STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

DANIEL H. JOHNSON
SECRETARY

November 13, 2026

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 10 on SR 1001 over Catawba River/Lake Rhodhiss, Division 13, **TIP: R-3430B.**

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 *Originally issued 11/15/23, Renewed 5/22/26, Modified 10/26/26*	May 25, 2030
NC Division of Water Resources Section 401 Water Quality Certification	Individual Certification No. 008837 *Originally Issued under GC 4135 12/16/22, Renewed 4/3/26, Modified 9/10/26*	May 25, 2030
NC Division of Water Resources Buffer Certification	Catawba Riparian Buffer Certification *Modified and Reissued 9/10/26*	September 10, 2031
Federal Energy Regulatory Commission c/o Duke Energy	Conveyance Authorization	April 30, 2027

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/EnvironmentalPermits/_General_Conditions_and_Certifications/

The Project Commitments "Greensheet" is located on the Preconstruction SharePoint Dashboard at: https://connect.ncdot.gov/site/preconstruction

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

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, WILMINGTON DISTRICT
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

October 26, 2026

Regulatory Division
SAW-2019-01368

North Carolina Department of Transportation
Attn: Mr. Michael A. Turchy
Environmental Coordination and Permitting Group Leader
1598 Mail Service Center
Raleigh, North Carolina 27699-1598
Sent Via Email: ekcheely@ncdot.gov

Dear Mr. Turchy,

This letter is in response to the application you submitted to the U.S. Army Corps of Engineers (USACE), Wilmington District, WRDA/Transportation Branch on August 27, 2026, for reverification and revision of a previously issued Department of the Army general permit verification. This project will replace the Connelly Spring Road bridge **(R-3430B)** over the Catawba River/Lake Rhodhiss in Burke and Caldwell Counties, North Carolina (35.7799, -81.5246) and is assigned file number SAW-2019-01368. Impacts to waters of the U.S. have changed since the original verification was issued on November 15, 2023, and reverified on May 22, 2026. In order to perform this work, NCDOT proposes to conduct the following activities in waters of the U.S.:

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 (Catawba River/Lake Rhodhiss)	**RGP 50**	**0.06 acre / causeway**					
Site 2 (Catawba River/Lake Rhodhiss)	**RGP 50**	**0.23 acre / trestle bridge**					
Impact Totals		**0.29 acre**	**0**	**0**	**0**	**0**	**0**
Total Loss of waters of the U.S. (wetlands and/or open waters)			**0**	Total Loss of waters of the U.S.			**0**

We have reviewed the proposed activities in waters of the U.S. and have determined that these activities are authorized by Regional General Permit (RGP) 50 pursuant to authorities under Section 404 of the Clean Water Act (33 U.S.C § 1344). The proposed work must be accomplished in strict accordance with the following:

- enclosed terms, general conditions, and special conditions of RGP 50
- special conditions of the verification letter (see below)
- information in the PCN and attachments
- enclosed plans

If the extent of the project area and/or nature of the authorized impacts to waters are modified, a request detailing the proposed changes must be submitted to this office for written approval before work is initiated. Any deviation from the terms and conditions of the permit, the special conditions of this letter, the information contained in the PCN, or your submitted plans, may subject the permittee to enforcement action.

This verification is valid until **May 25, 2030**, unless the subject RGP is suspended, revoked, or is modified prior to that date such that the activity no longer complies with the terms and conditions of the RGP.

Project Specific Special Conditions:

1. The U.S. Fish and Wildlife Service issued a Biological Opinion (BO) titled, “Biological Opinion, Replacement of Connelly Springs Road Bridge #110010 Over the Catawba River, Burke and Caldwell Counties, North Carolina, Service Log #21-149, R-3430B; WBS Element #34544.1.2”, dated September 28, 2023, due to effects to the previously listed dwarf-flowered heartleaf (DFHL) (*Hexastylis naniflora*). This BO also contains conservation measures for effects to the gray bat (*Myotis grisescens*) and the proposed Tricolored bat *(Perimyotis subflavus*). Your authorization under this permit is conditional upon your compliance with the conservation measures for the federally listed species that could be affected by this project; these conservation mesures are incorporated by reference in this verification letter. Failure to comply with these conservation measures would constitute non-compliance with the verification letter for this project. The U.S. Fish and Wildlife Service is the appropriate authority to determine compliance with the conservation measures of its BO, and with the ESA.

2. To the maximum extent practicable, NCDOT shall ensure that the existing bridge piers are cut at or close to the mud line. If it is not practicable to cut a specific bridge pier at or close to the mud line, NCDOT shall ensure that the pier is cut at a depth sufficient to ensure that any part(s) of the pier left above the mud line (1) does not present a hazard to waterway users, to include during low water periods, and (2) does not adversely affect water flow, substrate stability, or bank stability (i.e., does not cause erosion, scouring, bank instability, etc.).

3. To the maximum extent practicable, NCDOT shall ensure that the cut bridge piers are removed from the waterbody.

4. NCDOT shall implement all reasonable and practicable measures to ensure that equipment, structures, work, and operations associated with this project do not adversely affect upstream and/or downstream reaches. Adverse effects include, but are not limited to, channel instability, flooding, and/or bank erosion. NCDOT shall routinely monitor for these effects, cease all work when detected, take initial corrective measures to correct actively eroding areas, and notify this office immediately. Permanent corrective measures may require additional authorization by the USACE.

5. NCDOT shall ensure that the Navigational Safety Plan is fully implemented during project demolition and construction.

6. As outlined in the North Carolina Wildlife Resources Commission's (NCWRC) letter dated December 19, 2022, NCDOT shall coordinate with the NCWRC's No Wake Zone Coordinator and the NCWRC's Land and Water Access Division concerning the partial lake closure and buoy deployments. Note that this letter also contains a request for advanced notification of the construction start date (preferably at least two months) so that NCWRC can coordinate non-federally listed mussel relocation if necessary.

7. If a borrow and/or waste area/site will be used for construction of this project: To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent waters and wetlands, except as authorized by this verification letter, NCDOT shall require its contractors and/or agents to identify all areas to be used as borrow and/or waste sites associated with this project. NCDOT shall provide the USACE with appropriate maps indicating the locations of proposed borrow and/or waste sites as soon as such information is available. NCDOT shall submit to the USACE site-specific information needed to ensure that borrow and/or waste sites comply with all applicable Federal requirements, to include compliance with the Endangered Species Act and the National Historic Preservation Act, such as surveys or correspondence with agencies (e.g., the USFWS, the NC HPO, etc.). The required information shall also include the location of all aquatic features, if any, out to a distance of 400 feet beyond the nearest boundary of the site. NCDOT shall not approve any borrow and/or waste sites before receiving written confirmation from the USACE that the proposed site meets all Federal requirements, whether or not waters of the U.S., including wetlands, are located in the proposed borrow and/or waste site. All delineations of aquatic sites on borrow and/or waste sites shall be verified by the USACE and shown on the approved reclamation plans. NCDOT shall ensure that all borrow and/or waste sites comply with the following: Except as authorized by this verification letter or any USACE approved modification to this authorization letter, no excavation, fill, or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands, or shall any activities take place that cause the degradation of waters or wetlands. There shall be no

excavation from, waste disposal into, or degradation of, jurisdictional wetlands or waters associated with this verification letter without appropriate modification of the authorized impacts of this verification letter, including appropriate compensatory mitigation. This prohibition applies to all borrow and waste activities connected with this project. Additionally, NCDOT shall produce and maintain documentation of all borrow and waste sites associated with this project. This documentation will include data regarding soils, vegetation, hydrology, any delineation(s) of aquatic sites, and any jurisdictional determinations made by the USACE. All information will be available to the USACE upon request. NCDOT shall require its contractors to complete and execute reclamation plans for each borrow and/or waste site for this project and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the USACE within 30 days of the completion of the reclamation work.

8. 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.

This general permit verification and any associated authorizations do not preclude the necessity to obtain any other Federal, State, or local permits, licenses, and/or certifications, which may be required.

If you have any questions related to this verification or have issues accessing documents referenced in this letter, please contact Lori Beckwith, Regulatory Project Manager of the WRDA/Transportation Branch at loretta.a.beckwith@usace.army.mil. Please take a moment to complete our customer satisfaction survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Sincerely,

M. Scott Jones, PWS
WRDA / Transportation Branch Chief
USACE, Wilmington District

Enclosures

U.S. Army Corps of Engineers (USACE)

CERTIFICATION OF COMPLIANCE WITH DEPARTMENT OF THE ARMY PERMIT

For use of this form, see Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act of 1899, and Section 103 of the Marine Protection, Research, and Sanctuaries Act; the proponent agency is CECW-COR.

Form Approved - OMB No. 0710-0003 Expires 2027-10-31

The Agency Disclosure Notice (ADN)

The Public reporting burden for this collection of information, 0710-0003, is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PURPOSE: This form is used by recipients of U.S. Army Corps of Engineer Regulatory permits to certify compliance with the permit terms and conditions.

Your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the U.S. Army Corps of Engineers, Wilmington District, Regulatory Office.

The certification can be submitted by email at loretta.a.beckwith@usace.army.mil or by mail at the below address:

U.S. Army Corps of Engineers, Wilmington District
Asheville Field Office
Street Address: 151 Patton Avenue, Room 208
Asheville, North Carolina 28801-5006

Corps Action Number: SAW-2019-01368

Permit Type: General Permit

General Permit Number and Name (*if applicable*): RGP 50

Name of Permittee: NCDOT, Division of Highways

Project Name: NCDOT / R-3430B / SR 1001 / Divisions 13 and 11

Project Location (*physical address*): Connelly Spring Rd Bridge, Catawba River/Lake Rhodhiss, Burke & Caldwell. NC

PERMITTEE'S CERTIFICATION

Date Work Started: _____

Date Work Completed: _____

Enclose photographs showing the completed project (*if available*).

I _____ hereby certify that the work authorized by the above referenced permit has been completed in accordance with all of the permit terms and conditions, and that any required compensatory mitigation has been completed in accordance with the permit conditions.

Name	Date	Signature



North Carolina Wildlife Resources Commission

Cameron Ingram, Executive Director

December 19, 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

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

SUBJECT: Comments on GP/WQC Application for Replacement of Bridge 110010 on SR 1001 over Catawba River, Burke and Caldwell Counties **(R-3403B)**
DWR 20221711 ver.1

Dear Ms. Beckwith, Mr. Wanucha, 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 but did not visit the project site. Comments on the application from the North Carolina Wildlife Resources Commission (NCWRC) are offered to 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-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).

Mailing Address: Habitat Conservation • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • **Fax:** (919) 707-0028

The project will impact Lake Rhodhiss for temporary causeways to construct the new bridge to the west of the existing bridge. The bridge design largely avoids impacts to the popular Castle Bridge boat access area (BAA) that the NCWRC maintains for Duke Energy. The NCWRC appreciates the NCDOT's efforts and ability to avoid disruption to the use of the BAA. The NCWRC also supports the proposed removal of the old bridge piers east of the existing bridge because they are a navigational hazard for boaters.

Rare mussels including creeper (*Strophitus undulatus*, NC Threatened) and rayed pink fatmucket (*Lampsilis splendida,* NC Significantly Rare) have been documented relatively recently in Catawba River lakes. There are records for these mussels in Lake Hickory but not upstream in Rhodhiss. While mussels are likely not present near the proposed work, NCWRC biologists would appreciate the opportunity to relocate mussels from the project footprint before construction, if deemed necessary. Advanced notification of the construction start date, preferably at least two months, would be much appreciated. My contact information can be used in any contract notes, "green sheet commitments", or other project documentation that may be used to help alert NCDOT staffs and contractors about the requested coordination.

In accordance with the prepared safety plan there will be temporary closures to portions of the lake during construction. NCDOT has coordinated with some NCWRC staffs regarding this, most notably the Enforcement Division. The lake closure will require enactment and approval of a temporary rule by the NCWRC. The NCWRC's No Wake Zone Coordinator Ms. Betsy Haywood (betsy.haywood@ncwildlife.org) should be contacted at least 3 months in advance of the closure need to facilitate the approval process. Also, the regional supervisor for the NCWRC's Land and Water Access Division Mr. Ryan Jacobs (ryan.jacobs@ncwildlife.org) should be contacted before construction to coordinate buoy purchase, preparation, and placement. As with coordination for possible mussel relocations, contract notes, "green sheet commitments", or other project documentation are recommended to help alert NCDOT staffs and contractors about the needed coordination for the partial lake closure and buoy deployments.

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 Leader
Kevin Hining, NCDOT Division 11 Environmental Officer
Roger Bryan, NCDOT Division 13 Environmental Officer

Biological Opinion

Replacement of Connelly Springs Road Bridge #110010 Over the Catawba River, Burke and Caldwell Counties, North Carolina

Service Log #21-149
R-3430B; WBS Element #34544.1.2

Prepared by:

U.S. Fish and Wildlife Service
Asheville Ecological Services Office
160 Zillicoa Street
Asheville, North Carolina 28801

JANET MIZZI Digitally signed by JANET MIZZI
Date: 2023.09.28 14:12:26
-04'00'

Janet Mizzi
Field Supervisor
Asheville Ecological Services Field Office
Asheville, North Carolina

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Consultation History

January 27, 2021:	North Carolina Department of Transportation (NCDOT) requested scoping comments from reviewing agencies.
January 29, 2021:	U.S. Fish and Wildlife Service (Service) provided comments to NCDOT in response to the scoping request.
August 16, 2021:	NCDOT and Service correspondence regarding species list for project.
November 14, 2021:	NCDOT and Service met virtually for a project overview.
February 8, 2022:	NCDOT submitted species survey memo to Service.
February 9, 2022:	Service and NCDOT correspondence on project sections and timelines.
February 23, 2022:	NCDOT submitted potential conservation measures to the Service for review.
March 1, 2022:	Service responded to NCDOT's inquiry on conservation measures.
March 14-19, 2023:	NCDOT and Service email correspondence on action area and utilities relocations.
January 10, 2023:	U.S. Army Corps of Engineers (USACE) submitted draft biological assessment (BA) to the Service with request for review.
March 28, 2023:	The Service and NCDOT met on-site to observe portions of the action area and to discuss conservation measures associated with project actions.
March 31, 2023:	The Service and NCDOT corresponded via email on potential conservation measures.
May 9, 2023:	USACE and NCDOT provided an updated BA to the Service, initiating formal consultation.
July 14, 2023:	The Service sent questions to USACE and NCDOT via email on listed bat species.
July 19, 2023:	USACE and NCDOT provided responses via email to questions on listed bats and included project updates regarding natural gas line relocation methods.
August 1, 2023:	Service inquired via email about natural gas line project coordination with NCDOT and USACE.
August 8, 2023:	NCDOT responded via email with confirmation that NCDOT and the natural gas utility are in coordination on the project.
September 7, 2023:	Service provided draft biological opinion to USACE and NCDOT for review and comment.
September 11, 2023:	USACE provided comments on the draft biological opinion.
September 22, 2023:	NCDOT provided comments on the draft biological opinion.

Informal Consultation

The NCDOT proposes to replace the Connelly Springs Road (SR 1001) Bridge #110010 (Castle Bridge) over the Catawba River/Lake Rhodhiss in Burke and Caldwell Counties (Appendix A, Figure 1). Information submitted in the BA was reviewed and the following is provided in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 - 1543) (Act).

The USACE, lead federal agency for this project, determined that the following federally listed species will not be affected by the proposed action:

Table 1. USACE's No Effect Determinations

Species Name	Habitat Present	Federal Designation
Bog turtle – southern population (*Glyptemys muhlenbergii*)	No	T(S/A), At-risk
Small whorled pogonia (*Isotria medeoloides*)	Yes	Threatened
Rock gnome lichen (*Gymnoderma lineare*)	No	Endangered

Virginia big-eared bat (*Corynorhinus townsendii virginianus*)	Summer	Endangered

The information provided states that botanical surveys were conducted in areas of suitable habitat within the action area for small whorled pogonia in June of 2021 and again on June 9, 2022. Results were negative for both. Survey results remain valid for one year for this species. When suitable habitat is present and valid survey results are negative, the Service would concur with a "may affect, not likely to adversely affect" (NLAA) determination from the lead federal agency. While Virginia big-eared bats may be present within the action area for foraging and commuting behaviors, they are not known to roost in trees or bridges and are therefore not expected to be impacted by the project work.

The USACE determined that the proposed action is NLAA the following federally designated species:

Table 2. USACE's May Affect, Not Likely to Adversely Affect Determinations

Species Name	**Habitat Present** (roosting, foraging, commuting)	**Federal Designation**
Gray bat (*Myotis grisescens*)	Summer	Endangered
Little brown bat (Myotis lucifugus)	Yes	At-risk
Northern long-eared bat (*Myotis septentrionalis*)	Yes	Endangered
Tricolored bat (*Perimyotis subflavus*)	Yes	Proposed Endangered

Castle Bridge has features suitable for bat roosting and was surveyed for bats and signs of bat use in June of 2019 and again on June 9, 2021. Culverts equal to and greater than two feet manufactured diameter were surveyed for bats and signs of bat use in the summer of 2022 and again in the spring of 2023. No bats or signs of bat use were detected on Castle Bridge or in culverts during surveys. NCDOT did not conduct presence-probable absence or tree roost surveys for bats. NCDOT has assumed presence of the above bat species in the forested, riparian, and riverine portions of the action area. Limited night work within the project corridor may occur.

Conservation Measures

The following conservation measure will be implemented on behalf of small whorled pogonia:

- Botanical surveys will be conducted annually for small whorled pogonia during the optimal seasonal survey window (mid-May – early July) until the project's let date, scheduled for September 17, 2024 at the time of this document.

The following conservation measures will be implemented on behalf of bat species:

- Tree removal will occur from October 16 to March 31, outside of the active season for tree-roosting bats.
- Should two years elapse between surveys for bats on Castle Bridge and work impacts occurring on the bridge, a new survey shall be completed to ensure absence of roosting bats prior to demolition/construction.
- No permanent lighting will be added to the roadway approaching or crossing the bridge location or to the adjacent riparian areas.
- If night work is conducted, any construction-related lighting will be directed toward the deck of the bridge and will not project into adjacent wooded areas or over the surface of the river as much as practicable. Night work will not exceed 12 nights.
- There will be no deck drains on the new bridge, which is beneficial for water quality.
- For temporary causeways, clean, washed rock (free of debris and pollutants) will be used for the causeway material to minimize sediment input into the river and to reduce the potential for invasive plant seeds.

- The causeway footprints will be the minimum necessary to construct the bridge. The causeway will not constrict more than 50% of the existing channel flow of the Catawba River (Lake Rhodhiss) at this location at a given time.
- Construction fabric will not be used under the causeway material, as it has a tendency to tear into pieces and float downstream during removal, which can degrade water quality.

While the proposed conservation measures minimize effects to foraging and commuting habitat, unknown tree roosts, and potential bridge and culvert roosts, active season construction noise may affect bats in unknown roosts in the surrounding area. Effects from construction noise to unknown tree roosts within the action area but outside the construction limits, while minimized, are not wholly 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, implementation of the listed conservation measures, and analysis above, we concur with the USACE's determination that the project is NLAA gray bat and northern long-eared bat. Additionally, for northern long-eared bat, with the implementation of the listed conservation measures, we believe the project is consistent with the Interim Consultation Framework (valid from March 31, 2023 to April 1, 2024) outlining the consultation process for this species.

On September 14, 2022, the Service published a proposal in the Federal Register to list the tricolored bat as endangered under the Act. To date, there has not been a proposal to list the little brown bat, designated as an at-risk species; however, it is also included in this review. The Service has up to 12-months from the date a proposal publishes to make a final determination, either to list a species under the Act or to withdraw the proposal. Species proposed for listing are not afforded protection under the Act; however, as soon as a listing becomes effective (typically 30 days after publication of the final rule in the Federal Register), the prohibitions against jeopardizing its continued existence and "take" will apply. In order to avoid the disruption to ongoing or planned actions, the USACE requested conferencing procedures for these species. The conference can be adopted as concurrence if a final rule for these species becomes effective during the life of the project. Based on the information provided, extensive project coordination, and the commitment to implement the above conservation measures, we have determined that the proposed project will not jeopardize the continued existence of tricolored bat or little brown bat. Additionally, we would concur with NLAA determinations should these species become federally listed.

We believe the requirements under section 7 of the Act are fulfilled for the gray bat, northern long-eared bat, little brown bat and tricolored bat (should they become listed). 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.

Biological Opinion

1. Introduction

A biological opinion is the document that states the opinion of the Service in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543), as to whether a federal action is likely to jeopardize the continued existence of species listed as endangered or threatened; or result in the destruction or adverse modification of designated critical habitat.

This document transmits the Service's biological opinion (Opinion) based on our review of the proposed replacement of the Connelly Springs Road (SR 1001) Bridge (Castle Bridge #110010) over the Catawba River/Lake Rhodhiss in Burke and Caldwell Counties, North Carolina, and its effects on the federally threatened dwarf-flowered heartleaf (*Hexastylis naniflora,* DFHL). The request for formal consultation was received on January 10, 2023; however, initiation of formal consultation occurred when additional information was received on May 15, 2023. This Opinion is based on information provided in the BA submitted to the Service by the USACE, field investigations, email communications between USACE, NCDOT and the Service, communications with experts on the affected species, and other sources of information as cited. The USACE is the lead federal action agency for this project.

2. Proposed Action

As defined in the Service's section 7 regulations (50 CFR 402.02), "*action*" means "*all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas*." The "*action area*" is defined as "*all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action*." The direct and indirect effects of the actions and activities must be considered in conjunction with the effects of other past and present Federal, state, or private activities, as well as the cumulative effects of reasonably certain future state or private activities within the action area.

2.1 Action Area

The project is located in the piedmont physiographic province in North Carolina, crossing the Catawba River/Lake Rhodhiss. The Catawba River serves as the boundary between Burke County and Caldwell County. The road corridor leading to the bridge has a local name of Malcolm Boulevard in Burke County, while crossing into Caldwell County, the local name of the project corridor changes to Connelly Springs Road. The project area is generally low-density residential land use and occurs in the Hydrologic Unit Code# 03050101. The project area consists of existing maintained right-of-way (ROW) including fill slopes, the Catawba River, residential and forested areas, and a boat landing with a parking lot north of the river. The project length is an approximately 0.5-mile corridor with low topographic relief that includes one bridge crossing Lake Rhodhiss and the roadway approaches at either end.
The action area is depicted in Appendix A, Figure 4.

Consequences of the subject project are directly attributed to the construction activities including placement of fill material, excavation, and mechanized clearing; hydrological effects involving stormwater drainage; biological pollution from non-native invasive plant species; and utility relocation effects. Conservation measures to protect occupied DFHL habitat are also included in the action area.

The limits of the action area have been established using the actions described above and the potential consequences of that action. The action area covers:

- R-3430B limits of disturbance (project footprint), including the project slope stakes (cut/fill line; SS) plus a 25-foot buffer, *or* any construction, utility, or drainage easements, whichever is greater. This will account for tree-clearing areas, access, and erosion control maintenance.
- Buffer added to project footprint at DFHL sites where ground-disturbance will occur to account for possible effects of biological pollution. The added buffer ranges from 0-75 feet, depending on the degree of threat from non-native invasive plants and other caveats (see Biological Pollution section of Effects Section for details).
- NCDOT will extend the ROW to protect DFHL and occupied habitat in perpetuity at two parcels of land adjacent to R-3430B construction. The areas to be protected are included in the action area: parcel 5 (north of Lake Vista Drive), protecting a portion of DFHL Site F, and a section of parcel 2 (the sub-parcel immediately south of Lake Vista Drive), protecting a portion of Site G.
- The portion of the Catawba River/Lake Rhodhiss where the existing bridge will be demolished and where the new bridge will be constructed. Remnant bents to the east of the existing bridge will also be removed, concurrent with bridge demolition. The action area has been expanded to include the remnant bents plus a buffer (approximately 30 feet) to accommodate a barge, if needed.
- A Duke Energy gas line currently attached to Castle Bridge will be relocated as a result of the project. The action area includes all areas of the gas line relocation, which will be built to the east of the existing bridge. As a worst-case scenario, approximately 350 feet of the project footprint has been extended roughly 25 feet further east to incorporate the relocated gas line.
- In addition to the relocated gas line, the action area also includes the distribution gas main to be built along Deep Water Lane.

Note: The action area does not include two DFHL sites (E and L in Figure 4, Appendix A) on the north side of the river, as they will not be affected by any ground-disturbing activity associated with R-3430B. Project construction activities will not break any ground in occupied DFHL habitat at either site. The lack of ground disturbance will not create any sort of bare soil conditions to allow invasive, non-native plants the opportunity to encroach upon or outcompete the native DFHL plants at, or within the sites' occupied DFHL habitat. No adverse effects from biological pollution – or any other consequences of the action - are anticipated to occur at the two sites (E and L), and they are thereby excluded from the project's action area.

