Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits

(along with corresponding Water Quality Certifications)

September 29, 2018 Ver 3

*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.*

Also, if at any point you wish to print a copy of the E-PCN, all you need to do is right-click on the document and you can print a copy of the form.

Below is a link to the online help file.

https://edocs.deq.nc.gov/WaterResources/0/edoc/624704/PCN%20Help%20File%202018-1-30.pdf

A. Processing Information

County (or Counties) where the project is located:*

Pitt

Is this project a public transportation project?*

(•) Yes ( ) No

This is any publicly funded by municipal,state or federal funds road, rail, airport transportation project.

Is this a NCDOT Project?*

(•) Yes ( ) No

(NCDOT only) T.I.P. or state project number:

B-5301

WBS #*

46015.1.1

(for NCDOT use only)

1a. Type(s) of approval sought from the Corps:*

- [x] Section 404 Permit (wetlands, streams and waters, Clean Water Act)
- [ ] Section 10 Permit (navigable waters, tidal waters, Rivers and Harbors Act)

1b. What type(s) of permit(s) do you wish to seek authorization?*

- [x] Nationwide Permit (NWP)
- [ ] Regional General Permit (RGP)
- [ ] Standard (IP)

This form may be used to initiate the standard/individual permit process with the Corps. Please contact your Corps representative concerning submittals for standard permits. All required items that are not provided in the E-PCN can be added to the miscellaneous upload area located at the bottom of this form.

1c. Has the NWP or GP number been verified by the Corps?*

( ) Yes (•) No

Nationwide Permit (NWP) Number: 23 - Categorical Exclusions

Nationwide Permit (NWP) Number: 12 - Utility Lines

NWP Numbers (for multiple NWPS):

List all NW numbers you are applying for not on the drop down list.

1d. Type(s) of approval sought from the DWR:*

check all that apply

- [x] 401 Water Quality Certification - Regular
- [ ] Non-404 Jurisdictional General Permit
- [ ] Individual Permit
- [ ] 401 Water Quality Certification - Express
- [x] Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?

*

For the record only for DWR 401 Certification: ( ) Yes (•) No

For the record only for Corps Permit: ( ) Yes (•) No

1f. Is this an after-the-fact permit application?*

○ Yes ◉ No

1g. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts?

If so, attach the acceptance letter from mitigation bank or in-lieu fee program

○ Yes ◉ No

Acceptance Letter Attachment

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

Mildred Woods Mitigation_B-5301.pdf 168.76KB

FILE TYPE MUST BE PDF

1h. Is the project located in any of NC's twenty coastal counties? *

○ Yes ◉ No

1j. Is the project located in a designated trout watershed? *

○ Yes ◉ No

Link to trout information: http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout.aspx

B. Applicant Information

1a. Who is the Primary Contact? *

NCDOT

1b. Primary Contact Email: *

gcashin@ncdot.gov

1c. Primary Contact Phone: *

(xxx)xxx-xxxx

(919)707-6107

1d. Who is applying for the permit? *

☑ Owner ☐ Applicant (other than owner)

(Check all that apply)

1e. Is there an Agent/Consultant for this project? *

○ Yes ◉ No

2. Owner Information

2a. Name(s) on recorded deed: *

NCDOT

2b. Deed book and page no.:

2c. Responsible party:

(for Corporations)

2d. Address *

Street Address

1000 Birch Ridge Drive

Address Line 2

City

Raleigh

State / Province / Region

NC

Postal / Zip Code

27604

Country

USA

2e. Telephone Number: *

(xxx)xxx-xxxx

(919)707-6107

2f. Fax Number:

(xxx)xxx-xxxx

2g. Email Address: *

pharris@ncdot.gov

C. Project Information and Prior Project History

1. Project Information

1a. Name of project: *

Bridge No. 87 on NC 33 over Norfolk Southern Railroad, (B-5301 Central)

1b. Subdivision name:

(if appropriate)

1c. Nearest municipality / town: *

Grimesland

2. Project Identification

2a. Property Identification Number:

(tax PIN or parcel ID)

2b. Property size:

(in acres)

2c. Project Address

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

2d. Site coordinates in decimal degrees

Please collect site coordinates in decimal degrees. Use between 4-6 digits (unless you are using a survey-grade GPS device) after the decimal place as appropriate, based on how the location was determined. (For example, most mobile phones with GPS provide locational precision in decimal degrees to map coordinates to 5 or 6 digits after the decimal place.)

Latitude: *

35.569888

ex: 34.208504

Longitude: *

-77.203997

-77.796371

3. Surface Waters

3a. Name of the nearest body of water to proposed project: *

Chicod Creek

3b. Water Resources Classification of nearest receiving water: *

C; NSW

Surface Water Lookup

3c. What river basin(s) is your project located in? *

Tar-Pamlico

3d. Please provide the 12-digit HUC in which the project is located. *

030201030604 / 030201030605

River Basin Lookup

4. Project Description and History

4a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: *

Land use in the project vicinity consists primarily of agricultural fields interspersed with forestland along the stream corridor.

4b. Have Corps permits or DWR certifications been obtained for this project (including all prior phases) in the past? *

○ Yes ◉ No ○ Unknown

4d. Attach an 8 1/2 X 11 excerpt from the most recent version of the USGS topographic map indicating the location of the project site. (for DWR)

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

File type must be pdf

4e. Attach an 8 1/2 X 11 excerpt from the most recent version of the published County NRCS Soil Survey map depicting the project site. (for DWR)

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

File type must be pdf

4f. List the total estimated acreage of all existing wetlands on the property:

0.44

4g. List the total estimated linear feet of all existing streams on the property:

(intermittent and perennial)

100

4h. Explain the purpose of the proposed project: *

The purpose of this project is to replace a structurally deficient bridge.

4i. Describe the overall project in detail, including indirect impacts and the type of equipment to be used: *

The bridge will be replaced on a new roadway alignment east of the existing bridge. The existing bridge will be used to maintain traffic during construction of the new bridge and roadway. The new bridge will be a three span bridge approximately 240 feet long, with two 12-foot lanes and 4-foot shoulders. The roadway grade will be raised 4.5 - 4.75 feet from the existing structure to provide required railroad clearance. Standard road building equipment, such as trucks, dozers and cranes will be used.

4j. Please upload project drawings for the proposed project.

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

B-5301 Wetland Permit Drawings.pdf	11MB
B-5301 Buffer Permit Drawings.pdf	3.24MB
B-5301_Utility Buffer.pdf	2.45MB

File type must be pdf

5. Jurisdictional Determinations

5a. Have the wetlands or streams been delineated on the property or proposed impact areas? *

(•) Yes ( ) No ( ) Unknown

Comments:

5b. If the Corps made a jurisdictional determination, what type of determination was made? *

( ) Preliminary ( ) Approved (•) Not Verified ( ) Unknown ( ) N/A

Corps AID Number:

Example: SAW-2017-99999

5c. If 5a is yes, who delineated the jurisdictional areas?

Name (if known): Chris Manley, Tyler Stanton, John Merritt

Agency/Consultant Company: NCDOT

Other:

5d1. Jurisdictional determination upload

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

B-5301_wetland forms.pdf 278.38KB

File type must be PDF

6. Future Project Plans

6a. Is this a phased project? *

( ) Yes (•) No

Are any other NWP(s), regional general permit(s), or individual permits(s) used, or intended to be used, to authorize any part of the proposed project or related activity? This includes other separate and distant crossing for linear projects that require Department of the Army authorization but don't require pre-construction notification.

D. Proposed Impacts Inventory

1. Impacts Summary

1a. Where are the impacts associated with your project? (check all that apply):

☑ Wetlands ☑ Streams-tributaries ☑ Buffers
☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

"W." will be used in the table below to represent the word "wetland".

2a. Site # * (?)	2a1 Reason * (?)	2b. Impact type * (?)	2c. Type of W. *	2d. W. name *	2e. Forested *	2f. Type of Jurisdicition * (?)	2g. Impact area *
1	Roadway and toe protection	P	Hardwood Flat	Wetland	Yes	Both	0.679 (acres)
1	Mechanized clearing	P	Hardwood Flat	Wetland	Yes	Both	0.067 (acres)
3	Mechanized clearing	P	Hardwood Flat	Wetland	Yes	Both	0.002 (acres)

2g. Total Temporary Wetland Impact

0.000

2g. Total Permanent Wetland Impact

0.748

2g. Total Wetland Impact

0.748

2h. Comments:

There will be 0.26 acre of hand clearing due to bridge construction.

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

"S." will be used in the table below to represent the word "stream".

	3a. Reason for impact * (?)	3b.Impact type *	3c. Type of impact *	3d. S. name *	3e. Stream Type * (?)	3f. Type of Jurisdiction *	3g. S. width *	3h. Impact length *
S1	RCP installation	Permanent	Culvert	Site 2	Perennial	Both	2 Average (feet)	15 (linear feet)
S2	RCP installation	Temporary	Culvert	Site 2	Perennial	Both	2 Average (feet)	14 (linear feet)
S3	Bank stabilization	Permanent	Bank Stabilization	Site 2	Perennial	Both	2 Average (feet)	42 (linear feet)

** All Perennial or Intermittent streams must be verified by DWR or delegated local government.

3i. Total jurisdictional ditch impact in square feet:

0

3i. Total permanent stream impacts:

57

3i. Total temporary stream impacts:

14

3i. Total stream and ditch impacts:

71

3j. Comments:

6. Buffer Impacts (for DWR)

If project will impact a protected riparian buffer, then complete the chart below. Individually list all buffer impacts below.

6a. Project is in which protect basin(s)? *

Check all that apply.

- ☐ Neuse
- ☐ Catawba
- ☐ Goose Creek
- ☐ Other
- ☑ Tar-Pamlico
- ☐ Randleman
- ☐ Jordan Lake

6b. Impact Type * (?)	6c. Per or Temp * (?)	6d. Stream name *	6e. Buffer mitigation required? *	6f. Zone 1 impact *	6g. Zone 2 impact *
Pipe installation/earthwork	P	Unnamed trib	No	1,924 (square feet)	953 (square feet)
Swale excavation in buffer	P	Unnamed trib	No	2,432 (square feet)	1,331 (square feet)
Temp. disturbance for construction	T	Unnamed trib	No	1,182 (square feet)	1,075 (square feet)
Site OH Utilities	P	Unnamed trib	No	82 (square feet)	0 (square feet)
Site 2 Utilities	P	Unnamed trib	No	0 (square feet)	1,436 (square feet)
Site 3 Utilities	P	Unnamed trib	No	640 (square feet)	0 (square feet)

6h. Total buffer impacts:

	Zone 1	Zone 2
Total Temporary impacts:	1,182.00	1,075.00

	Zone 1	Zone 2
Total Permanent impacts:	5,078.00	3,720.00

	Zone 1	Zone 2
Total combined buffer impacts:	6,260.00	4,795.00

6i. Comments:

Supporting Documentation - i.e. Impact Maps, Plan Sheet, etc.

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

File must be PDF

E. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing the project: *

The new alignment alternative was selected to minimize impacts on an nearby low income population. 3:1 slopes will be constructed in wetlands.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques: *

NCDOT's Design Standards in Sensitive Watersheds will be adhered to. See attached SMP for additional information.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?

(•) Yes ( ) No

2c. If yes, mitigation is required by (check all that apply):

[ ] DWR [x] Corps

2d. If yes, which mitigation option(s) will be used for this project?

[ ] Mitigation bank [x] Payment to in-lieu fee program [x] Permittee Responsible Mitigation

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.

(•) Yes ( ) No

4b. Stream mitigation requested:

(linear feet)

4c. If using stream mitigation, what is the stream temperature:

NC Stream Temperature Classification Maps can be found under the Mitigation Concepts tab on the Wilmington District's RIBITS website.

4d. Buffer mitigation requested (DWR only):

(square feet)

4e. Riparian wetland mitigation requested:

(acres)

4f. Non-riparian wetland mitigation requested:

(acres)

.75

4g. Coastal (tidal) wetland mitigation requested:

(acres)

4h. Comments

5. Complete if Using a Permittee Responsible Mitigation Plan

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan including mitigation credits generated.

5b. Mitigation Plan Upload

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

File type must be pdf

6i. If no, then discuss what type of mitigation is proposed.

Proposed buffer impacts do not exceed the mitigation threshold.

F. Stormwater Management and Diffuse Flow Plan (required by DWR)

*** Recent changes to the stormwater rules have required updates to this section .***

1. Diffuse Flow Plan

1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?

(•) Yes ( ) No

1b. All buffer impacts and high ground impacts require diffuse flow or other form of stormwater treatment. If the project is subject to a state implemented riparian buffer protection program, include a plan that fully documents how diffuse flow will be maintained.

All Stormwater Control Measures (SCM)s must be designed in accordance with the NC Stormwater Design Manual. Associated supplement forms and other documentation shall be provided.

What type of SCM are you providing?

- [ ] Level Spreader
- [x] Vegetated Conveyance (lower SHWT)
- [ ] Wetland Swale (higher SHWT)
- [ ] Other SCM that removes minimum 30% nitrogen
- [ ] Proposed project will not create concentrated stormwater flow through the buffer

(check all that apply)

For a list of options to meet the diffuse flow requirements, click here.

Diffuse Flow Documentation

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

File type must be PDF

2. Stormwater Management Plan

2a. Is this a NCDOT project subject to compliance with NCDOT's Individual NPDES permit NCS000250? *

(•) Yes ( ) No

Comments:

G. Supplementary Information

1. Environmental Documentation

1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? *

(•) Yes ( ) No

1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)? *

(•) Yes ( ) No

1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) *

(•) Yes ( ) No

NEPA or SEPA Final Approval Letter

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

FILE TYPE MUST BE PDF

2. Violations (DWR Requirement)

2a. Is the site in violation of DWR Water Quality Certification Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), or DWR Surface Water or Wetland Standards or Riparian Buffer Rules (15A NCAC 2B .0200)? *

( ) Yes (•) No

3. Cumulative Impacts (DWR Requirement)

3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? *

( ) Yes (•) No

3b. If you answered "no," provide a short narrative description.

Due to minimal transportation impact resulting from the bridge replacement the project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.

4. Sewage Disposal (DWR Requirement)

4a. Is sewage disposal required by DWR for this project? *

( ) Yes ( ) No (•) N/A

5. Endangered Species and Designated Critical Habitat (Corps Requirement)

5a. Will this project occur in or near an area with federally protected species or habitat? *

( ) Yes (•) No

5b. Have you checked with the USFWS concerning Endangered Species Act impacts? *

(•) Yes ( ) No

5c. If yes, indicate the USFWS Field Office you have contacted.

Raleigh

5d. Is another Federal agency involved? *

(•) Yes ( ) No ( ) Unknown

What Federal Agency is involved?

NOAA Fisheries

5e. Is this a DOT project located within Division's 1-8? *

(•) Yes ( ) No

5j. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? *

NC Natural Heritage Program database, USFWS Raleigh Field Office website. Biological Conclusions of "No Effect" were reached for the red-cockaded woodpecker, West Indian manatee, dwarf wedgemussel, Tar River spinymussel, yellow lance, and Atlantic sturgeon. The Northern long-eared bat will be addressed by the Programmatic Biological Conclusion.

Consultation Documentation Upload

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

File type must be PDF

6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as an Essential Fish Habitat? *

( ) Yes (•) No

6b. What data sources did you use to determine whether your site would impact an Essential Fish Habitat? *

NMFS county index

7. Historic or Prehistoric Cultural Resources (Corps Requirement)

Link to the State Historic Preservation Office Historic Properties Map (does not include archaeological data: http://gis.ncdcr.gov/hpoweb/

7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)? *

( ) Yes (•) No

7b. What data sources did you use to determine whether your site would impact historic or archeological resources? *

NEPA documentation

7c. Historic or Prehistoric Information Upload

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

File must be PDF

8. Flood Zone Designation (Corps Requirement)

Link to the FEMA Floodplain Maps: https://msc.fema.gov/portal/search

8a. Will this project occur in a FEMA-designated 100-year floodplain? *

( ) Yes (•) No

8c. What source(s) did you use to make the floodplain determination? *

FEMA maps

Miscellaneous

Comments

Miscellaneous attachments not previously requested.

