



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

December 22, 2022

MEMORANDUM TO: Division 11 Environmental and Construction Units

FROM:  Michael Turchy, ECAP Group Leader
Environmental Analysis Unit

SUBJECT: Environmental Permits for the Replacement of Bridge 29 on US 21
Business over I-77 in Yadkin County, Division 11, **TIP: B-5833.**

Please find enclosed the following permits for this project:

Agency	Permit Type	Permit Expiration
US Army Corps of Engineers Section 404 Clean Water Act Permit	Regional General Permit 50	May 25, 2025
NC Division of Water Resources Section 401 Water Quality Certification	General Certification No. 4135 [RGP50]	May 25, 2025

Work is authorized by the above referenced permit provided it is accomplished in strict accordance with the permitted plans.

The Environmental Coordination and Permitting Group or the Division Environmental Office must be consulted if any deviation from the permit(s) is required.

The General Conditions and Certifications for Nationwide and Regional Permits can be referenced at:
https://xfer.services.ncdot.gov/pdea/PermIssued/_General_Conditions_and_Certifications/

TIP No.: B-5833
Replace Bridge No. 29 on US 21 Business
Over I-77
Yadkin County
Federal Aid No.: BRNHP-0021(023)
WBS No.: 38443.1.FS1

COMMITMENTS FROM PROJECT DEVELOPMENT

Division 11 - Offsite Detour

Yadkin County School Transportation will be contacted at least one month prior to road closure to make sure the necessary plans to adequately reroute school buses at (336) 679-2233. Yadkin County Emergency Medical Services will be contacted at least one month prior to road closure to make the necessary plans to adequately reroute school buses at (336) 849-7722.

Division 11 – Voluntary Agricultural District

Should right-of-way need to be acquired from the VAD through eminent domain, the Yadkin County Voluntary Agricultural District Ordinance requires [that the Agricultural Board hold a public hearing on the proposed condemnation before condemnation may be initiated, or other specific provision of that county's enabling ordinance.] Any VAD/EVAD lands converted to non-agricultural use as part of a temporary construction easement must be returned to farm-able condition by the project's completion.

COMMITMENTS FROM PERMITTING

Division 11 Construction

From the 404 Permit issued May 4, 2021, Special Condition 3: The permittee shall ensure that the rip rap for the apron and transition from the dissipator basin/pool is embedded in the stream bed and does not impede stream flow.

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action ID.: **SAW-2022-02123 B-5833** County: **Yadkin**

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Property Owner / Authorized Agent:
North Carolina Department of Transportation
Attn: Mr. Michael A. Turchy
Environmental Coordination and Permitting Group Leader

Address: **1598 Mail Service Center**
Raleigh, North Carolina 27699-1598
919-707-6157

Size and location of property (water body, road name/number, town, etc.): **The project is located at Bridge No. 29 on US HWY 21 Business over I-77 in Yadkin County, North Carolina. Impacted waters are a wetland and unnamed tributaries (UTs) to Sandyberry Creek.**

Description of project area and activity: **In order to replace the bridge and re-align the exit ramps/approaches, the permittee is authorized to impact waters of the U.S. as follows:**

Summary of Authorized Impacts and Required Mitigation

Impact ID #	NWP / GP #	Open Water (ac)		Wetland (ac)		Stream (lf)	
		Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
Site 1 (Stream SC)	<u>RGP 50</u>					87' / dewater	75' / stabilization 46' / culvert
Site 2 (Stream SC)	<u>RGP 50</u>					21' / dewater	
Site 3 (Stream SA)	<u>RGP 50</u>					19' / dewater	
Site 4 (Stream SA)	<u>RGP 50</u>					99' / dewater	30' / culvert
Site 5 (Wetland WA and Stream SB)	<u>RGP 50</u>				0.02 ac / fill	59' / dewater	10' / fill 13' / stabilization
Site 6 (Stream SC)	<u>RGP 50</u>					15' / dewater	63' / stabilization 127' / culvert
Impact Totals		0	0	0	0.02 ac	300'	364'
Total Loss of waters of the U.S. (wetlands and/or open waters in ac)			0.02 ac	Total Loss of waters of the U.S. (streams in lf)			213'
Required Wetland Mitigation (ac)			0.04 ac	Required Stream Mitigation (lf)			426'

Applicable Law: Section 404 (Clean Water Act, 33 USC 1344)
 Section 10 (Rivers and Harbors Act, 33 USC 403)
Authorization: Regional General Permit Number: **RGP 50**
Nationwide Permit Number:

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions, your submitted application, and the following special conditions:

Special Conditions

1. All work must be performed in strict compliance with (a) the description of work in the PCN and (b) the Wetlands and Surface Water Impact Permit Drawing(s) (Permit Plans) in the application dated October 3, 2022. Any modification to the description of work and/or the permit plans must be approved by the USACE prior to implementation.
2. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Forms. The requirements of these forms, including any special conditions listed on these forms, are hereby incorporated as special conditions of this permit authorization.
3. The permittee shall ensure that the rip rap for the apron and transition from the dissipator basin/pool is embedded in the stream bed and does not impede stream flow.
4. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this authorization letter in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this authorization letter, all conditions, and any authorized modifications. A copy of this authorization letter, all conditions, and any authorized modifications, shall be available at the project site during construction and maintenance of this project.

Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order, a Class I administrative penalty, and/or appropriate legal action.

This verification will remain valid until the expiration date identified below unless the nationwide and/or regional general permit authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide and/or regional general permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide and/or regional general permit. If the nationwide and/or regional general permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide and/or regional general permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance

upon the nationwide and/or regional general permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide and/or regional general permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Resources (telephone 828-296-4500) to determine Section 401 requirements.

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the U.S. Army Corps of Engineers regulatory program, please contact Lori Beckwith at loretta.a.beckwith@usace.army.mil or 828-271-7980, ext. 4223.

USACE Regulatory Official: Monte Matthews

Date: **December 5, 2022**

Expiration Date of Verification: **May 25, 2025**

Action ID Number: SAW-2022-02123

County: Yadkin

Permittee: NCDOT, Mr. Michael A. Turchy
Environmental Coordination and Permitting Group Leader

Project Name: NCDOT / B-5833 / Bridge 29 / Div 11

Regional General Permit OR Nationwide Permit: RGP 50

Date Verification Issued: December 5, 2022

Project Manager: Lori Beckwith

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

**US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
Attn: Lori Beckwith
151 Patton Avenue
Room 208
Asheville, NC 28801-5006**

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. Failure to comply with any terms or conditions of this authorization may result in the U.S. Army Corps of Engineers suspending, modifying or revoking the authorization and/or issuing a Class I administrative penalty, or initiating other appropriate legal action.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date

U.S. ARMY CORPS OF ENGINEERS
Wilmington District
Compensatory Mitigation Responsibility Transfer Form

Permittee: North Carolina Department of Transportation
Project Name: B-5833, Bridge No. 29

Action ID: SAW-2022-02123
County: Yadkin

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that Wilmington District Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one Mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate Mitigation Sponsors.

Instructions to Sponsor: The Sponsor verifies that the mitigation requirements (credits) shown below have been released and are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated ledger to the Permittee, the Project Manager who issued the permit, the Bank Project Manager, and the District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements

Permitted Impacts Requiring Mitigation*: **8-digit HUC and Basin: 03040101, Yadkin River Basin**

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
				0.02		

*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements: **8-digit HUC and Basin: 03040101, Yadkin River Basin**

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
				0.04		

Mitigation Site Debited: NCDOT, Fisher River Mitigation Site

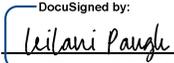
(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the Wilmington District, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Sponsor Name: NCDOT

Name of Sponsor's Authorized Representative: LeiLani Paugh

DocuSigned by:

Signature of Sponsor's Authorized Representative 12/08/2022
Date of Signature

**USACE Wilmington District
Compensatory Mitigation Responsibility Transfer Form, Page 2**

Conditions for Transfer of Compensatory Mitigation Credit:

- Once this document has been signed by the Mitigation Sponsor and the District is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the District is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. When NCDMS provides mitigation for authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by NCDMS must be provided to the District within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the District has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the District Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the District, the Sponsor must obtain case-by-case approval from the District Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the District administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions:

This form is not valid unless signed below by the District Project Manager and by the Mitigation Sponsor on Page 1. ***Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the District Project Manager at the address below, 3) the Bank Manager listed in RIBITS, and 4) the Wilmington District Mitigation Office, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (or by email to SAWMIT@usace.army.mil).***

Questions regarding this form or any of the permit conditions may be directed to the District Mitigation Office.

USACE Project Manager: Lori Beckwith
USACE Field Office: Asheville Regulatory Field Office
US Army Corps of Engineers
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

Email: loretta.a.beckwith@usace.army.mil

Loretta A. Beckwith Digitally signed by Loretta A. Beckwith
Date: 2022.12.05 15:10:03 -05'00'

December 5, 2022

Wilmington District Project Manager Signature

Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at <http://ribits.usace.army.mil>.

U.S. ARMY CORPS OF ENGINEERS
Wilmington District
Compensatory Mitigation Responsibility Transfer Form

Permittee: North Carolina Department of Transportation
 Project Name: B-5833, Bridge No. 29

Action ID: SAW-2022-02123
 County: Yadkin

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that Wilmington District Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one Mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate Mitigation Sponsors.

Instructions to Sponsor: The Sponsor verifies that the mitigation requirements (credits) shown below have been released and are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated ledger to the Permittee, the Project Manager who issued the permit, the Bank Project Manager, and the District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements

Permitted Impacts Requiring Mitigation*: 8-digit HUC and Basin: 03040101, Yadkin River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
	213					

*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements: 8-digit HUC and Basin: 03040101, Yadkin River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
	426					

Mitigation Site Debited: Compass Point Mitigation Site, part of the RES Yadkin 01 Umbrella Mitigation Bank

(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the Wilmington District, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Sponsor Name: Environmental Banc & Exchange

Name of Sponsor's Authorized Representative: Amy Staley

Amy Staley
 Signature of Sponsor's Authorized Representative

12/16/22
 Date of Signature



◊ North Carolina Wildlife Resources Commission ◊

Cameron Ingram, Executive Director

October 14, 2022

Lori Beckwith
U.S. Army Corps of Engineers, Asheville Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801

Dave Wanucha
NCDEQ, DWR
450 Hanes Mill Road, Suite 300
Winston Salem, NC 27105

SUBJECT: Comments on GP/WQC Application for Replacement of Bridge 29 on US 21 Business over I-77, Yadkin County (**B-5833**)
DWR 20221363 ver.1

Dear Ms. Beckwith and Mr. Wanucha,

The North Carolina Department of Transportation (NCDOT) applied for a General 404 Permit and 401 Certification for stream and wetland impacts for the subject project. I am familiar with the wildlife resources in the area but unable to visit the project site. Comments from the North Carolina Wildlife Resources Commission (NCWRC) on the application are offered to help conserve wildlife resources affected by the project and to promote wildlife-based recreation in accordance with applicable provisions of the state and federal Environmental Policy Acts (G.S. 113A-1 through 113-10; 1 NCAC 25 and 42 U.S.C. 4332(2)(c), respectively), the Clean Water Act of 1977 (33 U.S.C. 466 et seq.), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

The project will impact small streams and wetlands along a UT to Sandyberry Creek (C). Brook floater mussel (*Alasmodonta varicosa*, NC Endangered) are found in the Yadkin River, which is about 3 miles downstream of the project area. Effects of the project on the river are not anticipated provided sediment and erosion controls are effective during construction.

