

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

**CITY OF SOUTHPORT  
WASTEWATER TREATMENT AND DISPOSAL**

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

**CONTACT: JON RISGAARD, SECTION CHIEF  
STATE REVOLVING FUND SECTION  
DIVISION OF WATER INFRASTRUCTURE  
1633 MAIL SERVICE CENTER  
RALEIGH, NORTH CAROLINA 27699-1633  
(919) 707-9175**

**September 28, 2021**

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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.

<b>Project Applicant:</b>	City of Southport, North Carolina
<b>Project Description:</b>	The proposed project is intended to provide long-term wastewater treatment and disposal for the City of Southport through Brunswick County facilities. The project will construct a new 0.75 million gallons per day (MGD) extended aeration tertiary treatment facility at the County-owned Shallotte wastewater treatment plant (WWTP) site. Metered flow will be diverted from the existing West Brunswick Water Reclamation Facility (WBWRF) to this new plant, which will allow for treatment of flow from Southport at the WBWRF. The City will purchase 0.75 MGD permanent capacity in the County's existing forcemain to convey wastewater from the City to the WBWRF. The proposed project will include construction of a new forcemain to convey flow from existing regional transmission mains to the proposed WWTP. The existing 0.5 MGD Shallotte WWTP will remain in operation with flow entering the site through a single pump station and headworks and then divided between the existing WWTP and the proposed new WWTP.
<b>Project Number:</b>	CS370714-03
<b>Project Cost:</b>	\$30,451,306
<b>Clean Water State</b>	\$29,783,014
<b>Revolving Loan Fund:</b>	
<b>Local Funds:</b>	\$668,292

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,

*Jon Risgaard*

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

## ENVIRONMENTAL ASSESSMENT

### A. Proposed Facilities and Actions

The proposed project is intended to provide a long-term solution for wastewater treatment and disposal for the City of Southport through an agreement with Brunswick County and other partners of the West Brunswick Water Reclamation Facility (WBWRF). The proposed project will construct a new 0.75 million gallons per day (MGD) regional wastewater treatment plant (WWTP) at the County-owned Shallotte WWTP site. This new WWTP will treat wastewater flow that is currently pumped from the southeastern portion of Brunswick County to the West Brunswick Water Reclamation Facility (WBWRF). A metered flow of 0.75 MGD from the southern portion of the County will be redirected to the proposed new WWTP at the Shallotte site. The City will purchase permanent capacity in the existing County-owned transmission main from Southport to the WBWRF along NC 211. Redirecting flow from the WBWRF to the new WWTP will allow for treatment of additional flow from the City at the existing WBWRF. The existing 0.5 MGD Shallotte WWTP on the property will remain in operation. Two spray irrigation fields will be relocated on the property to accommodate the new facility.

The project will include a new 0.75 MGD high-rate infiltration system and a new forcemain to convey wastewater from the existing regional transmission mains on US 17 to the new facility on the Shallotte site. Wastewater influent from multiple forcemains will be pumped through a single influent pump station and headworks. From there, flow will be split between the existing 0.5 MGD lagoon WWTP and the proposed 0.75 MGD new plant. The new WWTP will be an extended aeration tertiary treatment facility including the following components: influent headworks; forced vortex grit removal system; two-chamber equalization basin; influent splitter boxes and piping; two oxidation ditches with rotors and submersible mixers; two circular secondary clarifiers; RAS/WAS pump station; two 2-disk cloth media filter units sized for peak flow; two chlorine contact tanks for disinfection with sodium hypochlorite; reclaimed water pump station to convey flow to the on-site disposal area; non-potable water pumps and piping for facility and screening wash; 3.75 MGD upset pond and associated return pump station and pumping to return upset flow to the head of the plant; one aerobic digestion tank; tank for sludge storage/lime stabilization; effluent disposal facilities including infiltration ponds; building structures; facilities to offload materials with high solids; piping and valves to reroute influent to headworks; odor control equipment and enclosures, and in-plant piping. Treated effluent will be disposed through three high rate infiltration basins. A groundwater management drain will be constructed around the infiltration basins to control groundwater mounding. Groundwater will be drained by gravity to two level spreaders. A wetland monitoring plan will be implemented to monitor and manage groundwater mounding and dewatering of adjacent wetland areas.

