

**FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
FINDING OF NO SIGNIFICANT IMPACT (FONSI)
CITY OF SALISBURY, ROWAN COUNTY, NORTH CAROLINA
PROPOSED NORTH CAROLINA RESILIENCY PROJECT
EMA-2021-BR-005-0044**

BACKGROUND

The Department of Homeland Security's (DHS) Federal Emergency Management Agency (FEMA) proposes to provide funding to the City of Salisbury, North Carolina (subrecipient) for a resiliency project along the Yadkin River. The City of Salisbury applied for Building Resilient Infrastructure and Communities (BRIC) Grant Program funding. BRIC grant program is authorized under Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act).

The project will involve abandonment of the existing water intake structures (35.747004, -80.459930 and 35.747138, -80.459790) and raw water pump station (35.746665, -80.461232) and the construction of a new combined intake structure and raw water pump station (35.741600, -80.458413), access road (35.741019, -80.459904), access bridge (35.741140, -80.459536), and raw water main line (Start: 35.741265, -80.463804, End: 35.741140, -80.459536) to improve potable water supply resiliency.

On May 21, 2024, a draft environmental assessment (EA) was prepared by FEMA. A Public notice was posted on the following City of Salisbury website: [River Pump Station \(salisburync.gov\)](https://www.salisburync.gov/river-pump-station)

On July 3, 2024, FEMA finalized the EA and is available for viewing by visiting the following website: [Environmental Assessment for City of Salisbury Water Supply Resiliency Project for SRU Pump Station Along Yadkin River, Rowan County, North Carolina, EMA-2021-BR-005-0044, 2024 | FEMA.gov](https://www.fema.gov/environmental-assessment-for-city-of-salisbury-water-supply-resiliency-project-for-sru-pump-station-along-yadkin-river-rowan-county-north-carolina-ema-2021-br-005-0044-2024)

FINDINGS

The Proposed Action as described in the EA with the prescribed mitigation measures and conditions will have no significant adverse impact on the natural and human environment. Short term impacts to surface water, wetlands, vegetation, threatened and endangered species, migratory birds, visual quality and aesthetics, and noise are anticipated. Impacts to geology and soils are anticipated to be moderate, however soil erosion and sedimentation protection measures will offset these impacts. Impacts to floodplains, air quality, and hazardous materials are negligible and not anticipated to be long-term. Long-term positive impacts to transportation, public services/ utilities, as well as public health and safety are expected.

In consideration of the overall impacts of the proposed action in relation to impacts from past, present, and reasonably foreseeable future activities, the proposed action is not expected to have significant adverse cumulative impacts on any resource.

CONDITIONS

The City of Salisbury (subrecipient) is responsible for compliance with federal, state, and local laws and regulations including obtaining all required federal, state, and local approvals or permits prior to beginning construction activities, and adhering to any conditions laid out in these approvals or permits. While a good faith effort was made to identify all necessary permits and approvals for this environmental assessment, the following list may not include all approvals or permits required for this Project. Before, and no later than, submission of a Project closeout package, the City of Salisbury shall provide FEMA with a copy of the required permit(s) from all pertinent regulatory agencies.

LIST OF PERMITS:

Federal

1. USACE Section 10 Permit
2. USACE Section 404 Permit

State – North Carolina

1. NCDEQ Section 401 Water Quality Certification
2. NCDEQ NPDES General Storm Water Construction Permit
3. NCDEQ Isolated Wetlands/Non-404 Jurisdictional Permit (TBD)
4. NCDEQ Public Water System Authorization to Construct
5. NCDEQ Water Withdrawal Transfer Registration (TBD)
6. NCDEQ Erosion and Sediment Control Certificate of Approval
7. NCDNCR Review of Threatened & Endangered Species
8. NCWRC Endangered Species Permit (TBD)
9. NCDOT Encroachment Permit
10. NCDOT Oversize/Overweight Permit (TBD)

Local – City of Salisbury, Rowan County

1. Rowan County Building Inspections (RC-BI) Commercial Plan Review
2. Rowan County Floodplain Management Permit and CLOMR
3. Rowan County Stormwater Post-Construction Permit

4. Rowan County Septic System and Well Permits

Other

1. Cube Yadkin Activity Permits (for non-Project use of land within FERC Project boundary and for shoreline stabilization; possibly other authorizations if demolition option chosen)

LIST OF PROJECT CONDITIONS:

General Project Conditions

1. The subrecipient is responsible for obtaining and complying with all required local, state, and federal permits and approvals.
2. If deviations from the proposed scope of work result in substantial design changes, the need for additional ground disturbance, additional removal of vegetation, or any other unanticipated changes to the physical environment, the subrecipient must contact FEMA so that the revised Project scope can be evaluated for compliance with NEPA and other applicable environmental laws.

General Best Management Practices:

The following construction methods and BMPs will be incorporated to limit degradation of Yadkin River water quality during in-stream construction activities as well as stormwater runoff quality (and subsequently surface water quality in the Yadkin River and Deals Creek) during riverbank disturbance associated with the Switchgear Building, access road, and pipeline work:

1. Contamination of natural aquatic and wetland systems will be avoided by limiting all equipment maintenance, staging laydown, fuel/oil dispensing, etc., to designated upland areas.
2. No excavated material will be stockpiled where sediment would erode to surface waters.
3. BMPs will be designed to avoid turbidity around in-stream construction work and the downstream discharge of total suspended solids in stormwater runoff to Deals Creek and Yadkin River.
4. Tree clearing will be minimized, leaving tree stumps in place during clearing to allow the roots to continue to stabilize the soil.
5. Dust control measures will be implemented, including watering bare soil, to limit wind erosion and dust.
6. Areas of disturbed soil will be stabilized with vegetative cover, and erosion control blankets will be used in sloped areas to limit soil loss.
7. Perimeter BMPs will be implemented, including silt fence and fiber rolls as appropriate, to avoid the discharge of silt and sediment loads to surface waters and potentially subsequent destruction of fish spawning habitat, suffocation of eggs, and clogging of gills.
8. To minimize noise impacts, construction activities will adhere to all local noise ordinances.

9. To the greatest extent practicable, transport of materials to and from the construction area shall consider avoiding school zones and areas with low income and minority populations.
10. To minimize risks to safety and human health, construction activities will be performed using qualified personnel trained to use the required equipment properly.
11. The construction area will be secured from public access and signage indicating closed site and only authorized personnel allowed at all entrances and exits.
12. All construction activities will be conducted in accordance with the standards specified in the OSHA regulations.
13. For ground disturbing activity, if contaminated soil is encountered during construction, it should be treated, stored, and disposed of according to applicable federal, state, and local regulations.
14. Any hazardous materials discovered, generated, or used during construction of the proposed action will be disposed of and handled by the subrecipient in accordance with applicable federal, state, and local regulations.

Erosional risks will also be mitigated through Project design. The new access road and raw water main will be designed to minimize erosion and ensure the hillside remains stable both during and following the completion of construction. Site contours will be designed to slow stormwater flow and direct it around new impermeable surfacing. As applicable, and to the extent practicable, the Project will be designed to maintain a minimum 100-foot native, undisturbed forested buffer along each side of perennial streams and a 50-foot native, undisturbed forested buffer along each side of intermittent streams and wetlands, as recommended by the NC Wildlife Resources Commission (NCWRC).

Physical Resources

1. Utilize BMPs the fullest extent practicable. See BMPS under General Best Management Practices. This list may not encompass all BMPs are required by permits or authorization from other federal, state, and location agencies. Verification of adherence can be provided to FEMA at project closeout through a formal letter or email correspondence.

Water Resources

1. NCDEQ Stream Reclassification – approval of reclassification of 2,100-foot section of Yadkin River using riverine criteria to WS-IV, CA and 10-mile portion of South Yadkin River to WS-IV.
2. The proposed construction activities are to adhere to all permitting requirements to avoid, minimize, or mitigate potential impacts to wetlands.

Biological Resources

1. To minimize potential impacts to federally listed species, FEMA proposes the following conditions to the grant to be implemented during construction:

- a. Educate all employees, contractors, and/or site visitors of relevant rules and regulations that protect wildlife, discuss identification of the ESA-listed species, their protected status, what to do if any are observed within the Project areas, and applicable penalties that may be imposed if State and Federal regulations are violated. All personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing ESA-listed species.
- b. If construction work comes into contact, injures, and/or disturbs ESA-listed species and general wildlife; construction personnel or designated agent shall immediately call the NC Wildlife Helpline at 866-318-2401 for assistance. More information can be found: <https://ncwildlife.org/injured-wildlife#7110749-what-should-I-do-if-I-find-injured-wildlife>. Also, one should immediately report the incident to the USFWS – Asheville Ecological Services Field Office at 828-258-3939.
- c. Photos and descriptions of species may be obtained on the North Carolina Wildlife Resources Commission (NCWRC) webpage: <https://www.ncwildlife.org/Learning/Species>.
- d. Minimize Project creep by clearly delineating and maintaining Project boundaries (including staging areas).
- e. Maximize use of disturbed land for all Project activities (i.e., siting, lay-down areas, and construction).
- f. Implement standard soil erosion and dust control measures. For example: establish vegetation cover to stabilize soil, use erosion blankets to prevent soil loss, and water bare soil to prevent wind erosion and dust issues.
- g. Use only native and local (when possible) seed and plant stock.
- h. Restrict unauthorized access to natural areas adjacent to the Project site by erecting a barrier and/or avoidance buffers (e.g., gate, fence, wall) to minimize foot traffic and off-road vehicle uses.
- i. Contractor is to clearly mark all riparian buffers, streams, and wetlands including limits of disturbance in field prior to commencing construction in these areas.
- j. Regarding construction equipment and vehicles:
 - i. Construction equipment and vehicles should utilize eco-friendly fuels or otherwise should undergo regular inspection for possible leaks or seeping of fuel, oil, etc.
 - ii. Avoid soil contamination by using drip pans underneath equipment and containment zones at construction sites and when refueling vehicles or equipment.

- iii. Avoid contaminating natural aquatic and wetland systems with runoff by limiting all equipment maintenance, staging laydown, and dispensing of fuel, oil, etc., to designated upland areas.
- iv. Construction equipment and vehicles shall be cleaned regularly after use and prior to demobilization any vegetation (terrestrial and aquatic) will be removed and disposed of properly to avoid transporting any invasive and exotic species.
 - For more information and assistance for NC specific invasive plants contact the North Carolina Forest Service. See the following webpage: https://www.ncforestsERVICE.gov/contacts/contacts_main.htm.
- v. After each day of work and at Project completion, all equipment including materials and any waste must be removed and/or disposed of properly according to NCDEQ requirements.
- k. Work operations hours must be completed between 15 minutes before official sunrise to 15 minutes after official sunset.
- l. Prior to removal of an inactive nest, ensure that the nest is not protected under the Endangered Species Act (ESA). Nests protected under ESA cannot be removed without a valid permit. Use the identified contact information for both NCWRC and USFWS.
- m. Do not collect bats (live or dead) or their parts (e.g., wings) or nests without a valid permit.
- n. Operation of any mechanical construction equipment shall cease immediately if ESA-listed species (specifically bats and birds) are seen within a 50-ft radius of the equipment. Activities will not resume until the protected species has departed the Project area of its own volition.
- o. When feasible and practicable, avoid disturbing the vegetation located within the Duke Energy right-of-way.
- p. All practicable measures be taken to avoid adverse impacts to aquatic species, such as stringent sedimentation and erosion control measures when working near waterways.
- q. The subrecipient or designated agent will be required to obtain all applicable Federal, state, and local permits and will comply with conditions set forth in each. These requirements include all applicable State of North Carolina and USACE authorization or permits. These may include NCDEQ Erosion and Sediment Control permitting, NCDEQ Section 401 Water Quality permitting, Section 404 Clean Water Act USACE permitting, and Floodplain Development permitting to name a few. Failure to obtain permits or comply with these conditions may also be a violation of the ESA and may jeopardize the FEMA funding.

- r. Listed below are conservation measures to be utilized during the construction activities for the Proposed Action with the goal of reducing impacts to birds and their habitats protected under the Migratory Bird Treaty Act (MBTA).
- a. To the extent practicable, schedule all vegetation removal, trimming, and grading of vegetated areas from September 1st – March 31st, which is outside of the peak breeding season for migratory birds. USFWS’s Information, Planning and Conservation system (IPaC) was used to collect bird breeding information.
 - b. Educate contractors of relevant rules and regulations that protect wildlife. Prior to the onset of construction activities, the contractor’s designated lead will conduct a briefing with all construction staff to instruct them on the potential presence of species protected under the MBTA. If work is occurring during a bird’s breeding season, briefing boards strategically placed at laydowns area will inform construction staff of the species’ scientific and common name, a picture of the bird, timing of breeding, and habitat notes.
 - c. Do not collect birds (live or dead) or their parts (e.g., feathers) or nests without a valid permit.
 - d. Provide solid waste receptacles at all project areas. Non-hazardous solid waste (trash) would be collected and deposited in the on-site receptacles. Solid waste would be collected and disposed of in the manner approved by the South Carolina Department of Health and Environmental Control (SCDHEC).
 - e. Implement standard soil erosion and dust control measures.
 - f. Report any incidental take of a migratory bird, to:

U.S. Fish and Wildlife Service

Migratory Bird Permit Office

1875 Century Blvd.

Atlanta, GA 30345

404-679-4163

Resee_Collins@fws.gov

Voluntary conservation measures for the Monarch butterfly:

1. Planting (recommended) or seeding of native milkweed and native nectar plants (organically and locally grown sourced plants are best) with an aim for diversity of species and bloom timing,

2. Conservation mowing (i.e., mowing only November – March) to enhance native floral resource habitat.
3. Targeted herbicide treatments (outside the growing season of native milkweeds) to restore suitable habitat.
4. Invasive species management.

General Measure Recommendations:

1. Native shoreline vegetation should be left unaltered as much as possible. Riparian buffers should be maintained or reestablished with plantings of native species such as buttonbush clusters, needle rush, and multi-stem river birch, wherever possible.
2. Stringent erosion-control measures should be installed where soil is disturbed and should be maintained until Project completion in the upland areas and along the shoreline area in the riparian portions of the Project. No excavated material should be stockpiled where sediment will erode to surface waters.

Invasive Species Recommendations:

1. Routine, weekly checks should be implemented in active construction areas for sprouts of the Tree of Heaven after tree clearing activities have occurred.
2. Tree of Heaven sprouts should be physically removed via hand-pulling.
3. If hand-pulling proves to be ineffective, and the area becomes heavily infested, herbicide should be used on sprouts to control the invasive species.

Socioeconomic Resources

1. Utilize BMPs the fullest extent practicable. See BMPS under General Best Management Practices. This list may not encompass all BMPs required by permits or authorization from other federal, state, and local agencies. Verification of adherence can be provided to FEMA at project closeout through a formal letter or email correspondence.

CONCLUSIONS

Based on the findings of the EA, coordination with the appropriate agencies, comments from the public, and adherence to the project conditions set forth in this FONSI, FEMA has determined that the proposed project qualifies as a major federal action that will not significantly affect the quality of the natural and human environment, nor does it have the potential for significant cumulative effects. As a result of this FONSI, and in accordance with FEMA Instruction 108-1-1, an EIS will not be prepared, and the proposed project as described in the attached EA may proceed.

APPROVAL

ANGELIKA H
PHILLIPS

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Valerie Rhoads
Competitive Grants Compliance Branch Chief
FEMA, Region 4



Final Environmental Assessment

City of Salisbury

**Water Supply Resiliency Project for SRU Pump Station Along
Yadkin River**

EMA-2021-BR-005-0044 (NC SHPO 23-0910)

Salisbury, Rowan County, North Carolina

July 2024



U.S. Department of Homeland Security

Federal Emergency Management Agency Region 4 Atlanta, Georgia

Prepared by Black & Veatch – Overland Park, KS and Charlotte, NC offices



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LIST OF ACRONYMS

APE	Area of Potential Effect
AOI	Area of Interest
APE	Area of Potential Effect
BCA	Benefit Cost Analysis
BFE	Base Flood Elevation
BGEPA	Bald and Golden Eagle Protection Act
BMPs	Best Management Practices
BRIC	Building Resilient Infrastructure and Communities
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CI	Community/Institutional
City	City of Salisbury
CLOMR	Conditional Letter of Map Revision
CO	Carbon Monoxide
CWA	Clean Water Act
dBA	A-weighted decibels
DPP	Drilling Program Plan
EA	Environmental Assessment
ECA	Environmental Corporation of America
EMA	Emergency Management Agency
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FPPA	Farmland Protection Policy Act
GA	Georgia
GHG	greenhouse gas(es)
GIS	geographic information systems
HPOWEB 2.0	North Carolina State Historic Preservation Office GIS Web Service
HUC	hydrologic unit code
IPaC	Information for Planning and Consultation (USFWS)
LF	linear feet
LLC	limited liability company
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day

MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NAVD	North American Vertical Datum
NC	North Carolina
NCAC	North Carolina Administrative Code
NCDEQ	North Carolina Department of Environmental Quality
NCDNCR	North Carolina Department of Natural and Cultural Resources
NCDOT	North Carolina Department of Transportation
NCWRC	North Carolina Wildlife Resources Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO2	Nitrogen Dioxide
NNPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTU	Nephelometric turbidity units
NWI	National Wetlands Inventory
NWP	Nationwide Permit
O3	Ozone
OEHP	Office of Environmental Planning & Historic Preservation
OSA	Office of the State Archaeologist
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCB	Polychlorinated Biphenyls
PM10	Particulate Matter
PR&G	Principles, Requirements, & Guidelines
RC-BI	Rowan County – Building Inspection
RCRA	Resource Conservation and Recovery Act
RWPS	Raw Water Pump Station
SEPA	State Environmental Policy Act
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO2	Sulfur Dioxide
SPDES	State Pollutant Discharge Elimination System
SRU	Salisbury-Rowan Utilities
SSA	Sole Source Aquifer
SWPPP	Stormwater Pollution Prevention Plan
TBD	to be determined
TSCA	Toxic Substances Control Act

US	United States
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
VOCs	Volatile Organic Compounds
WOTUS	Waters of the United States
WS	water supply
WTP	water treatment plant

1.0 INTRODUCTION

FEMA's mission is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards. The City of Salisbury (subrecipient) in Rowan County, North Carolina submitted a grant application for hazard mitigation assistance to the Federal Emergency Management Agency (FEMA). Funding would be provided through the Building Resilient Infrastructure and Communities (BRIC) grant program, as authorized under Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act). The Disaster Recovery Reform Act of 2018 amended Section 203 of the Stafford Act, established BRIC, and is funded from a 6 percent set-aside of estimated disaster expenses for each disaster, as authorized by Section 203(i). BRIC is designed to promote a national culture of preparedness and public safety through encouraging investments to protect the nation's communities and infrastructure and through strengthening national mitigation capabilities to foster resilience. Under BRIC, FEMA may provide technical and financial assistance to states and local governments to assist in the implementation of pre-disaster hazard mitigation measures that are cost effective and designed to reduce injuries, loss of life, and damage and destruction of property, including damage to critical services and facilities resulting from natural disasters.

The Proposed Action would include abandonment of the existing water intake structures and raw water pump station and the construction of a new combined intake structure and raw water pump station, access road, access bridge, and raw water main line to improve potable water supply resiliency for communities in Rowan County, North Carolina (NC). To provide a reliable source of water supply during storm events, the pump station needs to be relocated to where it can be accessed during storm events and the operating floor can be above the 0.01 annual exceedance probability flood elevation. This water supply serves a population of more than 50,000 customers. The Proposed Action was selected as a part of the competitive project selections during the BRIC 2021 funding cycle.

This Final Environmental Assessment (EA) has been conducted in accordance with the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508) and regulations adopted pursuant to the Department of Homeland Security Directive 023-01, Rev 01, and FEMA Directive 108-1. FEMA is required to consider potential environmental and cultural resource impacts before funding and approving actions and projects. FEMA will use the findings in this EA to determine if an Environmental Impact Statement is required, or if the Project can be authorized under a Finding of No Significant Impact.

A Principles, Requirements, and Guidelines for Federal Investments in Water Resources (PR&G) analysis is required for federal investments that, by purpose, directly or indirectly alter water resources by affecting water quality or quantity, and have at least \$10 million in Project costs. These water resources projects include those involving navigation, flood control, water supply, hydropower, ecosystem restoration, or recreation. The PR&G is intended to provide a framework for federal agencies to evaluate proposed water resources projects that balances consideration of economic, social, and environmental objectives. The information reviewed under the PR&G analysis is included throughout

the EA. FEMA's PR&G Agency Specific Procedures are found in FEMA Instruction 108-1-1 (FEMA, 2018).

Where potentially competing uses of project lands and waters arise related to a regulated hydropower facility and associated waters, a Federal Energy Regulatory Commission (FERC) licensee such as Cube Yadkin may develop a comprehensive shoreline management plan (SMP) to manage the multiple resources and uses of a project reservoir's shorelines consistent with license requirements and project purposes, while addressing the needs of the public. Shoreline management is a longstanding FERC initiative intended to protect the shoreline around hydropower project reservoirs. This EA was developed in accordance with Cube Yadkin's Yadkin Hydroelectric Project Shoreline Management Plan (SMP) in addition to its compliance with FEMA's NEPA requirements as noted above. This EA covers the entire proposed work area for the project, of which only a portion is within the FERC boundary for the Yadkin Hydroelectric Project.

FERC Project boundaries for an SMP are used to designate the geographic extent of the hydropower project that FERC determines a licensee must own or control on behalf of its licensed hydropower project. The project boundary must enclose only those lands necessary for operation and maintenance of the project and for other project purposes, such as recreation, shoreline control, or protection of environmental resources, as designated in the project license.

Licensees can authorize specific uses and occupancies of the project reservoir shoreline that are not related to hydroelectric power production or other project purposes (non-project uses) with FERC's approval. The licensee must ensure that the proposed uses of the shoreline are consistent with the purposes of protecting and enhancing the scenic, recreational, and environmental values of the project while safely operating and maintaining the project. The Proposed Action involves these kinds of non-project uses, including shoreline erosion control structures and water withdrawal facilities and associated infrastructure, that Cube Yadkin has authorized in coordination with the project proponent.

Figure 1 shows a simulated three-dimensional view of the project with the FERC boundary for the Yadkin Project visible in red, clarifying which portions of the project are within and outside the FERC-regulated area. Figure 5, later included in this EA, shows a two-dimensional view of the project area and the FERC boundary overlain with the project impact areas.