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

File must be PDF or KMZ

Signature

*

☑ By checking the box and signing below, I certify that:

- I have given true, accurate, and complete information on this form;
- I agree that submission of this PCN 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 PCN form.

Full Name: *

Mack Christopher Rivenbark, III

Signature

Mack C. Rivenbark, III

Date

2/11/2020

Mildred Woods Mitigation Site
ONEID 033-001

The Mildred Woods Mitigation Site is located in Edgecombe County within the USGS hydrologic unit 03020103 of the Pamlico River. NCDOT acquired the 598.31 acre site to mitigate for unavoidable, jurisdictional impacts associated with TIP R-2111/R-2112A. Monitoring requirements were performed from 1996 to 2003 and the site was closed out in 2005. The 2002 Monitoring Report and Closeout Letters state that there is a total of 379.1 acres of total wetlands on the site. NCDOT sent EEP numbers based off of a starting amount of 369 acres of restoration and 23 acres of preservation. However, these should have been a starting amount of 356.1 acres of restoration and 23 acres of preservation. Table 1 shows the final mitigation quantities approved for the site. The site has been placed on the NCDOT On-site Debit Ledger for use within HUC 03020103. Tables 2-3 indicate all mitigation debits that have occurred per regulatory agency approval.

In order to offset unavoidable impacts associated with B-5301, NCDOT will be debiting the onsite debit ledger 0.75 acres from Mildred Woods mitigation site to cover the impacts associated with this project.

Table 1. Mitigation Quantities Approved

HUC	Mitigation Type	Starting Amount (Ac.)	Additional Notes
3020103	Non-Riparian Restoration	356.1	
3020103	Non-Riparian Preservation	23	

Table 2. Mitigation Debits – Non-Riparian Restoration

TYPE	DEBITAMOUNT	Status	SITE TIP	Action ID#	Notes
NRW_REST	-100	Close Out	EEP		EEP ledger indicates that 100 acres were transferred from EEP to NCDOT
NRW_REST	0	Close Out	Alterations		Issues with hydrology during monitoring were resolved at closeout says Jim Hauser. Was originally 23.5 ac
NRW_REST	0	Close Out	B-4020	2007-04084	Was originally 0.46 acres. But the mitigation was not needed due to a reduction in impacts for B-4020. The on-site restoration at Tranters Creek was sufficient to cover the impacts.
NRW_REST	0	Close Out	B-4021	2007-04082	Was originally 0.25 acres. But EEP will provide mitigation for impacts to 0.124 acres of riverine wetlands.
NRW_REST	1.86	Close Out	U-3826	2009-00101	0.62 acres @ 3:1

TYPE	DEBITAMOUNT	Status	SITE TIP	Action ID#	Notes
NRW_REST	9.2	Close Out	P-3309AB	2008-01789	4.62 acres @ 2:1
NRW_REST	23	Close Out	R-2112B	199601404	
NRW_REST	116.1	Close Out	EEP		Credits Transferred to EEP
NRW_REST	217	Close Out	R-2111, & R-2112A	199400662	
NRW_REST	0.75	Close Out	B-5301		

Table 3. Mitigation Debits – Non-Riparian Preservation

TYPE	DEBITAMOUNT	Status	SITE TIP	Action ID#	Notes
NRW_PRES	8	Close Out	EEP		Credits Transferred to EEP
NRW_PRES	15	Close Out	R-2112B	199601404	

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: B-5301 City/County: Grimesland/Pitt Sampling Date: 5-8-2012

Applicant/Owner: NCDOT State: NC Sampling Point: Wetland

Investigator(s): CM, TS, JM Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: wetland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	20	Y	FAC+
2. Quercus nigra	15	Y	FAC
3. Pinus taeda	10	N	FAC
4. Acer rubrum	10	N	FAC
5.			
6.			
7.			
8.			

55 = Total Cover

50% of total cover: 0 20% of total cover: 2

Sapling/Shrub Stratum (Plot size:)			
1. Liquidambar styraciflua	10	Y	FAC+
2. Quercus nigra	10	Y	FAC
3. Acer rubrum	10	Y	FAC
4.			
5.			
6.			
7.			
8.			

= Total Cover

50% of total cover: 3 20% of total cover: 0

Herb Stratum (Plot size:)			
1. Eupatorium sp.	30	Y	FACW
2. Arundinaria gigantea	30	N	FACW
3. Woodwardia areolata	5	N	OBL
4. Boehmeria cylindrica	5	N	FACW+
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

= Total Cover

50% of total cover: 1 20% of total cover: 1

Woody Vine Stratum (Plot size:)			
1. Smilax rotundifolia	15	Y	FAC
2. Vitis labrusca	15	Y	FAC+
3.			
4.			
5.			

30 = Total Cover

50% of total cover: 2 20% of total cover: 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 13 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No __

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Wetland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10yr 4/1	90	10yr 6/6	10	C	M		Sandy Clay loam
10-16	10yr 2/1	100			C	M		Loamy Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: B-5301 City/County: Grimesland/Pitt Co. Sampling Date: 5-8-2012

Applicant/Owner: NCDOT State: NC Sampling Point: Upland

Investigator(s): CM, TS, JM Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____ No ✓	
Wetland Hydrology Present?	Yes _____ No ✓	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____ No ✓	Depth (inches): _____
Water Table Present?	Yes _____ No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____ No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: upland

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	70	✓	FAC
2. Liquidambar styraciflua	40		FAC+
3. Sassafras albidum	15		FACU
4. Acer rubrum	15		FAC
5.			
6.			
7.			
8.			
	140 = Total Cover		
50% of total cover: 1	20% of total cover: 1		
Sapling/Shrub Stratum (Plot size:)			
1. Liquidambar styraciflua	20	✓	FAC+
2. Acer rubrum	15	✓	FAC
3. Sassafras albidum	10	✓	FACU
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		
50% of total cover:	20% of total cover: 3		
Herb Stratum (Plot size:)			
1. Arundinaria gigantea	10	✓	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10 = Total Cover		
50% of total cover: 1	20% of total cover:		
Woody Vine Stratum (Plot size:)			
1. Smilax rotundifolia	25	✓	FAC
2. Vitis labrusca	10		FAC+
3.			
4.			
5.			
	35 = Total Cover		
50% of total cover: 1	20% of total cover: 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10yr 3/1						sand	Coalings < 70%

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Submitted 2/11/2020

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element:	46015.1.1	TIP No.:	B-5301	County(ies):	Pitt	Page	1	of	2

General Project Information

WBS Element:	46015.1.1	**TIP Number:**	B-5301	**Project Type:**	Bridge Replacement	**Date:**	9/6/2019
NCDOT Contact:	David Stutts, PE			**Contractor / Designer:**	Andy Howell, PE		
Address:	Structures Management Unit 1581 Mail Service Center Raleigh, NC 27699-1581			**Address:**	SEPI Engineering 1 Glenwood Ave., Ste. 600 Raleigh, NC 27603		
Phone:	919-707-6442			**Phone:**	919-747-5839		
Email:	dstutts@ncdot.gov			**Email:**	ahowell@sepiinc.com		
City/Town:	Grimesland			**County(ies):**	Pitt		
River Basin(s):	Tar-Pamlico			**CAMA County?**	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	0.587 miles	**Surrounding Land Use:**	Rural Coastal Plain, Primarily Agricultural. Urban at End Project Limits.		
	Proposed Project			**Existing Site**	
Project Built-Upon Area (ac.)	3.9 ac.			3.1 ac.	
Typical Cross Section Description:	NC 33 (-L-), 2-lane, 2-way traffic with 287-ft bridge structure on new location north of existing alignment. Roadway project is primarily in an approach fill section with shoulder berm gutter and ditches at the toe of slope. Travel lanes are 12-ft wide with 4-ft full depth paved shoulders. Grassed shoulders are 4-ft wide (7-ft with guardrail) on both sides. Proposed approach fill sideslopes are 3:1.			NC 33 (-L-), 2-lane, 2-way traffic with +/- 211-ft bridge structure. Roadway project is primarily in an approach fill section with existing open shoulders and ditches at the toe of slope. Travel lane width varies 10 to 11-ft. No existing paved shoulders. Existing 6-ft grassed shoulders on bridge approaches with guardrail on both sides. Existing approach fill sideslopes are variable up to 1:1.	
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 13,200	Year: 2040		Existing: 9,300	Year: 2020
General Project Narrative: (Description of Minimization of Water Quality Impacts)	The B-5301 project proposes to replace existing Bridge #87, NC 33 over Norfolk Southern Railraoad near Grimesland in Pitt County with a new bridge structure. The bridge is proposed to be constructed on new location to the north of existing. This will result in substantial impact to wetlands located to the northeast of the existing crossing. A "replace in place" strategy was investigated to construct the proposed bridge on approximate existing alignment with an offsite detour. However, an environmental justice issue was identified precluding this alternative from being selected. The bridge over Norfolk Southern serves as the only access point to the community of Grimesland for multiple residences located in the southwest quadrant of the existing overpass. The offsite detour was found to impose an unreasonable burden on this community. The geotechnical recommendation for this site in Pitt County was to provide 3:1 sideslopes on the approach fill. This required the bridge to both be shifted further away from the existing alignment and result in higher impacts to existing wetlands in the northeast quadrant of the existing overpass. Multiple alternatives were considered to steepen up the sideslopes and minimize these impacts. However, it was determined that no practical alternative existed to providing 3:1 sideslopes. Stability of the proposed approach fill and long term maintenance of NC 33 required the use of 3:1 slopes. Given the project commitments and technical constraints, no practical alternative exists to replace Bridge #87 other than as proposed herein. An existing cross pipe at Station 40+07 is proposed for replacement. The proposed pipe will be longer than existing due to the improved typical section. The proposed pipe requires a headwall on the upstream end which must be located outside of the roadway clear recovery zone. The existing channel up and downstream of the crossing exhibits some signs of instability, and therefore rip rap bank stabilization has been proposed within right-of-way and permanent drainage easement. In order to minimize impacts to the existing channel, effective pipe grades and elevations have been maintained to the extent practicable. The project is located within the Tar-Pamlico River Basin, and is therefore subject to statewide riparian buffer rules. Required stormwater treatment has been provided via grassed swales prior to entering riparian buffers at a ratio of 100 linear feet per acre of drainage area.				

Waterbody Information

Surface Water Body (1):	Chicod Creek		**NCDWR Stream Index No.:**	28-101	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	Nutrient Sensitive Waters (NSW)		
Other Stream Classification:	None				
Impairments:	dissolved oxygen (DO)				
Aquatic T&E Species?	No Comments:				
NRTR Stream ID:	None Available			**Buffer Rules in Effect:**	Tar-Pamlico
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Submitted 2/11/2020

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 46015.1.1 **TIP No.:** B-5301 **County(ies):** Pitt

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
6	-L- Sta. 39+06 to -L- Sta. 39+90 LT	(1)Chicod Creek	2.0	3.0	3.0	1.2	120	18	0.25%	4.5	1.1	6.0	1.2	No	Yes
6	-L- Sta. 36+00 to -L- Sta. 37+25 LT	(1)Chicod Creek	0.0	3.0	3.0	0.2	20	125	2.00%	0.7	1.5	0.8	1.6	No	Yes
6	-L- Sta. 40+10 to -L- Sta. 42+00 LT	(1)Chicod Creek	0.0	3.0	3.0	0.4	40	134	0.30%	1.3	0.9	1.7	0.9	No	Yes
6	-L- Sta. 40+25 to -L- Sta. 42+00 RT	(1)Chicod Creek	0.0	3.0	3.0	1.0	100	121	0.30%	3.3	1.1	4.2	1.2	No	Yes

Additional Comments

Swales from -L- Sta. 36+00 to Sta. 37+25 LT and from -L- Sta. 39+06 to Sta. 39+90 LT work in conjunction to treat a combined drainage area of 1.2 acres. Total Length required = 120 LF. Total Length provided = 143 LF. This does not include the swale length located within the riparian buffer areas.

Swale length proved for swales from -L- Sta. 40+10 to Sta. 42+00 LT and from -L- Sta. 40+25 to Sta. 42+00 RT do not include the swale length located within the riparian buffer areas.

Submitted 2/11/2020

TIP PROJECT: B-5301

CONTRACT: C204414

09/08/99

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional symbols
See Sheet 1C For Survey Control Sheet

TEMPORARY DETOUR

VICINITY MAP

90% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PITT COUNTY

LOCATION: BRIDGE NO. 87 OVER NORFOLK SOUTHERN RAILROAD ON NC 33

TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE & PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5301	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
46015.1.1	BRSTP-033(13)	PE
46015.2.1		R/W & UTIL.
46015.3.1		CONST.

WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING
SHEET 1 OF 15

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

DESIGN DATA

ADT 2020 = 9,300
ADT 2040 = 13,200
K = 11%
D = 60%
T = 8% *
* (TTST 3% + DUAL 5%)
V = 60 MPH
CLASS = MAJOR COLLECTOR

REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5301	=	0.533 MILES
LENGTH STRUCTURE TIP PROJECT B-5301	=	0.054 MILES
TOTAL LENGTH TIP PROJECT B-5301	=	0.587 MILES

Prepared In the Office of:

SEPI
Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 16, 2019

LETTING DATE:
FEBRUARY 18, 2020

BEN CRAWFORD, PE
PROJECT ENGINEER

I. T. YOUNIS
PROJECT DESIGN ENGINEER

DAVID STUTTS,PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

Submitted 2/11/2020

PROJECT REFERENCE NO.	SHEET NO.
B-5301	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SEPI Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

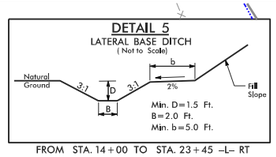
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 2 OF 15

REVISIONS 8/17/99

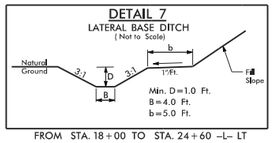
10/7/2009
B-5301_hyd_prm_wet_psh5.dgn
USER: rgyates

DETAIL 5
LATERAL BASE DITCH
(Not to Scale)



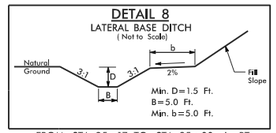
FROM STA. 14+00 TO STA. 23+45 –L– RT

DETAIL 7
LATERAL BASE DITCH
(Not to Scale)



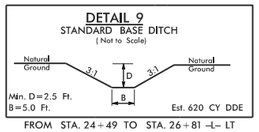
FROM STA. 18+00 TO STA. 24+60 –L– LT

DETAIL 8
LATERAL BASE DITCH
(Not to Scale)



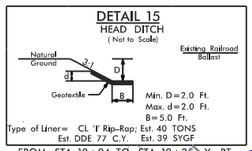
FROM STA. 25+17 TO STA. 35+00 –L– RT

DETAIL 9
STANDARD BASE DITCH
(Not to Scale)



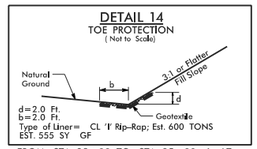
FROM STA. 24+49 TO STA. 26+81 –L– LT

DETAIL 15
HEAD DITCH
(Not to Scale)



FROM STA. 18+94 TO STA. 19+25 –Y– RT

DETAIL 14
TOE PROTECTION
(Not to Scale)



FROM STA. 29+00 TO STA. 35+00 –L– LT

***** DENOTES MECHANIZED CLEARING

HC HC DENOTES HAND CLEARING

F F DENOTES FILL IN WETLAND

50 25 0 50 100

NAD 83/2011

SITE 1

INSET 5A

MATCHLINE –L– STA 21+00.00 SEE SHEET 4

MATCHLINE –L– STA 33+00.00 SEE SHEET 6

RANDILYN BULLARD (6)