Funding Status: The estimated total cost for the project is \$30,451,306. The Town is applying for a Clean Water State Revolving Fund (CWSRF) loan of \$29,783,014. Closing costs/administrative fees of \$668,292 will be paid with local funds.

## **B. Existing Environment**

Topography and Soils. The City of Southport and Brunswick County are located in the Coastal Plain Physiographic Province. The elevation of the project site ranges from 32 to 68 feet above mean level. The project site is located in the Waccamaw Formation geologic unit, which consists of flood plain deposits with sand at or near the surface. Much of the Shallotte plant property includes floodplains, but the proposed plant and spray fields will avoid these areas.

The dominant soil series in the project area are Kureb fine sand and Baymeade fine sand. Almost seventy percent of the project area consists of Kureb fine sand with slopes from one to eight percent. Approximately 13% of the project area is Baymeade fine sand with slopes between one and six percent.

Surface Water. The WWTP site is located in the Lower Lumber River Basin (HUC 03040207). Mulberry Branch (designated as Class C, high quality, swamp water) runs adjacent to the spray fields. Woodward Branch (designated as Class C, high quality, swamp water) is located immediately south of the project area. The Intracoastal Waterway is approximately 6 miles south of the project site and is listed as impaired for exceeding shellfish harvesting criteria with a “conditionally approved – open” rating. Brunswick County is subject to the state Coastal Area Management Act (CAMA). The Shallotte River is the nearest protected tidal salt water. It is located 1.7 miles south of the proposed WWTP and 1.2 miles south of the southern end of the proposed forcemain.

Water Supply. The primary sources of drinking water for Brunswick County are the Cape Fear River and the Castle Hayne Aquifer. The Northwest Water Treatment Plant located in the Leland area treats water from the Cape Fear River. The 211 Water Treatment Plant in Southport treats groundwater from 14 wells drawing from the Castle Hayne aquifer.

## **C. Existing Wastewater Facilities**

The City operates their own wastewater collection system to collect wastewater within city limits and the extraterritorial jurisdiction. In 2009, the City entered into an interlocal agreement to use capacity from Brunswick County in the West Brunswick Regional Wastewater System. The agreement allowed the City to lease capacity from the County until flows require expansion of facilities, at which time the City would be required to purchase capacity. The City’s Central pump station collects wastewater from the sewer basin, and the Sandy Plane pump station pumps flow to the County system through a 19,995 linear feet (ft) 16-inch forcemain. When construction of the pump station and forcemain were completed in 2011, the City decommissioned their own wastewater treatment facilities and routed wastewater flow to Brunswick County. The City entered into a long-term agreement with the County in 2017 and updated the agreement in 2020 for purchase of treatment and disposal capacity in the regional system.

The West Brunswick Regional Wastewater System provides service for the Town of Holden Beach, the Town of Oak Island, the Town of Shallotte, and Brunswick County. Treatment facilities include the 6.0 MGD WBWRF located in Supply, NC, and the 0.5 MGD Shallotte

WWTP. The regional system includes forcemain transmission from the southern part of the county along US 17 and from the east along NC 211. The WBWRF (Permit # WQ0023693) is a tertiary treatment system originally constructed in 2003 with capacity of 3.0 MGD and expanded to the current 6.0 MGD capacity in 2009. Current 12-month average daily flow is approximately 3.811 MGD. The Shallotte WWTP (Permit # WQ00008-A and B) is a facultative lagoon process with on-site spray irrigation disposal with capacity of 0.5 MGD and current 12-month average daily flow of 0.195 MGD. The partners in the regional system have dedicated capacity through interlocal agreements. The City of Southport has leased capacity since 2007.