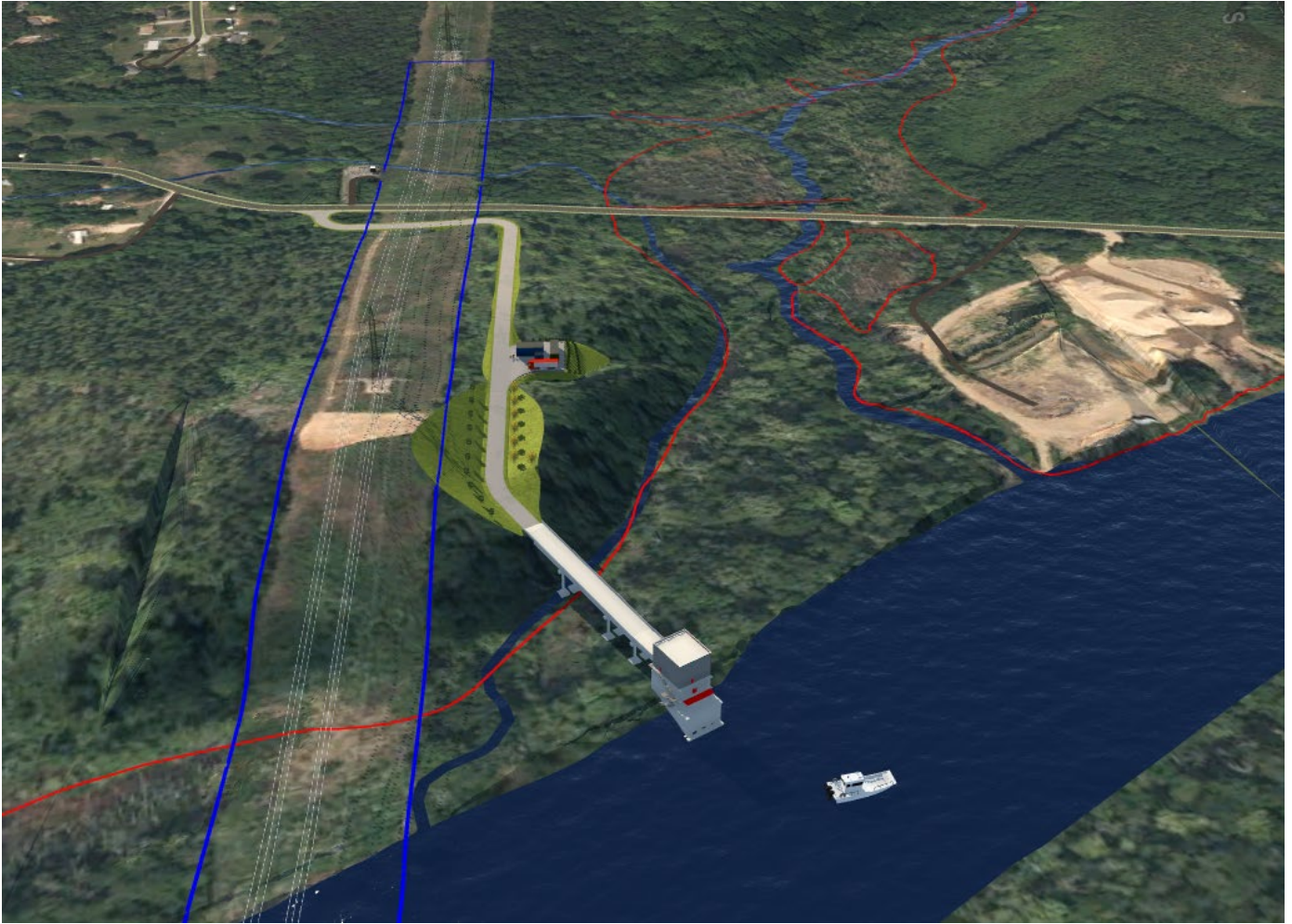


Figure 1. Project 3D Simulated View Showing FERC Boundary

2.0 PURPOSE AND NEED

The purpose of FEMA’s BRIC grant program is to provide financial assistance to eligible applicants to implement long-term hazard mitigation or resiliency measures to protect life, property, and community resources.

The purpose of the Proposed Action (or Project) is to construct more resilient drinking water supply infrastructure for residential and commercial customers in the municipalities of Salisbury, Granite Quarry, Spencer, East Spencer, China Grove, Rockwell, and some unincorporated areas within Rowan County, North Carolina. The need for the Project is in response to recent flooding events which have inundated the existing access road and forced the shutdown of the existing pump station, rendering the facility accessible only by boat for required rescue personnel and maintenance personnel to complete needed repairs. The access road can remain flooded for up to 5 days after a storm. Flooding events leave the electrical equipment in the pump station susceptible to damage and increase the risk of injury to emergency personnel accessing the pump station. The water intake structures have been repeatedly

subjected to sedimentation buildup, resulting in a decrease in the total available raw water intake capacity. The proposed Project will remove the current access road and pump station flooding hazards from storm events up to and potentially beyond the 100-year flood event. It will also alleviate sedimentation buildup within the water intake structures, increasing stability of the raw water intake capacity.

Providing FEMA BRIC funding to the City of Salisbury will improve potable water supply resiliency during and after hurricanes, floods, and other extreme weather events which have increased in frequency and intensity as a result of climate change. A more reliable potable water service is needed to ensure the safety and wellness of residents and continued operation of community service and public safety providers, including hospitals, housing services, and local utilities.

3.0 PROJECT LOCATION AND BACKGROUND

Salisbury is located in the Piedmont region of North Carolina and is an important center for agriculture, education, and industry. Salisbury is characterized by rolling hills, forests, and farmland and is the largest city in Rowan County. The Yadkin River flows through the eastern part of the city and provides opportunities for recreational water activities in addition to the county's water supply. Salisbury is home to approximately 35,808 people, while Rowan County has a population of approximately 149,645 based on projected US Census Bureau data. (US Census Bureau 2022).

Thunderstorms and hurricanes are common natural disasters in Salisbury, North Carolina that can cause flooding along the Yadkin River. These flooding events can have a significant impact on Salisbury and Rowan County. Flooding can cause damage to infrastructure such as roads, bridges, and buildings. Hurricanes and/or significant rain events in the upper part of the Yadkin River Basin can cause severe flooding events near the Yadkin River downstream. Storm surges cause extensive flooding in low-lying areas. Floodwater can contaminate water supplies and cause significant damage to infrastructure.

The Salisbury-Rowan Utilities Department (SRU) provides drinking water supply and wastewater services to residential and business customers to the region to protect the local environment, promote public health, and improve the quality of life. The existing 1917 and 1969 raw water intake structures and pump station are located on Hannah Ferry Road at the confluence of the Yadkin River and South Yadkin River and have provided a drinking water supply to many Rowan County communities for over a century. In recent years, Rowan County has experienced an increase in flooding events from heavy rainfall and tropical storms and hurricanes that have caused river and creek banks to overflow. In September 2018, Hurricane Florence brought heavy rainfall to the region, causing near-record levels of flooding to the Yadkin River. The existing access road was flooded for a total of 66 days during 2018 to 2020, and water entered the pump station most recently in November 2020. In 2020, the pump station was shut down twice because of flood events, after the February 6 flood event for 4 days and November 13, 2020, for 4 days. Since the High Rock Lake dam's construction downstream, the raw water intake structure has also experienced an increase in frequency and magnitude of flood events and sedimentation. The impacts of flooding to the area have created unreliability in the operations of the intake structures and raw water pump station. The City of Salisbury proposes to construct a new combined intake structure

and raw water pump station in and near the Yadkin River with a new access road, access bridge, and water pipeline to provide a more reliable drinking water supply for multiple municipalities.

Figures 2 through 4 below illustrate the condition of the existing intake and pump station and show flooding effects on the pump station and in the Project area.



Figure 2: Existing intake structures are no longer easily accessible, and sediment has built up around the structures.





Figure 3: Existing pump station building during a flood event and during normal conditions.



Figure 4: The access road to the pump station is completely submerged for several thousand feet during flood events.

The proposed Project area includes undisturbed forested habitat, is adjacent to a Duke Energy electric utility right-of-way, is partially along Deals Creek, and is within and over the Yadkin River. The new permanent and temporary construction access roads have been proposed off Hannah Ferry Road, which connects to Old Mocksville Road, a major road that runs east-west between the cities of Salisbury and Mocksville and is a major commercial thoroughfare. Figure 5 shows the Project location in relation to these features and indicates areas of temporary and permanent impact.

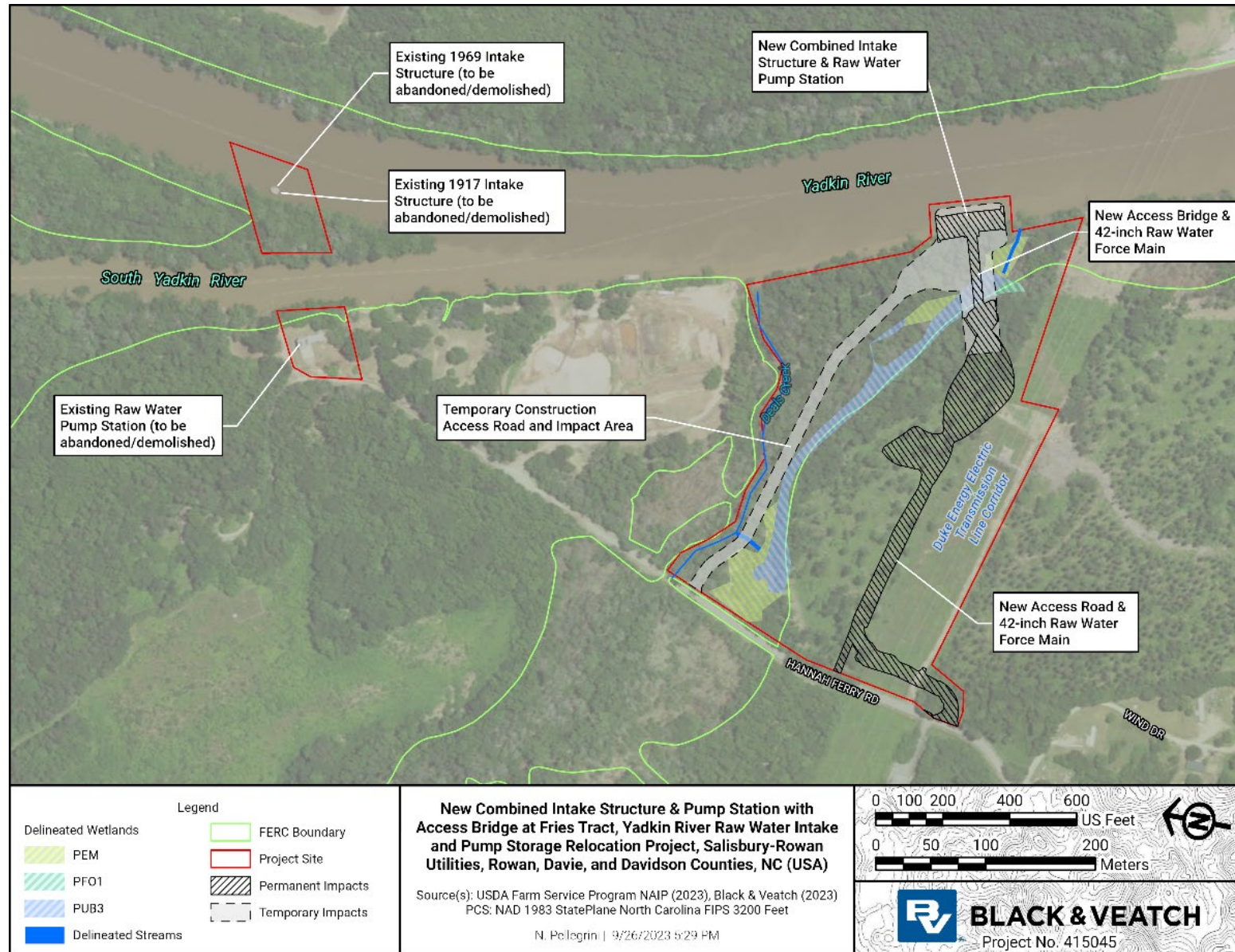


Figure 5. Project Location and Features

4.0 ALTERNATIVES

Under NEPA, this EA is required to analyze the potential environmental impacts of the No Action Alternative, Proposed Action, and reasonable alternatives. Reasonable alternatives are those that meet the purpose and need for the Proposed Action, are technically and economically feasible, and meet reasonable screening criteria (e.g., requirements or constraints associated with operational, technical, environmental, budgetary, and time factors). Alternatives determined not reasonable were eliminated from the detailed analysis in this EA.

4.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no improvements would be made within the Project area. The existing water intake structures, pump station, and access road would experience the same or increased potential for flood inundation that would result in the water supply to multiple municipalities in Rowan County becoming increasingly unreliable. The current intake is upstream of High Rock Lake headwaters and would avoid the need for stream reclassification through the potentially lengthy NC Department of Environmental Quality (NCDEQ) permitting process; however, the ground elevation is low, and the current pump station floods after storms. If flood waters rise to the level of the electrical equipment in the existing pump station building, it may take nine months or more to procure replacement equipment. This alternative does not achieve the stated Project purpose of reducing flooding, accessibility, and sedimentation impacts to the current intake structures and pump station.

4.2 Alternative 2: Proposed Action

The Proposed Action is to construct a new combined intake structure and raw water pump station in and near the Yadkin River with a new access road, access bridge, and raw water pipeline to supply clean drinking water for multiple municipalities in Rowan County, including the City of Salisbury. The existing water intake structures may be either demolished or abandoned in place (likely abandoned in place, but no decision has been made at this time).

The proposed location is close to the existing intake and raw water reservoirs and can reuse the existing raw water force main, while other locations considered would require a new force main and additional pumping to the reservoirs. This location is also at a higher elevation that will avoid flooding and access concerns during flood events but will require a stream reclassification process to recategorize the intake location as a river rather than a lake/part of the Yadkin Hydroelectric Project. The conceptual design (30 percent design) for this proposed new intake and pump house location is the basis for the Proposed Action.

Existing Structures (Abandonment Alternative)

There has not yet been a determination made about whether the existing water intake structures [1917 Intake: 35.747004, -80.459930 and 1969 Intake: 35.747138, -80.459790 and the 1917 (with 1968 and 1983 upgrades) raw water pump station: 35.746665, -80.461232] will be demolished or abandoned in place. If the water intake structures and pump station are abandoned in place, they would be put out of

service, and the new proposed structures would take over the current water supply operation. No adverse impacts to any resources would be expected to occur from the abandonment alternative.

Existing Structures (Demolition Alternative)

If demolished completely, the water intake structures would require approximately 3,000 square feet of ground disturbance for each intake. Because of the structures' locations in the river adjacent to a peninsula, it is difficult to accurately determine the anticipated depth of ground disturbance. Anticipated ground disturbance for the full removal of the raw water pump station is approximately 10,000 square feet with a maximum depth of 39 feet.

In the event that a demolition alternative was chosen, additional review and approval from Cube Yadkin would be required once a plan is determined before demolition could proceed.

Demolition of the existing water intake structures in the Yadkin River would result in moderate to significant impacts to various resources. Demolition activity could potentially release harmful chemicals and toxic substances into the river that could contaminate the water and harm aquatic life. Removing the water intake structures could harm aquatic life through habitat destruction, as the structures most likely provide shelter to certain aquatic species. Destruction of the riverbank and bed are anticipated from demolition activities and would lead to an increase of erosion and sedimentation, adding to habitat destruction and impacting water quality. Changes in the water's pH, temperature, and dissolved oxygen levels could also negatively impact aquatic life. Disruption of fish migration patterns, noise pollution, and release of debris and hazardous material from demolition activities within the river could lead to injury or death to aquatic life.

Demolition of the old intakes and existing pump station would result in moderate to significant impacts. Demolition activities would result in an increase of pollution to the air and soil surrounding the intakes and pump station, as demolition can result in the release of large amounts of dust, harmful chemicals, toxic substances, and other pollutants. Soil contamination can also lead to groundwater contamination. Heavy construction equipment would need to be transported to the site area and used onsite and would require clearing of trees and an increase in vegetation removal, leading to habitat destruction for biological resources in the area and increased erosion and sedimentation. The potential for finding cultural resources is increased because of additional disturbances to the site and impacts to significant cultural resources could occur. Disposal of construction debris and potential hazardous materials would be required as a result of demolition.

The demolition alternative would require additional site surveys to be conducted to further determine depth of the infrastructure to be removed and other specific details for planning the demolition activities. Demolition activities could have long-lasting, significant impacts on the environment and other resources and would require the implementation of mitigation measures and proper demolition procedures. Recovery of the area from the demolition impacts may be lengthy, particularly if other flood events were to occur during demolition and/or cause failure or setbacks in mitigation or restoration measures.

New Structures

With the abandonment of the existing water intakes and raw water pump station, the City of Salisbury proposes to construct two structures. A new combined intake structure and raw water pump station within the Yadkin River would withdraw river water via intake screens at a velocity of 0.5 foot per second and pump through a new water main pipeline. Gabion baskets and gabion cutoff walls would be installed on each side of the new combined intake structure and raw water pump station and would extend approximately 80 feet north and south of the pump station along the riverbank. A gabion is a type of wired basket filled with various rocks or soil that helps prevent erosion, retain a slope, or provide a landscape element. They are commonly used in streambanks and areas with steep slopes and would provide bank stabilization at the combined intake structure and raw water pump station location as well as a substrate for future vegetation growth that would further enhance the bank in that area. See Figure 6 for a conceptual view of the gabion baskets proposed for use on this Project. The City of Salisbury/SRU will obtain an activity permit for shoreline stabilization from Cube Yadkin for the installation of the gabion baskets since the riverbank in the Project area is within the High Rock Lake FERC project boundary.

A disturbed area extending approximately 100 feet around the proposed structure and to both sides of the proposed access bridge is required for safe construction. An approximately 137,214 square foot area is the expected limit of disturbance. The foundation system will be designed to support the structure based on existing subsurface conditions. The foundation system is anticipated to consist of slab on grade with rock anchors if shallow bedrock is encountered, or pile-supported foundation slab if deep bedrock is encountered. The other structures proposed for new construction are the electrical supply facilities, including the switchgear building for electrical equipment, standby generator, and utility transformer. Approximately 2,500 square feet is the expected limit of disturbance for this structure, and the depth of disturbance is approximately 3 feet.

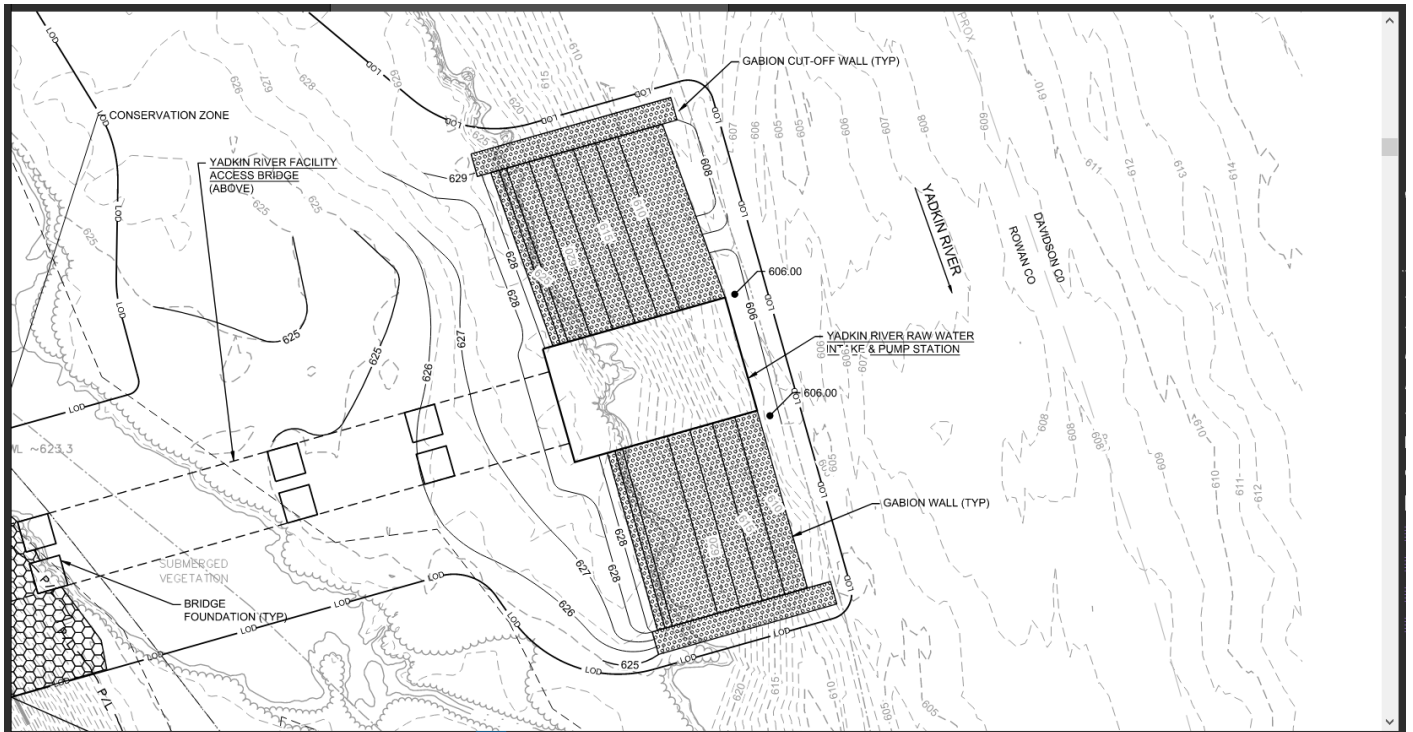


Figure 6. Gabion Baskets and Cutoff Walls Detail

Site preparation work will include clearing and grubbing of the areas for constructing the two new structures, the access bridge, the access road, and the raw water main. The approximate area of tree removal required for the entire construction footprint (temporary and permanent) is 137,214 square feet. The tree species to be removed in the Project area are included in Appendix A.

Intake Structure and Pump Station Alternative Locations Considered

Other parcels preliminarily considered for the intake and pump station site are located along the Yadkin and South Yadkin Rivers, upstream of the current intake. Proximity to the river and land topography were the main characteristics reviewed to determine potential alternatives for the Project location. These options would involve substantially higher cost than the Proposed Action site, largely because the water intake would be much more distant from the raw water reservoirs and include new pipeline crossings of the Yadkin and South Yadkin Rivers. Locations on the east side of the Yadkin River would also involve a much longer commute to access the site because of the location of available bridges across the river from Salisbury; this would cause delays in response time for any issues needing staff attention that may occur at the facility. The preferred site was chosen to ensure 24-hour, year-round access to the new facility during storm events.

