF 95 |           |

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 42  
-L- 324 + 24.00



SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

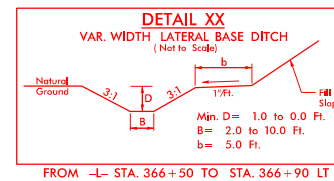
BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

5/15/2018  
I:\Drawings\R-5021-hyd-prm-xpl.dgn  
11:18

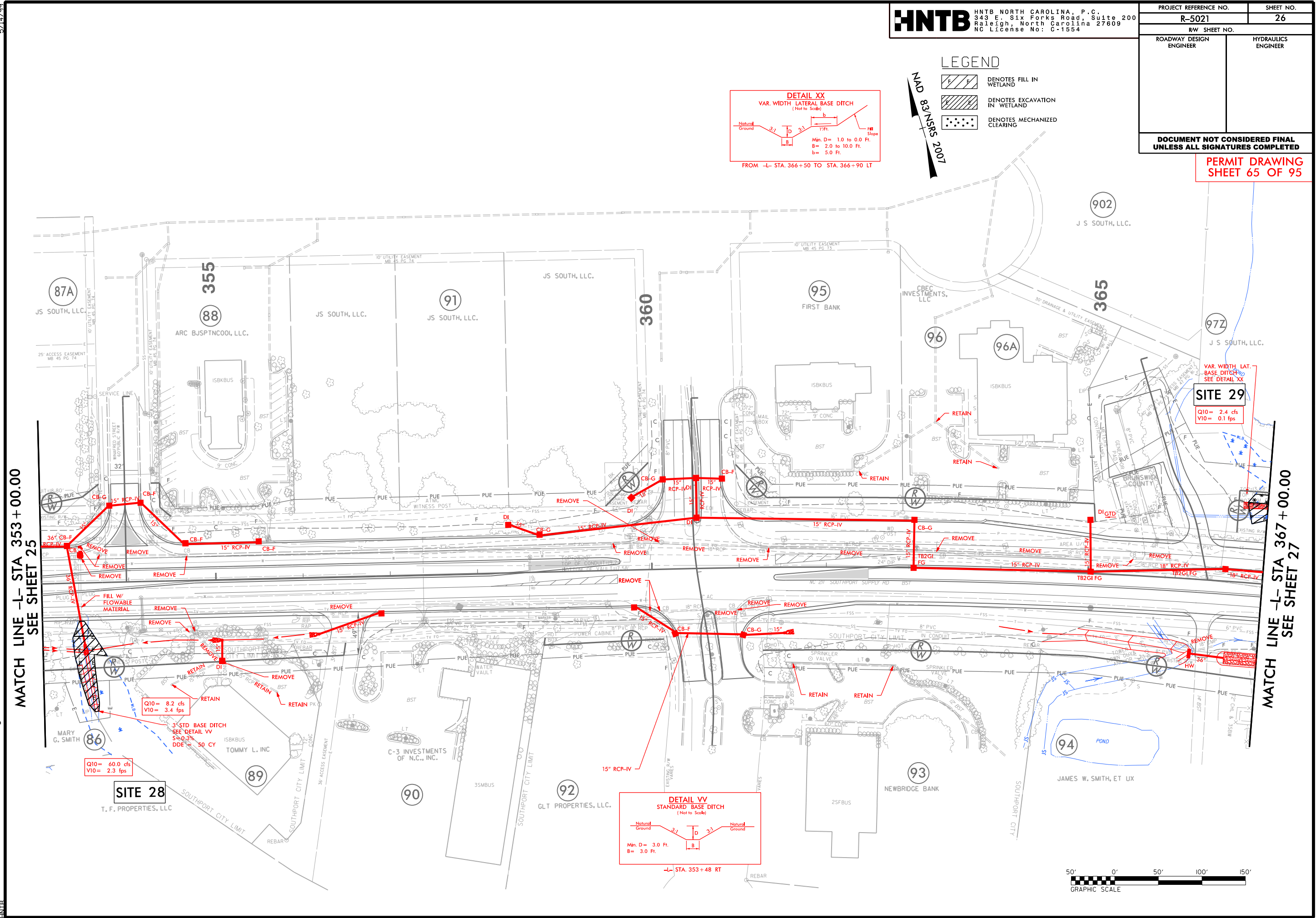
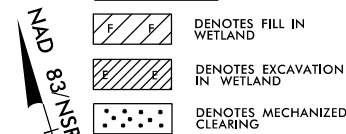
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|                                                                                                |  |                        |  |
|------------------------------------------------------------------------------------------------|--|------------------------|--|
| PROJECT REFERENCE NO.                                                                          |  | SHEET NO.              |  |
| R-5021                                                                                         |  | 26                     |  |
| RW SHEET NO.                                                                                   |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER                                                                     |  | HYDRAULICS<br>ENGINEER |  |
| <p align="center"><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p> |  |                        |  |

PERMIT DRAWING  
SHEET 65 OF 95

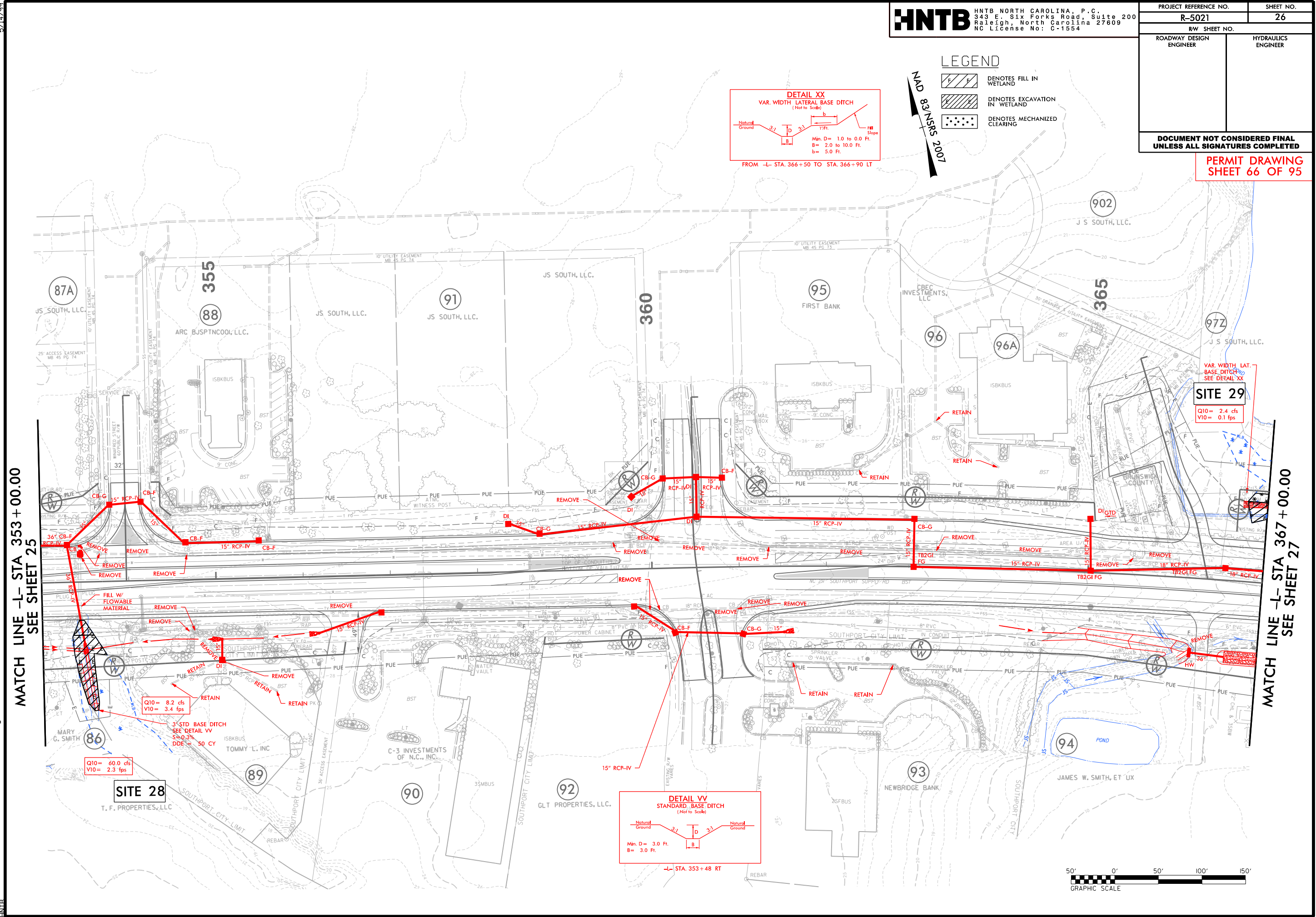


### LEGEND



50' 0' 50' 100' 150'

GRAPHIC SCALE





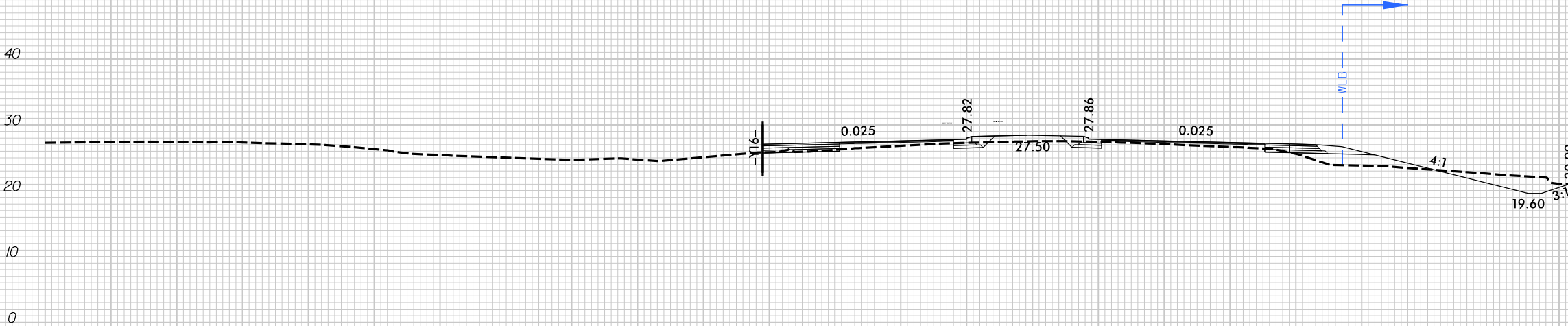
6/23/16

|     |  |                                  |           |
|-----|--|----------------------------------|-----------|
| 510 |  | PROJ. REFERENCE NO.              | SHEET NO. |
|     |  | R-5021                           |           |
|     |  | PERMIT DRAWING<br>SHEET 67 OF 95 |           |

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 28  
-L- 353 + 50.00

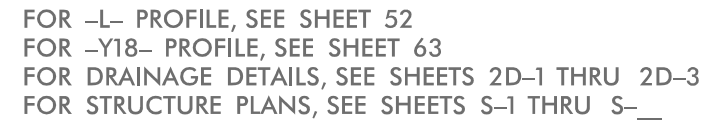


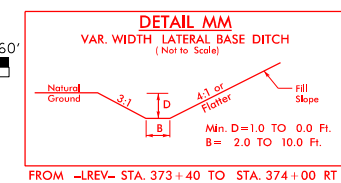
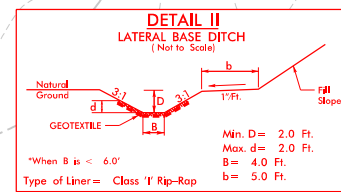
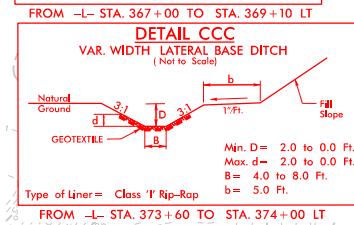
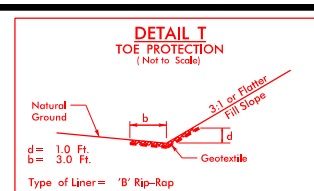
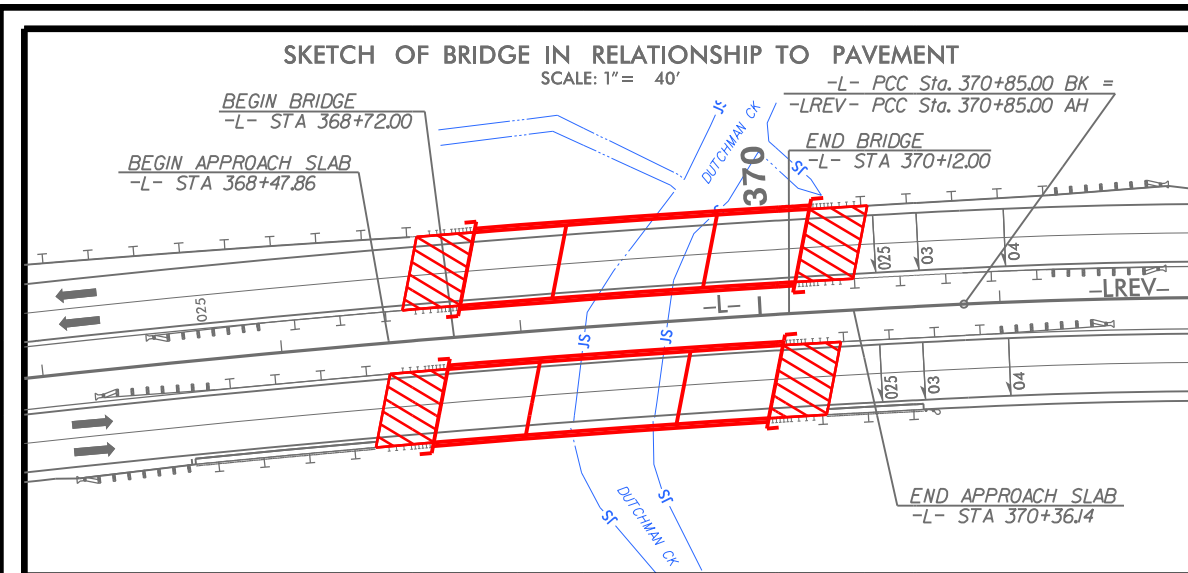
SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100







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Raleigh, North Carolina 27609  
NC License No: C-1554

|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
|-----------------------|-----------|

|        |    |
|--------|----|
| R-5021 | 27 |
|--------|----|

R/W SHEET NO.

|                            |                        |
|----------------------------|------------------------|
| ROADWAY DESIGN<br>ENGINEER | HYDRAULICS<br>ENGINEER |
|----------------------------|------------------------|

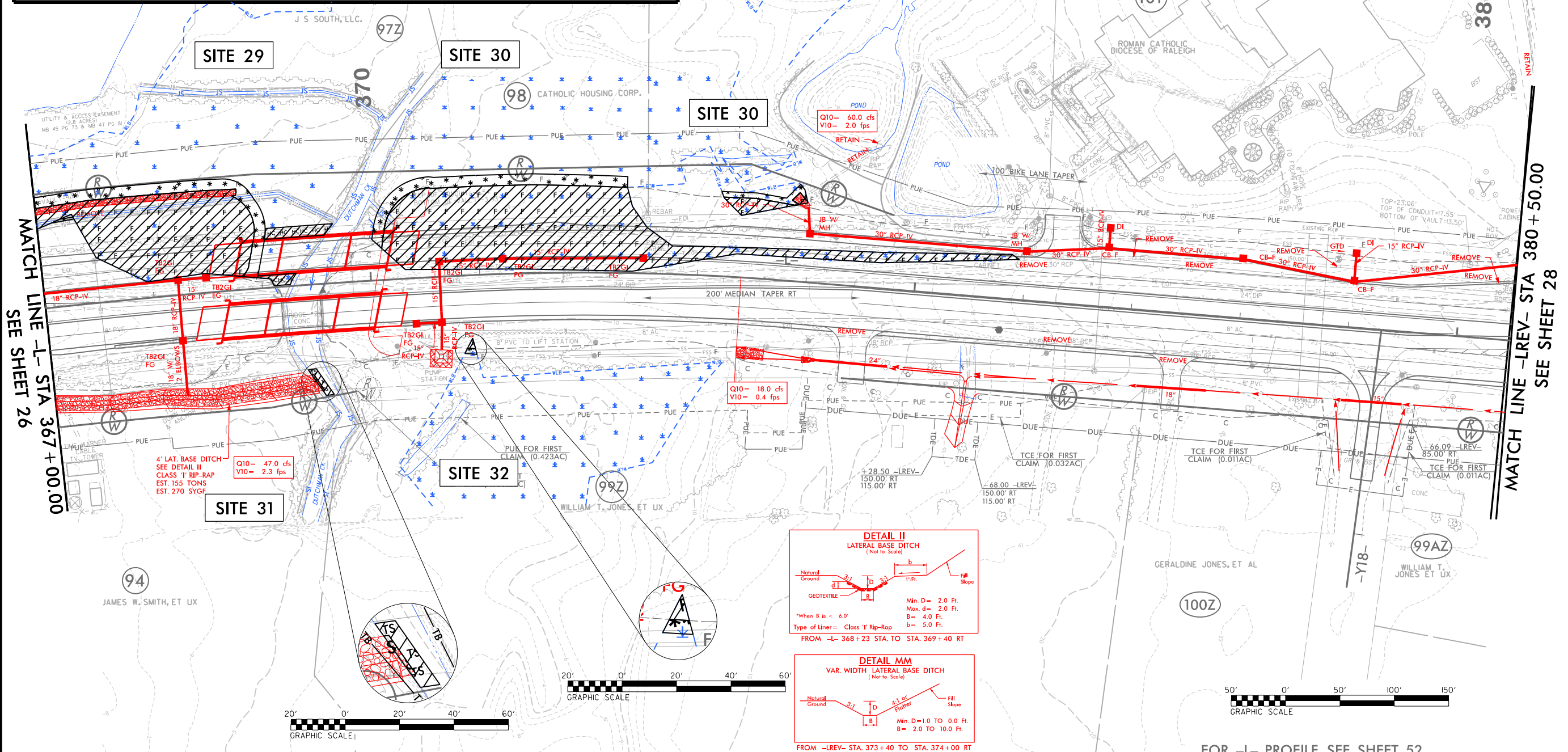
[illegible]

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

PERMIT DRAWING  
SHEET 69 OF 95

### LEGEND

|  |                                            |
|--|--------------------------------------------|
|  | DENOTES FILL IN WETLAND                    |
|  | DENOTES IMPACTS IN SURFACE WATER           |
|  | DENOTES TEMPORARY IMPACTS IN SURFACE WATER |
|  | DENOTES MECHANIZED CLEARING                |
|  | DENOTES EXCAVATION IN WETLAND              |
|  | DENOTES HAND CLEARING                      |



**NOTE:**

- NOTE:  
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.  
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 52  
FOR -Y18- PROFILE, SEE SHEET 63  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3  
FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-\_\_

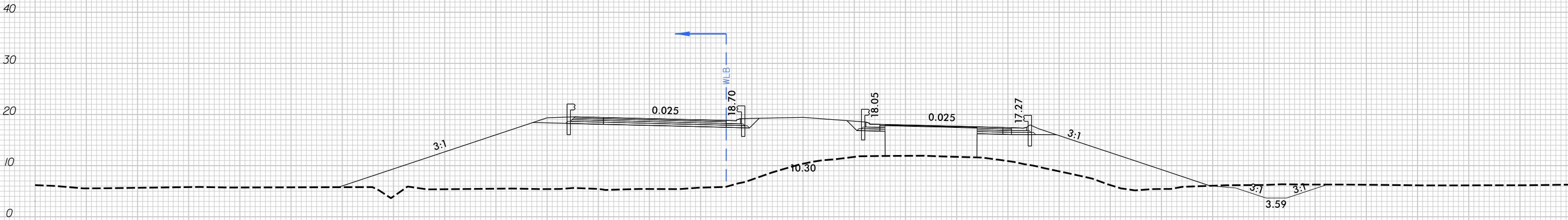


6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

**SITE 29**  
-L- 368 + 00.00



**SCALE**  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 10

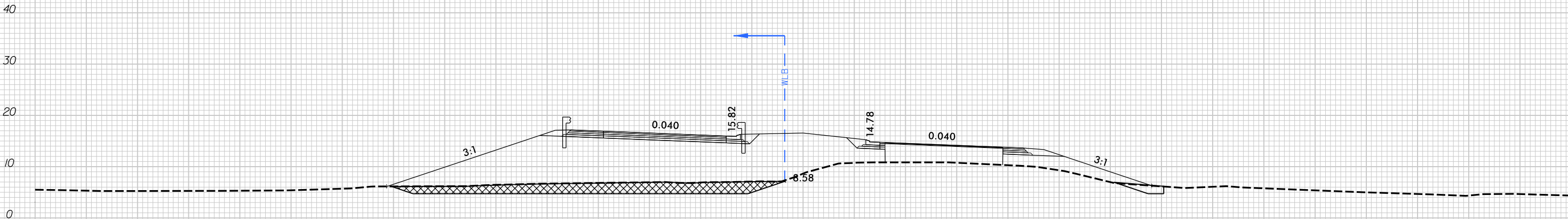
6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 30

-L- 371+50



UNDERCUT  
EXCAVATION

SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100



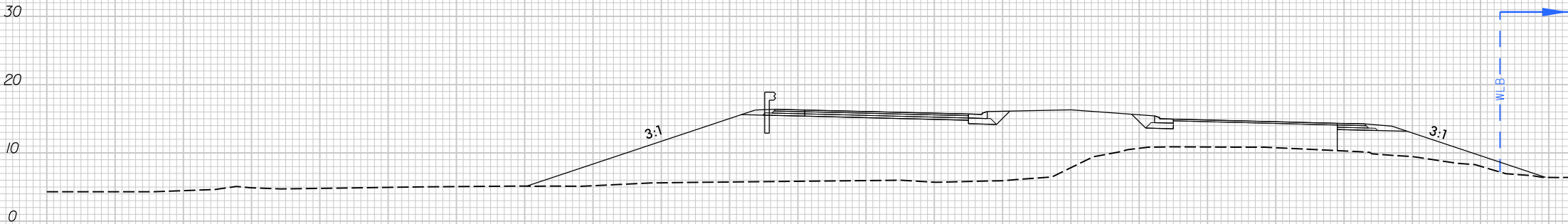
6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 32

-L- 370+88



**SCALE**  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

PERMIT DRAWING  
SHEET 73 OF 95



BRUNSWICK COUNTY  
PROJECT: R-5021  
SOUTHPORT - SOUTHPORT-SUPPLY RD.  
FROM SUNSET HARBOR RD.  
TO MIDWAY RD.