2.2 Project Description

The proposed action by NCDOT involves replacing Castle Bridge over the Catawba River/Lake Rhodhiss in Burke and Caldwell Counties, North Carolina (Appendix A, Figure 1). The bridge replacement and associated roadway approach work is a portion (R-3430B) of a larger though disjunct 10-mile roadway modernization project (R-3430). R-3430 consists of three sections, A, B, and C. Section A is currently unfunded. Section C is scheduled for Let in Fiscal Year 2029. The B section has its own purpose and need given that the current bridge, built in 1961, has a sufficiency rating of 8 out of 100, and given that it has utility independent of the other roadway sections; therefore, it is being considered a stand-alone project for the purposes of this consultation. The project is estimated to last approximately two years, with 16 months for construction and 6 months for demolition.

The R-3430B bridge replacement ties into the existing roadway approximately 1,600 feet south of the proposed bridge (around Harbor Ridge Drive) and ends approximately 900 feet north of the proposed bridge (north of Castle Bridge Drive). NCDOT evaluated bridge alignments located as close as possible to the existing structure. Eastern alignments were not studied in detail due to potential impacts to the Castle Bridge Boat Access ramp. The new bridge will be built parallel to and west of the existing bridge. The existing bridge structure is 28 feet wide (curb to curb) and consists of two approximately 10.5-foot-wide travel lanes with shoulders along each side (about 3.5 feet wide), and a length of 910 feet. There are

deck drains along both sides of the bridge draining water directly into Lake Rhodhiss. The new bridge will be 51 feet wide and will consist of (left to right): a 10-foot shared use path, 1-foot protective barrier, 5-foot shoulder, two 12-foot travel lanes, and 11-foot shoulder. There will be no deck drains. A multi-use path will be included on the new bridge, extending to the closest logical termini on both sides of the new bridge, connecting to Lake Vista Drive NE on the south side and Castle Bridge Drive on the north side. The new bridge will be offset 67 feet (centerline to centerline) west of the existing bridge and will be approximately 6.5 feet higher in elevation than the existing structure. Traffic will be maintained on the existing bridge during the construction phase.

A detailed description of the project work is provided in Appendix C. A condensed description of project actions is provided here.

2.2.1 Site Prep – Clearing and Grubbing

Tree clearing for the project activities will total 3.14 acres. In addition to tree clearing, site preparation will include grubbing and earthwork. Clearing and grubbing will take place within right-of-way (ROW) limits but may also occur in drainage easements and temporary construction easements. Earthwork includes all earth moving activities that occur for bridge replacements, which includes but is not limited to: preparation of staging areas, bridge approaches, embankments, fill, foundations, ditching, and utility relocation. Typical earthmoving equipment used includes haul trucks, dozers, excavators, scrapers, backhoes, and tractors.

2.2.2 Bridge Construction and Demolition

The supports for the new bridge will require causeways in the river; one on the north end of the proposed bridge to construct a bent and one on the south end to remove an existing bent. Percussive activities such as pile-driving and drilling will occur for the new bridge substructure and may occur at any time of year. Pile-driving will occur for approximately one week. Additional construction work will include concrete and girder delivery, girder placement, and concrete pours. Nighttime concrete pouring may be required if it coincides with hot weather during summer months, in which case up to 12 nights of work may be necessary. Guardrail installation will also take place along bridge approaches.

The old bridge will be demolished using a tractor trailer, cranes, and possibly a track hoe once traffic flow has been moved to the new bridge. The deck will be removed first, followed by the girders and bridge supports. Remnant bents to the east of the existing bridge will be demolished and removed during this stage. A catchment device or other appropriate measures on the overhead bridge structure will be used to prevent construction material and debris from falling into the water below. Navigational aids will be installed to guide river users away from the causeways/construction zone. Green, red, and white solar-powered LED strobe lights will be utilized at appropriate in-water locations to serve as navigational guides.

2.2.3 Construction Access and Staging, Drainage, Utilities

Construction access and staging areas will be determined by the selected contractor after the project has Let. Project specifications and contracts will require that access and staging areas be located in upland areas and an environmental review of any areas outside the proposed project footprint will be performed. This review would include wetland and stream delineation as well as evaluation of the area for potential habitat and presence of any listed species, including DFHL. No access or staging area will be permitted within DFHL sites.

Drainage work will take place on both sides of Malcolm Boulevard. A 24-inch diameter corrugated metal pipe under Malcolm Boulevard will be replaced, part of which will take place in DFHL Site G. At the western end of the pipe, riprap will be placed to prevent erosion at the outlet. No drainage work will

occur in DFHL Site F. On the east side of Malcolm Boulevard, one of the existing roadside ditches will be realigned just outside of Site H from station numbers 19+50 to 21+00, approximately (Plan Sheet 4 in Appendix B).

An 8-inch diameter section of buried gas line just west of Malcolm Boulevard and south of Lake Vista Drive will be relocated by Duke Energy or its associated contractor to avoid conflicting with a proposed section of guardrail. The gas line will be relocated via a directional bore and will reach a depth of 75 feet below Lake Rhodhiss. The associated bore pit location for the gas line relocation section will be on the east side of Malcolm Boulevard. This bore pit location occurs inside the project's proposed NCDOT right-of-way limits, approximately 175 feet south of the delineated boundary of DFHL Site H. Duke Energy actions will not disturb DFHL Sites H or I during underground boring activities.

2.2.4 Post-project Site Restoration and Operations and Maintenance

Disturbed areas will be re-vegetated once the new roadway approaches are completed. This involves reseeding with grasses suitable for stabilization and maintenance of roadway side slopes. Non-invasive species will be used in erosion control seed mixes. Borrow areas will be graded to drain and re-seeded. Temporary Best Management Practices (BMPs) such as silt fencing, check dams, and sediment basins will be removed.

Once traffic is released to the project, typical operations and maintenance activities will occur. This may include pre-treatment of roads prior to winter weather events and snow plowing and ice removal after the events. Mowing of side slopes will be performed at regular intervals.

2.3 Conservation Measures

Conservation measures represent actions, pledged in the project description, that the action agency will implement to minimize the effects of the proposed action and further the recovery of the species under review. Such measures should be closely related to the action and should be achievable within the authority of the action agency. We consider the beneficial effects of conservation measures in making our determination of whether the project will jeopardize the species.

On the south side of the existing and proposed bridge structures, DFHL sites are located on both sides of Malcolm Boulevard in the area needed for the bridge approach/roadway tie-ins. As such, complete avoidance of DFHL in the bridge area was unavoidable. Constructing the new bridge to the east of the existing bridge, which would have reduced some adverse effects to DFHL, was not possible due to potential recreational disruptions to the Castle Bridge Boat Access on the north side of the river. Avoidance and minimization measures and conservation measures are discussed below.

Avoidance and Minimization measures on behalf of DFHL for this project include the following:

AMM 1. In the 25% design of the preferred alternative, the R-3430B alignment was shifted approximately three feet closer to the existing bridge to reduce adverse effects to DFHL on the west side of Malcolm Boulevard. This avoids direct impacts to approximately 5 plants and 0.015 acres of occupied DFHL habitat in Site F, and 8 plants and 0.008 acres of occupied DFHL habitat in Site G (sites are shown in Appendix A, Figure 5; and Appendix B, plan sheet 4, approximate station numbers 19+00 to 26+00).

AMM 2. A segment of the project footprint on the east side of Malcolm Boulevard was shifted further inward and away from DFHL Site H to minimize adverse effects. This avoids direct impacts to approximately 10 plants and 0.018 acres of occupied DFHL habitat in Site H (Site H is shown in Appendix A, Figure 5; and Appendix B, plan sheet 4, station numbers 20+00 to 21+00).

AMM 3. Non-native invasive plants, such as *Lespedeza cuneata*, will not be used in erosion control seed mixes.
AMM 4. Native seed mixes for erosion control will be used to the extent practicable.
AMM 5. High-visibility fencing will be placed around DFHL sites within 25 feet of slope stakes (or at easement lines, whichever extends further out) to ensure there will be no accidental encroachment.
AMM 6. No access or staging areas will be permitted within DFHL sites.
AMM 7. NCDOT will conduct a preconstruction meeting and discuss the known DFHL sites, their locations, and prescribed minimization measures, including the high-visibility exclusionary fencing, with the contractor and relevant NCDOT staff.
AMM 8. At Site G, topsoil in the areas directly affected by project construction along Malcolm Boulevard will be cleared and grubbed down to a non-organic soil layer and pushed upslope as practicable toward Malcolm Boulevard. This will facilitate the removal of the non-native invasive plant species and limit their spread downslope.

Conservation measures on behalf of DFHL for this project include the following:

CM 1. NCDOT will conduct on-site preservation of DFHL plants in perpetuity through a ROW extension. NCDOT will obtain Parcel 5 (north of Lake Vista Drive) and a portion of Parcel 2 (the sub-parcel immediately south of Lake Vista Drive). DFHL Site F is located on Parcel 5 and a portion of Site G is in the area to be protected in Parcel 2 (Appendix A, Figure 6). The plants and occupied habitat to be protected will offset the plants and occupied habitat incurring adverse effects within the project footprint from activities associated with project construction.
CM 2. Monitoring will be conducted to ensure the protection of DFHL to be preserved at Sites F and G. DFHL monitoring will also occur in the unprotected portions of Sites G and H, landowner-permitting. Monitoring efforts will consist of a pre-construction environmental baseline survey as well as post-construction surveys that will take place once every year over a period of five years.
CM 3. Invasive non-native plant species across Sites G and H (assuming landowner permission) will be monitored post-construction for five years, especially along the interface between construction activities and the plant populations. If any non-native plant species start spreading into the protected area of Site G, they will be removed or treated. Herbicide treatment will also occur within the limits of NCDOT right-of-way in the remainder of Site G if it is needed post-construction.
CM 4. Invasive non-native plant control will be done using a combination of methods, including herbicide treatment and hand-pulling. A barrier (such as cardboard or plastic) will be used to protect any DFHL located within 15 feet of herbicide treatment areas. Any periwinkle (*Vinca sp.),* Japanese honeysuckle (*Lonicera japonica)* or multiflora rose (*Rosa multiflora*) within 10 feet of DFHL will be hand-pulled, instead of treated with herbicide. Herbicides will not be used on days with high winds.
CM 5. The wooded area west of Malcolm Boulevard between Lake Vista Drive (to the north) and DFHL Site G has a small, dense patch of periwinkle on an adjacent ridge. If non-native invasive plants from this area encroach into the protected portion of Site G, the invasive plants in NCDOT right-of-way will be removed or treated.

3. Status of the Species

Common Name: Dwarf-flowered heartleaf
Scientific Name: *Hexastylis naniflora*
Status: Threatened (proposed for delisting)
Date of Listing: April 14, 1989 (FR 54 14964-14967)

DFHL was listed as a threatened species in 1989 under the authority of the ESA. The herbaceous evergreen is endemic to the western Piedmont and foothills regions of North and South Carolina. DFHL occurs in sandy-loam soils, and is generally found in mesic to dry bluffs, slopes or ravines in deciduous forests; or in moist soils adjacent to creeks, streamheads, lakes, and rivers (Robinson 2016). The primary threats to the species include habitat loss due to the conversion of land to residential, commercial, and industrial use (Service 1989) and habitat loss from land conversion to agricultural use, timber harvest, hydrological alterations from the damming of ponds, impacts from grazing cattle, off-road vehicle damage, trampling from foot traffic, invasive species, highway or road improvements, and erosion or siltation (NCNHP 2016, Robinson and Padgett 2016). DFHL occupies rapidly developing urban areas surrounding the municipalities of Charlotte, Greenville, Spartanburg, and Hickory. The 2019 Species Status Assessment (SSA) lists the following threats to the viability of this plant: human population change, development, invasive species, woody encroachment, and climate change (Service 2019).

The initial listing rule recognized 24 populations of DFHL distributed across eight counties in North and South Carolina. The SSA recognizes 119 known populations occurring in 10 counties in North Carolina and three counties in South Carolina. Of the known populations, 28 are composed of >1,000 plants and are considered to have very high viability (Service 2019). At least 40 known populations currently occur on lands either protected in perpetuity, or protected, but not in perpetuity (Service 2019). Conservative population estimates include a collective total of more than 300,000 rosettes (NCNHP 2016, SC Department of Natural Resources (SCDNR) 2016). However, the North Carolina Natural Heritage Program (NCNHP) estimates that the short-term trend over approximately 30 years is declining 10-30%. This estimation reflects documented declines of some populations, while many others appear stable, and some have increased (Service 2019).

Following a review of the best-available science, the Service proposed to delist DFHL due to recovery on April 26, 2021 (Service 2021). The Service is currently evaluating comments received on the proposed delisting (60-day public comment period now closed). The Service will make a final listing determination once comments have been addressed.

4. Environmental Baseline in the Action Area

In accordance with 50 CFR 402.02, the environmental baseline "*refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline*."

Occupied and unoccupied DFHL habitat is present in multiple locations within the action area. Botanical surveys were completed within the action area during the optimal DFHL survey window in 2018, 2021, and 2022. A total of four DFHL sites are present in the action area (Appendix A, Figure 4), supporting a

total of 518 DFHL plants, summarized in Table 3. These sites are denoted in the NCNHP Element Occurrence (EO) database as EO identification #39089.

Table 3. Environmental Baseline for Dwarf-flowered Heartleaf in Action Area

Site	Plant Count	Occupied Habitat (acres)	Density #/acre
F	228	0.64	356
G	234	0.42	557
H	51	0.09	567
I*	5	0.02	250
Totals	**518**	**1.17**	**443**

* No flowers, assumed to be *H. naniflora*
Note: rounding may cause minor discrepancies.

Maintained/disturbed areas within the action area include roadsides, driveways, a boat landing parking lot, a small marina on the west side of Connelly Springs Road, a few homes along Deep Water Lane, and small patches of vegetated habitat that were subject to earthwork in the past. Canopy gaps have allowed for dense undergrowth, and invasive non-native plant species such as periwinkle, Japanese honeysuckle and multiflora rose have contributed to the undergrowth in areas.

It is likely that DFHL populations in the action area have historically been altered by road construction and development. Connelly Springs Road/Malcolm Boulevard may have divided Sites F and I and sites G and H. Development on the south side of the Catawba River may have affected Sites F and G with the construction of Lake Vista Drive. Site I may have been further reduced by the installation of a lawn along Deep Water Lane. Development and road construction have presumably affected DFHL sites by fragmenting them, reducing available habitat, and introducing invasive plant species to the area. Biological pollution, especially in the form of invasive plants such as periwinkle and English ivy (*Hedera helix*), can be found in Sites G and H, respectively.

5. Effects of the Action

In accordance with 50 CFR 402.02, the 2019 regulatory definition of effects of the action is "*all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action*." This section analyzes the consequences of the action on DFHL. The effects of the action are added to the environmental baseline and, after taking into consideration the status of the species, serve as the basis for the determination in this Opinion (50 CFR 402.14(g)(4)).

Activities occurring as a result of the bridge replacement project, including new bridge approaches, will adversely affect DFHL. Land disturbance will occur from construction of bridge approaches, drainage work, and utility relocation work, and will likely cause biological pollution of DFHL sites within the action area. Each of these adverse effects is described below.

Effects are computed under the assumption that DFHL plants are spatially distributed in an equidistant manner throughout the area of a site's occupied DFHL habitat. Actual spatial distribution of DFHL plants within each site will not exactly equal the conditions defined in this assumption. Given the size and scope of the project, this assumption allows for an efficient method for approximation of effects.

5.1 Stressors

Based on the description of the Action and the species' biology, the following stressors to DFHL have been identified that may result from the proposed project: (1) bridge and road construction, (2) hydrologic/drainage effects, (3) biological pollution, and (4) utilities. Below, each stressor is described and associated responses and rationale for the determination of effects are provided.

5.1.1 Stressor 1: Bridge and Road Construction

To determine the worst-case scenario for effects from the new bridge approaches, slope stakes (SS) were buffered by 25 feet to allow for activities such as construction access, mechanized clearing, and erosion control maintenance. Areas within the SS + 25-foot line, or within construction easements, whichever was greater, were then used to calculate direct effects to DFHL sites. A total of 168 plants will be lost due to construction along with 0.45 acre of occupied DFHL habitat from Sites F, G, H, and I. (Appendix A, Figure 5).

The project was designed so that no cut and fill work will be conducted in Site H, but since a portion of Site H falls within the SS + 25-foot limit, it is assumed that 7 plants and 0.01 acre of occupied habitat will be affected as a worst-case scenario due to construction access or mechanized clearing.

5.1.2 Stressor 2: Hydrologic/Drainage

The 24-inch pipe to be replaced under Malcom Boulevard and the relocated ditch leading to it will not affect Site H, but the pipe will cause disturbance in Site G. The disturbance of the pipe construction along with the resulting altered drainage outfall will result in plant and habitat loss. Plan Sheet 4 in Appendix B depicts the pipe replacement. A total of 34 plants will be lost due to drainage work along with 0.06 acre of occupied DFHL habitat, all in Site G (Appendix A, Figure 5). No other drainage effects will occur; all other drainage work will take place outside of occupied DFHL habitat.

5.1.3 Stressor 3: Biological Pollution

Adverse indirect effects from biological pollution could include species composition change in the understory, increased light penetration from clearing, and potential for non-native invasive species (NNIS) to encroach on DFHL habitat.

Based on post-construction monitoring at multiple NCDOT projects where DFHL occur, along with surveys conducted within the project action area, healthy viable clusters of DFHL are often found right up to the clearing/construction limits, as well as disturbed habitats such as logged areas and commercial developments. DFHL has also been found to grow in disturbed, early successional and maintained powerline easements where light penetration reaches the population (NCDOT 2009, 2012). Similar results have been documented (or observed) with understory density changes along roadway projects, where DFHL persist despite increased shading. Therefore, adverse effects of the action due to changes in light regime from clearing and higher understory density are not anticipated.

Biological pollution through the encroachment of NNIS is a likely consequence of R-3430B construction. Construction of the new bridge approaches could serve as potential areas for the spread of invasive plants, as ground disturbance may increase the amount of area suitable for invasive plant species (Trombulak and Frissell 2000). Additionally, construction equipment and vehicles can contribute to the spread of invasive plants (Von der Lippe and Kowarik 2006). Once R-3430B construction is complete, road maintenance may also influence the spread of invasive plants. Mowing and hazardous tree removal will maintain a continuous light gap along the roadside, allowing invasive plants the opportunity to thrive, propagate, and spread, allowing easier access to adjacent forested habitat (Mortensen et al. 2009). Roadsides generally provide excellent opportunities for the establishment of invasive non-native plant species (Rentch et al. 2005) because frequent disturbances make resources such as light and bare soil more available. The

extent of invasive plants spreading into forested habitat may vary greatly, as shown in studies from Meunier and Lavoie 2012 (410 feet from the roadway), Forman and Deblinger 2000 (33-400 feet from the roadway), Huebner 2010 (148 feet from the roadway), and Hansen and Clevenger 2005 (33 feet from the roadway).

Based on the above studies, it was determined that under a worst-case scenario, biological pollution could occur from the furthest extent of disturbance (project footprint) out 75 feet at Site H and 50 feet at Site G. These extents were determined based on the existing NNIS distributions at these two sites. Site H has NNIS already occurring within the interior of the DFHL population while Site G has NNIS occurring along the outer portions of the DFHL population but absent from the interior. Based on information from the Service (2021), it is unlikely that 100% of DFHL will be lost from biological pollution following ground-disturbing activities. Using a subjective estimate that 50% of the DFHL would be lost at Site H, the number of plants affected from biological pollution would be 23 plants and 0.08 acre of occupied DFHL habitat. Because NNIS only occur along the perimeter at Site G and not in the interior, and because NCDOT will be conducting invasive species control at Site G in areas owned by NCDOT, it is estimated that only 10% of the DFHL will be lost due to biological pollution at the unprotected portions of Site G: 5 plants and 0.09 acre of occupied habitat. The total loss from biological pollution is estimated to be 28 plants and 0.17 acre. Since NNIS control will occur at the portion of Site G protected in perpetuity, the loss of DFHL from this protected area due to biological pollution is not anticipated to occur.

Based on the above assessment, only Sites G and H will be affected by biological pollution, due to their proximity to R-3430B construction and the existing threat of NNIS (Appendix A, Figure 5). Ground disturbance will not occur at Sites E or L, thus, no opportunities for NNIS encroachment are expected. Road construction activities at Site F will break ground in occupied DFHL habitat and create some bare soil conditions along the site's construction zone/occupied habitat interface; however, the population currently has no problematic presence of NNIS, and thereby a lack of biomass or seed source for invasives to further encroach upon or outcompete the native DFHL plants.

5.1.4 Stressor 4: Utilities

The gas line to be relocated via a directional bore will have an associated bore site. As a worst-case scenario based on the bore site location, half of Site I will be directly impacted: 2 plants in 0.01 acre. No other DFHL effects are anticipated from utilities.

5.1.5 Summary of Stressors and Effects Determinations

In summary, the anticipated stressors and effects discussed above are expected to adversely affect DFHL, totaling a loss of up to 232 plants and 0.69 acres of occupied habitat, as summarized in Table 4.

Table 4. Summary of Stressor Effects

Site	Construction		Bio. Pollution		Drainage		Utilities		Totals	
	#plants	acres	#plants	acres	#plants	acres	#plants	acres	#plants	acres
F	141	0.40	0	0	0	0	0	0	141	0.40
G	17	0.03	5	0.09	34	0.06	0	0	56	0.18
H	7	0.01	23	0.08	0	0	0	0	30	0.09
I	3	0.01	0	0	0	0	2	0.01	5	0.02
Total	**168**	**0.45**	**28**	**0.17**	**34**	**0.06**	**2**	**0.01**	**232**	**0.69**

5.2 Beneficial Effects

Beneficial effects have contemporaneous positive effects without any adverse effects to the species or habitat.

NCDOT's commitment to preserve 0.373 acres of occupied DFHL habitat and 160 DFHL plants is considered a beneficial effect. Additionally, NCDOT's commitment to monitor preserved DFHL sites annually for five years post-construction and to treat invasive vegetation in areas where it threatens preserved DFHL habitat and plants are also considered beneficial actions, as they serve to increase conservation success.

5.3 Cumulative Effects

Cumulative effects include the "*effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation*" (50 CFR 402.02, 2019 Regulations). Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Endangered Species Act.

The R-3430B project will not increase traffic capacity and will not provide access to previously inaccessible land; therefore, increased development is unlikely adjacent to the roadway corridor as a result of R-3430B. Websites and planning documents from local and regional economic development and planning agencies were searched for development plans along the Connelly Springs Road corridor, including county economic development websites (Caldwell County 2021), the Western Piedmont Council of Governments 2045 Metropolitan Transportation Plan (2018), the Burke County Land Use Plan (Burke County Land Use Plan Committee 2016), and the Caldwell County Comprehensive Plan (Caldwell County 2020). None of those documents indicate any industrial focus areas or economic development focus areas in the vicinity of R-3430B. The northern portion of DFHL Site G will be preserved by NCDOT. The parcel with the southern portion of Site G may undergo residential development in the future. While such development has the potential to cause adverse effects to DFHL, it is not currently reasonably certain to occur. In consideration of this information, there are no anticipated cumulative effects associated with the action.

6. Conclusion

After reviewing the current status of DFHL, the environmental baseline for the action area; and the effects of the action, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of DFHL. This opinion is supported by the fact that plants adversely affected by the proposed project (a total of 232) represent approximately 0.07% of the total range-wide abundance (approximately 300,000 individuals). No critical habitat has been designated for this species; therefore, none will be affected.

7. Incidental Take Statement

Section 9 of the ESA and federal regulations pursuant to section 4(d) of the ESA prohibit the taking of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation resulting in death or injury to listed species by significantly impairing essential behavioral patterns, such as breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not for the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), incidental take is not prohibited under the ESA, provided it is in compliance with the terms and conditions of this incidental take statement.

Sections 7(b)(4) and 7(o)(2) of the ESA generally do not apply to listed plant species. However, section

9(a)(2)(B) provides limited protection to listed plants from take; the ESA prohibits the removal and reduction to possession of federally listed endangered plants or the malicious damage to such plants on areas under federal jurisdiction or the destruction of endangered plants on nonfederal areas in violation of state law or regulation or in the course of any violation of a state criminal trespass law. Therefore, for this Opinion, incidental take does not apply, and an incidental take statement is not necessary.