The NCWRC has no major concerns with this project but does recommend evaluating the native material before using it as the only backfill in the reinforced concrete box culvert (Site 1). The baffles and sills in this culvert should help retain this material, but very silty material, or material that was harvested with high amounts of subsoil, may be prone to washing-out. This has occurred on some similar projects, though most examples were RCBCs that did not have baffles (sills only). The NCWRC would support use of a mixture of rip rap with the native material (obtained either from on-site or purchased) if deemed necessary by the division environmental officer or project engineer. This is noted as an option in the drawings.

The NCWRC does not recommend additional conditions to the 404/401 authorizations.

Thank you for the opportunity to review and provide recommendations on this project. Please contact me at david.mchenry@ncwildlife.org or (828)476-1966 if you have any questions about these comments.

Cordially,



Dave McHenry, NCWRC Western DOT Coordinator

cc: Michael Turchy, NCDOT ECAP
Kevin Hining, NCDOT Division 11 Environmental Officer



NORTH CAROLINA
Environmental Quality

ROY COOPER

Governor

ELIZABETH S. BISER

Secretary

RICHARD E. ROGERS, JR.

Director

November 7, 2022
Yadkin County
NCDWR Project No. 20221363
Bridge 29; TIP No. B-5833
WBS Element No. 45786.1.2

APPROVAL of 401 WATER QUALITY CERTIFICATION with ADDITIONAL CONDITIONS

Mr. Michael Turchy
NCDOT, Group Leader
Environmental Coordination and Permitting
1598 MSC
Raleigh, NC 27699-1598

Dear Mr. Turchy:

You have our approval, in accordance with your application received on October 3, 2022 (along with subsequent information regarding the Stormwater Management Plan received on November 1), and with the conditions listed below, to impact a UT to Sandyberry Creek and associated wetlands to replace an existing bridge on US 21 Business over I-77 and make other drainage improvements.

Stream Impacts in the Yadkin Pee Dee River Basin.

Site	Permanent Fill in Perennial Stream (linear ft)		Temporary Fill in Perennial Stream (linear ft)		Permanent Fill in Intermittent Stream (linear ft)		Temporary Fill in Intermittent Stream (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
	Bank Stabilization	Culvert	Dewater	Fill	Bank Stabilization	Fill	Dewater	
1	75	46	87	-	-	-	-	-
2	-	-	21	-	-	-	-	-
3	-	-	-	19	-	-	-	-
4	-	30	99	-	-	-	-	-
5	-	-	-	-	13	10	59	-
6	63	127	15	-	-	-	-	-
Totals	138	203	222	19	13	10	59	-

Total Stream Impact for Project: 664 linear feet.

Wetland Impacts in the Yadkin Pee Dee River Basin (Riverine)

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
5	0.02	-	-	-	-	0.02
Total	0.02	-	-	-	-	

Total wetland Impact for Project: 0.02 acres.



After reviewing your application, we have decided that the proposed impacts are covered by General Water Quality Certification (GC) Number 4135. This GC corresponds to US Army Corps of Engineers Regional General Permit 201902350. In addition, you should acquire any other federal, state or local permits before you proceed with your project including (but not limited to) Sediment and Erosion Control, Non-Discharge and Water Supply Watershed regulations. This approval will expire with the corresponding 404 permit.

This approval is valid solely for the purpose and design described in your application (unless modified below). Should your project change, you must notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future) exceed one acre, or of total impacts to streams (now or in the future) exceed 300 linear feet, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you must adhere to the conditions listed in the attached certification(s) and any additional conditions listed below.

Condition(s) of Certification:

Project Specific Conditions

1. All work in or adjacent to stream waters shall be conducted per approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual. [15A NCAC 02H.0506(b)(3) and (c)(3)]
2. As a condition of this 401 Water Quality Certification, the bridge demolition and construction must be accomplished in strict compliance with the most recent version of NCDOT's Best Management Practices for Construction and Maintenance Activities. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]
3. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species. [15A NCAC 02H.0506(b)(2)]
4. Placement of culverts and other structures in open waters and streams, shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by the NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NCDWR for guidance on how to proceed and to determine whether a permit modification will be required. [15A NCAC 02H.0506(b)(2)]
5. For the 281 linear feet of streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species. [15A NCAC 02H.0506(b)(2)]
6. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized, and installed. [15A NCAC 02H.0506(b)(2)]
7. Stormwater shall be directed to vegetated buffer areas, grass-lined ditches or other means appropriate within the project area for the purpose of pre-treating storm water runoff prior to discharging directly into streams. (15A NCAC 02B.0224 and .0225)



General Conditions

1. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills. [15A NCAC 02B.0200]
2. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage. [15A NCAC 02H.0506(b)(2)]
3. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
4. The Permittee shall report any violations of this certification to the Division of Water Resources within 24 hours of discovery. [15A NCAC 02B.0506(b)(2)]
5. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification. [15A NCAC 02H.0506(b)(3)]
6. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]
7. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If the NCDWR determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, the NCDWR may reevaluate and modify this certification. [15A NCAC 02B.0200]
8. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification. [15A NCAC 02H.0506(b)(2)]
9. A copy of this Water Quality Certification shall be always maintained on the construction site. In addition, the Water Quality Certification, and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
10. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification. [15A NCAC 02H.0501 and .0502]
11. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.
12. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer (or appointee) shall complete and return the enclosed "Certification of Completion Form" to notify the NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0502(f)]
13. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction. [15A NCAC 02H.0506(b)(3) and (c)(3)]
14. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites,



be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities. [15A NCAC 02H.0506(b)(3) and (c)(3)]

15. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices to protect surface waters standards [15A NCAC 02H.0506(b)(3) and (c)(3)]:
 - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
 - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
 - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
 - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.
16. Where placement of sediment and erosion control devices in wetlands and/or waters is unavoidable, they shall be removed, and the natural grade restored upon completion of the project. [15A NCAC 02H.0506(b)(3) and (c)(3)]

This approval and its conditions are final and binding unless contested [G.S. 143-215.5]. Please be aware that impacting waters without first applying for and securing the issuance of a 401 Water Quality Certification violates Title 15A of the North Carolina Administrative Code (NCAC) 2H .0500. Title 15A NCAC 2H .0500 requires certifications pursuant to Section 401 of the Clean Water Act whenever construction or operation of facilities will result in a discharge into navigable waters, including wetlands, as described in 33 Code of Federal Regulations (CFR) Part 323. It also states any person desiring issuance of the State certification or coverage under a general certification required by Section 401 of the Federal Water Pollution Control Act shall file with the Director of the North Carolina Division of Water Quality. Pursuant to G.S. 143-215.6A, these violations and any future violations are subject to a civil penalty assessment of up to a maximum of \$25,000.00 per day for each violation.

This Certification can be contested as provided in Chapter 150B of the North Carolina General Statutes by filing a Petition for a Contested Case Hearing (Petition) with the North Carolina Office of Administrative Hearings (OAH) within sixty (60) calendar days. Requirements for filing a Petition are set forth in Chapter 150B of the North Carolina General Statutes and Title 26 of the North Carolina Administrative Code. Additional information regarding requirements for filing a Petition and Petition forms may be accessed at <http://www.ncoah.com/> or by calling the OAH Clerk's Office at (919) 431-3000.

A party filing a Petition must serve a copy of the Petition on:

William F. Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27699-1601

If the party filing the Petition is not the permittee, then the party must also serve the recipient of the Certification in accordance with N.C.G.S 150B-23(a).

This letter completes the review of the Division under section 401 of the Clean Water Act and 15A NCAC 02H .0500. Please contact Dave Wanucha at 336-403-5655 or dave.wanucha@ncdenr.gov if you have any questions or concerns.



Sincerely,

Amy Chapman

9C9886312DCD474...
Richard E. Rogers Jr., Director
Division of Water Resources

Electronic copy only distribution:

Kevin Hining, NCDOT Environmental Officer Division 11
Lori Beckwith, US Army Corps of Engineers, Asheville Field Office
Rebekah Reid, US Fish and Wildlife Service
David McHenry, NC Wildlife Resources Commission
File Copy





NORTH CAROLINA
Environmental Quality

ROY COOPER
Governor

ELIZABETH S. BISER
Secretary

RICHARD E. ROGERS, JR.
Director

NCDWR Project No.: _____ County: _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Resources, 1617 Mail Service Center, Raleigh, NC, 27699-1617. This form may be returned to NCDWR by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Engineer's Certification

_____ Partial _____ Final

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____

Date _____

Completed hard copies can be emailed to kristilynn.carpenter@ncdenr.gov or mailed to:
NCDEQ Transportation Permitting
1617 Mail Service Center
Raleigh NC 27699-1617





(Version 3.00; Released August 2021)

FOR NCDOT PROJECTS

General Project Information

WBS Element:	45786.1.1	TIP Number:	B-5833	Project Type:	Bridge Replacement	Date:	9/28/2021
NCDOT Contact:	David Stutts, PE			Contractor / Designer:	TGS Engineers (Ben Henegar, PE)		
	Address:	NCDOT - Structures Management Unit 1000 Birch Ridge Drive Raleigh, NC 27610			Address:	706 Hillsborough Street Suite 200 Raleigh, NC 27603	
	Phone:	(919) 707-6442			Phone:	(919) 773-8887 ext. 123	
	Email:	dstutts@ncdot.gov			Email:	bhenegar@tgsengineers.com	
City/Town:	Jonesville, NC			County(ies):	Yadkin		
River Basin(s):	Yadkin-Pee Dee			CAMA County?	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	0.58 miles	Surrounding Land Use:	Rural Residential, Agricultural, & Highway Business					
Project Built-Up Area (ac.)	Proposed Project			Existing Site				
	2.3	ac.		1.5	ac.			
Typical Cross Section Description:	Two 12' wide paved travel lanes, two 5' paved shoulders, 3' grassed shoulders, and grassed side slopes ranging from 6(H):1(V) to 2(H):1(V).			Two 11' wide paved travel lanes with 2' to 4' grassed shoulders and grassed side slopes ranging from 6(H):1(V) to 2(H):1(V).				
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	4550	Year:	2041	Existing:	4100	Year:	2021

General Project Narrative:
(Description of Minimization of Water Quality Impacts)

B-5833 involves the replacement of bridge No. 980029 on US 21 Bus over I-77 in Yadkin County, NC. The proposed 252' long by 43' wide two-span bridge would replace the existing 400' long by 33' wide six-span bridge. The project will also involve replacing an existing 1 @ 4' x 6' RCBC with a proposed 1@7'x7' RCBC (buried 1') US 21 Bus. An energy dissipator basin is proposed at Str.# 0521 (54" RCP, -RAMPD- 12+92 RT) at the outlet into a jurisdictional stream. This energy dissipator basin is proposed because of the scour hole that was observed at the outlet of the existing 54" RCP (the proposed dimensions of the basin are similar to what was naturally formed).

