

**State of Georgia
Department of Natural Resources
Environmental Protection Division
Watershed Protection Branch**

**National Pollutant Discharge Elimination System (NPDES)
Domestic Antidegradation Analysis**

SECTION 1. PROJECT INFORMATION

SECTION 2. ALTERNATIVES ANALYSIS

- 2.1 Provide the alternatives considered that could result in no degradation of surface waters. If the applicant selects an alternative that results in no degradation, the following sections are not required.
- 2.2 Provide the alternatives considered that could lessen degradation to surface waters. Identify which alternative(s) is/are technologically possible, able to be put into practice, and economically viable..

SECTION 3 SOCIAL OR ECONOMIC DEMONSTRATION - For each factor provide a discussion of expected positive and negative impacts. Include appropriate support documentation.

SECTION 4. PRACTICABLE ALTERNATIVE CHOSEN

SECTION 5. CERTIFICATION

Name and Title: Andrew Burroughs, PE, Executive Director Indicate the name and title of the person signing the form.

Telephone No.: 912-261-7108

Provide the telephone number of the person signing the form.

Date: 12/19/2025

Indicate the date that the form was signed.

This form is an attached part of the NPDES permit application and must be signed in accordance with Georgia Rule 391-3-6-.06(5). Please refer to Georgia EPD's Antidegradation Analysis Guidelines for additional guidance in completing this form.

Please attach additional pages and/or documentation as needed.



National Pollutant Discharge Elimination System (NPDES)

Domestic Antidegradation Analysis



Section 1. Project Information

Project Type: ☒ New Facility ☐ Expansion of Permitted Facility ☐ Other (Explain with attachment)

Facility Name: BGJWSC North Mainland WRF

NPDES Permit Number:

Location: 0 Highway 99, Brunswick, GA 31525

County: Glynn

Receiving Waters Impacted: South Altamaha River, Brunswick-Altamaha Canal, or Tributary of Brunswick-Altamaha Canal

Stream Classification: ☐ Drinking Water ☐ Recreation ☐ Wild River ☐ Scenic River

☐ Coastal Fishing ☒ Fishing, Propagation of Fish, Shellfish, Game and Other Aquatic Life

Section 2.1 Alternatives Analysis - Provide the alternatives considered that could prevent degradation of surface waters

A. Discharge to other treatment systems:

Existing sewer lines within a five mile radius must be identified. A preliminary indication of flow acceptance from the existing sewer system must be provided. If the existing system will not agree to accept the wastewater, include a letter documenting this. If the existing system will accept the wastewater, determine the transportation cost, tap-on fees to connect, and per gallon costs. Consider the option of discharging to an industrial pretreatment to a publicly owned treatment works (POTW), other POTWs, privately owned treatment system(s), or opportunities for industrial co-location should be explored including the feasibilities of implementation and the financial costs. Co-location may provide opportunities for discharge to existing industrial wastewater treatment systems, or source water substitution.

The closest system to the proposed North Mainland Water Pollution Control Plant (WPCP) is the existing Academy Creek WPCP service area system. Considering the intention of this project is to reduce flows to the Academy Creek WPCP as well as the distance wastewater needs to travel within the system to be treated, this is not a viable treatment alternative to replace the proposed new discharge. The next nearest WPCP is located in Darien across the Altamaha River from the proposed location of the new WPCP. While being outside of the five-mile radius, the system is also currently permitted to handle 0.6 MGD. If all of the future flow to be handled by the proposed WPCP were to be routed to this new facility, the system would be overwhelmed by the incoming flow. In total, discharging to other systems is not determined to be a technologically reasonable alternative to replace the requested new discharge. See **Figure 1** in the attached supporting documents.

B. 100% Reuse & 100% Recycle:

Discuss the potential of 100% year round urban water reuse and use of a 100% recycle system. Outline potential reuse customers &/or ways to recycle all of the generated wastewater. Provide feasibility and costs.

100% Year-Round Urban Water Reuse

Urban water reuse refers to the use of treated wastewater for irrigation of areas that are publicly accessible. The wastewater used for reuse is highly treated for the protection of the public.

The service area for the proposed North Mainland WPCP is approximately 31,000 acres, about 5,500 acres of which is marsh or wetlands, and 18,560 acres of lands held in conservation or paved roadways, i.e. undevelopable and not appropriate for reuse applications. Therefore, approximately 6,940 acres, or 22% of the North Mainland WPCP service area are considered developable and could potentially accept reuse application. Of the developable area, approximately 2,300 acres, or 7%, are already established. Existing and anticipated land uses within the service area primarily include residential and supporting commercial facilities. (cont.)

B. (cont.) Reuse demand for irrigation systems can be based on the assumption that one (1) acre of vacant land can accept a reuse application rate of 5,000 gallons per day (or 1.3 inches per week). A distinction can be made between the types of irrigated areas used for disposal. Common areas represent dedicated demand where the JWSC may have control over reuse application rates. These areas include entrance road right-of-ways, recreation areas, wetland buffers, utility easements, and open space.

Lot-to-lot areas include residential lots or other privately owned property where the JWSC has little control over application rates which may vary depending upon individual property owners' desire to use reuse irrigation. Demand for reuse water is typically seasonal and inconsistent in such areas, which can also necessitate the requirement for additional reuse storage at the WPCP.

As previously noted, residential customers may not be consistent with disposal of reuse water which could affect storage of reuse water during peak wastewater generation periods. Additionally, the climate of the area allows for much irrigation to occur naturally through precipitation which averages 45 inches per year and could lead to extended periods when reuse water could not be disposed.

Parks and golf courses represent significant potential reuse areas, however, within the proposed North Mainland WPCP service area, there are no current or known planned golf courses or public parks. There is the North Glynn Sports Complex, a Glynn County owned public sports and recreational facility park which includes 153 acres however it is outside of the proposed North Mainland WPCP service area, and it is seven miles from the WPCP property and would require a major crossing of Interstate I-95.

From the standpoint of an existing available reuse customer base within the proposed North Mainland WPCP service area, an evaluation of JWSC's current irrigation customer base was conducted. JWSC has a customer class for irrigation customers who currently get their irrigation water from the potable water supply. The Academy Creek WPCP service area aligns with the North Mainland and City of Brunswick water service areas. On average, irrigation customers in these two water service areas utilize about 1.9 million gallons per month and approximately 0.2 million gallons per month is estimated within what would be the proposed North Mainland WPCP service area. This represents an insignificant daily flow, only 6,700 gpd.

Based on an estimated application area of 1,390 acres within the North Mainland WPCP service area, a 5,000 gpd per acre application rate, and assuming only 30% of the application area would be used daily based on resident behavior and rainfall, approximately 2 MGD of reuse irrigation capacity is anticipated to be available. See table below for estimated system piping lengths.

Public Access Reuse System		
Residential (20% of Developable Lands; 30% per day) = 2.0 MGD		
12" Piping (Main Roads)	73390	LF
8" Piping (Collector Roads)	3750	LF
6" Piping (Residential/Rural)	227300	LF

A public access reuse system, similar to a land application system, would require reliable wet weather and emergency storage. Based on Georgia EPD guidelines, the minimum requirement would be for 12 days, or 18 MGal of storage for the proposed 1.5 MGD North Mainland WPCP. It is anticipated storage and booster stations would be required out in the distribution system to maintain pressure and disinfection residuals and would account for some of this storage. The remainder would be at the WPCP.

Given the significant distance and major I-95 crossing required to discharge to the Glynn County park and the insignificant daily flow of current irrigation class customers in the North Mainland area, a full reuse distribution system to the majority of the existing and proposed developable lands within the proposed North Mainland WPCP would be required to achieve the 1.5 MGD phase 1 capacity of the WPCP.

In order to successfully implement a reuse system within the North Mainland service area, JWSC would need to install a reuse water distribution system throughout the basin and tie in existing irrigation customers as well as other interested parties to the new reuse water distribution system. In addition to the reuse water distribution system, high level disinfection will be required and additional storage and booster stations are anticipated to be required to boost both pressure and disinfection residual. The County and JWSC would also need to implement ordinances requiring the use of reuse water for irrigation within certain areas. (cont.)

B. (cont.) The estimated capital and recurring costs for implementation of a 100% reuse system is presented in the Economic Analysis section.

100% Recycle System

Recycling systems typically utilize gray water, water that comes from sinks, bathtubs, showers, or washers. Recycled water may be used for irrigation or to flush toilets and urinals, reducing potable water demand. The cost to develop a 100% recycle system is similar to/higher than that of a reuse system, however it would be anticipated homeowners would bear the majority of the cost as it would require extensive modification to the plumbing system of existing structures and would increase the cost of new construction to separate gray water from the rest of the wastewater being generated. Additionally grey water storage would be required at homes. Additionally, the municipal sewer collection systems would be impacted by lower and more concentrated flows which would require reconstruction of existing sewer systems and could lead to more clogging of systems and potential for increased corrosion. Due to the impact to existing and future residential homeowners and the need to reconstruct sewer systems for only black water collection, a 100% recycle system is not feasible.

C. Land Disposal Treatment System:

Land treatment includes subsurface, drip irrigation, reuse and spray irrigation systems. Consideration should be given to the wastewater characteristics and whether the constituents are conducive to land application. Provide the following:

1. An estimate of the best case hydraulic loading rate based on County Soil Surveys or from a soil evaluation performed by a soil scientist. Acreage requirements may be driven by either hydraulics or agronomics.
2. Calculations showing hydraulic loading rate and total area of land needed for the land disposal system, including buffers.
3. The availability and cost of land and the cost of transporting the wastewater to a suitable, available site.
4. Overall feasibility and cost of use of land treatment.