8. Conservation Recommendations

Section 7(a)(l) of the Endangered Species Act directs Federal agencies to use their authorities to further the purposes of the Endangered Species Act by carrying out conservation programs for the benefit of endangered and threatened species. 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.

- Identify Feasible Relocation Site(s) for DFHL. Continue the search for relocation properties that offer appropriate conditions for DFHL and are/could be secured for protection. Such sites could be utilized for the future portions of R3430 and for other projects impacting DFHL within the same general area.
- DFHL relocation. Relocate DFHL plants that would otherwise be lost due to impacts from project actions to protected areas providing suitable habitat for plant survival.
- Continue the NNIS treatment and monitoring beyond five years, to provide additional protections for these occurrences of DFHL.

In order for us to be kept informed about actions that minimize or avoid adverse effects or that benefit listed species or their habitats, we request notification of the implementation of any conservation recommendations.

9. Reinitiation Notice

This concludes formal consultation on the actions outlined in your project description dated September 9, 2021. As provided in 50 CFR 402.16, re-initiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion, (2) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion, or (3) a new species is listed or critical habitat is designated that may be affected by the action.

10. Literature Cited

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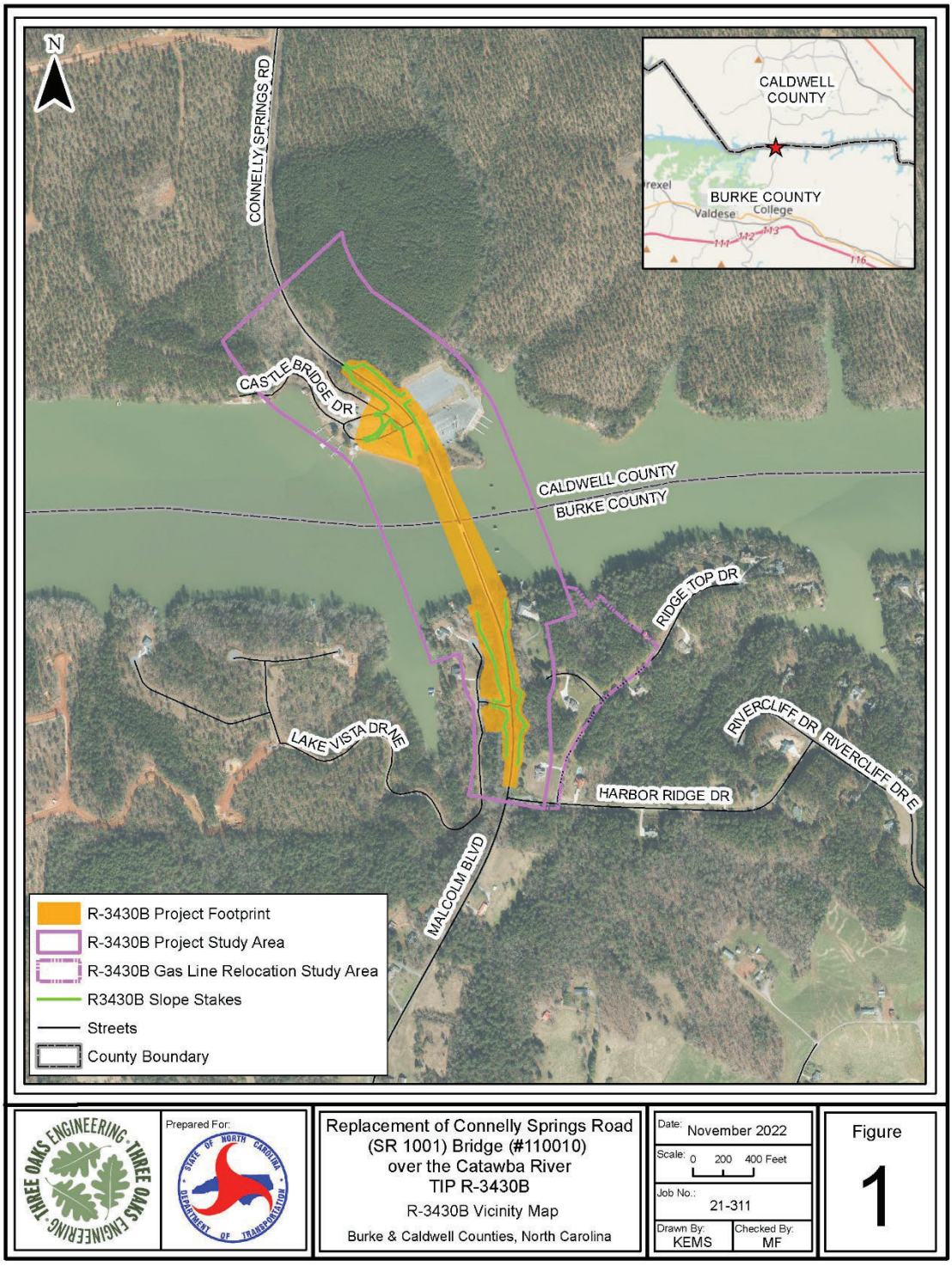
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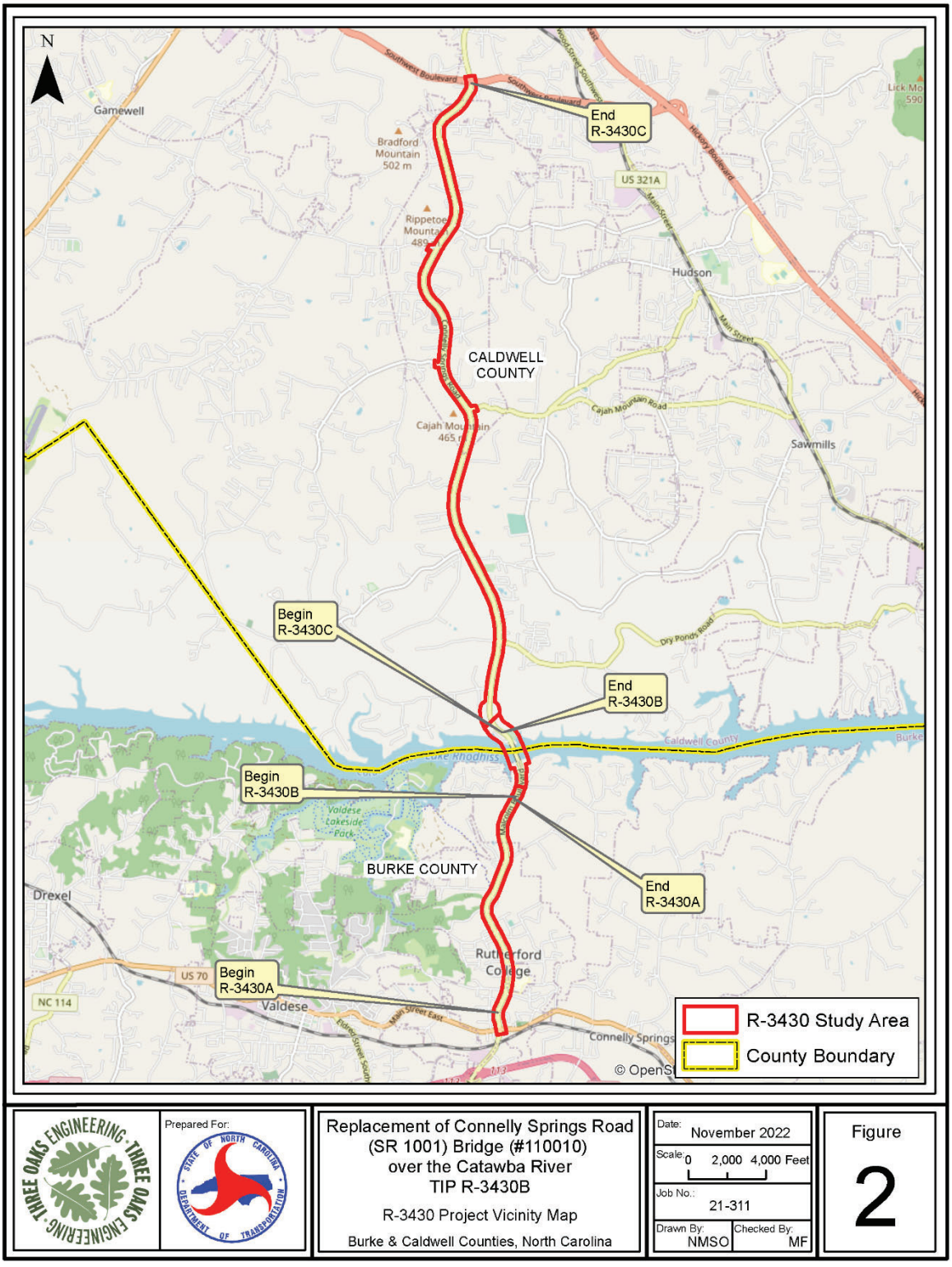
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Appendix A. Figures





THREE OAKS ENGINEERING

Prepared For: NC Department of Transportation

Replacement of Connelly Springs Road
(SR 1001) Bridge (#110010)
over the Catawba River
TIP R-3430B

R-3430 Project Vicinity Map

Burke & Caldwell Counties, North Carolina

Date: November 2022

Scale: 0 2,000 4,000 Feet

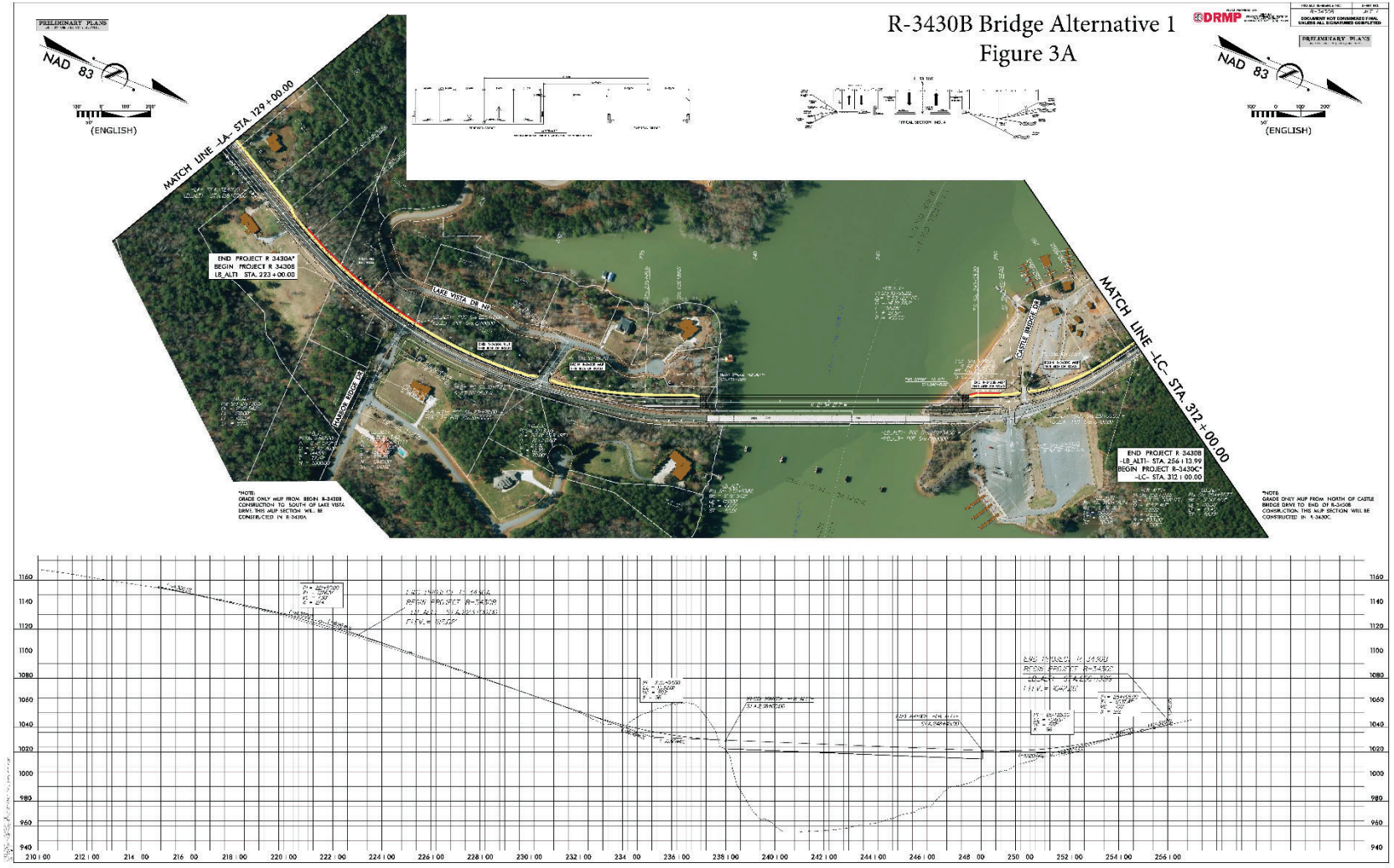
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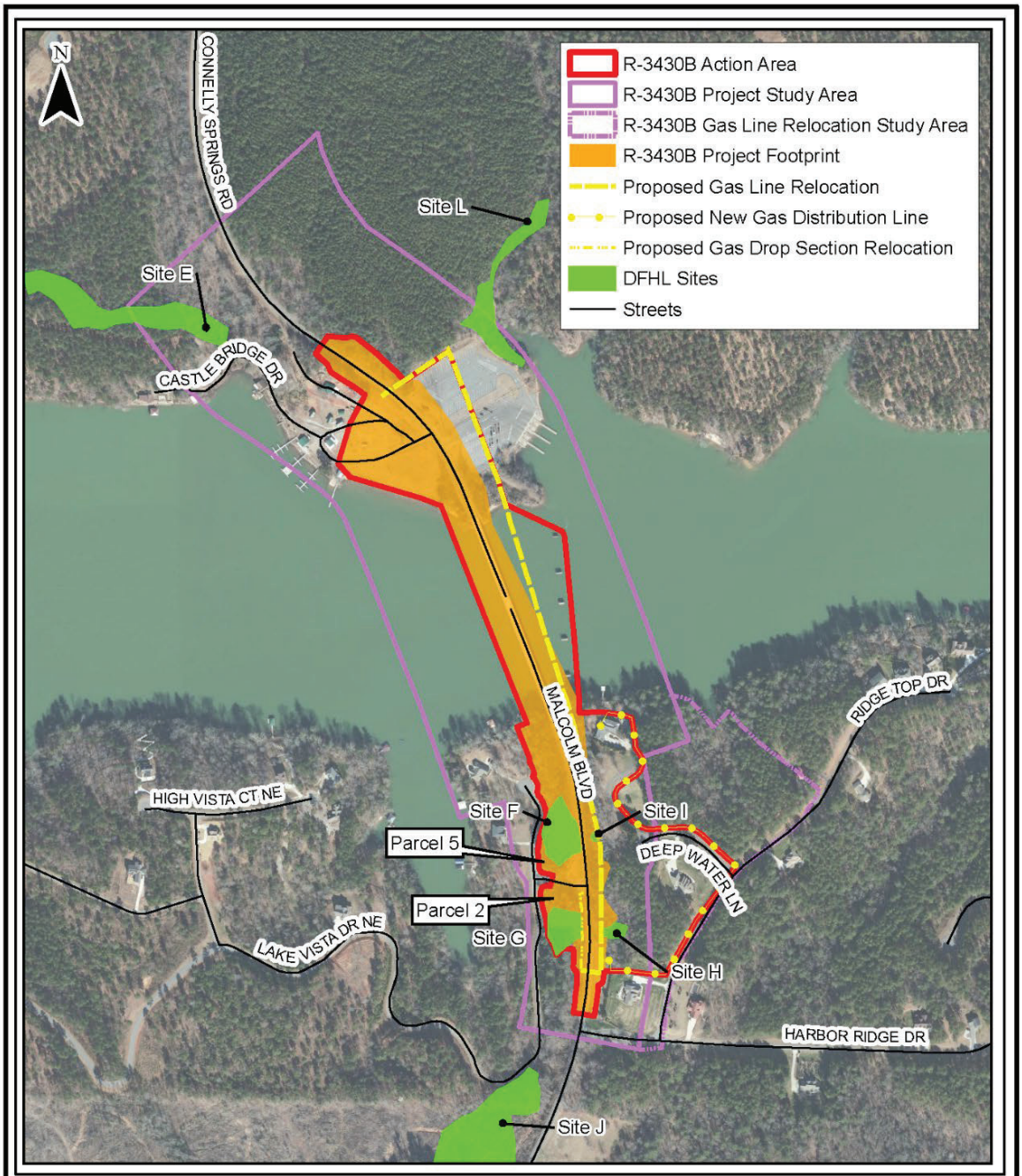
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Checked By: MF

Figure 2

R-3430B Bridge Alternative 1
Figure 3A





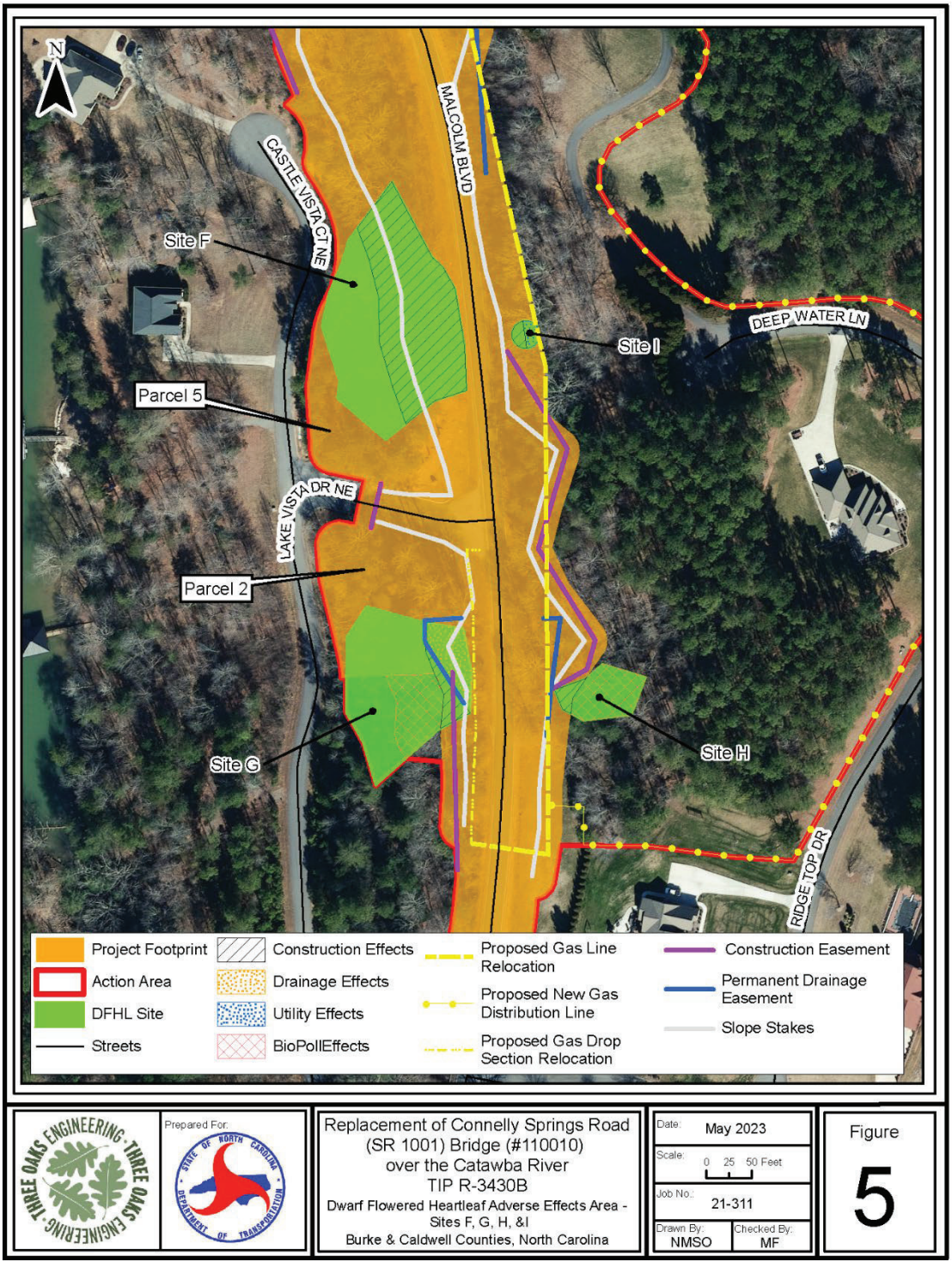
THREE OAKS ENGINEERING

Prepared For: STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Replacement of Connelly Springs Road
(SR 1001) Bridge (#110010)
over the Catawba River
TIP R-3430B
R-3430B Action Area
Burke & Caldwell Counties, North Carolina

Date:	May 2023
Scale:	0 200 400 Feet
Job No.:	21-311
Drawn By:	KEMS
Checked By:	MF

Figure
4



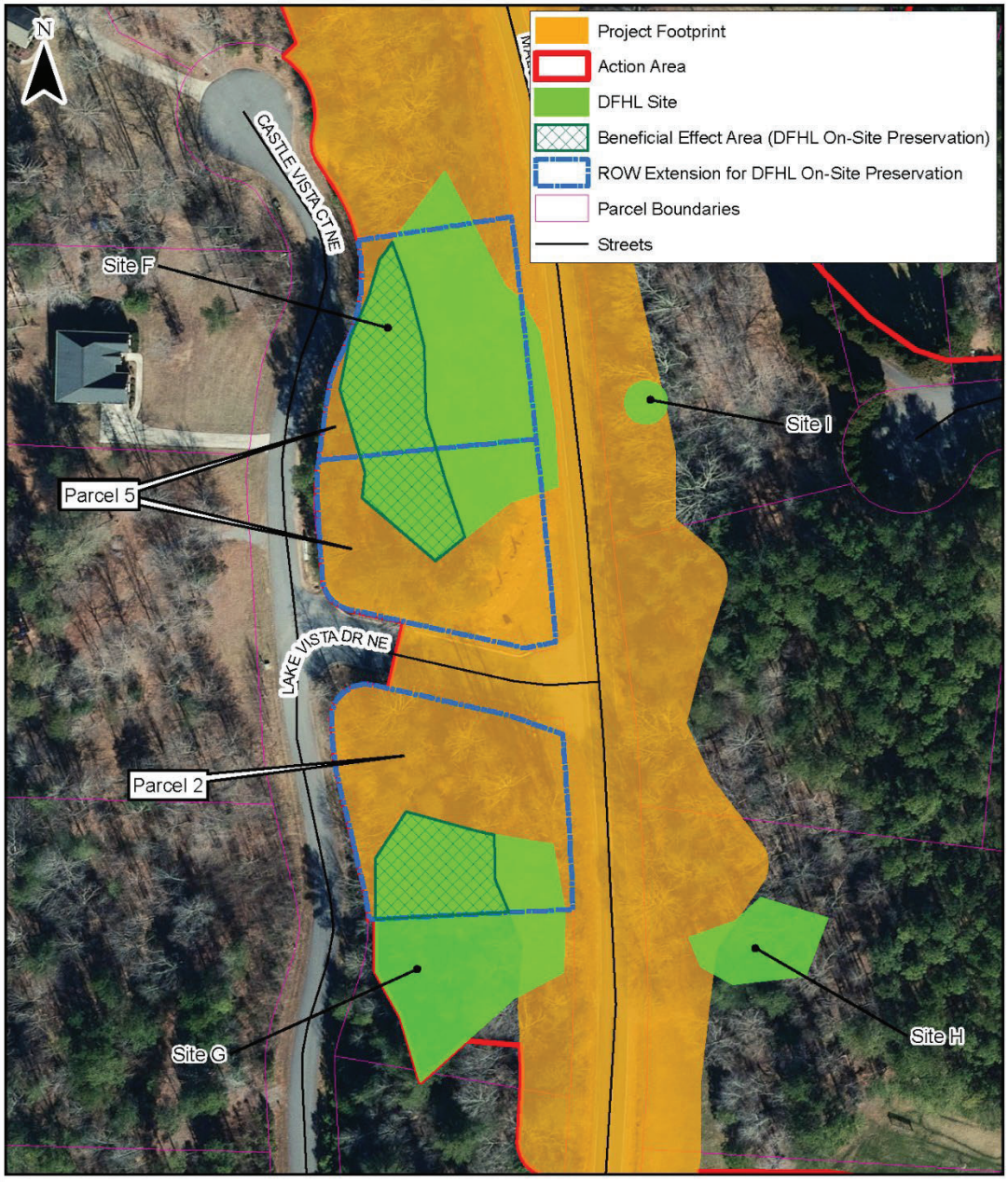
THREE OAKS ENGINEERING

Prepared For: STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Replacement of Connelly Springs Road
(SR 1001) Bridge (#110010)
over the Catawba River
TIP R-3430B
Dwarf Flowered Heartleaf Adverse Effects Area - Sites F, G, H, &I
Burke & Caldwell Counties, North Carolina