5/14/99

5/15/2018 11:40:01 AM 1-HYD-PERMIT-DRAWINGS\_PSH31.L74 OF 95.dgn

DO NOT DISTURB THE MONUMENT  
"NCGS K216".

NAD 83/NSRS 2007

**HNTB**

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Raleigh, North Carolina 27609  
NC License No: C-1554

PROJECT REFERENCE NO. SHEET NO.

R-5021

31

R/W SHEET NO.

ROADWAY DESIGN  
ENGINEER

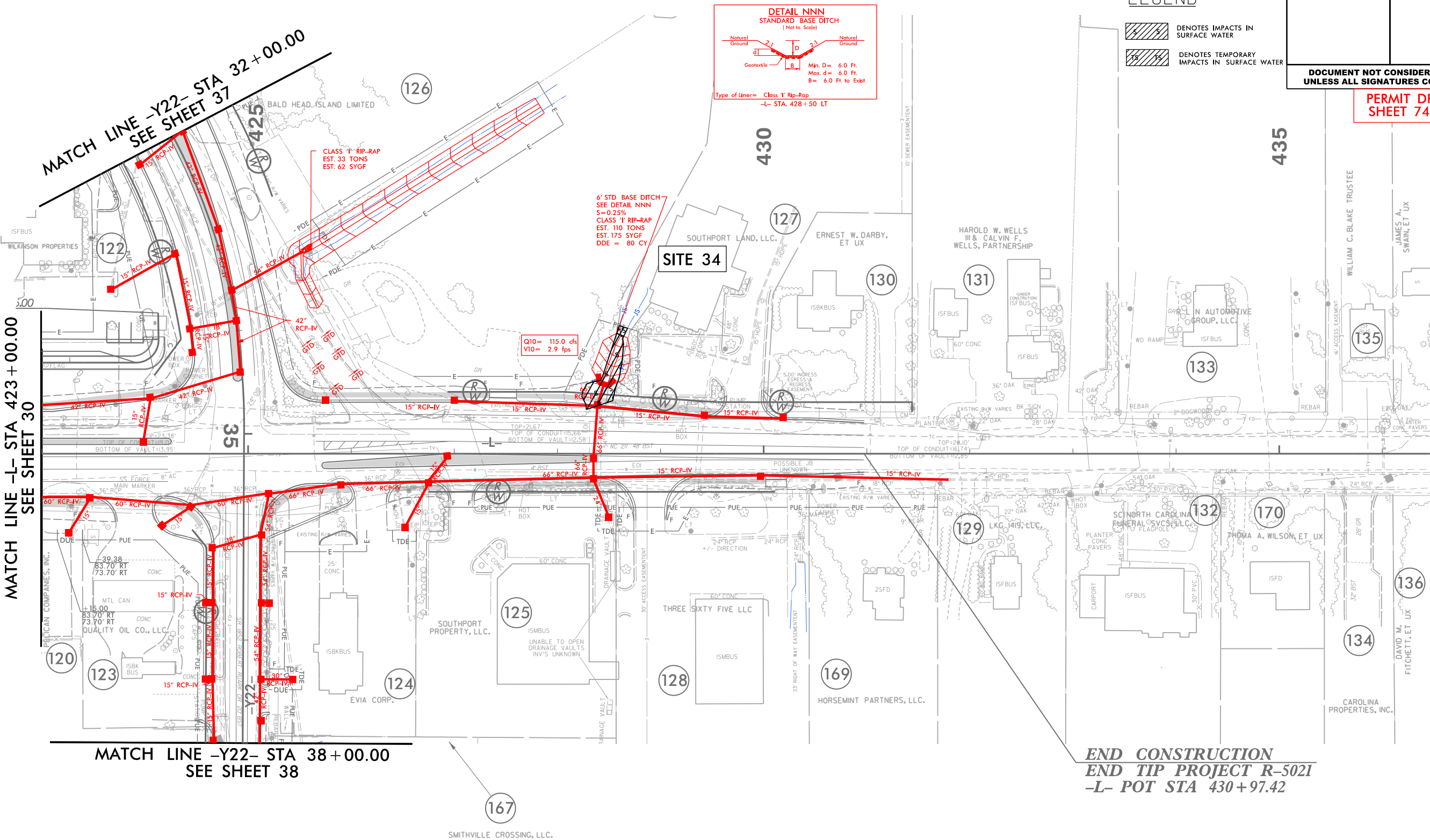
HYDRAULICS  
ENGINEER

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING  
SHEET 74 OF 95

## LEGEND

-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER



### NOTE:

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 54  
FOR -Y22- PROFILE, SEE SHEET 66  
FOR INTERSECTION DETAIL, SEE SHEET 2B-3  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3



5/14/99

5/15/2018  
1.HYD\_PERMIT\_DRAWINGS\_PSH31.75 OF 95.dgn  
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DO NOT DISTURB THE MONUMENT  
"NCGS K216".

NAD 83/NSRS 2007

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Raleigh, North Carolina 27609  
NC License No: C-1554

PROJECT REFERENCE NO. SHEET NO.

R-5021

31

RW SHEET NO.

ROADWAY DESIGN  
ENGINEER

HYDRAULICS  
ENGINEER

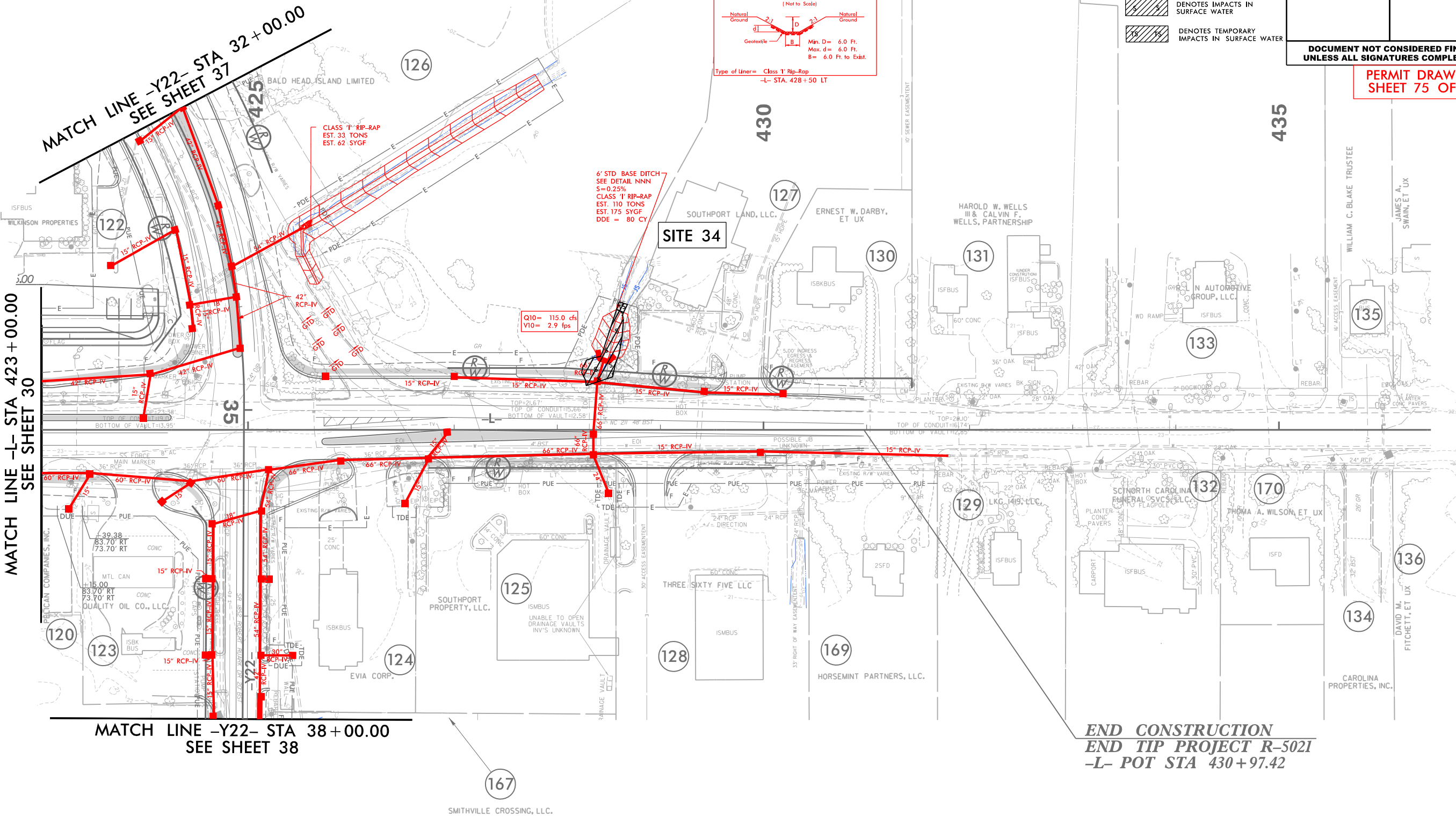
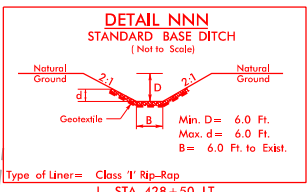
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING  
SHEET 75 OF 95

LEGEND

 DENOTES IMPACTS IN  
SURFACE WATER

 DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER



NOTE:

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -L- PROFILE, SEE SHEET 54  
FOR -Y22- PROFILE, SEE SHEET 66  
FOR INTERSECTION DETAIL, SEE SHEET 2B-3  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3





 DENOTES EXCAVATION  
IN WETLAND

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

FOR -YREV- PROFILE, SEE SHEET 55  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

6/23/16

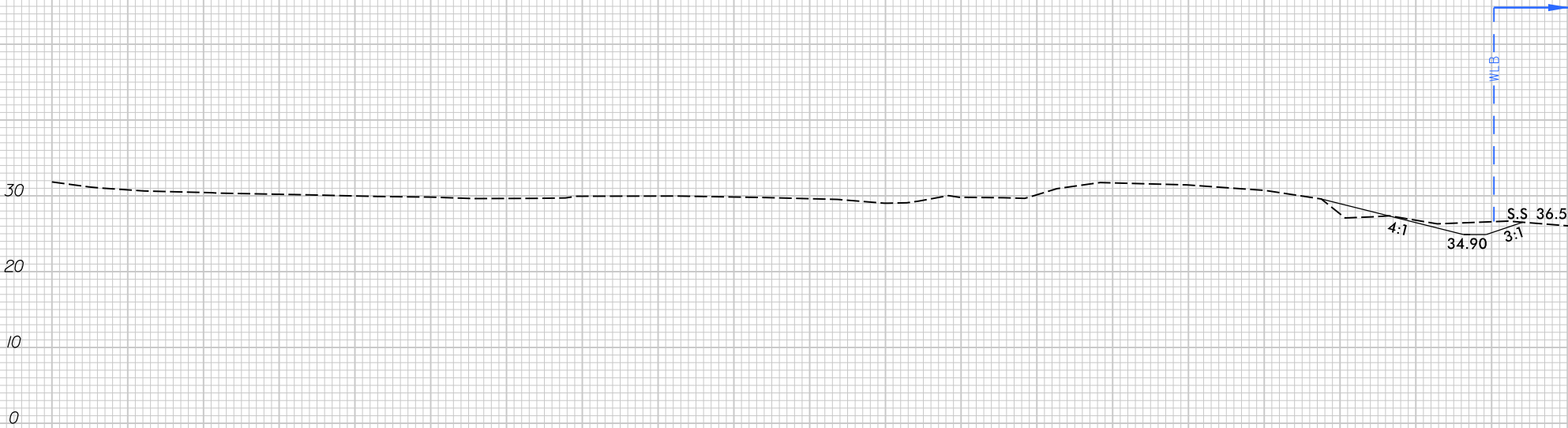
5/15/2018  
H:\Drawings\16-5021-hyd-prm-xpl.dgn  
11:18

|     |  |                                  |           |
|-----|--|----------------------------------|-----------|
| 510 |  | PROJ. REFERENCE NO.              | SHEET NO. |
|     |  | R-5021                           |           |
|     |  | PERMIT DRAWING<br>SHEET 78 OF 95 |           |

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

**SITE 36**  
-YREV- 9 + 65.00



**SCALE**  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100



NOTE:  
1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.  
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.

|                                                                                                |  |                        |  |
|------------------------------------------------------------------------------------------------|--|------------------------|--|
| PROJECT REFERENCE NO.                                                                          |  | SHEET NO.              |  |
| R-5021                                                                                         |  | 33                     |  |
| R/W SHEET NO.                                                                                  |  | 34                     |  |
| ROADWAY DESIGN<br>ENGINEER                                                                     |  | HYDRAULICS<br>ENGINEER |  |
| <p align="center"><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p> |  |                        |  |

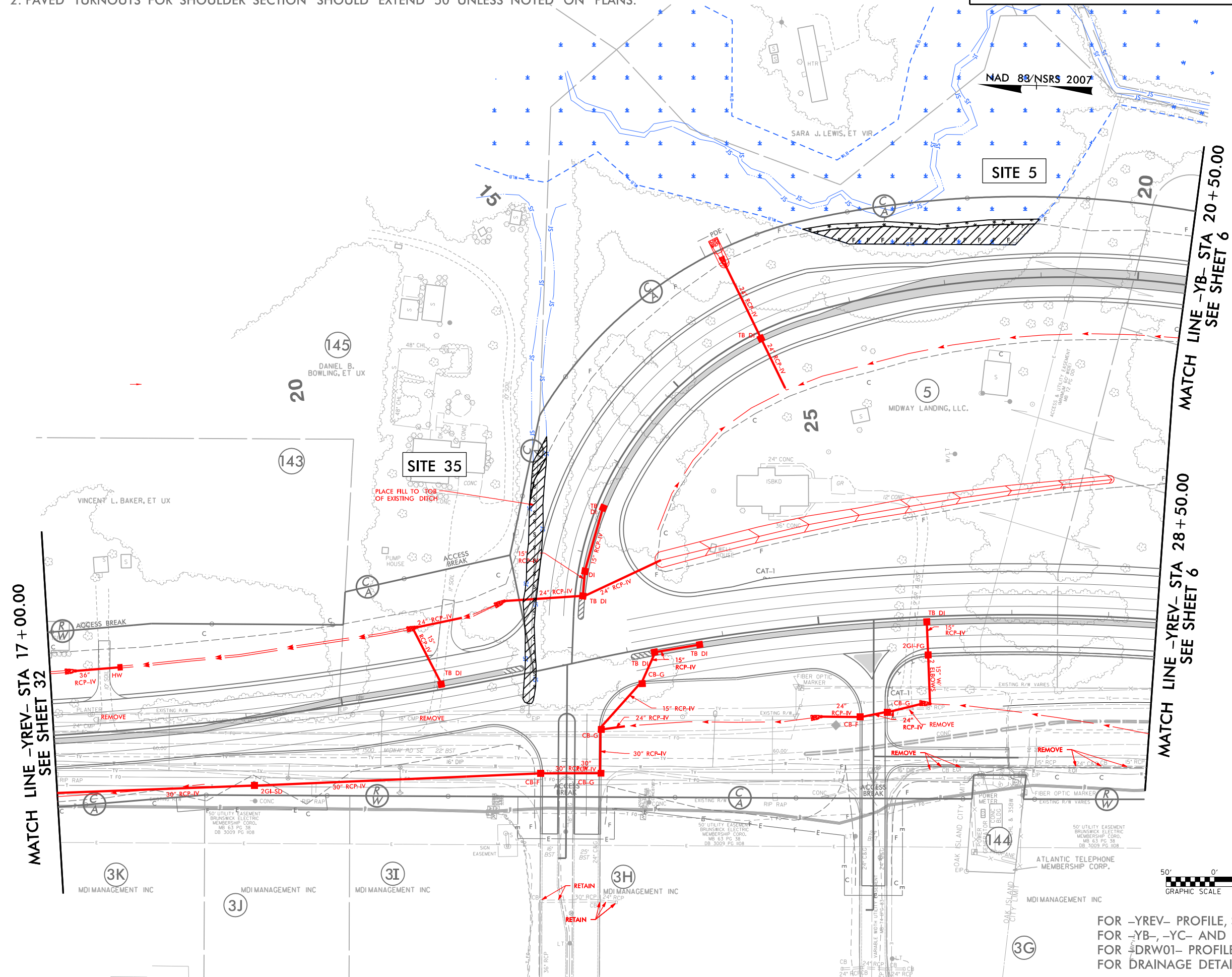
PERMIT DRAWING  
SHEET 79 OF 95

LEGEND

 DENOTES IMPACTS IN SURFACE WATER

 DENOTES FILL IN WETLAND

 DENOTES MECHANIZED CLEARING



FOR -YREV- PROFILE, SEE SHEET 55  
FOR -YB-, -YC- AND -YD- PROFILES, SEE SHEET 57  
FOR -YDRW01- PROFILE, SEE SHEET 58  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3



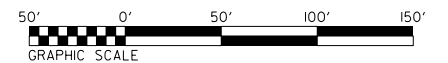
5/15/2018  
 .....NR-5021-HYD\_PERMIT\_DRAWINGS\_PSH33-80 of 95.dgn  
 HINTB

1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.