OSCAR HOLLOMAN (10)

DODDIE ELKS SINGLETON (12)

STUART WAYNE RESPASS (9)

CHARLES R. CARVER (11)

DODDIE ELKS SINGLETON (13)

24+49 –L– 177' LT
TIE TO EXISTING TAIL DITCH

STANDARD 5–FT BASE DITCH
GRADE=0.327%
EST. DDE=620 C.Y.
SEE DETAIL 9

5–FT BASE HEAD DITCH
W/CL 'I' RIP RAP
GRADE=2.179%
SEE DETAIL 15

CL 'I' RIP RAP
EST. 22 TONS
EST. 60 SYGF

CL 'I' TOE PROTECTION
SEE DETAIL 14

LATERAL 4–FT BASE DITCH
EST. DDE =700 C.Y.
SEE DETAIL 7

LATERAL 2–FT BASE DITCH
EST. DDE=608 C.Y.
SEE DETAIL 5

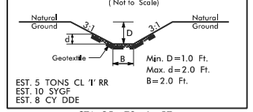
STANDARD 2–FT BASE DITCH
W/CL 'I' RIP RAP
GRADE=7.500%
SEE DETAIL 13

LATERAL 5–FT BASE DITCH
EST. DDE= 1714 C.Y.
SEE DETAIL 8

MAINTAIN EXISTING SOIL ROAD
STA. 30+85 TO 35+90 –L– RT

42" RCP–III
36" RCP–III
15" RCP–IV
15" W/2 ELBOWS
TRENCHLESS INSTALLATION METHOD FREE
TYPE–III
TB 2GI
2GI
JB –MH
PLUG
REMOVE
RETAIN
RETAINABLE FILL
HW
EIP
PUE
DUE
F
W
SHRUBS
WOODED
MTL GUARDRAIL
NORFOLK SOUTHERN RAILROAD
EASTERN FINE ELECTRIC COMPANY 4" DUC
TOWN OF GRIMESLAND 8" PVC
EXISTING RAILROAD R/W

DETAIL 13
STANDARD BASE DITCH
(Not to Scale)



EST. 5 TONS CL 'I' RR
EST. 10 SYGF
EST. 8 CY DDE

STA. 25+78 –L– RT

NOTE: SEE PLAN SHEET 7 FOR PROFILE

NOTE: SEE SHEETS S– THRU S– FOR STRUCTURE PLANS

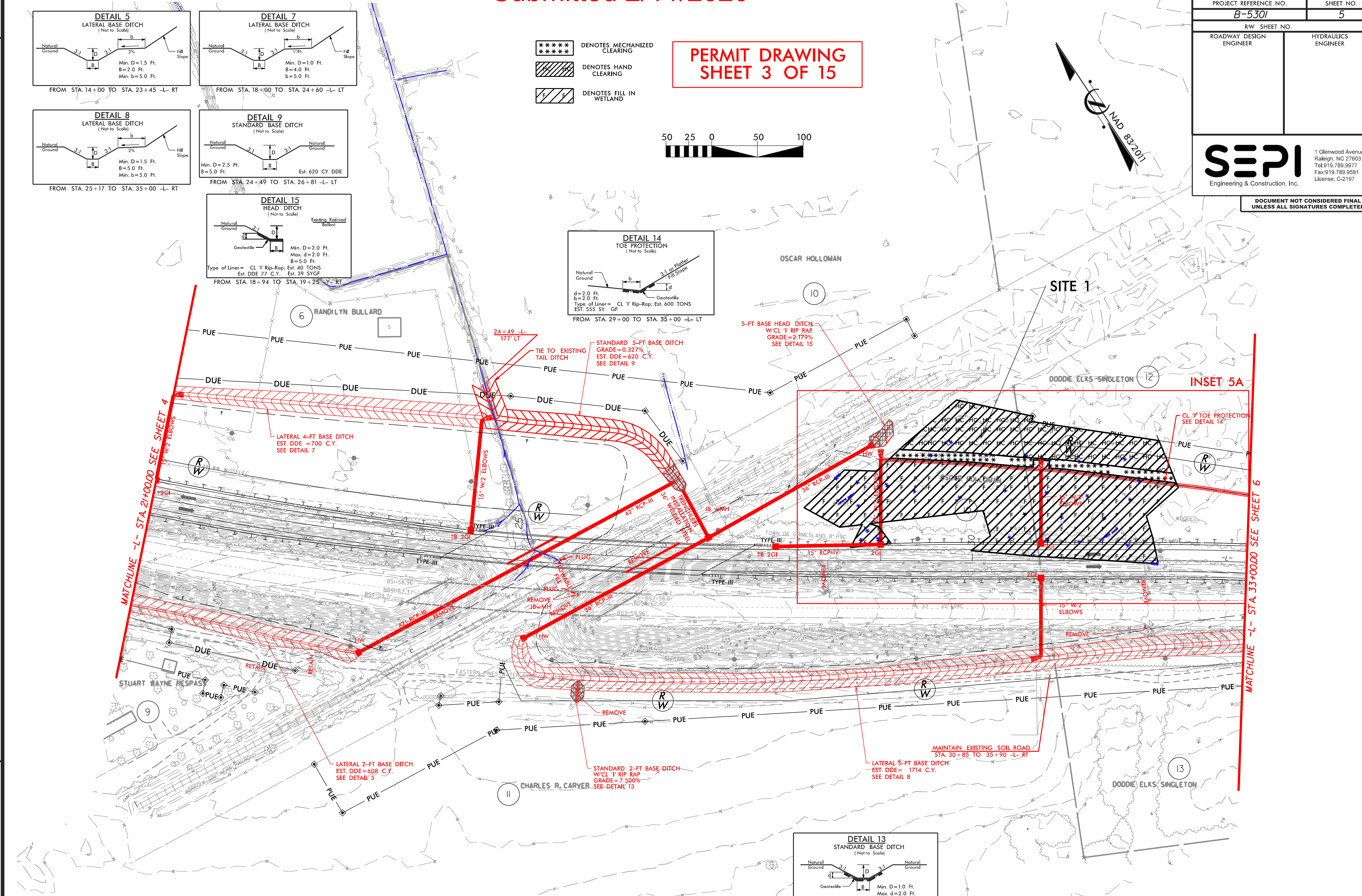
Submitted 2/11/2020

PROJECT REFERENCE NO.	SHEET NO.
B-5301	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SEPI Engineering & Construction, Inc.

1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED


PERMIT DRAWING
SHEET 3 OF 15
DENOTES MECHANIZED CLEARING
DENOTES HAND CLEARING
DENOTES FILL IN WETLAND
50 25 0 50 100
NAD 83/2011
DETAIL 5
LATERAL BASE DITCH
(Not to Scale)
Min. D=1.5 Ft.
B=2.0 Ft.
Min. b=5.0 Ft.
FROM STA. 14+00 TO STA. 23+45 -L- RT
DETAIL 7
LATERAL BASE DITCH
(Not to Scale)
Min. D=1.5 Ft.
B=4.0 Ft.
b=5.0 Ft.
FROM STA. 18+00 TO STA. 24+60 -L- LT
DETAIL 8
LATERAL BASE DITCH
(Not to Scale)
Min. D=1.5 Ft.
B=5.0 Ft.
Min. b=5.0 Ft.
FROM STA. 25+17 TO STA. 35+00 -L- RT
DETAIL 9
STANDARD BASE DITCH
(Not to Scale)
Min. D=2.5 Ft.
B=5.0 Ft.
Est. 620 CY DDE
FROM STA. 24+49 TO STA. 26+81 -L- LT
DETAIL 15
HEAD DITCH
(Not to Scale)
Existing Railroad Ballast
Geotextile
Min. D=2.0 Ft.
Max. d=2.0 Ft.
B=5.0 Ft.
Type of Liner= CL 'I' Rip-Rap; Est. 40 TONS
Est. DDE 77 C.Y. Est. 39 SYGF
FROM STA. 18+94 TO STA. 19+25 -Y- RT
DETAIL 14
TOE PROTECTION
(Not to Scale)
3:1 or Flatter Fill Slope
Geotextile
d=2.0 Ft.
b=2.0 Ft.
Type of Liner= CL 'I' Rip-Rap; Est. 600 TONS
EST. 555 SY GF
FROM STA. 29+00 TO STA. 35+00 -L- LT
DETAIL 13
STANDARD BASE DITCH
(Not to Scale)
Geotextile
Min. D=1.0 Ft.
Max. d=2.0 Ft.
B=2.0 Ft.
EST. 5 TONS CL 'I' RR
EST. 10 SYGF
EST. 8 CY DDE
STA. 25+78 -L- RT
OSCAR HOLLOMAN
RANDILYN BULLARD
DODDIE ELKS SINGLETON
STUART WAYNE RESPASS
CHARLES R. CARVER
SITE 1
INSET 5A
24+49 -L- 177' LT
TIE TO EXISTING TAIL DITCH
STANDARD 5-FT BASE DITCH
GRADE=0.327%
EST. DDE=620 C.Y.
SEE DETAIL 9
5-FT BASE HEAD DITCH
W/CL 'I' RIP RAP
GRADE=2.179%
SEE DETAIL 15
CL 'I' TOE PROTECTION
SEE DETAIL 14
LATERAL 4-FT BASE DITCH
EST. DDE =700 C.Y.
SEE DETAIL 7
LATERAL 2-FT BASE DITCH
EST. DDE=608 C.Y.
SEE DETAIL 5
STANDARD 2-FT BASE DITCH
W/CL 'I' RIP RAP
GRADE=7.500%
SEE DETAIL 13
LATERAL 5-FT BASE DITCH
EST. DDE= 1714 C.Y.
SEE DETAIL 8
MAINTAIN EXISTING SOIL ROAD
STA. 30+85 TO 35+90 -L- RT
MATCHLINE -L- STA. 21+00.00 SEE SHEET 4
MATCHLINE -L- STA. 33+00.00 SEE SHEET 6
42" RCP-III
36" RCP-III
15" RCP-IV
15" W/2 ELBOWS
TRENCHLESS INSTALLATION WELDED STEEL
REMOVE
PLUG
RETAIN
2GI
TB 2GI
HW
JB W/MH
TYPE-III
PUE
DUE

NOTE: SEE PLAN SHEET 7 FOR PROFILE

NOTE: SEE SHEETS S- THRU S- FOR STRUCTURE PLANS

REVISIONS

8/17/99

10/7/2019 B-5301_hyd_prm_wet_psh5_contours.dgn

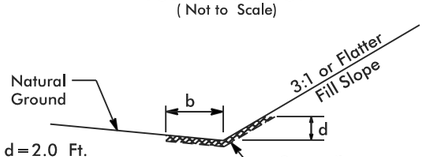
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-5301	5A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SEPI Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

DETAIL 14
TOE PROTECTION
(Not to Scale)



d = 2.0 Ft.
b = 2.0 Ft.
Type of Liner = CL 'I' Rip–Rap; Est. 600 TONS
EST. 555 SY GF

FROM STA. 29+00 TO STA. 35+00 –L– LT

PERMIT DRAWING
SHEET 4 OF 15

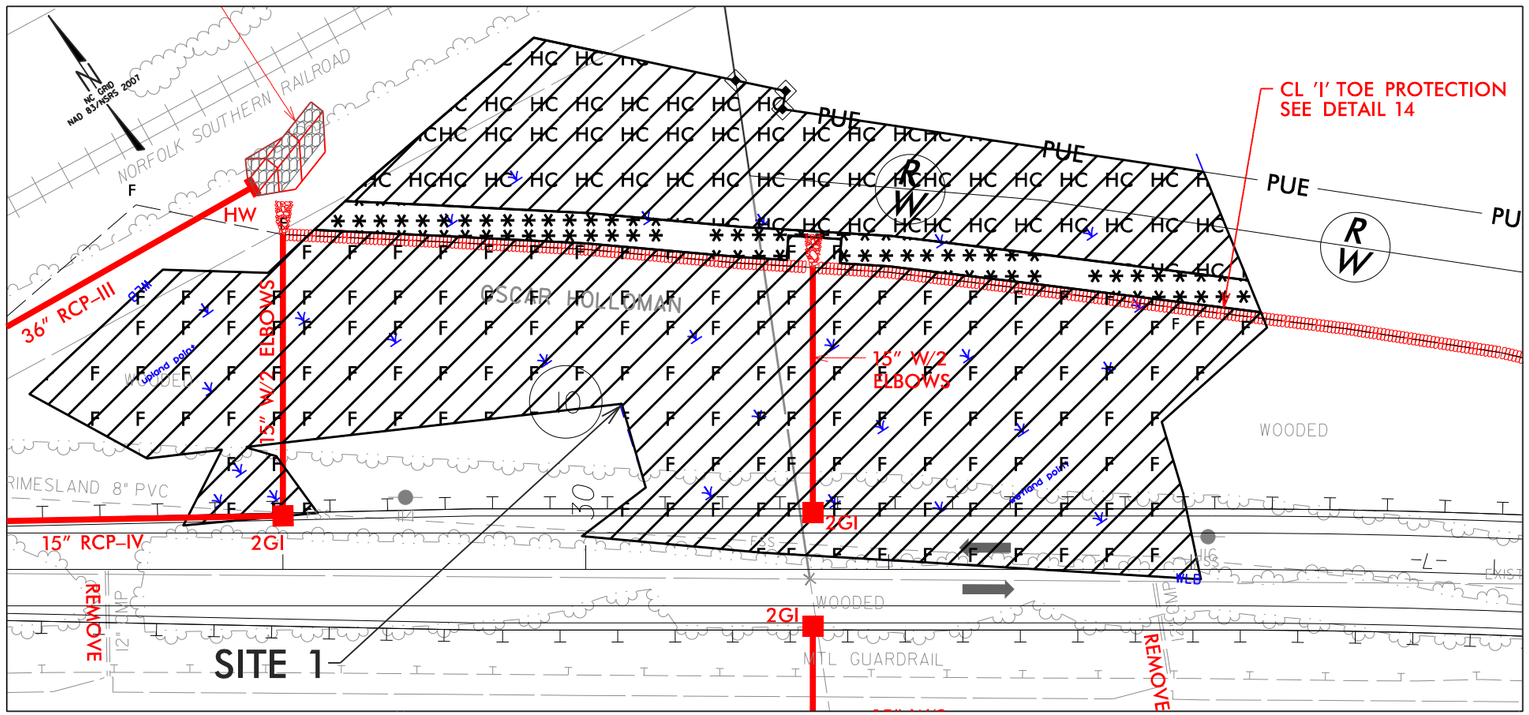
HC HC DENOTES HAND CLEARING

DENOTES MECHANIZED CLEARING

F F DENOTES FILL IN WETLAND

25 12.5 0 25 50

INSET 5A – SITE 1



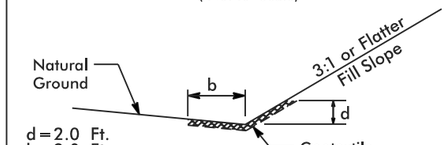
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-5301	5A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SEPI Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

DETAIL 14
TOE PROTECTION
(Not to Scale)



d = 2.0 Ft.
b = 2.0 Ft.
Type of Liner = CL 'I' Rip-Rap; Est. 600 TONS
EST. 555 SY GF