Generally, the Davidson County (east) side of the Yadkin River is at a higher elevation than the Rowan County (west) and Davie County (north between the Yadkin and South Yadkin Rivers) sides. Several parcels that appeared suitable were further evaluated, with potential options in all three counties. It was determined because of the topographic features and other location advantages that Rowan County would

be the most favorable location for a new intake and pump station. All parcels considered are located upstream of the existing intake; basic information about these parcels is provided below in Table 1, and the locations are shown in Figure 7.

Table 1: Alternative Site Locations Considered

Alternative	Address/Location	Acreage	Elevation
Rowan County, South Yadkin, Option 1	Parcel Identification Number (PIN) 5763-03-43-3220 Address: 0 High Meadow Dr (4,400 feet upstream of RWPS)	11.08	676 to 730
Rowan County, South Yadkin, Option 2	PIN 5763-03-34-5583 Address: 0 High Meadow Dr (4,400 feet upstream of RWPS)	40.2	676 to 730
Rowan County, South Yadkin, Option 3	PIN 5763-01-18-3250 Address: 0 Old Mocksville Rd (2 miles upstream of RWPS)	306.2	628 to 730
Davie County, Yadkin River, Option 1/2	PINs 5763548716 and 5763775208 Address: Point Rd (3,000 feet to 2 miles upstream of RWPS)	388.6 357.9	628 to 670 630 to 740
Davie County, Yadkin River, Option 3	PIN 5763595798 Address: Point Rd (2.75 miles upstream of RWPS)	165.9	630 to 740
Davidson County, Yadkin River, Option 1	PIN 5763-04-91-7009 Address: Hannah Ferry Rd, Lexington, NC (0 to 1 mile upstream of RWPS)	440	630 to 740
Davidson County, Yadkin River, Option 2	PIN 5773-01-09-6056 Address: 916 Old Pasture Rd, Linwood, NC (1.75 miles upstream of RWPS)	52.4	630 to 740

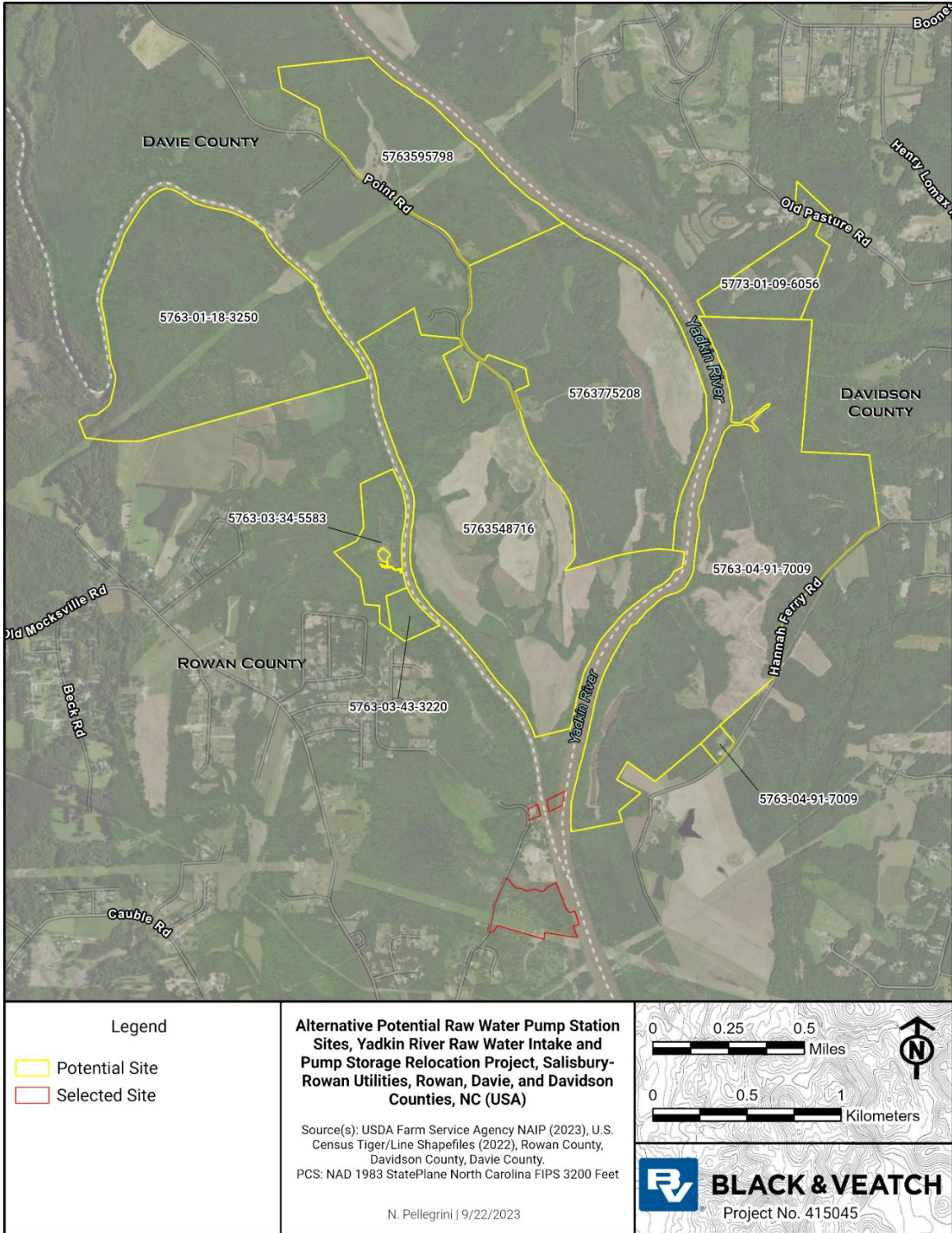


Figure 7. Alternative Potential Combined Intake and Raw Water Pump Station Sites

Permanent Access Road (Preferred and Alternate Route)

A permanent access road will be constructed for vehicle and personnel traffic, and emergency personnel (if needed) during day-to-day operations when the facility is fully built and operational. Additionally, the raw water transmission main and other utilities required for operation of the facilities will follow the alignment of this access road. The preferred path is the more direct and cost-effective route. This route will follow the north edge of the existing Duke Energy electric transmission line right-of-way and intersect with a proposed access bridge that will connect to the proposed new combined intake structure and raw water pump station. The proposed road would be approximately 1,400 linear feet, 24 feet wide with 4-foot shoulders on each side. Grading the roadway to acceptable slopes and elevations would likely result in a max of 15 feet on each side of the roadway, varying along the access road, with a maximum disturbed width of 175 feet. Grading at the intersection of the new access road and Hannah Ferry Road would likely result in approximately 36,000 square feet of disturbance of pre-disturbed soils. The access bridge will require piers to extend down to the ground; however, disturbances will also be needed to allow space for a crane to operate to construct the bridge. Therefore, the area of disturbance under and along the bridge will be approximately 100 feet wide on each side of the bridge and 250 feet long. The depth of disturbance will be determined during the detailed design of the road.

The alternative route considered for the access road was to stay within the existing grade, away from the Duke Energy right-of-way, and around the northern side of the hill. The road would have a flatter slope but would likely result in more impacts to vegetation. The roadway and shoulder dimensions would likely remain the same as the preferred access road path; however, the length would increase. This alternative route has been dismissed from further consideration, and the Proposed Action will include the preferred route discussed above.

The location and features of the Proposed Action, including the preferred route for the permanent access road, are shown on Figure 5.

Temporary Construction Access Road

The proposed temporary construction access road is the construction access path considered most likely to be used by the construction contractor; however, it is based on conceptual design that may further evolve as the Project design progresses. For purposes of impact evaluation in this EA, this construction access road will be temporary, but there is the potential that changes in the design as the Project progresses may result in a need for the road to be permanent. The temporary construction access road route proposed would extend from Hannah Ferry Road north, slightly winding to avoid delineated wetlands and the bank of Deals Creek, through a state-owned forest conservation easement (if permitted) and would extend to the location of the new combined intake structure and raw water pump station on the bank of the Yadkin River. The road, for purposes of impact evaluation in this EA, is expected to be a maximum of 30 feet wide, which would allow for two-way traffic of construction vehicles and would allow the road to fit between wetlands and the creek with minimal impacts. The road would cross one drainageway that connects Deals Creek to the delineated wetland area to the east, located near Hannah

Ferry Road. This crossing would likely be accomplished by installing a culvert that would allow the drainageway to continue to flow while the temporary construction access road is in use. This temporary construction access road route will likely impact approximately 2 acres of forest and minimal wetland and water areas along the majority of its length. After completion, the full extent of this temporary construction access road will be restored to pre-construction conditions, or planted with native tree species that would begin its restoration toward pre-construction conditions. Once vegetation is planted, the restoration to preconstruction conditions varies between species, but can range from 1 to 20 years to reach full maturity. This temporary construction access road route is shown on Figure 5.

In the event that the access road route will remain as a permanent emergency access road, the majority of the temporary impact area discussed in this EA would become permanent. The proposed area along the road will include approximately 2 acres of permanent impact to forest vegetation, fragmentation of habitat for wildlife and forest-dwelling bird species, and likely vacation of part or all of the NCWRC forest conservation easement on the property. A permanent road would be inconsistent with the purpose of permanent preservation of this forested streamside parcel as habitat without the intrusion of human impacts such as roads, buildings, vehicle traffic, noise, emissions, and other factors that may adversely affect wildlife in this area. There would also be increased aesthetic impacts for drivers on Hannah Ferry Road passing the site, with a new and permanent road corridor visible as a break in the forested area. Because use of this area as a permanent road would remove this acreage (approximately 2 acres) from an intended contiguous, permanent conservation easement (if allowed by the NCWRC), the NCWRC may require mitigation through acquisition of another parcel that would permanently preserve similar habitat in the same general area. The overall level of impact likely from keeping the road on a permanent basis would not be significantly different than the temporary road impacts because most impacts would occur during construction and use of the road would not be expected to be frequent if it remains in place. The City of Salisbury is in discussions with the NCWRC about the feasibility of this road remaining in place as a permanent emergency access route. NCWRC has indicated that a disposition process would be required to allow a permanent road in this location. Because Black & Veatch understands that the parcel is currently under a conservation easement that does not allow roads or other development, the NCWRC would need to legally remove the conservation easement and sell the property to the City of Salisbury (disposition) before the road could be constructed as permanent infrastructure. Coordination is currently in progress between the City of Salisbury and NCWRC to determine whether this is feasible and whether any mitigation would be needed for the loss of dedicated conservation land.

Raw Water Transmission Main (Preferred Route and Alternate)

To pump the raw river water from the new combined intake structure and raw water pump station to the existing raw water main along Hannah Ferry Road, a new section of 42-inch diameter raw water transmission main line will need to be constructed. The portion of existing water transmission main from that connection to the existing raw water pump station and intake would remain in place. As with the access road, there are two potential routes proposed pending further design and environmental/easement considerations for the new raw water transmission main. The preferred raw water transmission main alternative is to follow the path of the preferred access road route going directly from the Hannah Ferry

Road connection and making a turn toward the combined intake structure and raw water pump station within the Yadkin River. Because of shallow bedrock conditions in the area near the Yadkin River, the raw water line along this main alternative will be installed in an open cut trench excavated up the hill from the lower elevation near the Yadkin River to the point where it meets the bridge and main access road. Trenching for the line into the surface of the hill would require stabilization of the hillside after the installation of the raw water transmission main, which would be done using riprap along the alignment in this area. The new section of 42-inch raw water transmission main would be installed under the preferred access road for most of the road, within the roadway disturbances, in a trench with a maximum depth of 8 feet. The raw water main alignment deviates from the proposed access road as the road and water main approach Hannah Ferry Road to reduce additional piping and bends, whereas the road must stay above the 100-year flood elevation. In this area, the trench for installing the raw water main is expected to be 100 feet long, 12 feet wide at the surface, and a maximum of 8 feet deep. The other new raw water main route alternative is to follow the alternative access road going around the north side of the hill at a flatter slope and on existing elevations. An 8-foot-deep trench would be required with a width of approximately 12 feet if this alternative was chosen.

Staging and Laydown Areas

During construction of the new combined intake structure and raw water pumping station, contractor laydown and staging areas can be located at the existing Duke Energy transformer site, located south of the existing raw water pump station along Hannah Ferry Road near the proposed driveway for the new combined intake structure and raw water pump station, and Duke Energy electric transmission line right-of-way, parallel to the new access road, if allowed by Duke Energy. These sites are also pre-disturbed and will be discussed with Duke Energy during design. The existing raw water reservoir site owned by The City of Salisbury is also an option and should not need further disturbance to be used as a staging and laydown area.

4.3 Summary

FEMA's PR&G Agency Specific Procedures require that the alternatives for the water resources Project must be evaluated against their ability to achieve the Federal Objective and conform to the Guiding Principles.

The Federal Objective specifies that federal water resources investments shall reflect national priorities, encourage economic development, and protect the environment by:

1. Seeking to maximize sustainable economic development;
2. Seeking to avoid the unwise use of floodplains and flood-prone areas and maximizing adverse impacts and vulnerabilities in any case in which a floodplain or flood-prone area must be used; and
3. Protecting and restoring the functions of natural systems and mitigating any unavoidable damage to natural systems.

The Guiding Principles are the six overarching concepts the federal government seeks to promote through federal investments in water resources. The Guiding Principles are as follows:

4. Healthy and Resilient Ecosystems
5. Sustainable Economic Development
6. Floodplains
7. Public Safety
8. Environmental Justice
9. Watershed Approach

Each Guiding Principle is further defined in Section 4.3 of the FEMA EHP Instruction starting on page 45 (FEMA, 2018). The alternatives considered for continued analysis are compared against the Guiding Principles in Table 2 below.

Table 2: PR&G Guiding Principles by Alternatives Not Dismissed

Resource Type	Healthy and Resilient Ecosystems	Sustainable Economic Development	Floodplains	Public Safety	Environmental Justice	Watershed Approach
Alternative 1: No Action Alternative	There would be no impacts to surface waters or wetlands. No change to baseline.	Pump station would continue to be flood-prone, putting it at risk for property and equipment damage. Subsequently, local communities would be subject to additional water utility costs and water supply interruptions.	Existing floodplains would be maintained, but the pump station would continue to be flood prone.	Pump station would continue to be flood-prone, limiting local drinking water services and furthermore would cause critical services to consider contingency plans that may slow response time and increase emergency response costs.	Approximately 17 % of the Rowan County population is within or below the poverty level. Adverse impacts to low-income communities would likely occur because of increases in water bills and possibly increased costs associated with purchasing bottled drinking water.	Stream channel would be maintained, but the pump station would continue to be flood prone.
Alternative 2: Proposed Action	Moderate impacts to waters of the U.S. from construction of the combined intake structure and raw water pump station. The water pumping rates would not change from existing operations.	The City would meet the federal licensing requirements and retain legal responsibility for continued pumping of water from the Yadkin River, including the ability to supply drinking water to the community without having to use a potentially more expensive alternative water source.	Construction would occur in the floodplain and water intake functions would occur in the floodplain, although the functions and structure are functionally dependent on occupying floodplain. Best management practices would be utilized to minimize the temporary impacts to the floodplain values during construction.	Improved public safety because of flood risk reduction for SRU maintenance staff. Improved reliability of drinking water services for local communities.	No disproportionate impacts to minority or low-income populations. Flood damage reduction benefits expected to be proportional to all customers in the area.	Stream channel would be maintained and would continue to provide current watershed functions. Short-term disruptions to recreational functions would be required during construction.

4.4 Alternatives Considered and Those Dismissed

Six potential action alternatives were considered. Alternative 3 and Alternative 4 were dismissed because they did not address ongoing intake sedimentation issues, in addition to other reasons described below, and Alternatives 5 and 6 were determined to be infeasible, leaving Alternative 1 (No Action) and Alternative 2 (Proposed Action) for further analysis. The dismissed alternatives, including some location options considered within the Alternative 2 site, are described in more detail below, but are not further analyzed. Only Alternative 1 (No Action) and Alternative 2 (Proposed Action) are further evaluated in Section 5.0 as to how they may impact various resources.

4.4.1 Alternative 3 – Existing Pump Station Upgrade [DISMISSED]

Alternative 3 would involve upgrading the existing pump station to protect it from rising floodwaters entering the building and provide access to the pump station during flood conditions. The alternative is based on concepts developed by Kleinschmidt for Cube Yadkin. This alternative would involve raising the existing three pumps with 5-foot pump shaft extensions; replacing, raising, and relocating motor control centers into new electrical enclosure; and installation of a new mezzanine floor in the existing pump station to support raised pump equipment and provide access. It would require demolition of electrical equipment located on the operating level of the existing pump station and installation of a new electrical enclosure elevated above the flood level, along with a new half-mile long access bridge. This alternative was dismissed from further consideration because it would create maintenance of pump station operation challenges during construction, the solution creates other operational challenges with the pump station and does not address the ongoing existing intake sedimentation issues resulting from flood events, it would not comply with applicable codes, regulations, and standards, and it is not a cost-effective solution.

4.4.2 Alternative 4 – Relocation of Pump Station Only [DISMISSED]

Alternative 4 would continue the use of the existing intakes but would relocate the pump station. This alternative would require the construction of a new pump station at higher ground, above the 100-year flood elevation, and construction of additional piping between the intakes and the new pump station location, and a new raw water force main from the new pump station to connect to the existing raw water main. This alternative was dismissed from further consideration because of the age of the existing intakes, the continued sediment buildup around the intakes, and constructability and cost considerations for the new pump station depth needed to use the existing intakes from a location at higher ground (deep tunneling excavation depth of approximately 40 feet).

4.4.3 Alternative 5: Alternative Water Source [DISMISSED]

An alternative water supply source was considered, but dismissed from further evaluation because it would require the same infrastructure construction work and likely greater new environmental impacts at a location farther from Salisbury than those expected as a result of the Proposed Action. This alternative would not be cost efficient, would likely have more significant overall environmental impacts, would not offer any efficiencies to SRU compared to the Proposed Action (Alternative 2), and

would likely require more operations and maintenance coordination and cost, and was therefore considered not feasible.

4.4.4 Alternative 6: Water Purchase [DISMISSED]

The purchase of water supply for SRU from a different utility was considered but dismissed from further evaluation. There are no adjacent utilities or water providers that would have the capacity to meet the water demand or alternate water supply sources in close proximity to SRU's service area. The cost to SRU would likely be significantly higher to purchase a sufficient water supply to meet demand and transport it to its service area even if this alternative was viable. On an average day, almost 2 billion gallons of water flows past the Salisbury intakes; the Yadkin River is the second largest river basin in North Carolina. SRU would then also be dependent on a third party for drinking water and would not be able to directly address any water supply issues that may occur. For these reasons, this alternative was considered not feasible.

4.4.5 Alternative 2 (Proposed Action) – Location Sub-Alternatives [DISMISSED]

For the proposed Project (Alternative 2 - new combined intake structure and raw water pump station), several location alternatives have been evaluated and dismissed from further consideration using property and parcels in the same vicinity as the proposed Project on the Yadkin River, but with elevations high enough to be above the flood levels. Evaluated sites included properties upstream and downstream of the proposed location along both the Yadkin River and South Yadkin River and on both sides of the rivers. The dismissed alternative locations' capital costs were higher than the chosen proposed actions. In addition, two alternative locations were evaluated within the proposed Project site, as described below:

- **Relocate Raw Water Pump Station (RWPS) adjacent to existing transformer site.** Relocate the pump station to higher ground on existing city property adjacent to the transformer site and use the existing intakes with a new suction pipe. The suction pipe and pump station would be deep and may require tunneling in lieu of open cut installation. After surveying, it was discovered that the transformer site is at a lower elevation than originally anticipated and would not meet the agreed-upon standard of being at least 2 feet above the base flood elevation.
- **Relocate RWPS to hill on Fries property with submerged intake.** There is a hill south of the existing pump station on a tract owned by the Fries family. The hill has sufficient elevation to provide flood protection for the pump station. A new submerged intake similar to the 1969 intake would be built in-river. A new pipeline would carry water from the new submerged intake to the new pump station located on the hill, which would pump raw water to the existing force main along Hannah Ferry Road. This alternative location would have significant constructability concerns because of the very deep wet well needed in the pump station and the deep pipeline to the pump station, which would result in a high cost.

4.5 Benefit Cost Analysis

As required under PR&G Agency Specific Procedures, FEMA's Benefit Cost Analysis (BCA) toolkit (version 6) was used to quantify the public benefits and costs associated with the Proposed Action. The

BCA is a method by which the future benefits of a mitigation project are determined and compared to its cost. The result of a BCA is a Benefit Cost Ratio (BCR), which is derived from a project’s total net benefits divided by its total project cost and is a numerical expression of the cost effectiveness of a project. The BCA for the Project achieved a BCR value over 1.0, indicating that the benefits of the Project outweigh the anticipated costs. Because the BCR using direct costs resulted in a BCR value greater than 1.0, other benefits (social and environmental) that would further increase the BCR were not included. The overall costs presented in Table 3 reflect 2021 pricing at the time of the analysis.

Table 3. Benefit Cost Ratio Calculation Summary

Total Mitigation Benefits	\$42,305,456
Mitigation Costs	\$31,496,850
Adjusted Benefit Cost Ratio	1.34

4.5.1 Hazard and Mitigation Data

The hazard type selected for the BCA was “riverine flood” and the mitigation action type selected was “other.” The analysis used FEMA Hydrologic Engineering Center’s Statistical Software Package (HEC-SSP) 2.2 Bulletin 17 to perform flow frequency analyses and estimate expected damages for pre-Project conditions for the 10-, 20-, 50-, and 100-year storm events and expected damages for post-Project conditions for the 500-year storm event. The analysis was performed on the USGS Yadkin River Gage at Yadkin College, which is approximately 17 river miles upstream of the SRU pump station. SRU provided historical data correlating the stream gage flow at Yadkin College to the river water surface elevation at the SRU pump station. Data was also provided that correlated the water surface elevations to various hazard levels for the pump station. This information was used to help identify damages at different river levels, as follows:

- Haz Level 1 – 628.0 ft
 - Pump station access road floods
- Haz Level 2 – 630.0 ft
 - Pump station land surface floods – access only by boat
- Haz Level 3 – 643.0 ft (Power is disconnected when WSEL = 641.5 ft.)
 - Water enters pump station rooms

4.5.2 Cost Estimation Information

The overall costs reflect prices at the time of the BCA (2021 prices). Based on FEMA guidance, a Project useful life of 50 years was used for the analysis. Additionally, estimated annual maintenance costs are expected to be \$0.