JWSC does not utilize land application systems as a part of their wastewater treatment processes at the Academy Creek Water Pollution Control Plant (WPCP) and is not proposing to utilize LAS at the proposed North Mainland WPCP. Because it is not a currently established treatment system for this basin, it comes with many limitations and will not replace the requested new discharge. A direct discharge will be necessary for the long-term management of the new water pollution control plant wastewater effluent due to the lack of available land, poorly draining soils and high groundwater table in the region. For the purposes of this exercise, the site of the land application system was chosen by the existing zoning (i.e., is not zoned for conservation), minimal on-site wetlands, and minimizing the number of parcels JWSC would need to acquire in order to enact a land application system within the North Mainland WPCP service area.

Lack of Available Land

Brunswick-Glynn County JWSC does not currently utilize land application in this area and so does not have a land application system or agreements with property owners in the area for land application. In addition, several properties around the proposed WPCP site are owned by the State of Georgia or is committed for other developments. The available land is also interspersed with wetlands that make it unsuitable for use as a land application site. See **Figures 2 and 3** for maps of the future land use and the wetlands throughout the area, respectively.

Poorly Draining Soils and High Groundwater Table

There are two requirements for land application sites: proximity to the wastewater source and a large tract of suitable, undeveloped land. Additional considerations include protection from flooding, soil suitability, (cont.)

D. No Increase In Pollutant Loading:

Expanding systems only - Evaluate the installation of a wastewater treatment system resulting in no increase in pollutant loading to the surface waters.

N/A

C. (cont.) accessibility and reasonable amount of isolation.

Soils:

Per Georgia Environmental Protection Division's (GAEPD) Guidelines for Slow-Rate Land Treatment of Wastewater Via Spray Irrigation, soils with a USDA Natural Resource Conservation Service permeability classification of moderate to moderately rapid (0.6 to 6.0 inches/hour) are suitable for wastewater irrigation. However, groundwater and drainage conditions must also be suitable. Soils that are poorly drained, have high groundwater tables, or restrictive subsurface soil layers are not suitable for slow-rate land treatment without drainage improvements. The USGS Soil Data for the proposed land application site shows that the predominant soils in the area include Bladen loam, Brookman clay loam, Pelham loamy sand, and Rains fine sandy loam.

None of these soils are Hydrologic Soil Group A, which would be ideal for a land application system, with classifications ranging from B/D to C/D. This means that the soils do not conduct water well and are not as permeable. In addition, all four types of soil observed range from somewhat poorly drained to very poorly drained. This is likely due to the fact that the seasonal high-water table is fairly close to the ground surface throughout the area, in many cases being less than 1 feet below the surface.

In reviewing the USGS Web Soil Survey's Suitabilities and Limitations for Use Ratings for the soils on site, the proposed site for the land application system is considered to be "very limited". The negative aspects of the soils observed on site outweigh those with a positive impact. Based on this information, the site and surrounding areas are not recommended for use as a land application system. However, when this search is expanded to cover the entirety of the North Mainland WPCP service area regardless of conservation criteria or wetlands, the entirety of the basin is "very limited" and not suitable for use as a land application system as shown in **Figure 4**. Overall, a land application system is not a feasible or viable option at this time.

See the attached pages calculating the hydraulic loading rate and the total required land for a land application system as well as operational, wet weather, and emergency storage ponds. As well, the estimated capital and recurring costs for implementation of a land disposal treatment system is presented in the Economic Analysis section.

Section 2.2 Alternatives Analysis - Provide the alternatives considered that could lessen degradation to surface waters

E. Treatment system design and selected technology:

Provide the preliminary treatment system design for a direct discharge and selected technology/technologies to meet the wasteload allocation (WLA). Describe each candidate technology including the efficiency and reliability in pollutant removal and the capital and operational costs to implement those candidate technologies. Justify the selection of the proposed treatment technology. Provide feasibility and costs.

Wasteload allocations (WLA) for the proposed North Mainland WPCP were provided by EPD on May 19, 2025. The WLAs provided limits for three potential effluent discharge locations from the proposed WPCP, as requested: South Altamaha River (WLA000292), the Brunswick-Altamaha Canal (WLA000293), and a tributary of the Brunswick-Altamaha Canal (WLA000294). All WLA requests were for an effluent flow rate of 1.5 MGD. The constituent/parameter limits, applicable to all three WLAs, are provided below:

Wasteload Allocation	
Constituent/Parameter	Limit
BOD ₅	5.0 mg/L
TSS	5.0 mg/L
Ammonia, as N	1.0 mg/L
Total Phosphorus, as P	1.0 mg/L
Dissolved Oxygen (DO)	6.0 mg/L min.
Enterococci	4/ 100mL
pH	6.0 – 9.0 s.u.

The wastewater for the proposed service area is anticipated to be primarily domestic waste with biological characteristics equivalent to medium strength wastewater as noted in *Wastewater Engineering 4th Edition* by Metcalf & Eddy (Table 3-15). There are no anticipated significant industrial users or parameters or materials of concern. Anticipated wastewater influent constituent parameters are provided below: (cont.)

F. Flow minimization

Evaluate potential water conservation opportunities (partial recycling, reuse opportunities of wastewater, &/or infiltration/inflow (I/I) reduction measures for expansions of domestic wastewater facilities) including the feasibility of implementation and the costs. Indicate which of these may be implemented.

The Brunswick-Glynn County JWSC currently utilizes typical water conservation measures, such as pricing, regulations, and hardware requirements, which assist the reduction of water use and domestic wastewater flow.

Pricing

The price the consumer pays for water can have a significant effect on the amount of water used. Presently, Brunswick-Glynn County JWSC utilizes a tiered rate structure, which applies a progressively higher rate to each increment of water used above the defined base amount. This method monetarily incentivizes conservation by encouraging customers to use less water which results in a lower utility bill. The tiered rates are required for all residential, industrial, and commercial consumers in the Brunswick-Glynn County JWSC service area and for varying water meter sizes.

Regulations and Hardware Requirements

Brunswick-Glynn County JWSC falls under the rules of the Georgia's Water Stewardship Act (Senate Bill 370), enacted in 2010 which calls for state agencies to identify water conservation opportunities. As a result, the Georgia State Minimum Standard Plumbing Code, which Glynn County follows per their Building Code (Glynn County Code of Ordinance Chapter 2-5), was amended by the Georgia Department of Community Affairs to require high efficiency plumbing fixtures in all new construction or in the alteration of existing systems permitted on or after July 1, 2012. These updates include requiring high-efficiency flow specification for plumbing fixtures, including toilets, urinals, and showerheads, which must be US EPA WaterSense certified. The majority of the homes within Glynn County were built prior to the year 2000 and therefore were not constructed under the provisions of the current Georgia State Standard Building Code. However, the norther sub-basins within the Academy Creek Service Area that will be redirected to the proposed WPCP have been constructed within the last 20 years and are expected to experience an increase in development and growth over the next 20 years. The homes in this portion of the region have been, and any new construction will be, constructed under the provisions of the Georgia State Standard (cont.)

E. (cont.)

Anticipated WW Influent Parameters	
Constituent/Parameter	Limit
BOD ₅	190 mg/L
TSS	210 mg/L
Ammonia, as N	30 mg/L
Total Phosphorus, as P	8 mg/L

General proposed treatment functions for the WPCP include preliminary screening, grit removal, aeration and biological treatment, solids separation, effluent filtration, disinfection, post aeration, and solids handling. The actual equipment and treatment method will be determined during the design period and development of the Design Development Report (DDR) which will be submitted to EPD in support of the NPDES permitting process. At this time, the BGJWSC preferred method for biological treatment and nutrient handling for the proposed WPCP is with an advanced/modified oxidation ditch system, such as Orbal or Carrousel, and ultraviolet disinfection for disinfection. An oxidation ditch treatment system is utilized by the BGJWSC at the Exit 29/Southport WPCP which consistently achieves BOD₅ and TSS removal greater than 85%, typically greater than 90%, and Ammonia (as N) and Total Phosphorus levels of 1 mg/L or less.

Capital and operational costs to implement the noted treatment system is presented in the Economic Analysis section.

F. (cont.) Building Code which requires these high-efficiency fixtures.

Per Capita Rates

According to the 2020 Brunswick-Glynn County JWSC Water and Sewer Master Plan Update, the water per capita rate was determined by dividing the monthly average water production for the service area by the base water population within the service area. Large water users were removed from these calculations to produce more accurate values using the metered consumption data. Using this information, the water per capita rate was determined by dividing the monthly average water production for the service area by the base water population within the service area. Large water users were removed from these calculations to produce more accurate values using the metered consumption data. Using this information the water per capita rate for the City of Brunswick and North Mainland Water service area is approximately 105 gallons per capita day (gpc/d). This falls just above the typical 80-100 gallon range determined by USGS.

The wastewater per capita rate was determined the same way as the water per capita rate for the Academy Creek Water Pollution Control Plant (WPCP) service area. The Academy Creek WPCP service area and the City of Brunswick and North Mainland Water service area cover roughly the same area and so are considered to be equivalent for the purposes of this analysis. Using the sewer generation rate during a predominantly dry period, removing the large users, and dividing by the base sewer population for the service area returns a wastewater per capita rate of 174 gpc/d. This is greater than the industry accepted standard of 100 gpc/d, likely due to background rates of inflow and infiltration (I/I) or residents within these areas using private wells while being tied into the public sewer. The areas in the Academy Creek WPCP service area experiencing the most significant levels of I/I are predominantly located within the southern half of the larger service area corresponding with areas where gravity sewers were likely installed first. Subbasins that are likely to be rerouted to be served by the proposed North Mainland WPCP experience much lower I/I than the service area as a whole.