Date:	May 2023
Scale:	0 25 50 Feet
Job No.:	21-311
Drawn By:	NMSO
Checked By:	MF

Figure 5



THREE OAKS ENGINEERING · THREE OAKS ENGINEERING

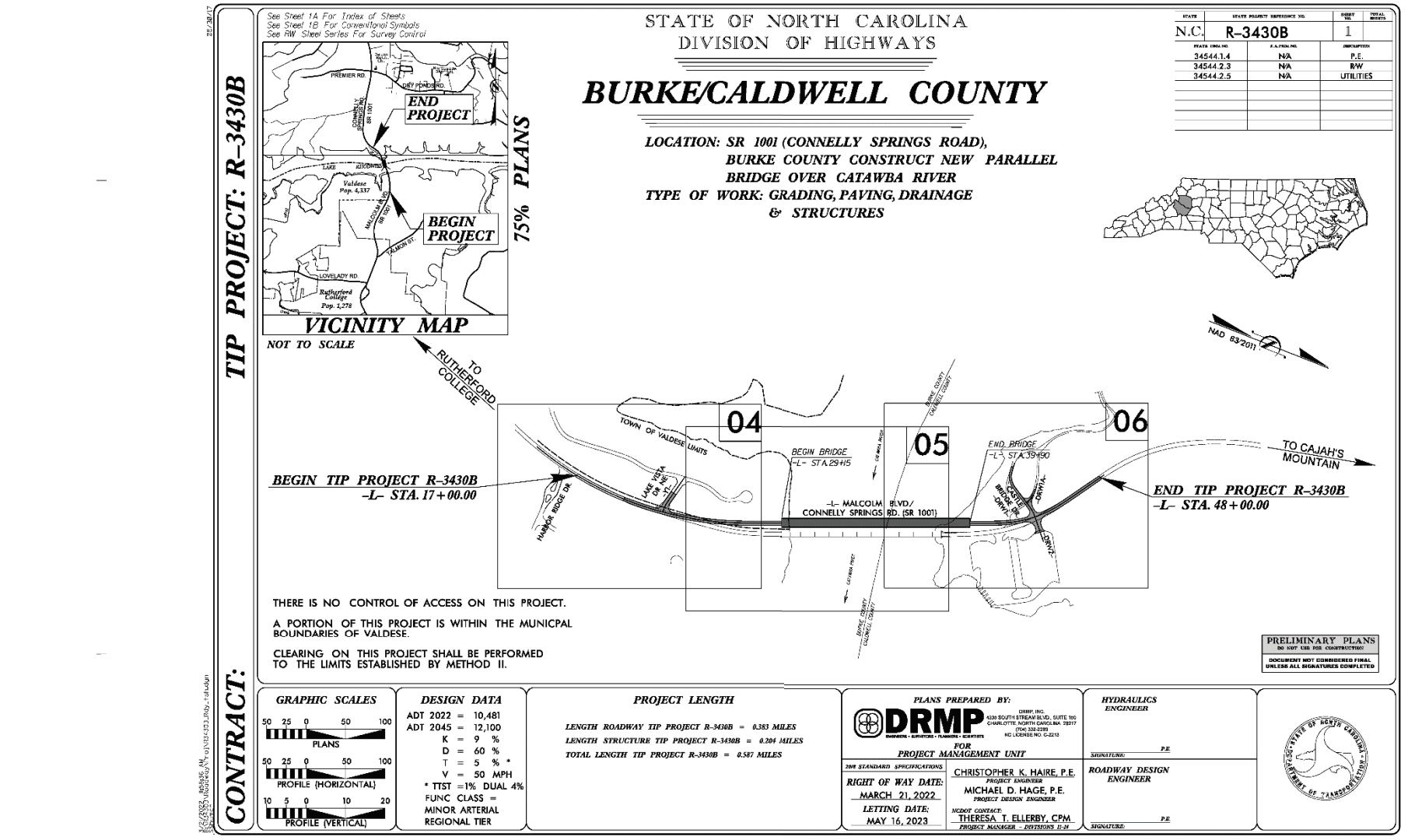
Prepared For: STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

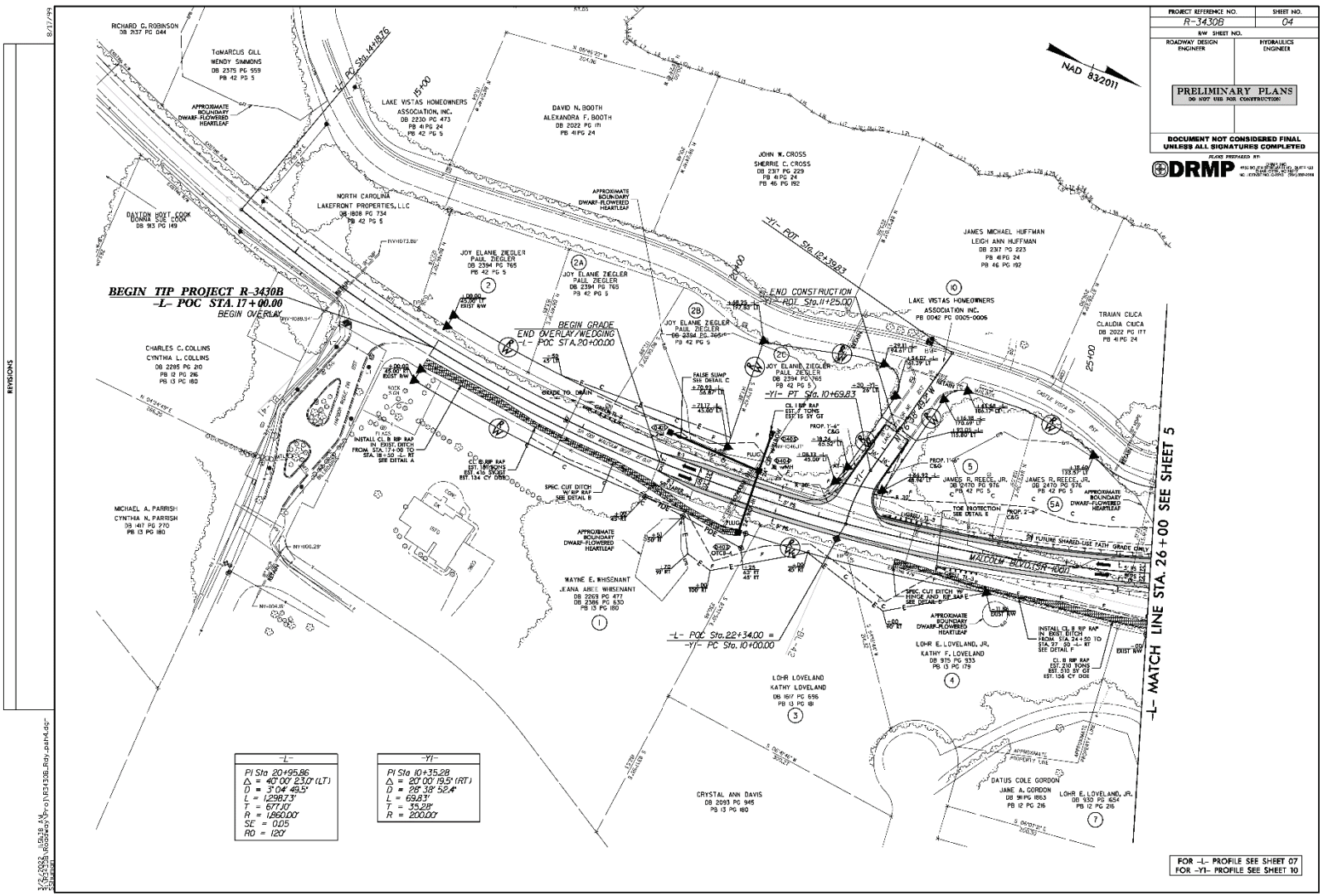
Replacement of Connelly Springs Road
(SR 1001) Bridge (#110010)
over the Catawba River
TIP R-3430B
Dwarf Flowered Heartleaf Beneficial Effects Area
(On-Site Preservation)
Burke & Caldwell Counties, North Carolina

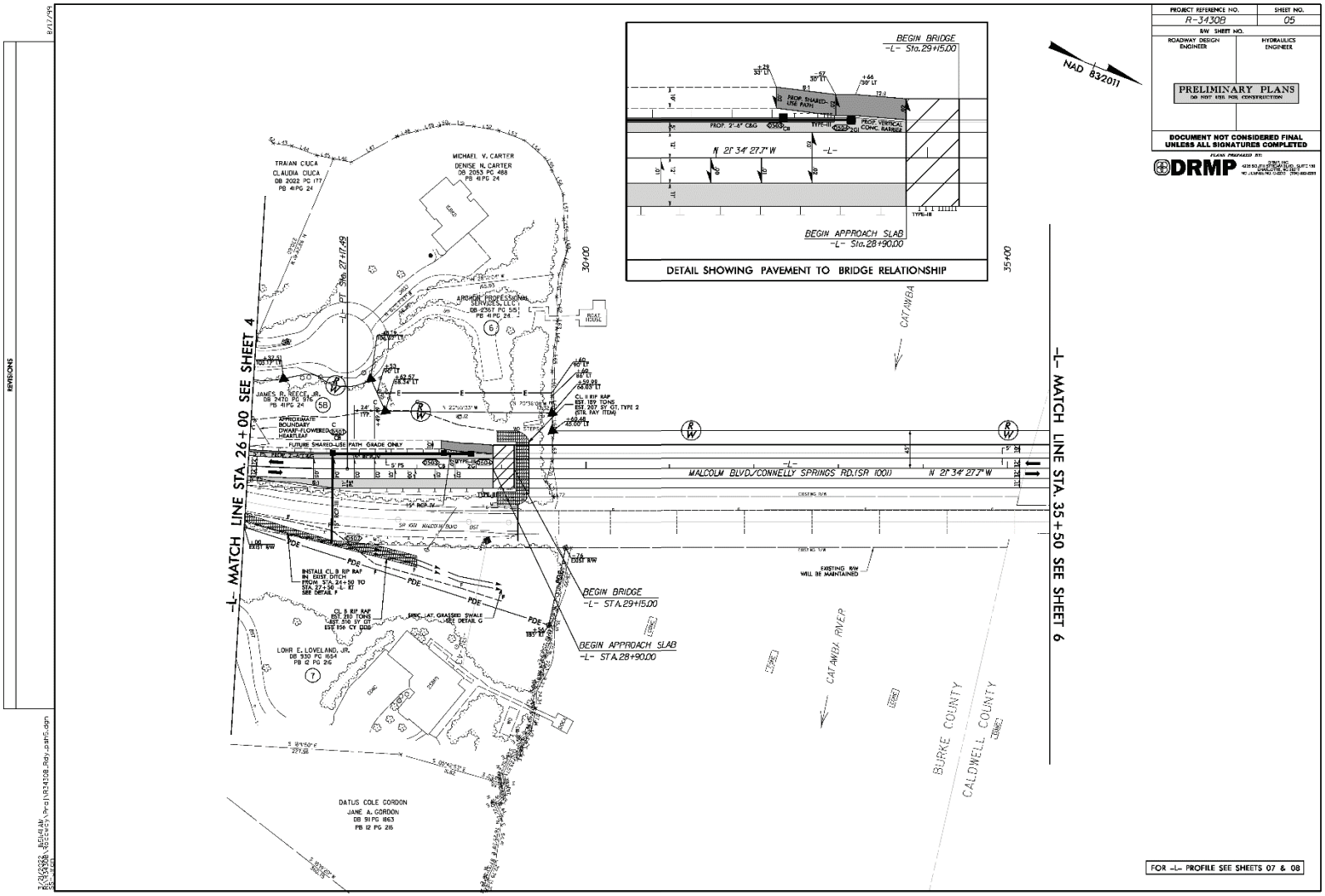
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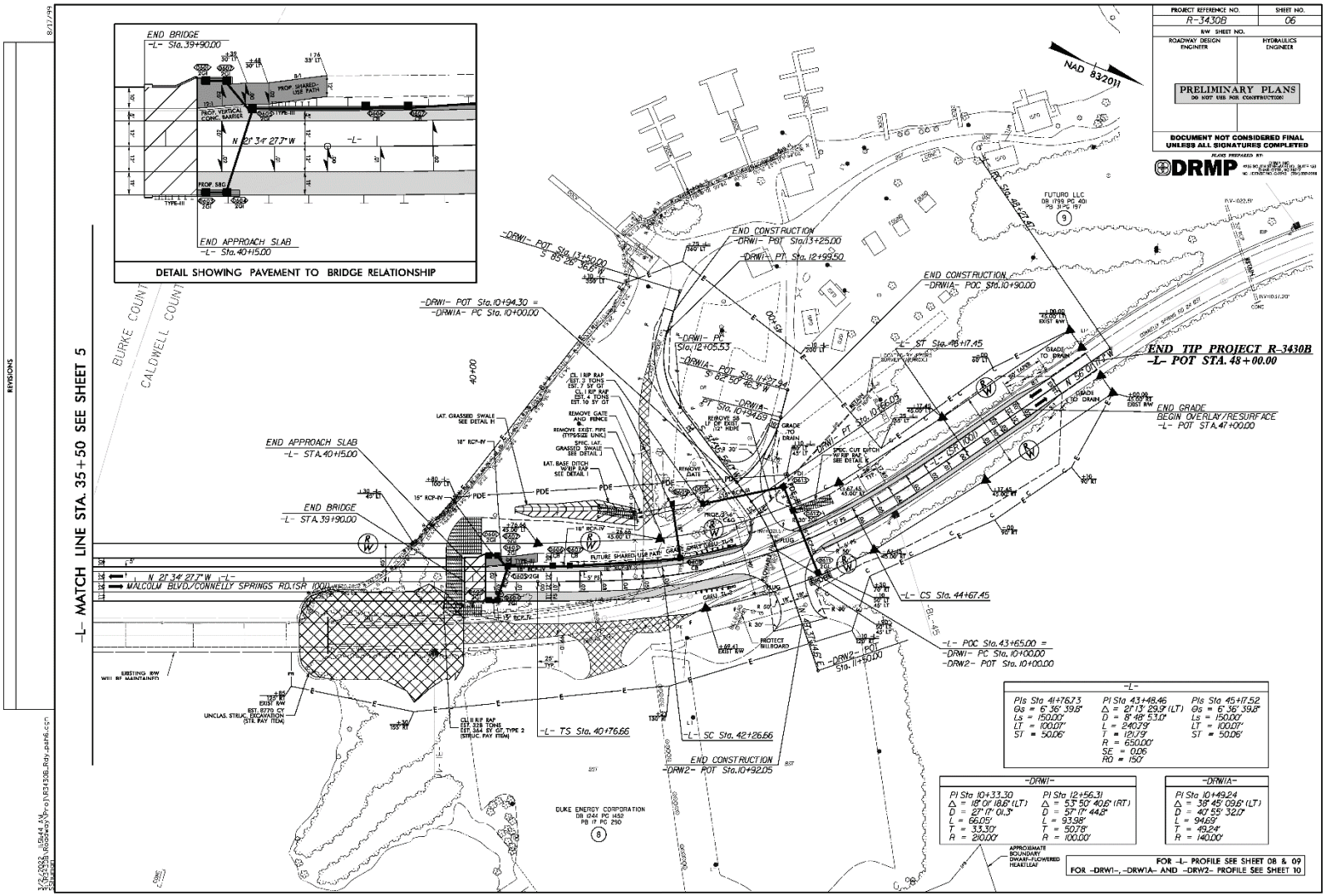
Figure
6

Appendix B. Selected Design Plans




PROJECT REFERENCE NO.
R-3430
SHEET NO.
04
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
DRMP
NAD 83/2011
BEGIN TIP PROJECT R-3430B
-L- POC STA. 17+00.00
BEGIN OVERLAY
END CONSTRUCTION
-L- POT STA. 11+25.00
BEGIN GRADE
END OVERLAY/WEDGING
-L- POC STA. 20+00.00
-Y1- POT Sta. 12+39.83
-Y1- PT Sta. 10+69.83
-L- POC Sta. 22+34.00 =
-Y1- PC Sta. 10+00.00
-L- MATCH LINE STA. 26+00 SEE SHEET 5
MALCOLM BLVD. (SR 1007)
-L-
PI Sta 20+95.86
Δ = 40°00'23.0" (LT)
D = 3°04'49.5"
L = 1298.73'
T = 677.10'
R = 1860.00'
SE = 0.05
RO = 120'
-Y1-
PI Sta 10+35.28
Δ = 20°00'19.5" (RT)
D = 28°38'52.4"
L = 69.93'
T = 35.28'
R = 200.00'
FOR -L- PROFILE SEE SHEET 07
FOR -Y1- PROFILE SEE SHEET 10
REVISIONS
8/17/99


PROJECT REFERENCE NO.
R-3430
SHEET NO.
05
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
DRMP
NAD 83/2011
REVISIONS
DETAIL SHOWING PAVEMENT TO BRIDGE RELATIONSHIP
BEGIN BRIDGE
-L- Sta. 29+15.00
BEGIN APPROACH SLAB
-L- Sta. 28+90.00
PROP. SHARED-USE PATH
PROP. VERTICAL CONC. BARRIER
PROP. 2'-6" C&G
TYPE III
TYPE IIB
N 21° 34' 27.7" W
-L-
-L- MATCH LINE STA. 26+00 SEE SHEET 4
-L- MATCH LINE STA. 35+50 SEE SHEET 6
MALCOLM BLVD/CONNELLY SPRINGS RD.(SR 1001)
CATAWBA
CATAWBA RIVER
BURKE COUNTY
CALDWELL COUNTY
TRAIAN CIUCA
CLAUDIA CIUCA
DB 3022 PG 177
PB 41PG 24
MICHAEL V. CARTER
DENISE N. CARTER
DB 2053 PG 468
PB 41PG 24
ARSHON PROFESSIONAL SERVICES, LLC
DB 4767 PG 515
PB 41PG 24
JAMES D. BECCE, JR.
DB 3470 PG 516
PB 41PG 24
LOHR E. LOVELAND, JR.
DB 510 PG 1554
PB 12 PG 216
DATUS COLE GORDON
JANE A. GORDON
DB 91 PG 863
PB 12 PG 216
FUTURE SHARED-USE PATH GRADE ONLY
APPROXIMATE BOUNDARY DWARF-FLOWERED-SHRUB HEARTLEAF
INSTALL CL B RIP RAP IN EXIST. DITCH FROM STA. 24+50 TO STA. 27+50 (-L- RT) SEE DETAIL P
CL B RIP RAP EST. 210 TONS EST. 316 SY GT EST. 156 CY GGB
SRVC. LAT. GRASSED SWALE SEE DETAIL G
EXISTING R/W WILL BE MAINTAINED
FOR -L- PROFILE SEE SHEETS 07 & 08


PROJECT REFERENCE NO.
R-3430B
SHEET NO.
06
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
DRMP
NAD 83/2011
DETAIL SHOWING PAVEMENT TO BRIDGE RELATIONSHIP
END BRIDGE -L- Sta. 39+90.00
END APPROACH SLAB -L- Sta. 40+15.00
PROP. SHARED-USE PATH
PROP. VERTICAL CONC. BARRIER
PROP. SRG
TYPE III
N 21° 34' 27.7" W
-L-
-L- MATCH LINE STA. 35+50 SEE SHEET 5
BURKE COUNTY
CALDWELL COUNTY
MALCOLM BLVD./CONNELLY SPRINGS RD.(SR 1001)
END APPROACH SLAB -L- STA. 40+15.00
END BRIDGE -L- STA. 39+90.00
-DRW1- POT Sta.10+94.30 = -DRW1A- PC Sta. 10+00.00
-DRW1- POT Sta.13+50.00
S 85° 26' 36.0" W
-DRW1- PC Sta.12+05.53
-DRW1A- POT Sta.11+21.34
S 82° 50' 46.3" W
-DRW1- PT Sta. 10+94.89
END CONSTRUCTION -DRW1- POT Sta.13+25.00
-DRW1- PT Sta. 12+99.50
END CONSTRUCTION -DRW1A- POC Sta.10+90.00
-L- ST Sta. 46+17.45
END TIP PROJECT R-3430B -L- POT STA. 48+00.00
END GRADE BEGIN OVERLAY/RESURFACE -L- POT STA.47+00.00
-L- CS Sta. 44+67.45
-L- POC Sta. 43+65.00 = -DRW1- PC Sta. 10+00.00 -DRW2- POT Sta. 10+00.00
-L- TS Sta. 40+76.66
-L- SC Sta. 42+26.66
END CONSTRUCTION -DRW2- POT Sta.10+92.05
FUTURO LLC DB 1799 PG 401 PB 31 PG 157
DUKE ENERGY CORPORATION DB 1241 PG 1452 PB 17 PG 250
-L-
PI Sta 41+76.73
Δs = 6° 36' 39.8"
Ls = 150.00'
LT = 100.07'
ST = 50.06'
PI Sta 43+48.46
Δ = 27° 13' 29.9" (LT)
D = 8° 48' 53.0"
L = 240.79'
T = 121.79'
R = 650.00'
SE = 0.06
RO = 150'
PI Sta 45+17.52
Δs = 6° 36' 39.8"
Ls = 150.00'
LT = 100.07'
ST = 50.06'
-DRW1-
PI Sta 10+33.30
Δ = 18° 01' 18.8" (LT)
D = 27° 17' 01.3"
L = 66.05'
T = 33.30'
R = 210.00'
PI Sta 12+56.31
Δ = 53° 50' 40.8" (RT)
D = 57° 17' 44.8"
L = 93.98'
T = 50.78'
R = 100.00'
-DRW1A-
PI Sta 10+49.24
Δ = 38° 45' 09.6" (LT)
D = 40° 55' 32.0"
L = 94.69'
T = 49.24'
R = 140.00'
APPROXIMATE BOUNDARY DRAIN FLOWERED HEARTLEAF
FOR -L- PROFILE SEE SHEET 08 & 09
FOR -DRW1-, -DRW1A- AND -DRW2- PROFILE SEE SHEET 10
REVISIONS
8/17/99

Appendix C. Project Details

It is likely that the construction of Connelly Springs Road and other development in the action area have historically altered DFHL occurrences in the area by fragmenting sites and reducing available habitat.

4.0 Project Details

4.1 Project Construction

R-3430B bridge construction will take approximately two years, with 16 months for construction and 6 months for demolition.

4.1.1 Site Preparation

Site preparation will include land clearing, grubbing, and earthwork. Clearing of trees and other vegetation will prepare the project area for construction activities. Clearing will likely consist of cutting and removing above-ground vegetation such as brush and trees, removing downed timber and other vegetative debris, and salvaging marketable timber. Grubbing will follow clearing operations to remove any remaining surface vegetation, roots, and buried debris. Trees, stumps, and large roots will be removed from excavation areas to a depth sufficient to prevent such undesirable material from becoming mixed with the material being incorporated in the embankment. All extraneous matter will be removed and disposed of in fill or designated waste areas on or off-site by chipping, burying, or other methods of disposal, including burning.

Clearing and grubbing will take place within right-of-way (ROW) limits but may also occur in drainage easements and temporary construction easements, which may be used to store construction vehicles that are too large to travel on the road in one piece (e.g., haul trucks, earthmovers, large dozers, large excavators, backhoes, etc.). These areas are also used to store supplies (erosion control materials, steel rebar and mesh, small diameter culverts, traffic signs and posts, office trailers, etc.).

Earthwork includes all earth moving activities that occur for bridge replacements, including associated activities such as preparation of staging areas, bridge approaches, alignments, embankments, fill, foundations, toe trenches, waste areas, borrow areas, temporary access road construction, utility relocation, stormwater treatment, ditch construction and stabilization, and landscaping. Specific earthwork practices can include excavating (cutting), filling, ditching, backfilling, grading, embankment construction, augering, disking, ripping, grading, leveling, and borrowing and wasting of materials. Typical earthmoving equipment used includes haul trucks, dozers, excavators, scrapers, backhoes, and tractors. Approach work to the bridge will include cut and fill for a future 10-ft wide shared-use path on the west side of Malcolm Blvd, extending from the bridge south to Lake Vista Drive.