4.5.3 Expected Damages Before Mitigation

Expected damages under pre-Project conditions were estimated based on the daily cost for temporary pumping, additional costs to purchase emergency raw water from another provider, and the expected extent of damage and period required to replace damaged pump station equipment for the 10-, 20-, 50-, and 100-year flood events. The expected extent of damage and repair period for each flood event are detailed in the BCA in Appendix B.

4.5.4 Damages After Mitigation

Post-Project damages expects there may be a small impact from the 500-year storm event. The proposed is 4.5 feet above the 100-year storm event elevation, and the pump station operating floor is significantly higher than the 500-year storm event elevation.

4.5.5 Environmental and Social Benefits

Because the Project achieved a Benefit Cost Ratio value over 1.0, social and environmental benefits were not included. The environmental and social benefits of the Proposed Action are included in the Impact Evaluation section of this EA below, as applicable.

4.6 Impact Evaluation

The Council on Environmental Quality (CEQ) notes: *“Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial”* (40 CFR 1508.8).

When possible, quantitative information is provided to establish potential impacts; otherwise, the potential qualitative impacts are evaluated based on the criteria listed in Table 4.

Table 4: Impact Significance and Context Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
None/Negligible	The resource area would not be affected and there would be no impact, OR changes or benefits would either be non-detectable or, if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, but the changes would be small and localized. Impacts or benefits would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
Moderate	Changes to the resource would be measurable and have either localized or regional scale impacts/benefits. Impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary, and the measures would reduce any potential adverse effects.

Impact Scale	Criteria
Major	Changes to the resource would be readily measurable and would have substantial consequences/benefits on a local or regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

The impact analysis in this EA evaluates the potential environmental direct and indirect impact of the No Action and Proposed Action alternatives. Table 5 includes a summary of the potential impacts of the No Action and Proposed Action alternatives.

Table 5: Environmental Consequences and Environmental Protection Measures and Required Permits by Environmental Resource

Section	Area of Evaluation	Environmental Consequence	Environmental Protection Measures and Required Permits
5.1.1 Physical Resources	Geology and Soils	No Action: <i>Minor Impact</i> Proposed Action: <i>Moderate Impact</i>	NC DEQ Erosion and Sedimentation Control Plan (SWPPP equivalent) approval and NPDES General Permit for Construction Activities (NCG01) would provide soil erosion and sedimentation protection measures during construction.
5.1.2 Physical Resources	Air Quality	No Action: <i>No Impact</i> Proposed Action: <i>Negligible Impact</i>	Measures such as watering construction areas and limiting construction equipment run time will decrease fugitive dust and local air pollutant emissions.
5.1.3 Physical Resources	Visual Quality and Aesthetics	No Action: <i>No Impact</i> Proposed Action: <i>Minor Impact</i>	Not applicable.
5.1.4 Physical Resources	Climate Change	No Action: <i>Major Impact</i> Proposed Action: <i>No Impact</i>	Not applicable.

Section	Area of Evaluation	Environmental Consequence	Environmental Protection Measures and Required Permits
5.2.1 Water Resources	Clean Water Act and Surface Water	No Action: <i>No Impact</i> Proposed Action: <i>Minor Impact</i>	Construction methods and BMPs will be incorporated to limit degradation of Yadkin River water quality during in-stream construction activities as well as stormwater runoff quality during riverbank disturbance associated with the Switchgear Building, access road, and pipeline work. Expected permits include Section 404 and Section 10 Permits from USACE, NC DEQ Authorization to Construct, NC DEQ Section 401 Water Quality Certification, NC DEQ Water Withdrawal Registration, and NC DEQ Erosion and Sedimentation Control Plan approval and NPDES General Permit for Construction Activities (NCG01).
5.2.2 Water Resources	Floodplains	No Action: <i>No Impact</i> Proposed Action: <i>Negligible Impact</i>	SRU would be required to obtain a Floodplain Development Permit from Rowan County before work begins. The Proposed Action would require a FEMA Conditional Letter of Map Revision (CLOMR).
5.2.3 Water Resources	Wetlands	No Action: <i>No Impact</i> Proposed Action: <i>Minor Impact</i>	Use of BMPs during construction as required by 401 and 404 Clean Water Act permitting would minimize impacts to downstream and adjacent designated wetlands.
5.3 Biological Resources	Biological Resources	No Action: <i>No Impact</i> Proposed Action: <i>Minor Impact</i>	Mitigation measures recommended by the NCWRC based on informal consultation would be implemented to the extent possible.
5.4 Cultural Resources	Cultural Resources	No Action: <i>No Impact</i> Proposed Action: <i>No Impact</i>	Not applicable.
5.5 Socioeconomic Resources	Socioeconomic Resources	No Action: <i>Minor to Moderate Impact</i> Proposed Action: <i>No Impact</i>	Not applicable.

The total impacts from the Project based on the conceptual design and field wetland delineation information shown on Figure 5 have been provided in Table 6 below, based on GIS calculations of impact areas.

As outlined below in Table 6, the project will have impacts divided between the area within the FERC boundary for Yadkin Hydroelectric Project (called FERC boundary herein) and the area outside the FERC boundary. The overall impact area is close to evenly divided, with slightly more impacted area outside the FERC boundary. All permanent and temporary impacts to the Yadkin River are within the FERC boundary. All delineated stream impacts will be temporary and are within the FERC boundary. Temporary impacts to forested and wetland areas are largely within the FERC boundary. Most permanent impacts to forested (trees, undisturbed soils, scrub-shrub) and non-forested (scrub-shrub, grasses, maintained transmission line right-of-way) areas are outside the FERC boundary.

Table 6. Proposed Action Impact Acreages

Impact Area	Acreage	Acreage within FERC Boundary	Acreage Outside FERC Boundary
Total impact	5.16	2.35	2.81
Total delineated wetlands onsite	2.37		
Total delineated streams onsite	0.18		
Total permanent impact	3.15		
Permanent wetland impact	0.06	0.05	0.007
Permanent stream impact	0.00	0.00	0.00
Permanent forest impact	0.92	0.19	0.73
Permanent non-forested area (scrub, grass, maintained vegetation)	1.98	0.00	1.98
Permanent in-river impact	0.21	0.21	0.00
Total temporary impact	2.73		
Temporary wetland impact	0.23	0.21	0.03
Temporary stream impact	0.01	0.01	0.00
Temporary forest impact	2.39	2.01	0.38
Temporary in-river impact	0.09	0.09	0.00

Note: Impact acreages are rounded from GIS calculations, and therefore do not add exactly to the totals noted. Temporary construction access road impacts are counted as part of the temporary impacts. If the road were to remain as a permanent road, the temporary forest impacts would become permanent impacts.

Table 7: Resource Topics Eliminated

Resource Topic	Reason
Coastal Zone Management Act	Rowan County, North Carolina is not a designated coastal area county.
Magnusson-Stevens Fisheries Conservation Act	Work would not take place in or near essential fish habitat designated by National Marine Fisheries Service.
Wild and Scenic Rivers Act	The South Yadkin River and Yadkin River are not wild and scenic rivers as defined by this law.

5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

5.1 Physical Resources

5.1.1 Geology and Soils

The Farmland Protection Policy Act (FPPA) was enacted in 1981 (P.L. 98-98) to minimize the unnecessary conversion of farmland to nonagricultural uses as a result of federal actions. In addition, the FPPA seeks to ensure that federal programs are administered in a manner that will be compatible with state and local policies and programs that have been developed to protect farmland. The policy of the Natural Resources Conservation Service (NRCS) is to protect significant agricultural lands from conversions that are irreversible and result in the loss of an essential food and environmental resource. The NRCS has developed criteria for assessing the effects of federal actions on converting farmland to other uses, including a Farmland Conversion Impact Rating form AD-1066 that documents a site-scoring evaluation process to assess its potential agricultural value.

5.1.1.2 Existing Conditions

The Project area is located within the Yadkin-Pee Dee River basin near the Yadkin and South Yadkin Rivers. The Project area surrounding the existing pump station is on the west bank of the South Yadkin River. The existing water intake structures are located within the Yadkin River.

The Project area is within the Charlotte Belt of the Piedmont physiographic province that spans from Maryland down to North and South Carolina and across west to Alabama. Elevations in the Piedmont region range from an average of 1,476 feet in the western Piedmont near the Appalachian Mountains to less than 325 feet in the eastern Piedmont near the Coastal Plain. Because of the range of elevations, the Piedmont is divided into “Upland” and “Lowland” sections. Many Piedmont rocks are metamorphic gneiss and schist with igneous intrusions of granite (Foster, 2016). According to the Natural Resources Conservation Service’s (NRCS) soil data, the Project area is mostly made up of Pacolet sandy clay loam

and Pacolet sandy loam. The Pacolet series consists of very deep, well drained, moderately permeable soils that are located on gently sloping to very steep Piedmont uplands. Most areas are forested, and cleared areas are often used for small grain farming, hay, and pasture.

A Phase I archaeological survey for the Project was performed in June and September 2023 by Environmental Corporation of America (ECA), and systematic shovel testing identified numerous soil types in the vicinity of survey areas. These soil types are summarized below in Table 8. Refer to Appendix C for the full summary of soil profiles encountered during survey activities.

Table 8: Soil Types Mapped Within the Project Area

Symbol	Type	Acres	Slope	Drainage	Farmland Status
PcB2	Pacolet sandy clay loam, 2 to 8 percent slopes, moderately eroded	1.6	2-8%	Well drained	All areas are prime farmland
PcC2	Pacolet sandy clay loam, 8 to 15 percent slopes, moderately eroded	1.4	8-15%	Well drained	Farmland of statewide importance
PaE	Pacolet sandy loam, 25 to 45 percent slopes	0.5	25-45%	Well drained	Not prime farmland
ChA	Chewacla loam, 0 to 2 percent slopes, frequently flooded	0.3	0-2%	Somewhat poorly drained	Prime farmland if protected from flooding or not frequently flooded during the growing season
W	Water	0.3	-	-	Not applicable
RvA	Riverview loam, 0 to 2 percent slopes, occasionally flooded	0.2	0-2%	Excessively drained	All areas are prime farmland
BuB	Buncombe loamy sand, 0 to 5 percent slopes, frequently flooded	<0.1	0-5%	Excessively drained	Not prime farmland

The upland soil setting consists of Pacolet series soils (PcB2, PcC2, and PaE). These soils are well drained and located in gently to steeply sloping upland contexts (0-45 percent slope). Lowland areas within the survey area consists of Chewacla loam (ChA), Riverview loam (RvA), and Buncombe loamy sand (BuB) soils. Approximately 0.3 acre of the survey area is mapped as Water (W). Chewacla loam is somewhat poorly drained, while Riverview and Buncombe soils are well to excessively well drained.

The Project site is not on land that is currently farmed, planned for farming, or designated for farming future uses in Rowan County, City of Salisbury, or other known land use plans. The NRCS Web Soil Survey shows a mixture of prime farmland and non-prime farmland soil types across the site.

Refer to Figure 8 showing the extent of each of the identified soil types across the site. The Project site has not been used as farmland during its known recent history, based on review of aerial photographs back to 1985, and is not planned for farmland use. The combination of varied topography, flooding susceptibility, forest cover, and general lack of land access to the site for farm equipment would make it a location unlikely to be chosen for agricultural activities such as growing row crops.



Figure 8. NRCS Soil Types on the Project Site

5.1.1.3 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, FEMA would not provide funding for the proposed Project, and no changes would be made to existing conditions. Soil would continue to be susceptible to flooding events, which could lead to an increase in erosion over time with expected increasing numbers of flood events. An increase in soil erosion near the water intake structures would exacerbate the existing buildup of sedimentation, which would be a minor impact that would become more significant the longer that no action is taken to address ongoing sedimentation issues.

Alternative 2: Proposed Action

Under the Proposed Action, construction activities would require grading, excavating, and piling work to establish the proposed Project and therefore, there would be moderate impacts to geology and soils in the Project area. Soils would be disturbed during the removal of vegetation and clearing of trees. Soil would be exposed to erosion by stormwater, wind, and construction within the Yadkin River riverbank and bed would lead to an increased rate of soil erosion and compaction. Soil protection efforts planned include proper implementation of best management practices (BMPs) and a Stormwater Pollution Prevention Plan (SWPPP) during construction and maintenance activities, as described in the Water Resources section of this document. According to the Geotechnical Report, borings found bedrock approximately 20 to 25 feet beneath the riverbank grade (3 feet below the riverbed), which will be the depth of the foundation for the new combined intake structure and raw water pump station portion of the Proposed Action.

A major impact to soils is defined as a substantial loss of soil, or a rating of 160 or higher on the Farmland Conversion Impact Rating Form, which would indicate further consideration for protection under the FPPA. The Project site is not known to have been used primarily for agricultural purposes, including timber or other row crops, and parts of the site are only prime farmland if drained or protected from flooding during the growing season. No drainage or flood protection measures have been installed on the site. The total impacted area from the Project is approximately 5 acres. The site area is not identified in Rowan County land use planning materials as a target area for agricultural use. It is identified as an area where medium-density residential development is planned (Rowan County, 2009). The Project is therefore not sited on “significant” agricultural lands that the NRCS seeks to protect from conversion to non-agricultural uses and would not require the completion of the Farmland Conversion Impact Rating Form.

The Project’s 3.15 acres of permanent impacts will convert undeveloped land to Project infrastructure. The majority of these impacts on the site will be to prime farmland soils of types PcB2 and PcC2, but these soils are on steep slopes unsuitable for farming and partially in the Duke transmission line right-of-way, which would preclude farming uses of the soils. ChA (prime farmland if protected from flooding) and PaE (not prime farmland) soils comprise the smaller portion of the impact from the project. Prime farmland soils over the main area of the project site other than the permanent impact acreage (approximately 21 acres) will not be irreversibly converted to non-farmland uses, and no food production will be lost since no part of the site is used for this purpose or planned to be used as significant farmland. No significant impacts to land that could potentially be used for farming are expected from the project.

Impacts from Demolition Alternative

As previously noted in the alternatives section of this EA, if demolished completely, the old water intake structures would require approximately 3,000 square feet of ground disturbance for each intake. Because of the structures’ locations in the river adjacent to a peninsula, it is difficult to accurately determine the anticipated depth of ground disturbance. Anticipated ground disturbance for the full removal of the raw water pump station is approximately 10,000 square feet with a maximum depth of 39 feet.

Demolition of the existing water intake structures in the Yadkin River would result in moderate to significant impacts to various resources, with one of the primary impacts being to the soils around the old intake and pump house installations. Destruction of the riverbank and bed are anticipated from demolition activities and would lead to an increase of erosion and sedimentation, adding to habitat destruction and impacting water quality.

Demolition of the old intakes and existing pump station would result in moderate to significant impacts. Demolition activities would result in an increase of pollution to the soil surrounding the intakes and pump station, as demolition can result in the release of large amounts of dust, harmful chemicals, toxic substances, and other pollutants. Soil contamination can also lead to groundwater contamination. Heavy construction equipment would need to be transported to the site area and used onsite and would require clearing of trees and an increase in vegetation removal, leading to habitat destruction for biological resources in the area and increased erosion and sedimentation.

Demolition activities could have long-lasting, significant impacts on the environment and other resources and would require the implementation of mitigation measures and proper demolition procedures. Recovery of the area from the demolition impacts may be lengthy, particularly if other flood events were to occur during demolition and/or cause failure or setbacks in mitigation or restoration measures.

Impacts from Abandonment in Place Alternative

Impacts of abandoning the old raw water intake and pump house structures in place are described above in the main body of Subsection 5.1.1.2; this is the same case as the Proposed Action.

5.1.2 Air Quality

The Clean Air Act of 1970 (42 USC § 7401–7661 [2009]) is a comprehensive federal law that regulates air emissions from area, stationary, and mobile sources. The Act authorizes the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The NAAQS include standards for six criteria air pollutants: lead, nitrogen dioxide, ozone, carbon monoxide, sulfur dioxide, and particulate matter (including both particulate matter less than 10 micrometers in diameter [PM₁₀], and fine particulate matter less than 2.5 micrometers in diameter [PM_{2.5}]). Areas where the monitored concentration of a criteria pollutant exceeds the applicable NAAQS are designated as being in nonattainment of the standards; while areas where the monitored concentration of a criteria pollutant is below the standard are classified as in attainment. Nonattainment areas can be re-designated as a maintenance area if monitoring data demonstrate that a nonattainment area meets the NAAQS, and a 10-year plan for continuing to meet and maintain such standards is implemented.

Federally funded actions in nonattainment and maintenance areas are subject to EPA conformity regulations (40 CFR Parts 51 and 93). These regulations ensure that emissions of air pollutants from planned federally funded activities would not affect the state's ability to meet the NAAQS. Section 176(c) of the Clean Air Act requires that federally funded projects conform to the purpose of the State

Implementation Plan (SIP). This plan requires federally funded activities would not cause any violations of the NAAQS, increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any interim milestone.

The conformity requirements of the Clean Air Act and its regulations limit the ability of federal agencies to assist, fund, permit, and approve projects that do not conform to the applicable SIP. When subject to this regulation, the federal agency is responsible for demonstrating conformity for its proposed action. Conformity determinations for federal actions other than those related to transportation plans, programs, and projects that are developed, funded, or approved according to the federal general conformity regulations (40 CFR 93 Subpart B). Certain actions and activities are exempted from general conformity review, including the following:

- Stationary source emissions regulated under major or minor New Source Review (air permitting) programs.
- Alteration and additions of existing structures as specifically required by new or existing applicable environmental legislation.
- Actions where the emissions are not reasonably foreseeable.
- Actions that have been defined by the federal agency or by the state as “presumed to conform.”
- Activities with total direct or indirect emissions (not including stationary source emissions regulated under New Source Review programs) below *de minimis* levels. Emissions from construction activities are subject to air conformity review unless they are shown to be below the applicable *de minimis* levels.

5.1.2.1 Existing Conditions

The Clean Air Act (CAA) requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. There are two types of national air quality standards established in the CAA: primary standards that set limits to protect public health, including the health of “sensitive” populations (e.g., asthmatics, children, and the elderly), and secondary standards that set limits to protect public welfare. Examples of protection of public welfare would include protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The current criteria pollutants are carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), lead (Pb), particulate matter (PM₁₀), and sulfur dioxide (SO₂). If the air quality in a geographic area meets or exceeds the NAAQS, it is called an attainment area. The Project is in the city of Salisbury, Rowan County, North Carolina, which is in attainment status for all criteria pollutants.

5.1.2.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no changes would be made to existing conditions and therefore, there would be no impact on air quality.

Alternative 2: Proposed Action

Implementation of the Project under the proposed action will follow all local permitting requirements for stationary sources, such as generators, as needed. Temporary impacts to air quality may exist during construction of the proposed Project, as temporary increases in vehicle emissions and particulate matter are expected to occur. To reduce the temporary impacts to air quality, the applicant would be required to water down construction areas when necessary to limit dust and particulates. It is anticipated that traditional types of commercial construction equipment would be used, such as earthmoving equipment, small to medium size cranes, scaffolding, and storage containers. Emissions from fuel-burning internal combustion engines (e.g., heavy equipment and earth moving machinery) could temporarily increase the levels of some pollutants, including CO, Volatile Organic Compounds (VOCs), NO₂, O₃, and particulate matter. To reduce the emission of criteria pollutants, fuel-burning equipment running times would be kept to a minimum during construction. These temporary impacts would only last the duration of construction. This Project is not anticipated to generate sufficient emissions during either construction or operation to have a substantial long-term negative impact on air quality, and more modern generators and vehicles may result in lower emissions from the new intake facility and associated maintenance activities during operation. Construction activity would be temporary and, by implementing BMPs, impacts on air quality would be negligible.

5.1.3 Visual Quality and Aesthetics

5.1.3.1 Existing Conditions

The existing aesthetics of the Project area are dominated largely by natural vistas of forested areas and the Yadkin River, with little intrusion by large industrial or manmade structures. The Yadkin River serves as a recreational area and is a designated State Trail. Views from the Yadkin River for those involved in recreational activities include gently flowing water and general river features, with forest vegetation along the riverbank and the old intake structures visible, and High Rock Lake in the distance downstream. Since the Project is located in a rural, forested area, there are few residents present to observe the site. Seasonal, recreational hunting also occurs on portions of the site and hunters would be the main viewers of the interior of the project site.

5.1.3.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, no changes would be made to existing conditions; therefore, there would be no impact to visual quality and aesthetics.

Alternative 2: Proposed Action

Under the Proposed Action, construction activities would lead to temporary, minor impacts within the Yadkin River and property adjacent to the river. Much of the Project area is relatively remote from populated areas and would not likely be visible to the public except at and near road crossings, and from the Yadkin River by recreational users. The forest cover along most of the river would assist in obscuring

the Project area so that Project elements would have only a minor impact on the surrounding area viewsheds. Minor impacts to the river view are anticipated but are not expected to negatively impact the existing overall aesthetic. The new combined intake structure and raw water pump station would be permanently placed in the Yadkin River, introducing a new visual element to the scene. The access road construction would alter the view from the existing Hannah Ferry Road; however, since this road is not heavily used by the public, this is not expected to decrease the aesthetic quality of the site. Visual impacts from the presence of construction machinery, excavated soil, and stripped vegetation would be largely temporary and would be confined to the immediate Project area. The use of cranes and other construction machinery would most likely be seen by nearby residents temporarily. There may be moderate changes in the view for hunters using the site during the construction timeframe (if allowed), with site clearing, grading, and construction equipment altering the previous views of relatively uninterrupted forest. Overall impacts to visual quality and aesthetics would be minimal.

Impacts from Demolition Alternative

The demolition alternative would be expected to have greater negative impacts to visual resources and aesthetics during the demolition work. It would involve views of heavy equipment and construction crews, temporary increased traffic, clearing of vegetation to allow heavy equipment access out to the river locations of the old intakes, views of rubble/material piles from elements demolished and removed from the ground, trucks with loads of materials being transported off the site, potential views of sediment flowing out into the river, especially during rain or flood events, and somewhat intrusive views/degraded natural landscape views for any water trail users boating down the section of the Yadkin River adjacent to the project.

After the demolition work is completed, there may be an interim timeframe during which onsite soils are stabilized and vegetation is regrowing, which would gradually decrease the visual impact that was present during active demolition activities. More positive and restorative impacts to the visual environment would be expected after demolition is completed and throughout the rest of operation and project life. Overall, a relatively limited number of viewers would see this view as the majority of viewers would likely be hunters, river users, and construction workers.