Project minimum measures include:

- >Maximizing Shoulder Section.
- >Minimizing Roadway Side Slopes.
- >Providing Adequate Ground Cover.
- >Stabilizing Embankments and Drainage Ditches.
- >Providing Adequate Energy Dissipation.
- >Utilizing Natural Features and Drainage Pathways - Existing drainage pathways were utilized to the maximum extent practicable.



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS



(Version 3.00; Released August 2021)

WBS Element: 45786.1.1 TIP/Proj No.: B-5833 County(ies): Yadkin Page 2 of 3

General Project Information

Waterbody Information

Surface Water Body (1):	UT to Sandyberry Creek		NCDWR Stream Index No.:	12-55	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class C		
	Supplemental Classification:				
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SA		Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A		Dissipator Pads Provided in Buffer?
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)					

Surface Water Body (2):	UT to Sandyberry Creek		NCDWR Stream Index No.:	12-55	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class C		
	Supplemental Classification:		None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SB		Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A		Dissipator Pads Provided in Buffer?
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)					

Surface Water Body (3):	UT to Sandyberry Creek		NCDWR Stream Index No.:	12-55	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class C		
	Supplemental Classification:		None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SC		Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A		Dissipator Pads Provided in Buffer?
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)					

09/28/2021

X:\NCDOT\B-5833\Hydraulics\PERMITS_Environmental\Drawings\PSH\B5833_hyd_prm_t.sh.dgn
User: bhenegar

TIP PROJECT: B-5833

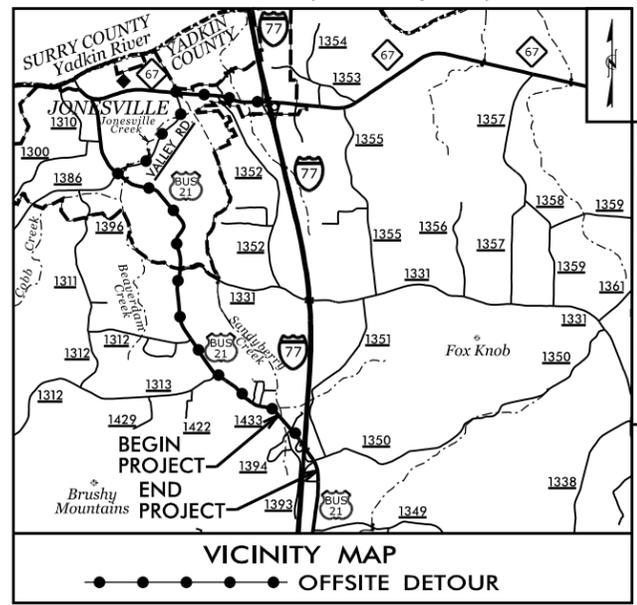
See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Plan Sheet Symbols
See Sheet RW01 thru RW04 For Survey Control & Right-of-Way Sheets

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

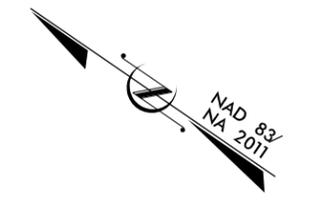
YADKIN COUNTY

LOCATION: REPLACE BRIDGE NO. 29 OVER I-77 ON US 21 BUS
TYPE OF WORK: GRADING, DRAINAGE, PAVING, RETAINING WALLS,
AND STRUCTURE

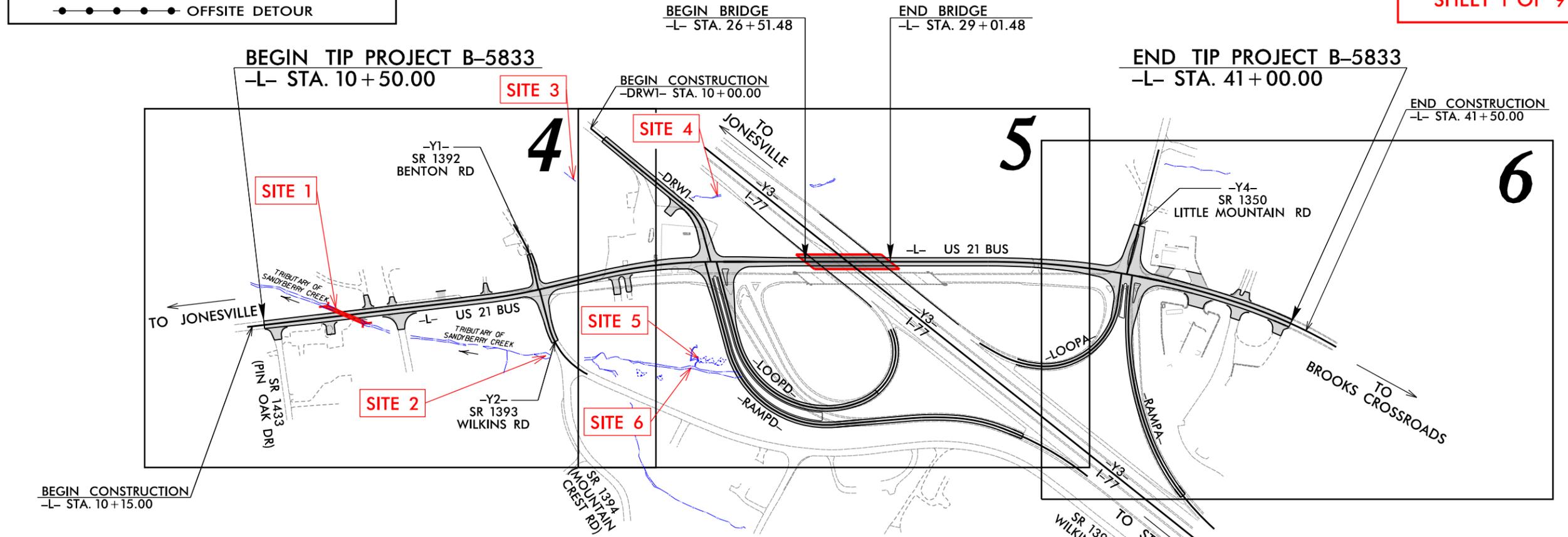
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5833	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45786.1.2	N/A	PE	
45786.2.1	N/A	RW, UTIL	
45786.3.1	NHP-0021(023)	CONST.	



WETLAND AND SURFACE WATER IMPACTS



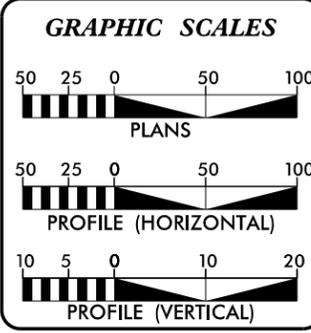
PERMIT DRAWING
SHEET 1 OF 9



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT:



DESIGN DATA	
ADT 2022 =	4150
ADT 2042 =	4550
K =	11 %
D =	65 %
T =	5 % *
V =	50 MPH
* (TTST 1% + DUAL 4%)	
FUNC CLASS = MAJOR COLLECTOR	
STATEWIDE TIER DESIGN	

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT B-5833	= 0.531 mile
LENGTH STRUCTURES TIP PROJECT B-5833	= 0.047 mile
TOTAL LENGTH TIP PROJECT B-5833	= 0.578 mile

Prepared For:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

By:
TGS ENGINEERS
706 HILLSBOROUGH ST.
SUITE 200
RALEIGH, NC 27603

PH (919) 773-8887
CORP. LICENSE NO.: C-0275

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 17, 2021

LETTING DATE:
AUGUST 16, 2022

V. MARCUS LOWERY, P.E.
PROJECT ENGINEER

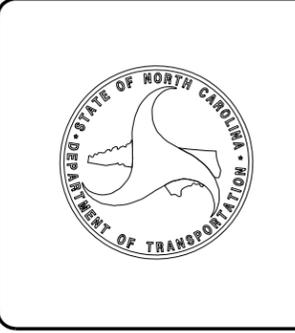
DAVID STUTTS, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



8.17.19
 I:\R\2021\B-5833\Hydraulics\PERMITS\Drawings\Environmental\Drawings\PSH\B5833_hyd.prm.psh_04.dgn
 User: jshanson

SEE SHEET 2B-1
 FOR INTERSECTION DETAILS
 SEE SHEET 07 FOR -L- PROFILE
 SEE SHEET 08 FOR -Y1- & -Y2- PROFILES
 DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED
 CHANNELIZATION RADII ARE 3' UNLESS OTHERWISE NOTED
 RADII DIMENSIONS ARE TO FACE OF CURB (F/C) UNLESS OTHERWISE NOTED

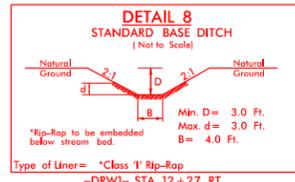
-L-

PI Sta 17+87.66 Δ = 6° 34' 02.4" (LT) D = 3' 47' 39.9" L = 173.08' T = 86.63' R = 1,510.00' SE = 0.05 Lr = 125'	PI Sta 22+16.73 Δ = 13° 17' 34.0" (RT) D = 3' 47' 39.9" L = 350.32' T = 175.95' R = 1,510.00' SE = 0.05 Lr = 125'
--	--