Projected new developments are estimated to use 100 gpc/d with 2.5 persons per residential equivalent unit (REU), resulting in 250 gpd/REU. This and the current measured usage in this basin of 105 gpc/d are both less than the 115 gpc/d that is found in the JWSC Standards for Water and Sewer Design Construction Manual (Section 3). This is a good indication that water conservation measures that have already been implemented are working and are expected to continue to show increased conservation over time.

Since such water conservation measures are already in place, implementation of water conservation measures to reduce the flow of domestic wastewater is not determined to be a technologically reasonable alternative replace the requested new discharge.

I/I

Infiltration/Inflow (I/I) is stormwater and/or groundwater that enters the sewer system through cracked pipes, fractures, misaligned joints, or leaky manholes. Typically, inflow enters the wastewater system (cont.)

F. (cont.) as stormwater and infiltration enters from groundwater. I/I reduces the capacity and ability of a wastewater system and treatment facilities to transport and treat wastewater, forcing Municipalities to spend significant funds to evaluate and regain system capacity through I/I reduction.

I/I reduction measures, such as sewer system evaluation surveys (SSES) and implemented rehabilitation programs attempt to minimize the amount of I/I that reaches the wastewater system. Installation dates for the entire Brunswick-Glynn County JWSC system are not known. However, it is known that portions of the system date back to the 1960s, and approximately 27% of the entire system still uses vitrified clay pipes (VCP). These types of pipes are more prone to root intrusion and are prone to snapping. With these factors in mind, it is understandable that portions of the system experience high levels of I/I. As well, approximately 10% of the manholes within the Academy Creek service area are brick. Brick manholes older than 50 years old are prone to increased rates of I/I due to deterioration of the mortar between the bricks. An in-depth analysis of the overall I/I observed within the system was performed as a part of the Master Plan Update. Results of the I/I analysis can be found in Figure 5. Based on a comparison of the total monthly average influent for the Academy Creek WPCP and corresponding total monthly rainfall data for the area, the Academy Creek WPCP service area experiences a 10.25% increase over the average dry weather flow for a typical one-inch storm event.

While I/I is a problem for portions of the JWSC system, a Capital Improvement Plan is already underway, which intends to address I/I throughout the Academy Creek WPCP service area in part. This plan for addressing I/I was incorporated into the Master Plan Update with the expected average daily flow in 2040 being 8.92 million gallons per day (MGD). In addition, JWSC has set up an annual program specifically to address I/I concerns throughout the system which receives an annual allocation as a part of the budget to use for projects. As will be discussed in Population Projections, several new developments with a full build-out population increase of 15,310 people as well as increased commercial and other supporting land uses have been proposed in the northern portion of the Academy Creek WPCP service area that was not previously accounted for. The projected reduction in I/I would not result in adding sufficient capacity within the wastewater system and treatment facilities to negate the demands from the new development. It is for these reasons that the implementation of I/I reduction measures is not determined to be a technologically reasonable alternative to replace the requested new discharge.

Section 3. Social or Economic Demonstration

A. Regional Water Plan Projections:

If a wastewater point source discharge is specifically identified in an applicable Regional Water Plan (i.e., developed by a Regional Water Planning Council or Metropolitan North Georgia Water Planning District), absent sufficient evidence to the contrary, it will be presumed necessary to accommodate important social or economic development due to the extensive multi-jurisdictional planning and review process, including public participation, required before approval of these plans. If the proposed flow and location are not specifically addressed and supported by an applicable plan, Part 3.B. below should be completed instead.

N/A

B. Facilities Not in a Regional Plan:

- 1. Population Projections** - Determine the population to be served within the service area using a 20-year planning period. If 20-year population projections for the project area are not available, a linear extrapolation of population trends from the past decade should be used. Any deviation from a linear projection method should be clearly justified. Support should be provided for the proposed population projection.

The service area for the proposed North Mainland Water Pollution Control Plant (WPCP) will divide the current Academy Creek WPCP service area into two basins. The 2020 Brunswick-Glynn County JWSC Master Plan Update has the projected population of the Academy Creek service area as 48,614 by the year 2040. However, in the years following the Master Plan Update, several new developments have sought service requests in the Academy Creek service area that were not previously accounted for. When fully developed, these new developments are expected to add an additional 6,603 people over the 20-year period within the service area with a total buildout population of 15,310 people. This brings the projected 20-year population estimate to about 55,217. Also the proposed new developments are expected to bring approximately 150,000 square feet (sf) of commercial development and other land use types to support the increased residential population. Per received water and sewer service requests and planned developments and supporting documents from Glynn County Planning and Development Department, approximately 1 MGD (million gallons per day) of previously unaccounted for flow are to be added to the JWSC sewer system over the next 20 years. This increase in development in the northern portion of the service area is believed to be instigated, in part, by the approval in Fall of 2022 by the Golden Isles Development Authority and construction beginning earlier this year, for a Buc-ee's travel center off Exit 42 off I-95.

Since the construction of a new North Mainland WPCP will divide the existing sewer basin into two basins, the locations of the existing lift stations were reviewed to determine which would be the most effective and economical to reroute and provide seed flow to the proposed WPCP. It was determined that lift station LS 4119 would make the most sense given its proximity to the proposed WPCP site and other anticipated developments. Table 1 below displays the number of existing homes that were within these lift station service areas during the 2020 JWSC Water and Sewer Master Plan Update and the growth anticipated within the 20-year period. All households were assumed to have an occupancy of 2.5 persons.

Several types of information were gathered in order to develop the 20-year population projections for the new North Mainland WPCP service area, including Sewer Service Requests for developments in the area, proposed development Master Plans, locations of conservation and wildlife management areas, and publicly available records from the Glynn County (cont.)

B. 1. (cont.) Planning and Development Department. All this information was compiled and evaluated to determine key subdivisions and areas of development and the projected population for the 20-year period.

Table 1 - North Mainland WPCP Service Area Population and Flow Projections

North Mainland WPCP Service Area Population & Flow Projections					
Lift Station	Existing Homes	Existing Population	20-Year Proposed Homes	20-Year Proposed Population	20-Year Proposed Flows (MGD)
LS4119	554	1,385	1,620	4,050	0.57
Total	554	1,385	1,620	4,050	0.57

Each development or subdivision was examined for its build out population and then the likelihood of full build out in the 20-year period was determined. It was anticipated that all the smaller developments would have 100% build out, while only a certain percentage of the larger developments would be developed in the 20-year period based on information for prior subdivision project construction schedules identified during the JWSC 2020 Water and Sewer Master Plan Update. When available, the timeline for expected build-out that was provided to the Planning Department was utilized.

Table 2 below outlines the 20-year projected number of homes per subdivision/development, as well as the estimated build out number of homes and population within the proposed North Mainland WPCP service area. Similar to the existing population, all households were assumed to have an occupancy of 2.5 persons.

Table 2 – North Mainland WPCP Service Area 20-year Population

North Mainland WPCP Service Area Future 20-year Population					
Subdivision/Development	Percent Built Out in 20-Year	20-Year Homes	20-Year Population	Build Out Homes	Build Out Population
Woodland Cove Phase 2	100	54	135	54	135
The Cottages at Golden Isles Phase 2	100	15	38	15	38
Walker Point	50	218	544	435	1,088
4972 Hwy 99 / Chanslor Road West	100	190	475	190	475
5102 Hwy 99	75	156	390	208	520
The Villas at Golden Isles	100	6	15	6	15
Crawford at Satilla Forest	75	152	379	202	505
Tradewinds	25	656	1,640	2,624	6,560
Altama HIC	50	1,195	2,988	2,390	5,975
Total		2,641	6,603	6,124	15,310

**20-year number of homes and population does not include the existing populations numbers from Table 1.*

Figure 6 in the supporting documentation displays the development and subdivision areas in addition to the existing sewer system layout and location of the water pollution control plant (WPCP).

- 2. Flow Projections** - Justification of flow using population projections, as well as a demonstration of need, shall be provided. Flow projections shall represent the projected average flows since the permit flow is based on the monthly average. Consider the following:
- Current flow for proposed expansions. Current flows including residential, commercial, industrial, and non-excessive infiltration/inflow (I/I) based on actual flow data or water billing records must be provided. If the existing I/I is excessive, rehabilitation shall be addressed prior to any request for flow expansion. (Excessive I/I is considered to be a rate for domestic wastewater plus infiltration exceeding 120 gpd/capita during high groundwater or a total flow rate exceeding 275 gpcd during storm events. 40 CFR 35.2120)
 - Future 20-year residential flow based on project growth.
 - Future 20-year commercial flow based on project growth
 - Future industrial flow. Flow for future industrial contributions must be provided. A reasonable allowance for undocumented industrial expansions may be included if the basis is clearly justified and current land-use plans and local zoning include it.
 - Future Non-excessive I/I - A nominal allowance for non-excessive I/I for new sewer lines may be considered if the basis is clearly justified.

The projected flow rate from the JWSC Water and Sewer Master Plan Update predicted that flow for the Academy Creek WPCP would be 8.92 MGD average daily flow (ADF) by the year 2040. The WPCP has a permitted capacity of 13.5 MGD which can provide treatment and disposal for the projected flows. The flows predicted in the Master Plan Update alone are expected to utilize approximately 66% of the Academy Creek WPCP's permitted capacity. In the years following the development of the Master Plan Update, several new developments have come to the area and submitted sewer availability requests to JWSC, increasing future development and wastewater generation beyond what was originally anticipated.

