STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

September 27, 2023

MEMORANDUM TO: Division Environmental and Construction Units

FROM: Michael A. Turchy, ECAP Group Leader
Environmental Analysis Unit

SUBJECT: Environmental Permits for the Replacement of Bridge 207 on SR 1106 over Grassy Creek in Mitchell County, Division 13, **TIP: B-6013.**

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	Nationwide Permit 14	March 14, 2026
NC Division of Water Resources Section 401 Water Quality Certification	Individual Certification No. 006106	March 14, 2026

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/

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

Telephone: (919) 707-6000
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

PROJECT COMMITMENTS

T.I.P Project No. B-6013
Replacement of Bridge No. 207 on SR 1106
over Grassy Creek
Mitchell County
WBS Element 48208.1.1

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

The project is not likely to affect any properties or archaeological sites listed or eligible for listing on the National Register of Historic Places. NCDOT will complete Section 106 Tribal consultation following completion of the design.

Tribal coordination was completed in 2023.

All activities will follow NCDOT best management practices for erosion control.

COMMITMENTS FROM PERMITTING

NCDOT Division 13 Construction

404 Special Condition #3: NCDOT shall adhere to the following ESA/Section 7 commitments/ conservation measures, as detailed in the September 7, 2023, letter from the U.S. Fish and Wildlife Service:

a. Tree clearing will take place from October 16 to March 15.
b. Night work will not take place.
c. No additional permanent lighting will be added to the roadway.
d. No blasting will occur.

404 Special Condition #4: All conditions of the NC Wildlife Resources Commission letter dated August 4, 2023, are hereby incorporated as special conditions of this permit including a January 1 to April 15 trout moratorium for stream and buffer disturbance, and Design Standards in Sensitive Watersheds.

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action ID.: **SAW-2023-01472 B-6013** County: **Mitchell**

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. 207 on SR 1106 over Grassy Creek in Mitchell County, North Carolina.**

Description of project area and activity: **In order to replace the bridge, 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 (Wetland WB, WA, and WC)	**NWP 14**				**0.002 ac (WB - fill)** **0.007 ac (WB - mech land clearing)** **0.001 ac (WA – mech land clearing)** **0.002 ac (WC- fill)** **0.002 ac (WC – mech land clearing)**		
Site 1 (Stream SA)	**NWP 14**					**10' (dewater)**	
Sites 2-4 (Grassy Creek)	**NWP 14**					**133' (dewater)**	**16' (stabilization)** **66' (culvert)**
Impact Totals		**0**	**0**	**0**	**0.014 ac**	**143'**	**82'**
Total Loss of waters of the U.S. (wetlands and/or open waters in ac)			**0.014 ac**	Total Loss of waters of the U.S. (streams in lf)			**66'**
Required Wetland Mitigation (ac)			**0.028 ac**	Required Stream Mitigation (lf)			**132'**

Applicable Law: ☒ Section 404 (Clean Water Act, 33 USC 1344)
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)
Authorization: Regional General Permit Number:
Nationwide Permit Number: **NWP 14**

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 Wetland and Surface Water Impacts Permit Drawing(s) (Permit Plans) in the application dated July 18, 2023. 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 Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit authorization.

3. NCDOT shall adhere to the following ESA/Section 7 commitments/conservation measures, as detailed in the September 7, 2023, letter from the U.S. Fish and Wildlife Service:

a. Tree clearing will take place from October 16 to March 15.
b. Night work will not take place.
c. No additional permanent lighting will be added to the roadway.
d. No blasting will occur.

4. All conditions of the NC Wildlife Resources Commission letter dated August 4, 2023, are hereby incorporated as special conditions of this permit.

5. NCDOT 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 828-230-0483.

USACE Regulatory Official: Scott Jones M. Scott Jones 2023.09.21 16:14:58 -04'00'

Date: **September 21, 2023** Expiration Date of Verification: **March 14, 2026**

Copy furnished:

NCDOT, Ms. Erin Cheely

Action ID Number: SAW-2023-01472 B-6013

County: Mitchell

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

Project Name: NCDOT / B-6013 / Bridge 207 / Mitchell Co. / Div 13

Nationwide Permit: NWP 14

Date Verification Issued: September 21, 2023

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 **Action ID: SAW-2023-01472**
Project Name: TIP B-6013, Bridge 600207 on SR 1106 over Grassy Creek **County: Mitchell**

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:** 06010108, French Broad River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
		66		0.14		

*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:** 06010108, French Broad River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
		132		0.28		

Mitigation Site Debited: NCDMS
(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: _____

Name of Sponsor's Authorized Representative: _____

_____ _____
Signature of Sponsor's Authorized Representative **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: 2023.09.21 17:13:36 -04'00'

Wilmington District Project Manager Signature

September 21, 2023
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.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street Suite B
Asheville, North Carolina 28801

September 7, 2023

Erin Cheely
ECAP Western Team Lead, Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699

Subject: Informal Consultation and Conference for Replacement of Bridge 207 on Dale Road (SR 1106) over Grassy Creek in Mitchell County (WBS 48208.1.1, TIP No. B-6013, Service Log #23-163)

Dear Erin Cheely:

On July 12, 2023, we received your request to initiate informal consultation and section 7 concurrence on effects the subject project may have on federally listed species and conference procedures for effects the subject project may have on federally proposed species. We have reviewed the information you submitted and the following is provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C.§ 4321 et seq.); the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661 - 667e); and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 - 1543) (Act).

Project Description

According to the information provided, the North Carolina Department of Transportation (NCDOT) proposes to replace Bridge 207 over Grassy Creek on SR 1106 in Mitchell County. The existing bridge is an 18-foot-long single span structure with timber beams, deck, end walls and guard rails. Approximately 0.2 acres of tree clearing will take place. Percussive activities will include guardrail installation and possible rock hammering.

NCDOT has agreed to implement the following conservation measures for the project:

1. Tree clearing will take place from October 16 to March 15.
4. Night work will not take place.
6. No additional permanent lighting will be added to the roadway.
7. No blasting will occur.