FROM STA. 29+00 TO STA. 35+00 -L- LT

PERMIT DRAWING
SHEET 5 OF 15

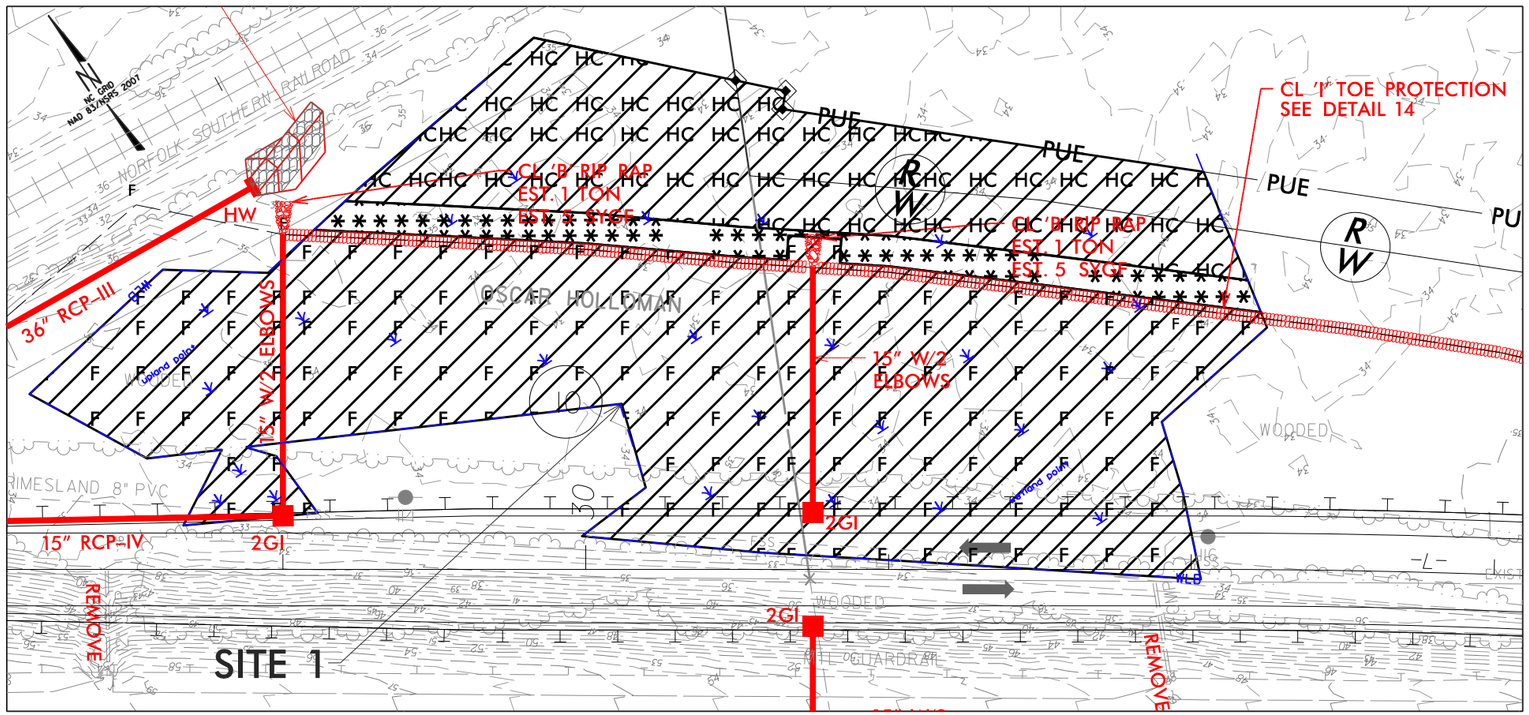
HC HC DENOTES HAND CLEARING

DENOTES MECHANIZED CLEARING

F F DENOTES FILL IN WETLAND

25 12.5 0 25 50

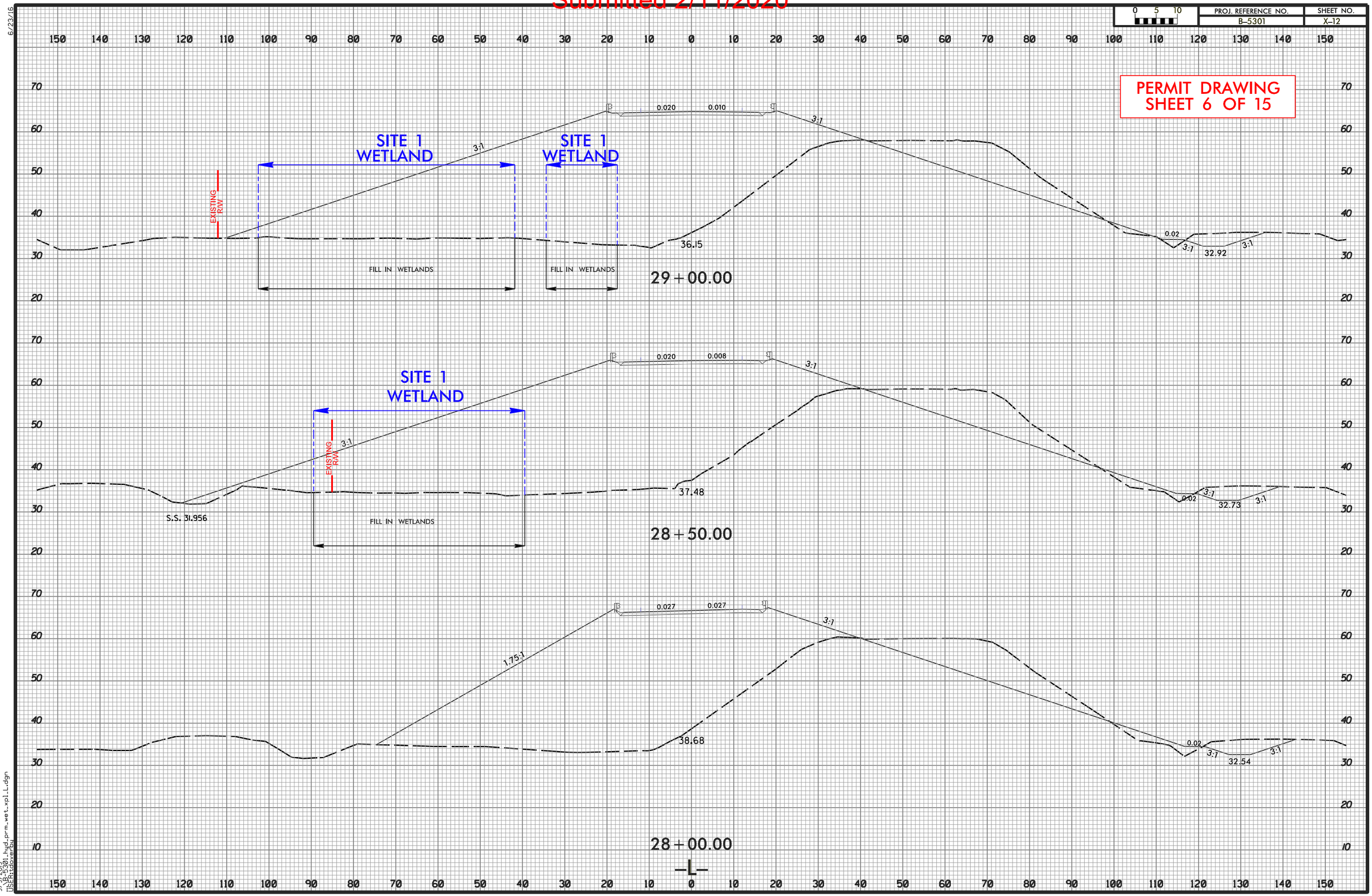
INSET 5A - SITE 1



Submitted 2/11/2020

PROJ. REFERENCE NO.	SHEET NO.
B-5301	X-12

PERMIT DRAWING
SHEET 6 OF 15



6/23/16

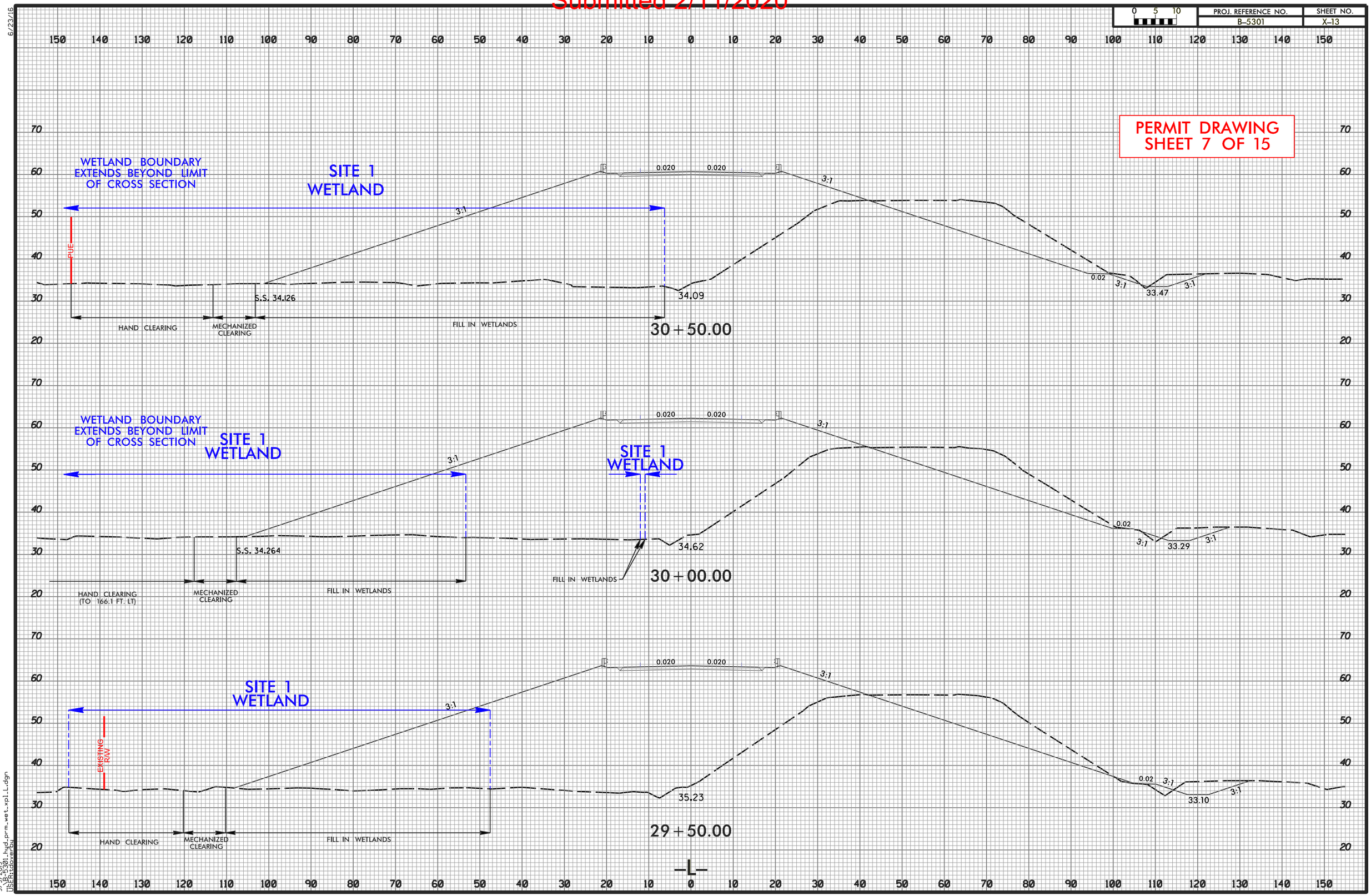
9/9/2019
B-5301.hyd_prm_wet_xpl_L.dgn
USER:tdoverby

Submitted 2/11/2020

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5301	X-13

PERMIT DRAWING
SHEET 7 OF 15



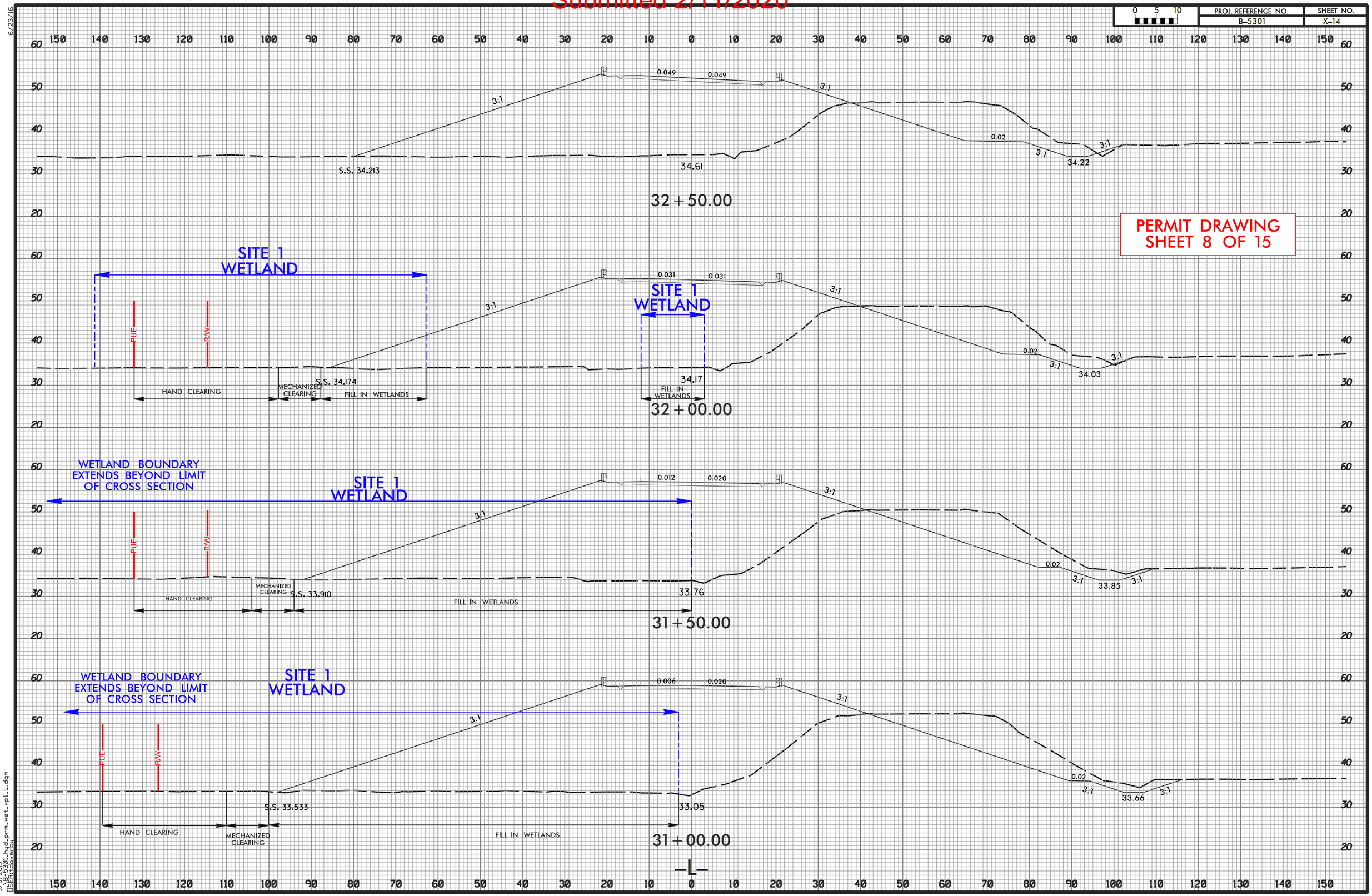
9/9/2019
\\B-5301_hyd_prm_wet_xpl_L.dgn
USER:tdoverby

Submitted 2/11/2020

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5301	X-14

PERMIT DRAWING
SHEET 8 OF 15



9/9/2019
\\B-5301.hyd.prm.wet.xpl.L.dgn
USER:tdoverby

Submitted 2/11/2020

PROJECT REFERENCE NO.	SHEET NO.
B-5301	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SEPI Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 9 OF 15