With the increased rate of development and wastewater generation rate, the long-term ability of the current Academy Creek WPCP to treat and dispose of all projected sewer generation within the 20-year and beyond must be considered. By evaluating the future needs of this portion of the North Mainland sewer system now, JWSC is able to make economical decisions to best meet the needs of the community and customers as well as reduce the costs that would arise from modifying existing infrastructure within established areas in order to transfer increased flows from the North Mainland to the Academy Creek WPCP. As well, the length from the most distant areas of the gravity sewer system in the North Mainland and anticipated areas of development is approximately 14.5 miles. This long travel route leads to the increased production of hydrogen sulfide as sewage spends a prolonged period of time within the sewer system resulting in increased corrosion and structural deterioration of gravity sewer, pump stations, and forcemains. By developing the North Mainland WPCP, the distance the wastewater has to travel before treatment would be reduced, improving the longevity of the system overall. The following section discusses the current and future flow projections.

Table 3 below outlines the 2023 Academy Creek wastewater flow generation based on flow data from the Academy Creek WPCP reporting and includes all residential, commercial, industrial and inflow and infiltration (I/I). Section 2 in the Reasonable Alternatives Analysis section, will discuss I/I in further detail; however, it is important to note that the Academy Creek service area appears to have an I/I issue. However, JWSC's capital improvement plan developed as a part of the Master Plan Update includes recommended evaluations and improvements to the existing system to develop a program to reduce the observed I/I.

Table 7 below outlines the estimated North Mainland WPCP service area 20-year average wastewater generation flow in MGD developed from the projected growth. The residential flow was developed from the 2,641 homes projected in the Population Projections section and 100 gpd/person typically used which is also in line with the 2020 Master Plan Update as indicated in Table 4 below.

The estimated commercial and industrial development 20-year average wastewater generation flow was projected based on the 2020 Master Plan Update, sewer requests, and Glynn County Planning and Development Department records. From these resources, it is estimated that there will be approximately 555,000 square feet (s.f.) of commercial and industrial development in the build out period. A similar method to projecting the residential 20-year population was used to determine the 20-year commercial and industrial development projections and is provided in Table 5 below in detail.

While reviewing the service requests received by JWSC and the Glynn County Planning and Development (cont.)

Table 3 - Academy Creek 2023 Wastewater Generation

Academy Creek 2023 Wastewater Flow Generation		
Month	Year	Monthly Average of Wastewater Influent (MGD)
January	2023	6.7
February	2023	7.5
March	2023	6.9
April	2023	5.4
May	2023	6.2
June	2023	6.3
July	2023	6.8
August	2023	6.9
September	2023	7.6
October	2023	7.8
November	2023	6.1
December	2023	7.5
Average Wastewater Flow		6.8
*Monthly Average Wastewater Generation provided from Academy Creek WPCP Flow Data and includes all residential, commercial, industrial, and I/I.		

Table 4 - North Mainland WPCP Service Area Future 20-Year Residential Wastewater Generation Projections

North Mainland WPCP Service Area Future 20-year Residential Wastewater Generation Projections							
Subdivision/Development	Percent Built Out in 20-Year	20-Year Homes	20-Year Population	20-Year Proposed Flows (MGD)	Build Out Homes	Build Out Population	Build Out Proposed Flows (GPD)
Woodland Cove Phase 2	100	54	135	0.01	54	135	0.01
The Cottages at Golden Isles Phase 2	100	15	38	0.00	15	38	0.00
Walker Point	50	218	544	0.05	435	1,088	0.11
4972 Hwy 99 / Chanslor Road West	100	190	475	0.05	190	475	0.05
5102 Hwy 99	75	156	390	0.04	208	520	0.05
The Villas at Golden Isles	100	6	15	0.00	6	15	0.00
Crawford at Satilla Forest	75	152	379	0.04	202	505	0.05
Tradewinds	25	656	1,640	0.16	2,624	6,560	0.66
Altama HIC	50	1,195	2,988	0.30	2,390	5,975	0.60
Total		2,641	6,603	0.66	6,124	15,310	1.53

*20-year number of homes and population does not include the existing populations numbers from Table 1.

Table 5 - North Mainland WPCP Service Area Future 20-Year Commercial/Industrial Wastewater Generation Projections

North Mainland WPCP Service Area Future 20-Year Commercial/Industrial Wastewater Generation Projections					
Subdivision/Development	Percent Built Out in 20-Year	20-Year Commercial/Industrial (s.f.)	20-Year Commercial/Industrial (GPD)	Build Out Commercial/Industrial (s.f.)	Build Out Commercial/Industrial (GPD)
5102 Hwy 99	100	5,800	1,160	5,800	1,160
Tradewinds	35	26,250	5,250	75,000	15,000
Altama HIC	25	118,750	23,750	475,000	95,000
Total		150,800	30,160	555,800	111,160
*Commercial/Industrial Unit Loading used is 200 gpd/1,000 s.f.					

Department documents, there were development land uses that did not fall within the previous three categories. Table 6 includes these other land uses and the expected sewer flow rates as provided by the developers for amenity centers that will be constructed as a part of certain residential developments. (cont.)

B. 2. (cont.)

Table 6 - North Mainland WPCP Service Area Future 20-Year Other Land Uses Wastewater Generation Projections

North Mainland WPCP Service Area Future 20-Year Other Land Uses Wastewater Generation Projections			
Subdivision/Development	Type	Quantity	Build Out Other (GPD)
Altama Amenities	Amenity Center	1	2,500
Total			2,500

Portions of the existing collection system currently experience a roughly 10% increase in flow due to I/I during a one-inch (1") storm event. The JWSC has plans to address sources of I/I in each of the three existing WPCP systems that they operate which will reduce the amount of I/I that makes its way into the collection system. While every effort to minimize I/I will be taken by JWSC for new construction within their service territory, a nominal allowance can be expected in any wastewater collection system, and therefore an estimate of 5% was included in the projections for non-excessive I/I. Table 7 below provides a summary of the LS4119 projections from the 2020 Master Plan Update, non-excessive I/I, and the additional anticipated development flow projections for residential, commercial/industrial, and other uses within the proposed North Mainland WPCP.

Table 7 - North Mainland WPCP Service Area 20-Year Wastewater Generation Flow Projections

North Mainland WPCP Service Area 20-year Wastewater Generation Flow Projections	
Flow Type	Average of Wastewater Influent (MGD)
Residential	0.66
Commercial/Industrial	0.03
Other	0.00
20-year Master Plan Projection*	0.78
Non-excessive I/I (5%)	0.07
Total 20-year Wastewater Generation Flow Projections	1.55
*Total flow projection for LS4119	

If a new WPCP is not constructed, it is projected with the addition of the new proposed developments described that during the 20-year window the Academy Creek WPCP will reach average daily flows of approximately 10.5 MGD, which is 78% of the 13.5 MGD permitted capacity. Typically, when a wastewater treatment plant reaches 70% of its design capacity, the wastewater plant should be in the planning stages for plant upgrades and/or expansion. To address this future growth and development within the North Mainland most effectively and economically from both a construction and an operation and maintenance standpoint, JWSC proposes construction of a 1.5 MGD WPCP with future expansion capability to 3.0 MGD.

C. Economic Analysis

Compare feasibility and costs of proposed treatment with the feasibility and costs of alternative or enhanced treatment technologies that may result in more complete pollutant removal.

To provide valid cost comparisons among all technologically possible wastewater alternatives identified above and the proposed discharge project, a 20-year Present Worth analysis should be performed. The analysis should include all monetary costs associated with construction, startup, and annual operation and maintenance of a facility. All unit cost information should be provided, and costs should be supported (e.g., vendor quotes, realtor land quotes, past bids, Means Construction Index, etc.) and submitted. For each treatment alternative identified as technologically possible and the proposed discharge project, costs should include, but not be limited to, the following:

1. Capital Costs
 - a. Land acquisition
 - b. Equipment
 - c. Construction
 - d. Design
2. Recurring Costs
 - a. Operation and maintenance
 - b. Equipment replacement
 - c. Laboratory for permit compliance and process control
 - d. Operator and support staff
 - e. Sludge disposal
 - f. Utilities

3. Present Worth Calculation

The following standard formula for computing the present worth should be used in all cost estimates made under this evaluation:

$$PV = C_0 + C \left\{ \frac{[(1+r)^n - 1]}{r(1+r)^n} \right\}$$

Where:

PV = Present value of costs

C_0 = Costs incurred in the present year = Capital costs

C = Costs incurred annually = Recurring costs

n = Life of the facility = Typically 20 years

r = interest rate dependent on the type of debt instrument to be used

The results of the present worth analysis should be used in evaluating the cost of each alternative in relation to its benefits.

Please attach the economic viability for each alternative(s).

D. Return Flow Considerations (Optional) :

Demonstrate that water quantity in the receiving water is limited and there are potential water quantity gaps under low flow conditions, then the water quantity benefits of allowing a surface water discharge outweigh the effects of lower water quality resulting from the discharge provided the water quality to protect the existing uses will be maintained. This demonstration might include, but is not limited to, references to surface water flow needs identified in an applicable Regional Water Plan, TMDL, applicable recommendations for water management or the need to support aquatic life and drinking water supplies.

N/A

Section 4. Practicable Alternative Chosen – Include rationale.