Federally Listed Species

The information provided states that suitable habitat for rock gnome lichen (*Gymnoderma lineare*) and Virginia spiraea (*Spiraea virginiana*) is absent from the action area. As such, section 7 consultation is not required for these species.

Suitable commuting and foraging habitat for gray bat (*Myotis grisescens*), northern long-eared bat (*Myotis septentrionalis*), and tricolored bat (*Perimyotis subflavus*) occur within the action area. Bridge 207 was surveyed for bats and signs of bat use on May 16, 2019, and results were negative. Surveyors noted presence of creosote and lack of suitable roosting crevices. There is element occurrence data for gray bat (approximately 5 miles away), for northern long-eared bat (approximately 9 miles away, pre-white-nose syndrome), and for tricolored bat (approximately 4.5 miles away) from the project area.

The completed structure survey and proposed conservation measures minimize effects to bats potentially occurring within the action area. However, effects from construction noise to unknown tree roosts within the action area but outside the construction limits, while minimized, are not avoided. Bats that are present in proximity to transportation corridors are expected to be tolerant of baseline noise and vibration levels (or have already modified their behaviors to avoid them). How temporary increases in noise and vibration from construction activities effect bats within existing transportation corridors has not been well studied to our knowledge, though one study found that bats habituated rapidly to traffic noise (Luo et al. 2014). Given the information available and conservation measures above, we do not believe any response to project noise and vibration by bats that are already tree-roosting in the area is expected to rise to the level of harm (as defined at 50 CFR 17.3).

Based on the information provided, the analysis above, and the commitment to implement the listed conservation measures, we concur with the NCDOT's determination that the project may affect but is not likely to adversely affect (NLAA) the gray bat or northern long-eared bat. With the implementation of conservation measures, we believe the project is consistent with the *Interim Consultation Framework for the Northern Long-eared Bat* (Service, March 6, 2023).

On September 14, 2022, the U.S. Fish and Wildlife Service (Service) published a proposal in the Federal Register to list the tricolored bat as endangered under the Act. As a result, NCDOT has requested a conference for the tricolored bat as the project may be on-going after the effective date of any final listing rule, if one is published. Based on the information provided, the analysis above, and the commitments to minimize project impacts, we have determined that the proposed project will not jeopardize the continued existence of the tricolored bat. Additionally, we would concur with the NCDOT's determination that the project is NLAA the tricolored bat should it become listed.

A survey for Appalachian elktoe (*Alasmidonta raveneliana*) was conducted on May 19, 2021 and results were negative. No freshwater mussels of any species were identified, but species of snails, fish, and crayfish were observed. The survey results indicate that the action area within Grassy Creek has some physical habitat conditions and biological indicators that are associated with freshwater mussels, such as a sufficient flow regime, substrate size class diversity (i.e. silt, sand, gravel, and cobble), and the presence of snails. Impacts from adjacent land use (i.e. agriculture, disturbed narrow stream buffer) and a relatively steep stream gradient may be limiting factors for freshwater mussel occupation within the survey reach of Grassy Creek. Occurrence data for Appalachian elktoe exists in the North Toe River greater than 10 river miles downstream from the project location. Given the negative survey results and the factors influencing suitability for freshwater mussels, we concur with the NCDOT's NLAA determination for Appalachian elktoe.

The southern population of the bog turtle (*Glyptemys muhlenbergii*) was petitioned for listing in January 2022, resulting in an at-risk species designation. The species was found warranted for listing on October 19, 2022 and is now undergoing a 12-month status review. While not subject to section 7 consultation, we would appreciate the project proponent's consideration of bog turtle during project design and construction. If bog turtle or its suitable habitat is identified within the proposed action area or proposed activities will impact hydrology of suitable habitat (that is, changing drainage patterns to/from wetlands), we recommend coordinating the project with the Service and the North Carolina Wildlife Resources Commission (NCWRC).

Conservation Recommendations

Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. General recommendations for the benefit of fish and wildlife resources are also provided:

- **Provide Terrestrial Wildlife Passage**: Where riparian corridors suitable for wildlife movement occur adjacent to a project, a spanning structure that also spans a portion of the floodplain and provides or maintains a riprap-free level path underneath for wildlife passage would provide a safer roadway and facilitate wildlife passage. A 10-foot strip may be ideal, though smaller widths can also be beneficial. Alternatively, a "wildlife path" can be constructed with a top-dressing of finer stone (such as smaller aggregate or on-site alluvial material) to fill riprap voids if full bank plating is required. If a multi-barrel culvert is used, the low flow barrel(s) should accommodate the entire stream width and the other barrel should have sills to the floodplain level and be back-filled to provide dry, riprap-free wildlife passage and well as periodic floodwater passage.
- **Riparian Replanting**: Because the removal of forested riparian habitat can affect the quality and suitability of foraging and commuting habitat for bats, we recommend replanting the riparian zone with native, fast-growing trees and shrubs that would serve to block light pollution and improve the quality of the habitat not only for bats but for aquatic species. Examples of potential native tree species to plant include: Sycamore, tulip poplar, black cherry and river birch. Planting with established (e.g. containerized) young trees can increase the survival rate of plantings and contribute to faster improvement of riparian habitat.
- **Water Quality**: On behalf of aquatic ecosystem health, incorporate construction sediment and erosion control measures consistent with *Design Standards in Sensitive Watersheds [15A NCAC 04B.0124 (b) – (e)]*.
- **Noise Considerations**: If suitable roost trees are present near high-decibel activity (81 – 162 dBA) and would experience noise above background levels (41 – 70 dBA), avoid conducting those high-decibel activities during the bat maternity season (May 15 – August 15). Alternatively, activity could avoid the pup season (June 1 - July 31).

Reinitiation Notice

We believe the requirements under section 7 of the Act are fulfilled for the federally listed species discussed above. However, obligations under section 7 must be reconsidered if: (1) new information reveals impacts of this proposed action may affect listed species or critical habitat in a manner not previously considered, (2) this proposed action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed, or critical habitat is determined that may be affected by the proposed action.