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Raleigh, North Carolina 27609  
NC License No: C-1554

PERMIT DRAWING  
SHEET 80 OF 95

 DENOTES IMPACTS IN SURFACE WATER  
DENOTES FILL IN WETLAND  
DENOTES MECHANIZED CLEARING



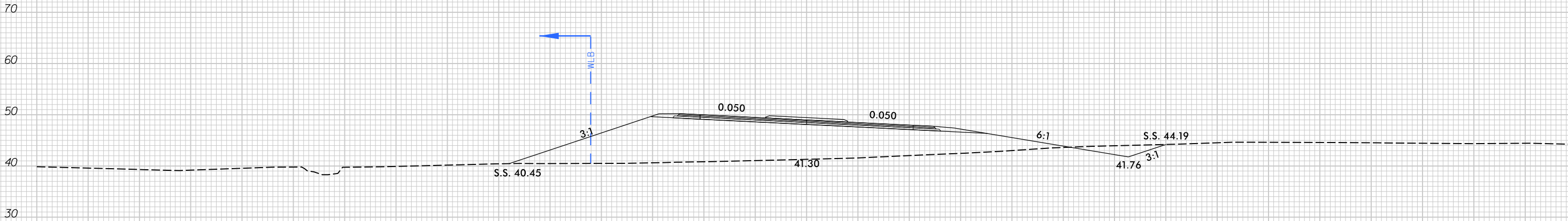
FOR -YREV- PROFILE, SEE SHEET 55  
FOR -YB-, -YC- AND -YD- PROFILES, SEE SHEET 57  
FOR -YR- PROFILE, SEE SHEET 58  
FOR DRAINAGE DETAILS, SEE SHEETS 2D-1 THRU 2D-3

6/23/16

|                                  |  |                     |           |
|----------------------------------|--|---------------------|-----------|
| 510                              |  | PROJ. REFERENCE NO. | SHEET NO. |
|                                  |  | R-5021              |           |
| PERMIT DRAWING<br>SHEET 81 OF 95 |  |                     |           |

# WETLAND CROSS SECTIONS

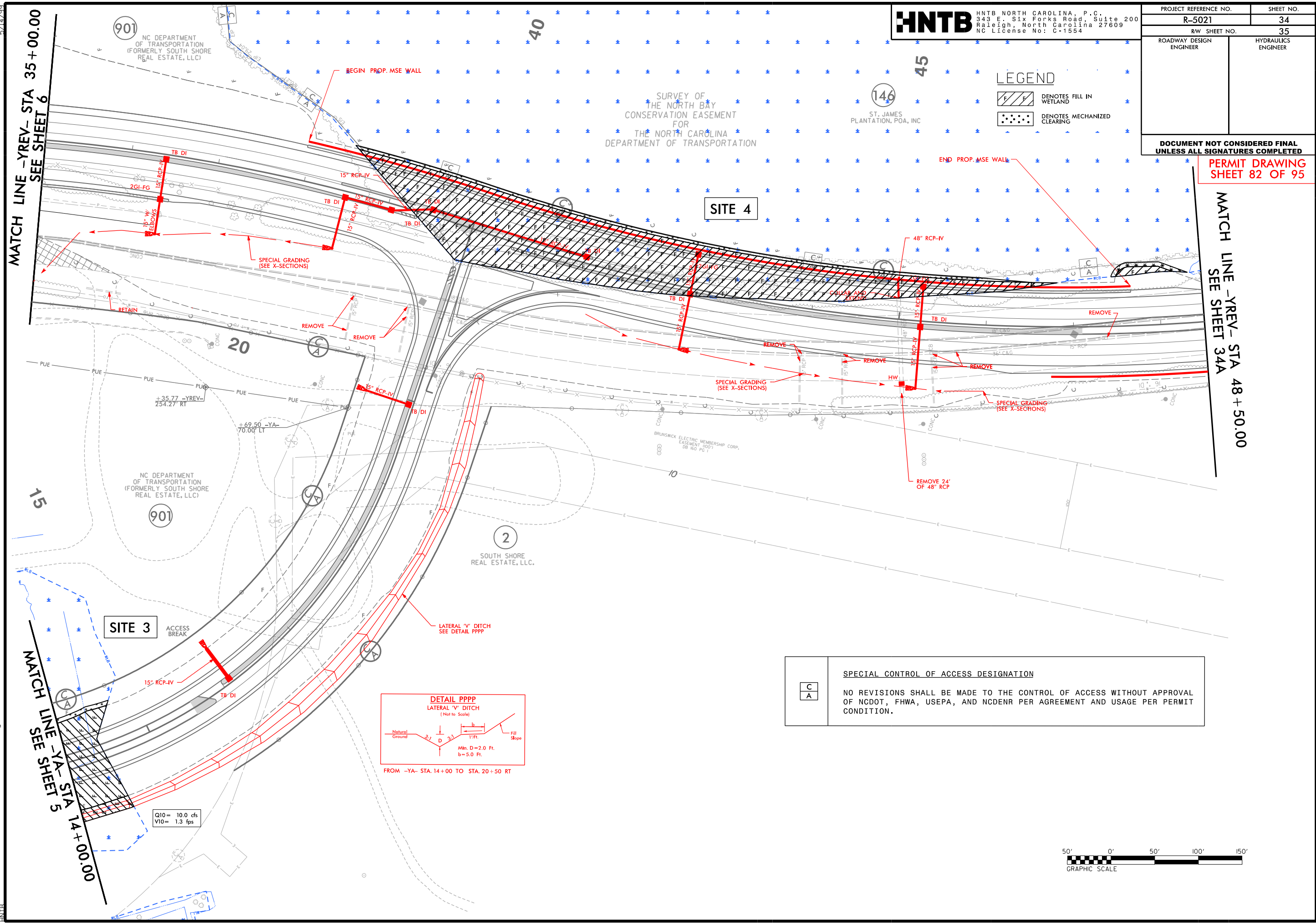
SITE 5  
-YB- 18+00.00



SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

5/14/99  
5/15/2018  
5/15/2021  
HYD\_PERMIT\_DRAWINGS\_PSH34\_82 of 95.dgn  
HNTB



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Raleigh, North Carolina 27609  
NC License No: C-1554

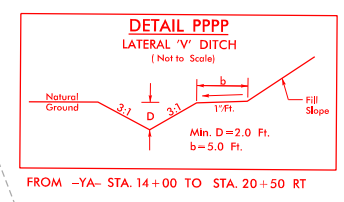
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|--------------------------------------------------------------------------|------------------------|-----------|
| PROJECT REFERENCE NO.                                                    |                        | SHEET NO. |
| R-5021                                                                   |                        | 34        |
| RW SHEET NO.                                                             |                        | 35        |
| ROADWAY DESIGN<br>ENGINEER                                               | HYDRAULICS<br>ENGINEER |           |
| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b> |                        |           |

PERMIT DRAWING  
SHEET 82 OF 95

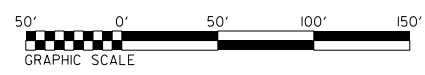
**LEGEND**  
F DENOTES FILL IN WETLAND  
M DENOTES MECHANIZED CLEARING

**SITE 4**

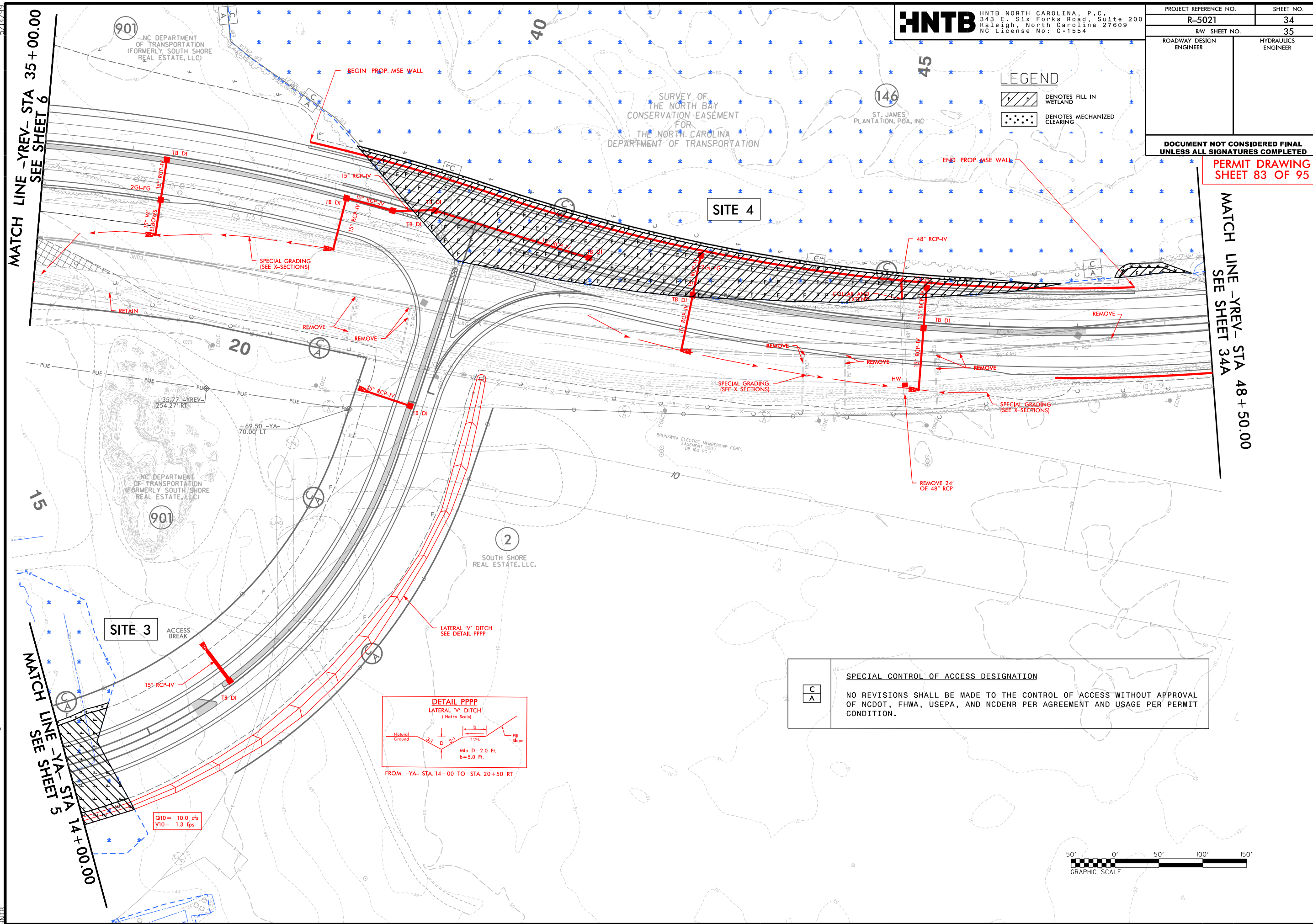
**SITE 3**



**SPECIAL CONTROL OF ACCESS DESIGNATION**  
C  
A  
NO REVISIONS SHALL BE MADE TO THE CONTROL OF ACCESS WITHOUT APPROVAL OF NCDOT, FHWA, USEPA, AND NCDENR PER AGREEMENT AND USAGE PER PERMIT CONDITION.







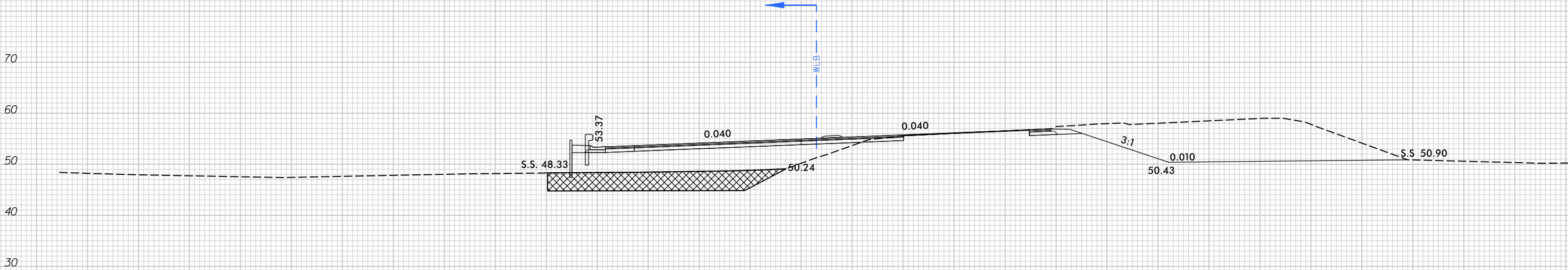
6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 4

-YREV- 43+00.00



UNDERCUT  
EXCAVATION

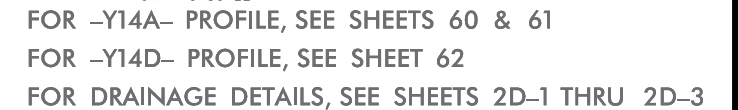
SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100





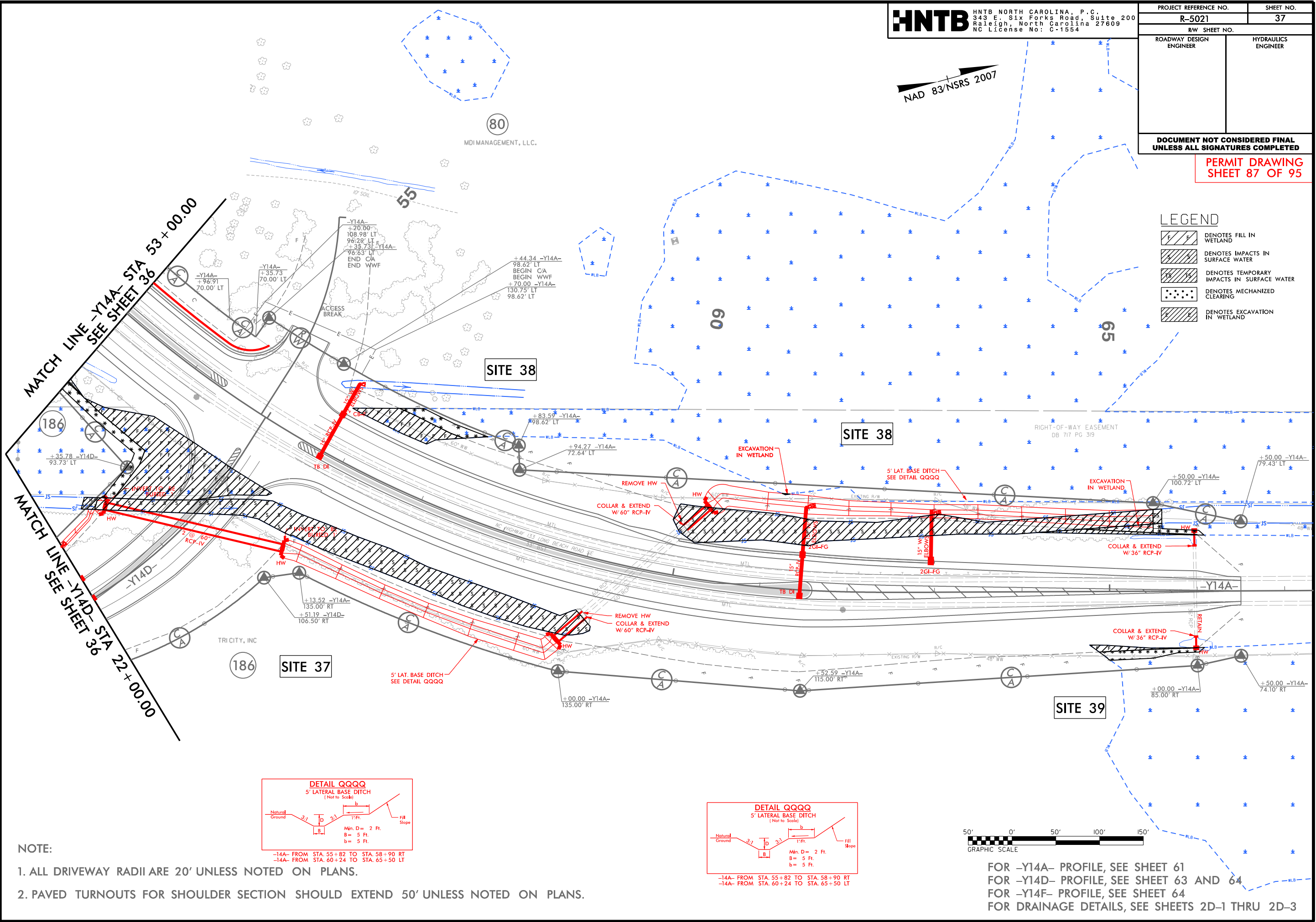


NOTE: 1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.  
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD  
EXTEND 50' UNLESS NOTED ON PLANS.

DO NOT DISTURB FENCE AROUND  
BRUNSWICK ELECTRIC PARCEL

LEGEND

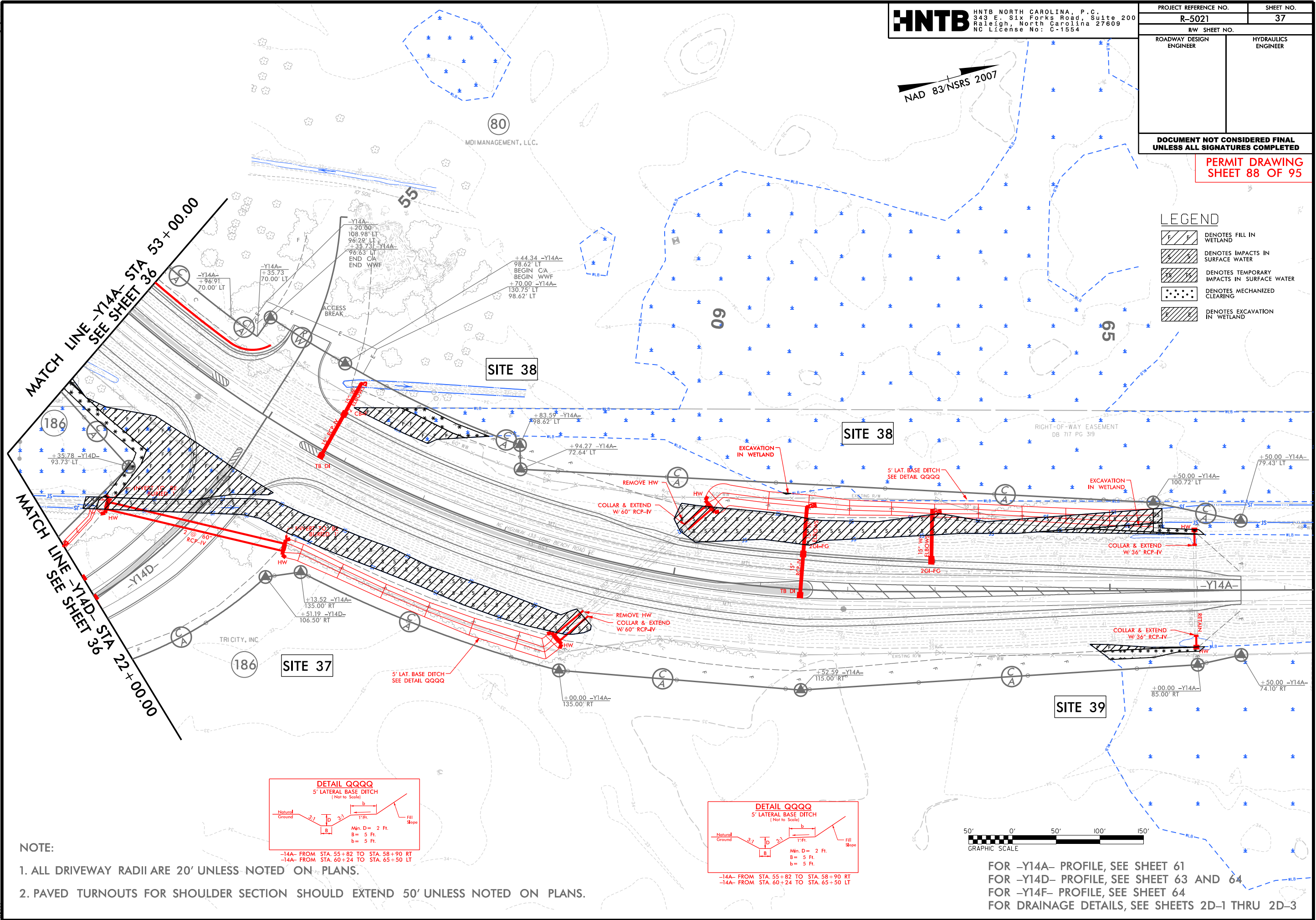
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|-------------------------------------------------------------------------------------|----------------------------------------------------------|
|  | <p> DENOTES FILL IN<br/> WETLAND </p>                    |
|  | <p> DENOTES IMPACTS IN<br/> SURFACE WATER </p>           |
|  | <p> DENOTES TEMPORARY<br/> IMPACTS IN SURFACE WATER </p> |
|  | <p> DENOTES MECHANIZED<br/> CLEARING </p>                |
|  | <p> DENOTES EXCAVATION<br/> IN WETLAND </p>              |





### LEGEND

- |                                                                                     |                                                          |
|-------------------------------------------------------------------------------------|----------------------------------------------------------|
|  | <p> DENOTES FILL IN<br/> WETLAND </p>                    |
|  | <p> DENOTES IMPACTS IN<br/> SURFACE WATER </p>           |
|  | <p> DENOTES TEMPORARY<br/> IMPACTS IN SURFACE WATER </p> |
|  | <p> DENOTES MECHANIZED<br/> CLEARING </p>                |
|  | <p> DENOTES EXCAVATION<br/> IN WETLAND </p>              |