Based on the information provided as a part of this analysis, there are two feasible options to consider: a 100% reuse system or a direct discharge system. All other system types have been eliminated due to a technological limitation encountered during initial consideration. In order to implement a 100% reuse system, all existing and proposed developments within the North Mainland service area would be required to implement reuse as their irrigation system. This assumes all construction occurs on the projected timelines and requires all potential users to actively participate in this system. Due to this as well as the much higher cost of installation and retrofitting existing distribution systems for reuse, this option is not considered feasible and has not been chosen though JWSC has expressed interest in implementation of a more limited reuse system for new developments. Ultimately, the direct discharge system is the most viable option both from a technological perspective as well as financially with the lowest capital and recurring costs of any option reviewed.

Section 5. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name:

Andrew Burroughs, PE

Date:

12/16/2025

Title:

Executive Director

Telephone:

912-261-7108

Signature:

**BGJWSC NORTH MAINLAND WRF
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DOMESTIC ANTIDEGRADATION ANALYSIS**

FIGURES

Brunswick, GA

DISCLAIMER: This map is for reference and discussion purposes only. Data provided are derived from multiple sources with varying levels of accuracy. The information shown hereon is not intended for site specific use or design.

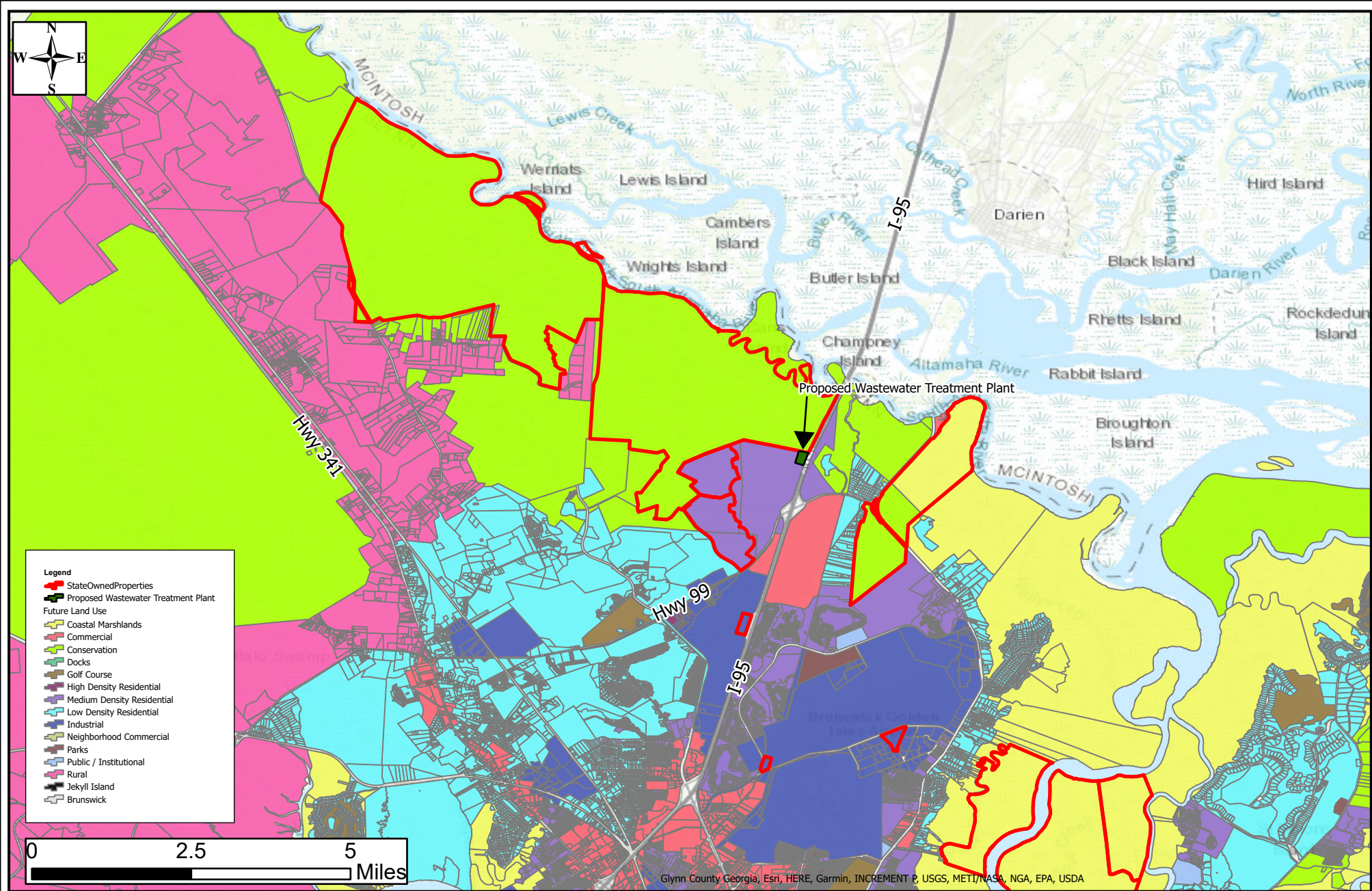


Figure 2: Future Land Use Figure

Brunswick, GA

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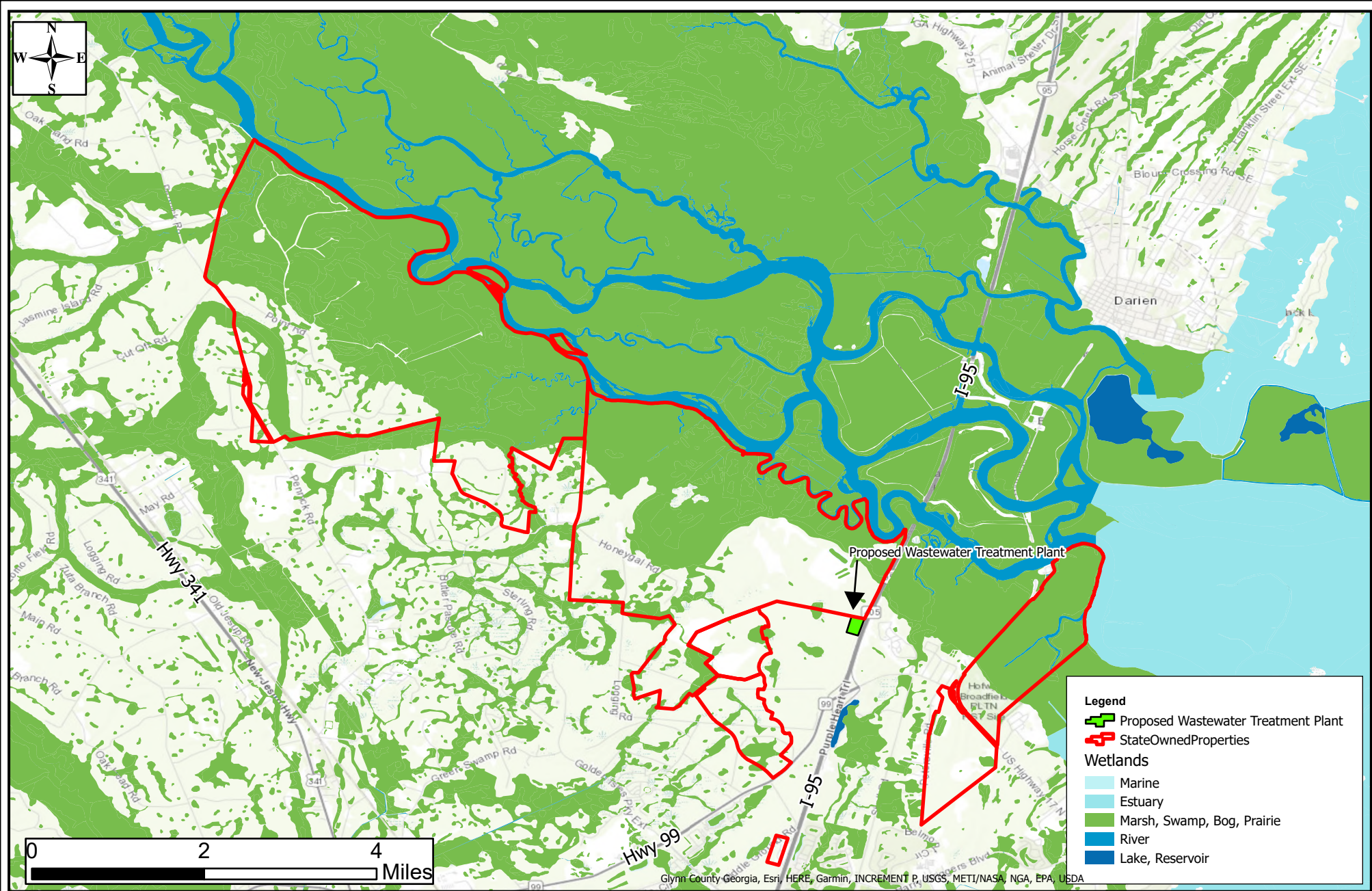