4.1.2 Construction Access and Staging

Construction access and staging areas will be ultimately determined by the selected contractor after letting. Project specifications and contracts will require that access and staging areas be located in upland areas and an environmental review of any areas outside the proposed project footprint will be performed. This review would include wetland and stream delineation as well as evaluation of the area for potential habitat and presence of any listed species, including DFHL. No access or staging area will be permitted within DFHL sites.

The contractor may use locations outside the action area for borrow pits or spoil areas to dispose of or obtain materials for earthwork. Most borrow and waste areas are sited in upland areas of previously disturbed habitat where vegetation removal is minimal. Construction contractors are responsible for addressing federally listed threatened and endangered species issues per NCDOT standard specifications, including the use of borrow/waste sites.

Contractors must submit plans for borrow pits/staging sites to NCDOT's Resident Engineer. The plans are reviewed by the Roadside Environmental Field Operations Engineer and Division Environmental Officer prior to approval. Details can be found at: https://connect.ncdot.gov/resources/roadside/FieldOperationsDocuments/Contract%20Reclamation%20Procedures.pdf.

4.1.3 Bridge Construction/Demolition

There will be a new bridge structure constructed parallel to the existing bridge with an offset of 67 feet to the west. Construction of the new bridge will require the use of temporary causeways for the construction of a bent and the removal of an existing bent. Barges will be used for the remaining bents.

Percussive activities such as pile-driving will occur for the new bridge substructure. Drilling for interior bents may also occur. It is not known what time of year percussive activities will take place, but they may occur while bats are active on the landscape (approximately April 1 – October 15). The length of time for pile-driving should be one week, since only one bent (end bent #2, north end of bridge) will be on piles.

End bent #1 (southern end of bridge) is anticipated to be a spread footing. Depending on the rock quality, equipment-mounted demolition hammers or limited blasting (one to two blasts) may be needed at this location to remove rock to the required elevation for bent construction. This work is estimated to take two to three weeks, at most.

Additional construction work will include concrete and girder delivery, girder placement, and concrete pours. Nighttime concrete pouring may be required if it coincides with hot weather during summer months. Up to 12 nights of work may be necessary. Guardrail installation will also take place along bridge approaches. These activities may occur during the bat active season (approximately April 1 – October 15).

Once traffic flow has been moved to the new bridge, the old one will be demolished using a tractor trailer, cranes, and possibly a track hoe. The deck will be removed first, followed by the girders, then bridge supports. Remnant bents to the east of the existing bridge will also be demolished and removed during this stage.

4.1.4 Drainage

The R-3430B bridge replacement will include some drainage work on both sides of Malcolm Blvd. A 24-inch diameter corrugated metal pipe under Malcolm Blvd will be replaced. At the western end of the pipe, riprap will be placed to prevent erosion at the outlet. Work will take place in DFHL Site G, see Section 5.1.2 for effects analysis. Other drainage work just outside of Site G is the construction of a 15-inch pipe parallel to the road, which will carry stormwater to the 24-inch pipe. See Plan Sheet 4 in Appendix C for details, station numbers 20+00 to 21+00, approximately. No drainage work will occur in

DFHL Site F. On the east side of Malcolm Blvd, one of the existing roadside ditches will be realigned just outside Site H from station numbers 19+50 to 21+00, approximately (Plan Sheet 4 in Appendix C). Riprap will be used to prevent ditch erosion.

4.1.5 Utilities

There was a four-inch Charter-Spectrum line on the east side of the existing bridge. The line was abandoned and removed in 2022. No further utility work is anticipated for this line in the action area.

A short 8-inch diameter section of buried gas line just west of Malcolm Blvd and south of Lake Vista Drive will be relocated to avoid a conflict with a proposed section of guardrail. Duke Energy is scheduled to construct this "drop section" in May 2023 and have work completed prior to the current R-3430B Let Date of 1/16/2024. This work will occur adjacent to, but outside of DFHL Site G (see Appendix A, Figure 5 for details).

A Duke Energy gas line is currently attached to Bridge #110010 over the Catawba River; it will be relocated as result of the project. Although the gas line work will have its own federal permit from the Federal Energy Regulatory Commission (FERC), it is included in the R-3430B action area and effects analysis, since it would not occur but for the bridge replacement. The gas line relocation area starts north of the river, continues under the river 90-140 ft east of the existing bridge, and is anticipated to run primarily within the project footprint on the east side of Malcolm Blvd south of the river (Appendix A, Figure 4). Approximately 350 feet of the relocated gas line may run outside the construction footprint for the bridge (the exact gas line location has not been determined yet), so as a worst-case scenario, the project footprint has been extended 25 ft further east to allow for additional room for the gas line. The exact schedule for the gas line relocation has not yet been determined.

In conjunction with the relocated gas line, the action area also includes a Duke Energy distribution gas main to be built along Deep Water Lane (Appendix A, Figure 4). The exact schedule for this work has not yet been determined. All gas line work will be funded by Duke Energy.

4.1.6 Post-Project Site Restoration

Upon conclusion of the construction of the new roadway, disturbed areas will be re-vegetated. Typically, this will involve reseeding with grasses suitable for stabilization and maintenance of roadway side slopes. Non-invasive species will be used in erosion control seed mixes. Borrow areas will be graded to drain and re-seeded. Temporary Best Management Practices (BMPs) such as silt fencing, check dams, and sediment basins will be removed.

4.2 Operations and Maintenance

Once traffic is released to the project, typical operations and maintenance activities will occur. This may include pre-treatment of roads prior to winter weather events, and snow plowing and ice removal after the events. Mowing of side slopes will be performed at regular intervals. In addition, bridge cleaning and painting, and ditch maintenance will be conducted as the need for these arise.

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JOSH STEIN
Governor
D. REID WILSON
Secretary

NORTH CAROLINA
Environmental Quality

September 10, 2026

DWR #20221711 v3
Burke and Caldwell County

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

Delivered via email to: maturchy@ncdot.gov

Subject: **Approval of Individual 401 Water Quality Certification**
Replace Bridge 10 over Catawba River (Lake Rhodhiss) on SR 1001 (Malcolm BLVD / Connelly Springs Road), TIP# R-3430B

Location: 35.77993, -81.5246

Dear Mr. Michael Turchy:

Attached hereto is a copy of Certification No. WQC008837 issued to Mr. Michael Turchy and the North Carolina Department of Transportation (NCDOT), dated September 10, 2026. This Certification replaces the Certification issued on April 30, 2026. This Certification is being issued pursuant to a modification request submitted on August 27, 2026, with fee received August 27, 2026, to construct temporary spanning trestles for the purpose of barge access due to lower than anticipated lake levels. All of the authorized activities and conditions of certification associated with the Water Quality Certification No. WQC008837 dated December 16, 2022, and subsequent modifications dated April 30, 2026, still apply except where superseded by this certification.

This Water Quality Certification does not relieve the recipient of the certificate (or the Permittee) of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to, Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.

Upon the presentation of proper credentials, the Division of Water Resources (Division or DWR) may inspect the property.

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This Water Quality Certification shall expire on the same day as the expiration date of the corresponding Section 404 Permit that is current at the time this Certification is issued. The conditions shall remain in effect for the life of the project, regardless of the expiration date of this Water Quality Certification.

Non-compliance with or violation of the conditions herein set forth may result in revocation of this Water Quality Certification for the project and may also result in criminal and/or civil penalties.

Notice regarding the right to contest this 401 Water Quality Certification decision is attached to this letter.

This letter completes the Division's review under section 401 of the Clean Water Act and 15A NCAC 02H .0500. Please contact Amy Annino at 828-296-4668 or amy.annino@deq.nc.gov if you have any questions or concerns.

Sincerely,

Signed by:
Faith Hardin
3185423002EA45E...

Faith Hardin, Supervisor
401 & Buffer Transportation Permitting Branch
Division of Water Resources, NCDEQ

Electronic cc: Lori Beckwith, USACE Asheville Regulatory Field Office
Mike Sanderson, NCDOT DIV 13 Environmental Officer
Erin Cheely, NCDOT
Yates Allen, NCDOT
Dave McHenry, NCWRC
Holland Youngman, USFWS
DWR 401 & Buffer Permitting Branch Electronic file

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NOTICE REGARDING THE RIGHT TO CONTEST A DWR 401 WATER QUALITY CERTIFICATION AND/OR BUFFER AUTHORIZATION

Right of Persons Aggrieved to File a Contested Case for the Decision on a 401 Water Quality Certification and/or Buffer Authorization:
The Division's decision is subject to review under NCGS 150B-23.

Rights of Persons Aggrieved to File a Contested Case: Pursuant to NCGS 150B, Article 3, a party or person aggrieved may commence a contested case by filing a petition under NCGS 150B-23 in the Office of Administrative Hearings within 60 days after the Division provides notice of its decision on an application, as provided in NCGS 150B-23(f). If no contested case is commenced within the required time, the Division's decision is final and is not subject to review.

General Filing Instructions: A petition for contested case hearing must be in the form of a written petition, conforming to NCGS 150B-23, and filed with the Office of Administrative Hearings, 1711 New Hope Church Road, Raleigh NC, 27609, along with a fee in an amount provided in NCGS 150B-23.2. A petition for contested case hearing form may be obtained upon request from the Office of Administrative Hearings or on its website at https://www.oah.nc.gov/hearings-division/filing/hearing-forms. Additional specific instructions for filing a petition are set forth at 26 NCAC Chapter 03.

Service Instructions: A party filing a contested case is required to serve a copy of the petition, by any means authorized under 26 NCAC 03 .0102, on the process agent for the Department of Environmental Quality:

Daniel Hirschman, General Counsel
North Carolina Department of Environmental Quality
1601 Mail Service Center
Raleigh, North Carolina 27699-1601

If the party filing the petition is a person aggrieved other than the recipient of the certificate (the "Permittee"), the party must also serve the Permittee in accordance with NCGS 150B-23(a).

Be aware that other rules or laws may apply to the filing of a petition for a contested case. Additional information is available at https://www.oah.nc.gov/hearings-division/hearing-process/filing-contested-case. Please contact the Office of Administrative Hearings at (984) 236-1850 with all questions regarding the filing fee and/or the details of the filing process.

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NORTH CAROLINA 401 WATER QUALITY CERTIFICATION

CERTIFICATION #WQC008837 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to North Carolina's Regulations in 15 NCAC 02H .0500 and 15A NCAC 02B .0200, to Mr. Michael Turchy and NCDOT, who have authorization for the impacts listed below, as described within your modification request received by the Division of Water Resources (Division or DWR) on and within the *Reasonable Period of Time* pursuant to 40 CFR Part 121.6.

The State of North Carolina certifies that this activity will comply with water quality requirements and the applicable portions of Sections 301, 302, 303, 306, 307 of the Public Laws 92-500 and PL 95-217 if conducted in accordance with the application, the supporting documentation, and conditions hereinafter set forth.

The following impacts are hereby approved. Impacts added or removed pursuant to this modification are shown in bold within the impact table. No other impacts are approved, including incidental impacts. [15A NCAC 02H .0506(b)]

Type of Impact	Amount Approved Permanent	Amount Approved Temporary	Mitigation Amount Required
Open Waters			
Site 1/ Catawba River (Lake Rhodhiss) / Causeway	0	0.06 acres	0 credits
Site 2/ Catawba River (Lake Rhodhiss) / Causeway	0	**0.23 acres**	0 credits
Site 3/ Catawba River (Lake Rhodhiss) / Excavation	0	**0 acres**	0 credits
Totals:	*0 acres*	***0.29 acres***	*0 credits*

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This approval requires you to follow the conditions listed in the certification below.

CONDITIONS OF CERTIFICATION [15A NCAC 02H .0507(c)]:

1. The plans and specifications for this project are incorporated by reference as part of this Water Quality Certification. Any final construction plans for a project must include or reference the application and plans submitted to the DWR. The Permittee must evaluate all other acquired permits to ensure that they are consistent with the plans submitted to the DWR, and all relative impacts are accounted for and shown on the final construction plans. Any modifications or additional impacts to streams and/or wetlands and/or waters within the project require the permittee to notify the DWR and may require submission of a new application package with the appropriate fee.

   Citation: 15A NCAC 02H .0506(b)(2) and (3); 15A NCAC 02H .0507(c)

2. If the property is sold, the Permittee shall provide the new owner with a copy of this Certification and all plans and specifications incorporated by reference. The Permittee may transfer a Certification to the new owner by submitting a letter to the Division with the following statement: *"At the time the property is transferred, the terms and conditions of this 401 Individual Water Quality Certification, including the responsibility to ensure compliance, are binding on the new owner(s) of the property."* The letter shall be signed and dated by both the transferee and the new owner. *Citation: 15A NCAC 02H .0507(d)(2)*

3. The Permittee shall allow the Director, or an authorized representative (including an authorized contractor acting as a representative of the Director), upon the presentation of credentials and other documents as may be required by law, to: *Citation: 15A NCAC 02H .0502(e); 15A NCAC 02H .0507(c)*

   a. Enter, at reasonable times, upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this certificate;
   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this certificate;
   c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this certificate; and
   d. Sample or monitor at reasonable times, for the purposes of assuring certificate compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location

4. Unless already approved by an NPDES permit, bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means to the maximum extent practicable (e.g. grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. This condition may be waived with prior written approval from the NCDWR.

   Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)

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5. Demolition of existing structures, such as culvert or bridge removal, shall be conducted to ensure water quality standards are maintained. NCDOT activities shall adhere to NCDOT's Best Management Practices for Construction and Maintenance Activities.

   Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200

6. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited under this Certification.

   Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200

7. If concrete is used during construction (including bulkhead components, such as deadman anchors, tie-back systems and concrete caps), then all necessary measures shall be taken to isolate the concrete from waters of the state by maintaining a dry work area to prevent direct contact between curing concrete and surface waters. Drill slurry and water that inadvertently contacts uncured concrete shall not be discharged to waters of the state. 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. Any water that contacts uncured concrete shall be captured, treated, and disposed of properly.

   Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231

8. All wetlands, streams, and surface waters located within the limits of disturbance and within 50 feet of the limits of disturbance/construction area on the project site shall be clearly marked (example- orange fabric fencing) prior to any land disturbing activities. The marking/fencing shall be maintained until the project or project phase is completed. Impacts to areas within the marked area/fencing are prohibited unless otherwise authorized by this certification.

   Citation: 15A NCAC 02H .0506(b)(2); 15A NCAC 02H .0507(c)

9. When requested by DWR, the Permittee and/or authorized agent shall schedule a pre-construction meeting with DWR, shall contact the appropriate DWR Regional Office upon project commencement of construction, shall submit a Certificate of Completion and/or shall provide as-built documentation.

   Citation: 15A NCAC 02H .0502(e); 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)

10. The permittee shall report to the appropriate DWR Regional Office any noncompliance with, and/or any violation of, stream or wetland standards [15A NCAC 02B .0200], including but not limited to sediment impacts to streams or wetlands. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the permittee became aware of the non-compliance circumstances.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)

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11. No additional temporary or permanent impacts from waste, spoil, solids, fill, excavation, or staging of equipment, shall occur in wetlands or waters beyond the footprint of the impacts (including temporary impacts) identified in this Certification.

    Citation: 15A NCAC 02H .0506; 15A NCAC 02H .0507(c)

12. All activities shall be in compliance with any applicable State Regulated Riparian Buffer Rules in Chapter 2B of Title 15A in the North Carolina Administrative Code.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)

13. When applicable, all construction activities shall be performed and maintained in full compliance with G.S. Chapter 113A Article 4 (Sedimentation Pollution Control Act of 1973). Regardless of applicability of the Sedimentation Pollution Control Act, all projects shall incorporate appropriate Best Management Practices for the control of sediment and erosion so that no violations of state water quality standards, statutes, or rules occur.

    Design, installation, operation, and maintenance of all sediment and erosion control measures shall be equal to or exceed the requirements specified in the most recent version of the *North Carolina Erosion and Sediment Control Planning and Design Manual*, or the *North Carolina Department of Transportation Erosion and Sediment Control Design and Construction Manual*.

    Appropriate measures should be installed prior to any land clearing activities to protect wetlands, streams, and/or buffers from turbidity and/or sedimentation. These measures should be routinely inspected and properly maintained, and excavated materials should be contained outside wetland, stream, and/or buffer boundaries.

    For installation of bridges that involve driving or drilling activities within stream channels, open waters, or along streambanks turbidity curtains shall be installed within the surface water.

    All devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) sites, including contractor-owned or leased borrow pits associated with the project. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.

    For borrow pit sites, the erosion and sediment control measures shall be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*. Reclamation measures and implementation shall comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.

    Citation: 15A NCAC 02H .0506(b)(2); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231

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14. Sediment and Erosion Control Measures (S&EC) in wetlands or waters should be avoided to the maximum extent possible and any S&EC occurring in wetlands or waters shall be restored to pre-existing conditions upon completion of the project. The Permittee shall utilize sediment and erosion control measures that avoid and minimize the need for the placement of silt fence along streams at the normal water level. Where measures are placed within authorized impact areas then placement of such measures shall not be conducted in a manner that results in a loss of function of any wetlands, streambeds, or streambanks. Any erosion control measures, including silt fence, installed within wetlands shall be removed from wetlands and the natural grade restored and revegetated within two (2) months of the date the appropriate sediment and erosion control program has released the specific area within the project to ensure wetland standards are maintained upon completion of the project.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231

15. Erosion control matting shall not be placed within a stream bed. Erosion control matting that incorporates plastic mesh and/or plastic twine shall not be used along streambanks or within wetlands.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)

16. If the project is covered by NPDES Construction Stormwater Permit Number NCG010000 or NPDES Construction Stormwater Permit Number NCG250000, full compliance with permit conditions including the erosion and sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required.

    Citation: 15A NCAC 02H .0506(b) and (c); 15A NCAC 02H .0507(c)

17. The North Carolina Department of Transportation (NCDOT) shall maintain full compliance with the conditions related to construction activities and post construction stormwater design, construction and maintenance, within the most recent version of their Individual NPDES Stormwater Permit Number NCS000250.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231

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18. All work in or adjacent to streams, ponds, lakes, and reservoirs shall be conducted so that the work area is isolated from surface waters. Approved best management practices from the most current version of the DEMLR *NC Erosion and Sediment Control Planning and Design Manual*, or the *NC Department of Transportation Best Management Practices For Construction and Maintenance Activities Manual*, such as sandbags, rock berms, cofferdams, pump-arounds, and other diversion structures shall be used to minimize excavation in flowing water. Water that comes in contact with the work area shall be treated through an appropriate sediment/erosion control measure (sediment basin, filter bag, etc) prior to discharging to a surface water. All temporarily disturbed areas for the purpose of isolation/dewatering shall be restored to original grade, including each stream's original cross-sectional dimensions, planform pattern, and longitudinal bed profile. All temporarily impacted sites shall be restored and stabilized with native vegetation as practicable. *Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200*

19. Work within a designated trout watershed as identified by the Wilmington District of the US Army Corps of Engineers or work within identified state or federal endangered or threatened species habitat shall be coordinated with NCWRC and/or DMF prior to initiating of project activities.

    The Permittee shall adhere to NCWRC and/or DMF recommended moratoria. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium. If activities must occur during periods of high biological activity of aquatic species (e.g. sea turtle nesting, fish spawning, or bird nesting) all biological surveys, relocations, and/or monitoring requested by the state agency must be conducted.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 04B .0125

20. Culverts shall be designed and installed in such a manner that the original stream profiles are not altered and allows for aquatic life movement during low flows. The dimension, pattern, and profile of the stream above and below a pipe or culvert shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert shall be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. If the width of the culvert is wider than the stream channel, the culvert shall include multiple boxes/pipes, baffles, benches and/or sills to maintain the natural width of the stream channel. If multiple culverts/pipes/barrels are used, low flows shall be accommodated in one culvert/pipe and additional culverts/pipes shall be installed such that they receive only flows above bankfull.

    Placement of culverts and other structures in streams shall also meet one of the following requirements:

a. For structures less than 72" in diameter/width and in area where topographic constraints dictate culvert slopes will be greater than 2.5%, culverts shall be installed "at grade" such that low flow conditions in the stream are maintained provided that all alternative options for flattening the slope have been investigated and aquatic life movement/connectivity has been provided when possible (e.g. rock ladders, cross-vanes, sills, baffles etc.); or

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b. When bedrock is present in culvert locations, culvert burial is not required, provided that there is documentation of the presence of bedrock.
c. For all other culverts:
    i. Culverts with a diameter greater than 48 inches shall be below the elevation of the streambed by one foot
    ii. Culverts with diameter less than or equal to 48 inches shall be below the streambed by 20% of the culvert diameter

If a culvert outlet is submerged within a pool or scour hole and designed to provide for aquatic passage, then culvert burial into the streambed is not required.

Documentation such as a location map of the culvert, culvert profile drawings, slope calculations, geotechnical reports, photographs, etc. shall be provided to DWR upon written request.

For culvert replacements within the same location/footprint, and of similar length, culverts shall be designed and installed to meet the above requirements of this Condition unless prohibited by existing conditions on site, such as existing infrastructure or topographic constraints.

Installation of culverts in wetlands shall ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. When roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges shall be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

The establishment of native woody vegetation and other soft stream bank stabilization techniques shall be used where practicable instead of rip-rap or other bank hardening methods.

Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)

21. Application of fertilizer to establish planted/seeded vegetation within disturbed riparian areas and/or wetlands shall be conducted at agronomic rates and shall comply with all other Federal, State and Local regulations. Fertilizer application shall be accomplished in a manner that minimizes the risk of contact between the fertilizer and surface waters.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0231

22. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in, or adjacent to, surface waters is prohibited.

    Citation: 15A NCAC 02H.0506(b)

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23. All temporary pipes, culverts, rip-rap pads etc. in streams shall be installed so as not to restrict stream flow or installed in such a manner that restricts aquatic life movement during low flow conditions. All temporary pipes and/or culverts shall be installed as outlined in the most recent edition of the *North Carolina Erosion and Sediment Control Planning and Design Manual* or the *North Carolina Surface Mining Manual* or the *North Carolina Department of Transportation Best Management Practices for Construction and Maintenance Activities*.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)

24. All temporary fill and temporary culverts shall be removed, and the impacted area shall be returned to natural conditions, within 60 calendar days after the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross-sectional dimensions, planform pattern, and longitudinal bed profile. All temporarily impacted sites shall be restored and stabilized with native vegetation when practicable. For all areas where wetlands are impacted by temporary roads constructed by temporary fill material, the Permittee shall remove the fill material and conduct activities necessary to restore preconstruction hydrology by addressing soil compaction. When temporary fill has been added to wetlands, or heavy equipment has been placed within a wetland, the Permittee shall ensure restoration of preconstruction soil conditions when restoring wetland areas. Upon restoration of the wetland, the Permittee shall inspect the area quarterly for a minimum of two years to document successful restoration. The Permittee shall provide documentation of inspections to DWR when requested. The monitoring requirement can be relieved with review and written approval by DWR. If the area is not restored to preconstruction conditions the impacts shall be considered permanent, and the Permittee shall request a modified Certification from DWR. With prior written approval from DWR, removal of temporary fill and temporary culverts and restoration of the impacted area may be postponed to accommodate moratorium periods.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)

25. Any rip-rap or other armoring materials required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the construction activity covered by this Certification. All rip-rap or other non-natural armoring material placed in streams shall be placed such that the original streambed elevation and streambank contours are restored, and that the finished elevation of the rip rap shall not exceed that of the original stream bed. All rip-rap or other armoring materials shall consist of clean rock or masonry material free of debris or toxic pollutants. Placement of rip-rap or other armoring materials shall not result in de-stabilization of the stream bed or banks upstream or downstream of the area or be installed in a manner that precludes aquatic life passage.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)

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26. Any rip-rap or other non-natural armoring material (i.e. gabion baskets, revetments, bulkheads, seawalls, retaining walls) used for stream or shoreline stabilization shall be of a size and density to prevent movement by wave, current action, or stream flows, and shall consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap or other armoring materials shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures. Any rip-rap or other armoring materials placed in the streambed shall be such that the finished elevation of the rip rap or other armoring materials shall not exceed that of the original stream bed.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0201

27. All mechanized equipment operated near surface waters shall be inspected and maintained regularly to prevent contamination of surface waters from fuels, lubricants, hydraulic fluids, or other toxic materials. Construction shall be staged in order to minimize the exposure of equipment to surface waters to the maximum extent practicable. Fueling, lubrication, and general equipment maintenance shall be performed in a manner to prevent, to the maximum extent practicable, contamination of surface waters by fuels and oils.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0200; 15A NCAC 02B .0231

28. Heavy equipment working in wetlands shall be placed on mats or non-impact equipment shall be used to ensure no disturbance and/or compaction of soil from equipment except within the footprint of the impacts covered by this Certification. Heavy equipment necessary for in stream activities shall be operated from the banks to the maximum extent practical and in no cases shall cause unstable stream banks or a violation of water quality standards.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c); 15A NCAC 02B .0231

29. In accordance with G.S. 143-215.85(b), the Permittee shall report any petroleum spill of 25 gallons or more; any spill regardless of amount that causes a sheen on surface waters; any petroleum spill regardless of amount occurring within 100 feet of surface waters; and any petroleum spill less than 25 gallons that cannot be cleaned up within 24 hours.