We appreciate the opportunity to provide these comments. Please contact Ms. Holland Youngman of our staff at holland_youngman@fws.gov if you have any questions. In any future correspondence concerning this project, please reference our Service Log #23-163.

Sincerely,

- - original signed - -

Janet Mizzi
Field Supervisor

North Carolina Wildlife Resources Commission

Cameron Ingram, Executive Director

August 4, 2023

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

Kevin Mitchell
NCDEQ, DWR
2090 U.S. Hwy. 70
Swannanoa, N.C. 28778

SUBJECT: Comments on GP/WQC Application for Replacement of Bridge 207 on SR 1106 over Grassy Creek, Mitchell County (**B-6013**)
DWR 20230842 ver.1

Dear Ms. Beckwith and Mr. Mitchell,

The North Carolina Department of Transportation (NCDOT) applied for a General 404 Permit and 401 Certification for the subject project. I am familiar with the wildlife resources in the area and visited the project site on August 1, 2023. Comments on the application from the North Carolina Wildlife Resources Commission (NCWRC) are offered to help conserve the 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-1through 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 existing timber bridge on SR 1106 over Grassy Creek (C Tr) is being replaced with a 66’ reinforced concrete box culvert on a 3.3% grade.

There are records for Rainbow Trout (*Onchorynchus mykiss*) in Grassy Creek (C Tr) near the bridge. This should be a naturally reproducing population. To protect Rainbow Trout spawning, the NCWRC

requests adherence to the abbreviated January 1 to April 15 moratorium for stream and buffer disturbance. Grassy Creek also harbors Eastern Hellbender (*Cryptobranchus alleganiensis*, NC Special Concern) though they are likely found far downstream of the bridge.

The NCWRC recommends avoiding bridge to culvert conversions, particularly in trout streams, though we recognize that in this situation the road grade posed an obstacle for new bridge design. Culverts like that proposed can fail to fully retain bedload after construction, possibly due to steep slopes and/or low width to depth ratio of the enclosed box(es). Another common factor can be the harvesting and use of poor-quality native backfill that is obtained and stored on-site. Poor material can quickly scour leaving little or no bedload between baffles and shallow stream flow over baffles and sills, particularly those that fully span the box. For these reasons, the NCDOT should evaluate the suitability of native material that is harvested on site and consider using an underlayment of rip rap, or pre-mixed rip rap and native material, if permitted. There is cobble in the stream at the bridge but quite a bit of sand as well.

The NCWRC requests that the following conditions be included in authorizations to help conserve trout and other aquatic resources affected by the project:

1. The January 1 to April 15 trout moratorium should be followed since construction has a reasonable potential to cause inadvertent sedimentation in trout spawning habitat downstream of the bridge.
2. Applicable measures from the current *NCDOT Erosion and Sediment Control Design and Construction Manual* should be adhered to. Design Standards for Sensitive Waters (15A NCAC 04B .0124) are recommended where practical in the project's erosion control because a watershed with sensitive species will be affected and because bridge to culvert replacements can pose dewatering and erosion control challenges.
3. In accordance with standard GC conditions, matting used in riparian areas should not contain nylon mesh because it entangles and kills wildlife. Coir matting should be used on disturbed stream banks that are steep or susceptible to high water. Matting should be anchored with wooden stakes according to NCDOT specifications.
4. Heavy equipment needs to be well-maintained and concrete pouring needs to be closely monitored to avoid and quickly mitigate fuel, fluid, or wet concrete losses in or near streams.
5. Removal of vegetation in riparian areas and wetlands should be minimized.
6. Sandbags, rock berms, cofferdams, or other adequately designed diversion structures should be used where excavation or other periods of extended stream disturbance has the potential for downstream sedimentation.
7. The natural dimension, pattern, and profiles of streams and the grades of wetlands should be restored where temporarily impacted.

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 Environmental Coordination and Permitting Group

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
RICHARD E. ROGERS, JR.
Director

NORTH CAROLINA
Environmental Quality

August 24, 2023

Mr. Michael Turchy
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, NC 27699-1598

Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for the proposed replacement of Bridge 207 on SR 1106 in Mitchell County, TIP No. B-6013.
NCDWR Project No. 20230842

Dear Mr. Turchy:

Attached hereto is a copy of Certification No. 006106 issued to the North Carolina Department of Transportation (NCDOT) dated August 24, 2023.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

DocuSigned by:

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

Electronic copy only distribution:
Lori Beckwith, US Army Corps of Engineers Asheville Regulatory Field Office
Erin Cheely, NC Department of Transportation
Amanetta Somerville, Environmental Protection Agency
Dave McHenry, NC Wildlife Resources Commission
Holland Youngman, US Fish and Wildlife Service

File Copy

401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to impact 225 linear feet of jurisdictional streams and 0.01acre of wetlands in Mitchell County. The project shall be constructed pursuant to the application dated received July 18, 2023. The authorized impacts are as described below:

Stream Impacts in the French Broad River Basin

Site	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
S1		10			10	0
S2			16		16	0
S3			66		66	0
S4				133	133	0
TOTAL	**0**	**10**	**82**	**133**	**225**	**0**

Total Stream Impact for Project: 82 linear feet of permanent and 143 linear feet of temporary.

Wetland Impacts in the French Broad River Basin

Site	Permanent Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)
W1	<0.01	-	<0.01	-	<0.01	-
W2		-	<0.01	-	<0.01	-
W3	<0.01	-	<0.01	-	<0.01	-
TOTAL	<0.01	**-**	**0.01**	**-**	**0.01**	**-**

Total Wetland Impact for Project: 0.01 acre of impact.

The application provides adequate assurance that the discharge of fill material into the waters of the French Broad River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application dated received July 18, 2023. Should your project change, you are required to 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 any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed 0.1 acre or 300 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (c) (2) and (4).