Figure 3: Wetlands Map

Brunswick, GA



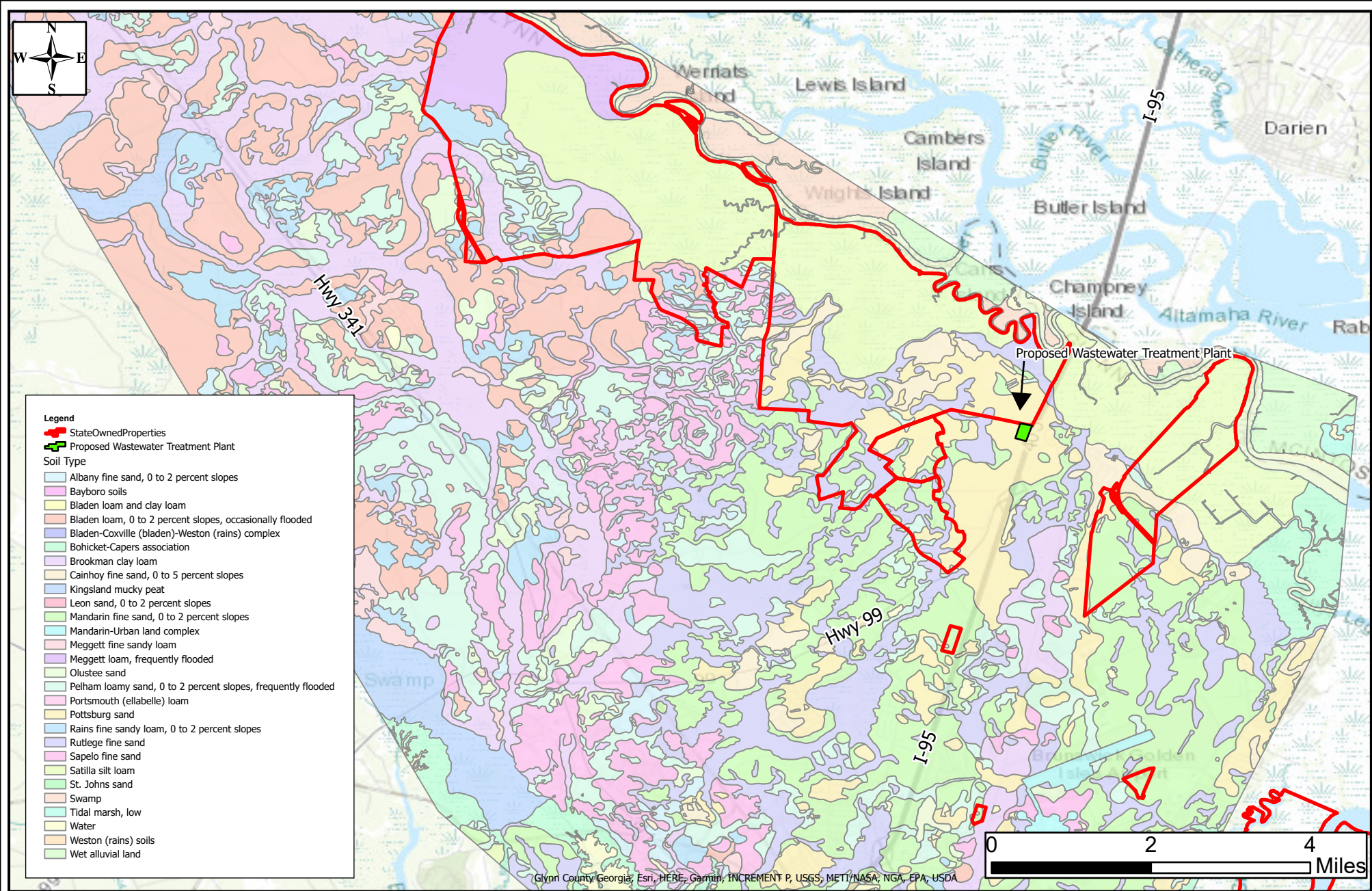


Figure 4: Soils Map

Brunswick, GA

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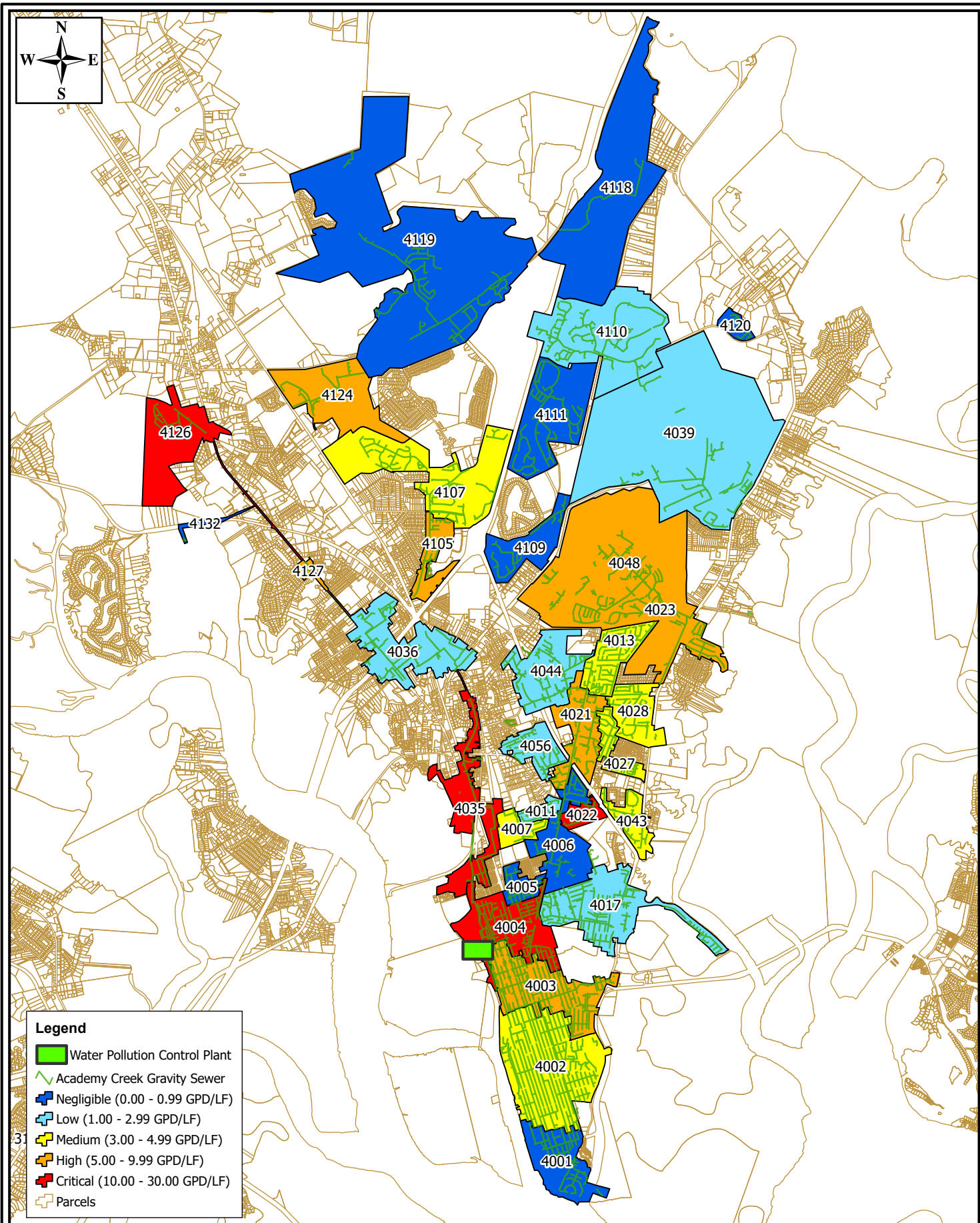


Figure 5: JWSC Academy Creek WPCP Collection System Inflow & Infiltration Priority Ranking by Sub-Basin

Brunswick, GA

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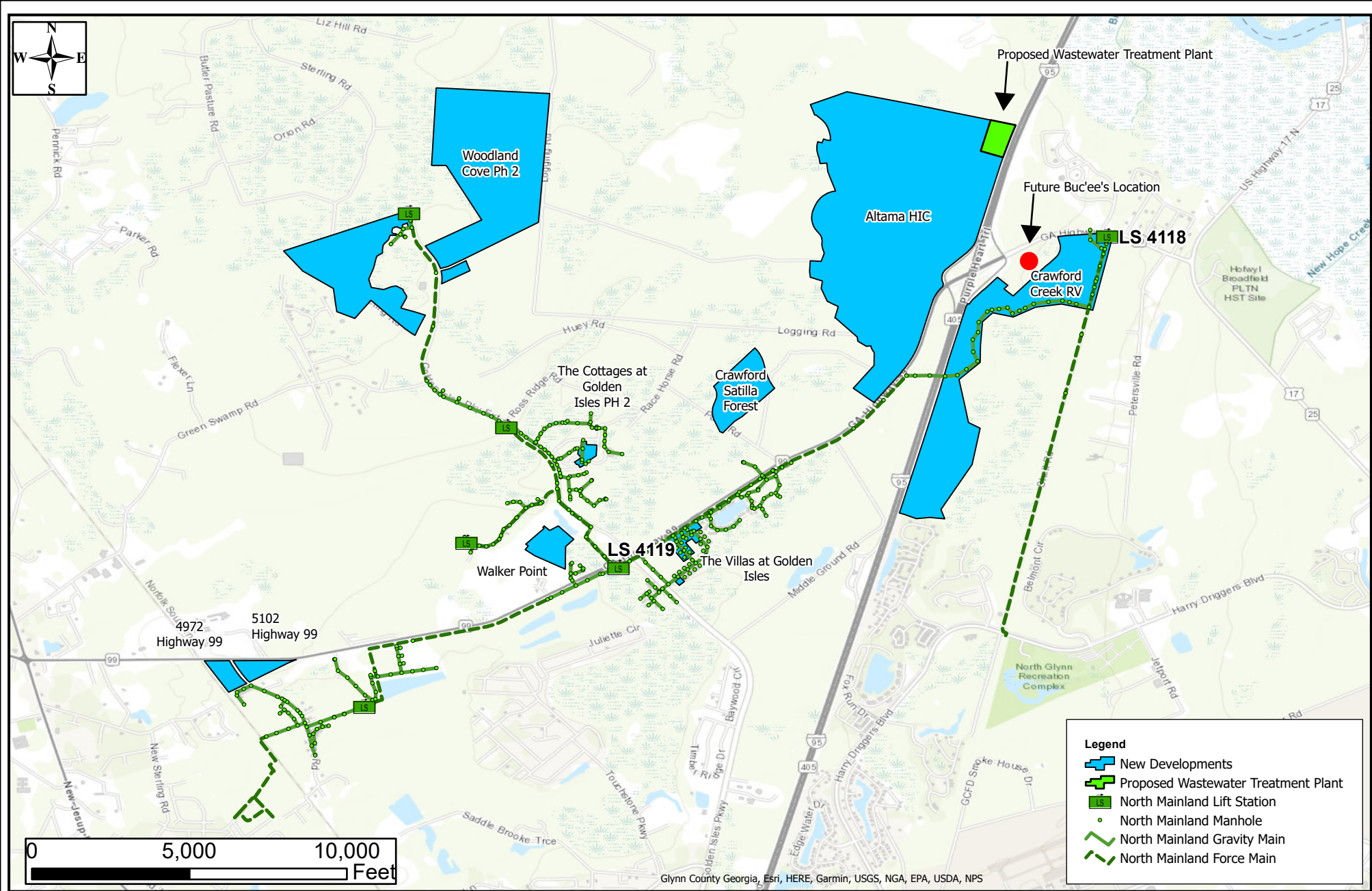