Impacts from Abandonment in Place Alternative

Abandonment in place would result in the permanent presence of the old intake structures as part of the viewscape. Because the structures have been in place for essentially a century, most viewers in the area are accustomed to their presence and they are an accepted part of the view from the river and nearby areas. The overall impacts of the abandonment alternative on visual resources of the area are described above in this Subsection 5.1.3.2 and are expected to be minimal.

5.1.4 Climate Change

5.1.4.1 Existing Conditions

CEQ guidance for NEPA analysis directs federal agencies to consider the extent to which a proposed action and its reasonable alternatives contribute to climate change through greenhouse gas (GHG) emissions. This guidance also directs consideration to the ways in which a changing climate may impact the proposed action and any alternative actions., GHGs are emitted by both natural processes and human activities, and their accumulation in the atmosphere regulates temperature. GHGs include water vapor, carbon dioxide, methane, nitrous oxides, and other compounds.

The pump station has been subject to flooding in the past, and flooding has occurred more frequently in the last several years. These flooding events will inevitably damage or destroy the existing pump station facilities. In 2020, the SRU pump station was completely shut down twice because of multiple 10-year flood events that occurred in a single year. Scientific studies and expert engineering models have determined that the frequency and severity of flooding will continue to worsen for the foreseeable future at the current site of the pump station. EPA's Creating Resilient Water Utilities initiative assisted SRU with a climate change risk assessment using its Climate Resilience Evaluation and Awareness Tool. The assessment focused on flooding impacts to SRU's facilities due to climate change impacts, vulnerable utility assets, potential adaptive measures, and the monetized risk reduction that could result from implementing the adaptive measures. It was determined to provide a reliable source of water supply during storm events, the pump station needs to be relocated to where it can be accessed during storm events and the operating floor can be above the 0.01 annual exceedance probability flood elevation. It is common design practice is to locate essential equipment that could be damaged by a flood above the 0.01 annual exceedance probability flood elevation to provide protection against smaller, more commonly occurring flood events.

5.1.4.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, no changes would be made to existing conditions; therefore, no GHGs would be emitted. However, the Project would continue to be affected by more frequent flooding which may be associated with climate change. The No Action Alternative would result in the drinking water supply of Rowan County being significantly impacted by climate change because the current infrastructure lacks resiliency. Without a resilient water supply, the city would be forced to look for alternatives or utilize GHG producing bypass pumps during emergencies to provide drinking water to the community. Based on this analysis, the No Action Alternative would have no discernable impact on the variables influencing climate change, but could ultimately create a potential major impact from the effects of climate change.

Alternative 2: Proposed Action

Implementation of the Proposed Action would result in a temporary increase in GHG emissions from construction activities, equipment, and related vehicles. Considering the temporary and transient nature of construction-related emissions, it is not anticipated that emissions from construction of this Project would have any substantial effects on air quality in the area. Because of the smaller scale of the Project, the Proposed Action would not measurably exacerbate climate change and would result in improved resiliency of the Project area against flooding events resulting from impacts of climate change. The operational activities of the new facility will not result in an increase in GHG emissions, but potential emergency situations would require the temporary utilization of generators because of lack of availability of electrical power from Duke, resulting in a temporary increase in GHG emissions. However, the existing pump station utilized in the No Action alternative would need to use emergency generators for a longer duration during flooding events, resulting in a greater impact on GHG emissions than the Proposed Action. Therefore, the Proposed Action would have no long-term impact on GHG emissions.

5.2 Water Resources

5.2.1 Clean Water Act and Surface Water

Under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and the EPA, the Clean Water Act (CWA) of 1977, 33 U.S.C. § 1251 et seq., regulates the discharge of pollutants into waters of the U.S. (WOTUS) and sets quality standards for surface waters. Section 404 of the CWA establishes the USACE permit requirements for the discharge of dredged or fill materials into WOTUS, including wetlands. Examples of activities in WOTUS, regulated under the CWA and requiring USACE authorization, include fill for development, dredging, water resource Projects (e.g., dams, levees), and infrastructure development (e.g., bridges, docks, pipelines). USACE regulation of activities within navigable waters is also authorized under the 1899 Rivers and Harbors Act(33 U.S.C § 401 et seq.).

Under Section 401 of the CWA, a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into WOTUS unless a Section 401 water quality certification is issued (or waived), verifying compliance with state or delegated tribal water quality requirements. States and authorized tribes, where the discharge would originate, are generally responsible for issuing water quality certifications under Section 401 of the CWA. Compliance with both Section 404 permit conditions and Section 401 water quality certification conditions would be required if any impact to jurisdictional WOTUS (temporary or permanent) occur as part of a Project.

Created under Section 402 of the CWA, the EPA regulates point and non-point pollutant sources, including stormwater runoff, through the National Pollutant Discharge Elimination System (NPDES). Activities that create one acre or more of ground disturbance are required to obtain an NPDES permit through the North Carolina Department of Environmental Quality (NCDEQ). This permitting process is delegated to NCDEQ by EPA.

5.2.1.1 Existing Conditions

The Project area is in the Yadkin-Pee Dee River Basin and Lower Yadkin Subbasin (HUC 03040103) and immediately downstream of the confluence of South Yadkin River and Yadkin River, near the northern extremity and within the boundary of High Rock Lake. Cube Yadkin Generation LLC owns and operates the Yadkin Hydroelectric Project (FERC Project No. 2197), in which High Rock Lake is the uppermost development. The dam and lake are primarily used by Cube Yadkin for hydropower generation, but the lake is also used for public recreation.

The Yadkin River is not listed as a Traditionally Navigable Water (TNW) by the USACE Wilmington Regulatory District. USACE, however, confirmed that permit approval under Section 10 of the 1899 Rivers and Harbors Act will be required for the in-stream work to install the combined intake structure and raw water pump station. The Yadkin River ultimately discharges into the Pee Dee River, which is listed as a TNW beginning at Blewett Falls Dam near Rockingham, NC.

Another surface water in the Project area is Deals Creek, which flows under Hannah Ferry Road and empties into the Yadkin River downstream of the existing raw water pump station and just north of the proposed water main pipeline and access road. Per NCDEQ, South Yadkin River and Deals Creek are classified as Class C streams, which are defined as fishable/swimmable waters. The Yadkin River in the vicinity of the current and proposed intake locations is classified as WS-V, WS-IV, and WS-IV CA. Class WS-IV are assigned to waters used as sources of water supply for drinking, culinary, or food processing purposes. The Critical Area (CA) designation is for the area adjacent to a water supply intake or reservoir where risk associated with pollution is greater than risk associated with pollution from the remaining portion of the watershed. By default, waters that are classified as WS-IV without the CA designation are within the Protected Area (PA). The PA is the area adjoining and upstream of the critical area in a WS-IV water supply in which protection measures are required. All water supply classifications are also protected for Class C uses.

The Rowan County Watershed Protection Ordinance became effective on January 1, 1994, and was amended on April 16, 1995, to include the boundaries of South Yadkin River. The County's ordinance established public water supply watershed protection regulations, as required by Ch. 143, Article 21 of the NC General Statutes. The Watershed Protection Ordinance defines the water supply "protected area" as the "area adjoining and upstream of the Critical Area of WS-IV watersheds". The boundaries of the "protected area" are defined as within 5 miles of and draining to the normal pool elevation of a reservoir or to the ridgeline of the watershed; or within 10 miles upstream and draining to the intake structure located directly in the river or to the ridgeline of the watershed. This protected area was determined through the third option in accordance with 15A NCAC 02B .0202 (48), which involved extending the protected area a different distance from the intake as adopted by the Commission during the reclassification process pursuant to 15A NCAC 02B .0104.

On June 8, 2023, a request was submitted to the NC Division of Water Resources (DWR) for the reclassification of the water supply watersheds relevant for the proposed intake location. The request for

reclassification of the water supply watersheds asks that the DWR establish the protected and critical areas for the relocated intake based on the intake being run-of-river.

On August 31, 2023, a revised reclassification request was submitted to DWR. The request asks that the critical and protected areas for the relocated intake be established based on 15A NCAC 02B .0202 items (20)(c) and (48)(c), which would extend the boundaries a different distance from the reservoir as adopted by the North Carolina Environmental Management Commission (EMC) during the reclassification process. The proposed intake is within the boundary of High Rock Lake according to the FERC license and is within the normal operating levels of the reservoir. Therefore, the CA and PA boundaries would be delineated using subparts (20)(a) and (48)(a) of the above referenced rule. This reclassification request is asking the EMC to approve a different distance for the PA boundary as allowed in subparts (20)(c) and (48)(c) of the above referenced rule.

The reclassification request follows the current classification for the existing intake, which is defined based on a riverine system and updates the Water Supply (WS) classification listed by the NCDEQ. The request process, which is outlined at 15A NCAC 2B .0100 and .0200, will require a review by the EMC and includes public hearings for input from stakeholders. If accepted, final approval by the NC Rules Review Commission (RRC) will be required, and a rule will be drafted that will require state adoption. If adopted by the state, EPA will have final approval authority to allow the reclassification to become effective. It is expected that this reclassification process may take until 2025 to complete.

In May 2014, Black & Veatch performed water quality testing in response to NC Department of Environment and Natural Resources' (now called NCDEQ) request for monitoring as a condition for source water approval because the proposed new combined intake structure and raw water pump station is below the confluence of the Yadkin River (a WS-IV source) and South Yadkin River (a Class C source). Black & Veatch collected samples near the existing raw water intake and the proposed intake locations to determine whether addition of the South Yadkin River drainage area would materially impact the water quality at the new location and subsequently require process improvements at the SRU water treatment plant (Black & Veatch, 2014). Samples were collected near two proposed raw water intake locations, and one set was collected at the existing intake structure. Samples were tested for EPA-regulated Primary and Secondary Drinking Water contaminants and those contaminants regulated by NCDEQ for the WS water quality classification, including turbidity, metals, organics, and microorganisms. The testing results showed the following: variations in water quality between the existing and proposed intake locations are minimal; the two water supply sources appear to be similar in quality; and conventional treatment at the SRU water treatment plant will provide adequate treatment for raw water pumped from the proposed combined intake structure and raw water pump station location. These water quality testing results will be further evaluated as part of the reclassification request, as discussed above. The Project is not expected to contaminate or otherwise adversely affect the public water system, water treatment facilities, or water distribution systems.

The Project area is within a segment of the Yadkin River [12-(108.5)b1] listed as impaired on the 2022 *North Carolina 303(d) List* for exceeding criteria for turbidity (50 NTU) and in accordance with the

polychlorinated biphenyl (PCB) Fish Tissue Advisory for fish consumption, issued by the NC Department of Health and Human Services (NCDEQ, 2022).

The Project area is not located within a designated NC Riparian Buffer Area, as defined in the NC Riparian Buffer Protection Rules, which restrict land use and disturbance within the riparian buffer in designated river basins and watersheds.

Because they are located inside the boundaries of High Rock Lake, it is understood that the existing raw water intakes and pump station are influenced by High Rock Lake water levels and are subject to flooding from the Yadkin River. Additionally, SRU has experienced issues with sedimentation at the 1969 intake structure, resulting in a decrease to the total available raw water intake capacity. During the FERC relicensing process for the Yadkin Hydroelectric Project, FERC staff recommended environmental measures be undertaken to address the sedimentation and flood-related issues at Salisbury's raw water facilities. These measures included the following:

Develop a sedimentation and flood protection plan that includes (a) specific measures to ensure dredging of sufficient volume and frequency such that the city of Salisbury's water intake remains clear of sediments, (b) physical modifications to the facilities such as a protective dike for the pump station, improved access to the pump station with the road consistent with the city of Salisbury's design or other feasible options for achieving a mutually agreeable and cost effective resolution to flood protection (e.g., relocating the pump station or providing an alternative emergency water supply), (c) planning level capital and operation and maintenance cost estimates for all alternatives, and (d) a recommendation as to which alternative to implement.

5.2.1.2 Potential Impacts and Proposed Mitigation

The potential for the Project to adversely affect surface water quality will be highest during construction of the new combined intake and raw water pump station structure within the Yadkin River. To mitigate impacts of erosion and sedimentation from in-stream and riverbank disturbance, as well as on the steep slope terrain along the new access road and raw water main, an Erosion and Sedimentation Control Plan will be prepared during detailed Project design and submitted to NCDEQ for review and approval prior to commencement of construction activities. The Project will abide by best management practices for construction (BMPs), which are outlined below in Section 6.0.

Additionally, the Project will be required to obtain or complete the list of permits and regulatory approvals noted in Section 6.0 prior to the start of construction activities that may directly or indirectly impact the quality of waters of the state.

Mitigation measures to protect Yadkin River water quality and aquatic species will also be implemented as part of Project operations. The intake structure will be designed to withdraw river water via intake screens at a velocity of 0.5 foot per second (ft/s) and pump through a new water main pipeline. This design velocity meets 15A NCAC 18C .0602(a) requirements designed to minimize impact to aquatic life and minimize the entrance of sand, silt, fish, and debris. This maximum entrance velocity of 0.5 ft/s will only occur during drought conditions when the water levels are at their minimum. During normal

operations, water levels will be significantly higher than drought conditions with entrance velocity at significantly less than 0.5 ft/s.

Additionally, the intake screens will be oriented perpendicular to the flow of the river so that any aquatic species coming down the river will flow past the screens rather than directly into them. The proposed screens are vertical bar racks with a mechanical rake to clean the screens. The new intake is also configured to mitigate sedimentation issues, including a flushing system, which will work by opening valves to allow raw water in the raw water reservoirs to flow in reverse by gravity through the wet well to flush accumulated sediment back through the intake screen.

From the Mitigation Assessment Report (Black & Veatch, 2011), NCDEQ (formerly NCDENR) reported that it would require water quality monitoring as a condition for source water approval because the proposed relocated intake structure and raw water pump station is below the confluence of the Yadkin River (a WS-IV source) and South Yadkin River (a Class C source). This monitoring was completed in May 2014, and the study results showed the following: variations in water quality between the existing and proposed intake locations are minimal. The two water supply sources appear to be similar in quality. Conventional treatment at the SRU water treatment plant will provide adequate treatment for raw water pumped from the proposed combined intake structure and raw water pump station location. The Project is not expected to contaminate or otherwise adversely affect the public water system, water treatment facilities, or water distribution systems.

Although the pump station will be an unmanned facility, the Project will require a nearby septic field to accommodate maintenance activities. Conceptual design requires that the septic field be oversized to accommodate the use expected and will measure approximately 200 by 100 feet in size and be located near the existing pump station.

Alternative 1: No Action

Under the No Action Alternative, construction of a new intake structure and raw water pump station would not occur, and existing infrastructure would continue to pump water from the Yadkin River, resulting in no direct impacts to WOTUS. Continued use of the existing intake structures pump station will put the water supply needs of local users at risk during large storm events that cause flooding of the existing infrastructure and prevent site personnel from accessing the intake structures and pump station for maintenance and repairs.

Alternative 2: Proposed Action

Under the Proposed Action, construction activities within and immediately adjacent to the Yadkin River will be required to install the relocated combined intake structure and raw water pump station, raw water pipeline, and access bridge. Impacts to WOTUS will include installation of and temporary dewatering within a cofferdam, permanent fill for the footings of the combined intake structure and raw water pump station, gabion baskets along the riverbank on either side of the pump station, bridge footings near the riverbank and associated wetland area, and riprap along the riverbank near the access bridge and raw water force main.

A disturbed area, extending approximately 100 feet on each side of the proposed combined intake structure and raw water pump station and along the bridge corridor to the point where it intersects the hill, is expected to support safe construction; approximately 137,214 square feet is the expected limit of disturbance. The Switchgear Building will be built farther inland from the river and about 2,500 square feet of land disturbance is expected.

The Proposed Action may result in minor, short-term adverse effects to water quality during Project construction; however, erosion and sedimentation control BMPs will be installed, monitored, and maintained throughout construction to limit any detrimental effects to water quality and in accordance with the NCDEQ-approved Erosion and Sedimentation Control Plan and NPDES General Permit NCG01.

The Proposed Action would install an intake structure comprised of three constant speed pumps with an installed pumping capacity of 54 million gallons per day (mgd) and a firm capacity of 36 mgd (18 mgd per pump) to match the existing pump station capacity. SRU typically operates the existing pump station 12 to 16 hours a day during off-peak hours for electricity to fill the raw water reservoirs. The Salisbury WTP has a permitted capacity of 24 mgd, which can be met with firm pumping capacity and off-peak pumping. The proposed withdrawal rates at the new intake structure would match current operational conditions at the existing intake structure. There would be no change in the withdrawal rate from Yadkin River, no change to Yadkin River water use or the underlying aquifer, and no effect on groundwater is anticipated. The only proposed change in water withdrawal is the downstream location of the proposed intake structure.

The Project is not expected to contaminate or otherwise adversely affect the public water system, water treatment facilities, or water distribution systems. Additionally, no adverse long-term water quality impacts to Yadkin River are expected because of the Proposed Action. The Proposed Action may result in minor, short-term adverse effects to water quality during the construction phase; however, BMPs would be implemented, as described above, to minimize water quality effects.

5.2.2 Floodplains

Executive Order (EO) 11988 Floodplain Management requires federal agencies “to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.” Additionally, federal agencies must provide leadership and take action to reduce the risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains to carry out their responsibilities. In accordance with EO 11988, FEMA uses the 8-step decision-making process, outlined in 44 CFR Part 9.6, to evaluate potential impacts on and mitigate effects to floodplains.

5.2.2.1 Existing Conditions

According to the FEMA Flood Insurance Rate Map of the Project area (Panel 5762, Map Number 3710576200L, dated June 16, 2009), the 100-year flood elevation in the area of the existing pump station

is 647 NAVD 88, and the normal water surface elevation is 623.2± NAVD 88. The operating floor slab of the existing pump station is at elevation 642.4±, and the existing grade surrounding the pump station is at approximate elevation 630±. The existing pump station is not protected to the design flood elevation and is incapacitated in the event of a design flood event. In addition to shutting down the pump station, flood waters have inundated the existing access road, making the pump station accessible only by boat and using rescue personnel.

5.2.2.2 Potential Impacts and Proposed Mitigation

The proposed combined intake structure and raw water pump station in the Yadkin River and portions of the access bridge and raw water pipeline are located within the Non-Encroachment Area, akin to the Floodway. As depicted on the FEMA Flood Insurance Rate Map (Panel 5762), this activity is located between cross-sections 5202 (base flood elevation [BFE] 647.4 feet) and 5220 (BFE 648.0 feet) with non-encroachment (floodway) widths of 491 feet and 619 feet, respectively.

Project construction within the Special Flood Hazard Area (SFHA) would require that a Floodplain Development Permit be issued by Rowan County in accordance with its Flood Damage Prevention Ordinance. Development activities within the SFHA and outside the Non-Encroachment Area are allowed but would require profiles or elevations of the area impacted and a certification from a Professional Engineer that post-construction terrain will match pre-construction terrain, and construction areas are compacted and stabilized to prevent erosive conditions.

Additionally, work within the Floodway or Non-Encroachment Area of the Yadkin River requires a hydraulic analysis to determine the effects on flood levels from the proposed development. Black & Veatch completed hydraulic modeling (1D and 2D HEC-RAS models) to estimate the likely water surface elevations at the proposed combined intake structure and raw water pump station location under a variety of flow conditions (Black & Veatch, 2023a). The model was built on a previous HEC-RAS model of the Yadkin River available from FEMA. Additional flood return intervals were added to the steady flow profiles, with additional detail from a bathymetry field survey included in the geometry. The bathymetry survey was conducted in July 2023, approximately 1,000 feet upstream and downstream of the proposed intake location. The model extended approximately 10 miles upstream of the confluence with Deals Creek, and the downstream limits included the High Rock Dam.

The existing SRU intake structures are located approximately 2,000 feet upstream of the proposed intake, where the FEMA 100-year flood elevation is, as agreed upon by Cube Yadkin and FERC, 647.9 feet (NAVD 88, EL 648.7 NGVD 29). The 100-year FEMA floodplain elevation at the proposed intake location is approximately 647.4 feet, according to FEMA's 2018 Flood Insurance Study and recently updated FEMA mapping. The results of Black & Veatch's HEC-RAS model are similar to the agreed-upon flood elevation and the FEMA floodplain elevation (less than 1 foot of difference) and show the 100-year flood elevation at the proposed intake location to be 646.7 feet (Black & Veatch, 2023a). The highest of the three elevations will be used in design to provide a conservative estimate of the 100-year flood elevation.

Black & Veatch's HEC-RAS model determined that the Project would increase flood levels during the base flood discharge; the difference in water surface elevation between proposed and existing conditions is +0.17 foot (Black & Veatch, 2023a). As a result of the increased flood level and in accordance with 44 CFR 60.3(d)(3), the Project is required to submit a CLOMR request to Rowan County, which must be subsequently approved by NC Emergency Management, and FEMA.

Alternative 1: No Action

Under the No Action Alternative, there would be no direct impacts to floodplains. However, taking no action would leave the local communities with a drinking water supply system that is unreliable during flood events, putting residents and businesses at risk for losing critical water services creating major life and safety implications.

Alternative 2: Proposed Action

Under the Proposed Action, construction activities to establish the combined intake structure and raw water pump station and portions of the access bridge and raw water force main would temporarily occur within the floodplain. Temporary use cofferdams and heavy equipment would cause negligible, direct impacts to floodplain values. Once construction is complete, the combined intake structure and pump station pilings and screens, including riprap armoring, would permanently occupy the floodplain. Other new infrastructure within the floodplain would include a 42-inch ductile iron force main that would be installed from the intake structure to convey pumped raw water to the existing 42-inch main.

The operating floor slab of the proposed pump station would be constructed at elevation 664.50 feet MSL NGVD 88 to provide reliable protection from flooding. The total depth from the operating floor slab to top of the base slab would be approximately 58 feet. The concrete access bridge would also be constructed to the adjacent land surface between elevation 676.00 feet MSL NGVD 88 at the bridge abutment and connection to the access road and 664.50 feet MSL NGVD 88 at the combined intake structure and raw water pump station to provide reliable access and improved operation and maintenance during flood events. The new partial gravel entrance and paved access drive from Hannah Ferry Road to the access bridge would require backfill near Hannah Ferry Road to maintain the access drive above the design flood elevation. To limit floodplain impacts during Project construction, any excess fill would be staged outside SFHAs.