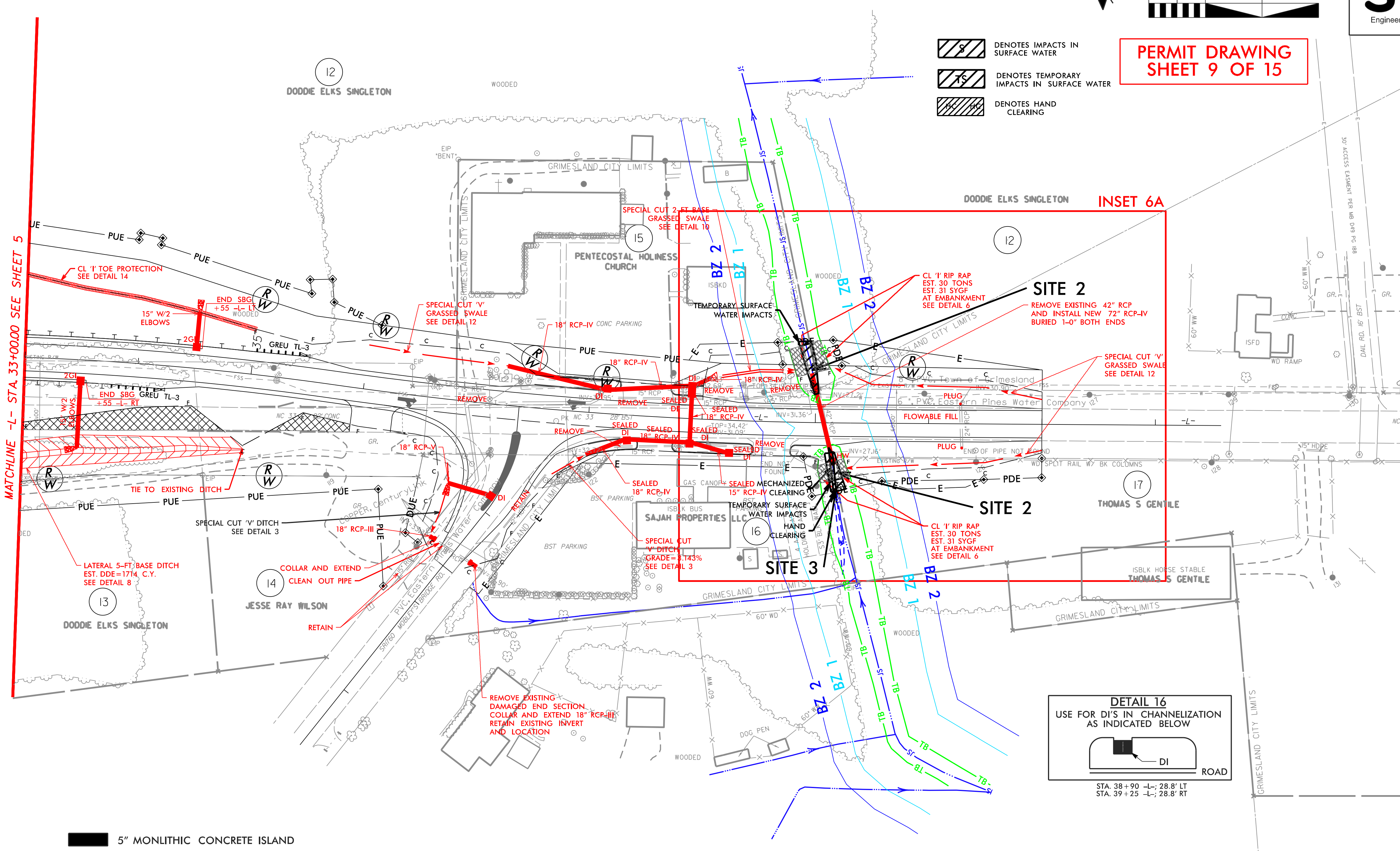
DETAIL 3
SPECIAL CUT DITCH
(Not to Scale)
FROM STA. 10+50 -Y1- LT TO STA. 38+00 -L- RT
FROM STA. 10+75 TO STA. 11+47 -Y1- RT

DETAIL 6
RIP RAP AT EMBANKMENT
(Not to Scale)
Type of Liner= CL 'I' Rip-Rap
FROM STA. 39+79 TO STA. 39+97 -L- LT
FROM STA. 39+96 TO STA. 40+17 -L- LT
FROM STA. 40+03 TO STA. 40+17 -L- RT
FROM STA. 40+18 TO STA. 40+31 -L- RT

DETAIL 10
SPECIAL CUT GRASSED SWALE
(Not to Scale)
Min. D=1.0 Ft.
B=2.0 Ft.
FROM STA. 39+06 TO STA. 39+90 -L- LT

DETAIL 14
TOE PROTECTION
(Not to Scale)
d=2.0 Ft.
b=2.0 Ft.
Type of Liner= CL 'I' Rip-Rap; Est. 600 TONS
EST. 555 SY GF
FROM STA. 29+00 TO STA. 35+00 -L- LT

DETAIL 12
SPECIAL CUT GRASSED SWALE
(Not to Scale)
Min. D=1.0 Ft.
FROM STA. 36+00 TO STA. 37+25 -L- LT
FROM STA. 40+10 TO STA. 42+00 -L- LT
FROM STA. 40+25 TO STA. 42+00 -L- RT


NAD 83/2011
50 25 0 50
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
MATCHLINE -L- STA. 33+00.00 SEE SHEET 5
INSET 6A
SITE 2
SITE 2
SITE 3
DODDIE ELKS SINGLETON
PENTECOSTAL HOLINESS CHURCH
SAJAH PROPERTIES LLC
JESSE RAY WILSON
THOMAS S GENTILE
CL 'I' RIP RAP EST. 30 TONS EST. 31 SYGF AT EMBANKMENT SEE DETAIL 6
REMOVE EXISTING 42" RCP AND INSTALL NEW 72" RCP-IV BURIED 1'-0" BOTH ENDS
SPECIAL CUT 'V' GRASSED SWALE SEE DETAIL 12
TEMPORARY SURFACE WATER IMPACTS
MECHANIZED CLEARING
HAND CLEARING
FLOWABLE FILL
LATERAL 5-FT. BASE DITCH EST. DDE=1714 C.Y. SEE DETAIL 8
COLLAR AND EXTEND CLEAN OUT PIPE
REMOVE EXISTING DAMAGED END SECTION COLLAR AND EXTEND 18" RCP-III RETAIN EXISTING INVERT AND LOCATION
CL 'I' TOE PROTECTION SEE DETAIL 14
SPECIAL CUT 2-FT BASE GRASSED SWALE SEE DETAIL 10

DETAIL 16
USE FOR DI'S IN CHANNELIZATION AS INDICATED BELOW
STA. 38+90 -L-; 28.8' LT
STA. 39+25 -L-; 28.8' RT

5" MONLITHIC CONCRETE ISLAND

SEE SHEET 2B-1 FOR INTERSECTION DETAIL

NOTE: SEE PLAN SHEET 7 & 8 FOR PROFILES

8/17/99
10/7/2019
...B-5301_hyd_prm_wet_psh6.dgn

Submitted 2/11/2020

PROJECT REFERENCE NO.	SHEET NO.
B-5301	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

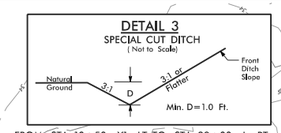
SEPI Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 10 OF 15

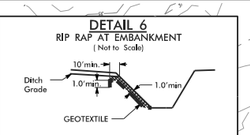
REVISIONS

DETAIL 3
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 10+50 -Y1- LT TO STA. 38+00 -L- RT
FROM STA. 10+75 TO STA. 11+47 -Y1- RT

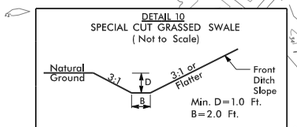
DETAIL 6
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= CL 'I' Rip-Rap

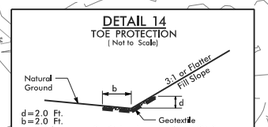
FROM STA. 39+79 TO STA. 39+97 -L- LT
FROM STA. 39+96 TO STA. 40+17 -L- LT
FROM STA. 40+03 TO STA. 40+17 -L- RT
FROM STA 40+18 TO STA. 40+31 -L- RT

DETAIL 10
SPECIAL CUT GRASSED SWALE
(Not to Scale)



FROM STA. 39+06 TO STA. 39+90 -L- LT

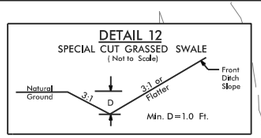
DETAIL 14
TOE PROTECTION
(Not to Scale)



Type of Liner= CL 'I' Rip-Rap; Est. 600 TONS
EST. 555 SY GF

FROM STA. 29+00 TO STA. 35+00 -L- LT

DETAIL 12
SPECIAL CUT GRASSED SWALE
(Not to Scale)



FROM STA. 36+00 TO STA. 37+25 -L- LT
FROM STA. 40+10 TO STA. 42+00 -L- LT
FROM STA. 40+25 TO STA. 42+00 -L- RT

NAD 83/2011

50 25 0 50 100

DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING

INSET 6A

SITE 2

SITE 3

MATCHLINE -L- STA.33+00.00 SEE SHEET 5

CL 'I' TOE PROTECTION SEE DETAIL 14

15" W/2 ELBOWS

2GREU TL-3

GREU TL-3

SPECIAL CUT 'V' GRASSED SWALE SEE DETAIL 12

SPECIAL CUT 'V' DITCH SEE DETAIL 3

TIE TO EXISTING DITCH

LATERAL 5-FT BASE DITCH EST. DDE=1714 C.Y. SEE DETAIL 8

COLLAR AND EXTEND

CLEAN OUT PIPE

RETAIN

18" RCP-III

18" RCP-IV

18" RCP-V

15" RCP

REMOVE

SEALED DI

SPECIAL CUT 2-FT BASE GRASSED SWALE SEE DETAIL 10

TEMPORARY SURFACE WATER IMPACTS

CL 'I' RIP RAP EST. 30 TONS EST. 31 SYGF AT EMBANKMENT SEE DETAIL 6

REMOVE EXISTING 42" RCP AND INSTALL NEW 72" RCP-IV BURIED 1-0" BOTH ENDS

FLOWABLE FILL

PLUG

SEALED MECHANIZED 15" RCP-IV CLEARING

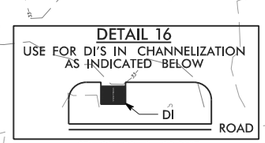
HAND CLEARING

SPECIAL CUT 'V' DITCH GRADE=1.143% SEE DETAIL 3

REMOVE EXISTING DAMAGED END SECTION COLLAR AND EXTEND 18" RCP-III RETAIN EXISTING INVERT AND LOCATION

5" MONLITHIC CONCRETE ISLAND

DETAIL 16
USE FOR DI'S IN CHANNELIZATION AS INDICATED BELOW



STA. 38+90 -L-; 28.8' LT
STA. 39+25 -L-; 28.8' RT

DOODIE ELKS SINGLETON
PENTECOSTAL HOLINESS CHURCH
JESSE RAY WILSON
SAJAH PROPERTIES LLC
THOMAS S GENTILE
BRADFORD E. BROOKS
CODY LEE SUGGS
ISBLK HORSE STABLE THOMAS S GENTILE
ISBLK BUS SAJAH PROPERTIES LLC
GRIMESLAND CITY LIMITS
WOODED
BST PARKING
DOG PEN
CONC PARKING
30' ACCESS EASEMENT PER BK 1240 PG 187
60' WD
60' WW
Eastern Pines Water Company
SEE SHEET 2B-1 FOR INTERSECTION DETAIL
NOTE: SEE PLAN SHEET 7 & 8 FOR PROFILES

10/7/2019
B-5301_hyd_prm_wet_psh6_contours.dgn
ESPatrick

Submitted 2/11/2020

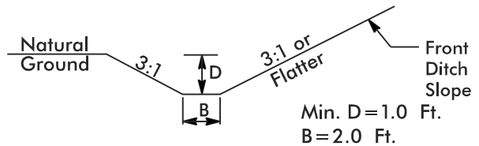
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-5301	6A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

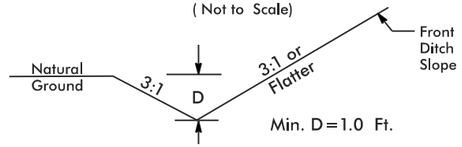
SEPI Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

DETAIL 10
SPECIAL CUT GRASSED SWALE
(Not to Scale)



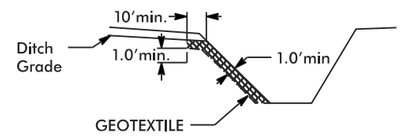
FROM STA. 39+06 TO STA. 39+90 –L– LT

DETAIL 12
SPECIAL CUT GRASSED SWALE
(Not to Scale)



FROM STA. 36+00 TO STA. 37+25 –L– LT
FROM STA. 40+10 TO STA. 42+00 –L– LT
FROM STA. 40+25 TO STA. 42+00 –L– RT

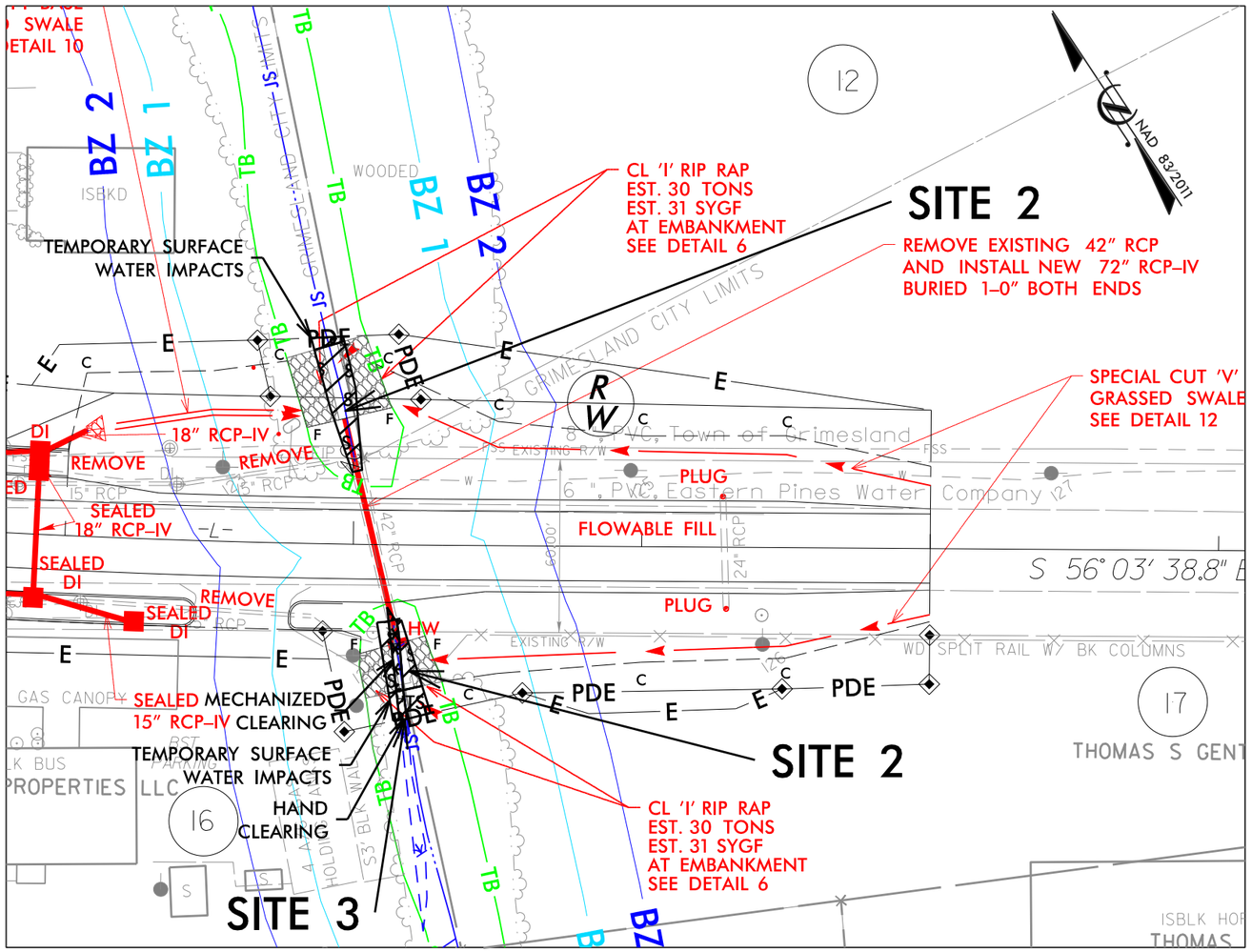
DETAIL 6
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner=60 Tons CL 'I' Rip-Rap (Total All Locations)
Geotextile=62sy (Total All Locations)