#### **D. Need for Proposed Facilities and Actions**

The City of Southport has leased capacity in the West Brunswick Regional Wastewater System since 2007 but does not have dedicated capacity. The City needs long-term wastewater treatment and disposal capacity to satisfy existing needs and anticipated growth. Based on population projections and flow analysis, the current flows of 0.491 MGD are projected to increase to 0.75 MGD during the 20-year planning period. The City needs to secure forcemain allocation and treatment capacity for this flow. The existing transmission main is sufficient to meet this need, but the County will upgrade the main in the future to accommodate the County's needs. Southport will pay Brunswick County for capacity allocation in the transmission system.

#### **E. Alternatives Analysis**

No-Action Alternative: This alternative would continue operation of the existing facilities without change, and would result in the WBWRF becoming overburdened with increasing flow, increased operations and maintenance costs for exceedance of plant design capacity, and permit violations. This alternative is rejected because it does not meet the need for additional treatment capacity.

Alternative 1 – New WWTP at Shallotte Site: This alternative would construct a new 0.75 MGD high-rate infiltration system at the site of the existing Shallotte WWTP. Under this alternative, 0.75 MGD of flow would be redirected from the WBWRF to the new facility to accommodate the additional 0.75 MGD needed for Southport at the WBWRF. The new plant will include influent headworks; forced vortex grit removal system; two-chamber equalization basin; influent splitter boxes and piping; two oxidation ditches with rotors and submersible mixers; two circular secondary clarifiers; RAS/WAS pump station; two 2-disk cloth media filter units sized for peak flow; two chlorine contact tanks for disinfection with sodium hypochlorite; reclaimed water pump station to convey flow to the on-site disposal area; non-potable water pumps and piping for facility and screening wash; 3.75 MGD upset pond and associated return pump station and pumping to return upset flow to the head of the plant; one aerobic digestion tank; tank for sludge storage/lime stabilization; effluent disposal facilities including infiltration ponds; building structures; facilities to offload materials with high solids; piping and valves to reroute influent to headworks; odor control equipment and enclosures, and in-plant piping. This is the preferred alternative because it meets the need for additional treatment capacity while minimizing environmental impact to local aquifers and reducing pumping needs for effluent transmission compared to other alternatives.

Alternative 2 – New WWTP at Southport Site: This alternative would construct a new Southport WWTP. The plant constructed under this alternative would be a 0.75 MGD high-rate infiltration plant with similar components as Alternative 1. The Southport site is within the Military Ocean Terminal Sunny Point Blast Zone, which increases the risk of suspended operation due to an accident that could leave raw sewage untreated. The hydrologic conditions at this site pose a risk of infiltration contamination to the Castle Hayne Aquifer. Due to the risks associated with this site, this alternative is rejected.

Alternative 3 – Expansion of the Existing WWTP at WBWRF: This alternative would expand the WBWRF by adding a new oxidation ditch treatment train in parallel with the existing process. This alternative would also require constructing effluent forcemains to the Shallotte site for infiltration, which would increase environmental impacts due to the land disturbance required for construction. This alternative is rejected due to the increased cost and environmental impacts associated with the transmission of effluent to the Shallotte site.

## **F. Environmental Consequences and Mitigative Measures**

Topography and Soils: Construction activities will have limited impacts to topography and soils and no permanent impact to FEMA-jurisdictional floodplain areas. The proposed WWTP and infiltration basins will be constructed outside of floodplain areas, but some transmission lines will cross floodplains. A No-Rise certification was completed, and permits for work in floodplains will be obtained. Some permanent grading will be required for construction of the WWTP and infiltration basins; other construction areas will be returned to existing conditions. The infiltration basins will include earthen berms. Construction impacts will include some soil disturbance. Soils will be returned to original location or removed from the site as appropriate. A DEQ-approved Erosion and Sedimentation Control Plan will be followed. Secondary and cumulative impacts (SCI) related to growth will be minimized through compliance with Brunswick County's Flood Damage Prevention Ordinance.