The Proposed Action would have a negligible impact to the floodplain values of the Yadkin River and surrounding properties. Hydraulic modeling indicates that the new combined intake structure and raw water pump station and access bridge would result in approximately 0.17 foot of rise in the BFE. SRU would coordinate with the Rowan County Floodplain Administrator to prepare the CLOMR and obtain a Floodplain Development Permit from Rowan County prior to construction.

The 8-step decision-making process was applied to the Proposed Action by FEMA and is being completed in accordance with 44 CFR Part 9. The 8-step checklist is provided in Appendix D for reference.

5.2.3 Wetlands

EO 11990, Protection of Wetlands, directs federal agencies to avoid funding activities that directly or indirectly impact wetlands and to take actions to minimize the destruction, loss, or degradation of wetlands, whenever there are practicable alternatives. USACE regulates the discharge of dredged or fill material into WOTUS, including wetlands, and requires a permit for impacts to jurisdictional waters in accordance with Section 404 of the CWA. The NCDEQ's authority to regulate the protection of wetlands is limited to those wetlands that meet the definition of a coastal wetland in accordance with North Carolina's Coastal Area Management Act and Dredge and Fill Law, including the presence of specific marsh plant species and proximity to salty or brackish waters.

Similar to floodplains impacts, FEMA uses the 8-step decision-making process to evaluate potential impacts on, and mitigate effects to, wetlands in compliance with EO 11988 and 44 CFR Part 9.

5.2.3.1 Existing Conditions

The Project area was reviewed for the presence of National Wetlands Inventory (NWI) features, a dataset produced by the U.S. Fish and Wildlife Service (USFWS), which was completed via synthesis of remote sensing data (NWI mapping is not field verified). NWI features follow a classification system referenced in the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979). This classification system is the national standard for wetland classification in the U.S.

NWI data (USFWS, 1983) was reviewed online via the USFWS Wetlands Mapper. The data shows one large freshwater palustrine forested wetland (PFO1Ah) within the Project area, along Deals Creek and near the proposed access bridge and raw water force main. The Project area also includes perennial (R5UBH) and intermittent (R4SBC) riverine segments that transect the area west to southeast. The presence and extent of these NWI features were field verified as part of the onsite wetland delineation survey conducted by Black & Veatch and is described below.

Review of the NC Wetlands online database, managed by the NC Division of Water Resources, found no NC Public Wetland Sites in the Project area. Additionally, the Project area is not located in a coastal region under the authority of the NCDEQ's Division of Coastal Management. Therefore, regulatory compliance associated with effects to wetlands and surface waters is limited to those classified as WOTUS under the authority of USACE.

Black & Veatch completed an onsite WOTUS delineation survey on June 27 and 28 and August 22 and 23, 2023, as presented in *Surface Waters Delineation Listed Species Habitat, and Tree Survey Report* (Black & Veatch 2023b). The field survey and data synthesis were completed in accordance with the following regulatory guidance:

- *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987)
- *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* (USACE, 2012)

- *Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification* (USACE, 2005).

One wetland complex was delineated in the survey area, which generally extended northwest to southeast from Hannah Ferry Road to the Yadkin River shoreline. The wetland complex had predominantly palustrine unconsolidated bottom (PUB) features (1.35 acres) with three palustrine emergent (PEM) areas (0.96 acre) located on the west and east ends and one small PFO feature (0.06 acre) at the eastern end. The connected wetland totaled 2.37 acres and was separated from the Yadkin River by a natural berm (upland area). Streams delineated within the survey area included Deals Creek (1,033 linear feet), located along the northern boundary of the survey area, and a short stream segment (143 linear feet) that drained the wetland complex to Yadkin River. Additionally, water backflows into the delineated wetlands through the stream during high water events. A third stream (90 feet) is described as an erosional feature that conveys overflow from Deals Creek into the delineated wetland complex during high water events. Unlike the other two delineated streams, Black & Veatch classified this erosional feature as potentially non-jurisdictional under the current WOTUS definition.

5.2.3.2 Potential Impacts and Proposed Mitigation

All surface waters and wetlands delineated onsite are interpreted as WOTUS under CWA Section 404, except for a 90-foot-long stream, which is described as an erosional feature that conveys overflow from Deals Creek to the wetland complex.

Alternative 1: No Action

Under the No Action Alternative, no new infrastructure would be constructed in the Project area that would impact WOTUS, so no impacts would be expected.

Alternative 2: Proposed Action

Under the Proposed Action, Project construction activities within and over WOTUS would be required to install the combined intake structure and raw water pump station and portions of the new raw water supply force main line and access bridge, including temporary impacts associated with the cofferdam and dewatering. Permanent impacts within the Yadkin River would include piling for the combined intake structure and raw water pump station, gabion basket installation extending approximately 80 feet outward on each side of the combined intake structure and raw water pump station, and riprap armoring on the riverbank.

Construction of the new access bridge and raw water force main would require temporary and permanent impacts to the north end of the delineated wetland complex. Although construction of the temporary construction access road would impact 0.010 acre of the delineated erosional feature, it is not expected to be jurisdictional under the current WOTUS definition. Temporary and permanent impacts to WOTUS are detailed further in Table 9, including the extent of impacts within the FERC boundary for High Rock Lake.

Table 9: WOTUS Impacts Associated with the Proposed Action

Project Element	Feature Type	Temporary Impact to WOTUS (acres)	Permanent Impact to WOTUS (acres)	Temporary WOTUS Impacts within FERC Boundary (acres)	Permanent WOTUS Impacts within FERC Boundary (acres)
Bridge footing and raw water supply force main line	PUB wetland	0.195	0.056	0.171	0.049
Bridge footing and raw water supply force main line	PEM wetland	0.034	0	0.034	0
Bridge footing and raw water supply force main line	PFO wetland	0.002	0	0.00004	0
Combined intake structure and raw water pump station	Yadkin River	0.296	0.205	0.296	0.205

The Proposed Action minimizes impacts to WOTUS to the extent practicable, and impacts would be minor. There is no practicable alternative to completely avoid adverse effects to WOTUS and still meet the Project need. Because impacts to WOTUS would be limited to less than 0.5 acre, the Project should qualify for coverage under a Nationwide Permit (NWP) in accordance with Sections 10 and 404 of the CWA. NWP 58 (Utility Line Activities for Water and Other Substances), which authorizes the construction of water intake structures and pipelines for the transportation of water, including associated access roads. NWP coverage requires submittal of a pre-construction notification to the USACE and adherence to NWP 58 conditions and any additional conditions issued by USACE specifically for the Project.

On April 10, 2008, the EPA and USACE published the Final Rule on Compensatory Mitigation for the Losses of Aquatic Resources (33 CFR 325 and 332 and 40 CFR 230). These rules were designed to improve the effectiveness of compensatory mitigation to replace the loss of aquatic resource area and functions, expand public participation in decision-making, and increase the efficiency and predictability of the mitigation project review process. In accordance with NWP 58, compensatory mitigation for unavoidable impacts to WOTUS because of the Proposed Action would be required at a minimum one-for-one ratio for wetland losses that exceed 0.10 acre and require pre-construction notification, unless the District engineer determines that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the Proposed Action are no more than minimal and provides an activity-specific waiver of this requirement. Compensatory mitigation may include the purchase of mitigation bank or in-lieu fee program credits. Additionally, NWP 58 states that compensatory mitigation plans for activities in or near streams or other open waters will normally include

a requirement for the restoration or enhancement, maintenance, or legal protection (e.g., conservation easement) of riparian areas next to open waters. Any compensatory mitigation required for impacts to WOTUS from the Proposed Action will be determined by the USACE Wilmington District to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

5.3 Biological Resources

5.3.1 Wildlife and Fish

5.3.1.1 Existing Conditions

Based on a search through the USFWS' Information for Planning and Consultation (IPaC) tool, no known terrestrial or aquatic species were known to occur within the Project area. Furthermore, no known critical habitats, refuge lands, or fish hatcheries were discovered during the initial desktop review of the Project area. The North Carolina Wildlife Resources Commission (NCWRC) state-listed resources identify the yellow lampmussel (*Lampsilis cariosa*) and Carolina creekshell (*Villosa vaughaniana*) as having a moderate probability of occurrence within Rowan County. The yellow lampmussel lives in Chowan, Roanoke, Neuse, Tar, Cape Fear, Lumber, and Yadkin-Pee Dee drainages. The Carolina creekshell lives in Cape Fear, Yadkin-Pee Dee, and Catawba drainages. According to a consultation letter from the North Carolina Wildlife Resources Commission (NCWRC) on April 12, 2023, there are no current records of state or federally listed species at the Project site, indicating that the yellow lampmussel and Carolina creekshell are not known to occur within the Project area. The site was visited on June 27 and 28 and August 22 and 23, 2023 by a Black & Veatch (BV) biologist and support staff to assess and document the conditions of the Project area. The results and recommendations from the field survey are documented in Appendix A.

Additionally, the proposed Project is not located within a Conservation Zone (area designated for sensitive resources) delineated in the Yadkin Hydroelectric Project SMP.

Terrestrial

No known protected terrestrial species were identified as occurring within the Project area during a desktop review of the IPaC tool or from the NCWRC input. No terrestrial species were identified during survey activities.

Aquatic

No known protected aquatic species were identified as occurring within the Project area during a desktop review of the IPaC tool and the NCWRC Project input. Water-based aquatic surveys were not performed because this general area of the Yadkin River has been subject to past and ongoing disturbance from sand dredging and agency consultations indicated that there were no species of concern known to occur in the Project location.

5.3.1.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no construction activities; therefore, there would be no impacts to terrestrial and aquatic species.

Alternative 2: Proposed Action

Under the Proposed Action, the areas along the temporary construction access road and the main permanent access road out to the combined intake structure and raw water pump station would include approximately 4 total acres of permanent impact to forest vegetation, fragmentation of habitat for wildlife and forest-dwelling bird species, and likely vacation of part or all of the NCWRC forest conservation easement on the portion of the property where the temporary construction access road is proposed. Construction of roads, buildings, vehicle traffic, noise, emissions, and other activities that will be part of Project construction and operation may adversely affect wildlife in this area, causing them to temporarily relocate to other areas with less disturbance until after construction is complete. The in-river work to install footings for the combined intake structure and raw water pump station and installation of the gabion baskets will cause limited sedimentation and disturbance in the immediate area of the Yadkin River, which may have a minimal impact on aquatic organisms using this area of the river. Based on the relatively small footprint of the construction compared to large areas of similar forested habitat in the area surrounding the Project site, the impacts to wildlife are expected to be minor.

5.3.2 Vegetation

5.3.2.1 Existing Conditions

Executive Order 13112, Invasive Species, requires federal agencies, to the extent practicable, to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. Invasive species prefer disturbed habitats and generally possess high dispersal abilities, enabling them to out-compete native species. The North Carolina Invasive Plant Council identifies invasive plants found in the ecosystems of North Carolina. Invasive species found within the area during the site visit include the Tree of Heaven (*Ailanthus altissima*). The Tree of Heaven occurs in the Appalachians and Piedmont region in disturbed areas, along roadsides, urban abandoned lands, and on limestone clifftops (Patterson, 1976). In North Carolina, it grows on logged sites near Oak Loblolly, which also occurs in the Project area.

During a Phase I archaeological survey performed in June 2023 by ECA, vegetation conditions within the Project area were documented. In the upland areas within the proposed pump station area, a clearcut area was observed with sporadic mature hardwoods left standing. Early successional growth of vegetation was noted including tall grasses, briars, and immature saplings. Forest comprised largely of hardwoods with occasional pines was observed on the sloping areas and portions of the Project area within the Yadkin River floodplain. In the Piedmont Uplands, red oak, white oak, mockernut hickory, dogwood, and sourwoods are all common.

Based on information obtained from USFWS' IPaC system, it was determined that the threatened and endangered plant species Michaux's sumac and Schweinitz's sunflower have the potential to occur within the Project area. Existing conditions for Michaux's sumac and Schweinitz's sunflower are discussed in the Section 5.3.3 of this EA on the next page. During a desktop review of information available from the NCWRC, Georgia aster (*Symphyotrichum georgianum*) was found to have a high probability of occurrence within Rowan County. Georgia aster is a state-listed threatened species and occurs in open woods, roadsides, and other ROWs. American blueheart (*Buchnera americana*), dwarf chinquapin oak (*Quercus prinoides*), Carolina birdfoot-trefoil (*Acmispon helleri*), piedmont quillwort (*Isoetes piedmontana*), and Small's portulaca (*Portulaca smallii*) were identified by the NCWRC as having a low to moderate probability of occurrence within Rowan County. The American blueheart is state-listed as endangered, while Carolina birdfoot-trefoil is state-listed as threatened.

Following this desktop review, the site was visited on June 27 and 28 and August 22 and 23, 2023 by a BV biologist and support staff to assess and document the conditions of the Project area. During the site visit, it was determined that highly suitable habitat for Schweinitz's sunflower, Georgia aster, and Michaux's sumac exists within the Project area, but none of these species were identified during survey activities. Mature forest stands within the study area provide habitat for the American blueheart and Carolina birdfoot-trefoil, but these species were not identified during survey activities. Rocky outcrops were observed on steep elevation grades that may suggest suitable habitat for dwarf chinquapin oak, but the species was not identified within survey areas. No suitable habitat was observed for piedmont quillwort or Small's portulaca. No tree species of concern were identified from the tree species survey completed within proposed disturbance corridors.

The results and recommendations from the field surveys are documented in Appendix A, including a list of tree species found in the areas of the site that would be impacted by construction.

5.3.2.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no construction activities, and therefore no impacts to vegetation.

Alternative 2: Proposed Action

Under the Proposed Action, site preparation work would include clearing and grubbing of the Project footprint, which would require the removal of vegetation, largely trees. The approximate total area of tree removal required for the entire construction footprint (temporary and permanent) is 137,214 square feet (3.15 acres). This area includes permanent forest impacts of approximately 0.92 acre (0.19 acre within FERC boundary) and temporary forest impacts of approximately 2.39 acres (2.01 acres within FERC boundary).

Impacts from the Proposed Action to Michaux's sumac and Schweinitz's sunflower are discussed in the Threatened and Endangered Species section of this EA. No impacts to Georgia aster are anticipated.

Under the Proposed Action, moderate impacts to vegetation and trees are anticipated, but no impacts to any species of concern are anticipated.

5.3.3 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1531-1544) provides for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead federal agencies for implementing the ESA are the USFWS and the U.S. National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS). As relevant to the proposed action, the USFWS has regulatory authority for species occurring on land and in freshwater within the Project area, and NMFS has regulatory authority for species occurring or deriving from marine habitats, including anadromous species such as sturgeon and salmon. In accordance with Section 7 of the ESA (16 U.S.C. § 1532 *et seq.*) and its implementing regulations 50 CFR Part 402 federal agencies are required to ensure through consultation with USFWS and NMFS that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a “take” of any listed species of endangered fish or wildlife. “Take” is defined by Section 3 of the ESA (16 U.S.C. §§ 1532 (19)) as the following actions: “*harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.*”

5.3.3.1 Existing Conditions

In accordance with Section 7 of the ESA, the Project was evaluated for the potential occurrences and impacts to federally listed threatened and endangered species that may be present in the Project area. According to the U.S. Fish and Wildlife Service (USFWS) consultation response received by FEMA on February 17, 2023, the Project area provides suitable habitats for the federally listed endangered species Schweinitz’s sunflower (*Helianthus schweinitzii*) and Michaux’s sumac (*Rhus michauxii*). The Project area also provides suitable habitats for the tricolored bat (*Perimyotis subflavus*), which is proposed for listing as an endangered species, and the monarch butterfly (*Danaus plexippus*) which is currently a candidate for federal listing. There are no designated critical habitats in or near the proposed action areas, nor would any designated critical habitats be indirectly impacted by the work.

The tricolored bat is associated with forested landscapes, where they forage near trees (including forest perimeters) and along waterways and riparian areas (Fujita and Kunz 1984). From spring to summer in western North Carolina, tricolored bats are found in these forested landscapes where they roost upside down in trees, primarily on branches among leaves (O’Keefe et al. 2009). During the winter, tricolored bats are found in caves and mines for hibernating which they are severely vulnerable to the deadly white-nose syndrome. Along with other bat species, white-nose syndrome is responsible for decimating bat populations across North America. The construction activities associated with the Project area will involve clearing trees.

Michaux’s sumac occurs in sandy or rocky open woods, sometimes in association with circumneutral soils (USFWS 1990). Many of the plant’s occurrences are in areas that are artificially disturbed, such as highway and railroad right-of-way, pine plantations, edges of cultivated fields, and other cleared lands

(USFWS 1898, Center for Plant Conservation 2002). The Project area for the construction of the preferred access road and water main would occur along the northern edge of an electric transmission line right-of-way, and there is also a small area with open woods habitat that may allow enough sun through the canopy to support this species. Additionally, sandy, clay loam soils from igneous rock are identified in and around the electric transmission line right-of-way.

Schweinitz's sunflower can colonize through the dispersal of seeds that readily germinate without a dormant period. Presently, this species occurs in relatively open habitats such as roadsides, power line clearings, early successional fields, forest ecotone margins, or forest clearings. It thrives in full sun, but also grows in the light shade of open stands of oak-pine-hickory. The species is known from a variety of soil types, but is generally found growing on shallow, poor, clayey and/or rock soils, especially those derived from mafic rocks (USFWS 1994). The species also benefits from routine soil disturbance, most notably along roadsides which receive regular right-of-way maintenance (Smith 2008). The Project areas will be near and within suitable soils and habitat for sunflower development and growth. Soils derived from granite are identified in and around the electric transmission line right-of-way.

Monarch butterflies require milkweed (*Asclepias* species) as caterpillars, but feed on nectar from a variety of flowers as adults. Monarchs roost in trees near water; primarily in maple trees and conifers in the northern U.S. and pecan and oak trees in the southern U.S. (Center for Biological Diversity, 2022). The Project areas are likely to have suitable habitat with flowering plants along the electric transmission line right-of-way fringe and a waterbody.

During the BV survey for species habitat, no state or federal-listed species were observed by biologists. Rocky outcroppings on steep elevation were noted and may be sites utilized by tricolored bats, but none were found during the surveying. Additionally, it was noted that very suitable habitat such as open woods, roadsides, and rights-of-way is within the Project area, and the probability of the monarch butterfly, Michaux's sumac, and Schweinitz's sunflower utilizing or occupying the area here is high, although none of these species were identified during the surveying.

The results and recommendations from the field survey are documented in Appendix A.

5.3.3.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no construction activities and therefore, no impacts to threatened or endangered species.

Alternative 2: Proposed Action

Under the Proposed Action, construction would impact forested areas with a temporary disturbance of about 2.39 acres and permanent disturbance of about 0.92 acre. Tricolored bats may be physically injured if struck by clearing and construction equipment (while roosting in trees) and disturbed by noise from mobilization of heavy equipment and construction personnel. Tree removal is expected to be avoided to the maximum extent practicable and kept to the minimum area needed for construction of the project. If

any roosts or species are observed onsite during construction, work will be stopped in the immediate area, and the North Carolina Wildlife Helpline and USFWS Asheville Ecological Services Field Office will be contacted to advise about next steps.

Michaux's sumac and Schweinitz's sunflower may be affected by construction personnel and equipment during the land clearing for the access road and raw water main. There is a portion of the new access road that will cross over into the Duke Energy electric transmission line right-of-way, so the maintained vegetation in this area will also be impacted in a limited area. Much of the construction work will occur in forest habitat. These effects are expected to be insignificant (no adverse effects) because of the limited impacts occurring within the electric transmission line right-of-way and discountable (extremely unlikely to occur) because protected plant species were not identified during biological surveys of the site area.

On January 12, 2023, FEMA initiated informal consultation with USFWS and received concurrence on February 17, 2023, with FEMA's determination that the proposed action may affect Schweinitz's sunflower and Michaux's sumac, but with the identified minimization measures to be followed for work within the Project area, work is "not likely to adversely affect" these two species. Until the tricolored bat becomes a federally listed species, an effects determination is not necessary. Upon the federal listing of tricolored bat, USFWS concurs with a "may affect, not likely to adversely affect" determination for this species with the implementation of the conservation measures listed in Section 6 under Project Conditions. Section 7 consultation is not required for candidate species such as the monarch butterfly; however, voluntary conservation measures were recommended, which can be found listed in Section 6 under Project Conditions. Refer to Appendix E for informal consultation letters. USFWS, in the February 17 concurrence, emphasized "the adherence to seasonal clearing measures and recommend that vegetative clearing occur outside of the April through September timeframe." Therefore, in order to avoid adverse effects to bat species and nesting bird species, tree clearing activities is to be conducted, if possible, during the November through March timeframe. Based on the analysis, consultation, and survey activities conducted, the Preferred Action would have an insignificant, minor impact on threatened and endangered species.

5.3.4 Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. § 703-712) provides a program for the conservation of migratory birds that fly through lands of the United States. The lead federal agency for implementing the MBTA is the USFWS. This law was enacted in 1918 to fulfill the United States' requirement in the 1916 "Convention between the United States and Great Britain for the protection of Migratory Birds" in the hopes of stopping the "take" of migratory birds. The MBTA notes that "*Take is defined in the Service's general wildlife regulations as "to pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to hunt, shoot, wound, kill, trap, capture, or collect"* (50 CFR 10.12). Additionally, it is "*unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell...*" (16 U.S.C. § 703). Therefore, incidental, or unintentional take is considered with the potential impacts to migratory birds.

The Bald and Golden Eagle Protection Act (16 U.S.C. § 668-668d), enacted in 1940, prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald and golden eagles, including their parts, nests, or eggs. Like the MBTA, the law makes it illegal for anyone to “take,” possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or bater, any migratory bird, or their parts, feathers, nests, or eggs. “Take” is defined as “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities.” The Bald and Golden Eagle Protection Act of 1940 specifically protects eagles from take or disturbance, requiring a 660-foot buffer zone between any development or construction and an active eagle nest during the nesting season (U.S. code 2004).

5.3.4.1 Existing Conditions

In compliance with the MBTA, searches were conducted using the IPaC database, which identifies birds of particular concern that may be present in the search area, including species listed under the USFWS Birds of Conservation Concern and species that require special attention in the Project location.