FROM STA. 39+79 TO STA. 39+97 –L– LT
FROM STA. 39+96 TO STA. 40+17 –L– LT
FROM STA. 40+03 TO STA. 40+17 –L– RT
FROM STA 40+18 TO STA. 40+31 –L– RT

INSET 6A – SITES 2 & 3



DENOTES MECHANIZED CLEARING

S — DENOTES IMPACTS IN SURFACE WATER

TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

HC — DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 11 OF 15

25 12.5 0 25 50

10/8/2019
I:\SEPI\projects\5301\hyd\prm_wet_psh6A.dgn

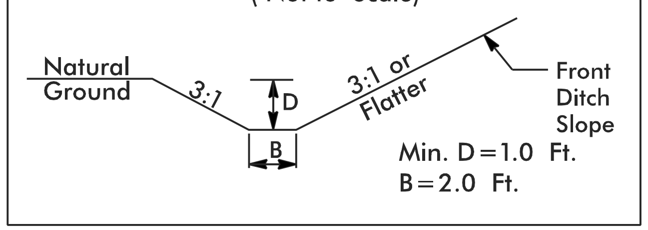
Submitted 2/11/2020

PROJECT REFERENCE NO.	SHEET NO.
B-5301	6A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

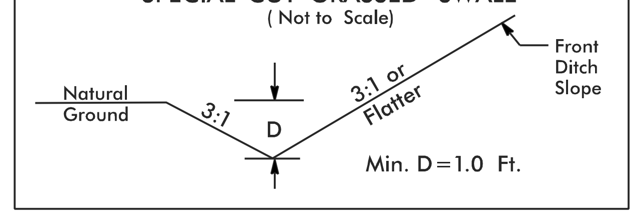
SEPI Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

DETAIL 10
SPECIAL CUT GRASSED SWALE
(Not to Scale)



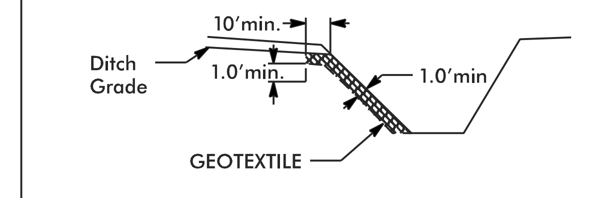
FROM STA. 39+06 TO STA. 39+90 -L- LT

DETAIL 12
SPECIAL CUT GRASSED SWALE
(Not to Scale)



FROM STA. 36+00 TO STA. 37+25 -L- LT
FROM STA. 40+10 TO STA. 42+00 -L- LT
FROM STA. 40+25 TO STA. 42+00 -L- RT

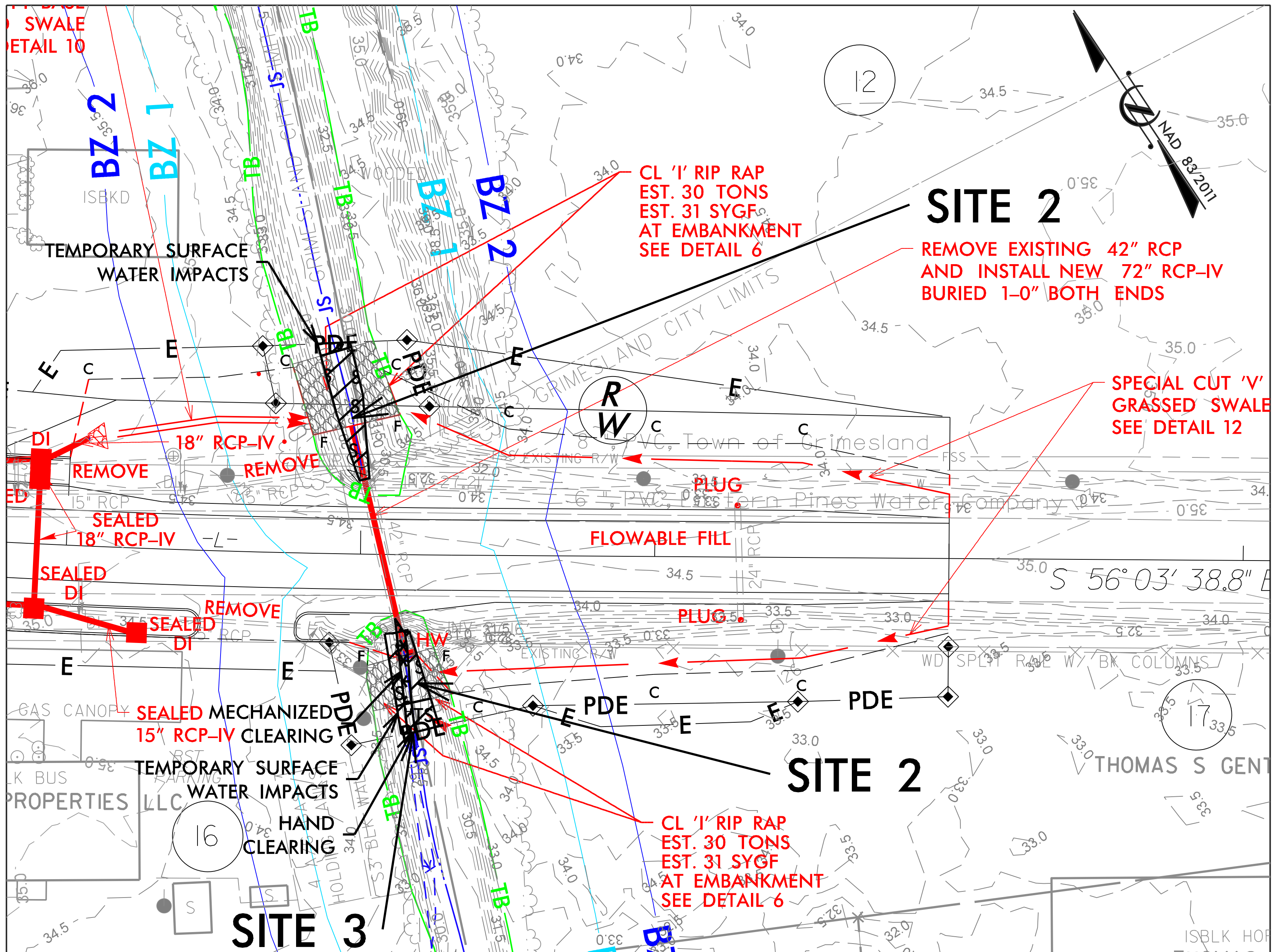
DETAIL 6
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner=60 Tons CL 'I' Rip-Rap (Total All Locations)
Geotextile=62sy (Total All Locations)

FROM STA. 39+79 TO STA. 39+97 -L- LT
FROM STA. 39+96 TO STA. 40+17 -L- LT
FROM STA. 40+03 TO STA. 40+17 -L- RT
FROM STA 40+18 TO STA. 40+31 -L- RT

INSET 6A - SITES 2 & 3



Symbol	Meaning
******	DENOTES MECHANIZED CLEARING
S	DENOTES IMPACTS IN SURFACE WATER
TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
HC	DENOTES HAND CLEARING

PERMIT DRAWING
SHEET 12 OF 15

25 12.5 0 25 50

10/8/2019
B-5301_hyd_prm_wet_psh6A_contours.dgn

5/14/99

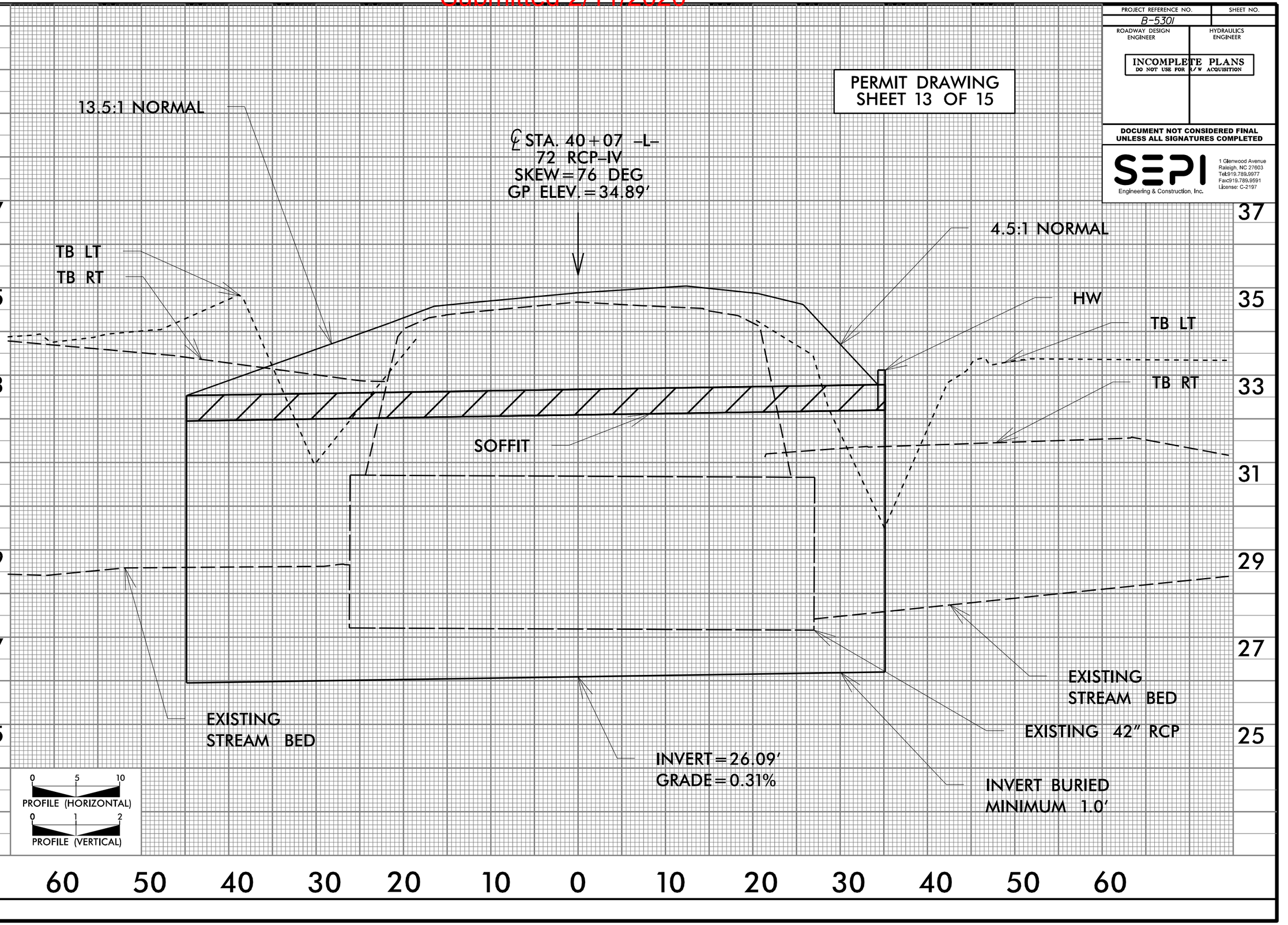
PROJECT REFERENCE NO.	SHEET NO.
B-5301	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEPI Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

PERMIT DRAWING
SHEET 13 OF 15



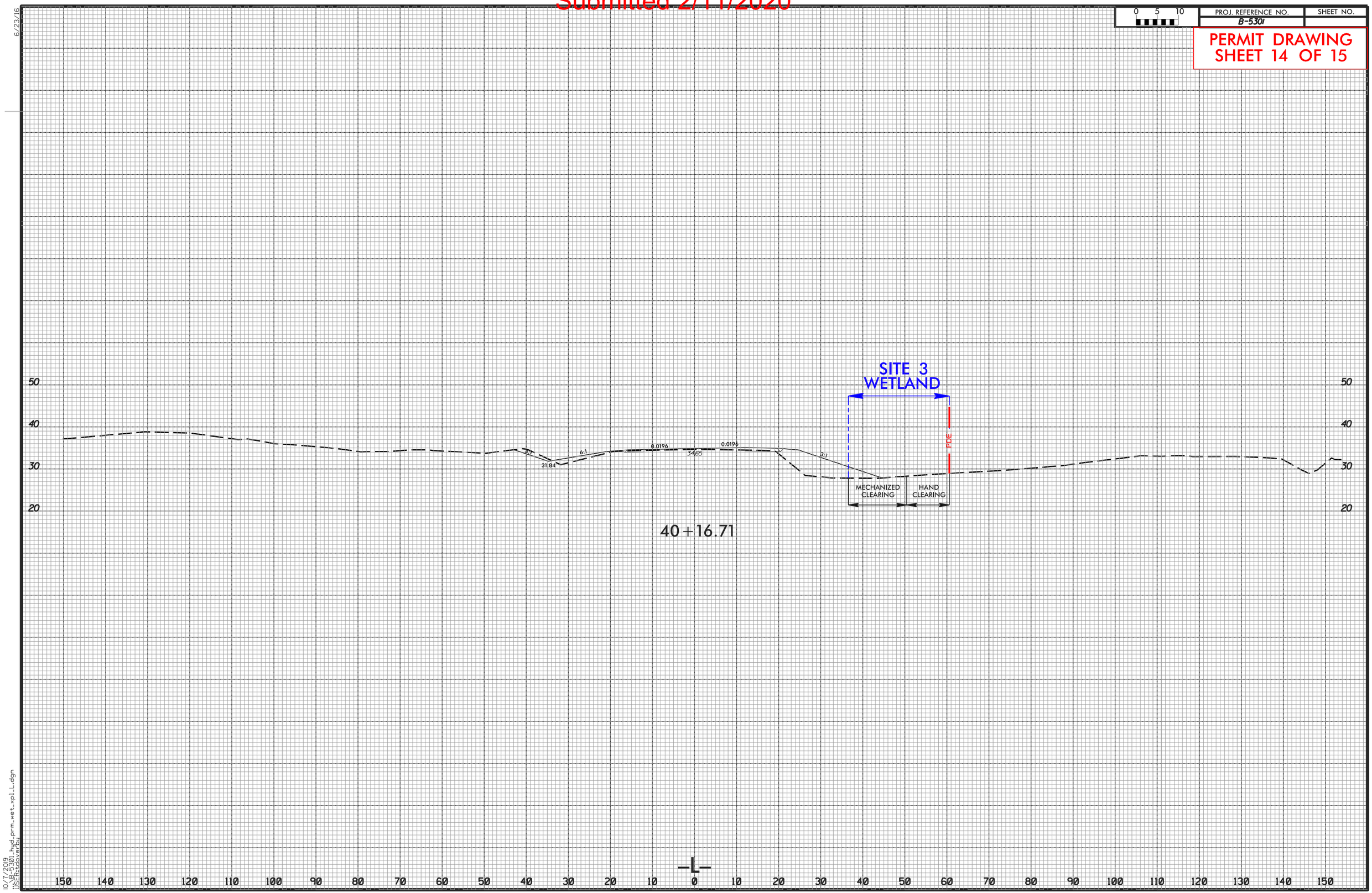
9/3/2019
V:\5301\final\hyd_prm_pfl.dgn
jtsepi

Submitted 2/11/2020

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-5301	

PERMIT DRAWING
SHEET 14 OF 15



10/7/2019
...\B-5301_hyd_prm_wet_xpl_L.dgn
USER:tdoverby

Submitted 2/11/2020

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	28+16 - 32+25 -L- LT	Roadway Fill	0.66									
1	29+08 - 32+23 -L- LT	Rip Rap Toe Protection	0.02			0.07						
1	29+20 - 32+18 -L- LT	Hand Clearing in ROW/PUE					0.26					
2	39+92 - 40+03 -L- LT	72" RCP						< 0.01		7		
2	39+85 - 40+00 -L- LT	Rip Rap Bank Stabilization						< 0.01		26		
2	39+83 - 39+96 -L- LT	Dewatering for pipe installation							< 0.01		4	
2	40+08 - 40+20 -L- RT	72" RCP						< 0.01		8		
2	40+10 - 40+23 -L- RT	Rip Rap Bank Stabilization						< 0.01		16		
2	40+13 - 40+27 -L- RT	Dewatering for pipe installation							< 0.01		10	
3	40+16 - 40+19-L- RT	Pipe Installation				< 0.01						
3	40+16 - 40+19-L- RT	Hand Clearing inside PDE					< 0.01					
TOTALS*:			0.68			0.07	0.26	0.02	< 0.01	57	14	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/7/2019
Pitt County
B-5301
46015.1.1

Submitted 2/11/2020

09/08/99

TIP PROJECT: B-5301

CONTRACT: C204414

$$$$SYSTIME$$$$
$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional symbols
See Sheet 1C For Survey Control Sheet

VICINITY MAP

90% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PITT COUNTY

LOCATION: BRIDGE NO. 87 OVER NORFOLK SOUTHERN RAILROAD ON NC 33

TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE & PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5301	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
46015.1.1	BRSTP-033(13)	PE
46015.2.1		R/W & UTIL.
46015.3.1		CONST.