-Y1- -Y2-

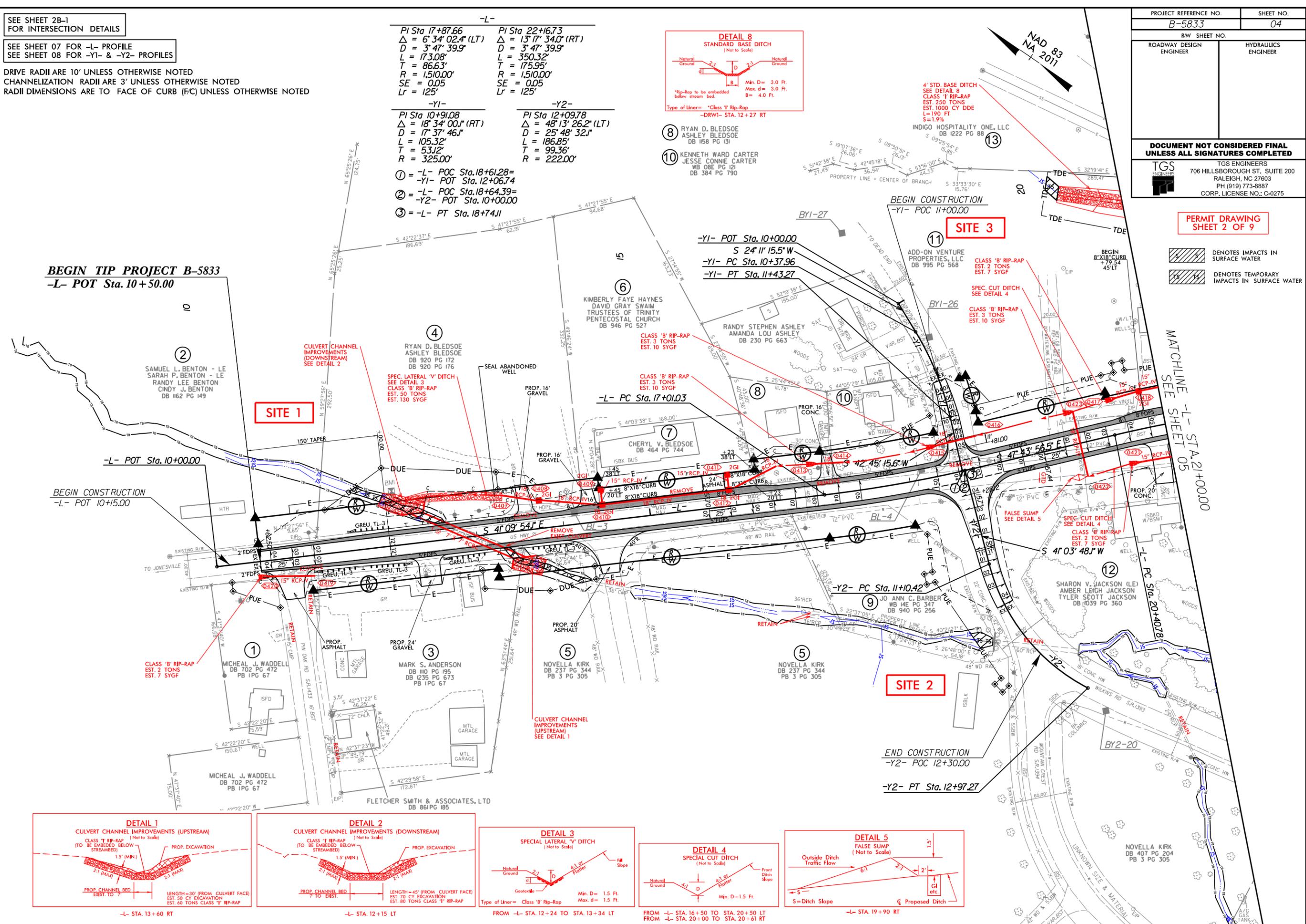
PI Sta 10+91.08 Δ = 18° 34' 00.1" (RT) D = 17' 37' 46.1" L = 105.32' T = 53.12' R = 325.00'	PI Sta 12+09.78 Δ = 48° 13' 26.2" (LT) D = 25' 48' 32.1" L = 186.85' T = 99.36' R = 222.00'
--	--

① = -L- POC Sta. 18+61.28 =
 -Y1- POT Sta. 12+06.74
 ② = -L- POC Sta. 18+64.39 =
 -Y2- POT Sta. 10+00.00
 ③ = -L- PT Sta. 18+74.11



4' STD. BASE DITCH
 SEE DETAIL 8
 CLASS 'I' RIP-RAP
 EST. 250 TONS
 EST. 1000 CY DDE
 L=190 FT
 S=1.9%

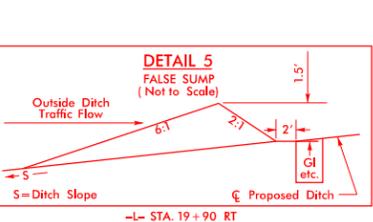
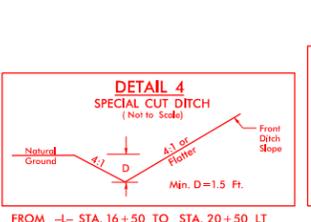
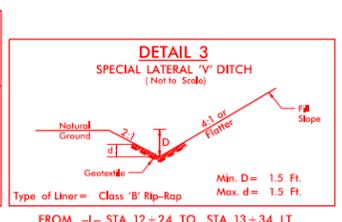
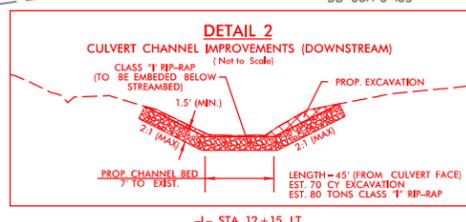
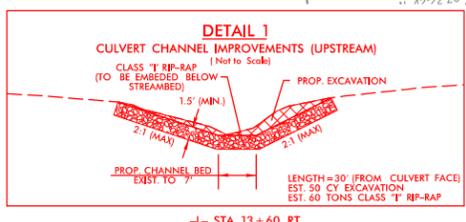
BEGIN TIP PROJECT B-5833
-L- POT Sta. 10+50.00



PROJECT REFERENCE NO. B-5833	SHEET NO. 04
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	

**PERMIT DRAWING
SHEET 2 OF 9**

DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER



-L- STA. 13+60 RT

-L- STA. 12+15 LT

FROM -L- STA. 12+24 TO STA. 13+34 LT

FROM -L- STA. 16+50 TO STA. 20+50 LT
FROM -L- STA. 20+00 TO STA. 20+61 RT

-L- STA. 19+90 RT

SEE SHEET 2B-1
FOR INTERSECTION DETAILS

SEE SHEET 07 FOR -L- PROFILE
SEE SHEET 08 FOR -Y1- & -Y2- PROFILES

DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED
CHANNELIZATION RADII ARE 3' UNLESS OTHERWISE NOTED
RADII DIMENSIONS ARE TO FACE OF CURB (F/C) UNLESS OTHERWISE NOTED

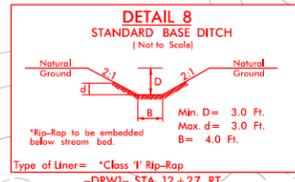
-L-
PI Sta 17+87.66 Δ = 6' 34" 02.4" (LT)
D = 3' 47" 39.9"
L = 173.08'
T = 86.63'
R = 1,510.00'
SE = 0.05
Lr = 125'

PI Sta 22+16.73 Δ = 13' 17" 34.0" (RT)
D = 3' 47" 39.9"
L = 350.32'
T = 175.95'
R = 1,510.00'
SE = 0.05
Lr = 125'

-Y1-
PI Sta 10+91.08 Δ = 18' 34" 00.1" (RT)
D = 17' 37" 46.1"
L = 105.32'
T = 53.12'
R = 325.00'

-Y2-
PI Sta 12+09.78 Δ = 48' 13" 26.2" (LT)
D = 25' 48" 32.1"
L = 186.85'
T = 99.36'
R = 222.00'

① = -L- POC Sta. 18+61.28 =
-Y1- POT Sta. 12+06.74
② = -L- POC Sta. 18+64.39 =
-Y2- POT Sta. 10+00.00
③ = -L- PT Sta. 18+74.11



PROJECT REFERENCE NO. B-5833	SHEET NO. 04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	

PERMIT DRAWING
SHEET 3 OF 9

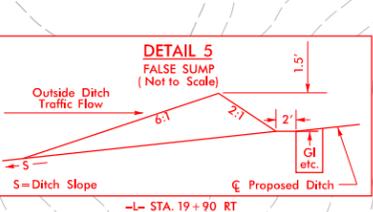
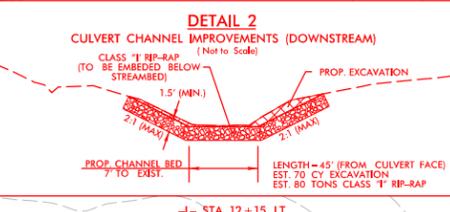
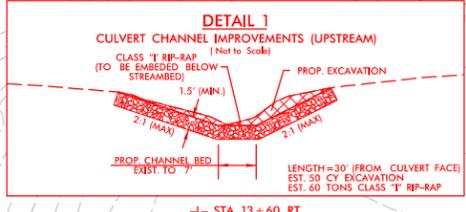
DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