For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge, and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Conditions of Certification:

Project Specific Conditions

1. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the potential issues with stream and pipe alignment at the permitted site. NCDWR staff shall be invited to the pre-construction meeting. [15A NCAC 02H.0506(b)(2) and (b)(3)]

2. Grassy Creek are class C; Trout; 303(d) waters of the State. Grassy Creek is on the 303(d) list for impaired use for aquatic life. The NCDWR is very concerned with sediment and erosion impacts that could result from this project. The NCDWR recommends that the most protective sediment and erosion control BMPs be implemented. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to biological criteria exceedances shall not discharge stormwater directly to surface waters. Stormwater shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters. [15A NCAC 02H .0506(b)(2)]

3. The permittee will need to adhere to all appropriate in-water work moratoria (including the use of pile driving or vibration techniques) prescribed by the NC Wildlife Resources Commission. No in-water work is permitted between January 1 and April 15 of any year, without prior approval from the NC Division of Water Resources and the NC Wildlife Resources Commission.

   In-stream work and land disturbance within the 25-foot buffer zone are prohibited during the trout-spawning season of January 1 through April 15 to protect the egg and fry stages of trout. [15A NCAC 02H .0506(b)(2)]

4. The permittee shall use Design Standards in Sensitive Watersheds in areas draining to Trout waters. [15A NCAC 4B.0124 (a)(e)]

5. 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 .0506(b)(2)]

General Conditions

1. Unless otherwise approved in this certification, 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 NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)]

2. 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]

3. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S. or protected riparian buffers. [15A NCAC 02H.0506(b)(2)]

4. The dimension, pattern, and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions. [15A NCAC 02H.0506(b)(2)]

5. 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)]

6. 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)]

7. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water. [15A NCAC 02H.0506(b)(3) and (c)(3)]

8. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream. [15A NCAC 02H.0506(b)(3)]

9. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials. [15A NCAC 02H.0506(b)(3)]

10. 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)]

11. Discharging hydroseed mixtures and washing out hydro seeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]

12. 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]

13. 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)]

14. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the on-site project manager. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]

15. 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]

16. 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.

17. 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)]

18. Upon completion of the project (including any impacts at associated borrow or waste sites), the Permittee 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)]

19. 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 02B.0506(b)(2)]

20. 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)]

21. 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 in order 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.

22. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification. [15A NCAC 02H.0506(b)(3) and (c)(3)]

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

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 the 24th day of August 2023

DIVISION OF WATER RESOURCES

DocuSigned by:
4F4DD2F21EA846E...

Richard E. Rogers, Jr., Director

WQC No. 006106

North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

WBS Element: 48209.3.1 **TIP/Proj No:** B-6013 **County(ies):** Mitchell

General Project Information

WBS Element:	48209.3.1	**TIP Number:**	B-6013	**Project Type:**	Bridge Replacement	**Date:**	2/9/2023
NCDOT Contact:	Roger Bryan (Divison Enviromental Officer)			**Contractor / Designer:**	TGS Engineers (David B. Petty, PE)		
Address:	NCDOT Highway Division 13 55 Orange Street Asheville, NC 28801			**Address:**	706 Hillsborough Street Suite 200 Raleigh NC, 27603		
Phone:	828-250-3005			**Phone:**	919-773-8887 ext. 104		
Email:	rdbryan@ncdot.gov			**Email:**	dpetty@tgsengineers.com		
City/Town:	Spruce Pine			**County(ies):**	Mitchell		
River Basin(s):	French Broad			**CAMA County?**	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	0.072 miles	**Surrounding Land Use:**	wooded, farmland, low density residential				
	Proposed Project			**Existing Site**			
Project Built-Upon Area (ac.)	0.2	ac.		0.1	ac.		
Typical Cross Section Description:	Two 10' paved travel lanes with 2' paved shoulders (4'-0" paved shoulder to guardrail).			Two 9' paved travel lanes with 3-4' grassed shoulders.			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:		Year: 2045	Existing:	1600	Year:	2023

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

NCDOT Project B-6013 involves the replacement of Structure 600207 over Grassy Creek on SR 1106 (Dale Road) in Mitchell County, NC south of Spruce Pine. The subject crossing involves the replacement of an existing 18’ long by 21’ wide (timber floor on timber joists) single-span bridge to be replaced by 1 @ 12’ (span) X 8’ (rise) Reinforced Concrete Box Culvert (RCBC), buried 1’ with sills and backfilled with native material. The proposed grade will be about 2' above existing ground within the vicinity of the culvert and roughly matching existing ground approximately 210 ft south of the culvert and 170 ft north of the culvert.

The existing bridge discharging directly into the water for the full length of the bridge. Grassed shoulders are to be widened from existing and will be substantially flat allowing for diffusion and infiltration of the roadway runoff. All proposed stormwater runoff is discharged as far away from the stream and at the lowest velocities as practicable.

There are two isolated wetlands and a tributary to Grassy Creek (tributary is only on upstream end of pipe) located south of the bridge that will have minor impacts due to replacement of a failing 24” Corrugated Metal Pipe (CMP) with a 24” Reinforced Concrete Pipe (RCP). There is an additional isolated wetland south of the bridge that will be impacted by proposed roadway fill. All impacts on the project have been minimized to the maximum extent practical.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

General Project Information

Waterbody Information

Surface Water Body (1):	Grassy Creek		**NCDWR Stream Index No.:**	7-2-40		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	Trout Waters (Tr)			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	Yes	Comments:	Bog turtle & Appalachian elktoe (Biological Conclusion: Not Required & MANLAA, respectively) per DRAFT NRTR			
NRTR Stream ID:	Grassy Creek			**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?**	No	
Deck Drains Discharge Over Water Body?	No	(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):			**NCDWR Stream Index No.:**			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**				
		Supplemental Classification:				
Other Stream Classification:						
Impairments:						
Aquatic T&E Species?		Comments:				
NRTR Stream ID:				**Buffer Rules in Effect:**		
Project Includes Bridge Spanning Water Body?		**Deck Drains Discharge Over Buffer?**		**Dissipator Pads Provided in Buffer?**		
Deck Drains Discharge Over Water Body?		(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):			**NCDWR Stream Index No.:**			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**				
		Supplemental Classification:				
Other Stream Classification:						
Impairments:						
Aquatic T&E Species?		Comments:				
NRTR Stream ID:				**Buffer Rules in Effect:**		
Project Includes Bridge Spanning Water Body?		**Deck Drains Discharge Over Buffer?**		**Dissipator Pads Provided in Buffer?**		
Deck Drains Discharge Over Water Body?		(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)						