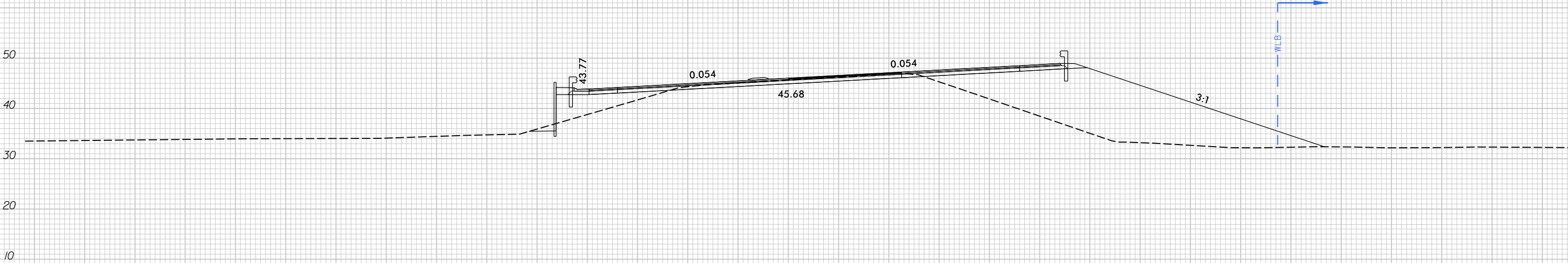
6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 37

-Y14A- 53 + 50.00



SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

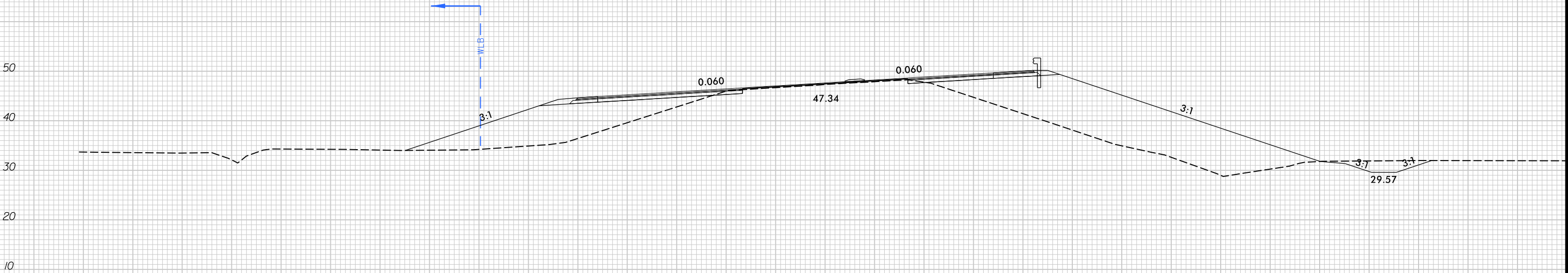
6/23/16

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

# WETLAND CROSS SECTIONS

SITE 38

-Y14A- 56+50.00



SCALE  
1"=20' HORIZONTAL  
1"=20' VERTICAL

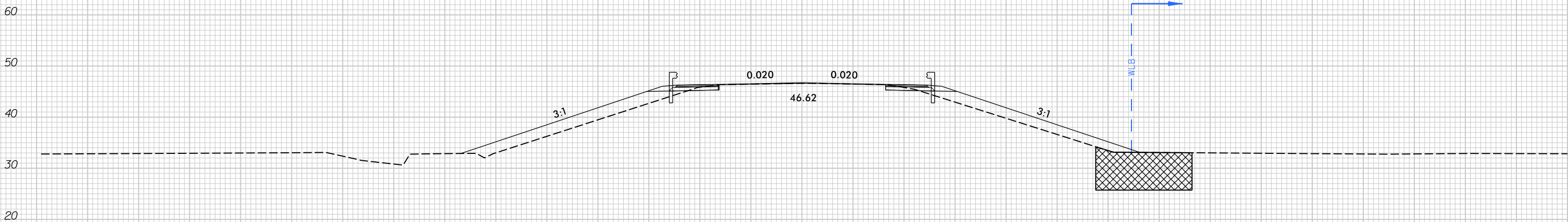
BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 10

6/23/16

# WETLAND CROSS SECTIONS

**SITE 39**  
-Y14A- 65 + 50.00

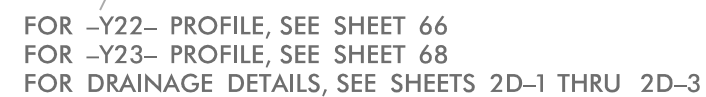


 UNDERCUT  
EXCAVATION

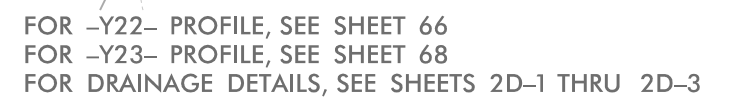
**SCALE**  
1"=20' HORIZONTAL  
1"=20' VERTICAL

BRUNSWICK COUNTY  
PROJECT: R-5021  
NC 211  
FROM SR 1500 (MIDWAY RD.)  
TO NC 87





1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
2. PAVED TURNOUTS FOR SHOULDER SECTION SHOULD EXTEND 50' UNLESS NOTED ON PLANS.



1. ALL DRIVEWAY RADII ARE 20' UNLESS NOTED ON PLANS.
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| WETLAND AND SURACE 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) |
| 1                                        | -L- 55+39 - 57+85 RT     | 4' Base Ditch                         |                                 |                             | 0.17                        |                                      |                                |                           |                       |                                         |                                     |                            |
| 2                                        | -L- 57+22 - 75+36 RT     | Roadway Fill                          |                                 |                             |                             |                                      |                                | 0.29                      |                       |                                         |                                     |                            |
| 2                                        | -L- 65+12 - 69+60 RT     | Base Ditch / Roadway Fill             | 0.04                            |                             | 0.12                        |                                      |                                |                           |                       |                                         |                                     |                            |
| 3                                        | -YA- 11+18 - 14+70 RT/LT | Base Ditch / Roadway Fill / 15" RCP   | 0.67                            |                             | 0.24                        | 0.03                                 |                                |                           |                       |                                         |                                     |                            |
| 4                                        | -YREV- 38+47 - 48+34 LT  | 15" & 48" RCP / Roadway Fill          | 0.91                            |                             |                             | 0.07                                 |                                |                           |                       |                                         |                                     |                            |
| 4                                        | -L- 81+78 - 86+05 RT     | Special Cut Ditch                     |                                 |                             | 0.21                        |                                      |                                |                           |                       |                                         |                                     |                            |
| 5                                        | -L- 85+22 - 86+44 LT     | 15" RCP / Roadway Fill                | 0.08                            |                             |                             | 0.02                                 |                                |                           |                       |                                         |                                     |                            |
| 5                                        | -L- 83+55 - 83+84 LT     | 2 @ 8' X 6' RCBC                      |                                 |                             |                             |                                      |                                | 0.02                      | < 0.01                | 82                                      | 14                                  |                            |
| 5                                        | -YB- 16+72 - 19+00 LT    | Roadway Fill                          | 0.08                            |                             |                             | 0.02                                 |                                |                           |                       |                                         |                                     |                            |
| 6                                        | -L- 100+43 - 100+73 LT   | 36" RCP                               |                                 |                             |                             |                                      |                                | 0.01                      | < 0.01                | 91                                      | 9                                   |                            |
| 6                                        | -L- 100+78 - 103+67 LT   | Roadway Fill                          | 0.15                            |                             |                             | 0.03                                 |                                |                           |                       |                                         |                                     |                            |
| 7                                        | -L- 106+05 - 107+32 LT   | 36' RCP                               |                                 |                             |                             |                                      |                                | 0.41                      | < 0.01                | 133                                     | 13                                  |                            |
| 9                                        | -L- 113+86 - 126+79 LT   | Roadway Fill                          | 1.19                            |                             |                             | 0.15                                 |                                |                           |                       |                                         |                                     |                            |
| 10                                       | -L- 126+92 - 144+52 LT   | Roadway Fill                          | 0.98                            |                             |                             | 0.27                                 |                                |                           |                       |                                         |                                     |                            |
| 11                                       | -L- 200+46 - 205+16 RT   | Roadway Fill                          | 0.10                            |                             |                             | 0.05                                 |                                |                           |                       |                                         |                                     |                            |
| 12                                       | -L- 211+66 - 214+04 LT   | 60" X 38" HERCP / Roadway Fill (Pond) |                                 |                             |                             |                                      |                                | 0.24                      | 0.14                  |                                         |                                     |                            |
| 13                                       | -L- 216+73 - 218+28 LT   | 54" RCP                               |                                 |                             |                             |                                      |                                | 0.03                      | < 0.01                | 153                                     | 19                                  |                            |
| 13                                       | -L- 216+76 - 217+92 LT   | Roadway Fill / 4' Lateral Base Ditch  | 0.04                            |                             | 0.02                        |                                      |                                |                           |                       |                                         |                                     |                            |
| 14                                       | -L- 216+53 - 216+82 RT   | 54" RCP                               |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 16                                      | 15                                  |                            |
| 14                                       | -L- 215+99 - 217+82 RT   | Roadway Fill / Lateral 'V' Ditch      | 0.05                            |                             | < 0.01                      | < 0.01                               |                                |                           |                       |                                         |                                     |                            |
| 15                                       | -L- 222+97 - 223+54 LT   | Roadway Fill / 'V' Ditch              | 0.02                            |                             | 0.02                        |                                      |                                |                           |                       |                                         |                                     |                            |
| 15                                       | -L- 222+97 - 223+54 LT   | Indirect Impacts - Total Take         | 0.04                            |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 16                                       | -L- 225+77 - 226+44 LT   | 2 @ 9' X 8' RCBC                      |                                 |                             |                             |                                      |                                | 0.04                      | < 0.01                | 150                                     | 10                                  |                            |
| 16                                       | -L- 225+21 - 227+48 LT   | Roadway Fill / Var. Width Base Ditch  | 0.30                            |                             | < 0.01                      | 0.02                                 |                                |                           |                       |                                         |                                     |                            |
| 17                                       | -L- 225+59 - 225+92 RT   | 2 @ 9' X 8' RCBC                      |                                 |                             |                             |                                      |                                | 0.03                      | < 0.01                | 59                                      | 10                                  |                            |
| 17                                       | -L- 222+60 - 226+73 RT   | 4' Base Ditch                         | 0.02                            |                             | 0.13                        | 0.03                                 |                                |                           |                       |                                         |                                     |                            |
| SUBTOTALS*:                              |                          |                                       | 4.66                            |                             | 0.93                        | 0.70                                 |                                | 1.08                      | 0.16                  | 684                                     | 90                                  |                            |

\*Rounded totals are sum of actual impacts

NOTES:    Site 1: The Total Site Impact of 0.17 acres includes 0.10 acres of drainage effect from ditching.  
              Site 3: The Total Site Impact of 0.24 acres includes 0.11 acres of drainage effect from ditching.  
              Site 8: This Site has been eliminated.  
              Site 15: Total Site Impact of 0.08 acres includes 0.04 acres of direct impacts and 0.04 acres of indirect impacts. Total Take impacts 1:1 mitigation.

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
8/21/2018  
Brunswick County  
R-5021



| WETLAND AND SURACE 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) |
| 18                                       | -L- 237+79 - 242+95 LT  | Roadway Fill                      | 0.54                            |                             |                             | 0.04                                 |                                |                           |                       |                                         |                                     |                            |
| 19                                       | -L- 245+23 - 275+27 LT  | Roadway Fill                      | 5.35                            |                             |                             | 0.30                                 |                                |                           |                       |                                         |                                     |                            |
| 20                                       | -L- 275+51 - 286+64 LT  | Roadway Fill                      | 2.21                            |                             |                             | 0.12                                 |                                |                           |                       |                                         |                                     |                            |
| 21                                       | -L- 271+43 - 275+91 RT  | 4' Base Ditch                     |                                 |                             | 0.08                        | 0.03                                 |                                |                           |                       |                                         |                                     |                            |
| 22                                       | -L- 278+65 - 283+16 RT  | 4' Base Ditch                     |                                 |                             | 0.09                        | 0.04                                 |                                |                           |                       |                                         |                                     |                            |
| 23                                       | -L- 289+94 - 304+98 LT  | Roadway Fill                      | 2.56                            |                             |                             | 0.17                                 |                                |                           |                       |                                         |                                     |                            |
| 24                                       | -L- 313+81 - 314+96 RT  | 6' Base Ditch (Pond)              |                                 |                             |                             |                                      |                                | 0.06                      |                       |                                         |                                     |                            |
| 25                                       | -L- 315+96 - 316+63 LT  | 2 @ 7' X 7' RCBC                  |                                 |                             |                             |                                      |                                | 0.01                      | <0.01                 | 85                                      | 24                                  |                            |
| 25A                                      | -L- 316+38 - 317+38 LT  | Roadway Fill                      |                                 |                             |                             |                                      |                                | 0.01                      |                       | 107                                     |                                     |                            |
| 26                                       | -L- 316+52 - 317+84 RT  | 2 @ 7' X 7' RCBC                  |                                 |                             |                             |                                      |                                | 0.02                      | <0.01                 | 116                                     | 24                                  |                            |
| 42                                       | -L- 324+23 - 324.26 LT  | 2' Base Ditch                     |                                 |                             | <0.01                       |                                      |                                |                           |                       |                                         |                                     |                            |
| 28                                       | -L- 353+34 - 353+73 RT  | Special 'V' Ditch / 3' base Ditch | 0.01                            |                             |                             | 0.04                                 |                                |                           |                       |                                         |                                     |                            |
| 29                                       | -L- 366+77 - 369+06 LT  | Roadway Fill                      | 0.28                            |                             |                             | 0.07                                 | 0.02                           |                           |                       |                                         |                                     |                            |
| 30                                       | -L- 370+03 - 375+93 LT  | Roadway Fill / Var. Base Ditch    | 0.49                            |                             | <0.01                       | 0.07                                 |                                |                           |                       |                                         |                                     |                            |
| 31                                       | -L- 369+37 - 369+59 RT  | Bank Stabilization                |                                 |                             |                             |                                      |                                | <0.01                     | <0.01                 | 18                                      | 29                                  |                            |
| 32                                       | -L- 370+83 - 370+94 RT  | Roadway Fill                      | <0.01                           |                             |                             | <0.01                                |                                |                           |                       |                                         |                                     |                            |
| 34                                       | -L- 428+24 - 428+68 LT  | 66" RCP                           |                                 |                             |                             |                                      |                                | 0.03                      | <0.01                 | 73                                      | 8                                   |                            |
| 35                                       | -YB- 11+41 - 13+72 LT   | Roadway Fill                      |                                 |                             |                             |                                      |                                | 0.07                      | <0.01                 |                                         |                                     |                            |
| 36                                       | -YREV- 9+47 - 9+77 RT   | 3' Base Ditch                     |                                 |                             | <0.01                       |                                      |                                |                           |                       |                                         |                                     |                            |
| 37                                       | -Y14D- 19+91 - 20+15 LT | Special 'V' Ditch                 |                                 |                             |                             |                                      |                                | <0.01                     | <0.01                 |                                         |                                     |                            |
| 37                                       | -Y14A- 52+57 - 59+22 RT | 2 @ 60" RCP EXT. / Roadway Fill   | 0.22                            |                             |                             | 0.05                                 |                                | 0.31                      | <0.01                 |                                         |                                     |                            |
| 38                                       | -Y14A- 55+80 - 66+12 LT | 2 @ 60" RCP EXT. / Roadway Fill   | 0.06                            |                             | <0.01                       | 0.03                                 |                                | 0.29                      | <0.01                 |                                         |                                     |                            |
| 39                                       | -Y14A- 64+77 - 66+24 RT | Roadway Fill                      | 0.01                            |                             |                             | 0.02                                 |                                |                           |                       |                                         |                                     |                            |
| 40                                       | -Y22- 23+04 - 23+21 RT  | 54" RCP                           |                                 |                             |                             |                                      |                                | 0.01                      | <0.01                 | 26                                      | 10                                  |                            |
| 41                                       | -Y22- 23+17 - 23+32 LT  | 54" RCP                           |                                 |                             |                             |                                      |                                | 0.01                      | <0.01                 | 40                                      | 10                                  |                            |
| 42                                       | -L- 324+23 - 324+26 LT  | 2' Base Ditch                     |                                 |                             | <0.01                       |                                      |                                |                           |                       |                                         |                                     |                            |
| SUBTOTALS*:                              |                         |                                   | 11.72                           |                             | 0.18                        | 0.90                                 | 0.02                           | 0.83                      | 0.04                  | 465                                     | 105                                 |                            |
| FINAL TOTALS*:                           |                         |                                   | 16.38                           |                             | 1.11                        | 1.68                                 | 0.02                           | 1.91                      | 0.20                  | 1149                                    | 195                                 |                            |

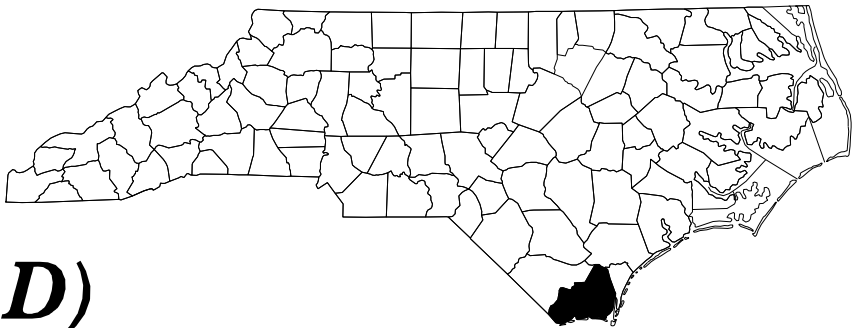
\*Rounded totals are sum of actual impacts

NOTES:    Site 27: This Site has been eliminated.  
             Site 33: This Site has been eliminated.