    Citation: 15A NCAC 02H .0507(c); N.C.G.S 143-215.85(b)

30. The Permittee and their authorized agents shall conduct all 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.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)

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31. A copy of this Certification shall be retained on site during the construction and maintenance of this project, or with the project manager, and be available for inspection at all times. The Permittee shall require its contractors and/or agents to comply with the terms and conditions of this Certification 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 Certification. If the Permittee becomes aware of any inability to comply with any of the conditions of this Certification, they must notify the appropriate Regional Office within 24 hours (or the next business day if a weekend or holiday) from the time the Permittee becomes aware of the circumstances.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)

32. This Water Quality Certification neither grants nor affirms any property right, license, or privilege in any lands or waters, or any right of use in any waters. This Water Quality Certification does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person and does not create any prescriptive right or any right of priority regarding any usage of water. This Water Quality Certification shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Water Quality Certification to possess any prescriptive or other right of priority with respect to any other consumptive user.

    Citation: 15A NCAC 02H .0506(b); 15A NCAC 02H .0507(c)

This Water Quality Certification shall expire on the same day as the expiration date of the corresponding Section 404 Permit that is current at the time this Certification is issued. The conditions shall remain in effect for the life of the project, regardless of the expiration date of this Water Quality Certification.

Upon completion of the proposed project, the applicant shall submit a Certificate of Completion and/or shall provide as-built documentation. Certificates of Completion and/or as-built documentation can be submitted via the DWR website: https://edocs.deq.nc.gov/Forms/Certificate-of-Completion.

This, the 10th day of September 2026

Signed by:
Faith Hardin
3185423002EA45E...

Faith Hardin, Supervisor
401 & Buffer Transportation Permitting Branch

Docusign Envelope ID: CF1F1502-0D18-84D1-824C-1921AA15F8F7

JOSH STEIN
Governor
D. REID WILSON
Secretary

NORTH CAROLINA
Environmental Quality

September 10, 2026

DWR # 20221711 V3
Burke and Caldwell County

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

Delivered via email to: maturchy@ncdot.gov

Subject: APPROVAL of CATAWBA RIPARIAN BUFFER IMPACTS WITH ADDITIONAL CONDITIONS
NCDOT TIP #R-3430B: Replace Bridge 10 on SR 1001 Burke and Caldwell Counties.
Catawba River (Lake Rhodhiss) [Catawba River Basin, 03050101, WS-IV, B; CA]

Dear Mr. Turchy:

You have our approval for the impacts listed below for the purpose described in your application dated August 27, 2026, and received by the Division of Water Resources (Division) on August 27, 2026. These impacts are covered by the Catawba Buffer Rules and the conditions listed below.

This Authorization Certificate replaces the Authorization Certification issued on December 16, 2022. Please note that you should get any other federal, state or local permits before proceeding with your project, including those required by (but not limited to) Sediment and Erosion Control, Non-Discharge, and Water Supply Watershed regulations.

The following impacts are hereby approved, provided that all of the Conditions listed below and all of the conditions of the Catawba Buffer Rules are met. No other impacts are approved, including incidental impacts. [15A NCAC 02B.0611(b)(2)]

Docusign Envelope ID: CF1F1502-0D18-84D1-824C-1921AA15F8F7

Catawba Riparian Buffer Impacts

Site	Zone 1 Impact (sq ft)	Zone 1 Buffer Mitigation Required (using 3:1 ratio)		Zone 2 Impact (sq ft)	Zone 2 Buffer Mitigation Required (using 1.5:1 ratio)
Site 1: Roadway	0	n/a		924	n/a
Site 1: Bridge	7,955	n/a		4,453	n/a
Site 2: Bridge	15,705	n/a		10,187	n/a
Site 2: Roadway	1,083	n/a		1,798	n/a
Site 2: Roadway	0	n/a		1,377	n/a
Totals	**24,743**	**0**		**18,739**	**0**

*** n/a = Total for Site is less than 1/3 acre, no mitigation required**
Total Buffer Impact for Project: 43,482 square feet.

This approval is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of this Authorization Certificate. If you change your project, you must notify the Division and you may be required to submit a new application package. If the property is sold, the new owner must be given a copy of this Authorization Certificate and is responsible for complying with all conditions. [15A NCAC 02B [.0611(b)(2)]

If you are unable to comply with any of the conditions below, you must notify the DWR Transportation Permitting Branch within 24 hours (or the next business day if a weekend or holiday) from the time the permittee becomes aware of the circumstances.

The permittee shall report to the DWR Transportation Permitting Branch any noncompliance with the conditions of this Authorization Certificate and/or any violation of state regulated riparian buffer rules [15A NCAC 02B.0614]. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the applicant became aware of the circumstances.

Additional Conditions:

1. All stormwater runoff shall be directed as sheetflow through stream buffers at non-erosive velocities, unless otherwise approved by this certification. [15A NCAC 02B .0614]

2. All riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated. Maintained buffers shall be permanently revegetated with non-woody species by the end of the growing season following completion of construction. For the purpose of this condition, maintained buffer areas are defined as areas within the transportation corridor that will be subject to regular NCDOT maintenance activities including mowing. The area with non-maintained buffers shall be permanently revegetated with native woody species before the next growing season following completion of construction. [15A NCAC 02B .0614]

Docusign Envelope ID: CF1F1502-0D18-84D1-824C-1921AA15F8F7

3. Pursuant to 15A NCAC 2B .0614, sediment and erosion control devices shall not be placed in Zone 1 of any Catawba Buffer without prior approval by the NCDWR. At this time, the NCDWR has approved no sediment and erosion control devices in Zone 1, outside of the approved project impacts, anywhere on this project. Moreover, sediment and erosion control devices shall be allowed in Zone 2 of the buffers provided that Zone 1 is not compromised and that discharge is released as diffuse flow.

This approval and its conditions are final and binding unless contested. [G.S. 143-215.5]

This Authorization Certificate 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:

Dan Hirschman, 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 Authorization shall expire five (5) years from the date of this letter.

This letter completes the review of the Division under the Catawba Riparian Buffer Rules as described in 15A NCAC 02B.0614. Please contact Amy Annino at 828-296-4668 or Amy.Annino@ncdenr.gov if you have any questions or concerns.

Sincerely,

Signed by:
Faith Hardin
3185423002EA45E...
Faith Hardin, Supervisor
401 & Buffer Transportation Permitting Branch

ec: Lori Beckwith, USACE Asheville Regulatory Field Office
Mike Sanderson, NCDOT Division 13 Environmental Officer
Erin Cheely, NCDOT
Holland Youngman, US Fish and Wildlife Service Asheville Field Office
Dave McHenry, NC Wildlife Resources Commission
DWR Transportation 401 & Buffer Permitting Branch electronic file

Water Strategy, Hydro Licensing,
and Lake Services

Duke Energy
525 S. Tryon Street
Mail Code DEP – 35B
Charlotte, NC 28202

April 30, 2025

North Carolina Department of Transportation
c/o Erin Cheely
Century Center Building A
1000 Birch Ridge Drive
Raleigh, NC 27610

Subject: Conveyance Application Approval
Replacement of Bridge No. 10

Dear Ms. Cheely:

The application to replace the existing bridge No. 10 on SR 1001 (Connelly Springs Road / Malcolm Boulevard) within the Project Boundary of the Catawba-Wateree Hydroelectric Project No. 2232 in Burke and Caldwell counties, NC has been approved by Duke Energy Lake Services.

1) The removal of the existing bridge and old bridge bents and the installation of the new bridge shall be conducted in accordance with the methods presented in the Conveyance Permit Application for NC Project R-3430B submitted on September 18, 2024.

2) Duke Energy Lake Services should be notified when construction is initiated and when construction is completed. **The construction must be completed as explained in the application.**

If you have any questions or concerns, please feel free to contact me by phone at 828-369-4513 or by e-mail at kevin.holland@duke-energy.com.

Sincerely,

Kevin Holland
Duke Energy Lake Services Representative
Duke Energy Carolinas, LLC

Cheely, Erin K

From: Holland, Kevin D <Kevin.Holland@duke-energy.com>
Sent: Thursday, May 1, 2025 1:16 PM
To: Turchy, Michael A
Cc: John Williams; Sarah Conner; Chris Rivenbark; Cheely, Erin K
Subject: RE: [EXTERNAL] Thanks: R-3430 FERC

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Hey Michael,
I thought I had included that in the letter but I see that I didn't. Normally it is 18 months from the date of the approval letter but with the removal of the old bents included in the project, we can push that out to 24 months from the date of the approval.
Thanks,
Kevin

From: Turchy, Michael A <maturchy@ncdot.gov>
Sent: Thursday, May 1, 2025 12:33 PM
To: Holland, Kevin D <Kevin.Holland@duke-energy.com>
Cc: John Williams <jwilliams@rkk.com>; Sarah Conner <sconner@rkk.com>; Chris Rivenbark <crivenbark@rkk.com>; Cheely, Erin K <ekcheely@ncdot.gov>
Subject: [EXTERNAL] Thanks: R-3430 FERC

Kevin,
Thank you very much for all your help with this project.
Just one question, is there an expiration date for this approval?
Thanks,
Michael

Michael Turchy
Environmental Coordination and Permitting [ECAP] Group Leader
Environmental Analysis Unit
North Carolina Department of Transportation

919 707 6157 office
919 818 7427 mobile
maturchy@ncdot.gov

1598 Mail Service Center (Mail)
Raleigh, NC 27699-1598

1000 Birch Ridge Drive (Delivery)
Raleigh, NC 27610

Email correspondence to and from this address is subject to the

Prepared By: Karol P. Mack, Deputy General Counsel, Duke Energy
Return To: Duke Energy Carolinas, LLC
c/o Bambi M. Lohr (DEP-09A)
525 South Tryon Street
Charlotte, North Carolina 28202

Property No.: 007373
Land Unit: 0050558
Project No.: 007373-866070

STATE OF NORTH CAROLINA

COUNTY OF BURKE
COUNTY OF CALDWELL

BRIDGE EASEMENT

AGREEMENT

BRIDGE EASEMENT OVER LAKE RHODHISS

CATAWBA-WATEREE PROJECT (FERC Project Number 2232)

THIS BRIDGE EASEMENT AGREEMENT ("Agreement") is made and entered into as of the 17 day of April, 2025 ("Effective Date"), by and between **DUKE ENERGY CAROLINAS, LLC**, a North Carolina limited liability company ("Grantor"), and **NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**, an agency of the State of North Carolina ("Grantee"), each may be referred to herein singularly as "Party" and collectively as "Parties";

W I T N E S S E T H:

WHEREAS, Grantee owns, leases or otherwise controls substantial equity interests in lands in Caldwell County and Burke County, North Carolina, adjacent to Lake Rhodhiss (the "Lake") which is part of Grantor's Catawba-Wateree Hydroelectric Project (FERC No. 2232) ("Project") and which Project is subject to regulatory oversight of, and is operated pursuant to a license issued by, the Federal Energy Regulatory Commission ("FERC"); and

WHEREAS, Grantee desires to use a portion of Project lands for the purpose of constructing, maintaining and operating a public bridge (the "Bridge") near North Carolina State Road 1001 to provide access for the public over the Catawba River, to replace an existing bridge that will be demolished, as more fully described herein; and

WHEREAS, Grantor desires to accommodate Grantee's request for the construction, maintenance, and operation of the Bridge while at the same time not interfering with Grantor's ability to operate and maintain the Project in accordance with its license and other FERC requirements; and

WHEREAS, Article 411(c) of the FERC license for the Project allows the licensee of the Project to convey easements or rights-of-way across, or leases of, Project lands for the construction, maintenance, and operation of the Bridge for which all necessary state and federal approvals have been obtained without prior FERC approval; and

WHEREAS, Grantee has obtained all necessary state and federal approvals for the construction, maintenance, and operation of the Bridge.

NOW, THEREFORE, upon the terms and conditions hereafter set out, the covenants and agreements hereafter expressed to be kept and performed by Grantee, and in consideration of the sum of Ten Dollars ($10.00) and other good and valuable considerations to Grantor paid, the receipt of which is hereby acknowledged, Grantor has bargained and sold and by these presents does hereby bargain, sell, grant and convey to said Grantee, its successors and assigns, an easement over a portion of the lands of Grantor acquired by deed recorded in Deed Book 392 at Page 204, Deed Book 1244 at Page 1452, Deed Book 93 at Page 262, and Deed Book 93 at Page 271 in the Office of the Clerk of Court for Caldwell and Burke County, North Carolina for the purpose of Grantee's construction, maintenance and operation of the Bridge over a portion of the Project lands near North Carolina State Road 1001, more particularly described as follows:

> That area or parcel of land containing 1.695 acres, as shown on the survey entitled "Survey of Proposed FERC Easement Limits For: THE NCDOT over DUKE ENERGY LAKE RHODHISS PROJECT BOUNDARY," prepared by TGS Engineers, dated October 23, 2023, attached hereto as **Exhibit A** and incorporated herein by reference (the "Easement Area").

TERMS AND CONDITIONS:

1. Term: This Agreement shall begin on the Effective Date and runs in perpetuity; provided, however, Grantor may terminate this Agreement as provided herein or require its modification at any time if directed to do so by FERC or its successor agency.

2. Improvements: Grantee shall construct, maintain and operate the Bridge in accordance with the specifications and clearance measurements shown on **Exhibit A**. Grantee agrees that it will obtain written approval from Grantor before initiating any replacement or major repair to the Bridge within the Easement Area, and that any future modifications will still provide navigable bridge spans with at least the clearance heights noted on **Exhibit A**. Grantee also agrees to advise any other party that it may become aware of who desires to place improvements within the Easement Area that said party must first obtain written approval from Grantor.

3. Maintenance: Grantee recognizes that it has the continuing responsibility to ensure that the constructed facilities are maintained in good repair, including but not limited to the maintenance and operation of the Bridge, any required navigation safety devices, and proper erosion control within the Easement Area, and

agrees to take all reasonable steps necessary to meet this responsibility. Grantee shall maintain and operate all structures within the Easement Area in a safe and sound condition and in a neat appearance and pay all costs for said maintenance and operation.

4. Protection of Environment: Grantee's use of the Easement Area shall not endanger public health, create a nuisance or otherwise be incompatible with the overall recreational use of the Project. Grantee shall take all necessary precautions to ensure that the construction, operation, and maintenance of the Bridge will occur in a manner that will protect the scenic, recreational, cultural and environmental values of the Project.

5. Access: It is understood by and between Grantor and Grantee that Grantee shall have such right of ingress, egress and regress over and upon lands of Grantor adjacent to or in the vicinity of the Easement Area as may be essential to the use thereof for the construction and operation of the Bridge.

6. Compliance with Federal, State and Local Laws: Grantee agrees that its use of the Easement Area as herein provided shall be consistent with all FERC orders, regulations and requirements regarding recreational opportunities and development at licensed projects and use of Project lands and facilities, and all other applicable federal, state and local laws as well as all ordinances, rules, regulations and sanctions of any regulatory body or governmental agency (federal, state or local) having jurisdiction in the Easement Area.

7. Reservation of Use: The right to use the Easement Area which is the subject of this Agreement for all Project purposes is hereby reserved to the FERC Project licensee and its successors and assigns.

8. Reservation of Authority: No terms or conditions herein contained shall be construed as limiting or affecting in any way the authority of Grantor in connection with its exercise of proper protection and administration of its FERC license.

9. Transfer or Assignment: Grantee may not transfer or assign this Agreement without the prior written consent of Grantor.

10. Archaeological Resources: Grantee shall comply with the cultural resources consultation requirements specified in Grantor's Historic Properties Management Plan for the Project regarding any ground-disturbing activities, inadvertent discoveries, treatment of human remains and funerary objects or significant modifications to the Easement Area. If previously unidentified archeological or historical properties are discovered during the course of excavation/construction/demolition within the Easement Area, Grantee shall stop all land clearing or land disturbing activity in the vicinity of the excavation/construction/demolition area and notify Grantor immediately. Grantor shall initiate the required consultation process with the State Department of Archives and History, and the State Historic Preservation Office. Grantor may be required to prepare a cultural resources management plan for approval by the FERC that includes but is not limited to the following: (i) a description of each discovered property indicating whether it is listed on, or eligible for listing on the National Register of Historic Places, (ii) a description of the potential effect, and (iii) the proposed measures for avoiding or mitigating the impacts. Grantee shall reimburse Grantor for Grantor's reasonable costs to develop and gain approval for any such cultural resources management plan, and Grantee shall also be responsible for implementing any required cultural resource management plan at Grantee's own cost. No land clearing or land disturbing activities within the Easement Area shall resume until authorized in writing by Grantor.

11. Flooding and Drawdown: Grantor reserves the right to back, flood, or draw down the waters of the Catawba River and its tributaries from time to time and at any and all times over and upon the Easement Area or any portion of the same, to such extent the flooding or drawdown may be reasonably necessary or convenient in connection with the practical operation of its hydroelectric power plants or other electric generation operations located or to be located in the future upon the Catawba River or its tributaries and to the extent such flooding or drawdown is consistent with Grantor's obligations under its License, other applicable easements and agreements, and applicable law. Grantee agrees that any damage it may suffer as a result of such flooding or drawdown shall not be claimed or charged against Grantor.

12. FERC Project Restoration: Grantor shall be under no obligation to Grantee to maintain or continue to operate the Project or Lake and should said Project or Lake be damaged, destroyed or removed, Grantor shall be under no obligation to restore or rebuild same, and Grantee hereby waives all claims against Grantor for damages to or destruction or removal of the Project or Lake.

13. Parties Bound: The covenants and conditions herein contained shall apply to and bind the successors and assigns of the Parties hereto; provided, however, that neither this Agreement nor any interest therein may be assigned or transferred by Grantee except as provided in Paragraph 9.

14. Termination & Waiver: It is expressly agreed and understood that the violation of any of the covenants, conditions, terms, or provisions of this Agreement by Grantee, including but not limited to noncompliance with applicable federal or state regulations, or health and sanitation laws, shall terminate this Agreement at the option of Grantor. This Agreement may also be terminated by Grantor if at any time during the duration of this Agreement (or any renewal thereof) Grantee should be adjudged bankrupt or insolvent by any federal or state court or Grantee shall allow a final judgment obtained against it to remain unpaid for a period of sixty (60) days. Failure of Grantor to exercise any of said rights relating to the termination of this Agreement or any other rights of Grantor under this Agreement shall not be construed as a waiver or abandonment of the right thereafter to exercise any or all of same. In the event Grantor terminates this Agreement under any of the above written conditions, Grantor may enter the Easement Area and expel Grantee therefrom; or Grantor may, in lieu thereof or in conjunction therewith, pursue any other lawful right or remedy incident to the relationships created by this Agreement. Grantor shall give sixty (60) days' notice in writing to Grantee of its intent to terminate. Grantee shall have the right to cure any violation during said sixty-day notice period, during which notice period Grantor may not terminate this Agreement.

15. Non-warranty, As Is: Grantor makes no warranty, express or implied, with respect to the title to the Easement Area. Grantee accepts the Easement Area in "AS IS" condition.

16. Utility Easement: Grantor reserves an easement to build, construct, maintain and operate electric distribution/transmission lines on, over, along and above the Easement Area. Grantor also reserves the right, privilege and easement to erect, construct, reconstruct, replace, maintain and use towers, poles, wires, crossarms and other appliances and fixtures for the purpose of transmitting or distributing electric power, for said Grantor's communication purposes, and for any other purpose that is, in Grantor's sole discretion, consistent with its business operations, together with the right to keep said lines, appliances, and fixtures free of structures, trees and other objects that may endanger or interfere with same.

17. Notices: Wherever in this Agreement it shall be required or permitted that notice be given by either Party to this Agreement to the other, such notice must be in writing and must be given personally or forwarded by certified mail addressed as follows:

To Grantor: Duke Energy Carolinas, LLC
Attn: Lake Services (DEP-35B)
525 South Tryon Street
Charlotte, North Carolina 28202

To Grantee: North Carolina Department of Transportation
c/o Erin Cheely
Century Center Building A
1000 Birch Ridge Drive
Raleigh, North Carolina 27610

Such addresses may be changed from time to time by notice given hereunder. Each Party shall provide timely notice to the other Party of any address changes or name changes.

18. Existing Agreements Amended and Superseded; Removal of Existing Bridge: Upon the completion of construction of the Bridge, Grantee shall demolish and completely remove the existing bridge and associated facilities from the Project Boundary and restore the area to its natural condition, to the extent reasonably possible. Beginning on the date the Bridge has been constructed and the existing bridge has been demolished and completely removed from within the Project Boundary and the Project Boundary restored, this Agreement shall amend, restate, replace and supersede all previous easements or other agreements between Grantor and Grantee, or their respective predecessors in interest, for the use of the area where the existing bridge is located, and such prior leases or other agreements are of no further force or effect.

(Remainder of page intentionally blank. Signature pages follow.)

IN WITNESS WHEREOF, the Parties hereto have caused this instrument to be executed this the day and year first above written.

GRANTOR:

DUKE ENERGY CAROLINAS, LLC
a North Carolina limited liability company

By: _____
Print Name: KEVIN L. LEE
Title: MANAGER, REAL ESTATE II

STATE OF NORTH CAROLINA

COUNTY OF MECKLENBURG

I certify that Kevin Lee personally appeared before me this day, acknowledging to me that he or she signed the foregoing Bridge Easement document, on behalf of the company, in the capacity stated.

Date: 4-17-2025

_____
Notary Public

Dawn Callahan
Notary Name Typed/Printed

My Commission Expires: 12-8-2026

[Notary Seal]

DAWN CALLAHAN
NOTARY PUBLIC
Johnston County
North Carolina
My Commission Expires December 8, 2026

[Signatures Continue on Following Page]

IN WITNESS WHEREOF, the Parties hereto have caused this instrument to be executed this the day and year first above written.

GRANTEE:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
an agency of the State of North Carolina

By: Bradley D. Bass
Print Name: BRADLEY D. BASS
Title: NCDOT RIGHT OF WAY BRANCH MANAGER

STATE OF NORTH CAROLINA

COUNTY OF Wake

The foregoing instrument was acknowledged before me this 25 day of March, 2025, by Brad D. Bass (name of officer), as Manager of Right of Way (title of officer) on behalf of NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, an agency of the State of North Carolina, in the capacity stated.