BUFFER IMPACTS PERMIT

BUFFER DRAWING
SHEET 1 OF 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2020 = 9,300
ADT 2040 = 13,200
K = 11%
D = 60%
T = 8% *
* (TTST 3% + DUAL 5%)
V = 60 MPH
CLASS = MAJOR COLLECTOR

REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5301 = 0.533 MILES
LENGTH STRUCTURE TIP PROJECT B-5301 = 0.054 MILES
TOTAL LENGTH TIP PROJECT B-5301 = 0.587 MILES

Prepared In the Office of:

SEPI
Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 16, 2019

LETTING DATE:
FEBRUARY 18, 2020

BEN CRAWFORD, PE
PROJECT ENGINEER

I. T. YOUNIS
PROJECT DESIGN ENGINEER

DAVID STUTTS,PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

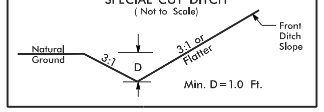
Submitted 2/11/2020

PROJECT REFERENCE NO.	SHEET NO.
B-5301	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SEPI Engineering & Construction, Inc.
1 Glenwood Avenue, Raleigh, NC 27603, Tel:919.789.9977, Fax:919.789.9591, License: C-2197

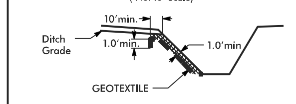
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL 3 SPECIAL CUT DITCH (Not to Scale)



FROM STA. 10+50 -Y1- LT TO STA. 38+00 -L- RT
FROM STA. 10+75 TO STA. 11+47 -Y1- RT

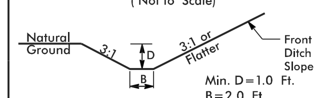
DETAIL 6 RIP RAP AT EMBANKMENT (Not to Scale)



Type of Liner= CL 'I' Rip-Rap

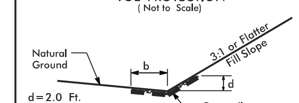
FROM STA. 39+79 TO STA. 39+97 -L- LT
FROM STA. 39+96 TO STA. 40+17 -L- LT
FROM STA. 40+03 TO STA. 40+17 -L- RT
FROM STA 40+18 TO STA. 40+31 -L- RT

DETAIL 10 SPECIAL CUT GRASSED SWALE (Not to Scale)



FROM STA. 39+06 TO STA. 39+90 -L- LT

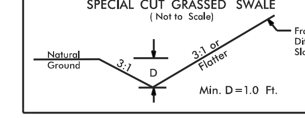
DETAIL 14 TOE PROTECTION (Not to Scale)



d=2.0 Ft.
b=2.0 Ft.
Type of Liner= CL 'I' Rip-Rap; Est. 600 TONS
EST. 555 SY GF

FROM STA. 29+00 TO STA. 35+00 -L- LT

DETAIL 12 SPECIAL CUT GRASSED SWALE (Not to Scale)



FROM STA. 36+00 TO STA. 37+25 -L- LT
FROM STA. 40+10 TO STA. 42+00 -L- LT
FROM STA. 40+25 TO STA. 42+00 -L- RT

GRASS SWALE DATA FOR RUNOFF ENTERING RIPARIAN BUFFER AT STA. 39+30 -L- LT

GRASS SWALE DATA

DA= 0.2 AC
SLOPE= 2.00 %
L REQ.*= 120 ft
L PRO.= 125 ft
Q2= 0.7 cfs
V2= 1.52 fps
D2= 0.39 ft
Q10= 0.8 cfs
V10= 1.57 fps
D10= 0.41 ft

*L required based upon total drainage area where the swale system enters the stream buffer at -L- Sta. 39+90 LT. This segment has been broken out to ensure appropriate velocities.

FROM STA. 36+00 TO STA. 37+25 -L- LT

GRASS SWALE DATA

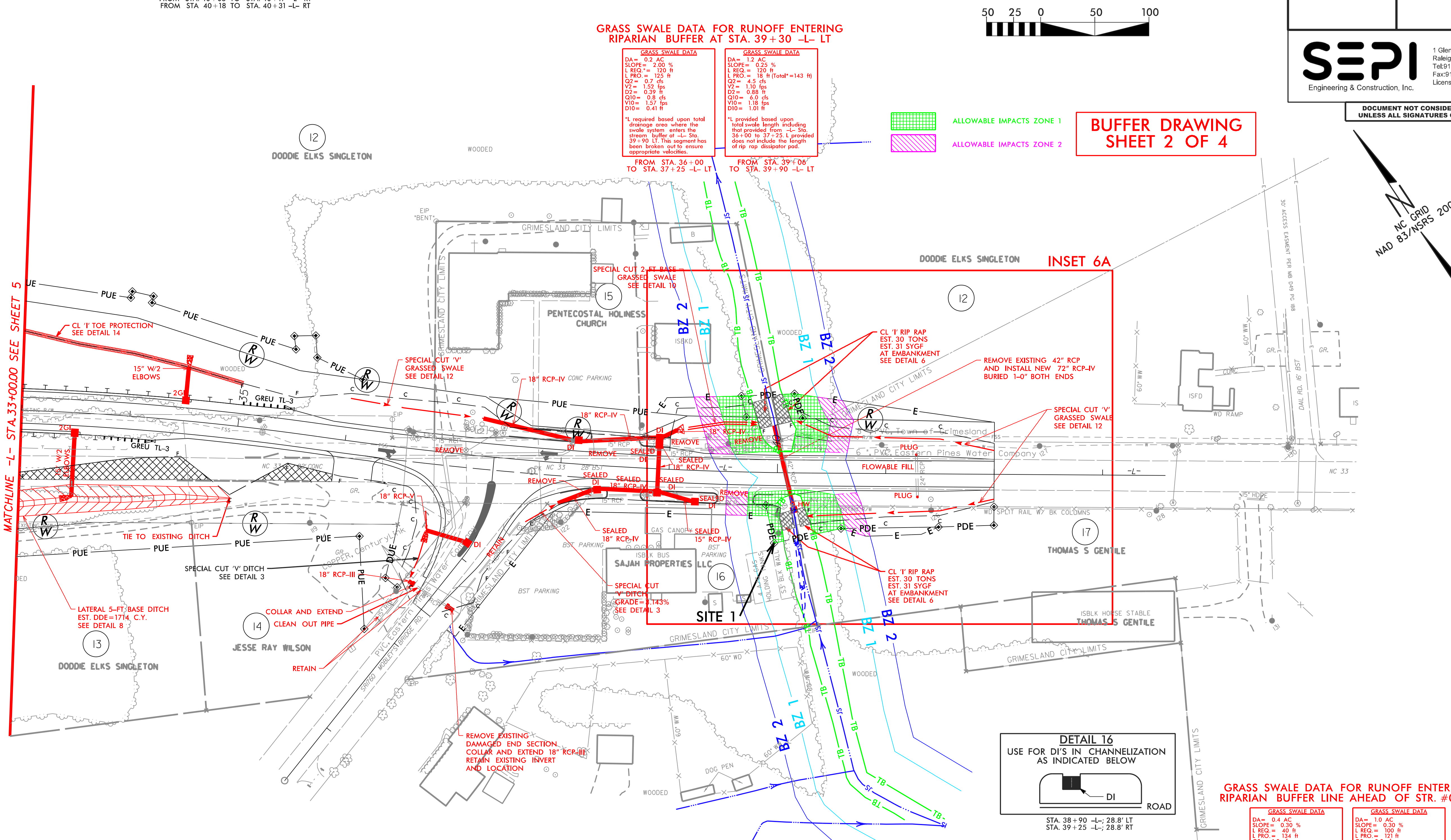
DA= 1.2 AC
SLOPE= 0.25 %
L REQ.= 120 ft
L PRO.= 18 ft (Total*=143 ft)
Q2= 4.5 cfs
V2= 1.10 fps
D2= 0.88 ft
Q10= 6.0 cfs
V10= 1.18 fps
D10= 1.01 ft

*L provided based upon total swale length including that provided from -L- Sta. 36+00 to 37+25. L provided does not include the length of rip rap dissipator pad.

FROM STA. 39+06 TO STA. 39+90 -L- LT

ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2

BUFFER DRAWING SHEET 2 OF 4



DETAIL 16
USE FOR DI'S IN CHANNELIZATION AS INDICATED BELOW

DI
ROAD

STA. 38+90 -L-; 28.8' LT
STA. 39+25 -L-; 28.8' RT

GRASS SWALE DATA FOR RUNOFF ENTERING RIPARIAN BUFFER LINE AHEAD OF STR. #0620

GRASS SWALE DATA

DA= 0.4 AC
SLOPE= 0.30 %
L REQ.= 40 ft
L PRO.= 134 ft
Q2= 1.3 cfs
V2= 0.87 fps
D2= 0.71 ft
Q10= 1.7 cfs
V10= 0.93 fps
D10= 0.78 ft

Note: Only 0.1 acres of additional impervious area created by the B-5301 project at this location.

FROM STA. 40+10 TO STA. 42+00 -L- LT

GRASS SWALE DATA

DA= 1.0 AC
SLOPE= 0.30 %
L REQ.= 100 ft
L PRO.= 121 ft
Q2= 3.3 cfs
V2= 1.10 fps
D2= 1.00 ft
Q10= 4.2 cfs
V10= 1.17 fps
D10= 1.09 ft

Note: Only 0.1 acres of additional impervious area created by the B-5301 project at this location.

FROM STA. 40+25 TO STA. 42+00 -L- RT

5" MONLITHIC CONCRETE ISLAND

SEE SHEET 2B-1 FOR INTERSECTION DETAIL

NOTE: SEE PLAN SHEET 7 & 8 FOR PROFILES

REVISIONS

8/17/99

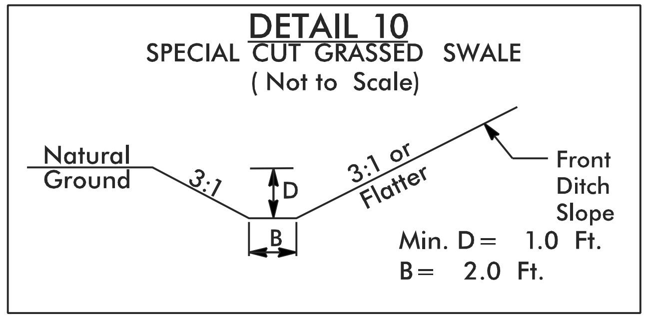
10/7/2019 B-5301_hyd_prm_buf_psh6.dgn

Submitted 2/11/2020

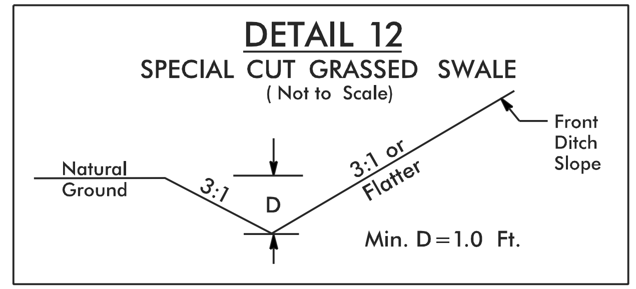
PROJECT REFERENCE NO.	SHEET NO.
B-5301	6A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

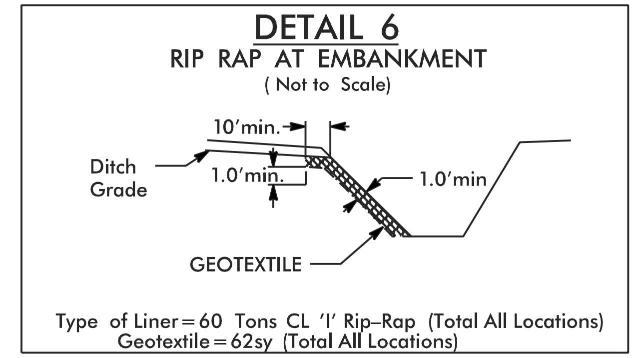
SEPI Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2197



FROM STA. 39+06 TO STA. 39+90 –L– LT

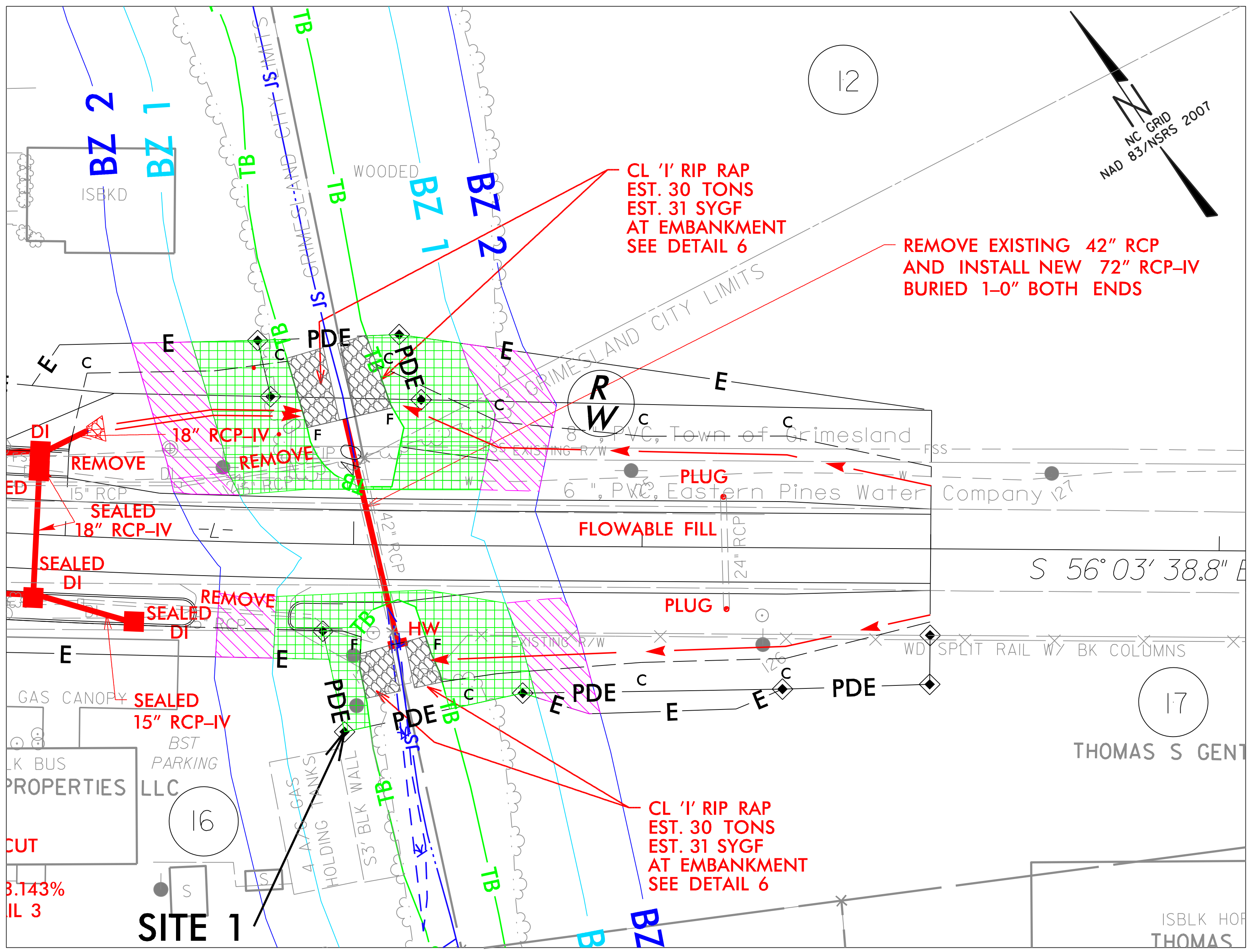


FROM STA. 36+00 TO STA. 37+25 –L– LT
FROM STA. 40+10 TO STA. 42+00 –L– LT
FROM STA. 40+25 TO STA. 42+00 –L– RT



FROM STA. 39+79 TO STA. 39+97 –L– LT
FROM STA. 39+96 TO STA. 40+17 –L– LT
FROM STA. 40+03 TO STA. 40+17 –L– RT
FROM STA 40+18 TO STA. 40+31 –L– RT