The bald eagle (*Haliaeetus leucocephalus*) and its nests are typically found near large bodies of water, including lakes, rivers, and coastlines in mature trees close to open areas. According to a search through the IPaC database, the bald eagle is known to occur in the Project area. In compliance with the Bald and Golden Eagle Protection Act, a site visit was conducted to identify species of particular interest that may be present or are present in the Project area. Bald eagle nest surveys were conducted by survey personnel using binoculars to survey the study area and the 660-foot buffered area tree canopies. Less suitable, though not entirely dismissible, habitat for bald eagle is present within the Project area, but the species was not identified during survey activities. Golden eagles are not generally known to occur in the Project area. The IPaC database identified seven species of concern with the potential to occur in the Project area. These species are listed in Table 10 below, along with their breeding season and the months with the highest probability of presence of the species.

Table 10: Migratory Birds Identified by IPaC Database

Common Name	Scientific Name	Breeding Season	Probability of Presence
Bald eagle	<i>Haliaeetus leucocephalus</i>	September 1 – July 31	February, May, December
Chimney swift	<i>Chaetura pelagica</i>	March 15 – August 25	April – June, September – October
Prairie warbler	<i>Dendroica discolor</i>	May 1 – July 31	June
Prothonotary warbler	<i>Protonotaria citrea</i>	April 1 – July 31	April – June
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	May 10 – September 10	February, September
Rusty blackbird	<i>Euphagus carolinus</i>	Breeds elsewhere	January, March
Wood thrush	<i>Hylocichla mustelina</i>	May 10 – August 31	April - August

The other six migratory birds listed, other than the bald eagle, prefer to live in forest habitats and manmade yards. Aside from the rusty blackbird, breeding seasons within the Project area range from as early as March to as late as September. During the site visit, BV personnel identified prothonotary

warbler by song during survey activities. None of the other species was identified during survey activities.

5.3.4.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no construction activities; therefore, no potential to take or impact migratory birds.

Alternative 2: Proposed Action

Under the Proposed Action, construction of the Project would require clearing of several acres of trees, shrubs, and other vegetation. Construction work at the Project site may constitute a noise disturbance to any breeding populations of migratory birds. To avoid, minimize, and reduce impacts to migratory birds and their nests from both noise and vegetation removal activities, applicable nationwide conservation measures would be implemented, and contractors would be required to adhere to these measures to the extent practicable. If an incidental take were to occur, the nearest NCWRC law enforcement office would be contacted to assist in rectifying the take. In line with a general avoidance measure recommended by the USFWS for forested sites with potential for protected species use, SRU/the City will make a good faith effort to have the construction contractor perform tree clearing activities during winter months to avoid the direct take of most avian and bat species that may use Project habitats; the ability to implement this impact avoidance/mitigation measure for the Project will depend on the timeframe when the construction contractor is given notice to proceed. The conservation measures to be followed to the greatest practicable extent are listed in Appendix E in the NCWRC's consultation response.

Although significant impacts to bald eagles and their habitats are not anticipated because evidence of bald eagle presence was not observed during site field surveys, bald eagle nesting season is usually during the same time as tree clearing activities are recommended, which is in the wintertime, to avoid impacts to bats and birds in general. Bald eagles nest from approximately late December to early February. An eagle nest survey conducted in the Project area before tree clearing begins would help minimize impacts to eagles that may build nests near the Project construction area. The USFWS recommends keeping a buffer of 660 feet away from active eagle nests for any construction activities. No impacts to golden eagles are anticipated from the Proposed Action since they are not known to occur in the project area.

5.4 Cultural Resources

As a federal agency, FEMA must consider the potential effects of its actions upon cultural resources prior to engaging in any project. Cultural resources are defined as prehistoric and historic sites, structures, districts, buildings, objects, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. There are several laws a federal agency must consider when working with and identifying cultural resources. FEMA will meet this obligation through its Section 106 of the National Historic

Preservation Act of 1966 (NHPA) consultation. Section 106 of the NHPA, as amended, 54 U.S.C. §§ 3001-1 – 307108, and implemented by 36 CFR Part 800, outlines the required process for federal agencies to consider a project’s effects to historic properties. The NHPA defines a historic property as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register.” Eligibility criteria for listing a property on the National Register of Historic Places (NRHP) are found at 36 C.F.R. Part 60. While the definition of a cultural resource under NEPA can be broader, FEMA regularly uses Section 106 to meet its obligations to consider effects to cultural resources. For this project, FEMA determined that it was appropriate to use its NHPA review to fulfill its NEPA obligations.

Cultural resources determined to be potentially significant under the NHPA are subject to a higher level of review and federal agencies must consider the potential effects of their projects on those resources and consider steps to avoid, minimize, or mitigate those effects. To be considered significant, a cultural resource must meet one or more of the criteria established by the National Park Service that would make that resource eligible for inclusion in the NRHP. The term “eligible for inclusion in the NRHP” includes all properties that meet the NRHP listing criteria, which are specified in the Department of Interior regulations Title 36, Part 60.4 and NRHP Bulletin 15. Properties and sites that have not been evaluated at the time of the undertaking may be considered potentially eligible for inclusion in the NRHP and, as such, are afforded the same regulatory consideration as nominated properties. The North Carolina Department of Natural and Cultural Resources (NCDNCR) maintains an online GIS database of North Carolina’s historic properties (HPOWEB 2.0) and the North Carolina Office of State Archaeology (OSA) maintains a database of the state’s archaeological sites. FEMA used this database, along with the NRHP National Register of Historic Places, as part of its efforts to identify significant cultural resources that may be impacted by a project.

Pursuant to 36 CFR Part 800.16(d), the Area of Potential Effect (APE), “is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist.” Within the APE, impacts to cultural resources are evaluated prior to the undertaking for both Standing Structures (above ground resources) and Archaeology (below ground resources). The APE for this undertaking consists of the footprint of ground disturbance for the installation of the new tower water intake structure and pump station which will be located within the Yadkin River. It also includes a compressor building that will be constructed to stabilize the pressure and flow of water, and an access road. This road will be constructed for vehicle and personnel traffic during day-to-day operations when the facility is operational, and it will also serve as a temporary construction road. A 42-inch diameter pipeline will be constructed to connect the intake structure and raw water pump station to the existing raw water main along Hannah Ferry Road. The existing 1968 Intake Structure and raw water pumping station and the 1917 intake structure and raw water pump station will be abandoned and possibly demolished. The ground disturbance associated with this project will include the footprint of the raw water intake and pumping building, the compressor building, the access road, the area of the new raw water main, and the areas of the 1917 and 1968 structures if they are demolished.

In order to fulfill its Section 106 responsibilities, FEMA has initiated consultation on this project in accordance with the Section 106 of the National Historic Preservation Act with the North Carolina State Historic Preservation Officer (SHPO), and participating tribes. In addition to identifying historic properties that may exist in the proposed project's APE, federal agencies must also determine, in consultation with the appropriate State Historic Preservation Officer (SHPO) and interested Tribal Historic Preservation Officers (THPO), what effect, if any, the action will have on historic properties.

5.4.1 Historic and Archaeological Resources

FEMA evaluated potential resources in the Area of Potential Effects (APE) utilizing the National Park Service (NPS) National Register of Historic Places (NRHP) GIS resource, the North Carolina Department of Natural and Cultural Resources database of historic properties (HPOWEB 2.0) and the North Carolina Office of State Archaeology's (OSA) site file, and previous cultural resource investigations. The project area is located on the west bank of the Yadkin River just below the confluence of the Yadkin and South Yadkin Rivers.

The review identified one archaeological site ineligible for NRHP listing that was identified during a previous archaeological survey for a water main. The project area is also within an area designated by the Yadkin Hydroelectric Project SMP and the Yadkin Project Historic Properties Management Plan (HPMP) as having a high probability of containing cultural resources. As part of FEMA's consultation process, a Phase I archaeological survey (ECA 2020b) and historic resources survey (ECA 2020a) of the APE was conducted by the Environmental Corporation of America, Inc. (ECA) in the summer of 2023 (*Phase I Archaeological Survey for the Proposed Yadkin River Raw Water Pump Station and the Historic Properties Evaluation Report Yadkin River Raw Water Pump Station Rowan and Davies Counties, North Carolina*). The archaeological survey did not identify any archaeological resources and the historic resources survey evaluated on previously recorded structure, the Salisbury Pump Station/House and recorded the 1917 and 1969 water intakes.

Based on the results of the historic resources survey, FEMA recommends that Salisbury Pump Station/House and the associated water intake structures are ineligible for NRHP listing.

Alternative 1: No Action

If no action is taken, there would be no ground disturbance or demolition of existing water intake and pump structures. Therefore, under the no-action alternative there would be no impact to cultural resources.

Alternative 2: Proposed Action

Under the proposed action, there would no effect to historic properties resulting from the construction of this project. In accordance with Section 106 of the NHPA, and the implementing regulations, 36 CFR Part 800, on November 17, 2023 FEMA consulted with the North Carolina Department of Natural and Cultural Resources (SHPO) and federally recognized Tribes with an ancestral interest in the project area: the Catawba Indian Nation, the Seminole Nation of Oklahoma, the Seminole Tribe of Florida, and the Shawnee Tribe in Oklahoma with a finding of No Historic Properties Affected for this undertaking in

accordance with 36 CFR 800.4(d)(1). Responses were received from the Catawba Indian Nation on December 21, 2023, stating that there were no concerns with regard to cultural properties within the project boundaries. The Shawnee Tribe responded on December 20, 2023, stating that the project is outside their area of interest. The North Carolina SHPO responded on February 9, 2024, concurring with FEMA's determination of No Historic Properties Affected.

5.5 Socioeconomic Resources

5.5.1 Land Use and Planning

5.5.1.1 Existing Conditions

The Project area is predominantly occupied by wooded land with a utility corridor traversing through southern portions of the Project area. The utility corridor is a Duke Energy electric transmission line right-of-way. According to the Archaeology Report prepared by ECA, the area has largely been occupied by wooded land since at least 1948. The utility corridor was constructed sometime between 1965 and 1983. Forest thinning and clearing occurred sometime between 2016 and 2018 throughout the upland landform that covers the central portion of the Project area. Areas surrounding the existing pump station and city-owned property, pump station, and 1969 intake structure are in active use. The 1917 intake structure is periodically inundated and is partially silted over.

The proposed Project is not located within a Conservation Zone delineated in the Yadkin Hydroelectric Project SMP.

There is no current zoning in the Project area, aside from the existing raw water pump station which is listed as zone CI: Community/Institutional. This zoning designation allows for community or institutional uses, such as schools, churches, etc. A zoning permit from the City of Salisbury Development Services is required for any development activity defined as a "Major Site Plan," which includes non-residential and industrial development. A zoning permit will be required for the Project prior to issuance of any Rowan County Building permits.

5.5.1.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no changes to the existing area would occur; therefore, there would be no impacts related to land use and planning.

Alternative 2: Proposed Action

Under the Proposed Action, there would be no alteration to existing zoning within or adjacent to the Project area. There would be a small change in land use from forested/wetland/undeveloped to the developed proposed Project. Because there is no existing designated zoning within the Project area, and the small size of the change in land use, impacts to land use and planning would be minor. The use of certain measures during construction will reduce the significance of land use impacts. Such measures

may include limiting construction work to a defined corridor/pump station area, placing gravel on access roads and using existing access roads to the degree possible, re-establishing vegetation cover in disturbed areas, limiting machinery access points to reduce erosion, and using appropriate environmental protection plans to avoid erosion, siltation, and potential spills. In forested areas where clearing cannot be avoided, restricting the cleared area to the minimum dimensions required to satisfy construction clearance and maintenance requirements would be prudent.

5.5.2 Recreation

5.5.2.1 Existing Conditions

The site and surrounding areas offer various recreational opportunities, including fishing, boating, and hunting. The Yadkin River offers opportunities for canoeing and kayaking to enjoy the natural scenery of the area.

The Yadkin River was classified as a State Trail by North Carolina State Parks to encourage recreation, ecological education, and preservation of wildlife resources. The Yadkin River State Trail is a paddle trail that starts at the tailwaters of the dam that creates the Kerr Scott Reservoir and extends for 163 miles to its confluence with the Uwharrie River at Morrow Mountain State Park. Numerous launch points and camping locations are located along the trail for canoeists, paddle boarders, and kayakers. The Yadkin Pee Dee River Trail is a 125-mile long paddling trail which includes multiple put-in and take-out areas for easy access to the river. The River Trail is mostly flat, with Class I rapids and a few Class II spots. The Yadkin Pee Dee River Trail may be paddled by kayak or canoe beginning east of W. Kerr Scott Reservoir in Wilkes County, meandering east through Elkin and over toward Winston-Salem and then turning south along the boundaries of Davie, Rowan, and Davidson Counties to the entrance to High Rock Lake. The part of the trail that goes through Rowan County is the South Lakes Region that extends from High Rock Lake to Badin Lake.

Hunting has historically been an ongoing activity on the site, with seasonal access allowed by the previous landowners of the site parcels. It is expected that hunting may continue on the portions of the project site away from the proposed Project area.

5.5.2.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no changes to the existing area would occur; therefore, there would be minimal to no impacts related to recreational use of the Yadkin River or the project area in general. Continued flooding of the area may preclude use of nearby areas for private hunting or other forms of recreation because of inundation during certain times of the year and/or after major storm events.

Alternative 2: Proposed Action

The Project overall will involve approximately 5 acres of total impact and just over 3 acres of permanent impact over a site with an area of approximately 24 acres (main portion of the site excluding the old

intake structures). Impacts to recreation in the area would be primarily to the visual aspect of recreational use and the view that boaters would see during construction while traveling down the Yadkin River. While the view would be somewhat degraded during construction, this aspect of temporary change in the view would not be expected to affect actual recreational use of the river. There is the potential that the portion of the paddle trail in the project area may need temporary closure at some points during construction to ensure the safety of paddlers on the river.

Private hunting on the site, if allowed to continue away from the permanent project impact areas, would likely be more restricted in the area that hunters could use because of safety considerations. During construction, hunters may have less success on the site with wildlife scared farther away from the main project construction area by the noise of construction equipment and the presence of workers on the site. The view of the site interior areas would also change for hunters as temporary impact areas are cleared. Access to portions of the site may also be more difficult considering the potential for having to maneuver around felled trees, vegetation and soil piles, construction equipment, and other features. This would likely be the case for approximately 1 year during the main construction activities and would gradually return largely to previous conditions as the land recovers from temporary construction disturbance. The more restricted hunting area would remain throughout the project life, with hunting expected to be allowed only at a distance from permanent project facilities. Overall, impacts to private, recreational hunting would constitute inconveniences rather than major impacts and would be minimal.

5.5.3 Noise

The Noise Control Act of 1972, 42 U.S.C. §§ 4901, *et seq.* establishes a national policy to promote an environment for all Americans free from noise that jeopardizes their health and welfare. The Act also serves to one (1) establish a means for effective coordination of federal research and activities in noise control; two (2) authorize the establishment of federal noise emission standards for products distributed in commerce; and three (3) provide information to the public respecting the noise emission and noise reduction characteristics of such products. Sound levels are measured in decibels. A-weighted sound measures emphasize the frequency range of human hearing and are expressed in terms of A-weighted decibels (dBA). A major impact is defined as a permanent increase in noise or prolonged periods of nighttime noise in noise-sensitive areas.

5.5.3.1 Existing Conditions

A natural, low noise environment is free (or largely free) from human-made noise pollution and contains sounds typical of the surrounding environment. The Project site is in a rural, undeveloped area that is largely a natural, low noise environment. The Yadkin River emits a relatively low, constant sound of water flowing. Due to the proximity of the Yadkin River and surrounding forested areas, most human-made noise would be moderated. Some occasional traffic noise would be audible from Hannah Ferry Road, but the road is in an area of farmland, forests, and residential properties and would not be a significant noise source. Additionally, the maintenance activities at the existing pump station would involve relatively infrequent, but intense instances of noise from vehicles and personnel, and occasional

equipment repair or other related work noise during flood events or when regular maintenance visits are conducted.

A neighboring property north of the existing intake and pump house area includes an active, daily sand mining operation (Carolina Sand) producing low-level noise.

5.5.3.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no construction activity; therefore, no impact on noise levels in the area.

Alternative 2: Proposed Action

Under the Proposed Action, construction activities would result in long-term temporary increases in noise levels from heavy equipment use in and around the Project area and the temporary increase of vehicular traffic along routes to and from the construction site. No work is anticipated to occur during nighttime hours, and all work activities would follow local noise control ordinances. The Project area will include a 50-foot buffer from the anticipated immediate area of disturbance to account for construction noise and turbidity.

The closest residential property is approximately 500 feet south of the closest anticipated construction activity. Based on the data presented in the EPA publication, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, the main phases of outdoor construction typically generate noise levels that range from 78 dBA to 89 dBA, approximately 50 feet from the construction site (EPA, 1971). Noise levels are estimated to decrease by approximately 6 dBA with every doubling of distance from a noise source. Therefore, construction noise from the Project area is expected to be less than the 78 dBA to 89 dBA noise level range at the closest residential property.

The Occupational Safety and Health Administration (OSHA) compares 60 dBA to the sound levels of a normal conversation (at 3 feet away), 70 dBA to be that of classroom chatter, 80 dBA compares to a freight train at 100 feet away, and 90 dBA is comparable to a boiler room. OSHA regulations allow up to 8 hours of exposure to 90 dBA for workers. The National Institute for Occupational Safety and Health recommends that all worker noise exposure should be controlled below 85 dBA for 8 hours to minimize hearing loss.

Based on the expected noise levels, activities under this alternative would have minor noise impacts on residential communities, with the closest residential area south of the Project site experiencing the greatest impact. Noise that is audible in the nearest residential communities would be intermittent, heard only during the daytime, and only over the duration of the Project construction. Regarding the intake and pump station operating sound levels and long-term impacts, it is expected that the impacts would be very minor, if not negligible.

5.5.4 Transportation

5.5.4.1 Existing Conditions

Transportation in the rural Project area consists of municipal local roads such as Hannah Ferry Road. Hannah Ferry Road is a local road in northern Salisbury. It intersects with several major roads, including NC 150, which runs to the west of Hannah Ferry Road, and NC 153, which runs to the east of Hannah Ferry Road. The closest major highway is I-85, which is located approximately 5 miles to the east of the road. There are no railroads or bridges located within proximity of the Project area. The closest airport is approximately 7 miles away from the Project area.

5.5.4.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no construction activity; therefore, no impacts on existing infrastructure would occur within the Project area. Flooding events would continue to impact transportation to and from the pump station as the access road is inundated for multiple days after initial events. Transportation would continue to be limited to boats during flooding events.

Alternative 2: Proposed Action

Under the Proposed Action, there would be temporary construction activity that would involve the construction of new transportation features within the Project area. The construction equipment, materials, and temporary construction trailers would use a new laydown area, but within the Project area. No public road closures are expected during construction that would impact the local community or access to the public boat ramp on the South Yadkin River. Impacts to transportation are expected to be minimal. Traffic control for construction activities would be provided to maintain access along Hannah Ferry Road. Once construction work is completed, transportation would be improved, as access to the pump station would become more reliable during flooding events through the construction of new access roads and a bridge.

5.5.5 Public Services and Utilities

5.5.5.1 Existing Conditions

Electricity is provided to the area by Duke Energy, one of the largest electric power holding companies in the region. The pump station is a public service and utility that provides a clean water supply to multiple municipalities within Rowan County, NC and is owned and operated by Salisbury-Rowan Utilities (SRU). SRU is a water and wastewater provider for multiple municipalities and unincorporated areas within Rowan County and provides quality water and wastewater services to the region.

A Duke Energy high-voltage transmission line right-of-way runs roughly east-west adjacent to the south side of the Project area. The preferred option for the permanent access road to the new combined intake structure and raw water pump station crosses this right-of-way (ROW) near its exit to Hannah Ferry

Road. This crossing, however, is not expected to impact the Duke Energy right-of-way, which is used intermittently for transmission line maintenance activities, or the operations of the transmission line.

5.5.5.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no construction activity. While there would be no immediate impacts on existing public services and utilities, the existing pump station would continue to be subject to flooding events. Future deterioration of the pump station would be expected, and increased costs for repairs and maintenance of the pump station and its infrastructure would be required. This alternative would result in adverse effects on the pump station, which is a critical public service and utility.

Alternative 2: Proposed Action

Under the Proposed Action, significant improvements to the reliability of the public water supply from the combined intake structure and raw water pump station would be anticipated. The Proposed Action would reduce the risk of infrastructure damage caused by flooding and sedimentation issues, which in turn reduces the likelihood of disruptions in the water supply and associated costs of repairs and maintenance. A moderate positive impact would occur to public services and utilities from the Proposed Action.

5.5.6 Public Health and Safety

5.5.6.1 Existing Conditions

The Salisbury Fire Department aids the local community in providing fire protection and emergency medical services. Fire Station 3 serves the Project area. The combined intake structure and raw water pump station serves public health and safety through providing a clean water supply to the local community.

During flood events, the pump station is only accessible by boat, and emergency response personnel are put at risk when trying to complete required repairs. Following a flood, the access road can remain flooded for up to five days, significantly complicating access to the pump station.

5.5.6.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no construction of the Project, resulting in the continuation or worsening of access to the pump station for emergency response teams during flooding events. Flooding events can lead to contamination of the public water supply, which increases the risk of water-borne diseases spreading. Floodwater can carry a variety of pollutants which could infiltrate and contaminate the water supply through the pump station. Service disruptions caused by flooding events can pose a significant hazard to public health. If the pump station is unable to provide water to

the community, a shortage of water for essential services can occur, such as firefighting and sanitation. If the pump station is unable to produce a clean water supply and emergency services are unable to access it to fix any issues caused during flooding events, there would be moderate adverse impacts to public health and safety through the No Action alternative, and major impacts during those times when flooding affects the infrastructure.

Alternative 2: Proposed Action

Under the Proposed Action, access to the pump station would be greatly improved during flood events. Emergency services would not be required as frequently during flood events, as the pump station would be accessible via increased elevation and the new access road and bridge. Emergency response teams would be able to serve the pump station safely and efficiently in the event of an emergency. The Proposed Action would lead to a more reliable public water supply, which would improve public health and safety for a moderate positive impact.

5.5.7 Environmental Justice

5.5.7.1 Existing Conditions

On February 11, 1994, President Clinton signed Executive Order (EO)12898, titled, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.” The EO directs federal agencies, *“to make achieving the environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.”*

In January 2021, President Biden issued EO 13985 on Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce, and EO 14008, Tackling the Climate Crisis at Home and Abroad, to further address the need to achieve environmental justice and equity across the federal government. These new executive orders direct federal agencies to renew their energy, effort, resources, and attention to implement environmental justice and underscore the administration’s commitment to environmental justice.