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

WBS Element:	48209.3.1	TIP/Proj No.:	B-6013	County(ies):	Mitchell	Page	3	of	3

Bridge to Culvert Avoidance and Minimization

Proposed Structure Summary

Sheet No. & Station	**Sheet No.:** 4	**Station:**	-L- 14+72	**Number of Barrels:**	1
Drainage Area (ac or sq mi):	1.0 sq. mi.			**Barrel Width/Diameter (ft):**	12' 0"
Surface Water Body:	(1)Grassy Creek			**Barrel Height (ft):**	8' 0"
Culvert Type:	Reinforced concrete box culvert			**Culvert Length (ft)**	66' +/-
Avoidance and Minimization Efforts: (Bridge to Culvert)	the culvert is proposed to be buried 1' and backfilled with native materials to facilitate aquatic organism passage. Sills are proposed to contain the native material. The proposed longitudinal slope of the culvert matches the slope of the existing stream. The proposed velocity through the culvert matches existing low flow velocities.				

Stream Slope

Existing Average Stream Slope (%):	3.30	%
Proposed Culvert Slope (%):	3.30	%

Culvert Burial

Proposed Culvert Burial Depth (ft):	1
Existing Streambed Material:	Sand, gravel and cobbles
Proposed Sills/Baffles:	Sills are proposed at the inlet and outlet with 3 baffles spaced evenly every 13' along the culvert.

Fish and/or Aquatic Life Passage

Existing Low Flow Channel Dimensions in the Stream:	12 ft. wide by 0.5' deep
Proposed Low Flow Dimensions Through the Culvert:	12 ft. wide by 0.5' deep
Existing Low Flow Velocities in the Stream (ft/s):	4.7
Proposed Low Flow Velocities Through the Culvert (ft/s):	4.8
Alternating Low Flow Sills/Baffles:	Sills are proposed to maintain the native material backfill.

Culvert/Stream Alignment

Stream Patterns Upstream and Downstream of the Culvert that Could Affect Fish Passage and Bank Stability:	There are no characteristics up and downstream of the culvert that should affect fish passage. Bank stabilization is proposed.	
Bed Forms Impacted by Culvert (riffles, pools, glides, etc.):	Culvert is a riffle section of stream.	
Low Flow Floodplain Bench Required? (provide justification)	Yes	
Bends at Inlet/Outlet? (describe culvert alignment with stream)	No	fairly straight
Stream Realignment Necessary? (provide justification)	No	
Bank Stabilization:	Class II Riprap is called for up and downstream.	

Outlet Velocities

Natural Stream Channel 2-yr Velocity (ft/s):	6.1	**Natural Stream Channel 10-yr Velocity (ft/s):**	7.7
Proposed Culvert 2-yr Outlet Velocity (ft/s):	6.7	**Proposed Culvert 10-yr Outlet Velocity (ft/s):**	9.7

Roadway Geometric Considerations

Evaluate/Describe Roadway Geometric Constraints:

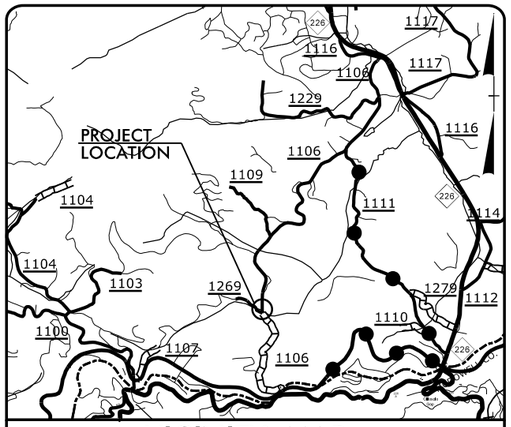
As shown on the roadway profile, this is a very steep roadway grade across this section. This steep grade precluded this structure from being replaced with a bridge. Modern design criteria precluded flattening the grade sufficiently in a practical way to allow for a bridge.