BEGIN TIP PROJECT B-5833
-L- POT Sta. 10+50.00

BEGIN CONSTRUCTION
-L- POT 10+15.00

BEGIN CONSTRUCTION
-Y1- POC 11+00.00

END CONSTRUCTION
-Y2- POC 12+30.00



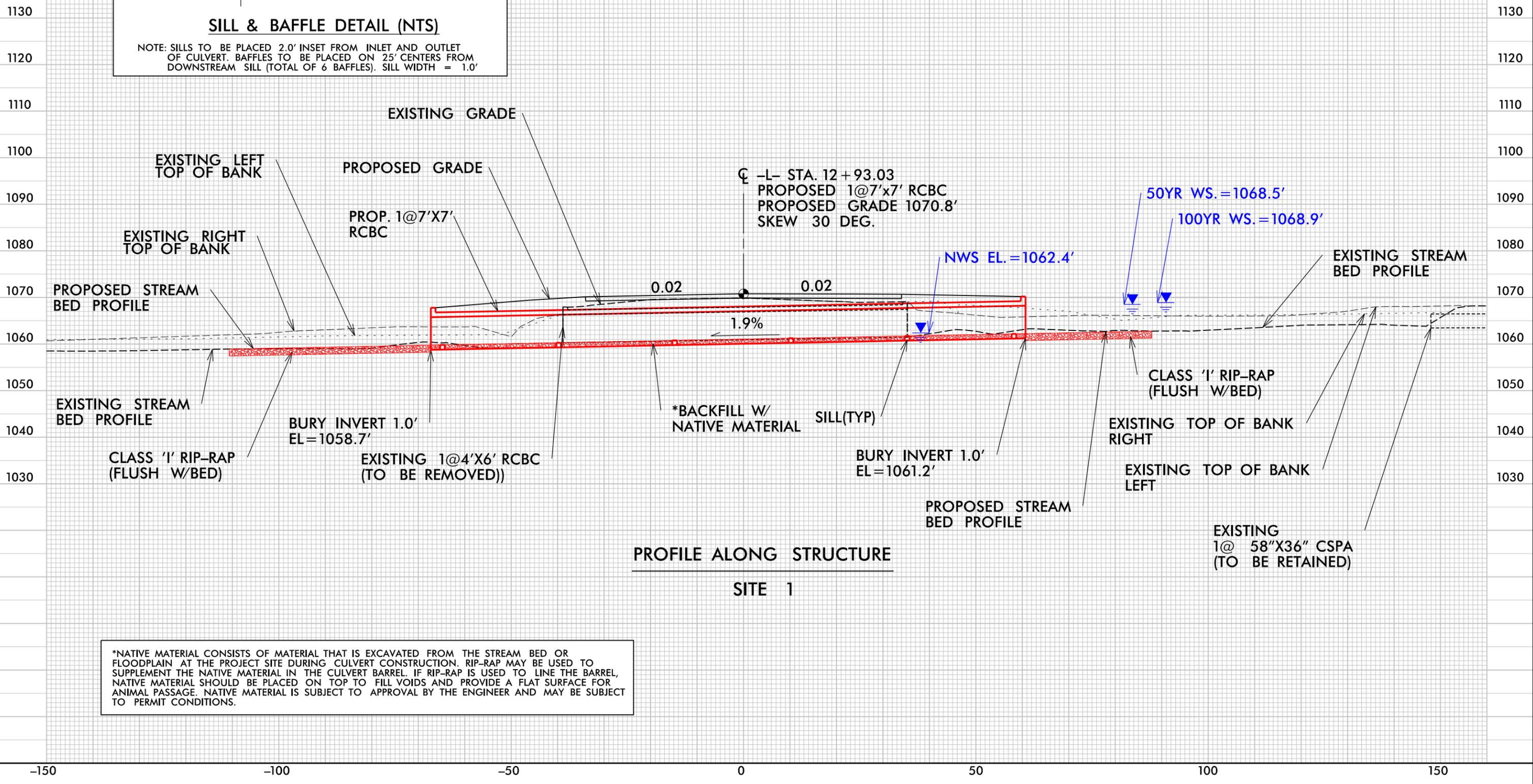
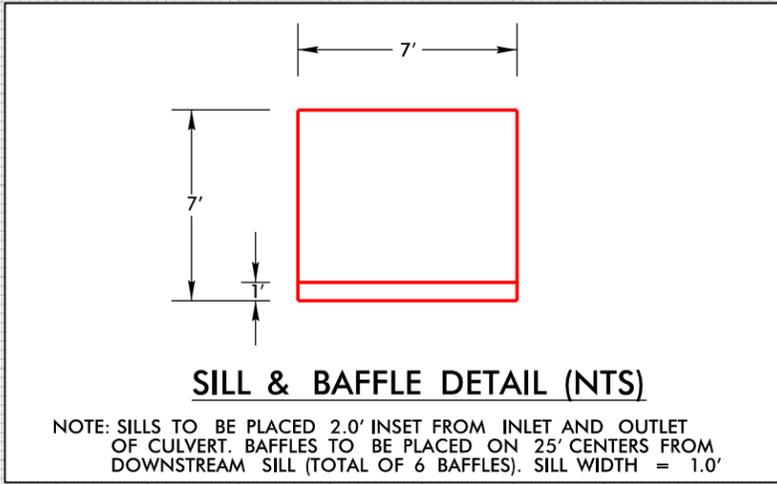
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MATCHLINE -L- STA. 21+00.00
SEE SHEET 05

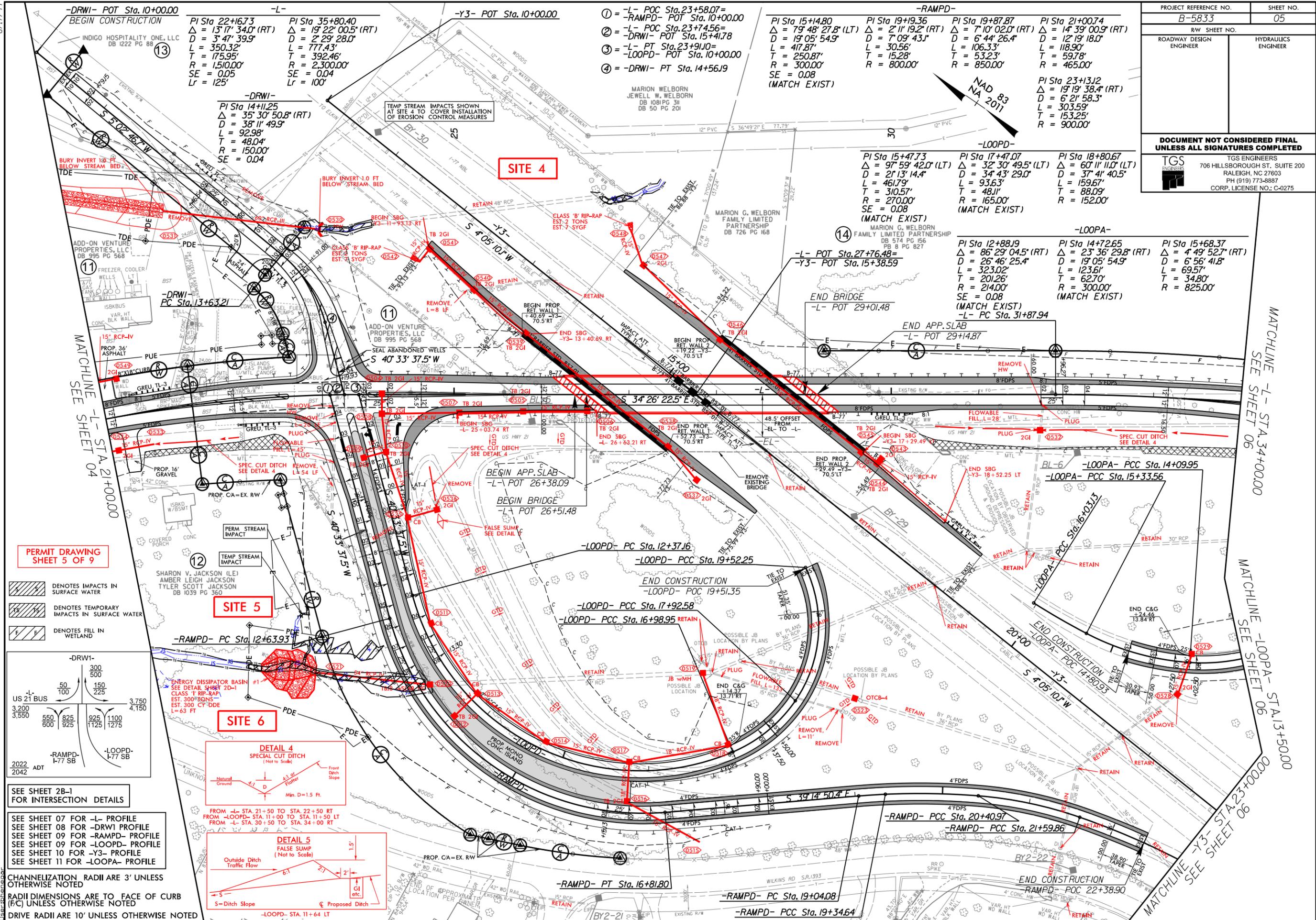
PERMIT DRAWING
SHEET 4 OF 9

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

-L-
US 21



*NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE CULVERT BARREL. IF RIP-RAP IS USED TO LINE THE BARREL, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.



-DRWI- POT Sta. 10+00.00
 BEGIN CONSTRUCTION

PI Sta 22+16.73
 $\Delta = 13' 17'' 34.0''$ (RT)
 $D = 3' 47'' 39.9''$
 $L = 350.32'$
 $T = 175.95'$
 $R = 1510.00'$
 $SE = 0.05$
 $Lr = 125'$

PI Sta 35+80.40
 $\Delta = 19' 22'' 00.5''$ (RT)
 $D = 2' 29'' 28.0''$
 $L = 777.43'$
 $T = 392.46'$
 $R = 2300.00'$
 $SE = 0.04$
 $Lr = 100'$

-DRWI-
 PI Sta 14+11.25
 $\Delta = 35' 30'' 50.8''$ (RT)
 $D = 38' 11'' 49.9''$
 $L = 92.98'$
 $T = 48.04'$
 $R = 150.00'$
 $SE = 0.04$

SITE 4

① = -L- POC Sta. 23+58.07 = -RAMPD- POT Sta. 10+00.00
 ② = -L- POC Sta. 23+74.56 = -DRWI- POT Sta. 15+41.78
 ③ = -L- PT Sta. 23+91.0 = -LOOPD- POT Sta. 10+00.00
 ④ = -DRWI- PT Sta. 14+56.19

PI Sta 15+14.80
 $\Delta = 79' 48'' 27.8''$ (LT)
 $D = 19' 05'' 54.9''$
 $L = 417.87'$
 $T = 250.87'$
 $R = 3000.00'$
 $SE = 0.08$
 (MATCH EXIST)

PI Sta 19+19.36
 $\Delta = 2' 11'' 19.2''$ (RT)
 $D = 7' 09'' 43.1''$
 $L = 30.56'$
 $T = 15.28'$
 $R = 800.00'$

PI Sta 19+87.87
 $\Delta = 7' 10'' 02.0''$ (RT)
 $D = 6' 44'' 26.4''$
 $L = 106.33'$
 $T = 53.23'$
 $R = 850.00'$

PI Sta 21+00.74
 $\Delta = 14' 39'' 00.9''$ (RT)
 $D = 12' 19'' 18.0''$
 $L = 118.90'$
 $T = 59.78'$
 $R = 465.00'$

PI Sta 23+13.12
 $\Delta = 19' 19'' 38.4''$ (RT)
 $D = 6' 21'' 58.3''$
 $L = 303.59'$
 $T = 153.25'$
 $R = 900.00'$

-LOOPD-
 PI Sta 15+47.73
 $\Delta = 97' 59'' 42.0''$ (LT)
 $D = 2' 13'' 14.4''$
 $L = 461.79'$
 $T = 310.57'$
 $R = 2700.00'$
 $SE = 0.08$
 (MATCH EXIST)

PI Sta 17+47.07
 $\Delta = 32' 30'' 49.5''$ (LT)
 $D = 34' 43'' 29.0''$
 $L = 93.63'$
 $T = 48.11'$
 $R = 165.00'$
 (MATCH EXIST)

PI Sta 18+80.67
 $\Delta = 60' 11'' 11.0''$ (LT)
 $D = 37' 41'' 40.5''$
 $L = 159.67'$
 $T = 88.09'$
 $R = 152.00'$
 (MATCH EXIST)