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8/21/2018  
Brunswick County  
R-5021

| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   |
|-----------------|-----------------------------|-------------|
| N.C.            | R-5021                      | UE-01       |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |
| 41582.1.1       | STP-0211(21)                | PE          |
| 41582.2.2       | STP-0211(21)                | UTILITIES   |
| 41582.2.3       | STP-0211(21)                | R/W         |
|                 |                             |             |
|                 |                             |             |
|                 |                             |             |

SHEET 1 OF 22



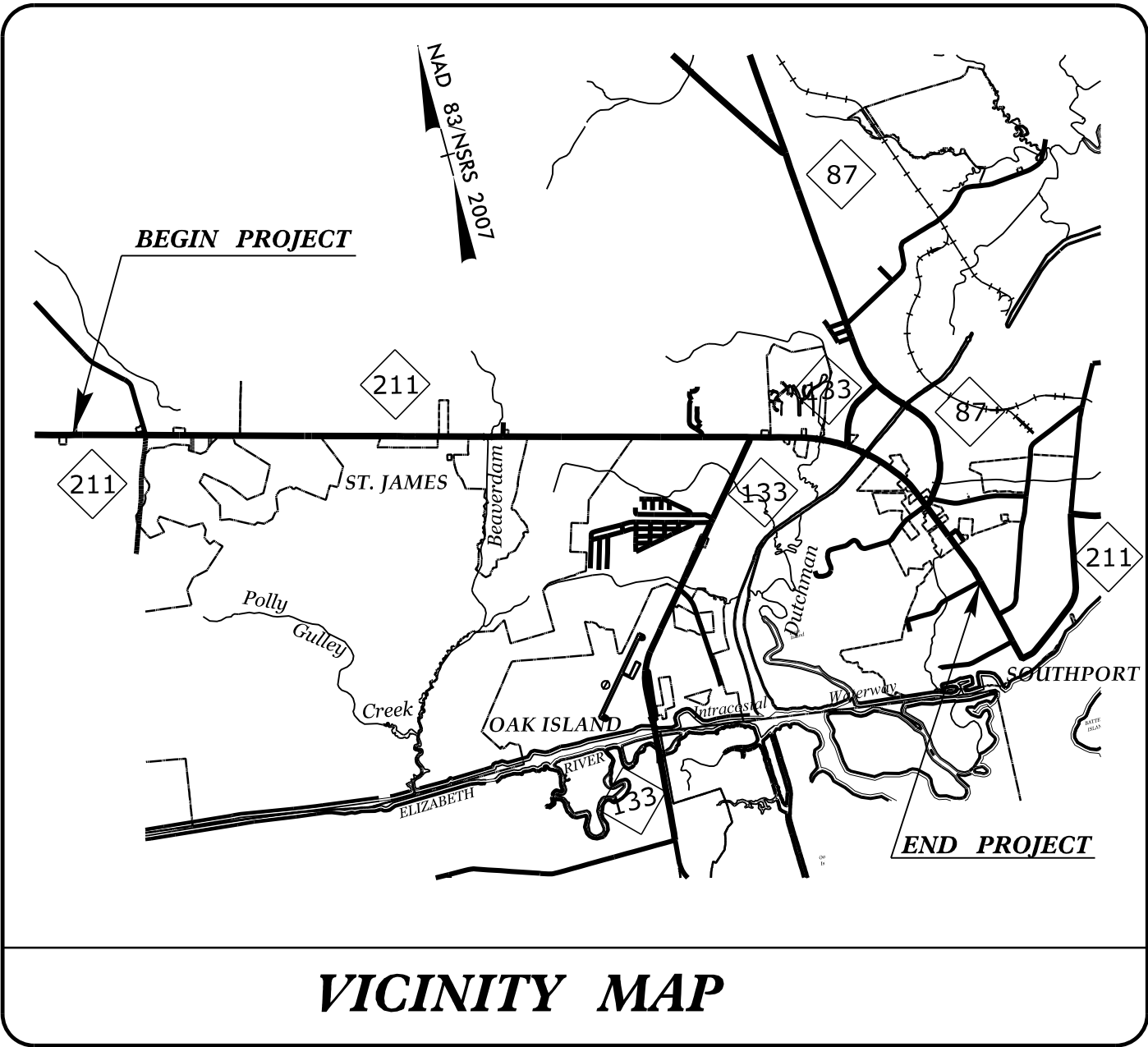
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

EAU PERMIT DRAWING PLANS

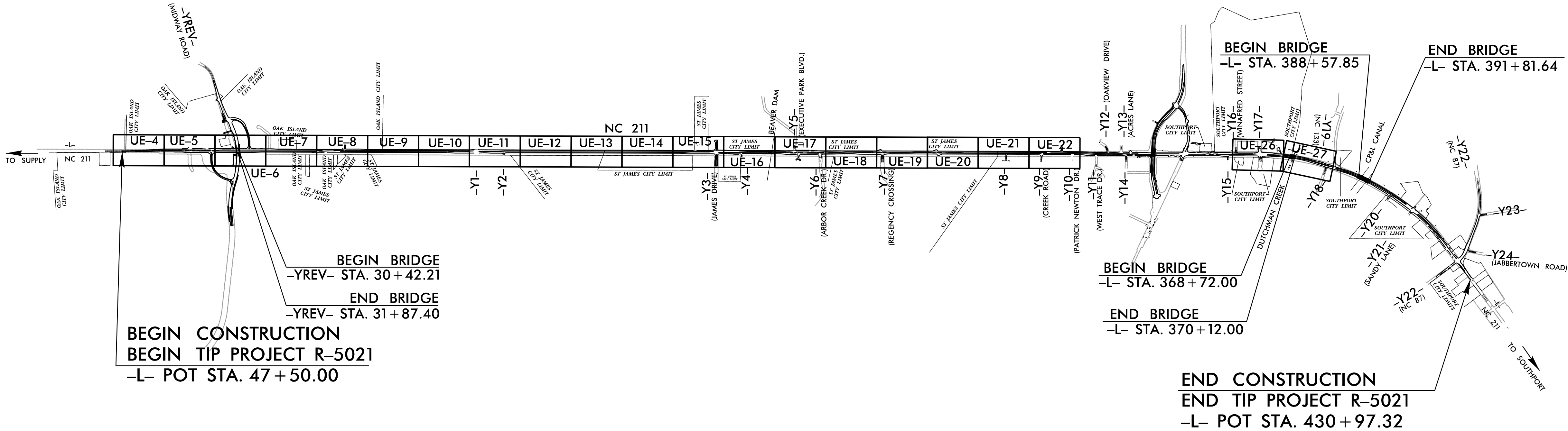
BRUNSWICK COUNTY

LOCATION: NC 211 FROM WEST OF SR 1500 (MIDWAY ROAD)  
TO EAST OF NC 87

TYPE OF WORK: RELOCATION OF UTILITIES



VICINITY MAP



NOTES:

1. This is a partial controlled-access project with access being limited to points as shown on the plans.
2. A portion of this project is within the municipal boundaries of Oak Island, St. James, and Southport.
3. Clearing on this project shall be performed to the limits established by Method III.

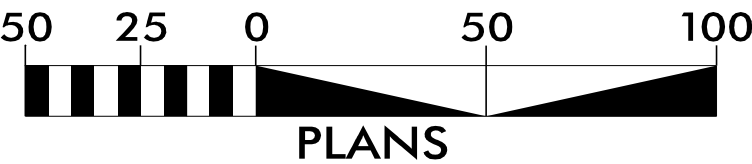
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CONTRACT:

TIP PROJECT: R-5021

GRAPHIC SCALE



INDEX OF SHEETS

| SHEET NO.:                         | DESCRIPTION: |
|------------------------------------|--------------|
| UE-01                              | TITLE SHEET  |
| UE-04 THRU UE-22,<br>UE-26 & UE-27 | PLAN SHEETS  |

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
JANUARY 28, 2016

LETTING DATE:  
JUNE 19, 2018

PREPARED IN THE OFFICE OF:



RUMMEL, KLEPPER & KAHL, LLP  
900 RIDGEFIELD DRIVE, SUITE 350  
RALEIGH, NORTH CAROLINA 27609  
NC LICENSE NO. F-0112  
1-888-521-4455 OR 919-878-9560

|                    |                               |
|--------------------|-------------------------------|
| Howard Woodall, PE | UTILITY PROJECT MANAGER       |
| Mark Lawson        | PROJECT UTILITY COORDINATOR   |
| Nate Harris        | PROJECT UTILITY CADD DESIGNER |



DIVISION OF HIGHWAYS  
UTILITIES UNIT

1020 BIRCH RIDGE DRIVE  
RALEIGH, NC 27610

|                       |                             |
|-----------------------|-----------------------------|
| Bo Hemphill, PE       | EASTERN UTILITIES MANAGER   |
| Nabil S. Hamdan       | REGIONAL UTILITIES ENGINEER |
| Ashley B. Cox, Jr, LG | UTILITIES ENGINEER          |
| Chris Rivenbark       | ECAP REGIONAL MANAGER       |



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| PROJECT REFERENCE NO. | SHEET NO. |
| R-5021                | UE-04     |
| SHEET 2 OF 22         |           |

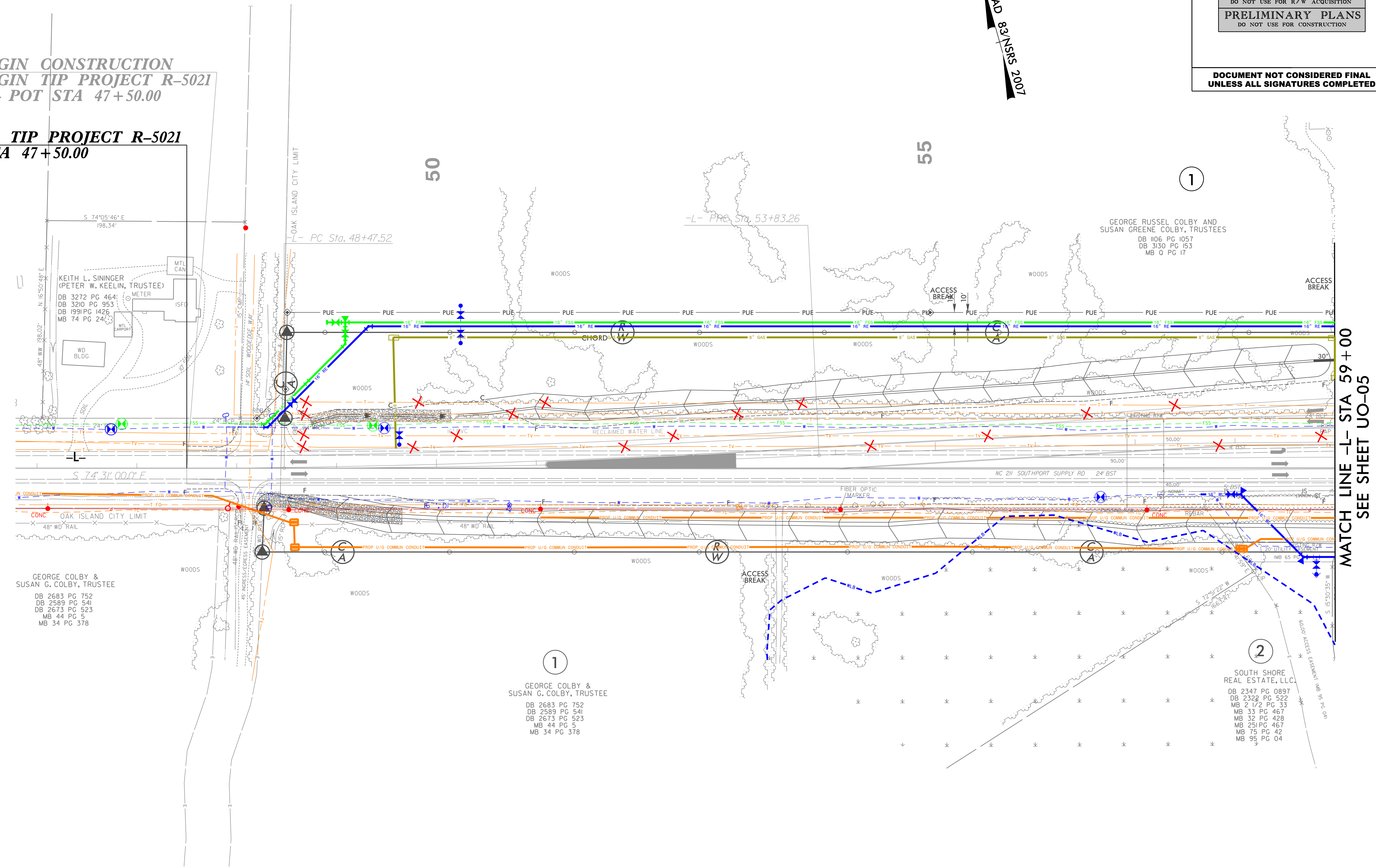
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-L- POT STA 47+50.00

BEGIN TIP PROJECT R-5021  
-L- STA 47+50.00



KEITH L. SININGER  
(PETER W. KEELIN, TRUSTEE)  
DB 3272 PG 464  
DB 3210 PG 953  
DB 1991 PG 1426  
MB 74 PG 24

GEORGE COLBY &  
SUSAN G. COLBY, TRUSTEE  
DB 2683 PG 752  
DB 2589 PG 541  
DB 2673 PG 523  
MB 44 PG 5  
MB 34 PG 378

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SUSAN G. COLBY, TRUSTEE  
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DB 2589 PG 541  
DB 2673 PG 523  
MB 44 PG 5  
MB 34 PG 378

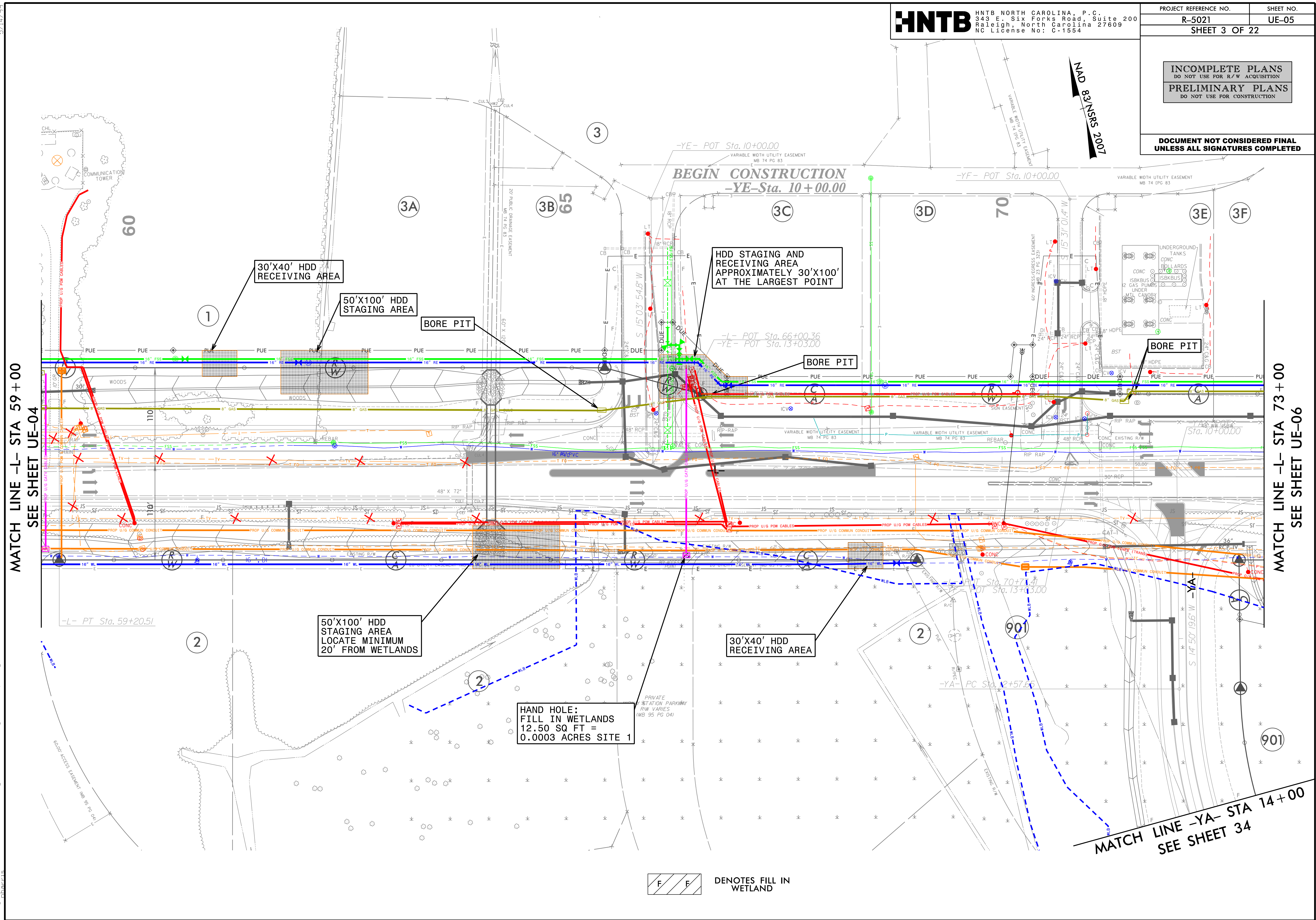
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SUSAN GREENE COLBY, TRUSTEES  
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DB 3130 PG 153  
MB 0 PG 17

SOUTH SHORE  
REAL ESTATE, LLC.  
DB 2347 PG 0897  
DB 2328 PG 522  
MB 2 1/2 PG 33  
MB 33 PG 467  
MB 32 PG 428  
MB 251 PG 467  
MB 75 PG 42  
MB 95 PG 04