Land Use: No impacts to land use are anticipated. Construction will occur within the existing WWTP site in an area that is already zoned for Heavy Industrial. SCI will be minimized through compliance with the CAMA Land Use Plan, and through zoning district requirements established in the County's Unified Development Ordinance (UDO).

Wetlands: Significant impacts to wetlands are not anticipated. Installation of transmission lines and forcemain will have temporary impacts to 0.22 acre and permanent impacts to 0.15 acre. No impacts are anticipated for construction of the WWTP, spray fields, or infiltration basins. A Jurisdictional Determination will be submitted to the U.S. Army Corps of Engineers (USACE), and design footprints will be altered to minimize impacts to wetlands to the extent practicable. Impacts to wetland hydrology adjacent to the infiltration basins will be evaluated using monitoring wells, with adjustments made as necessary to minimize impacts to wetland hydrology. Spray fields will be located a minimum of 100 feet from wetlands, and high rate infiltration basins will be located at least 200 feet from wetlands. Upon completion of design, a Pre-Construction Notification will be submitted to the USACE. If mitigation is required based on the final total of unavoidable, permanent impacts, mitigation credits will be purchased through



an existing private mitigation bank or the NC Division of Mitigation Services. SCI will be minimized through compliance with buffer requirements, greenways, and planning requirements.

Important Farmlands: Significant impacts to important farmlands are not anticipated. The project area does not include designated prime and unique farmlands. Secondary and cumulative impacts will be minimized through efforts of the County's Agricultural Advisory Board and Agricultural Preservation Program.

Public Lands and Scenic, Recreational, and State Natural Areas: Impacts to public lands, scenic, recreational, or state natural areas are not expected. No such areas are located in or near the project area. SCI will be minimized through compliance with the UDO and the Viewshed Protection Overlay, which is intended to protect the scenic characteristics of the County.

Cultural Resources: Impacts to cultural and historic resources are not anticipated. The North Carolina State Historic Preservation Office (SHPO) is not aware of any historic resources that will be impacted by the project (May 1, 2018, ER 18-0647). No areas of archaeological or historical value have been identified in the immediate project area. SCI will be minimized through compliance with the UDO and review of historic resources, which are identified in the County's records.

Air Quality: No significant impacts to air quality are anticipated. Construction activities will have temporary impacts related to particulates and dust as well as exhaust emissions from construction equipment. Construction equipment will have emission controls to minimize impacts. The WWTP may produce odor impacts in the immediate vicinity. The location was chosen to maximize distance from residential areas, and the headworks facility will be equipped with an odor control system to minimize any impact from odors. The WWTP will include a diesel generator which will be operated in compliance with Division of Air Quality requirements.

Noise Levels: No significant permanent noise impacts are anticipated. Construction activities will be limited to daylight hours (weekdays from 7:00 am to 6:00 pm). The WWTP operations may result in a slight increase in noise levels which is offset by distance from adjacent properties. SCI will be minimized through compliance with noise ordinances and buffer requirements established in the UDO.

Water Resources: No significant impacts to water resources are anticipated. Effluent transmission lines will be installed using horizontal directional drilling at all stream crossings. To avoid permanent impacts to Mulberry Creek, a bridge will be installed to provide access to the infiltration basins from the WWTP site. Best Management Practices will be followed to minimize erosion and sediment loss from construction. Backfilled soil will be stabilized by seeding and mulching. A DEQ-approved Erosion and Sedimentation Control Plan will be followed. The proposed infiltration basin has been evaluated and designed with drain system to control mounding so that no negative impacts to groundwater are anticipated. Designated coastal resources are not located within the project area and will not be impacted. SCI will be minimized through the UDO's Water Quality Protection Overlay Zone and associated requirements that limit impervious areas, require buffer zones, and impose additional restrictions to protect water quality.