09/08/99

TIP PROJECT: B-6013

CONTRACT: C204406

See Sheet 1A For Index of Sheets



VICINITY MAP

OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MITCHELL COUNTY

LOCATION: BRIDGE #600207 OVER GRASSY CREEK ON SR 1106 (DALE RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

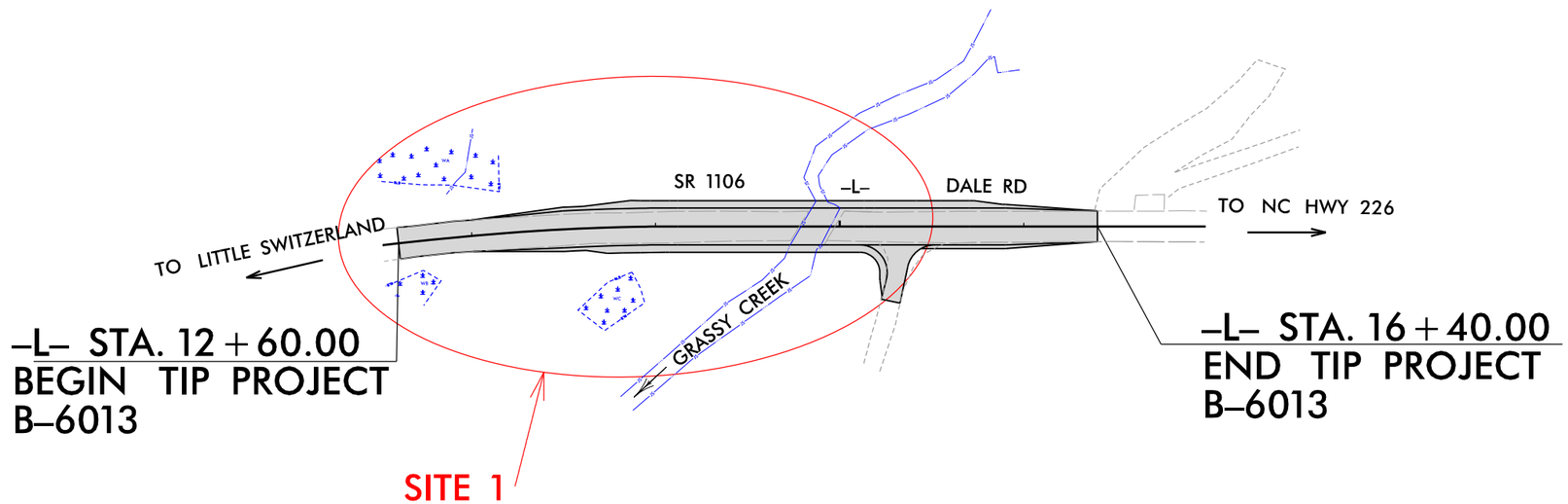
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-6013	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
48209.3.1	BRZ-1781(001)	PE
48209.3.1	BRZ-1781(001)	R/W & UTIL.
48209.3.1	BRZ-1781(001)	CONST.

PERMIT DRAWING
SHEET 1 OF 5

WETLAND AND SURFACE WATER IMPACTS PERMIT

NAD 83/2011



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

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

4 2 0 4 8
PROFILE (VERTICAL)

DESIGN DATA

ADT 2023 = 1600
T = 10% *
V = 35 MPH
* TTST = 3% DUAL = 3%

FUNC CLASS = LOCAL, RURAL

SUB-REGIONAL TIER

PROJECT LENGTH

TOTAL LENGTH TIP PROJECT B-6013 #600207 = 0.072 MILES

NCDOT CONTACT: EILEEN FUCHS

PLANS PREPARED BY:

TGS ENGINEERS
201 W. MARION ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

R.E. BURNS & SONS CO
P. O. BOX 7168
STATESVILLE, NC 28687
PH (704) 924-8646

2018 STANDARD SPECIFICATIONS

PLANS PREPARED FOR:

NCDOT
PRIORITY PROJECTS UNIT
1020 Birch Ridge Dr.
Raleigh, NC 27610

JIMMY TERRY, PE
PROJECT ENGINEER

DAVID HAMRICK, EIT
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

RIGHT OF WAY DATE:
DEC. 21, 2021

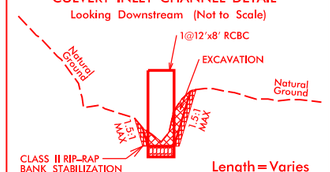
LETTING DATE:
DEC. 21, 2021

2/9/2023
X:\NCDOT\Division 13D - Year 8\600207\Hydraulics\PERMITS_Environmental\Drawings\600207_Rdy_tsh.dgn
User:kgray

8/17/99

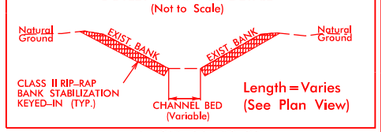
REVISIONS

DETAIL 4A
CULVERT INLET CHANNEL DETAIL
Looking Downstream (Not to Scale)



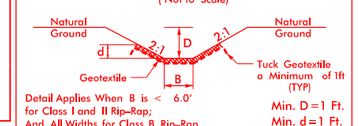
–L– STA. 14+86 LT

DETAIL 4B
OUTLET CHANNEL DETAIL
(Not to Scale)



–L– STA. 14+58 RT

DETAIL 4C
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0' for Class I and II Rip-Rap; And All Widths for Class B Rip-Rap
Min. D = 1 Ft.
Min. d = 1 Ft.
Type of Liner = Class I Rip-Rap, Keyed-In
B = 4 Ft.

FROM –L– STA. 14+56 TO STA. 15+00 RT

NAD 83/2011

TGS ENGINEERS
201 W. MARION ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

MITCHELL COUNTY
BRIDGE #600207

PERMIT DRAWING SHEET 2 OF 5

PROJECT REFERENCE NO.	SHEET NO.
B-6013	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TEMPORARY STREAM IMPACT

MECHANIZED CLEARING

9 INEZ S. COX

PERMANENT STREAM IMPACT

BURY INVERT 1'
1@12'x8' RCBC BURIED 1.0'
SILLS AT 13' O.C.

CLASS II RIPRAP BANK STABILIZATION 23 TONS (SEE DETAIL 4A)

TEMPORARY STREAM IMPACT

GRADE TO DRAIN

REMOVE HW

GRASSY CREEK (S4)

INV=2788.96

ROCK HW

REMOVE 24" RCP-III

SITE 1

SHOP CURVE R=11'

BURY INVERT 1'

FILL IN WETLANDS

CLASS I RIPRAP 7 TONS, 15 SY GEO

11 JASON DARRELL DALE

CLASS II RIPRAP BANK STABILIZATION 41 TONS (SEE DETAIL 4B)

STANDARD BASE DITCH SEE DETAIL 4C EST. DDE=70 CY

PERMANENT STREAM IMPACT

R=15'

PROP. 10' ASPHALT DRIVE

12 LINDA PITTMAN

CUT TO FILL TRANSITION CLASS I RIPRAP 22 TONS, 30 SY GEO

REMOVE 24"

BEGIN PROJECT B-6013
–L– STA 12+60.00

END PROJECT B-6013
–L– STA 16+40.00

SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
FILL IN WETLAND
MECHANIZED CLEARING (GRUBBING)

40' 0' 40'
GRAPHIC SCALE

PIPE HYDRAULIC DATA
24" RCP @ –L– Sta.12+77

DRAINAGE AREA	= 7.6	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 12	CFS
DESIGN HW ELEVATION	= 2791.9	FT
100 YEAR DISCHARGE	= 14	CFS
100 YEAR HW ELEVATION	= 2792.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 16+	CFS
OVERTOPPING ELEVATION	= 2796.1	FT