MATCH LINE -L- STA 59+00  
SEE SHEET UO-05

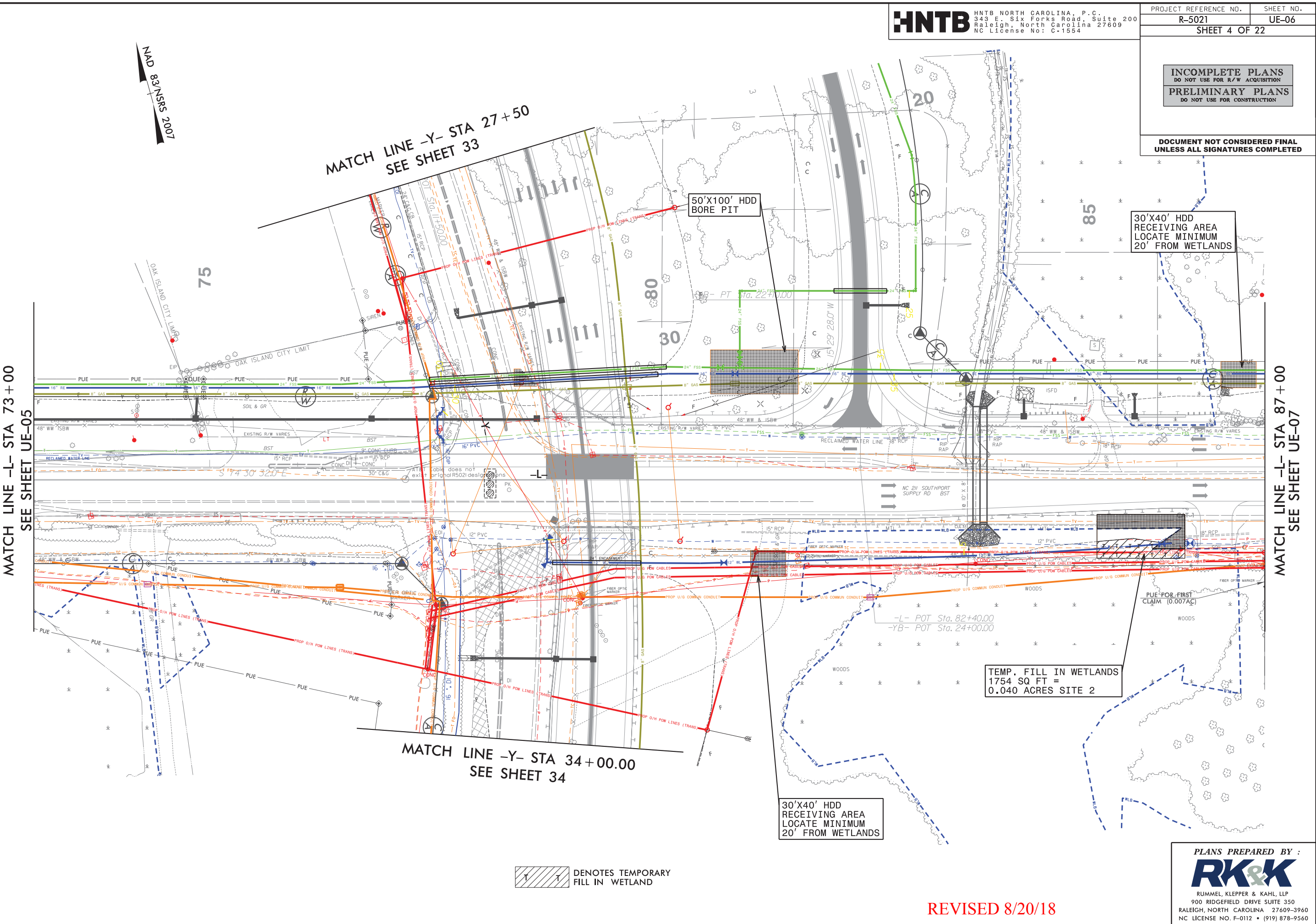
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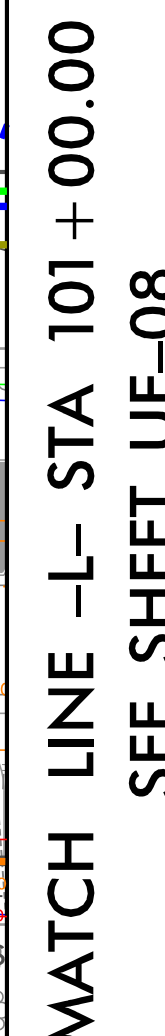
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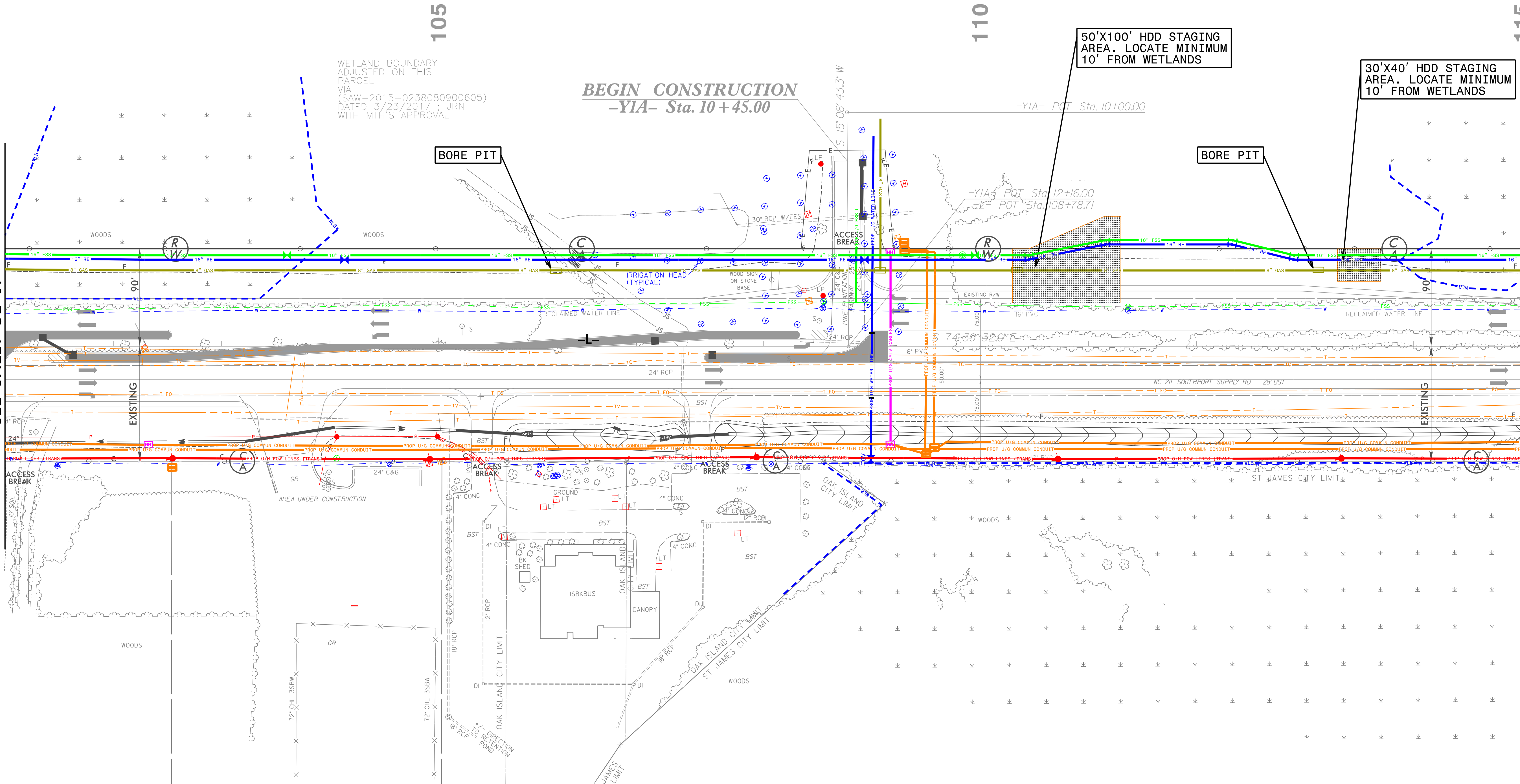
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MATCH LINE -L- STA 115+00.00  
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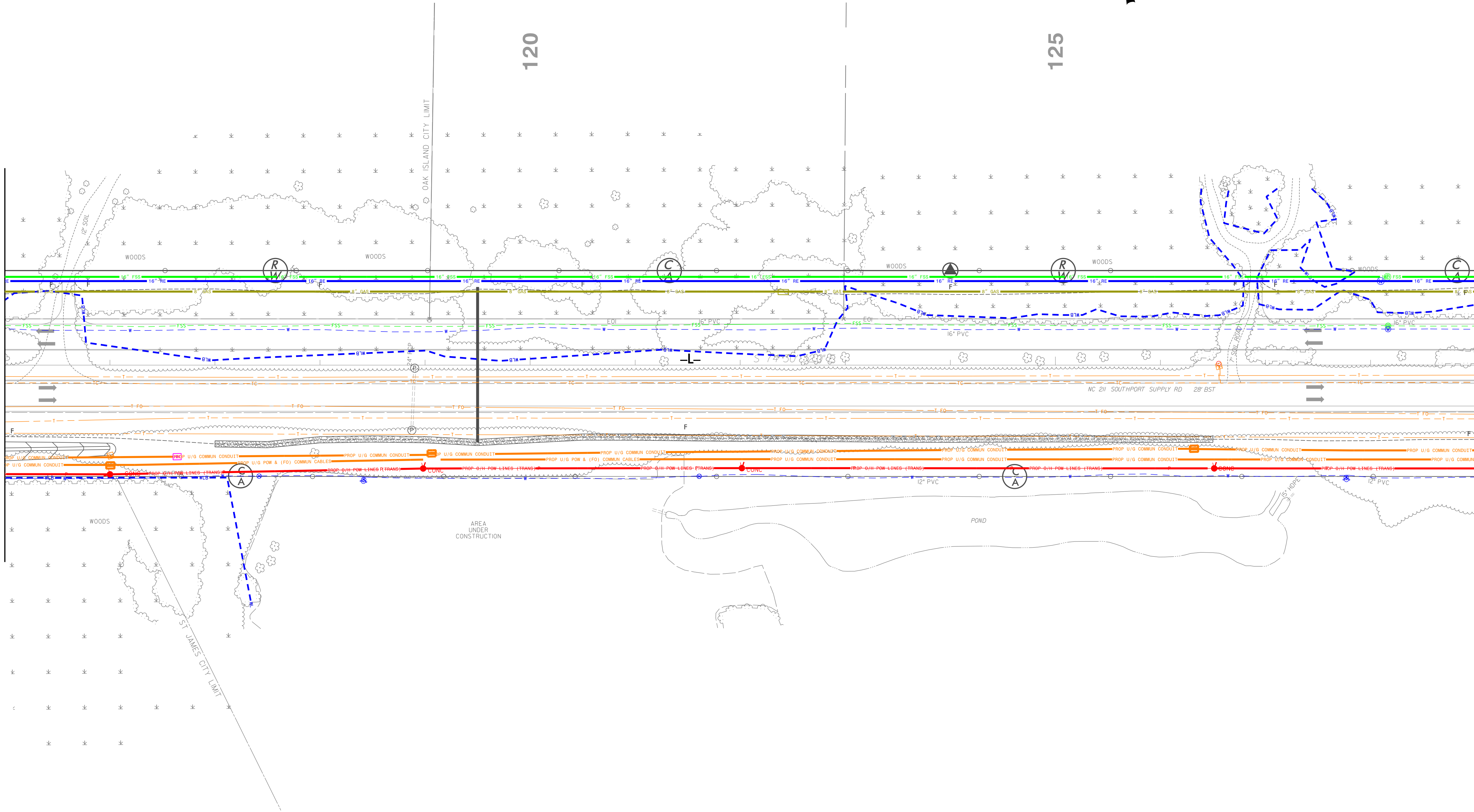
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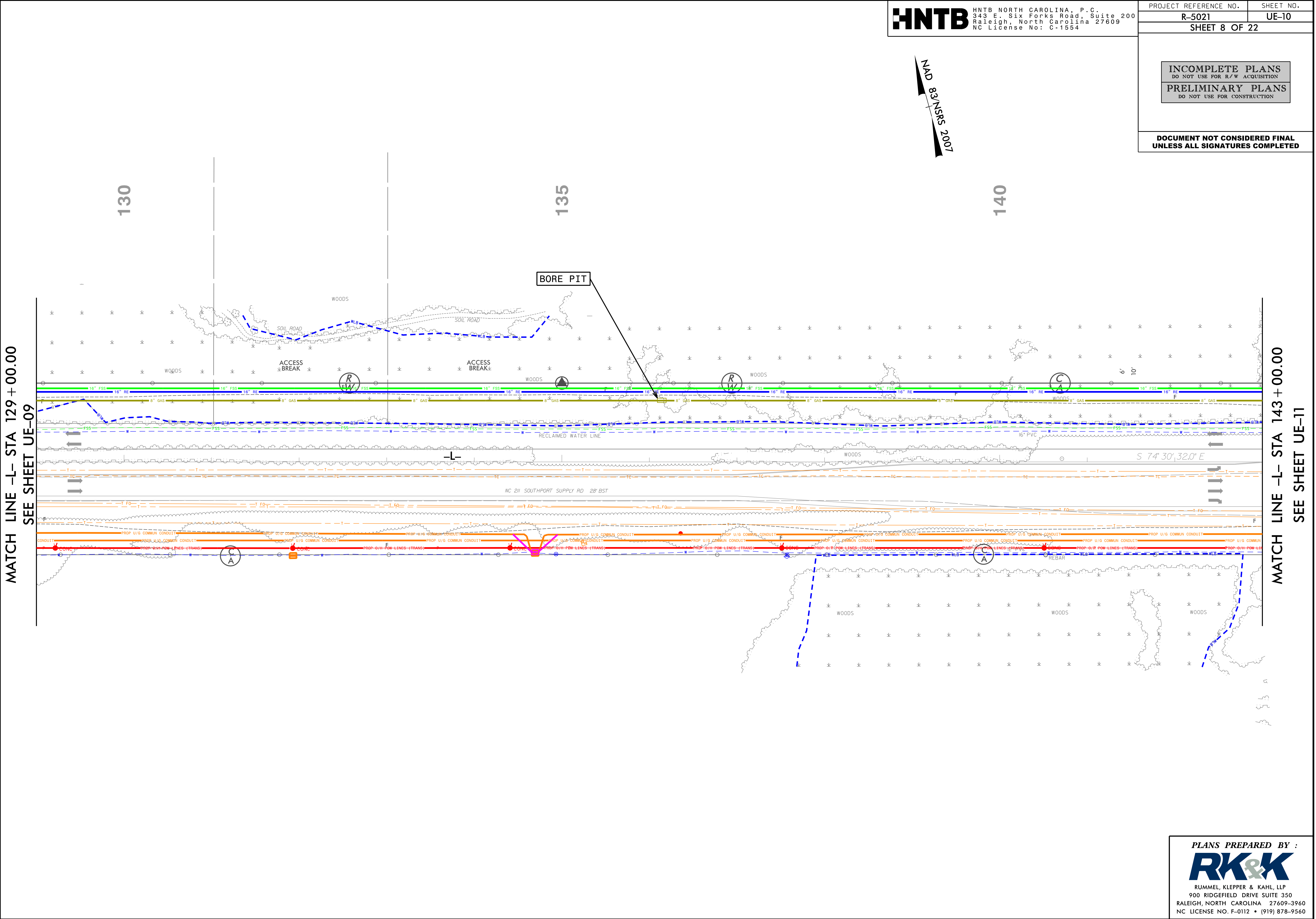
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UE-11

SHEET 9 OF 22

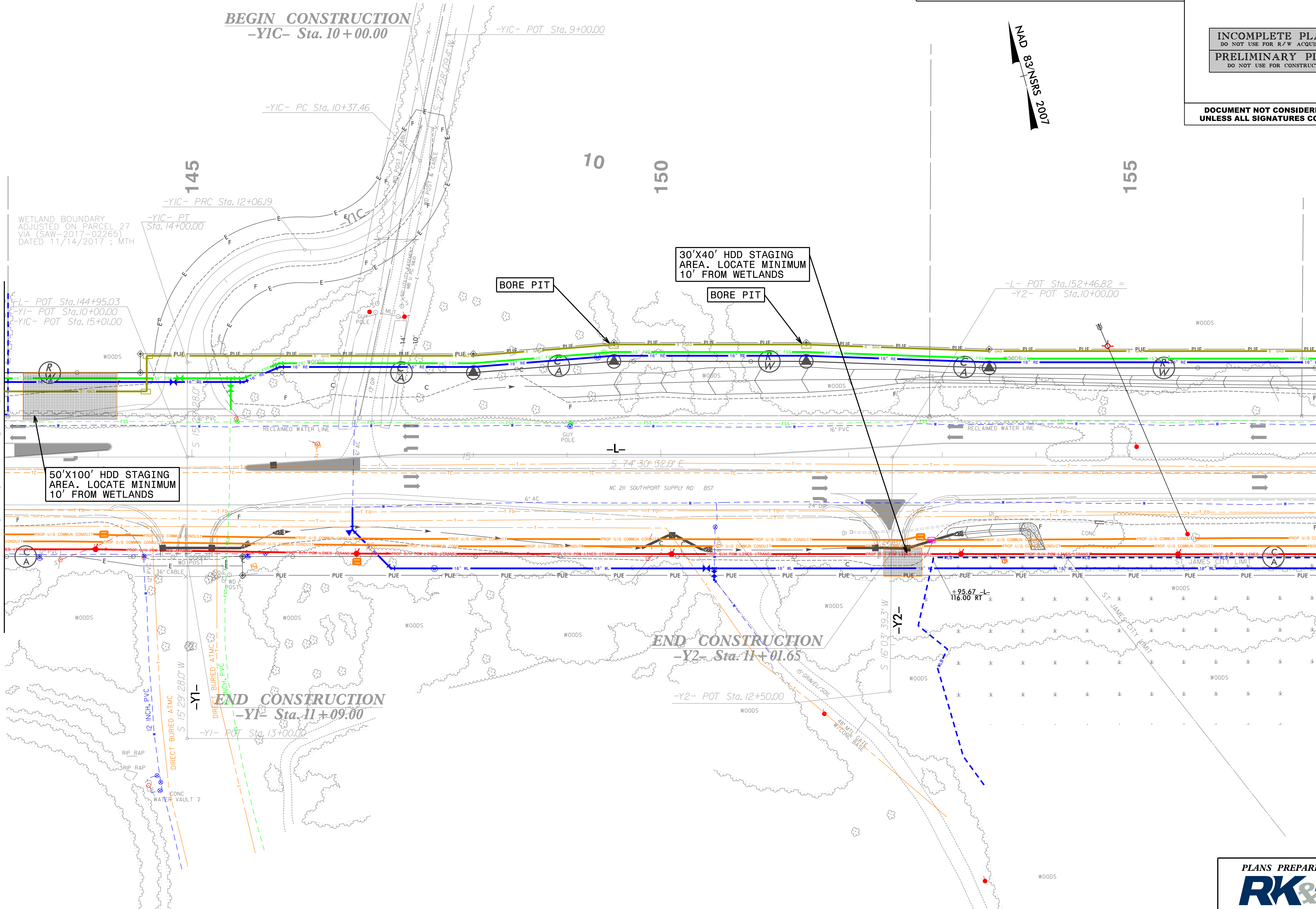
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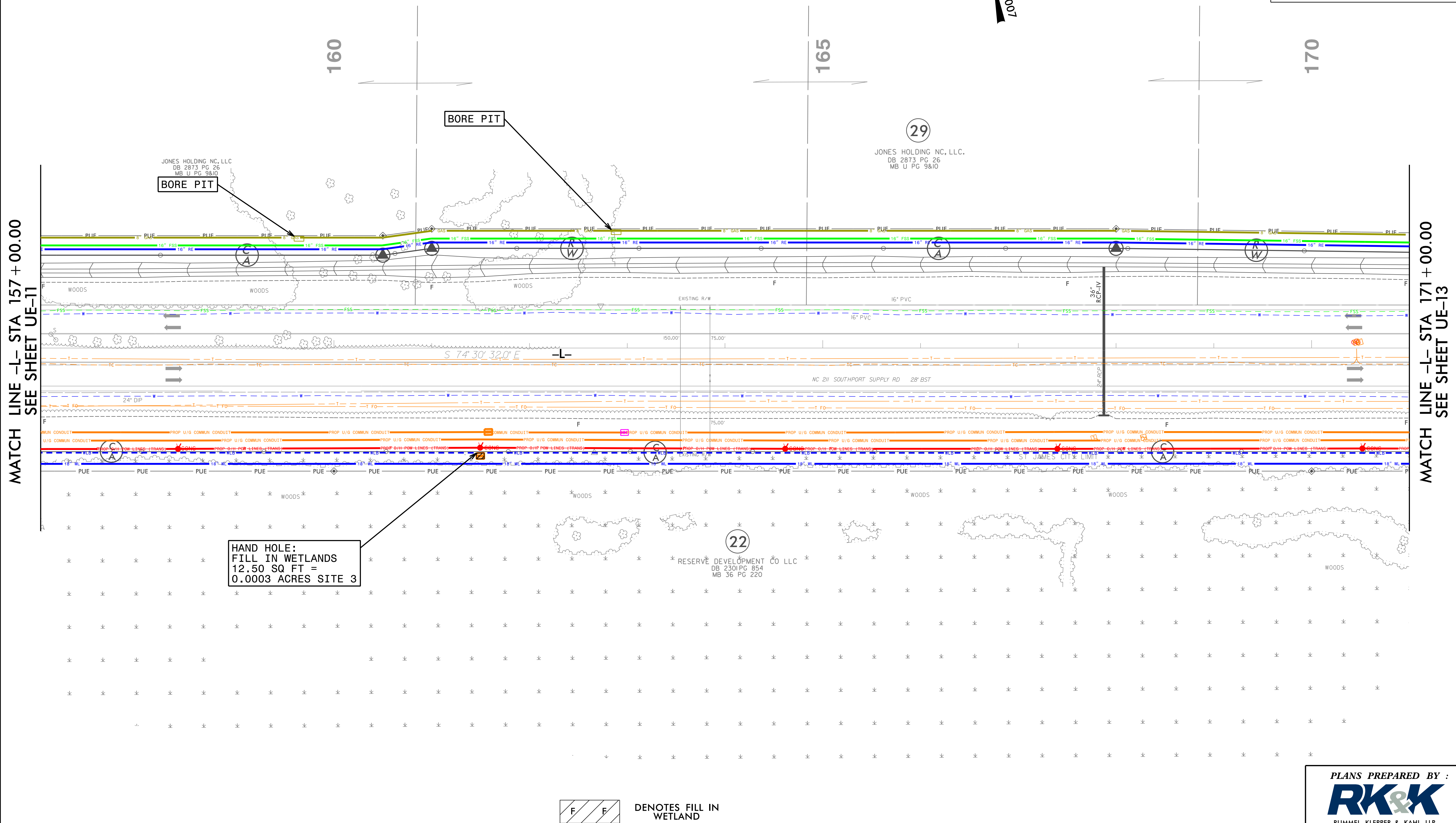
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A rectangular block with diagonal hatching from the bottom-left to the top-right. Two 'F' labels are placed within the block, one on the left and one on the right.