INSET 6A – SITE 1



ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

25 12.5 0 25 50

BUFFER DRAWING SHEET 3 OF 4

GRASS SWALE DATA

DA= 0.2 AC
SLOPE= 2.00 %
L REQ.*= 120 ft
L PRO.= 125 ft
Q2= 0.7 cfs
V2= 1.52 fps
D2= 0.39 ft
Q10= 0.8 cfs
V10= 1.57 fps
D10= 0.41 ft

*L required based upon total drainage area where the swale system enters the stream buffer at –L– Sta. 39+90 LT. This segment has been broken out to ensure appropriate velocities.

FROM STA. 36+00 TO STA. 37+25 –L– LT

GRASS SWALE DATA

DA= 1.2 AC
SLOPE= 0.25 %
L REQ.= 120 ft
L PRO.= 18 ft (Total*=143 ft)
Q2= 4.5 cfs
V2= 1.10 fps
D2= 0.88 ft
Q10= 6.0 cfs
V10= 1.18 fps
D10= 1.01 ft

*L provided based upon total swale length including that provided from –L– Sta. 36+00 to 37+25. L provided does not include the length of rip rap dissipator pad.

FROM STA. 39+06 TO STA. 39+90 –L– LT

GRASS SWALE DATA

DA= 0.4 AC
SLOPE= 0.30 %
L REQ.= 40 ft
L PRO.= 134 ft
Q2= 1.3 cfs
V2= 0.87 fps
D2= 0.71 ft
Q10= 1.7 cfs
V10= 0.93 fps
D10= 0.78 ft

Note: Only 0.1 acres of additional impervious area created by the B-5301 project at this location.

FROM STA. 40+10 TO STA. 42+00 –L– LT

GRASS SWALE DATA

DA= 1.0 AC
SLOPE= 0.30 %
L REQ.= 100 ft
L PRO.= 121 ft
Q2= 3.3 cfs
V2= 1.10 fps
D2= 1.00 ft
Q10= 4.2 cfs
V10= 1.17 fps
D10= 1.09 ft

Note: Only 0.1 acres of additional impervious area created by the B-5301 project at this location.

FROM STA. 40+25 TO STA. 42+00 –L– RT

10/7/2019
B-5301_hyd_prm_buf_psh6A.dgn

Submitted 2/11/2020

RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			ALLOWABLE w/MITIGATION				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	39+53 to 40+84 L RT	72" Pipe Installation/Roadway Earthwork	x			1231	623	1854					
		Channel/Swale Excavaton in Buffer	x			560	304	864					
		Temp. Disturbance for Construction	x			356	275	631					
1	39+20 to 40+70 L LT	72" Pipe Installation/Roadway Earthwork	x			693	330	1023					
		Channel/Swale Excavaton in Buffer	x			1872	1027	2899					
		Temp. Disturbance for Construction	x			826	800	1626					
TOTALS*:						**5538**	**3359**	**8897**	**0**	**0**	**0**	**0**	**0**

*Rounded totals are sum of actual impacts

NOTES:

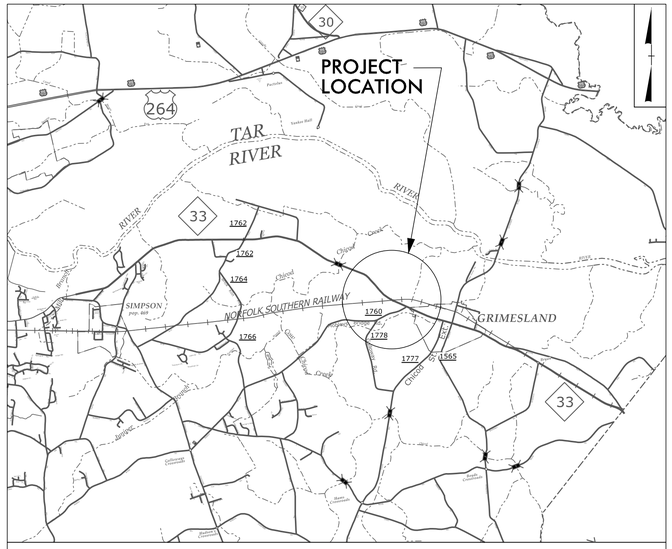
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/7/2019
Pitt County
B-5301
46015.1.1
SHEET 4 OF 4

Revised 2018 Feb

09/08/09

TIP PROJECT: B-5301

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional symbols
See Sheet 1C For Survey Control Sheet



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
B-5301	UE-1

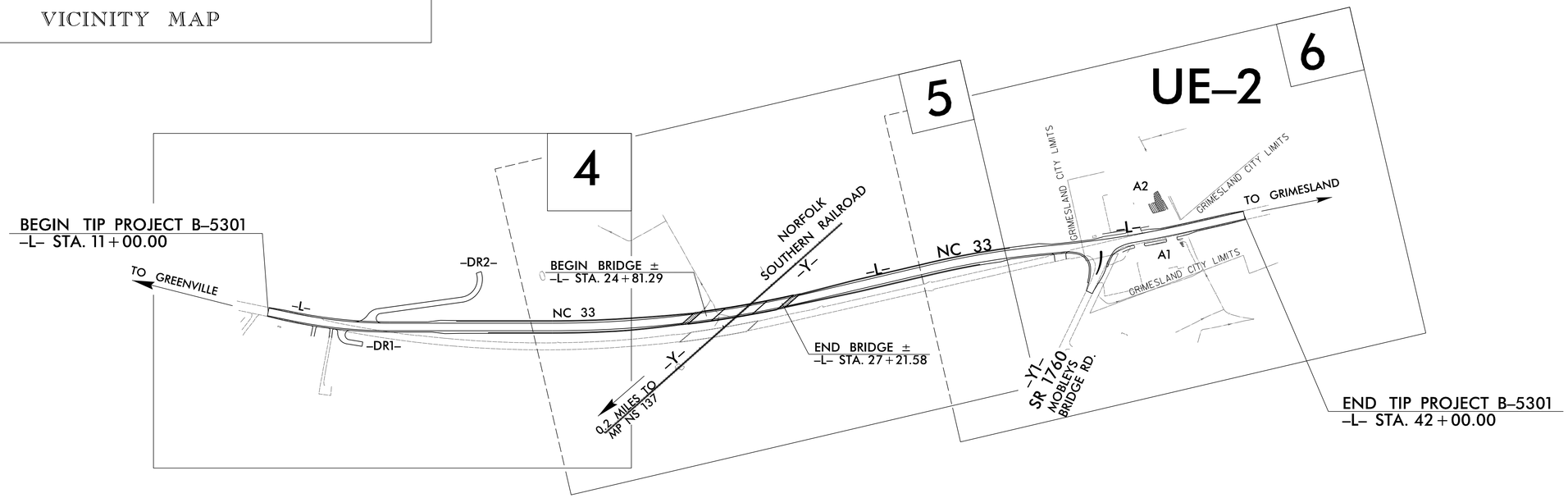
PERMIT DRAWING
SHEET 1 OF 2
UTILITIES

UTILITY PERMIT DRAWINGS
PITT COUNTY

LOCATION: BRIDGE NO. 87 OVER NORFOLK SOUTHERN RAILROAD ON NC 33

BUFFER IMPACTS

NAD 83/2011



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

PREPARED IN THE OFFICE OF:
WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

John D. Schriner, PLS — UTILITY PROJECT MANAGER
John D. Schriner, PLS — PROJECT UTILITY COORDINATOR

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

Bo Hemphill, PE — UTILITIES REGIONAL ENGINEER
Kifah Kamil, PE — UTILITIES ENGINEER
Kyle Pleasant — UTILITIES AREA COORDINATOR
Dayton Martin — UTILITIES COORDINATOR

$$$$SYSTIME$$$$
$$$$USERNAME$$$$ $$$$DGN$$$$

Submitted 2/11/2020

PROJECT REFERENCE NO.	SHEET NO.
B-5301	UE-2
THIS SHEET CORRESPONDS TO RDY-6	

ALLOWABLE IMPACTS ZONE 1

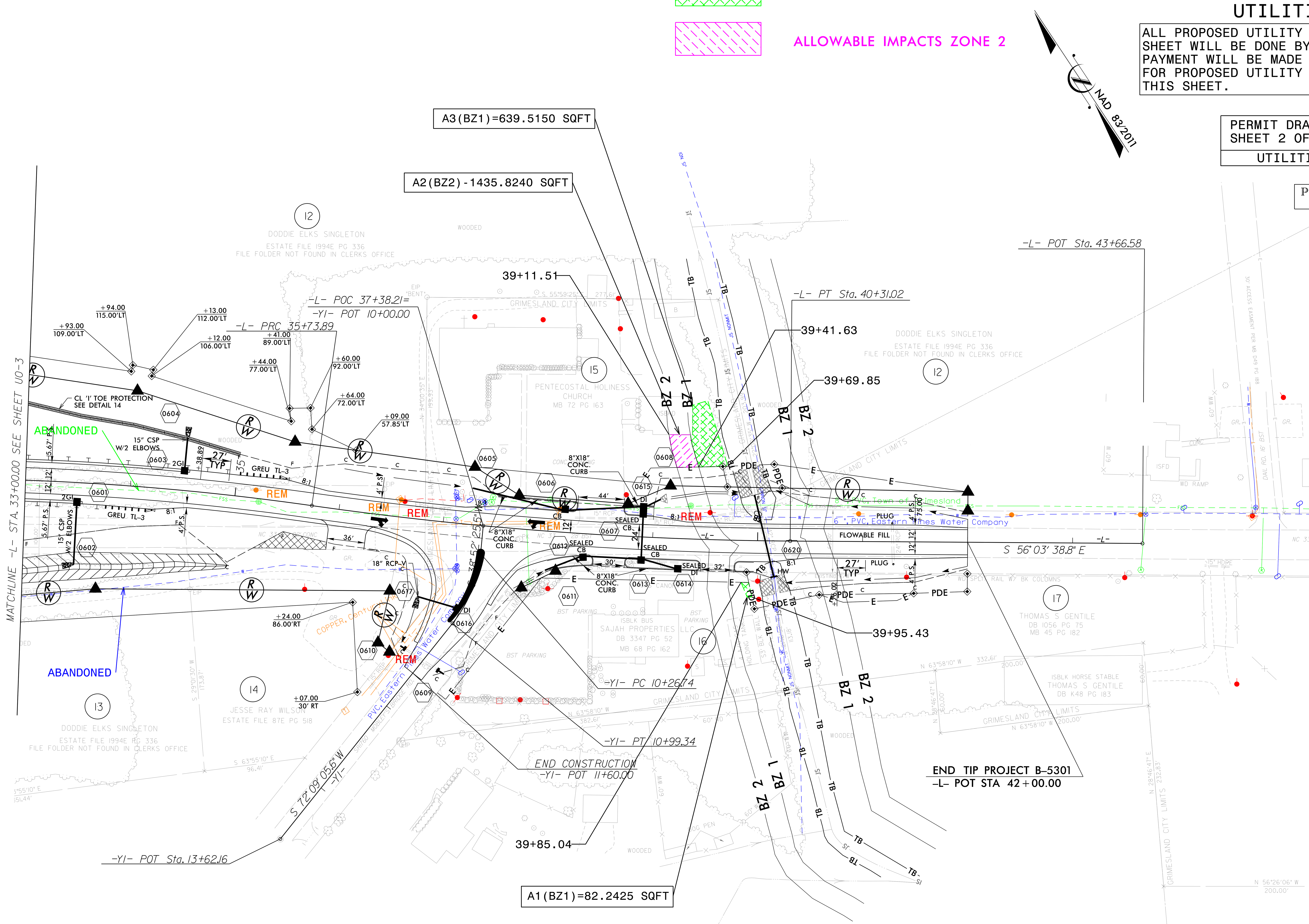
ALLOWABLE IMPACTS ZONE 2

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

PERMIT DRAWING
SHEET 2 OF 2
UTILITIES

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NAD 83/2011
A3(BZ1)=639.5150 SQFT
A2(BZ2)-1435.8240 SQFT
A1(BZ1)=82.2425 SQFT
39+11.51
39+41.63
39+69.85
39+95.43
39+85.04
-L- POT Sta. 43+66.58
-L- PT Sta. 40+31.02
-L- POC 37+38.21=
-Y1- POT 10+00.00
-L- PRC 35+73.89
-Y1- PC 10+26.74
-Y1- PT 10+99.34
END CONSTRUCTION
-Y1- POT 11+60.00
-Y1- POT Sta. 13+62.16
END TIP PROJECT B-5301
-L- POT STA 42+00.00
MATCHLINE -L- STA. 33+00.00 SEE SHEET UO-3
ABANDONED
ABANDONED
REM
REM
REM
REM
REM
S 56°03' 38.8" E
S 72°09' 05.6" W
BZ 1
BZ 2
PENTECOSTAL HOLINESS CHURCH
DODDIE ELKS SINGLETON
JESSE RAY WILSON
THOMAS S. GENTILE
SAJAH PROPERTIES LLC
FLOWABLE FILL
6" PVC, Eastern Pines Water Company
CL 'I' TOE PROTECTION SEE DETAIL 14
15" CSP W/2 ELBOWS
18" RCP
8"X18" CONC. CURB
SEALED CB
PDE
PLUG

Submitted 2/11/2020

UTILITY BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	OH utilities	-L- 39+85.04 to 39+95.43 RT				82.2	0.0	82.2					
2	OH utilities	-L- 39+11.51 to 39+41.63 LT				0.0	1435.8	1435.8					
3	OH utilities	-L-39+41.63 LT to 39+69.85 LT				639.5	0.0	639.5					
TOTAL:						721.8	1435.8	2157.6	0.0	0.0	0.0		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

PITT COUNTY
PROJECT: 46015.2.1 (B-5301)

18-Nov-2019
SHEET 1 OF 1

Rev. May 2006