END GRADE
–L– STA 16+40.00
ELEV. 2820.12'

EXISTING BRIDGE TO BE REMOVED

PI = 14+65.00
EL = 2,800.00'
VC = 240'
K = 26
DS = 25

PROP. GRADE

BEGIN MILLING & RESURFACING
–L– STA 12+60.00

BEGIN GRADE
–L– STA 13+00.00
ELEV. 2796.21'

(+)1.4917%

(+)2.2983%

EXISTING GRADE

1@12'X8' RCBC

(+) 8.0%

END STANDARD BASE DITCH
–L– STA 15+00 RT
EL=2795.5

BEGIN STANDARD BASE DITCH
–L– STA 14+56 RT
EL=2792.0

BACKFILL TO TOP OF SILLS WITH NATIVE MATERIAL (TYP)

C/L –L– INVERT= 2788.9'

NWS=2791'

PROPOSED 24" RCP-III

CULVERT HYDRAULIC DATA
(1@12'X8' RCBC @ –L– STA.14+72)

DESIGN DISCHARGE	= 400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2795.7	FT
BASE DISCHARGE	= 580	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2797.4	FT
OVERTOPPING DISCHARGE	= 440	CFS
OVERTOPPING FREQUENCY	= 25+	YRS
OVERTOPPING ELEVATION	= 2796.1	FT

2,822 2,818 2,814 2,810 2,806 2,802 2,798 2,794 2,790 2,786

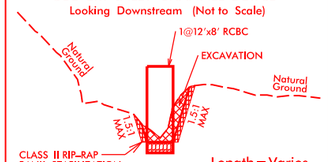
12 13 14 15 16 17

2/9/2023
K:\NCDOT\Division 13D - Year 8\600207\Hydraulics\PERMITS_Environmental\Drawings\600207_Rdy_psh.dgn
User:roy

8/17/99

REVISIONS

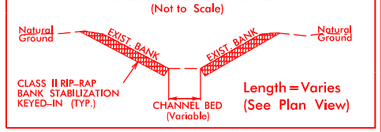
DETAIL 4A
CULVERT INLET CHANNEL DETAIL
Looking Downstream (Not to Scale)



Length = Varies (See Plan View)

–L– STA. 14+86 LT

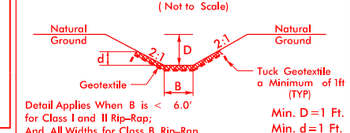
DETAIL 4B
OUTLET CHANNEL DETAIL
(Not to Scale)



Length = Varies (See Plan View)

–L– STA. 14+58 RT

DETAIL 4C
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0' for Class I and II Rip-Rap; And All Widths for Class B Rip-Rap

Min. D = 1 Ft.
Min. d = 1 Ft.
B = 4 Ft.

Type of Liner = Class I Rip-Rap, Keyed-In

FROM –L– STA. 14+56 TO STA. 15+00 RT

NAD 83/2011

TGS ENGINEERS
201 W. MARION ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

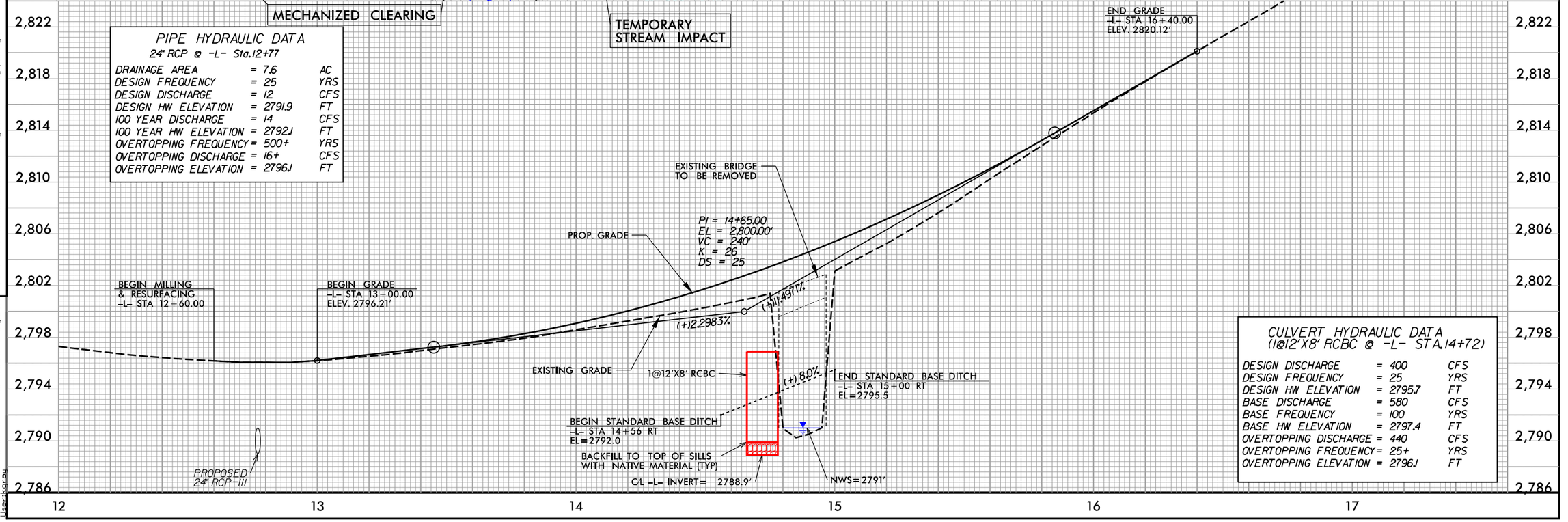
MITCHELL COUNTY
BRIDGE #600207

PERMIT DRAWING SHEET 3 OF 5

PROJECT REFERENCE NO.	SHEET NO.
B-6013	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



