

**FINDING OF NO SIGNIFICANT IMPACT
AND ENVIRONMENTAL ASSESSMENT**

**GREENVILLE UTILITIES COMMISSION
PHASE 1 WATER TREATMENT PLANT IMPROVEMENTS**

**RESPONSIBLE AGENCY: NORTH CAROLINA DEPARTMENT OF
ENVIRONMENTAL QUALITY**

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July 29, 2020

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FINDING OF NO SIGNIFICANT IMPACT

Article I, Chapter 113A of the North Carolina General Statutes requires an action to be subject to the requirements of the North Carolina Environmental Policy Act (NCEPA) if it involves the expenditure of public funds and if a potential impact is anticipated to the environment. The project has been evaluated for compliance with the NCEPA and is determined to be a major agency action, which will affect the environment.

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| Project Applicant: | Greenville Utilities Commission |
| Project Description: | The Greenville Utilities Commission provides electric, water, sewer, and natural gas services to the City of Greenville and surrounding areas in Pitt County. The proposed project will expand GUC's water treatment plant from 22.3 million gallons per day (MGD) to 32 MGD with the following improvements: one 30-inch parallel pipeline and associated yard piping to convey raw water from the raw water pre-sedimentation impoundment to the existing clarification trains as well as the new train; new clarification train with two rapid mix basins with vertical mixers; one 10 MGD Superpulsator® clarifier; new pre-chemical facility; four new filters; one clearwell pump station; one bulk chemical storage facility; upgrades to the existing bulk chemical storage facility; and upgrades to the chemical feed systems. |
| Project Number: | WIF-1984 |
| Project Cost: | \$53,793,777 |
| Drinking Water State Revolving Loan Fund: | \$20,000,000 |
| Other Loans (WIFIA): | \$26,045,350 |
| Local Funds: | \$7,748,427 |

The review process indicated that significant adverse environmental impacts should not occur if mitigative measures are implemented, and an environmental impact statement will not be required. The decision was based on information in the Engineering Report/Environmental Information Document (ER/EID) submitted by the applicant and reviews by governmental agencies. The attached Environmental Assessment (EA), prepared by the Division based on the ER/EID, supports this action and outlines mitigative measures that must be followed. This Finding of No Significant Impact (FONSI) completes the environmental review record, which is available for inspection at the State Clearinghouse.

No administrative action will be taken on the proposed project for at least 30 days after notification that the FONSI has been published in the North Carolina Environmental Bulletin.

Sincerely,

A handwritten signature in blue ink that reads "Jon Risgaard". The signature is written in a cursive style with a large initial "J".

Jon Risgaard, Section Chief
State Revolving Fund Section
Division of Water Infrastructure

ENVIRONMENTAL ASSESSMENT

A. Proposed Facilities and Actions

The Greenville Utilities Commission (GUC) provides electric, water, sewer, and natural gas services to the City of Greenville and surrounding areas in Pitt County. GUC's water system includes a Water Treatment Plant (WTP) on the Tar River with a capacity of 22.3 million gallons per day (MGD). The proposed project will expand the treatment plant to 32 MGD with the following improvements: one 30-inch parallel pipeline and associated yard piping to convey raw water from the raw water pre-sedimentation impoundment to the existing clarification trains as well as the new train; new clarification train with two rapid mix basins with vertical mixers; one 10 MGD Superpulsator® clarifier; new pre-chemical facility to house vacuum pumps and a coagulant aid polymer system for the new Superpulsator®; four new filters; one clearwell pump station to convey filtered water to the ground storage tanks, including two pumps and space for a third future pump; one bulk chemical storage facility to provide additional storage for alum, caustic soda, orthophosphate; upgrades to the existing bulk chemical storage facility to provide additional storage for sodium hypochlorite; and upgrades to the chemical feed systems.

Funding Status: The estimated total cost for the project is \$53,793,777. GUC has applied for a Drinking Water State Revolving Fund (DWSRF) loan of \$20,000,000 and has secured a Water Infrastructure Finance and Innovation Act (WIFIA) loan of \$26,045,350. Local funds will be used to cover the remaining \$7,748,427.

B. Existing Environment

Topography and Soils. The GUC WTP is located in Pitt County in the Coastal Plain physiographic province. Topography at the WTP site is relatively flat and ranges from approximately mean sea level (MSL) along the Tar River to 25 feet above MSL in the vicinity of existing buildings. Berms associated with above-ground storage lagoons have elevations up to 53 feet above MSL. The WTP site is within the Peedee Formation, consisting of sand, clayey sand, and clay, and the Black Creek Formation consisting of clay with thin beds and laminae of fine-grated micaceous sand and thick lenses of cross-bedded sand. The WTP site is the 100-year floodplain associated with the Tar River and is protected by an existing flood berm.