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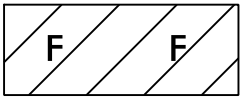
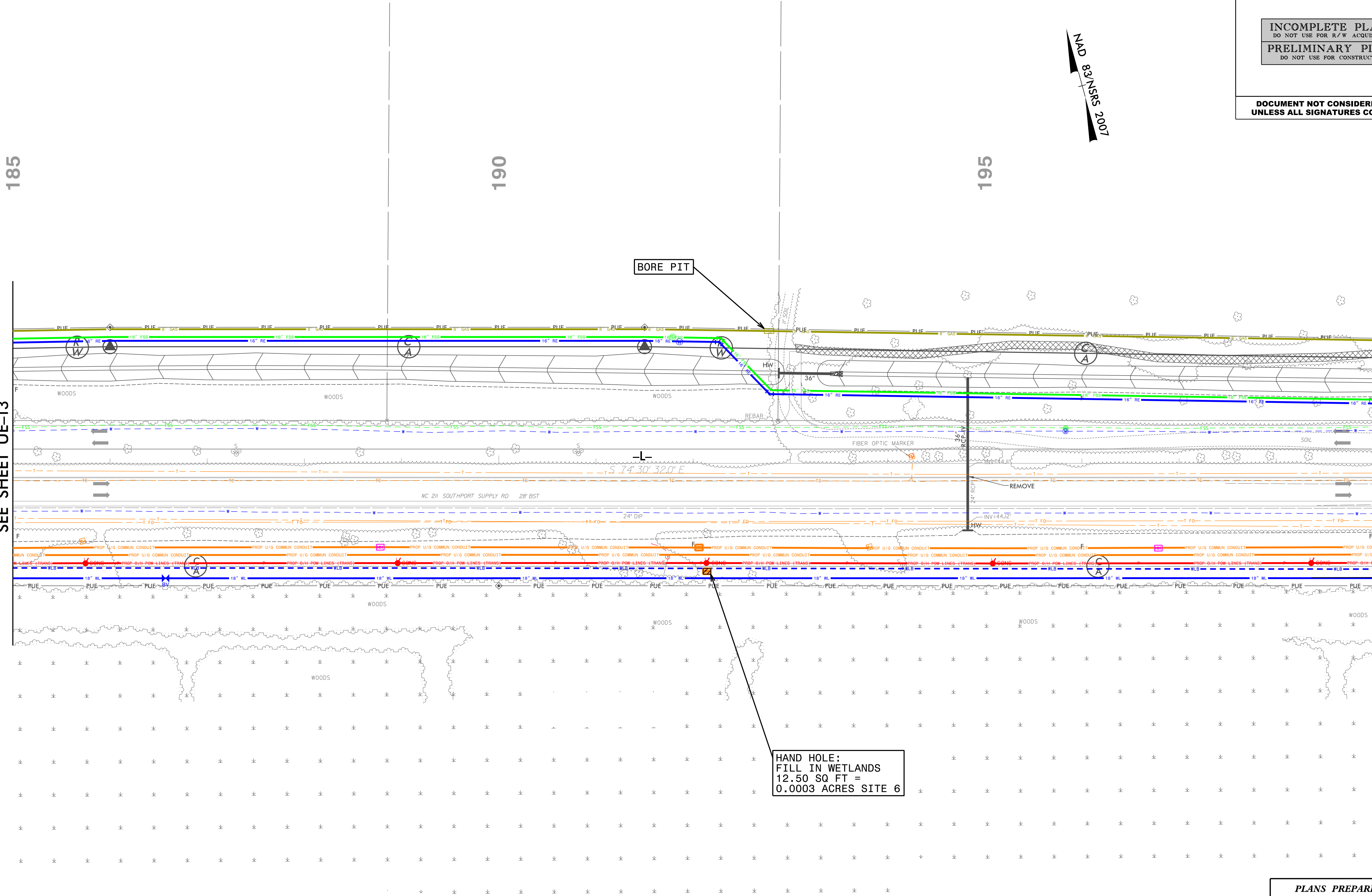




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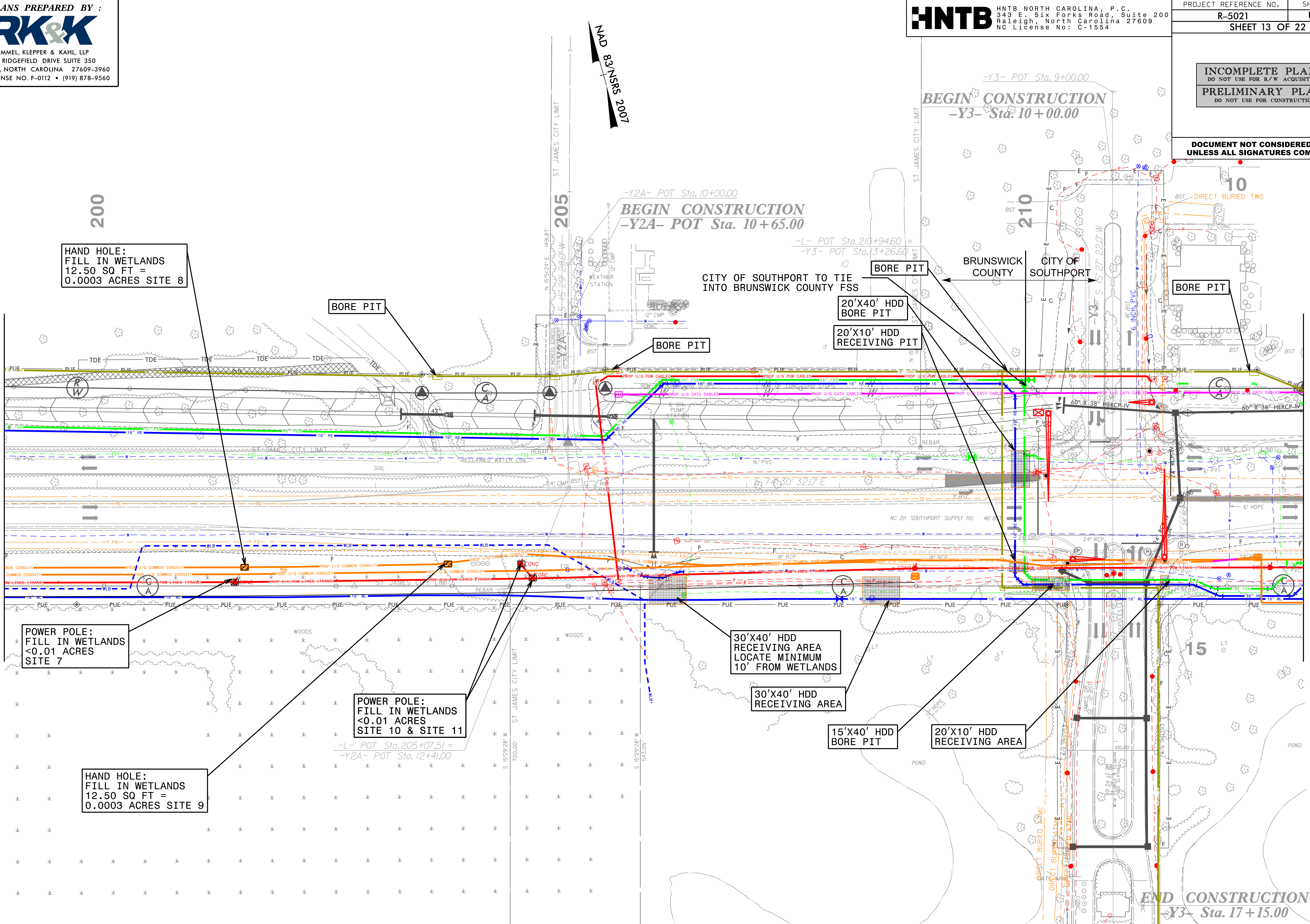
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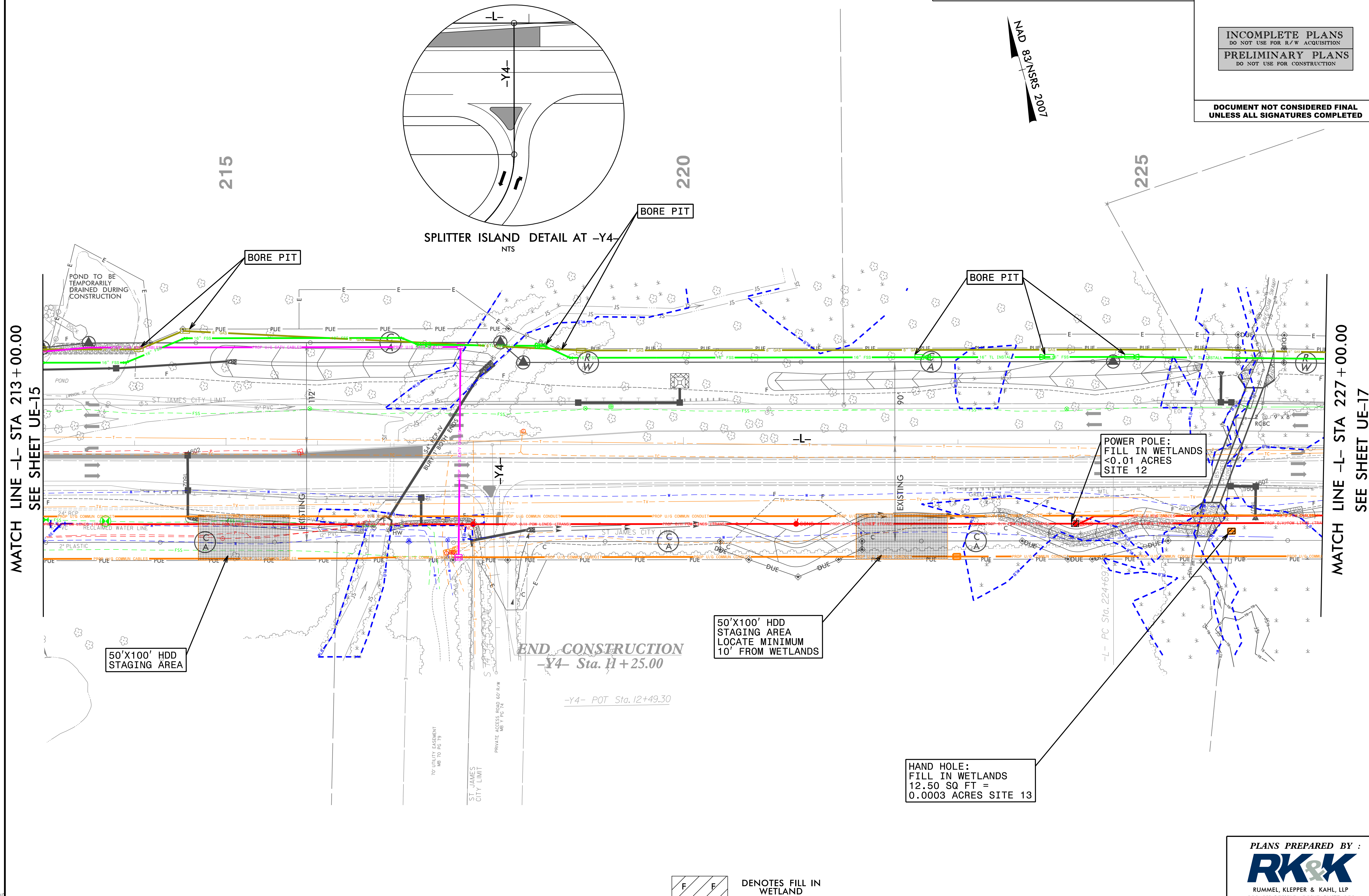
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SHEET 14 OF 22

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PRELIMINARY PLANS  
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PLANS PREPARED BY :  
**RK&K**  
RUMMEL, KLEPPER & KAHL, LLP  
900 RIDGEFIELD DRIVE SUITE 350  
RALEIGH, NORTH CAROLINA 27609-3960  
NC LICENSE NO. F-0112 • (919) 878-9560



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UT17

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|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-5021                | UE-17     |
| SHEET 15 OF 22        |           |

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MATCH LINE -L- STA 227 + 00.00  
SEE SHEET UE-16

The diagram is a detailed utility plan for a water and sewer project. It shows a network of underground utility lines (UG) including water mains (W), sewer lines (S), and gas lines (G). Key features include:

- Water Mains:** Various sizes of water mains (e.g., 16" W, 18" W, 24" W) running horizontally across the plan.
- Sewer Lines:** Sewer lines (e.g., 18" S, 24" S) running horizontally and vertically.
- Gas Lines:** Gas lines (e.g., 8" G, 10" G) running horizontally.
- Pits and Receiving Areas:** Several pits are identified, including "BORE PIT", "10'X10' RECEIVING PIT", "10'X40' BORE PIT", and a "30'X40' HDD RECEIVING AREA".
- Access Breaks:** Locations where utility lines cross over or under each other are marked as "ACCESS BREAK".
- Property Lines:** The "ST JAMES CITY LIMIT" is indicated by a dashed line.
- Other Features:** The plan includes labels for "ISMTL BUS", "25BKBUS", "POND", "WOODS", "PUMP HOUSE", "ANTENNA", "KEY PAD", "VALVE BOX", "LIFT STATION", and "PRIVATE ACCESS EASEMENT".
- Stationing:** Stationing points are marked along the lines, such as "-L- PT Sta. 232+52.07", "-Y5- POC Sta. 11+87.69", "-Y5- POT Sta. 10+00.00", "-L- PT Sta. 233+73.34", "-Y5A- PT Sta. 10+00.00", "-L- PC Sta. 240+39.40", "-L- PT Sta. 232+28.68", "-Y5B- POT Sta. 12+50.00", and "-Y6- POT Sta. 12+50.00".
- Match Lines:** The plan is bounded by match lines on the left and right, labeled "MATCH LINE -L- STA 227 + 00.00 SEE SHEET UE-16" and "MATCH LINE -L- STA 241 + 00.00 SEE SHEET UE-18".
- North Arrow:** A north arrow is located in the upper left corner, pointing towards the top right, labeled "NAD 83/NSRS 2007".

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charris

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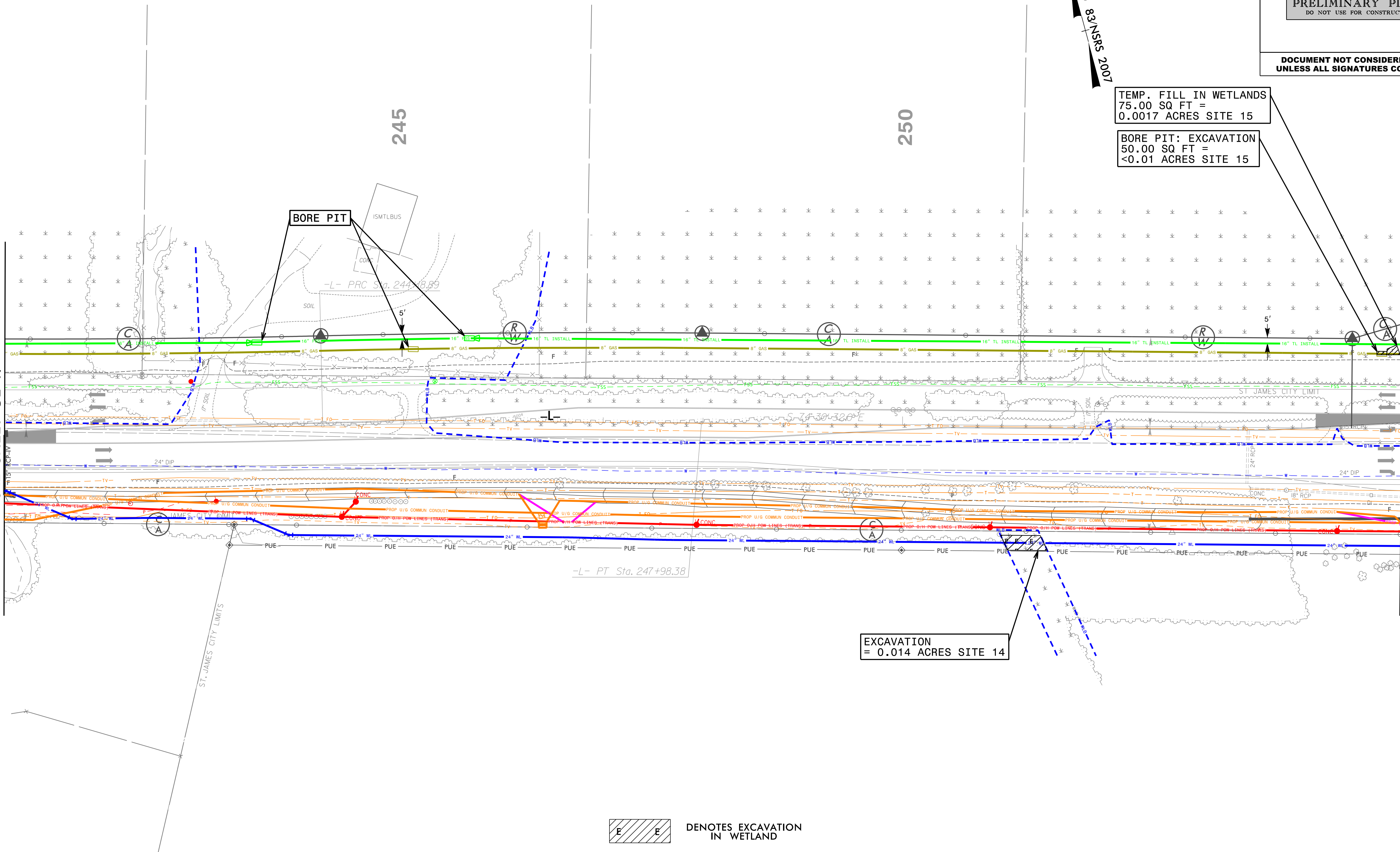
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|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-5021                | UE-18     |
| SHEET 16 OF 22        |           |

INCOMPLETE PLANS  
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MATCH LINE -L- STA 241+00.00  
SEE SHEET UE-17



TEMP. FILL IN WETLANDS  
75.00 SQ FT =  
0.0017 ACRES SITE 15

BORE PIT: EXCAVATION  
50.00 SQ FT =  
<0.01 ACRES SITE 15

EXCAVATION  
= 0.014 ACRES SITE 14

DENOTES EXCAVATION  
IN WETLAND

DENOTES TEMPORARY  
FILL IN WETLAND

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| PROJECT REFERENCE NO. | SHEET NO. |
|-----------------------|-----------|
| R-5021                | UE-19     |
| SHEET 17 OF 22        |           |

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PRELIMINARY PLANS  
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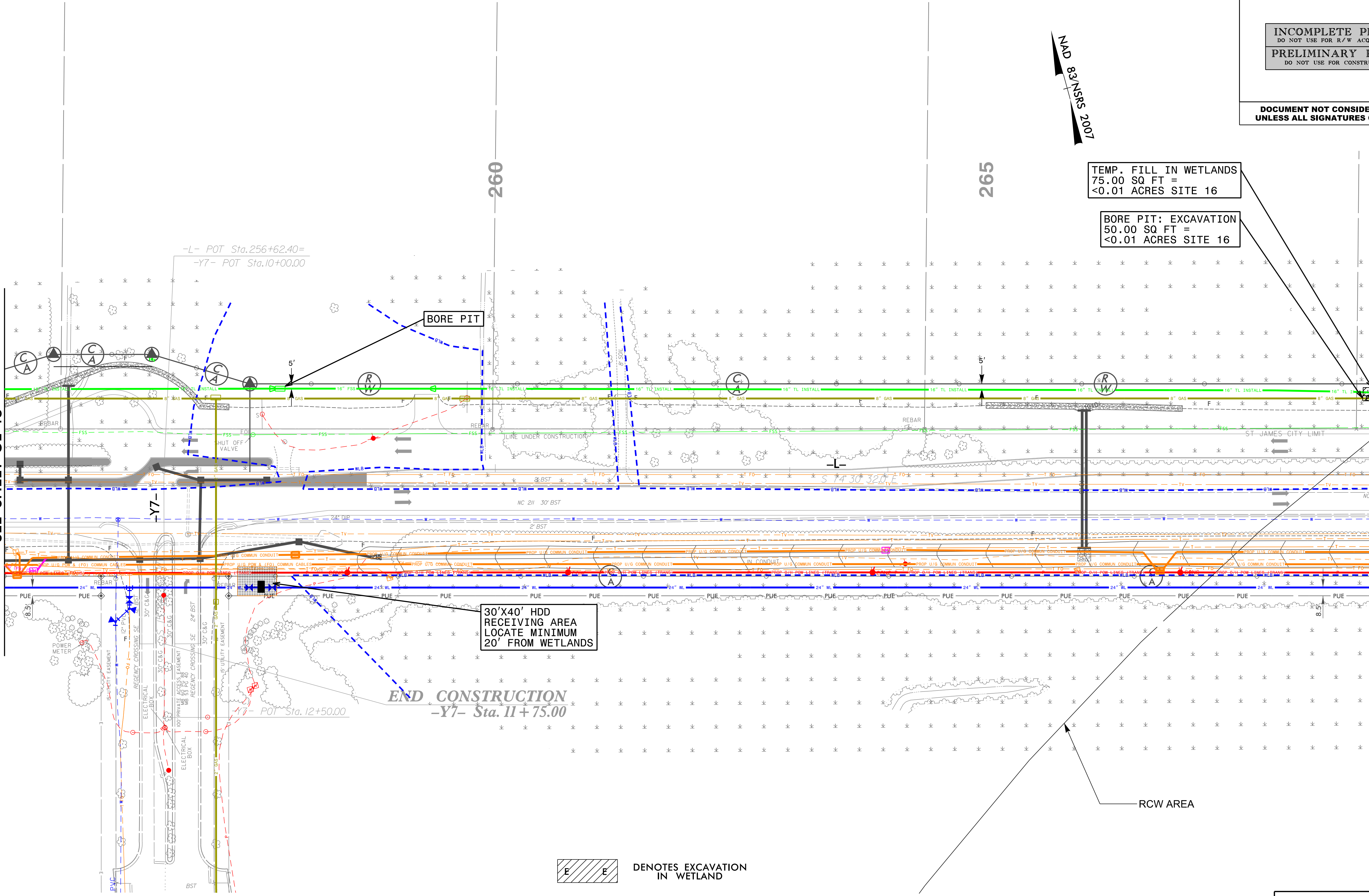
NAD 83/NSRS 2007

TEMP. FILL IN WETLANDS  
75.00 SQ FT =  
<0.01 ACRES SITE 16

BORE PIT: EXCAVATION  
50.00 SQ FT =  
<0.01 ACRES SITE 16

MATCH LINE -L- STA 255 + 00.00  
SEE SHEET UE-18

MATCH LINE -L- STA 269 + 00.00  
SEE SHEET UE-20



E DENOTES EXCAVATION  
IN WETLAND

T DENOTES TEMPORARY  
FILL IN WETLAND

RCW AREA

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|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-5021                | UE-20     |
| SHEET 18 OF 22        |           |