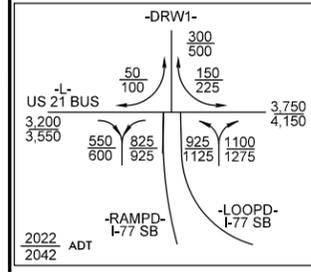
-LOOPA-
 PI Sta 12+88.19
 $\Delta = 86' 29'' 04.5''$ (RT)
 $D = 26' 46'' 25.4''$
 $L = 323.02'$
 $T = 201.26'$
 $R = 214.00'$
 $SE = 0.08$
 (MATCH EXIST)

PI Sta 14+72.65
 $\Delta = 23' 36'' 29.8''$ (RT)
 $D = 19' 05'' 54.9''$
 $L = 123.61'$
 $T = 62.70'$
 $R = 300.00'$
 (MATCH EXIST)

PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
 (MATCH EXIST)

PERMIT DRAWING SHEET 5 OF 9

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



SEE SHEET 2B-1 FOR INTERSECTION DETAILS

SEE SHEET 07 FOR -L- PROFILE
 SEE SHEET 08 FOR -DRWI- PROFILE
 SEE SHEET 09 FOR -RAMPD- PROFILE
 SEE SHEET 09 FOR -LOOPD- PROFILE
 SEE SHEET 10 FOR -Y3- PROFILE
 SEE SHEET 11 FOR -LOOPA- PROFILE

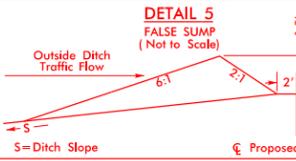
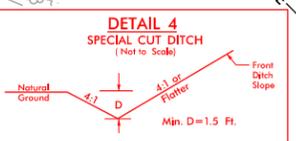
CHANNELIZATION RADII ARE 3' UNLESS OTHERWISE NOTED

RADII DIMENSIONS ARE TO FACE OF CURB (FC) UNLESS OTHERWISE NOTED

DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED

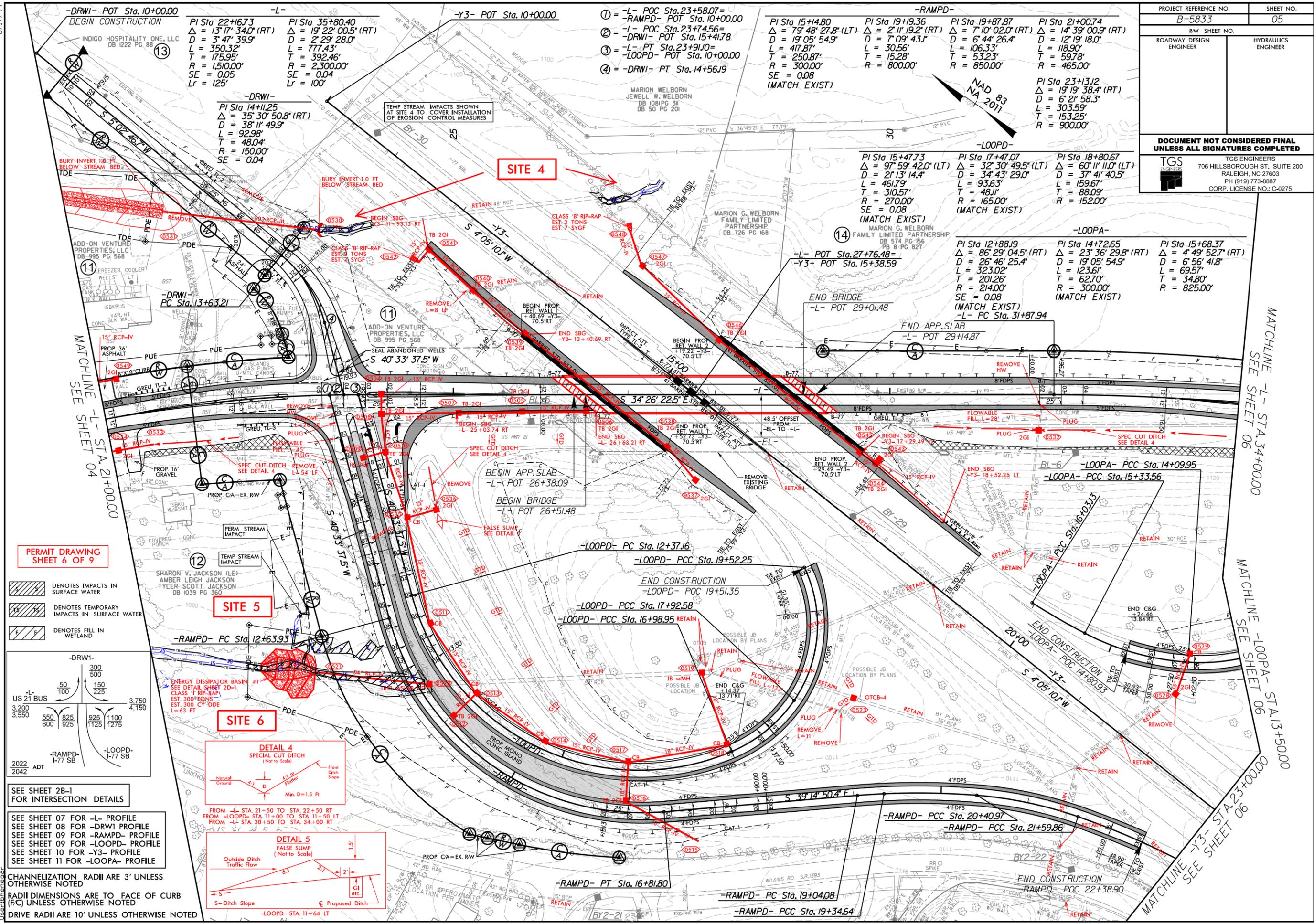
SITE 5

SITE 6



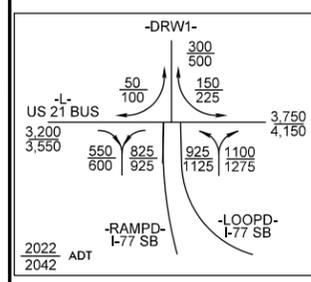
8/17/2021
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 9/28/2021

PROJECT REFERENCE NO. B-5833	SHEET NO. 05
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



PERMIT DRAWING SHEET 6 OF 9

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



SEE SHEET 2B-1 FOR INTERSECTION DETAILS

SEE SHEET 07 FOR -L- PROFILE
SEE SHEET 08 FOR -DRWI- PROFILE
SEE SHEET 09 FOR -RAMPD- PROFILE
SEE SHEET 09 FOR -LOOPD- PROFILE
SEE SHEET 10 FOR -Y3- PROFILE
SEE SHEET 11 FOR -LOOPA- PROFILE

CHANNELIZATION RADII ARE 3' UNLESS OTHERWISE NOTED
RADII DIMENSIONS ARE TO FACE OF CURB (FC) UNLESS OTHERWISE NOTED
DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED

-DRWI-
PI Sta 22+16.73
 $\Delta = 13' 17'' 34.0''$ (RT)
 $D = 3' 47'' 39.9''$
 $L = 350.32'$
 $T = 175.95'$
 $R = 1510.00'$
 $SE = 0.05$
 $Lr = 125'$

-DRWI-
PI Sta 14+11.25
 $\Delta = 35' 30'' 50.8''$ (RT)
 $D = 38' 11'' 49.9''$
 $L = 92.98'$
 $T = 48.04'$
 $R = 150.00'$
 $SE = 0.04$

-DRWI-
PI Sta 13+63.21
 $\Delta = 15' 30'' 37.5''$ (RT)
 $D = 40' 33'' 37.5''$
 $L = 15.00'$
 $T = 7.50'$
 $R = 150.00'$
 $SE = 0.04$

-DRWI-
PI Sta 13+63.21
 $\Delta = 15' 30'' 37.5''$ (RT)
 $D = 40' 33'' 37.5''$
 $L = 15.00'$
 $T = 7.50'$
 $R = 150.00'$
 $SE = 0.04$

-DRWI-
PI Sta 13+63.21
 $\Delta = 15' 30'' 37.5''$ (RT)
 $D = 40' 33'' 37.5''$
 $L = 15.00'$
 $T = 7.50'$
 $R = 150.00'$
 $SE = 0.04$

-DRWI-
PI Sta 13+63.21
 $\Delta = 15' 30'' 37.5''$ (RT)
 $D = 40' 33'' 37.5''$
 $L = 15.00'$
 $T = 7.50'$
 $R = 150.00'$
 $SE = 0.04$

-DRWI-
PI Sta 13+63.21
 $\Delta = 15' 30'' 37.5''$ (RT)
 $D = 40' 33'' 37.5''$
 $L = 15.00'$
 $T = 7.50'$
 $R = 150.00'$
 $SE = 0.04$

-DRWI-
PI Sta 13+63.21
 $\Delta = 15' 30'' 37.5''$ (RT)
 $D = 40' 33'' 37.5''$
 $L = 15.00'$
 $T = 7.50'$
 $R = 150.00'$
 $SE = 0.04$

-DRWI-
PI Sta 13+63.21
 $\Delta = 15' 30'' 37.5''$ (RT)
 $D = 40' 33'' 37.5''$
 $L = 15.00'$
 $T = 7.50'$
 $R = 150.00'$
 $SE = 0.04$

-DRWI-
PI Sta 13+63.21
 $\Delta = 15' 30'' 37.5''$ (RT)
 $D = 40' 33'' 37.5''$
 $L = 15.00'$
 $T = 7.50'$
 $R = 150.00'$
 $SE = 0.04$

-DRWI-
PI Sta 13+63.21
 $\Delta = 15' 30'' 37.5''$ (RT)
 $D = 40' 33'' 37.5''$
 $L = 15.00'$
 $T = 7.50'$
 $R = 150.00'$
 $SE = 0.04$

-DRWI-
PI Sta 13+63.21
 $\Delta = 15' 30'' 37.5''$ (RT)
 $D = 40' 33'' 37.5''$
 $L = 15.00'$
 $T = 7.50'$
 $R = 150.00'$
 $SE = 0.04$

-L-
PI Sta 35+80.40
 $\Delta = 19' 22'' 00.5''$ (RT)
 $D = 2' 29'' 28.0''$
 $L = 777.43'$
 $T = 392.46'$
 $R = 2,300.00'$
 $SE = 0.04$
 $Lr = 100'$

-L-
PI Sta 35+80.40
 $\Delta = 19' 22'' 00.5''$ (RT)
 $D = 2' 29'' 28.0''$
 $L = 777.43'$
 $T = 392.46'$
 $R = 2,300.00'$
 $SE = 0.04$
 $Lr = 100'$