Figure 6: New Developments

Brunswick, GA

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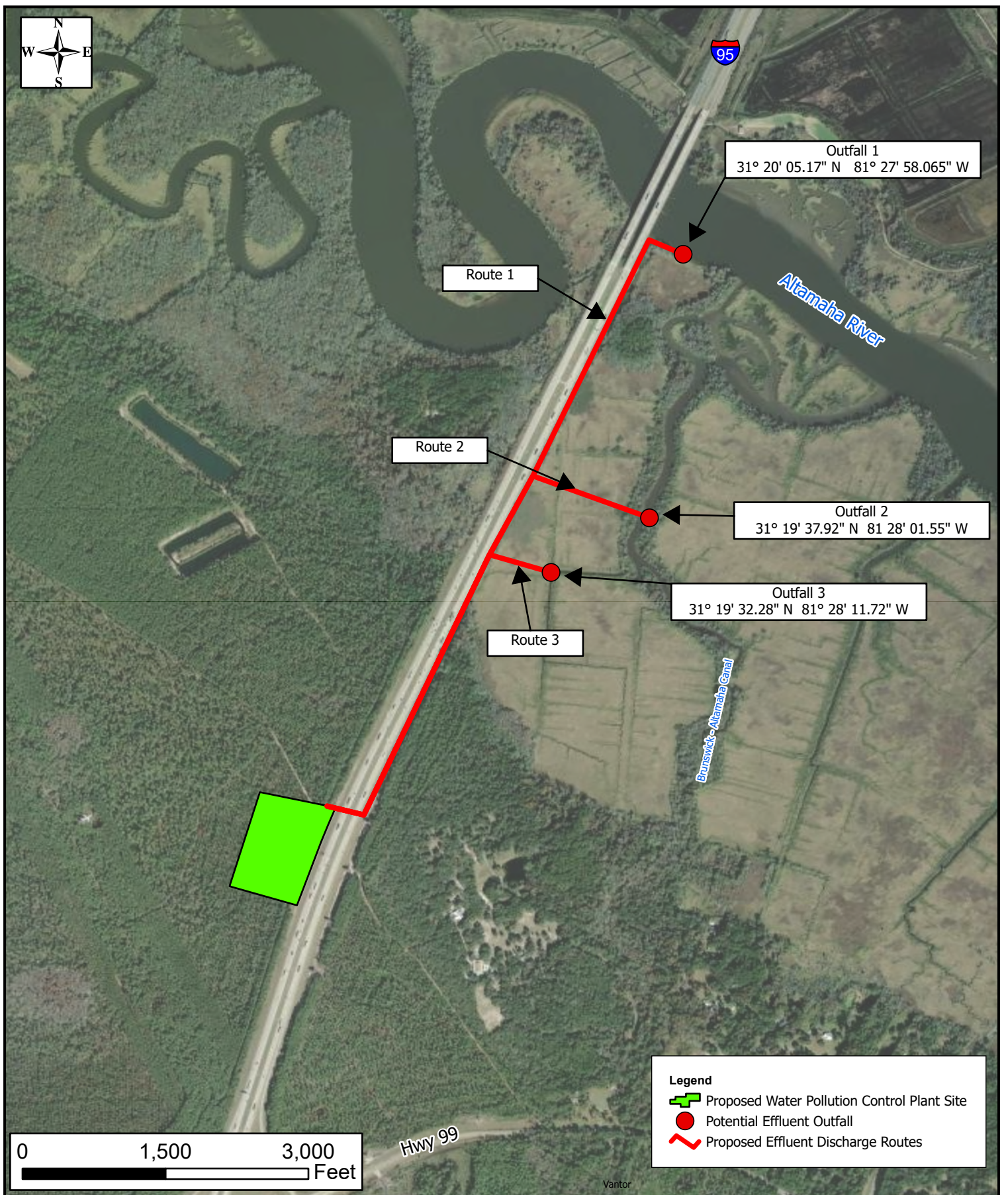


Figure 7: Proposed Project Location
BGJWSC North Mainland WPCP

Glynn County, GA

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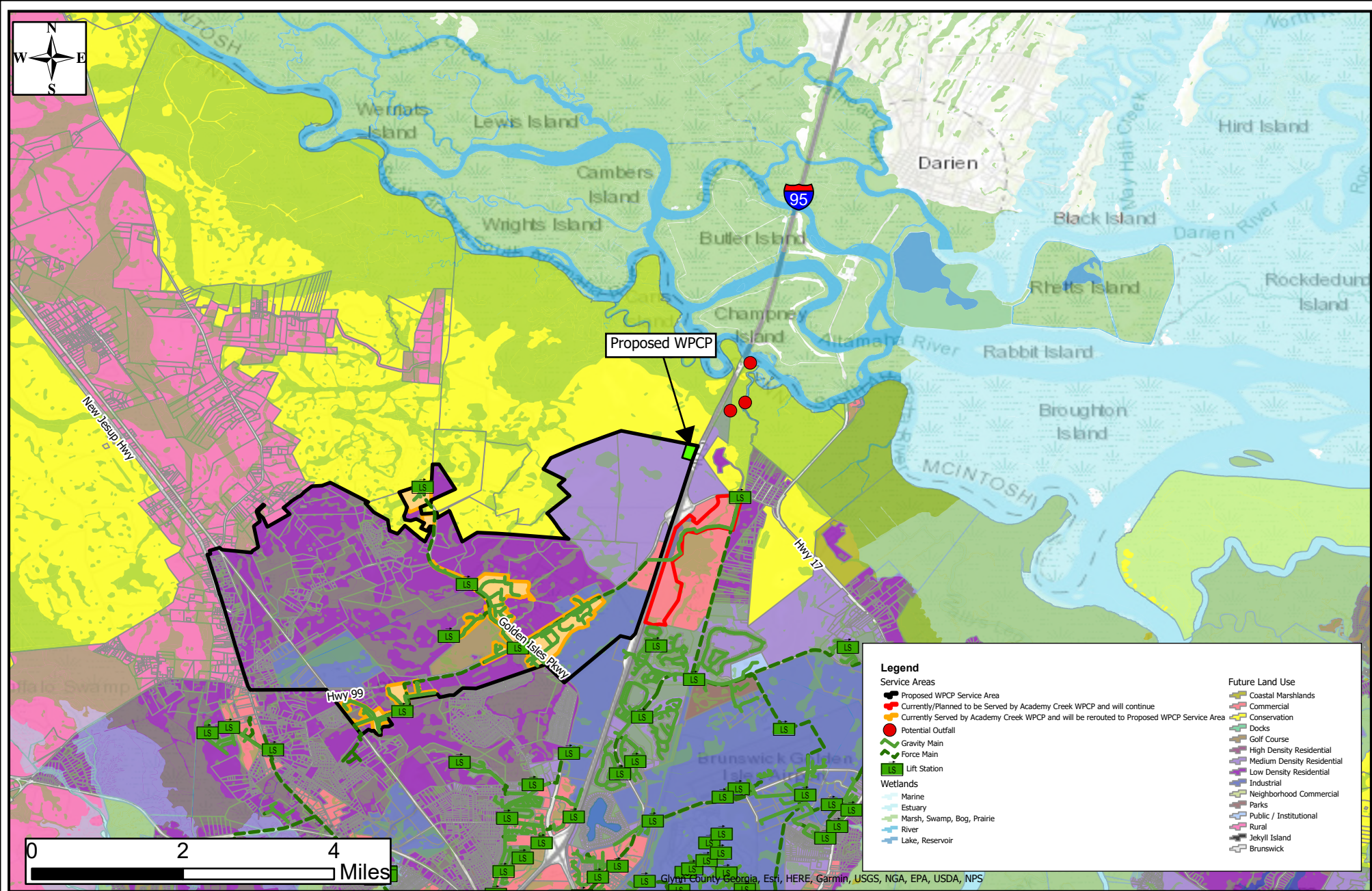