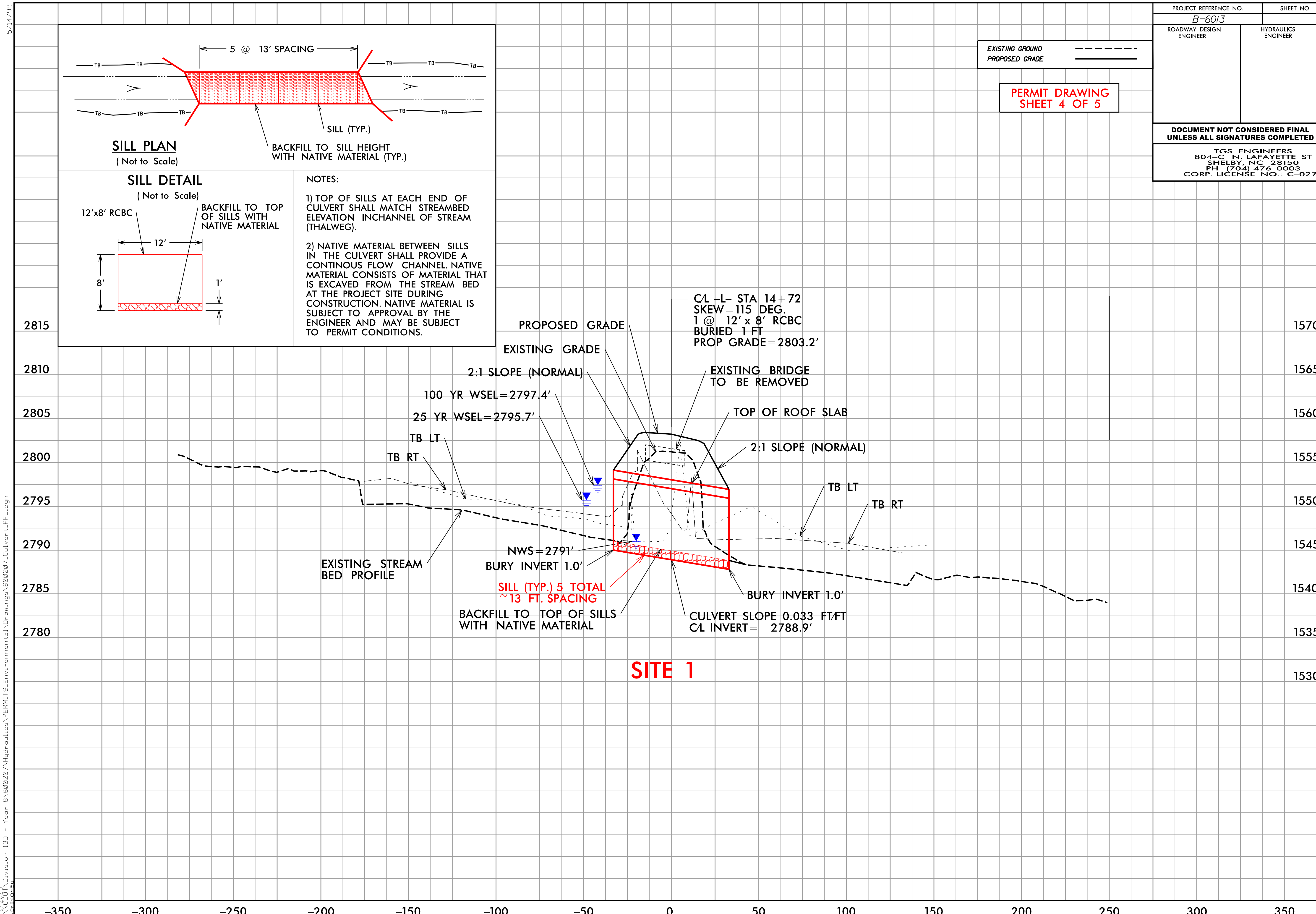
PIPE HYDRAULIC DATA
24" RCP @ –L– Sta.12+77

DRAINAGE AREA	= 7.6	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 12	CFS
DESIGN HW ELEVATION	= 2791.9	FT
100 YEAR DISCHARGE	= 14	CFS
100 YEAR HW ELEVATION	= 2792.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 16+	CFS
OVERTOPPING ELEVATION	= 2796.1	FT

CULVERT HYDRAULIC DATA
(1@12'X8' RCBC @ –L– STA.14+72)

DESIGN DISCHARGE	= 400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2795.7	FT
BASE DISCHARGE	= 580	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2797.4	FT
OVERTOPPING DISCHARGE	= 440	CFS
OVERTOPPING FREQUENCY	= 25+	YRS
OVERTOPPING ELEVATION	= 2796.1	FT

2/9/2023
K:\NCDOT\Division 13D - Year 8\600207\Hydraulics\PERMITS_Environmental\Drawings\600207_Rdy_psh.dgn
User:roy



5/14/99

2/9/2023
X:\NCDOT\Division 13D - Year 8\600207\Hydraulics\PERMITS_Environmental\Drawings\600207_Culvert_PFL.dgn

WETLAND AND SURFACE WATER IMPACTS SUMMARY

				WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Stream/Wetland Name	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 12+51 to 12+81 RT	24" RCP	WB	< 0.01			< 0.01						
1	-L- 12+80 to 12+99 LT	24" RCP	WA & SA				< 0.01			< 0.01		10	
1	-L- 13+67 to 13+92 RT	Roadway Fill / Erosion Control	WC	< 0.01			< 0.01						
1	-L- 14+56 to 14+69 RT	Bank Stabilization	Grassy Creek						< 0.01		16		
1	-L- 14+56 to 15+00 LT & RT	Culvert	Grassy Creek						0.02		66		
1	-L- 14+30 to 15+07 LT & RT	Temporary Dewatering	Grassy Creek							0.04		133	
TOTALS*:				< 0.01			0.01		0.02	0.04	82	143	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
2/9/2023
Mitchell County
B-6013
WBS # 48209.3.1
SHEET 5 OF 5