-L-
PI Sta 35+80.40
 $\Delta = 19' 22'' 00.5''$ (RT)
 $D = 2' 29'' 28.0''$
 $L = 777.43'$
 $T = 392.46'$
 $R = 2,300.00'$
 $SE = 0.04$
 $Lr = 100'$

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PI Sta 35+80.40
 $\Delta = 19' 22'' 00.5''$ (RT)
 $D = 2' 29'' 28.0''$
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 $\Delta = 19' 22'' 00.5''$ (RT)
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PI Sta 35+80.40
 $\Delta = 19' 22'' 00.5''$ (RT)
 $D = 2' 29'' 28.0''$
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 $D = 2' 29'' 28.0''$
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PI Sta 35+80.40
 $\Delta = 19' 22'' 00.5''$ (RT)
 $D = 2' 29'' 28.0''$
 $L = 777.43'$
 $T = 392.46'$
 $R = 2,300.00'$
 $SE = 0.04$
 $Lr = 100'$

-L-
PI Sta 35+80.40
 $\Delta = 19' 22'' 00.5''$ (RT)
 $D = 2' 29'' 28.0''$
 $L = 777.43'$
 $T = 392.46'$
 $R = 2,300.00'$
 $SE = 0.04$
 $Lr = 100'$

-L-
PI Sta 35+80.40
 $\Delta = 19' 22'' 00.5''$ (RT)
 $D = 2' 29'' 28.0''$
 $L = 777.43'$
 $T = 392.46'$
 $R = 2,300.00'$
 $SE = 0.04$
 $Lr = 100'$

-L-
PI Sta 35+80.40
 $\Delta = 19' 22'' 00.5''$ (RT)
 $D = 2' 29'' 28.0''$
 $L = 777.43'$
 $T = 392.46'$
 $R = 2,300.00'$
 $SE = 0.04$
 $Lr = 100'$

-L- POC Sta.23+58.07=
-RAMPD- POT Sta.10+00.00
-DRWI- POT Sta.15+41.78
-L- PT Sta.23+91.00=
-LOOPD- POT Sta.10+00.00
-DRWI- PT Sta.14+56.19

-L- POC Sta.23+58.07=
-RAMPD- POT Sta.10+00.00
-DRWI- POT Sta.15+41.78
-L- PT Sta.23+91.00=
-LOOPD- POT Sta.10+00.00
-DRWI- PT Sta.14+56.19

-L- POC Sta.23+58.07=
-RAMPD- POT Sta.10+00.00
-DRWI- POT Sta.15+41.78
-L- PT Sta.23+91.00=
-LOOPD- POT Sta.10+00.00
-DRWI- PT Sta.14+56.19

-L- POC Sta.23+58.07=
-RAMPD- POT Sta.10+00.00
-DRWI- POT Sta.15+41.78
-L- PT Sta.23+91.00=
-LOOPD- POT Sta.10+00.00
-DRWI- PT Sta.14+56.19

-L- POC Sta.23+58.07=
-RAMPD- POT Sta.10+00.00
-DRWI- POT Sta.15+41.78
-L- PT Sta.23+91.00=
-LOOPD- POT Sta.10+00.00
-DRWI- PT Sta.14+56.19

-L- POC Sta.23+58.07=
-RAMPD- POT Sta.10+00.00
-DRWI- POT Sta.15+41.78
-L- PT Sta.23+91.00=
-LOOPD- POT Sta.10+00.00
-DRWI- PT Sta.14+56.19

-L- POC Sta.23+58.07=
-RAMPD- POT Sta.10+00.00
-DRWI- POT Sta.15+41.78
-L- PT Sta.23+91.00=
-LOOPD- POT Sta.10+00.00
-DRWI- PT Sta.14+56.19

-L- POC Sta.23+58.07=
-RAMPD- POT Sta.10+00.00
-DRWI- POT Sta.15+41.78
-L- PT Sta.23+91.00=
-LOOPD- POT Sta.10+00.00
-DRWI- PT Sta.14+56.19

-L- POC Sta.23+58.07=
-RAMPD- POT Sta.10+00.00
-DRWI- POT Sta.15+41.78
-L- PT Sta.23+91.00=
-LOOPD- POT Sta.10+00.00
-DRWI- PT Sta.14+56.19

-L- POC Sta.23+58.07=
-RAMPD- POT Sta.10+00.00
-DRWI- POT Sta.15+41.78
-L- PT Sta.23+91.00=
-LOOPD- POT Sta.10+00.00
-DRWI- PT Sta.14+56.19

-L- POC Sta.23+58.07=
-RAMPD- POT Sta.10+00.00
-DRWI- POT Sta.15+41.78
-L- PT Sta.23+91.00=
-LOOPD- POT Sta.10+00.00
-DRWI- PT Sta.14+56.19

-L- POC Sta.23+58.07=
-RAMPD- POT Sta.10+00.00
-DRWI- POT Sta.15+41.78
-L- PT Sta.23+91.00=
-LOOPD- POT Sta.10+00.00
-DRWI- PT Sta.14+56.19

PI Sta 15+14.80
 $\Delta = 79' 48'' 27.8''$ (LT)
 $D = 19' 05'' 54.9''$
 $L = 417.87'$
 $T = 250.87'$
 $R = 300.00'$
 $SE = 0.08$
(MATCH EXIST)

PI Sta 19+19.36
 $\Delta = 2' 11'' 19.2''$ (RT)
 $D = 7' 09'' 43.1''$
 $L = 30.56'$
 $T = 15.28'$
 $R = 800.00'$

PI Sta 19+87.87
 $\Delta = 7' 10'' 02.0''$ (RT)
 $D = 6' 44'' 26.4''$
 $L = 106.33'$
 $T = 53.23'$
 $R = 850.00'$

PI Sta 21+00.74
 $\Delta = 14' 39'' 00.9''$ (RT)
 $D = 12' 19'' 18.0''$
 $L = 118.90'$
 $T = 59.78'$
 $R = 465.00'$

PI Sta 23+13.12
 $\Delta = 19' 19'' 38.4''$ (RT)
 $D = 6' 21'' 58.3''$
 $L = 303.59'$
 $T = 153.25'$
 $R = 900.00'$

PI Sta 23+13.12
 $\Delta = 19' 19'' 38.4''$ (RT)
 $D = 6' 21'' 58.3''$
 $L = 303.59'$
 $T = 153.25'$
 $R = 900.00'$

PI Sta 23+13.12
 $\Delta = 19' 19'' 38.4''$ (RT)
 $D = 6' 21'' 58.3''$
 $L = 303.59'$
 $T = 153.25'$
 $R = 900.00'$

PI Sta 23+13.12
 $\Delta = 19' 19'' 38.4''$ (RT)
 $D = 6' 21'' 58.3''$
 $L = 303.59'$
 $T = 153.25'$
 $R = 900.00'$

PI Sta 23+13.12
 $\Delta = 19' 19'' 38.4''$ (RT)
 $D = 6' 21'' 58.3''$
 $L = 303.59'$
 $T = 153.25'$
 $R = 900.00'$

PI Sta 23+13.12
 $\Delta = 19' 19'' 38.4''$ (RT)
 $D = 6' 21'' 58.3''$
 $L = 303.59'$
 $T = 153.25'$
 $R = 900.00'$

PI Sta 23+13.12
 $\Delta = 19' 19'' 38.4''$ (RT)
 $D = 6' 21'' 58.3''$
 $L = 303.59'$
 $T = 153.25'$
 $R = 900.00'$

PI Sta 23+13.12
 $\Delta = 19' 19'' 38.4''$ (RT)
 $D = 6' 21'' 58.3''$
 $L = 303.59'$
 $T = 153.25'$
 $R = 900.00'$

PI Sta 15+47.73
 $\Delta = 97' 59'' 42.0''$ (LT)
 $D = 21' 13'' 14.4''$
 $L = 461.79'$
 $T = 310.57'$
 $R = 270.00'$
 $SE = 0.08$
(MATCH EXIST)

PI Sta 17+47.07
 $\Delta = 32' 30'' 49.5''$ (LT)
 $D = 34' 43'' 29.0''$
 $L = 93.63'$
 $T = 48.11'$
 $R = 165.00'$
(MATCH EXIST)

PI Sta 18+80.67
 $\Delta = 60' 11'' 11.0''$ (LT)
 $D = 37' 41'' 40.5''$
 $L = 159.67'$
 $T = 88.09'$
 $R = 152.00'$
(MATCH EXIST)

PI Sta 12+88.19
 $\Delta = 86' 29'' 04.5''$ (RT)
 $D = 26' 46'' 25.4''$
 $L = 323.02'$
 $T = 201.26'$
 $R = 214.00'$
 $SE = 0.08$
(MATCH EXIST)

PI Sta 14+72.65
 $\Delta = 23' 36'' 29.8''$ (RT)
 $D = 19' 05'' 54.9''$
 $L = 123.61'$
 $T = 62.70'$
 $R = 300.00'$
(MATCH EXIST)

PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
(MATCH EXIST)

PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
(MATCH EXIST)

PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
(MATCH EXIST)

PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
(MATCH EXIST)

PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
(MATCH EXIST)

PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
(MATCH EXIST)

PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
(MATCH EXIST)

PI Sta 12+88.19
 $\Delta = 86' 29'' 04.5''$ (RT)
 $D = 26' 46'' 25.4''$
 $L = 323.02'$
 $T = 201.26'$
 $R = 214.00'$
 $SE = 0.08$
(MATCH EXIST)

PI Sta 14+72.65
 $\Delta = 23' 36'' 29.8''$ (RT)
 $D = 19' 05'' 54.9''$
 $L = 123.61'$
 $T = 62.70'$
 $R = 300.00'$
(MATCH EXIST)

PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
(MATCH EXIST)

PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
(MATCH EXIST)

PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
(MATCH EXIST)

PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
(MATCH EXIST)