Forest Resources: Significant impacts to forest resources are not expected. Construction will impact forested areas that are part of active, maintained spray fields rather than true forest resources. Permanent impacts will include 12 acres for construction of the WWTP and 30 areas for the infiltration basins. SCI will be minimized through the County's UDO, which includes requirements for a tree survey before development, restricts clear cutting, and provides additional measures to protect trees and forest resources.

Shellfish or Fish and Their Habitats: Significant impacts to shellfish, fish, and their habitats are not expected. There is no evidence of threatened or endangered species or habitats in the project area. Impacts to aquatic species will be minimized through Best Management Practices. SCI will be minimized through the UDO's Water Quality Protection Overlay Zone and associated requirements that limit impervious areas, require buffer zones, and impose additional restrictions to protect water quality.

Wildlife and Natural Vegetation: No significant impacts to wildlife and natural vegetation are expected. Formal spring, summer, and fall species-specific surveys were conducted to identify protected species. Six populations of the threatened *Lachnocaulon minus* (Small's bogbutton) were identified adjacent to access road/transmission line alignment. Impacts will be minimized by adjusting alignment during final design, to the extent practicable, to avoid these populations. Where rerouting is not possible, colonies will be hand-excavated and transplanted to suitable habitat adjacent to existing locations that will not be impacted. Formal surveys for the red-cockaded woodpecker were also conducted with none found.

Introduction of Toxic Substances: The project is not expected to introduce toxic substances into the environment. Dumping of chemicals, fuels, lubricants, etc. will be prohibited. Provisions in the construction contract will require the contractor to exercise every reasonable precaution during construction to prevent pollution. If more than 220 pounds of hazardous materials are generated per calendar month during site preparation, DEQ's Hazardous Waste Section will be notified and requirements for large quantity generator will be followed. Upon completion, the WWTP may use chlorine, alum, and lime as part of the treatment process and will store diesel fuel and petroleum-based lubricants for power generation and equipment maintenance. Storage of materials will be in compliance with local, state, and federal regulations.

The U.S. Fish and Wildlife Service reviewed the proposed project and comments were resolved (January 14, 2021). The North Carolina Wildlife Resources Commission, Natural Heritage Program, and DWR Wilmington Regional Office do not object to 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 aware of no historic resources that would be affected by the project (May 1, 2018, ER 18-0647).

### **G. Public Participation, Sources Consulted**

A public meeting was held with representatives from both the City of Southport and Brunswick County on August 24, 2021 and made the engineering report/environmental information