The primary soil types at the WTP site are Lakeland sand with 0 to 6 percent slopes and Alaga loamy sand with 0 to 6 percent slopes and lesser amounts of Osier loamy sand, Bibb complex soils, Ocilla loamy fine sand, and Chipley sand.

Surface Water. Most of the service area and the project sites are in Tar-Pamlico River basin (HUC 03020103). A smaller portion of the service area also extends into the Neuse River basin (HUC 03020202). The Tar River upstream of and to the WTP's raw water intake is classified as Water Supply-I, nutrient sensitive water (NSW), and critical area. The Tar River downstream of the intake is Class C for supporting recreational uses and NSW.

Water Supply. The Tar River is the primary source of drinking water for the service area, with some groundwater also used by GUC. Private wells are also common in surrounding areas.

C. Existing Water Facilities

GUC provides electric, water, sewer, and natural gas services to the City of Greenville and surrounding areas. GUC has wholesale water purchase agreements with several surrounding communities including Bethel, Stokes Regional Water Corporation, Farmville, Winterville, and Greene County. GUC has multiple Interbasin Transfer (IBT) Certificates for these transfers. GUC's water system draws raw water from the Tar River, groundwater wells, and aquifer storage and recovery (ARS) wells, with the majority coming from the Tar River. The groundwater wells are subject to 75 percent reduction under the Central Coastal Plain Capacity Use Area (CCPCUA) rule. Five groundwater wells are connected directly to the distribution system, and three wells are associated with the Northside Blending Station. Raw water is treated at the WTP located on the Tar River along Old River Road. GUC's WTP was commissioned in 1983 with a capacity of 12.0 MGD and was expanded to the current rated capacity of 22.3 MGD in 1999; however, the firm capacity is 19.2 MGD based on the firm filtration capacity. Several components have firm capacity less than 19.2 MGD. GUC staff observed maximum daily demands of nearly 18.1 MGD in 2019. The WTP is in good condition and in compliance with regulatory requirements. Finished water is stored in two 3-million-gallon ground storage reservoirs. A high service pump station transfers water to the distribution system. The distribution system includes two elevated storage tanks with combined capacity of 2.5 million gallons, a network of approximately 631 miles of water mains with diameters varying from 2 to 36 inches and materials including polyvinyl chloride, steel, asbestos cement, cast iron, and ductile iron.

D. Need for Proposed Facilities and Actions

The proposed project is needed to address increasing water demand. Peak demand has exceeded 80 percent of capacity, and water demand is expected to increase even with water conservation and greater efficiencies contributing to reductions in per capita water use. Water demand projects show a need for expanding the WTP's capacity to support growth in GUC's service area.

E. Alternatives Analysis

The alternatives analysis includes six alternatives as follows:

No-Action: In this alternative, the WTP would continue under current operation with no upgrades. This alternative is rejected because it does not meet the need for infrastructure improvements to meet anticipated water demand.

Groundwater (Freshwater): The use of additional groundwater as a raw water source was evaluated as a possible alternative to increase water supply; however, groundwater is not a sustainable long-term water supply option in the Central Coastal Plain due to existing saltwater intrusion issues and CCPCUA rules limiting withdrawals to allow the Cretaceous aquifer to

recharge. This alternative is rejected because it cannot meet the long-term need for increased water supply.

Roanoke River: The Roanoke River was evaluated as water supply alternative. The most feasible location for withdrawal would be between Conoho Creek and the Roanoke River upstream of Williamston and downstream of Lake Gaston. This alternative would require an IBT with extensive environmental review and time to obtain a certificate. In addition, obtaining water supply from the Roanoke River for the long term will be challenging because of demand from other communities using the Roanoke River as a water supply. This alternative would require a 30-mile transmission main, increasing vulnerability to the GUC service area and increasing environmental impacts for construction. As a result of these challenges, this alternative is less desirable than the preferred alternative and is rejected.

Aquifer Storage and Recovery (ASR): ASR is the re-injection of potable water into an aquifer for subsequent recovery and use. GUC developed an ASR system in 2010 designed to provide peak demand management with a capacity of 1.4 MGD. The system has presented several challenges due to the natural characteristics of the aquifer; therefore, this alternative does not present a sustainable solution for long term supply water supply needs and is rejected.