Maria Luise McGough
Notary Public

Maria Luise McGough
Notary Name Typed/Printed

My Commission Expires: Sep 2, 2029

[Notary Seal]

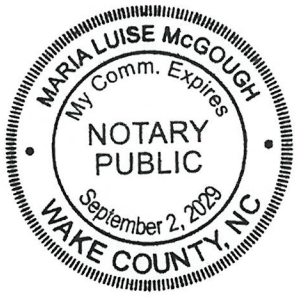
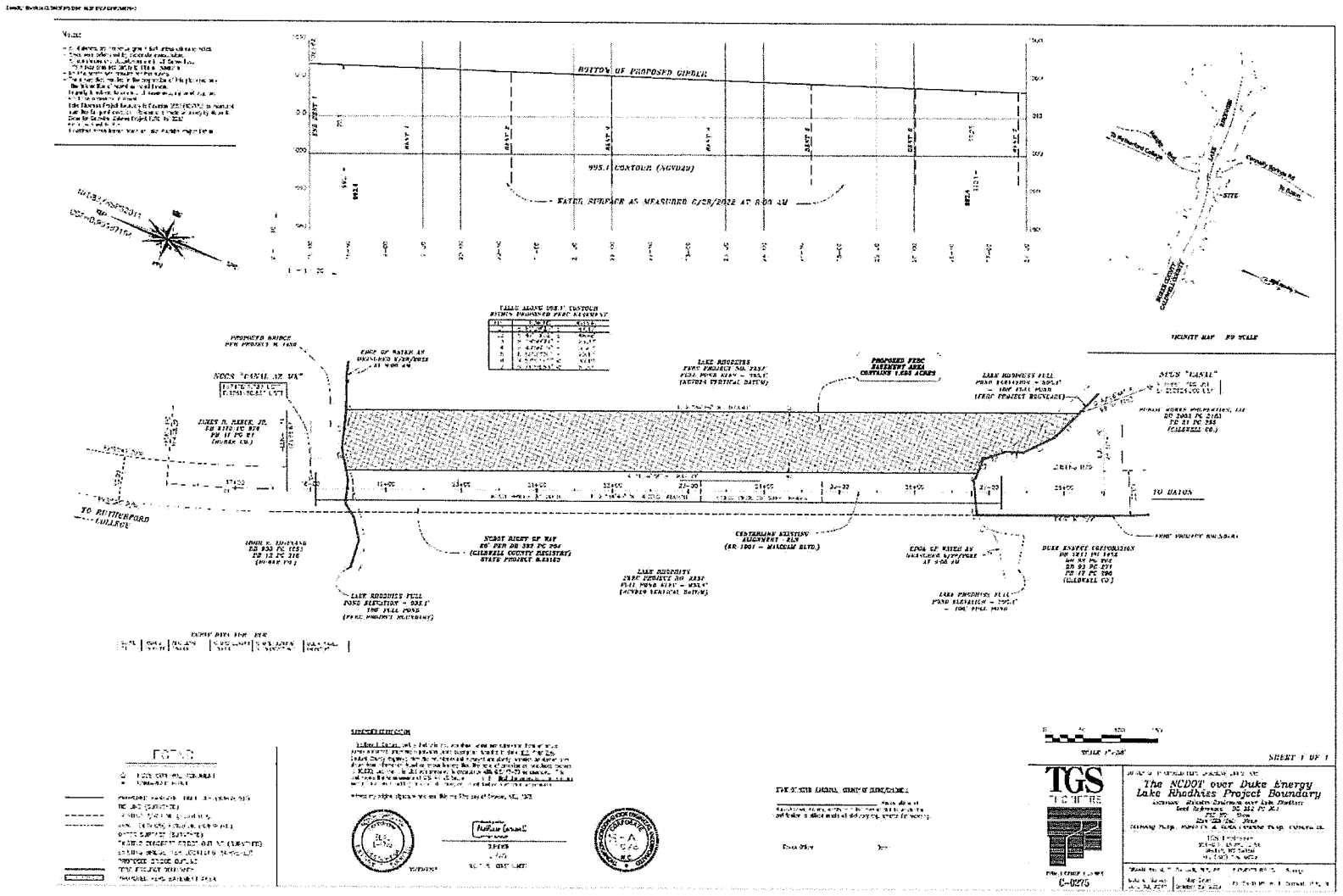


EXHIBIT A



NCDOT – Bridge Easement
Lake Rhodhiss
3.17.25

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

(Version 3.00; Released August 2021) FOR NCDOT PROJECTS

WBS Element: 34544.1.4 **TIP/Proj No:** R-3430B **County(ies):** Burke Caldwell

General Project Information

WBS Element:	34544.1.4	**TIP Number:**	R-3430B	**Project Type:**	Bridge Replacement	**Date:**	08/17/2022
NCDOT Contact:	Theresa T. Ellerby, CPM			**Contractor / Designer:**	DRMP NC, Inc. / Ryan P. Mitchell, PE		
	Address: 1000 Birch Ridge Drive Raleigh, NC 27610				**Address:** 8000 Regency Parkway Suite 110 Cary, NC 27518		
	Phone: (919) 707-6020				**Phone:** (919) 650-1038		
	Email: tellerby@ncdot.gov				**Email:** rmitchell@drmp.com		
City/Town:	Town of Valdese / Town of Rutherford College			**County(ies):**	Burke	Caldwell	
River Basin(s):	Catawba			**CAMA County?**	No	No	
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	0.587 miles	**Surrounding Land Use:**	Light Residential / Recreational				
	Proposed Project			**Existing Site**			
Project Built-Upon Area (ac.)	2.1	ac.		1.5	ac.		
Typical Cross Section Description:	One (1) 12-foot travel lane each direction. 5-foot paved shoulders with roadway ditches on both sides. Guardrail and 2'-6" curb and gutter where applicable.			One (1) 11-foot travel lane each direction with roadway ditches on both sides.			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	12100	Year: 2045	Existing:	10481	Year:	2022

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

R-3430B proposes to replace the Castle Bridge over the Catawba River (Lake Rhodhiss) with additional roadway and drainage improvements upstation/downstation of the proposed bridge. Riprap/bank stabilization at pipe outlets, ditches, and the surface water bank has been incorporated to minimize erosion on slopes where vegetation will not be adequate. NCDOT standards for ground cover, vegetation, and slope stabilization will be adhered to during the life of this project, and will be specified in the NCDOT Erosion and Sediment Control Plan for the project.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

(Version 3.00; Released August 2021) FOR NCDOT PROJECTS

WBS Element:	34544.1.4	TIP/Proj No.:	R-3430B	County(ies):	Burke Caldwell	Page	2	of	3

General Project Information

Waterbody Information ######

Surface Water Body (1):	Catawba River		**NCDWR Stream Index No.:**	DRMP NC, Inc. / Ryan P. Mitchell, PE		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply IV (WS-IV)	Class B	Critical Area (CA)	
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	Town of Valdese / Town of Rutherford College			**Buffer Rules in Effect:**	Catawba	
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	No	**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)						

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

WBS Element: 34544.1.4 **TIP/Proj No.:** R-3430B **County(ies):** Burke Caldwell

Swale

Sheet No.	Line	Station	Location (LT,RT,CL)	Latitude	Longitude	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
5	-L-	40+50	LT	35.78130	-81.52585	(1)Catawba River	5	3	3	0.08	8	50	0.30%	12.56	1.47	16.65	1.60	Yes	Yes
6	-L-	41+00	LT	35.78142	-81.52591	(1)Catawba River	5	3	3	0.13	13	50	1.70%	12.46	2.72	16.52	2.96	Yes	Yes
6	-L-	42+00	LT	35.78167	-81.52602	(1)Catawba River	5	3	3	1.81	181	50	4.00%	12.30	3.65	16.31	3.98	Yes	Yes
6	-L-	42+50	LT	35.78177	-81.52610	(1)Catawba River	5	3	3	4.25	425	50	4.00%	5.57	2.82	7.38	3.10	Yes	Yes
5	-L-	28+50	RT	35.77850	-81.52360	(1)Catawba River	6	5.5	3	3.92	392	50	4.00%	6.62	2.77	8.77	3.03	Yes	Yes
5	-L-	29+00	RT	35.77863	-81.52363	(1)Catawba River	6	4.5	3	0.19	19	50	4.00%	6.89	2.85	9.14	3.12	Yes	Yes

Additional Comments

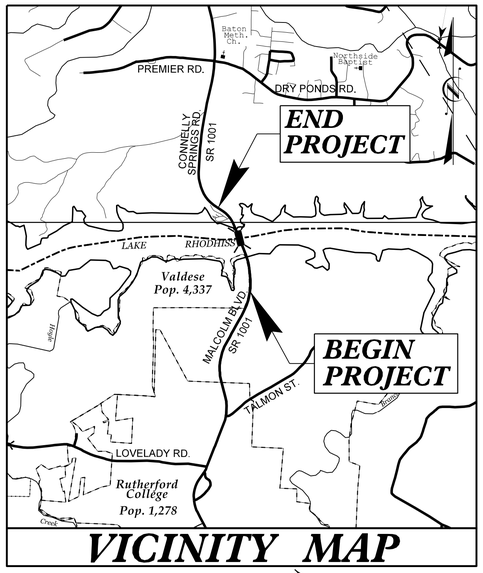
Swales were designed at each end of the proposed bridge for as long as the topography allowed to promote diffuse flow into the buffer zone. Rock checks are proposed for all swales to account for not meeting recommended treatment length and V2 requirements. Swales at a minimum provide roughly 100 feet of treatment length per acre of impervious area draining to them in the post-construction condition. The proposed swale from -L- 40+50 to 43+00 LT has a total length of 200 feet that meets swale criteria and 2.18 acres of impervious area drained. The proposed swale from -L- 28+00 to 29+00 RT has a total length of 100 feet that meets swale criteria and 0.88 acres of impervious area drained.

05/30/17

TIP PROJECT: R-3430B

CONTRACT:

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See RW Sheet Series For Survey Control



VICINITY MAP

NOT TO SCALE

TO RUTHERFORD COLLEGE

75% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BURKE/CALDWELL COUNTY

LOCATION: SR 1001 (CONNELLY SPRINGS ROAD), BURKE COUNTY CONSTRUCT NEW PARALLEL BRIDGE OVER CATAWBA RIVER

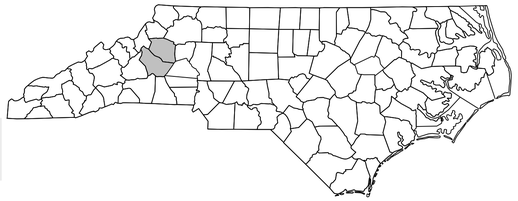
TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURES

WETLAND AND SURFACE WATER IMPACTS PERMIT

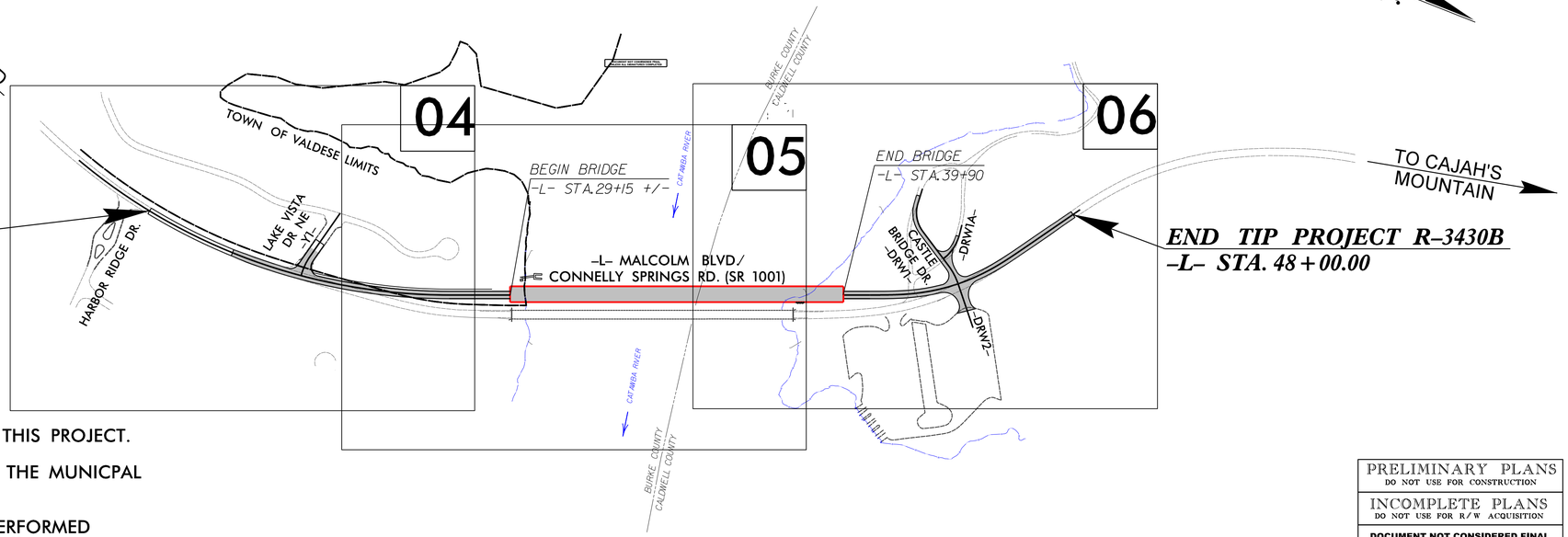
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3430B	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34544.1.4	N/A	P.E.
34544.2.3	N/A	R/W
34544.2.5	N/A	UTILITIES

PERMIT DRAWING
SHEET 1 OF 8



NAD 83/2011



BEGIN TIP PROJECT R-3430B
-L- STA. 17+00.00

END TIP PROJECT R-3430B
-L- STA. 48+00.00

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

A PORTION OF THIS PROJECT IS WITHIN THE MUNICPAL BOUNDARIES OF VALDESE.

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2022 = 10,481
ADT 2045 = 12,100
K = 9 %
D = 60 %
T = 5 % *
V = 50 MPH
* TTST =1% DUAL 4%
FUNC CLASS =
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3430B = 0.383 MILES
LENGTH STRUCTURE TIP PROJECT R-3430B = 0.204 MILES
TOTAL LENGTH TIP PROJECT R-3430B = 0.587 MILES

PLANS PREPARED BY:

DRMP
ENGINEERS SURVEYORS PLANNERS SCIENTISTS
DRMP NC, INC.
4235 SOUTH STREAM BLVD., SUITE 150
CHARLOTTE, NORTH CAROLINA 28217
(704) 332-2289
NC LICENSE NO. C-4923

FOR
PROJECT MANAGEMENT UNIT

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 21, 2022

LETTING DATE:
JANUARY 16, 2024

CHRISTOPHER K. HAIRE, P.E.
PROJECT ENGINEER
MICHAEL D. HAGE, P.E.
PROJECT DESIGN ENGINEER

NCDOT CONTACT:
THERESA T. ELLERBY, CPM
PROJECT MANAGER - DIVISIONS 11-14

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

8/6/2026 11:00:48 AM
R-3430B_Hydraulics\PERMITS_Environmental\Drawings\R3430B_Hyd_prm_wet_tsh.dgn
jmeyer

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3430B	2D-1
R/W SHEET NO.	

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

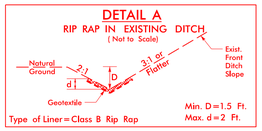
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:
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CHARLOTTE, NC 28217
NC LICENSE NO. C-2213 (704) 332-2289

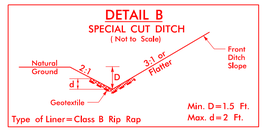
PERMIT DRAWING SHEET 2 OF 8

DETAIL A
RIP RAP IN EXISTING DITCH
(Not to Scale)



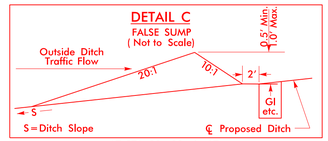
FROM STA. 17+00 TO STA. 18+50 –L– RT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



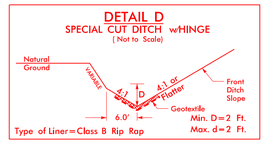
FROM STA. 18+50 TO STA. 20+00 –L– RT

DETAIL C
FALSE SUMP
(Not to Scale)



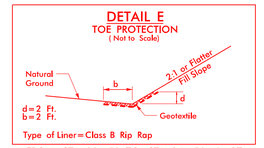
AT STA. 20+00 –L– LT

DETAIL D
SPECIAL CUT DITCH wHINGE
(Not to Scale)



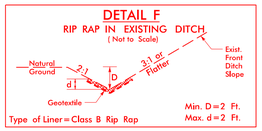
FROM STA. 23+00 TO STA. 23+50 –L– RT

DETAIL E
TOE PROTECTION
(Not to Scale)



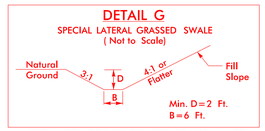
FROM STA. 23+50 TO STA. 24+50 –L– RT

DETAIL F
RIP RAP IN EXISTING DITCH
(Not to Scale)



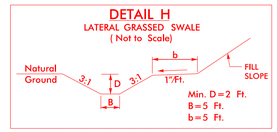
FROM STA. 24+50 TO STA. 27+50 –L– RT

DETAIL G
SPECIAL LATERAL GRASSED SWALE
(Not to Scale)



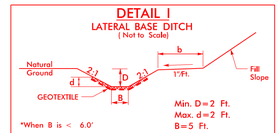
FROM STA. 27+50 TO STA. 29+00 –L– RT
EST. 67 CY DDE
*SEE DETAIL L FOR ADDITIONAL SPECIFICATIONS

DETAIL H
LATERAL GRASSED SWALE
(Not to Scale)



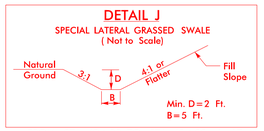
FROM STA. 40+50 TO STA. 41+50 –L– LT
EST. 67 CY DDE
*SEE DETAIL L FOR ADDITIONAL SPECIFICATIONS

DETAIL I
LATERAL BASE DITCH
(Not to Scale)



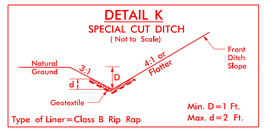
FROM STA. 41+50 TO STA. 42+00 –L– LT
EST. 76 CY DDE
CL. B RIP RAP: EST. 28 TONS, EST. 66 SY GT

DETAIL J
SPECIAL LATERAL GRASSED SWALE
(Not to Scale)



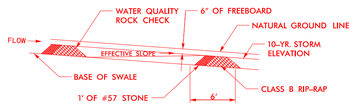
FROM STA. 42+00 TO STA. 43+00 –L– LT
*SEE DETAIL L FOR ADDITIONAL SPECIFICATIONS

DETAIL K
SPECIAL CUT DITCH
(Not to Scale)

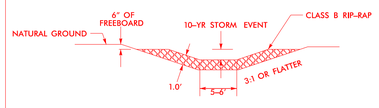


FROM STA. 44+00 LT TO STA. 44+50 –L– LT
CL. B RIP RAP: EST. 24 TONS, EST. 55 SY GT

DETAIL L
TRAPEZOIDAL GRASSED SWALE
wROCK CHECK DAM
(Not to Scale)



PROFILE



TYPICAL SECTION

NOTES:

1) DO NOT USE INSIDE CLEAR RECOVERY AREA.
2) NOT PRACTICAL TO USE ON SLOPES > 5%.
3) TO BE USED AS PERMANENT STRUCTURES IN GRASS SWALES.
4) CHECK DAMS SHOULD BE SPACED SUCH THAT THE BASE OF THE UPSTREAM CHECK IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM CHECK.

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meyer

8/17/99

TS TS TEMPORARY SURFACE WATER IMPACTS

NAD 83\2011

50' 0' 50'
DRAWING SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-3430B	05
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:
DRMP
DRMP NC, INC.
4235 SOUTH STREAM BLVD., SUITE 150
CHARLOTTE, NC 28217
NC LICENSE NO. C-4923 (704) 332-2289

PERMIT DRAWING SHEET 3 OF 8

-L- MATCH LINE STA. 26+00 SEE SHEET 4

-L- PT Sta. 27+17.49

TRAIAN CIUCA
CLAUDIA CIUCA
DB 2022 PG 177
PB 41 PG 24

MICHAEL V. CARTER
DENISE N. CARTER
DB 2053 PG 488
PB 41 PG 24

ARCHON PROFESSIONAL SERVICES, LLC
DB 2367 PG 515
PB 41 PG 24
6

JAMES R. REECE, JR.
DB 2470 PG 976
PB 41 PG 24
5B

LOHR E. LOVELAND, JR.
DB 930 PG 1654
PB 12 PG 216
7

DATUS COLE GORDON
JANE A. GORDON
DB 911 PG 1863
PB 12 PG 216

30+00

35+00

CATAWBA RIVER

DUKE ENERGY CORPORATION
8A

-L- MATCH LINE STA. 35+50 SEE SHEET 6

-L-
MALCOLM BLVD./CONNELLY SPRINGS RD.(SR 1001)

SR 1001 MALCOLM BLVD BST

15" RCP-IV

15" RCP-III

+00
EXIST R/W

DUE

SPEC. LAT. GRASSED SWALE
SEE DETAIL G

+66.00
167.19' RT

+61.75
186.85' RT

TEMP. ROCK CAUSEWAY
TOP OF PAD ELEV. = 997.1'

+82.34
EXIST. R/W

FULL POND ELEV. = 995.1' (NWS)

995.1' CONTOUR
(FERC LIMIT)

BOAT HOUSE

STEPS

SEAT=1018.87'
SEAT=1012.97'
SEAT=1013.04'
SEAT=1018.88'
SEAT=1019.27'
SEAT=1012.12'
SEAT=1011.22'
SEAT=1010.38'
SEAT=1012.17'
SEAT=1011.25'
SEAT=1010.41'
EXISTING R/W

BURKE COUNTY
CALDWELL COUNTY

SITE 1

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mevans

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3430B	05
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:
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NC LICENSE NO. C-4923 (704) 332-2289

PERMIT DRAWING SHEET 4 OF 8

TS TS TEMPORARY SURFACE WATER IMPACTS

NAD 83/2011

50' 0' 50'
DRAWING SCALE

-L- MATCH LINE STA. 26+00 SEE SHEET 4

-L- PT Sta. 27+17.49

TRAIAN CIUCA
CLAUDIA CIUCA
DB 2022 PG 177
PB 41 PG 24

MICHAEL V. CARTER
DENISE N. CARTER
DB 2053 PG 488
PB 41 PG 24

ARCHON PROFESSIONAL SERVICES, LLC
DB 2367 PG 515
PB 41 PG 24
6

JAMES R. REECE, JR.
DB 2470 PG 976
PB 41 PG 24
5B

LOHR E. LOVELAND, JR.
DB 930 PG 1654
PB 12 PG 216
7

DATUS COLE GORDON
JANE A. GORDON
DB 911 PG 1863
PB 12 PG 216

30+00

35+00

CATAWBA RIVER

DUKE ENERGY CORPORATION
8A

995.0' CONTOUR (FERC LIMIT)

FULL POND ELEV. = 995.1' (NWS)

BOWE HOUSE

TEAR ROCK CAUSEWAY
TOP OF PAD ELEV. = 997.1'

+44.00
167.19' RT

+61.75
186.85' RT

+82.34
EXIST. R/W

+00
EXIST. R/W

15" RCP-IV

15" RCP-III

SPEC. LAT. GRASSED SWALE SEE DETAIL G

-L-
MALCOLM BLVD./CONNELLY SPRINGS RD.(SR 1001)

EXISTING R/W

SEAT=1018.87'
SEAT=1012.97'
SEAT=1012.12'
SEAT=1011.22'
SEAT=1010.38'
SEAT=1013.04'
SEAT=1012.17'
SEAT=1011.25'
SEAT=1010.41'

SR 1001 MALCOLM BLVD BST

BURKE COUNTY
CALDWELL COUNTY

-L- MATCH LINE STA. 35+50 SEE SHEET 6

SITE 1

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mevans

8/17/99

TS TS TEMPORARY SURFACE WATER IMPACTS

SITE 2

50' 0' 50'
DRAWING SCALE

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
R-3430B	06
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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CHARLOTTE, NC 28217
NC LICENSE NO. C-4923 (704) 332-2289

PERMIT DRAWING SHEET 5 OF 8

-L- MATCH LINE STA. 35+50 SEE SHEET 5

BURKE COUNTY
CALDWELL COUNTY

DUKE E..
8A

-DRW1- POT Sta.13+50.00
S 85°26'36.6" W

-DRW1- POT Sta.10+94.30 =
-DRW1A- PC Sta.10+00.00

995.1' CONTOUR (FERC LIMIT)

40+00

LAT. GRASSED SWALE SEE DETAIL H

FULL POND ELEV.=995.1' (NWS)

18" RCP-IV

REMOVE EXIST. PIPE (TYPE/SIZE UNK.)

SPEC. LAT. GRASSED SWALE SEE DETAIL J

LAT. BASE DITCH W/RIP RAP SEE DETAIL I

15" RCP-IV

-L- MALCOLM BLVD./ CONNELLY SPRINGS RD.(SR 1001)

SEAT=1009.66' SEAT=1009.31' SEAT=1015.08'
SEAT=1009.64' SEAT=1009.26' SEAT=1015.08'
SEAT=1014.80'
SEAT=1014.80'

UNCLAS. STRUC. EXCAVATION (STR. PAY ITEM)

995.1' CONTOUR (FERC LIMIT)

DUKE ENERGY CORPORATION
8A

END CONSTRUCTION
-DRW1- POT Sta.13+25.00
-DRW1- PT Sta.12+99.50

-DRW1- PC Sta.12+05.53
-DRW1A- POT Sta.11+27.94
S 82°50'46.3" W

-DRW1A- PT Sta.10+94.69

REMOVE 58 LF OF EXIST. 12" HDPE

GRADE TO DRAIN

-DRW1- PC Sta.10+66.05

-L- TS Sta.40+76.66

DUKE ENERGY CORPORATION
DB 1244 PG 1452
PB 17 PG 290
8

PUBLIC WORKS PROPERTIES LLC
DB 2003 PG 283
PB 38 PG 53
9

END CONSTRUCTION
-DRW1A- POC Sta.10+90.00

-L- ST Sta.46+17.45

LOCATED BY HYDRO SURVEY (APPROX.)