The U.S. Census Bureau (U.S. Census Bureau, 2022) estimated the population of Rowan County at 149,645 in 2022. Minority populations including African American, American Indian, Alaska Native, Asian, Native Hawaiian/Pacific Islanders, Hispanic or Latino, or a mix of these races, account for approximately 21.3% of the population in Rowan County. Persons identified with incomes below the poverty level in the county account for 17 percent of the population. The median household income for the county is \$53,600. A major impact to environmental justice is disproportionately high or adverse human health or environmental effects on minority or low-income populations. While median household incomes are similar, Rowan County’s percentages of minority and low-income populations are higher compared to surrounding counties. Specifically, the town of East Spencer has a much higher percentage of minority and low-income populations within Rowan County.

Table 11: Environmental Justice Data for Surrounding Counties (US Census Bureau 2022)

Area	Population	Minority Percentage	Low-Income Percentage	Median Household Income
Rowan County	149,645	21.3%	17%	\$53,600
Davidson County	172,586	15.7%	13.6%	\$53,083
Davie County	44,090	10.6%	9.7%	\$64,657

Table 12. Environmental Justice Data for Surrounding Cities (US Census Bureau 2020)

Area	Population	Minority Percentage	Low-Income Percentage	Median Household Income
Salisbury (2022 data)	35,808	46.4%	23.7%	\$44,656
East Spencer	1,382	88.5%	29.3%	\$36,250
Granite Quarry	2,973	7.9%	13.8%	\$47,529

5.5.7.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would not be any construction activities resulting in the continuation of periodic disruptions to Rowan County’s water supply. Furthermore, the next flooding event could potentially damage water supply capabilities, causing a high burden and hazard to minority or low-income populations. Under this alternative, access to clean water would be jeopardized for low-income populations, as they may not have the resources to purchase bottled drinking water or have alternative methods for clean water sources. Because Rowan County has a higher percentage of minority and low-income populations compared to neighboring counties, the No Action Alternative would affect these specific groups disproportionately, an overall moderate impact that could escalate to a major impact during flooding.

Alternative 2: Proposed Action

Under the Proposed Action, no adverse or disproportionate impacts on minority or low-income populations are expected. The Proposed Action would result in an alternate water supply facility to protect the City of Salisbury’s ability to provide a water supply to the entire community during and after flooding events. The impacts associated with implementation of the Proposed Action would not have disproportionate adverse effects on any minority or low-income population in Rowan County. Based on the analysis conducted, this alternative would positively impact minority and low-income populations for a moderate to major positive impact.

5.5.8 Hazardous Materials

5.5.8.1 Existing Conditions

Hazardous materials and solid wastes are regulated under a variety of federal and state laws, including 40 CFR Part 260, the Resource Conservation and Recovery Act (RCRA) of 1976 (42 U.S.C. §§ 6901 et seq.), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. §§ 9601 et seq.), Solid Waste Act, the Toxic Substances Control Act (TSCA), and the Clean Air Act of 1970 (42 U.S.C. §§ 7401 et seq.). The OSHA standards seek to minimize adverse impacts on worker health and safety (29 CFR Part 1926). Evaluations of hazardous substances and wastes must consider whether any hazardous material would be generated by the proposed action activity and/or already exists at or in the general vicinity of the site (40 CFR Part 312.10). Within North Carolina, the NCDEQ has authorization from the EPA to administer and enforce the state's hazardous waste management rules. The state's more stringent rules apply to hazardous waste generators; transporters; owners and operators of hazardous waste treatment, storage, and disposal facilities; and handlers of used oil. The state's rules for handlers of universal wastes parallel the federal requirements.

Using EPA's NEPAAssist tool, a search for RCRA sites near the Project area was performed (EPA, 2020). The search did not identify any facilities or sites regulated by RCRA within a half mile radius of the Project area. The closest RCRA facility is located at 3740 Cauble Rd, Salisbury, NC 28144, a little over 2 miles southwest from the Project site. There are no brownfield or Superfund sites within half a mile radius of the defined radial search. The closest Superfund site is the National Starch & Chemical Corp. located at Cedar Springs Rd, Salisbury, NC 28144, a little over 11 miles southwest from the Project site. There are no TSCA regulated sites within the half mile radius. The closest TSCA sites are Innospec Active Chemicals LLC and Packaging Corp of America, both located 4.5 miles southeast of the Project site. A major impact to hazardous materials and waste would include a release of hazardous materials or waste, or a violation of local, state, and federal regulations pertaining to hazardous materials or waste. Under CERCLA and RCRA, a major impact would be the occurrence of unsafe exposure, the release of hazardous substances, pollutants, or contaminants that cannot be avoided, and/or if institutional and/or engineering controls may be breached.

5.5.8.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action, there would not be any construction activities; therefore, no potential to disturb existing hazardous materials or create any potential new hazardous waste storage areas within the area. No impact to human health or the surrounding environment from hazardous or solid waste would occur as well.

Alternative 2: Proposed Action

Under the Proposed Action, there would be construction activities that could require the handling of hazardous materials. The handling of hazardous materials and waste generated or inadvertently

discovered during construction activities would be handled in accordance with applicable RCRA, TSCA, and North Carolina state requirements for managing solid and hazardous waste materials. Potential for spills from construction equipment would be minimized and handled in accordance with applicable regulations and BMPs. There is no potential for any construction activities related to this Project to impact waste sites designated under CERCLA, as the nearest Superfund site is over 11 miles from the Project location. Based on the analysis conducted, this alternative would have a negligible impact on hazardous materials and solid waste regulated under a variety of federal and state laws.

5.6 Cumulative Impacts

Cumulative impacts are those effects on the environment that result from the incremental effect of the action when added to past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time and can be positive or negative in nature. The Proposed Action is a facility relocation with the same pumping capacity as the existing facility. Other projects proposed recently in Rowan County have generally been for locations in and on the periphery of Salisbury to the north and south, between about 4 and 7 miles south of the proposed new combined intake structure and raw water pump station area. The potential for cumulative impacts from these development projects and the Proposed Action is negligible because of the distance between them and the limited disturbance area planned for each of the projects.

Additionally, as stated in previous sections, the proposed Project will have no significant impacts to environmental resources. Therefore, the Project will not significantly contribute to area or regional cumulative impacts.

6.0 PERMITS AND PROJECT CONDITIONS

The City of Salisbury (subrecipient) is responsible for compliance with federal, state, and local laws and regulations including obtaining all required federal, state, and local approvals or permits prior to beginning construction activities, and adhering to any conditions laid out in these approvals or permits. While a good faith effort was made to identify all necessary permits and approvals for this environmental assessment, the following list may not include all approvals or permits required for this Project. Before, and no later than, submission of a Project closeout package, the City of Salisbury shall provide FEMA with a copy of the required permit(s) from all pertinent regulatory agencies.

LIST OF PERMITS:

Federal

1. USACE Section 10 Permit
2. USACE Section 404 Permit

State – North Carolina

1. NCDEQ Section 401 Water Quality Certification
2. NCDEQ NPDES General Storm Water Construction Permit
3. NCDEQ Isolated Wetlands/Non-404 Jurisdictional Permit (TBD)
4. NCDEQ Public Water System Authorization to Construct
5. NCDEQ Water Withdrawal Transfer Registration (TBD)
6. NCDEQ Erosion and Sediment Control Certificate of Approval
7. NCDNCR Review of Threatened & Endangered Species
8. NCWRC Endangered Species Permit (TBD)
9. NCDOT Encroachment Permit
10. NCDOT Oversize/Overweight Permit (TBD)

Local – City of Salisbury, Rowan County

1. Rowan County Building Inspections (RC-BI) Commercial Plan Review
2. Rowan County Floodplain Management Permit and CLOMR
3. Rowan County Stormwater Post-Construction Permit
4. Rowan County Septic System and Well Permits

Other

1. Cube Yadkin Activity Permits (for non-Project use of land within FERC Project boundary and for shoreline stabilization; possibly other authorizations if demolition option chosen)

LIST OF PROJECT CONDITIONS:

General Project Conditions

1. The subrecipient is responsible for obtaining and complying with all required local, state, and federal permits and approvals.
2. If deviations from the proposed scope of work result in substantial design changes, the need for additional ground disturbance, additional removal of vegetation, or any other unanticipated changes to the physical environment, the subrecipient must contact FEMA so that the revised Project scope can be evaluated for compliance with NEPA and other applicable environmental laws.

General Best Management Practices:

The following construction methods and BMPs will be incorporated to limit degradation of Yadkin River water quality during in-stream construction activities as well as stormwater runoff quality (and subsequently surface water quality in the Yadkin River and Deals Creek) during riverbank disturbance associated with the Switchgear Building, access road, and pipeline work:

1. Contamination of natural aquatic and wetland systems will be avoided by limiting all equipment maintenance, staging laydown, fuel/oil dispensing, etc., to designated upland areas.
2. No excavated material will be stockpiled where sediment would erode to surface waters.
3. BMPs will be designed to avoid turbidity around in-stream construction work and the downstream discharge of total suspended solids in stormwater runoff to Deals Creek and Yadkin River.
4. Tree clearing will be minimized, leaving tree stumps in place during clearing to allow the roots to continue to stabilize the soil.
5. Dust control measures will be implemented, including watering bare soil, to limit wind erosion and dust.
6. Areas of disturbed soil will be stabilized with vegetative cover, and erosion control blankets will be used in sloped areas to limit soil loss.
7. Perimeter BMPs will be implemented, including silt fence and fiber rolls as appropriate, to avoid the discharge of silt and sediment loads to surface waters and potentially subsequent destruction of fish spawning habitat, suffocation of eggs, and clogging of gills.
8. To minimize noise impacts, construction activities will adhere to all local noise ordinances.
9. To the greatest extent practicable, transport of materials to and from the construction area shall consider avoiding school zones and areas with low income and minority populations.
10. To minimize risks to safety and human health, construction activities will be performed using qualified personnel trained to use the required equipment properly.
11. The construction area will be secured from public access and signage indicating closed site and only authorized personnel allowed at all entrances and exits.
12. All construction activities will be conducted in accordance with the standards specified in the OSHA regulations.
13. For ground disturbing activity, if contaminated soil is encountered during construction, it should be treated, stored, and disposed of according to applicable federal, state, and local regulations.
14. Any hazardous materials discovered, generated, or used during construction of the proposed action will be disposed of and handled by the subrecipient in accordance with applicable federal, state, and local regulations.

Erosional risks will also be mitigated through Project design. The new access road and raw water main will be designed to minimize erosion and ensure the hillside remains stable both during and following the completion of construction. Site contours will be designed to slow stormwater flow and direct it around new impermeable surfacing. As applicable, and to the extent practicable, the Project will be designed to maintain a minimum 100-foot native, undisturbed forested buffer along each side of perennial streams and a 50-foot native, undisturbed forested buffer along each side of intermittent streams and wetlands, as recommended by the NC Wildlife Resources Commission (NCWRC).

Physical Resources

1. Utilize BMPs the fullest extent practicable. See BMPS under General Best Management Practices. This list may not encompass all BMPs are required by permits or authorization from other federal, state, and local agencies. Verification of adherence can be provided to FEMA at project closeout through a formal letter or email correspondence.

Water Resources

1. NCDEQ Stream Reclassification – approval of reclassification of 2,100-foot section of Yadkin River using riverine criteria to WS-IV, CA and 10-mile portion of South Yadkin River to WS-IV.
2. The proposed construction activities are to adhere to all permitting requirements to avoid, minimize, or mitigate potential impacts to wetlands.

Biological Resources

1. To minimize potential impacts to federally listed species, FEMA proposes the following conditions to the grant to be implemented during construction:
 - a. Educate all employees, contractors, and/or site visitors of relevant rules and regulations that protect wildlife, discuss identification of the ESA-listed species, their protected status, what to do if any are observed within the Project areas, and applicable penalties that may be imposed if State and Federal regulations are violated. All personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing ESA-listed species.
 - i. If construction work comes into contact, injures, and/or disturbs ESA-listed species and general wildlife; construction personnel or designated agent shall immediately call the NC Wildlife Helpline at 866-318-2401 for assistance. More information can be found: <https://ncwildlife.org/injured-wildlife#7110749-what-should-I-do-if-I-find-injured-wildlife>. Also, one should immediately report the incident to the USFWS – Asheville Ecological Services Field Office at 828-258-3939.
 - ii. Photos and descriptions of species may be obtained on the North Carolina Wildlife Resources Commission (NCWRC) webpage: <https://www.ncwildlife.org/Learning/Species>.
 - b. Minimize Project creep by clearly delineating and maintaining Project boundaries (including staging areas).
 - c. Maximize use of disturbed land for all Project activities (i.e., siting, lay-down areas, and construction).
 - d. Implement standard soil erosion and dust control measures. For example: establish vegetation cover to stabilize soil, use erosion blankets to prevent soil loss, and water bare soil to prevent wind erosion and dust issues.
 - e. Use only native and local (when possible) seed and plant stock.
 - f. Restrict unauthorized access to natural areas adjacent to the Project site by erecting a barrier and/or avoidance buffers (e.g., gate, fence, wall) to minimize foot traffic and off-road vehicle uses.

- g. Contractor is to clearly mark all riparian buffers, streams, and wetlands including limits of disturbance in field prior to commencing construction in these areas.
- h. Regarding construction equipment and vehicles:
 - i. Construction equipment and vehicles should utilize eco-friendly fuels or otherwise should undergo regular inspection for possible leaks or seeping of fuel, oil, etc.
 - ii. Avoid soil contamination by using drip pans underneath equipment and containment zones at construction sites and when refueling vehicles or equipment.
 - iii. Avoid contaminating natural aquatic and wetland systems with runoff by limiting all equipment maintenance, staging laydown, and dispensing of fuel, oil, etc., to designated upland areas.
 - iv. Construction equipment and vehicles shall be cleaned regularly after use and prior to demobilization any vegetation (terrestrial and aquatic) will be removed and disposed of properly to avoid transporting any invasive and exotic species.
 - For more information and assistance for NC specific invasive plants contact the North Carolina Forest Service. See the following webpage: https://www.ncforestsERVICE.gov/contacts/contacts_main.htm.
 - v. After each day of work and at Project completion, all equipment including materials and any waste must be removed and/or disposed of properly according to NCDEQ requirements.
- i. Work operations hours must be completed between 15 minutes before official sunrise to 15 minutes after official sunset.
- j. Prior to removal of an inactive nest, ensure that the nest is not protected under the Endangered Species Act (ESA). Nests protected under ESA cannot be removed without a valid permit. Use the identified contact information for both NCWRC and USFWS.
- k. Do not collect bats (live or dead) or their parts (e.g., wings) or nests without a valid permit.
- l. Operation of any mechanical construction equipment shall cease immediately if ESA-listed species (specifically bats and birds) are seen within a 50-ft radius of the equipment. Activities will not resume until the protected species has departed the Project area of its own volition.
- m. When feasible and practicable, avoid disturbing the vegetation located within the Duke Energy right-of-way.
- n. All practicable measures be taken to avoid adverse impacts to aquatic species, such as stringent sedimentation and erosion control measures when working near waterways.
- o. The subrecipient or designated agent will be required to obtain all applicable Federal, state, and local permits and will comply with conditions set forth in each. These requirements include all applicable State of North Carolina and USACE authorization or permits. These may include NCDEQ Erosion and Sediment Control permitting, NCDEQ Section 401 Water Quality permitting, Section 404 Clean Water Act USACE permitting, and Floodplain Development permitting to name a few. Failure to obtain permits or comply with these conditions may also be a violation of the ESA and may jeopardize the FEMA funding.

- p. Listed below are conservation measures to be utilized during the construction activities for the Proposed Action with the goal of reducing impacts to birds and their habitats protected under the Migratory Bird Treaty Act (MBTA).
- a. To the extent practicable, schedule all vegetation removal, trimming, and grading of vegetated areas from September 1st – March 31st, which is outside of the peak breeding season for migratory birds. USFWS’s Information, Planning and Conservation system (IPaC) was used to collect bird breeding information.
 - b. Educate contractors of relevant rules and regulations that protect wildlife. Prior to the onset of construction activities, the contractor’s designated lead will conduct a briefing with all construction staff to instruct them on the potential presence of species protected under the MBTA. If work is occurring during a bird’s breeding season, briefing boards strategically placed at laydowns area will inform construction staff of the species’ scientific and common name, a picture of the bird, timing of breeding, and habitat notes.
 - c. Do not collect birds (live or dead) or their parts (e.g., feathers) or nests without a valid permit.
 - d. Provide solid waste receptacles at all project areas. Non-hazardous solid waste (trash) would be collected and deposited in the on-site receptacles. Solid waste would be collected and disposed of in the manner approved by the South Carolina Department of Health and Environmental Control (SCDHEC).
 - e. Implement standard soil erosion and dust control measures.
 - f. Report any incidental take of a migratory bird, to:
U.S. Fish and Wildlife Service
Migratory Bird Permit Office
1875 Century Blvd.
Atlanta, GA 30345
404-679-4163
Resee_Collins@fws.gov

Voluntary conservation measures for the Monarch butterfly:

1. Planting (recommended) or seeding of native milkweed and native nectar plants (organically and locally grown sourced plants are best) with an aim for diversity of species and bloom timing,
2. Conservation mowing (i.e., mowing only November – March) to enhance native floral resource habitat.
3. Targeted herbicide treatments (outside the growing season of native milkweeds) to restore suitable habitat.
4. Invasive species management.

General Measure Recommendations:

1. Native shoreline vegetation should be left unaltered as much as possible. Riparian buffers should be maintained or reestablished with plantings of native species such as buttonbush clusters, needle rush, and multi-stem river birch, wherever possible.
2. Stringent erosion-control measures should be installed where soil is disturbed and should be maintained until Project completion in the upland areas and along the shoreline area in the riparian portions of the Project. No excavated material should be stockpiled where sediment will erode to surface waters.

Invasive Species Recommendations:

1. Routine, weekly checks should be implemented in active construction areas for sprouts of the Tree of Heaven after tree clearing activities have occurred.
2. Tree of Heaven sprouts should be physically removed via hand-pulling.
3. If hand-pulling proves to be ineffective, and the area becomes heavily infested, herbicide should be used on sprouts to control the invasive species.

Cultural Resources

1. If human remains or intact archaeological features or deposits (e.g., arrowheads, pottery, glass, metal, etc.) are uncovered, work in the vicinity of the discovery will stop immediately and all reasonable measures to avoid or minimize harm to the finds will be taken. The subrecipient will ensure that archaeological discoveries are secured in place, that access to the sensitive area is restricted, and that all reasonable measures are taken to avoid further disturbance of the discoveries. The subrecipient's contractor will provide immediate notice of such discoveries to the applicant. The subrecipient shall contact the North Carolina State Archaeologist and FEMA within 24 hours of the discovery. Work in the vicinity of the discovery may not resume until FEMA has completed consultation with SHPO, Tribes, and other consulting parties as necessary. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities shall be notified in accordance with North Carolina Statutes, Section 70-29.

Socioeconomic Resources

1. Utilize BMPs the fullest extent practicable. See BMPS under General Best Management Practices. This list may not encompass all BMPs required by permits or authorization from other federal, state, and local agencies. Verification of adherence can be provided to FEMA at project closeout through a formal letter or email correspondence.

7.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

The list of agencies provided below includes those agencies contacted for input used to inform the development of this final EA. Copies of correspondence with these agencies are included in Appendix E.

- U.S. Fish and Wildlife Service, Asheville Field Office
- U.S. Fish and Wildlife Service, Raleigh Ecological Services Office

- U.S. Army Corps of Engineers Regulatory Division: Samantha Dailey
- NC Department of Environmental Quality: Harold Brady
- NC Department of Water Resources
- Rowan County Planning and Development/Floodplain Administration: Ed Muire
- Rowan County Building Inspections: Thomas O’Kelly
- City of Salisbury City Engineer: Wendy Brindle
- NC Wildlife Resources Commission: Brady Beck
- NC Division of Parks and Recreation: Dwayne Patterson
- NC State Clearinghouse: Crystal Best
- Catawba Indian Nation
- Seminole Nation of Oklahoma
- Seminole Tribe of Florida
- Shawnee Tribe
- Trading Ford Historic District: Ann Brownlee
- NC State Historic Preservation Office
- Davie County: Johnny Easter
- Davidson County: Scott Leonard

In accordance with FEMA’s NEPA procedures, FEMA released the draft EA to the public and agencies on May 24, 2024, for a 30-day public review and comment period. Comments on the draft EA were incorporated into the final EA, as appropriate. The City of Salisbury made the draft EA available on its website at <https://salisburync.gov/Government/Salisbury-Rowan-Utilities/River-Pump-Station> in. Hard copies of the draft EA were also made available at Salisbury-Rowan Utilities, 51 Water Street, Salisbury, NC 28144. The draft EA is also available on FEMA’s website at [Environmental Assessment for City of Salisbury Water Supply Resiliency Project for SRU Pump Station Along Yadkin River, Rowan County, North Carolina, EMA-2021-BR-005-0044, 2024 | FEMA.gov](#). As a part of this public comment period, FEMA received comments from NCDEQ- Division of Water Resources. These comments were addressed and incorporated in this final EA. The public notice along with the received comments can be found in Appendix D.

8.0 LIST OF PREPARERS

Name	Organization	Title
Riley Fisher	Black & Veatch	Associate Environmental Sciences Specialist
Sarah Gilstrap	Black & Veatch	Senior Environmental Sciences Specialist
Dusty Miller	Black & Veatch	Lead Environmental Scientist
Kevin Coyne	Black & Veatch	Environmental Project Manager
Graham Coggins	Black & Veatch	Project Engineer
Ryan Shy	Black & Veatch	Senior Engineering Manager
Dr. Angelika Phillips	Region 4 FEMA	Regional Environmental Officer
Cary Helmuth	Region 4 FEMA	Environmental Protection Specialist
Dustin Ducote	Region 4 FEMA	Environmental Protection Specialist
Dr. Leslie Johansen	Region 4 FEMA	Historic Preservation Lead
David Abbott Jr.	Region 4 FEMA	Historic Preservation Specialist
Whitney Rooks	Region 4 FEMA	Historic Preservation Specialist
Joyce Foster	Cube Yadkin- Eagle Creek Renewable Energy	Director of Licensing and Compliance
Jody Smet	Cube Yadkin- Eagle Creek Renewable Energy	Chief Compliance Officer

9.0 REFERENCES

- Black & Veatch. 2014. Salisbury-Alcoa Raw Water Assessment. Summary of Raw Water Sampling Data. Letter to City of Salisbury, August 1, 2014.
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**Appendices are available for review upon request to
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