Brackish Water Via Groundwater or Surface Water (Pamlico River): Brackish water yields are high compared to freshwater yields in the Central Coastal Plain. Whether supplied from groundwater or surface water, brackish water contains elevated concentrations of total dissolved solids and must be treated with high-pressure membrane filtration in lieu of conventional treatment. This treatment requires disposal of highly concentrated brine waste, which would require extensive conveyance or contract hauling. Additionally, this type of system would not leverage the use of GUC's existing treatment infrastructure. Finished water quality from brackish sources is highly variable, and mixing groundwater and freshwater sources in the same distribution system can also contribute to water quality concerns. This alternative is rejected due to these treatment challenges and finished water quality concerns.

Tar River (Preferred Alternative): GUC's WTP currently draws raw water from an intake on the Tar River. When the plant was expanded in 1999, the Division of Water Resources indicated that any future expansion requests would require a flow study because the withdrawal exceeds twenty percent of the 7Q10 flow. In 2009, GUC commissioned a Tar River Flow Study to assess the impact of increased water withdrawal from the Tar River. The study was a collaborative process that included resource and regulatory agencies. The study included hydrodynamic and water quality modeling, assessment of water quality and water quantity, and potential impact to ecological habitats. The results of the study indicated that future water withdrawals will have a small effect on habitat of the Lower Tar River and Upper Pamlico River during summer and fall conditions of very dry to drought-year conditions. The study results support up to 47 MGD of withdrawal from the Tar River. This is the preferred alternative because it leverages use of existing infrastructure and environmental studies show that the Tar River can meet the need for additional water supply in the long term.

F. Environmental Consequences and Mitigative Measures

Topography and Soils: Impacts to topography and soils will be minimal. Some excavation and backfilling of trenches will be necessary for pipe installation, and some grading will be required. A Floodplain Development Permit was issued by the City of Greenville for work in the Special Flood Hazard Area, which will include temporary encroachments into the floodplain and floodway. No change in the flood elevation or capacity of the floodway or floodplain to convey flood waters will result from the project. A DEQ-approved Erosion and Sedimentation Control Plan will be implemented. Disturbed areas will be returned to original grade where feasible. Secondary and cumulative impacts (SCI) related to growth and development in the service area are expected to be minimal due to strong local development programs including the City of Greenville's Floodplain Development program and Pitt County's Flood Damage Prevention Ordinance.

Land Use: Direct impacts to land use will be minimal. Proposed facilities will be constructed on the existing WTP site with small areas of new structures or improvements for vehicular traffic. Growth within the service area has been ongoing and is expected to continue, but land use patterns are not expected to change due to the proposed project. The land use plans adopted by the City of Greenville, the City of Winterville, and Pitt County will mitigate the potential impacts to land use in the service area.

Wetlands: The proposed construction activities will not impact wetlands. Some wetland areas are present on the WTP site, but not in areas where construction will take place. Future growth in the service area could include draining or filling wetlands. Growth in the service area is anticipated with or without the proposed project. Local erosion control and stormwater ordinances, the Pitt County Riparian Buffer Protection Ordinance, and the Tar-Pamlico River Basin Buffer Rules will mitigate potential impacts from future growth and development.

Important Farmlands: The project area does not include prime or unique farmland, so no direct impacts are anticipated. Some loss of important farmlands may occur with future growth and development, but development of such lands is not expected to be induced by the project. Areas within the city limits and ETJ of Greenville are covered in the Comprehensive Land Use Plan. Areas in the service area and outside of municipal boundaries are expected to be retained as agricultural, open space, natural resources, and rural residential uses.

Public Lands and Scenic, Recreational, and State Natural Areas: No designated public, scenic, or recreational areas are present within the GUC WTP property. The Tar River, which is designated as a Natural Heritage Area and is used for recreational purposes, is adjacent to the property. The increased water withdrawn from the Tar River is not expected to impact the natural communities or recreational use of the Tar River or other facilities in the project vicinity. Impacts from future growth are expected to be negligible, as existing public, scenic, and recreational areas in the service area are expected to be retained in their current use, and construction of additional public and recreational facilities is expected to occur in accordance with local development plans.

Cultural Resources: In a memorandum dated February 19, 2020 (No. ER 20-0249), the North Carolina State Historic Preservation Office (SHPO) stated that they are aware of no historic resources which would be affected by the project.