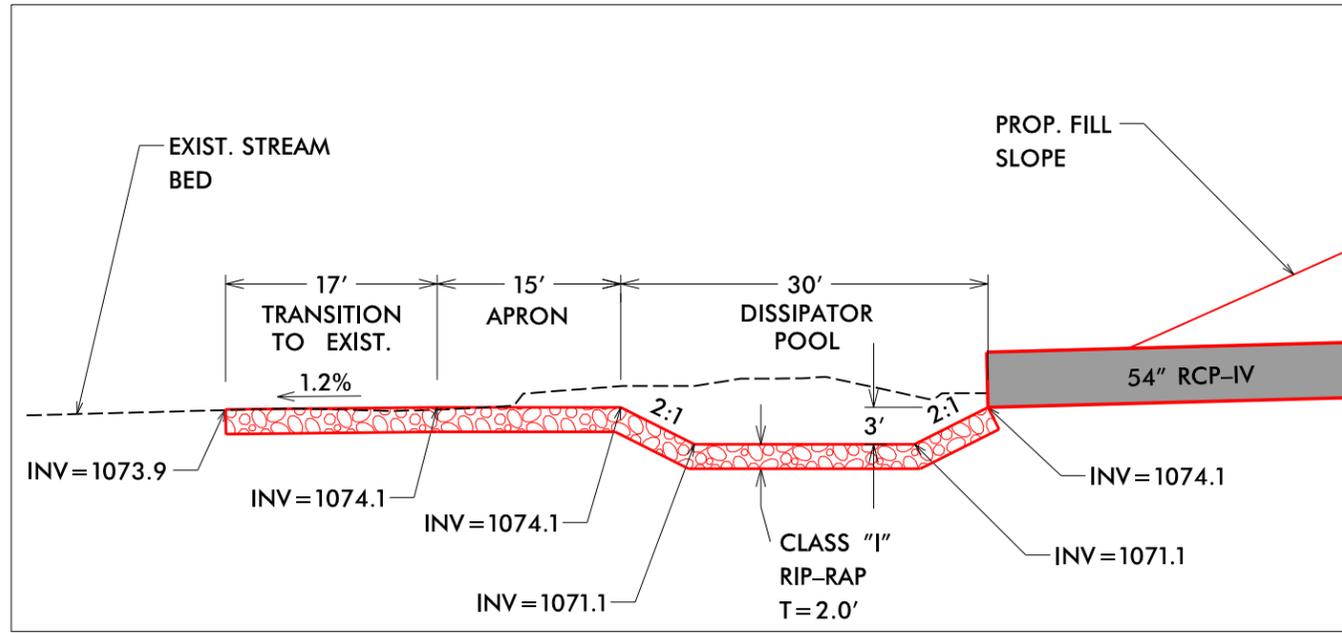
PI Sta 15+68.37
 $\Delta = 4' 49'' 52.7''$ (RT)
 $D = 6' 56'' 41.8''$
 $L = 69.57'$
 $T = 34.80'$
 $R = 825.00'$
(MATCH EXIST)

ENERGY DISSIPATOR BASIN #1 -RAMPD- 12+92 RT - SITES 5 & 6

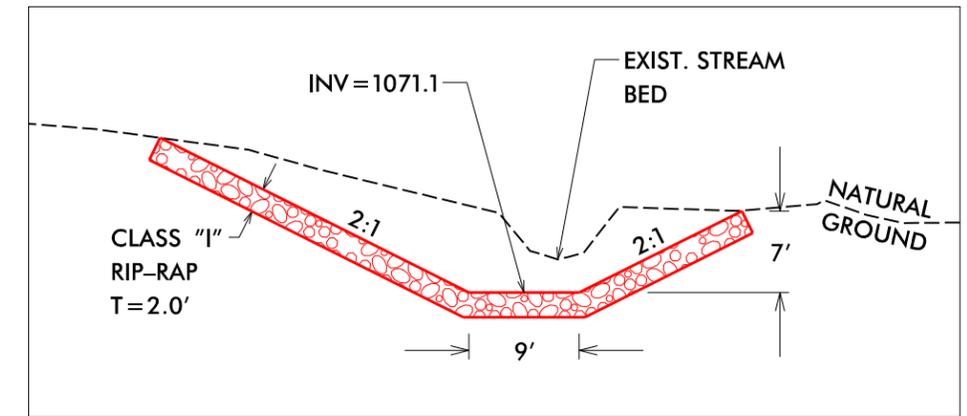
(NOT TO SCALE)

PERMIT DRAWING
SHEET 7 OF 9

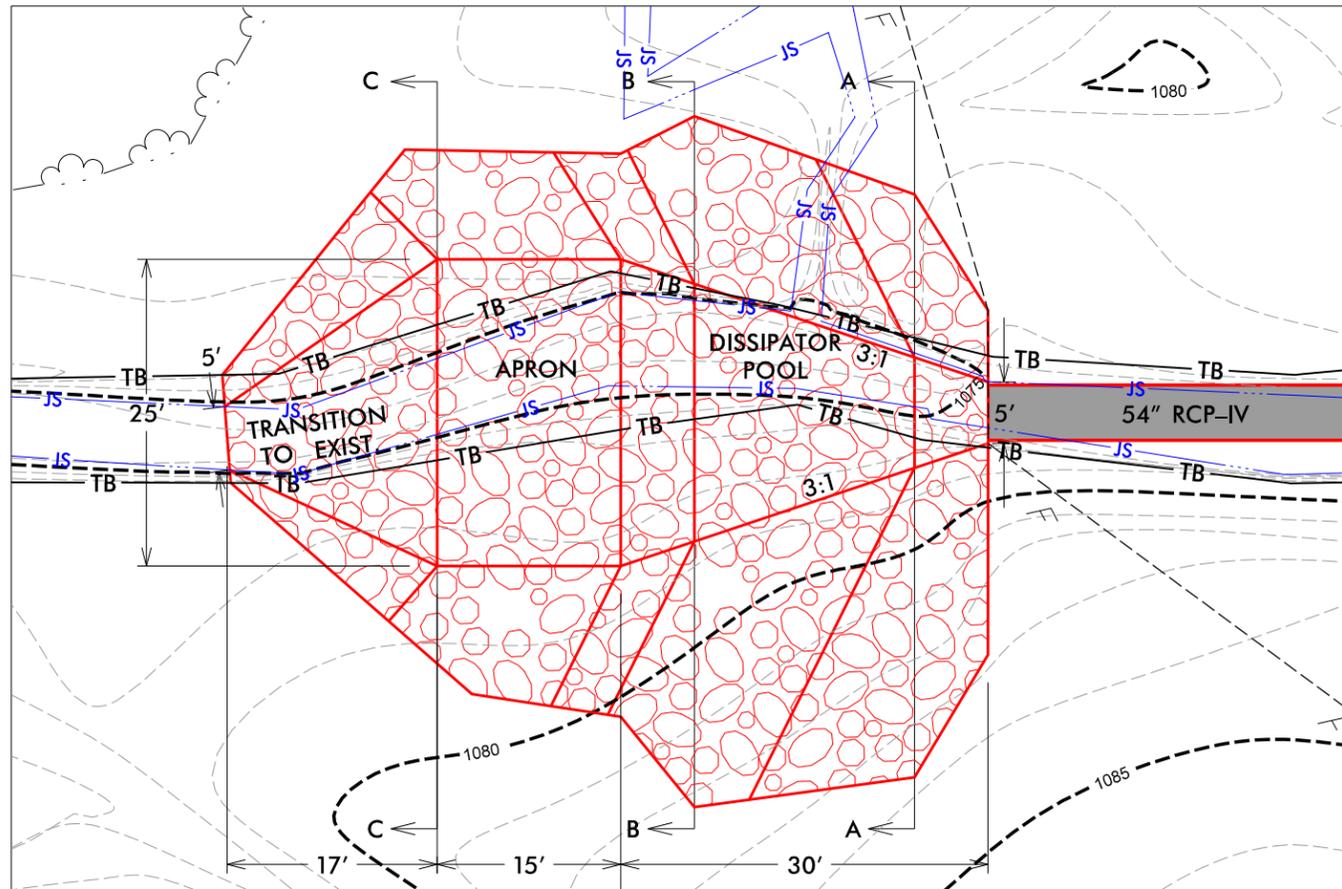
PROJECT REFERENCE NO. B-5833	SHEET NO. 2D-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 706 HILLSBOROUGH ST., SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: G-0275	



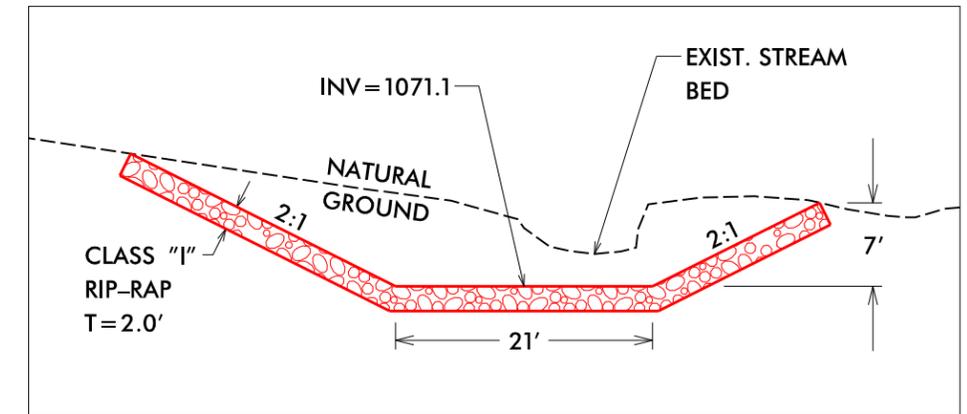
PROFILE VIEW



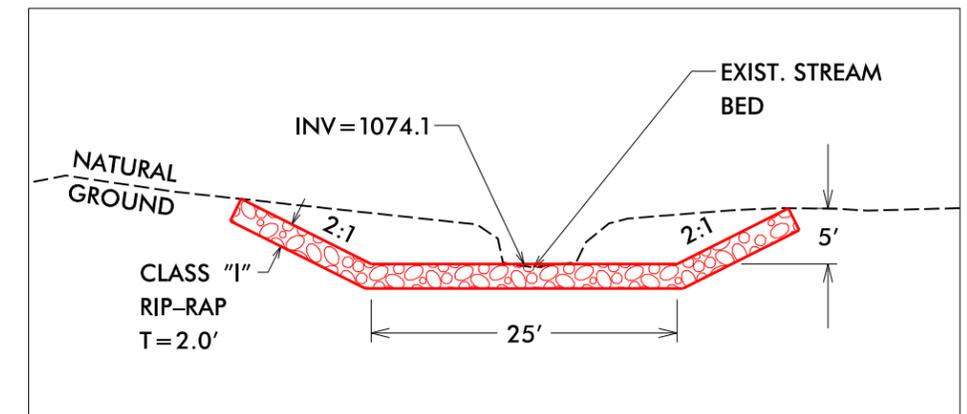
SECTION A-A



PLAN VIEW



SECTION B-B



SECTION C-C

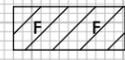
8/17/99

9/28/2021
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jsr:bjn

5/14/99
9/17/2021
X:\PROJECTS\B-5833\Hydro\Drawings\Environmental\Drawings\XSC\RAMPD.XSC.12+75.dgn
User: jhane

**PERMIT DRAWING
SHEET 8 OF 9**

PROJECT REFERENCE NO. <i>B-5833</i>	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

 DENOTES FILL IN WETLAND

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