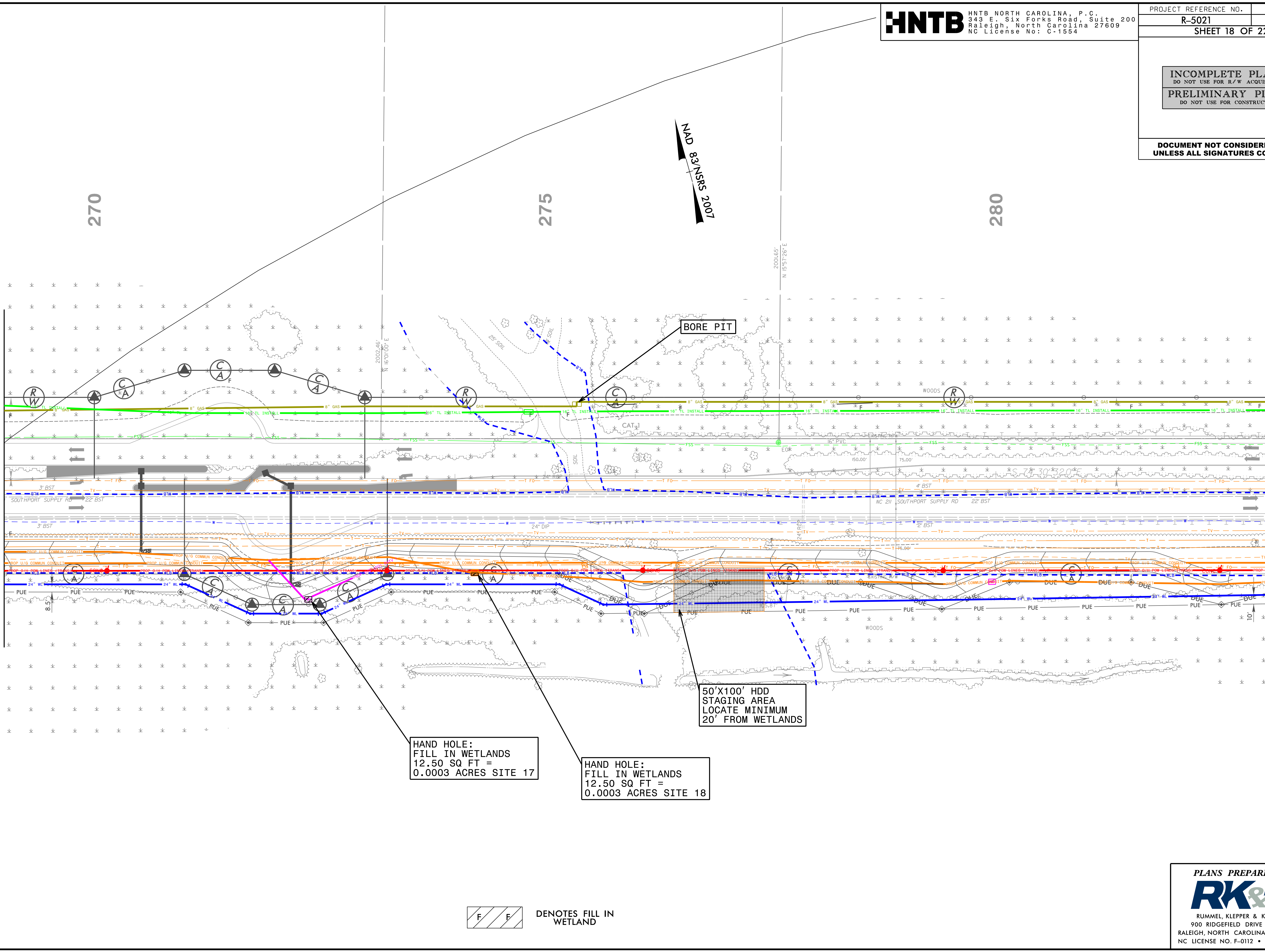
INCOMPLETE PLANS  
DO NOT USE FOR R/W ACQUISITION

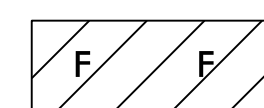
PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

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MATCH LINE -L- STA 269 + 00.00  
SEE SHEET UE-19

MATCH LINE -L- STA 283 + 00.00  
SEE SHEET UE-21



 DENOTES FILL IN WETLAND

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HAND HOLE:  
FILL IN WETLANDS  
12.50 SQ FT =  
0.0003 ACRES SITE 19

**MATCH LINE -L- STA 283+00.00  
SEE SHEET UE-20**

MATCH LINE -L- STA 297 + 00.00  
SEE UE-22

30'X40' HDD  
RECEIVING AREA  
LOCATE MINIMUM  
20' FROM WETLANDS

**END CONSTRUCTION**  
-Y8- Sta. 11+80.00

-Y8- POT Sta. 12+50.00

DENOTES FILL IN  
WETLAND

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|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-5021                | UE-22     |
| SHEET 20 OF 22        |           |

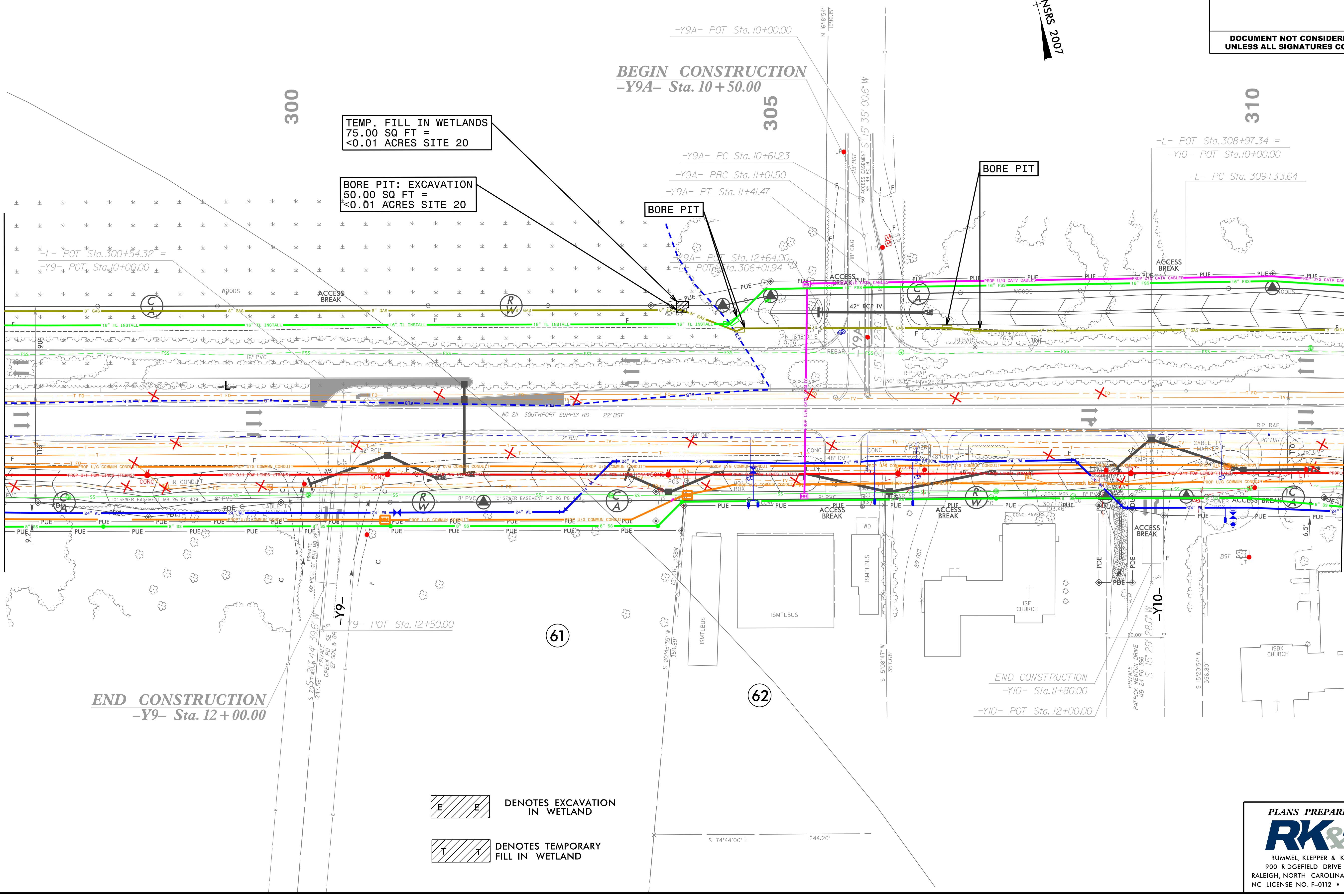
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PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

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MATCH LINE -L- STA 297 + 00.00  
SEE SHEET UE-21

MATCH LINE -L- STA 311 + 00.00  
SEE SHEET 23

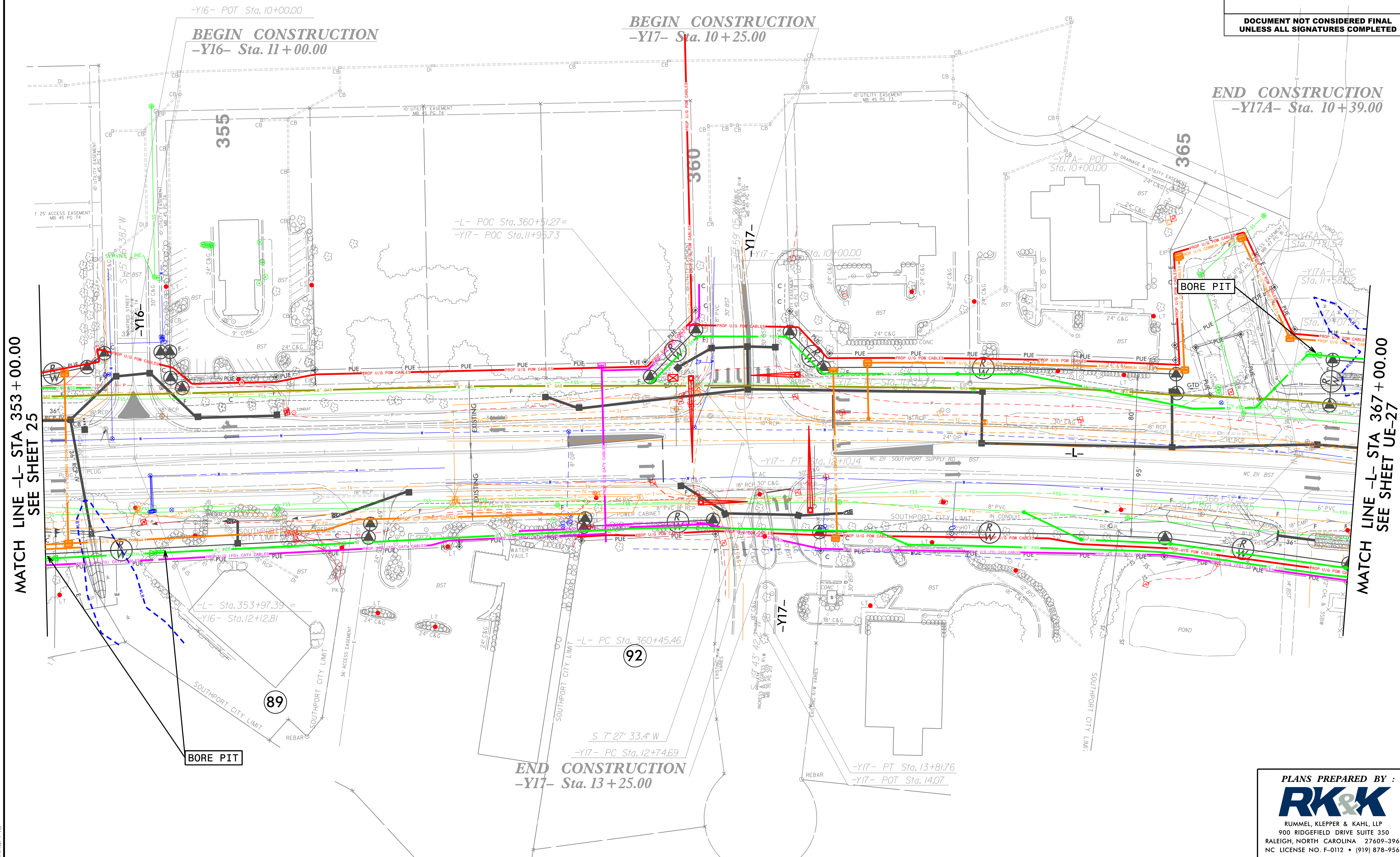


DENOTES EXCAVATION IN WETLAND

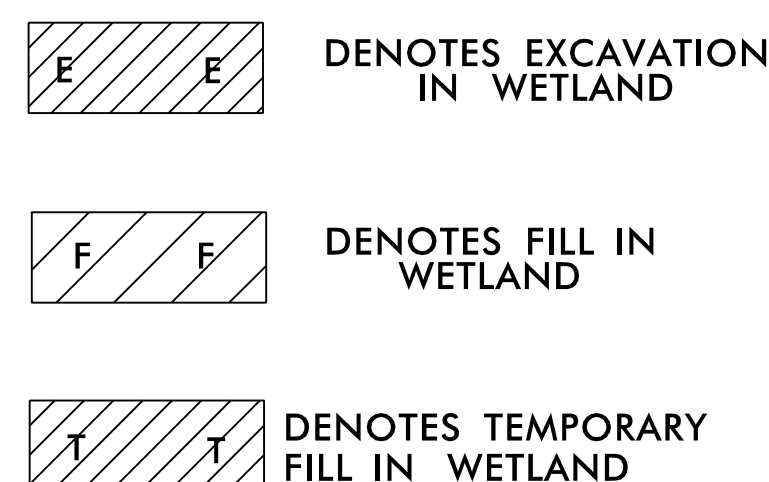
DENOTES TEMPORARY FILL IN WETLAND

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**MATCH LINE -L- STA 380 + 50.00  
SEE SHEET 28**

**END CONSTRUCTION**  
-Y18REV- Sta. 11+50.00

-Y18REV- POT Sta. 12+50.00

TEMP. FILL IN WETLANDS  
198.06 SQ FT =  
<0.01 ACRES SITE 22

BORE PIT: EXCAVATION  
132.04 SQ FT =  
≤0.01 ACRES SITE 22

HAND HOLE:  
FILL IN WETLANDS  
12.50 SQ FT =  
0.0003 ACRES SITE 21

EXCAVATION  
78.68 SQ FT =  
<0.01 ACRES SITE 23

EXCAVATION  
196.05 SQ FT  
≤0.01 ACRES SITE 24

BORE PIT

BORE PIT

5/27/2018  
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barrels

| WETLAND PERMIT IMPACT 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) |
| 1                             | -L- 66+34.66 RT<br>(Sheet UE-05)                 | Hand Hole             | <0.01                           |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 2                             | -L- 85+09.00 to -L- 86+09.00 RT<br>(Sheet UE-06) | Staging Area          |                                 | 0.04                        |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 3                             | -L- 161+45.80 RT<br>(Sheet UE-12)                | Hand Hole             | <0.01                           |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 4                             | -L- 176+61.17 RT<br>(Sheet UE-13)                | Hand Hole             | <0.01                           |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 5                             | -L- 178+50 to -L- 179+50 RT<br>(Sheet UE-13)     | Water Line            |                                 |                             | 0.03                        |                                      |                                |                           |                       |                                         |                                     |                            |
| 6                             | -L- 192+10.26 RT<br>(Sheet UE-14)                | Hand Hole             | <0.01                           |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 7                             | -L- 201+48.42 RT<br>(Sheet UE-15)                | Power Pole            | <0.01                           |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 8                             | -L- 201+54.98 RT<br>(Sheet UE-15)                | Hand Hole             | <0.01                           |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 9                             | -L- 203+74.13 RT<br>(Sheet UE-15)                | Hand Hole             | <0.01                           |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 10                            | -L- 204+56.36 RT<br>(Sheet UE-15)                | Power Pole            | <0.01                           |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 11                            | -L- 204+69.62 RT<br>(Sheet UE-15)                | Power Pole            | <0.01                           |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 12                            | -L- 224+23.88 RT                                 | Power Pole            | <0.01                           |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |

REVISED 8/20/18



|         |                                   |              |       |       |       |      |      |      |      |      |      |      |
|---------|-----------------------------------|--------------|-------|-------|-------|------|------|------|------|------|------|------|
|         | (Sheet UE-16)                     |              |       |       |       |      |      |      |      |      |      |      |
| 13      | -L- 225+95.94 RT                  | Hand Hole    | <0.01 |       |       |      |      |      |      |      |      |      |
|         | (Sheet UE-16)                     |              |       |       |       |      |      |      |      |      |      |      |
| 14      | -L- 250+99 to 251+46 RT           | Water Line   |       |       | 0.01  |      |      |      |      |      |      |      |
|         | (Sheet UE-18)                     |              |       |       |       |      |      |      |      |      |      |      |
| 15      | -L- 254+74.74 to -L- 254+84.74 LT | PNG Bore Pit |       | <0.01 | <0.01 |      |      |      |      |      |      |      |
|         | (Sheet UE-18)                     |              |       |       |       |      |      |      |      |      |      |      |
| 16      | -L- 268+83.69 to -L- 268+93.69 LT | PNG Bore Pit |       | <0.01 | <0.01 |      |      |      |      |      |      |      |
|         | (Sheet UE-19)                     |              |       |       |       |      |      |      |      |      |      |      |
| 17      | -L- 272+33.48 RT                  | Hand Hole    | <0.01 |       |       |      |      |      |      |      |      |      |
|         | (Sheet UE-20)                     |              |       |       |       |      |      |      |      |      |      |      |
| 18      | -L- 274+18.12 RT                  | Hand Hole    | <0.01 |       |       |      |      |      |      |      |      |      |
|         | (Sheet UE-20)                     |              |       |       |       |      |      |      |      |      |      |      |
| 19      | -L- 293+71.35 LT                  | Hand Hole    | <0.01 |       |       |      |      |      |      |      |      |      |
|         | (Sheet UE-21)                     |              |       |       |       |      |      |      |      |      |      |      |
| 20      | -L- 304+01.84 to -L- 304+11.84 LT | PNG Bore Pit |       | <0.01 | <0.01 |      |      |      |      |      |      |      |
|         | (Sheet UE-22)                     |              |       |       |       |      |      |      |      |      |      |      |
| 21      | -L- 368+96.43 LT                  | Hand Hole    | <0.01 |       |       |      |      |      |      |      |      |      |
|         | (Sheet UE-27)                     |              |       |       |       |      |      |      |      |      |      |      |
| 22      | -L- 372+57.91 to -L- 372+67.91 LT | PNG Bore Pit |       | <0.01 | <0.01 |      |      |      |      |      |      |      |
|         | (Sheet UE-27)                     |              |       |       |       |      |      |      |      |      |      |      |
| 23      | -L- 372+81 to -L- 372+90 LT       | Water Line   |       |       | <0.01 |      |      |      |      |      |      |      |
|         | (Sheet UE-27)                     |              |       |       |       |      |      |      |      |      |      |      |
| 24      | -L- 373+14 to -L- 373+36 LT       | Water Line   |       |       | <0.01 |      |      |      |      |      |      |      |
|         | (Sheet UE-27)                     |              |       |       |       |      |      |      |      |      |      |      |
| TOTALS: |                                   |              | 0.01  | 0.04  | 0.05  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Note : 50 sq. ft. (Each) bore pit excavation = 75 sq. ft. (Each) temporary fill in the wetlands  
Total : 200 sq. ft. bore pit excavation = 300 sq. ft. temporary fill in wetlands

REVISED 8/20/18

Note : 1754 sq. ft. temporary fill in the wetlands from staging area = 0.04 ac

Note : 4 sq. ft. (Each) = 0.0001 ac (Each) permanent impact in the wetlands from pole installation.  
Total: 16 sq. ft

Note : 12.5 sq. ft. (Each) = 0.0003 ac (Each) permanent fill in the wetlands from hand hole installation.  
Total: 137.5 sq. ft

Note : 2365.73 sq. ft. excavation in wetlands for water line.

**REVISED 8/20/18**

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
BRUNSWICK COUNTY  
TIP PROJECT (R-5021)