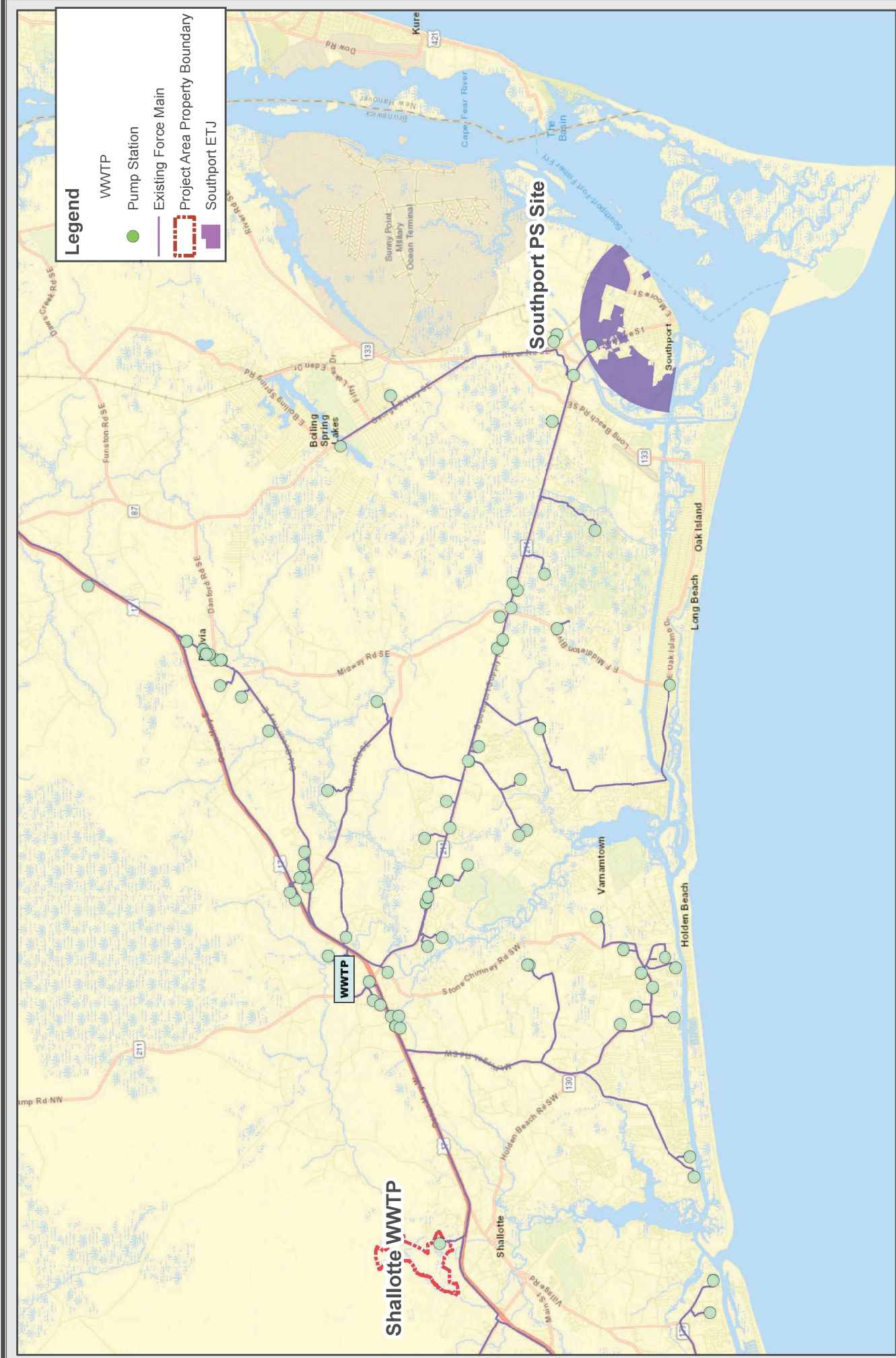
document available for review by the public through both the City Hall and the County's public utilities office. the City's website. There was one question from public:

- Question: When will the project get started?
  - *Response: Permit applications have been submitted, bid date is scheduled between Thanksgiving and Christmas, and the project is anticipated to be completed in the Fall of 2023.*

The current user charge for a typical residential customer for the City of Southport is \$126.40 per month for water and sewer service combined, based on consumption of 5,000 gallons per month. The proposed project will increase the bill by \$5.09 (approximately 4%), for a future combined bill of \$131.49.

Sources consulted about this project for information or concurrence included:

- 1) City of Southport
- 2) Brunswick County
- 3) North Carolina Department of Environmental Quality
  - Wildlife Resources Commission
  - Natural Heritage Program
  - DEQ Wilmington 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
- 4) North Carolina Department of Natural and Cultural Resources
- 7) North Carolina State Clearinghouse
- 8) North Carolina Department of Public Safety
- 9) U.S. Fish and Wildlife Service
- 10) U.S. Army Corps of Engineers