Air Quality: No significant impacts to air quality are anticipated. Construction activities will create temporary impacts such as increase in airborne particulates from exhaust emissions from construction vehicles. On-site generators can contribute to air emissions but have permit requirements that restrict the number of hours of operation per year to limit emissions. There are no other sources of air emissions requiring permitting, and continued operation of the WTP is not expected to have adverse effects to air quality in the surrounding area. Urban growth may contribute to increased air emissions from vehicles, industrial activities, and construction. Such impacts will be mitigated through local development ordinances.

Noise Levels: No significant permanent noise impacts are anticipated. Temporary noise is expected during construction activities, which will occur in portions of the WTP site that are not in close proximity to residences. Noise impacts from construction activities are not expected to be significantly elevated above the noise level typical of ongoing site management and maintenance work at the site. There may be a temporary increase in noise from construction vehicles along public roadways, but such impacts will be minimal. Intermittent noise from the use of emergency generators and operation of the WTP will be similar to current operations. The potential SCI of increased traffic noise from growth will be mitigated through local development ordinances.

Water Resources: No significant impacts to water resources are anticipated. Streams are not present within the WTP property, but the Tar River is adjacent to the property. Impacts from construction activities will be mitigated through use of an approved Erosion and Sedimentation Control Plan, provisions for waste materials and storage, and maintenance measures. The project will result in a minimal increase of impervious areas. Stormwater control measures will be in place. Operational impacts were extensively evaluated through the Tar River flow study and impacts from the increased withdrawal were determined to be not significant. Local erosion control and stormwater ordinances, Pitt County Riparian Buffer Protection Ordinance, and Tar-Pamlico River Basin Buffer Rules will mitigate potential impacts from future growth and development.

Forest Resources: Impacts to forest resources will be minimal. Two small areas along the perimeter of the forest on the WTP site will be cleared for construction. The total proposed area for tree removal is 0.2 acre. SCI may occur as a result of growth and development, but these impacts are expected to be insignificant and will be mitigated through local ordinances and plans that encourage development in existing urban and suburban areas and protection of forest resources.

Shellfish or Fish and Their Habitats: Direct impacts to shellfish, fish, and their habitats are not expected to be significant. An Erosion and Sedimentation Control Plan will be followed for all construction activities. The Tar River Flow Study included evaluation of potential impacts to shellfish, fish, and their habitats from additional water withdrawal, and potential impacts were

not found to be significant. Erosion and sedimentation control ordinances for the service area will mitigate impacts from future development.

Wildlife and Natural Vegetation: No significant impacts to wildlife and natural vegetation are expected. No protected species were identified in the project area. Suitable habitat for the bald eagle has been identified within surrounding area, but no nests have been observed, and no impacts are anticipated. Most construction will occur in already cleared areas. The potential impact of future habitat degradation from further development will be mitigated by the land use plans in effect in the communities within the proposed project area.

Introduction of Toxic Substances: Toxic substances are not expected to be released to the environment. Hazardous and toxic materials will be handled, stored, used, and disposed of in accordance with all applicable state and federal requirements during construction activities, and construction equipment will be properly maintained to minimize the risk of toxic chemicals being released. Design and operation of the WTP includes measures for proper handling, storage, use, and disposal of toxic substances.

The U.S. Fish and Wildlife Service reviewed the proposed project and did not have any comments (email March 24, 2020). The North Carolina Wildlife Resources Commission, Natural Heritage Program, and DWR Washington Regional Office concur with the proposed project. The U.S. Army Corps of Engineers was consulted and did not object to the project. The North Carolina Department of Natural and Cultural Resources is not aware of historic resources that would be affected by the project (February 19, 2020, ER 20-0249).