-DRW1- PT Sta.10+66.05

-L- SC Sta.42+26.66

END CONSTRUCTION
-DRW2- POT Sta.10+92.05

-DRW1- PC Sta.48+27.47

TAHITI LLC
DB 2045 PG 1818
PB 31 PG 197
11

SPEC. CUT DITCH W/ RIP RAP SEE DETAIL K

-L- (SR 1001)

15" RCP-III

INV=1021.57

PLUG

REMOVABLE FILL

-L- CS Sta.44+67.45

-DRW2- POT Sta.11+50.00

-L- POC Sta.43+65.00 =
-DRW1- PC Sta.10+00.00
-DRW2- POT Sta.10+00.00

RETAIN

CONNELLY SPRING RD. 24" BST

EXISTING R/W

INV=1037

CONC

8/14/2026 8:30:57 AM
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jmeyer

8/17/99

TS TS TEMPORARY SURFACE WATER IMPACTS

SITE 2

-L- MATCH LINE STA. 35+50 SEE SHEET 5

50' 0' 50'
DRAWING SCALE

NAD 832011

PROJECT REFERENCE NO.	SHEET NO.
R-3430B	06
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:
DRMP
DRMP NC, INC.
4235 SOUTH STREAM BLVD., SUITE 150
CHARLOTTE, NC 28217
NC LICENSE NO. C-4923 (704) 332-2289

PERMIT DRAWING SHEET 6 OF 8

-DRWI- POT Sta.13+50.00
S 85°26'36.6"W

-DRWI- POT Sta.10+94.30 =
-DRWIA- PC Sta.10+00.00

END CONSTRUCTION
-DRWI- POT Sta.13+25.00
-DRWI- PT Sta.12+99.50

-DRWI- PC Sta.12+05.53

-DRWIA- POT Sta.11+27.94
S 82°50'46.3"W

-DRWIA- PT Sta.10+94.69

-DRWI- PT Sta.10+66.05

-L- PC Sta.48+27.47

END CONSTRUCTION
-DRWIA- POC Sta.10+90.00

-L- ST Sta.46+17.45

-L- CS Sta.44+67.45

-DRW2- POT Sta.11+50.00

-L- POC Sta.43+65.00 =
-DRWI- PC Sta.10+00.00
-DRW2- POT Sta.10+00.00

-L- TS Sta.40+76.66

-L- SC Sta.42+26.66

END CONSTRUCTION
-DRW2- POT Sta.10+92.05

-L- (SR 1001)

-L-
MALCOLM BLVD./
CONNELLY SPRINGS RD.(SR 1001)

995.1' CONTOUR (FERC LIMIT)

FULL POND ELEV.=995.1' (NWS)

DUKE ENERGY CORPORATION
8A

DUKE ENERGY CORPORATION
DB 1244 PG 1452
PB 17 PG 290
8

PUBLIC WORKS PROPERTIES LLC
DB 2003 PG 283
PB 38 PG 53
9

TAHITI LLC
DB 2045 PG 1818
PB 31PG 197
11

LAT. GRASSED SWALE SEE DETAIL H

REMOVE EXIST. PIPE (TYP.SIZE UNK.)

SPEC. LAT. GRASSED SWALE SEE DETAIL J

LAT. BASE DITCH W/RIP RAP SEE DETAIL J

REMOVE 58 LF OF EXIST. 12" HDPE

SPEC. CUT DITCH W/ RIP RAP SEE DETAIL K

18" RCP-IV

15" RCP-IV

15" RCP-III

UNCLAS. STRUC. EXCAVATION (STR. PAY ITEM)

GRADE TO DRAIN

RETAIN

PLUG

PDES

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5/14/99

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DRMP NC, INC.
4235 SOUTH STREAM BLVD., SUITE 150
CHARLOTTE, NC 28217
NC LICENSE NO. C-4923 (704) 332-2289

PROJECT REFERENCE NO.	SHEET NO.
R-3430B	08
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 7 OF 8

PI = 26+60.00
EL = 1,032.73'
VC = 460'
K = 80
V = 45 MPH

BEGIN BRIDGE
-L- STA. 29+15.00
ELEV.= 1,030.85'

(-)0.7400%

CLASS II RIP-RAP
EST. 189 TONS
EST. 209 SY GT. TYPE 2
(STRUC. PAY ITEM)

(-) 4.0000%

PI=28+00.00
EL=1,015.00'

END SPEC. LAT. GRASSED SWALE
STA.29+00.00 -L- RT
EL=1011.00'

TEMP. ROCK CAUSEWAY
TOP OF PAD ELEV. = 997.1'

PROP. 25 YR. ELEV. = 1,000.2

PROP. 100 YR. ELEV. = 1,004.6

EXIST. BRIDGE PIERS TO BE REMOVED

EXIST. BRIDGE TO BE REMOVED

(-)0.7400%

TRESTLE WORK BRIDGE

WSEL (06/26/2026) ELEV. = 991.09'

END BRIDGE
-L- STA. 39+90.00
ELEV.= 1,022.88'

PI = 42+45.00
EL = 1,021.00'
VC = 420'
K = 81
V = 45 MPH

PROPOSED GRADE

(-)0.7400%

LOW POINT
-L- STA. 40+94.63
ELEV.= 1,022.33'

1.5:1

(+) 0.3000% (+) 1.7000% (+) 10.0000%

PI = 41+00.000
EL = 1002.15'

CLASS II RIP-RAP
EST. 328 TONS
EST. 364 SY GT. TYPE 2
KEY-IN 3.5'
(STRUC. PAY ITEM)

BEG. LAT. GRASSED SWALE
STA. 40+50.00 -L- LT
EL=1002.00'

EXISTING GROUND

END LAT. GRASSED SWALE
BEG. LAT. BASE DITCH
STA. 41+50.00 -L- LT
EL=1003.00'

END LAT. BASE DITCH
BEG. SPEC. LAT. GRASSED SWALE
STA. 42+00.00 -L- LT
EL=1008.00'

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 51,000	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1,000.2	FT
BASE DISCHARGE	= 81,500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1,004.6	FT
OVERTOPPING DISCHARGE	= >87,800	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 1022.5	FT
DATE OF SURVEY	= MAY 2020	
W.S. ELEVATION AT DATE OF SURVEY	= 995.1	FT

FOR -L- PLAN SEE SHEETS 05 & 06

1100 1090 1080 1070 1060 1050 1040 1030 1020 1010 1000 990 980 970 960 950 940 930 920 910 900

28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00

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WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	29+64/30+02 -L- RT	TEMP. ROCK CAUSEWAY							0.06			
2	36+93/38+42 -L- RT	TRESTLE							0.10			
2	38+23/40+28 -L- LT	TRESTLE							0.13			
TOTALS*:									0.29	0	0	0

*Rounded totals are sum of actual impacts

NOTES:
Proposed area of new piers in water (using the normal pond elevation of 995.1') is 264 sq. ft.
Pier footings are 4' in diameter. There are seven interior bents falling within the water and three piers per interior bent.

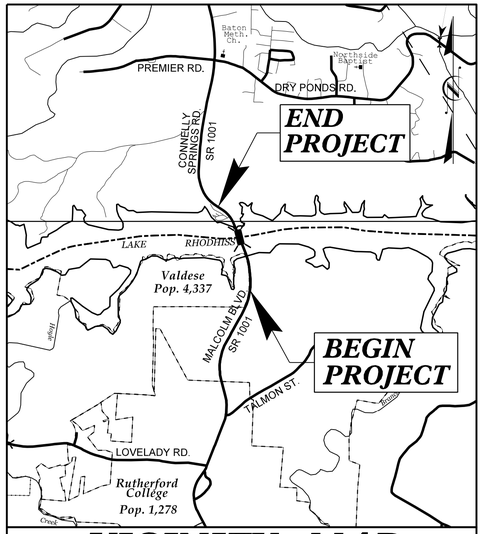
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
08/06/2026
BURKE / CALDWELL
R-3430B
34544.1.4
SHEET 8 OF 8

05/30/17

TIP PROJECT: R-3430B

CONTRACT:

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See RW Sheet Series For Survey Control



VICINITY MAP

NOT TO SCALE

TO RUTHERFORD COLLEGE

75% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BURKE/CALDWELL COUNTY

LOCATION: SR 1001 (CONNELLY SPRINGS ROAD), BURKE COUNTY CONSTRUCT NEW PARALLEL BRIDGE OVER CATAWBA RIVER

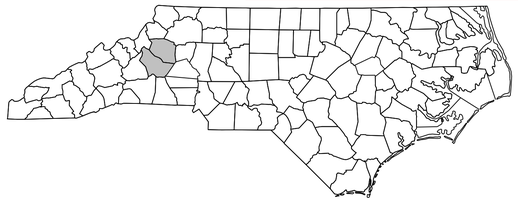
TYPE OF WORK: GRADING, PAVING, DRAINAGE & STRUCTURES

BUFFER IMPACTS PERMIT

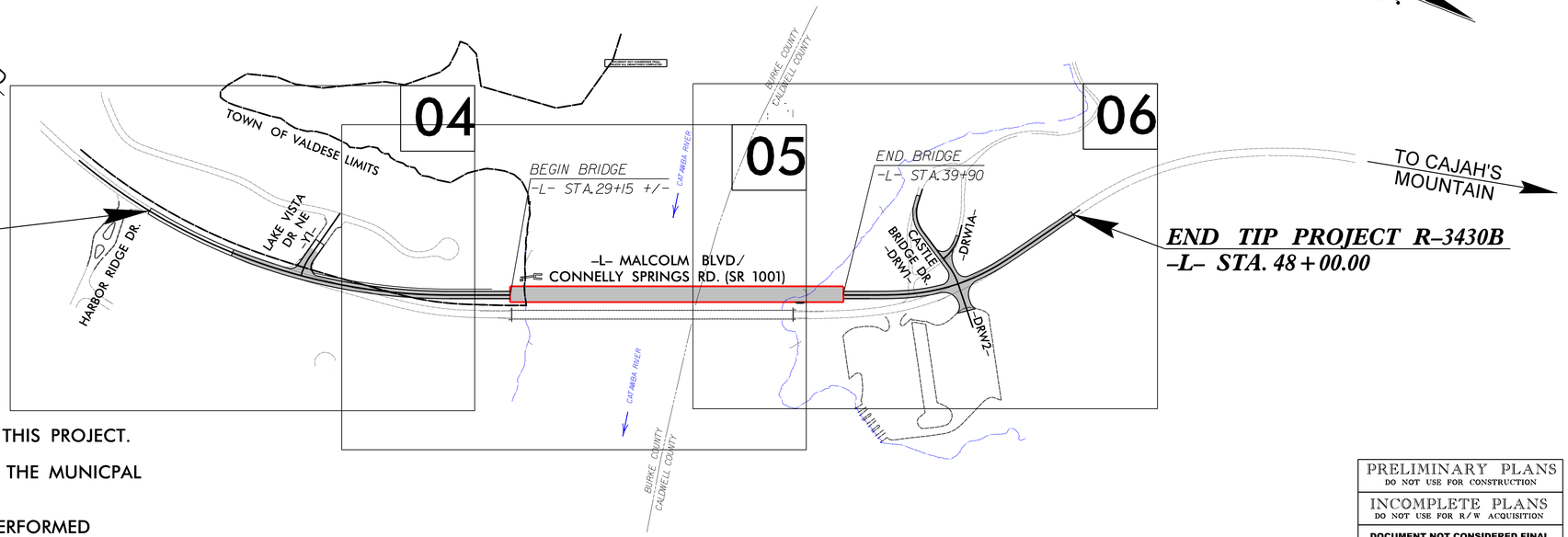
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3430B	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34544.1.4	N/A	P.E.
34544.2.3	N/A	R/W
34544.2.5	N/A	UTILITIES

BUFFER DRAWING SHEET 1 OF 5



NAD 83/2011



BEGIN TIP PROJECT R-3430B
-L- STA. 17+00.00

END TIP PROJECT R-3430B
-L- STA. 48+00.00

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

A PORTION OF THIS PROJECT IS WITHIN THE MUNICPAL BOUNDARIES OF VALDESE.

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2022 = 10,481
ADT 2045 = 12,100
K = 9 %
D = 60 %
T = 5 % *
V = 50 MPH
* TTST =1% DUAL 4%
FUNC CLASS =
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3430B = 0.383 MILES
LENGTH STRUCTURE TIP PROJECT R-3430B = 0.204 MILES
TOTAL LENGTH TIP PROJECT R-3430B = 0.587 MILES

PLANS PREPARED BY:

DRMP
ENGINEERS SURVEYORS PLANNERS SCIENTISTS
DRMP NC, INC.
4235 SOUTH STREAM BLVD., SUITE 150
CHARLOTTE, NORTH CAROLINA 28217
(704) 332-2289
NC LICENSE NO. C-4923

FOR PROJECT MANAGEMENT UNIT

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 21, 2022

LETTING DATE:
JANUARY 16, 2024

CHRISTOPHER K. HAIRE, P.E.
PROJECT ENGINEER
MICHAEL D. HAGE, P.E.
PROJECT DESIGN ENGINEER

NCDOT CONTACT:
THERESA T. ELLERBY, CPM
PROJECT MANAGER - DIVISIONS 11-14

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

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jmeyer

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3430B	2D-1
R/W SHEET NO.	

HYDRAULICS ENGINEER

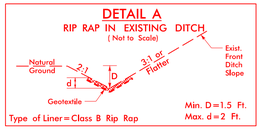
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:
DRMP
DRMP, INC.
4235 SOUTH STREAM BLVD., SUITE 150
CHARLOTTE, NC 28217
NC LICENSE NO. C-2213 (704) 332-2289

BUFFER DRAWING SHEET 2 OF 5

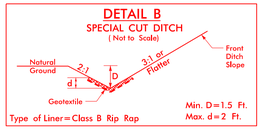
DETAIL A
RIP RAP IN EXISTING DITCH
(Not to Scale)



Type of Liner=Class B Rip Rap

FROM STA. 17+00 TO STA. 18+50 –L– RT

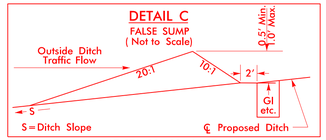
DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner=Class B Rip Rap

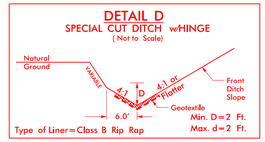
FROM STA. 18+50 TO STA. 20+00 –L– RT

DETAIL C
FALSE SUMP
(Not to Scale)



AT STA. 20+00 –L– LT

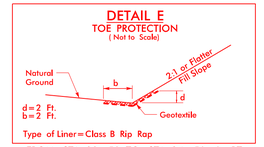
DETAIL D
SPECIAL CUT DITCH wHINGE
(Not to Scale)



Type of Liner=Class B Rip Rap

FROM STA. 23+00 TO STA. 23+50 –L– RT

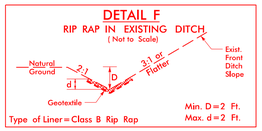
DETAIL E
TOE PROTECTION
(Not to Scale)



Type of Liner=Class B Rip Rap

FROM STA. 23+50 TO STA. 24+50 –L– RT

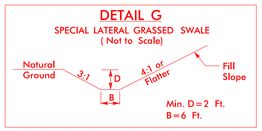
DETAIL F
RIP RAP IN EXISTING DITCH
(Not to Scale)



Type of Liner=Class B Rip Rap

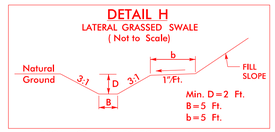
FROM STA. 24+50 TO STA. 27+50 –L– RT

DETAIL G
SPECIAL LATERAL GRASSED SWALE
(Not to Scale)



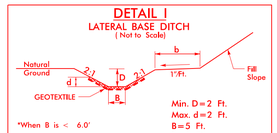
FROM STA. 27+50 TO STA. 29+00 –L– RT
*SEE DETAIL L FOR ADDITIONAL SPECIFICATIONS

DETAIL H
LATERAL GRASSED SWALE
(Not to Scale)



FROM STA. 40+50 TO STA. 41+50 –L– LT
EST. 67 CY DDE
*SEE DETAIL L FOR ADDITIONAL SPECIFICATIONS

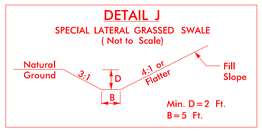
DETAIL I
LATERAL BASE DITCH
(Not to Scale)



Type of Liner=Class B Rip–Rap

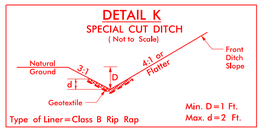
FROM STA. 41+50 TO STA. 42+00 –L– LT
EST. 76 CY DDE
CL. B RIP RAP: EST. 28 TONS, EST. 66 SY GT

DETAIL J
SPECIAL LATERAL GRASSED SWALE
(Not to Scale)



FROM STA. 42+00 TO STA. 43+00 –L– LT
*SEE DETAIL L FOR ADDITIONAL SPECIFICATIONS

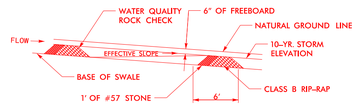
DETAIL K
SPECIAL CUT DITCH
(Not to Scale)



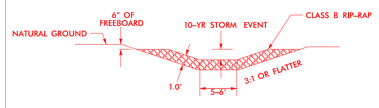
Type of Liner=Class B Rip Rap

FROM STA. 44+00 LT TO STA. 44+50 –L– LT
CL. B RIP RAP: EST. 24 TONS, EST. 55 SY GT

DETAIL L
TRAPEZOIDAL GRASSED SWALE
w/ROCK CHECK DAM
(Not to Scale)



PROFILE



TYPICAL SECTION

NOTES:

1) DO NOT USE INSIDE CLEAR RECOVERY AREA.
2) NOT PRACTICAL TO USE ON SLOPES 5%.
3) TO BE USED AS PERMANENT STRUCTURES IN GRASS SWALES.
4) CHECK DAMS SHOULD BE SPACED SUCH THAT THE BASE OF THE UPSTREAM CHECK IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM CHECK.

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ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

NAD 83\2011

50' 0' 50'
DRAWING SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-3430B	05
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:
DRMP
DRMP NC, INC.
4235 SOUTH STREAM BLVD., SUITE 150
CHARLOTTE, NC 28217
NC LICENSE NO. C-4923 (704) 332-2289

BUFFER DRAWING SHEET 3 OF 5

TRAIAN CIUCA
CLAUDIA CIUCA
DB 2022 PG 177
PB 41PG 24

MICHAEL V. CARTER
DENISE N. CARTER
DB 2053 PG 488
PB 41PG 24

ISLAND

-L- PT Sta. 27+17.49

30+00

BZ

BZ 1

ARCHON PROFESSIONAL SERVICES, LLC
DB 2367 PG 515
PB 41PG 24
6

BOAT HOUSE

995.1' CONTOUR (FERC LIMIT)

FULL POND ELEV. = 995.1' (NWS)

JAMES R. REECE, JR.
DB 2470 PG 976
PB 41PG 24
5B

BZ 2

15" RCP-IV

15" RCP-III

SEAT=1018.87'
SEAT=1012.97'
SEAT=1012.12'
SEAT=1011.22'
SEAT=1010.38'
SEAT=1013.04'
SEAT=1018.88'
SEAT=1019.27'
SEAT=1012.17'
SEAT=1011.25'
SEAT=1010.41'
EXISTING R/W

SR 1001 MALCOLM BLVD BST

+00
EXIST R/W

+82.34
EXIST. R/W

DUE

SPEC. LAT. GRASSED SWALE
SEE DETAIL G

+66.00
167.19' RT

+61.75
188.85' RT

SWALE DATA
DA = 4.11 ACRES
SLOPE = 0.04 FT/FT
L REQ = 411 FT
L PRO. = 100 FT
Q2 = 6.89 CFS
V2 = 2.85 FPS
D2 = 0.33 FT
Q10 = 9.14 CFS
V10 = 3.12 FPS
D10 = 0.39 FT
STA. 29+00 -L- RT

LOHR E. LOVELAND, JR.
DB 930 PG 1654
PB 12 PG 216
7

CONC
25SKD
WD

DATUS COLE GORDON
JANE A. GORDON
DB 911PG 1863
PB 12 PG 216

-L- MATCH LINE STA. 26+00 SEE SHEET 4

35+00

CATAWBA RIVER

DUKE ENERGY CORPORATION
8A

-L-
MALCOLM BLVD./CONNELLY SPRINGS RD.(SR 1001) N 21° 34' 27.7" W

-L- MATCH LINE STA. 35+50 SEE SHEET 6

DUKE ENERGY CORPORATION
8A

CATAWBA RIVER

BURKE COUNTY
CALDWELL COUNTY

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ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

-L- MATCH LINE STA. 35+50 SEE SHEET 5

BURKE COUNTY

CALDWELL COUNTY

DUKE ENERGY CORPORATION
8A

GRASS SWALE DATA
DA= 6.27 ACRES
SLOPE= 0.003 FT/FT
L REQ.= 627 FT
L PRO.= 200 FT
Q2= 12.56 CFS
V2= 1.47 FPS
D2= 1.05 FT
Q10= 16.65 CFS
V10= 1.60 FPS
D10= 1.21 FT

STA. 40+50 -L- LT

995.1' CONTOUR (FERC LIMIT)

40+00

-DRW1- POT Sta.13+50.00
S 85°26'36.6" W

-DRW1- POT Sta.10+94.30 =
-DRW1A- PC Sta.10+00.00

LAT. GRASSED SWALE SEE DETAIL H

FULL POND ELEV.=995.1' (NWS)

18" RCP-IV

REMOVE EXIST. PIPE (TYP.SIZE UNK.)

SPEC. LAT. GRASSED SWALE SEE DETAIL J

LAT. BASE DITCH W/RIP RAP SEE DETAIL I

15" RCP-IV

18" RCP-IV

995.1' CONTOUR (FERC LIMIT)

-L-
MALCOLM BLVD./
CONNELLY SPRINGS RD.(SR 1001)

SEAT=1009.66' SEAT=1009.31' SEAT=1015.08'

SEAT=1009.64' SEAT=1009.26' SEAT=1015.08' SEAT=1014.81'

UNCLAS. STRUC. EXCAVATION (STR. PAY ITEM)

995.1' CONTOUR (FERC LIMIT)

DUKE ENERGY CORPORATION
8A

-L- TS Sta. 40+76.66

DUKE ENERGY CORPORATION
DB 1244 PG 1452
PB 17 PG 290
8

END CONSTRUCTION
-DRW1- POT Sta.13+25.00
-DRW1- PT Sta.12+99.50

PUBLIC WORKS PROPERTIES LLC
DB 2003 PG 283
PB 38 PG 53
9

END CONSTRUCTION
-DRW1A- POC Sta.10+90.00

TAHITI LLC
DB 2045 PG 1818
PB 31 PG 197
11

-DRW1- PC Sta.12+05.53

-DRW1A- POT Sta.11+27.94
S 82°50'46.3" W

-DRW1A- PT Sta.10+94.69

REMOVE 58 LF OF EXIST. 12" HDPE

GRADE TO DRAIN

-L- ST Sta.46+17.45

LOCATED BY HYDRO SURVEY (APPROX.)

RETAIN

-DRW1- PT Sta.10+66.05

SPEC. CUT DITCH W/RIP RAP SEE DETAIL K

-L- (SR 1008) L-

-L- SC Sta.42+26.66

END CONSTRUCTION
-DRW2- POT Sta.10+92.05

-DRW2- POT Sta.11+50.00

-L- CS Sta.44+67.45

-L- POC Sta.43+65.00 =
-DRW1- PC Sta.10+00.00
-DRW2- POT Sta.10+00.00

-BL-44

-BL-45

-L- PC Sta.48+27.47

CONNELLY SPRING RD. 24" BST

EXISTING R/W

INV=1037 CONC

INV=1012.59' 15" RCP

15" PLUG

18" PLUG

DOUBLE FW

PDES

DRAWING SCALE 50' 0' 50'

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
R-3430B	06
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLANS PREPARED BY:
DRMP
DRMP NC, INC.
4235 SOUTH STREAM BLVD., SUITE 150
CHARLOTTE, NC 28217
NC LICENSE NO. C-4923 (704) 332-2289

BUFFER DRAWING
SHEET 4 OF 5

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mexer

RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	29+08/29+15 -L-	ROADWAY FILL	X				924	924					
1	29+15/29+59 -L-	BRIDGE		X		7955	4453	12408					
2	37+94/39+90 -L-	BRIDGE		X		15705	10187	25892					
2	39+90/40+63 -L- LT	ROADWAY FILL	X			1083	1798	2881					
2	12+71/13+35 -DRW1- LT	ROADWAY FILL	X				1377	1377					
TOTALS*:						**24743**	**18739**	**43482**	**0**	**0**	**0**	**0**	**0**

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
08/05/2026
BURKE / CALDWELL
R-3430B
34544.1.4
SHEET 5 OF 5

Revised 2018 Feb