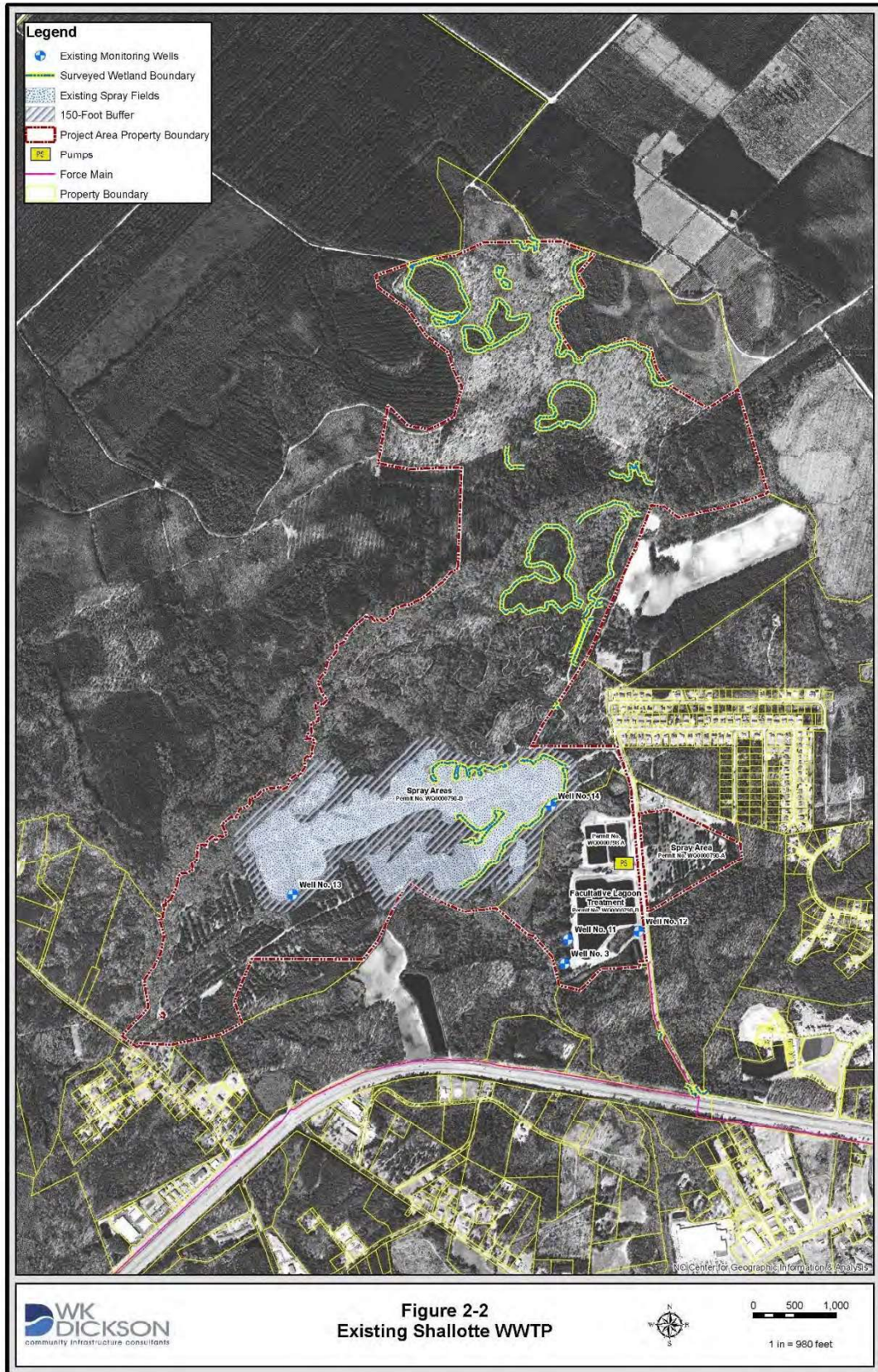


- Legend**
- WWTP
  - Pump Station
  - Existing Force Main
  - Project Area Property Boundary
  - Southport ETJ



**Figure 2**  
**Project Area**

Figure 2-2 – Existing Shallotte WWTP



Southport Wastewater Treatment and Disposal  
Brunswick County  
20170253.00.WL