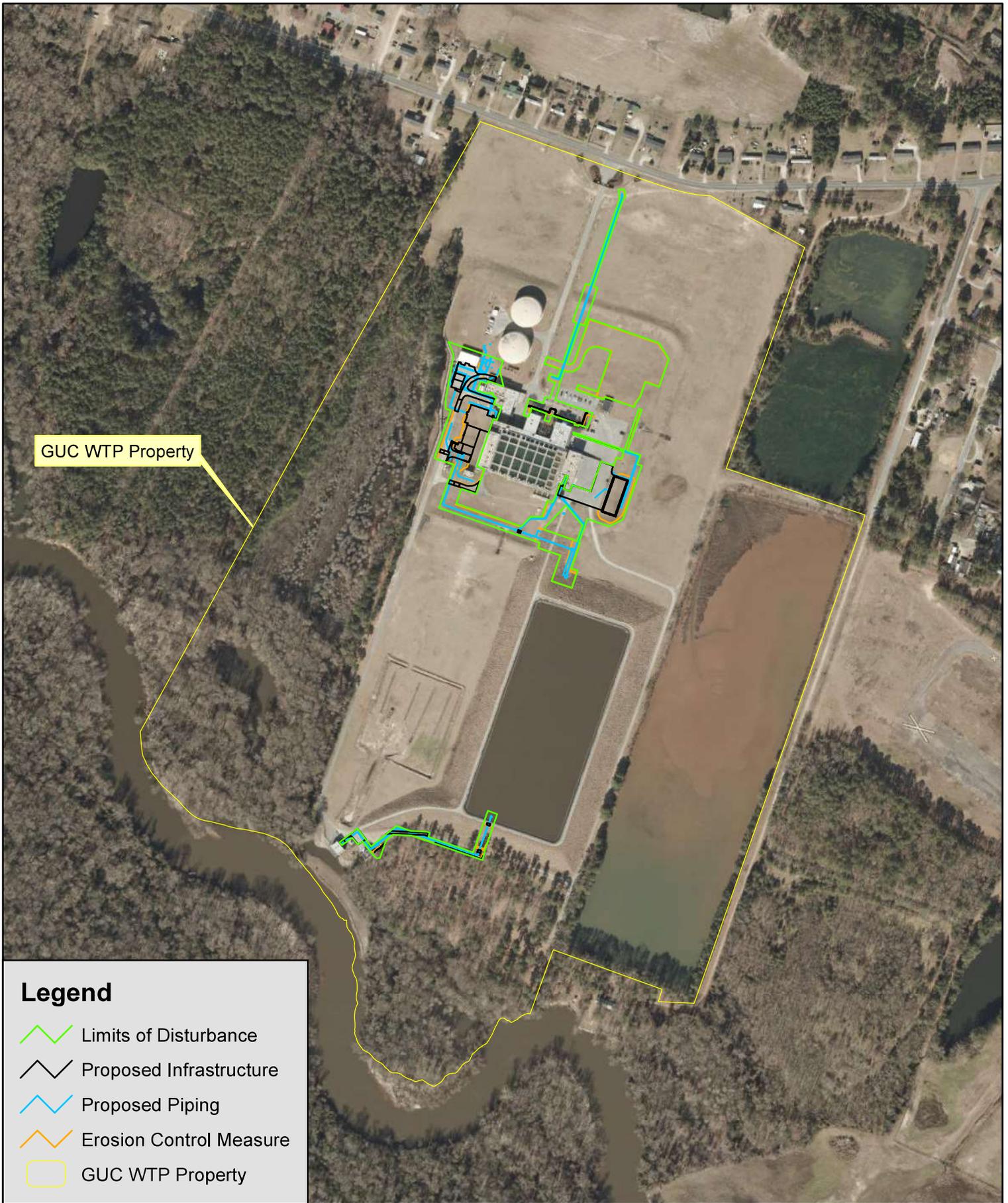
G. Public Participation, Sources Consulted

A public meeting was held virtually on July 16, 2020, including a presentation about the project and a public comment period through July 17, 2020. There were no comments or questions submitted during or after the meeting. The current user charge for a typical residential customer is \$73.05 per month for 5,000 gallons of water and sewer service combined. The proposed project will increase the bill by \$3.79 (approximately 5%), for a future combined bill of \$76.84.

Sources consulted about this project for information or concurrence included the following:

- 1) City of Greenville
- 2) Greenville Utilities Commission
- 3) Pitt County
- 4) North Carolina Department of Environmental Quality
 - Wildlife Resources Commission
 - Natural Heritage Program
 - DEQ Washington Regional Office
 - Division of Air Quality
 - Division of Water Resources
 - Division of Forest Resources
 - Division of Environmental Assistance and Customer Service
 - Division of Waste Management

- 5) North Carolina Department of Natural and Cultural Resources
- 6) North Carolina State Clearinghouse
- 7) North Carolina Department of Public Safety
- 8) U.S. Fish and Wildlife Service
- 9) U.S. Army Corps of Engineers



GUC WTP Property

Legend

-  Limits of Disturbance
-  Proposed Infrastructure
-  Proposed Piping
-  Erosion Control Measure
-  GUC WTP Property



SCALE
 0 250 500 Feet
 1 inch = 500 feet



Figure 6-2: Project Site
 Greenville Utilities Commission
 Water Treatment Plant Expansion
 Pitt County, North Carolina