**Figure 8: Anticipated Service Area
BGJWSC North Mainland WPCP**

Glynn County, GA

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**BGJWSC NORTH MAINLAND WRF
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DOMESTIC ANTIDEGRADATION ANALYSIS**

LAND APPLICATION STUDY

Land Application Study for 1.5 MGD

Design Assumptions (1.5 MGD)

Average Design Flow	1.5	MGD	daily weekly
Flow with Peak Factor	3	MGD	
Flow with Peak Factor	2.25	MGD	
Hydraulic Conductivity/Average Permeability	0.213	inch/hour	table 5.3-1
Annual Average Precipitation	49	inches	
Total Nitrogen as N	20	mg/L	
Ammonia Nitrogen	15	mg/L	
Rate of N Applied to Site through Rainfall and Fixation	5	lbs/acre-year	
Maximum Loss to Ammonia Volatilization	5	%	
Maximum Loss to Denitrification for Pine Forest	15	%	
Maximum Loss to Denitrification for Coastal Bermuda/Ryegrass	10	%	
Delta P	2.5	inch	
Design Percolation 10%	0.5112	in/day	

Assumptions

Water Balance Calculations

Month	Evaporatranspiration (in/month)	Percolation (in/month)	Precipitation (in/month)	Wastewater Loading Rates (in/month) (in/week)	
January	0.4	15.8	6.5	9.7	2.2
February	0.5	14.3	6.1	8.7	2.2
March	1.3	15.8	8.5	8.6	2.0
April	2.5	15.3	6.3	11.5	2.5
May	4.3	15.8	5.8	14.3	2.5
June	5.6	15.3	5	15.9	2.5
July	6.5	15.8	6.8	15.5	2.5
August	6	15.8	5.3	16.5	2.5
September	4.2	15.3	4.7	14.8	2.5
October	2.5	15.8	4.2	14.1	2.5
November	1.1	15.3	5.9	10.5	2.4
December	0.5	15.8	6	10.3	2.3
Total	35.4	186.6	71.1	150.9	

Minimum

8.6
in/month

2.0
in/week

Nitrogen Balance, Pine Forest

1	Average Daily Flow, ADF (MGD)	1.5	1.5	1.5	1.5
2	Average Design Wastewater Loading Rate (in/week)	1.25	1.5	1.75	2
3	ADF, Wetted Area	309	258	221	193
4	Nitrogen Input from Wastewater (lbs/acre-year)	295	354	413	472
5	Nitrogen Input from Rainfall and Fixation (lbs/acre-year)	5	5	5	5
6	Total Nitrogen Input (lbs/acre-period)	300	359	418	477
7	Ammonia Volatilization @ 5% of Ammonia Applied (lbs/acre-periods)	11	13	15	18
8	Denitrification @ 15% of Total Nitrogen Applied (lbs/acre-period)	45	54	63	72
9	Net Plant Uptake and Storage (lbs/acre-period)	175	175	175	175
10	Nitrogen Leached by Percolate (lbs/acre-period)	69	117	165	213
11	Precipitation (in/period)	49	49	49	49
12	Wastewater Applied (in/period)	65	78	91	104
13	Potential Evapotranspiration (P.E.T. (in/period)	35	35	35	35
14	Percolate (in/period)	79	92	105	118
15	Estimate Percolate Total Nitrogen (mg/l)	3.9	5.6	7.0	8.0

Required Area

Operating Scheme	2.1	MGD	operation 5 days/week storage 2 days 12 days minimum
Operational Storage	3	MGD	
Wet Weather & Emergency Storage	8.8	days	
	18	MG	
Critical WLR	1.75	in/week	
A(ADF)	221	acre	
A(WW/E)	29	acre	
A(OP)	5	acre	
Actual WLR	1.51	in/week	
Critical Month WBS	0	in/month	
V(WBS)	0	MG	storage for most critical month
A(WBS)	0	acres	
A(Total)	255	acre	

**BGJWSC NORTH MAINLAND WRF
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DOMESTIC ANTIDEGRADATION ANALYSIS**

COST ESTIMATES

1.5 MGD WPCP FACILITY WITH DIRECT SURFACE WATER DISCHARGE

Capital Costs

Item	Cost
Land Acquisition	\$ 251,000
Equipment	
SCADA	\$ 819,000
Material Processing and Handling	\$ 51,000
Blowers	\$ 205,000
Liquid Handling Equipment	\$ 767,000
Preliminary Treatment	\$ 3,070,000
W/WW Chemical Feed	\$ 256,000
Secondary Treatment	\$ 10,232,000
Advanced Treatment	\$ 256,000
Generators	\$ 2,046,000
Effluent Pump Station	\$ 5,116,000
Construction	
Clearing & Grubbing	\$ 26,000
Concrete & Masonry	\$ 7,674,000
Electrical	\$ 11,767,000
Metal, Roofing, Openings	\$ 1,279,000
Stormwater	\$ 205,000
Effluent FM and Discharge	\$ 2,660,000
Design	\$ 5,701,000
Total Capital Costs	\$ 52,381,000

Recurring Costs

Total Recurring Costs	\$ 1,965,000
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Present Worth Calculation	\$ 80,950,815
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Life of Facility	20 years
Interest Rate	3.25%

1.5 MGD WPCP FACILITY WITH LAS DISCHARGE

Capital Costs

Item	Cost
Land Acquisition	\$ 740,000
Equipment	
SCADA	\$ 819,000
Material Processing and Handling	\$ 51,000
Blowers	\$ 205,000
Liquid Handling Equipment	\$ 767,000
Preliminary Treatment	\$ 3,070,000
Chlorine Disinfection (Basin and Chemical Feed)	\$ 500,000
Secondary Treatment	\$ 9,132,000
Generators	\$ 2,046,000
LAS Pump Station at WPCP	\$ 3,581,000
LAS Wet Weather and Emergency Storage	\$ 47,069,000
Piping Distribution System	
18" PVC DR 18 Forcemain	\$ 14,402,000
6" PVC DR18 LAS Distribution Main	\$ 4,626,000
4" PVC DR18 LAS Lateral Main	\$ 5,371,000
2" PVC DR18 LAS Piping	\$ 17,267,000
Sprinkler Heads	\$ 128,000
Construction	
Clearing & Grubbing	\$ 3,070,000
Concrete & Masonry	\$ 7,174,000
Electrical	\$ 12,279,000
Metal, Roofing, Openings	\$ 1,279,000
Stormwater	\$ 205,000
Restoration	\$ 4,422,000
Sediment and Erosion Control	\$ 256,000
Design	\$ 16,526,280
Total Capital Costs	\$ 154,985,280

Recurring Costs

Item	Cost
Operation & Maintenance	\$ 82,000
Equipment Replacement	\$ 29,000
Laboratory for Compliance & Control	\$ 12,000
Operator & Support Staff	\$ 102,000
Utilities	\$ 115,000
WPCP	\$ 1,965,000
Total Recurring Costs	\$ 2,305,000

Present Worth Calculation	\$ 188,498,473
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Life of Facility	20 years
Interest Rate	3.25%

1.5 MGD WPCP FACILITY WITH 100% REUSE DISCHARGE

Capital Costs

	Item	Cost
Land Acquisition (Two 5-acre sites)		\$ 155,000
Equipment		
SCADA		\$ 819,000
Material Processing and Handling		\$ 51,000
Blowers		\$ 205,000
Liquid Handling Equipment		\$ 767,000
Preliminary Treatment		\$ 3,070,000
W/WW Chemical Feed		\$ 256,000
Secondary Treatment		\$ 10,232,000
Advanced Treatment		\$ 256,000
Generators		\$ 2,046,000
Reuse Pump Station at WPCP with VFDs		\$ 3,581,000
Reuse Wet Weather and Emergency Storage (12 days min per LAS: 18 Mgal)		\$ 40,930,000
Booster Pump Station and 1.0 Mgal Storage Tank (2)		\$ 17,191,000
Piping Distribution System		
	12" PVC DR18 Reuse Main (Main Roads) and Ancillary Equipment	\$ 17,272,000
	8" PVC DR18 Reuse Main (Collector Roads) and Ancillary Equipment	\$ 710,000
	6" PVC DR18 Reuse Main (Residential Roads) and Ancillary Equipment	\$ 34,888,000
Construction		
	Concrete & Masonry	\$ 7,674,000
	Electrical	\$ 11,767,000
	Metal, Roofing, Openings	\$ 1,279,000
	Stormwater	\$ 205,000
	Clearing & Grubbing	\$ 3,177,000
	Soil Erosion & Sediment Control	\$ 1,609,000
	Restoration	\$ 16,230,000
	Testing & Inspection	\$ 512,000
	Maintenance of Traffic	\$ 1,526,000
Design		\$ 21,151,000
Total Capital Costs		\$ 197,559,000

Recurring Costs

	Item	Cost
Operation & Maintenance		\$ 167,000
Equipment Replacement		\$ 29,000
Laboratory for Compliance & Control		\$ 12,000
Operator & Support Staff		\$ 220,000
Utilities		\$ 115,000
WPCP		\$ 1,965,000
Total Recurring Costs		\$ 2,508,000

Present Worth Calculation	\$ 234,023,680
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Life of Facility	20 years
Interest Rate	3.25%

REUSE WATERMAIN TO NORTH GLYNN SPORTS COMPLEX

Project: North Mainland WPCP Anti-Degradation Analysis

Date: 12/16/2025

Item No.	Item	Quantity	Unit	Cost	Total
1	8" HDPE (DR11) FM by HDD	613	LF	\$ 250	\$ 153,300
2	6" PVC (DR-18) Reuse Main by Open Cut	36,888	LF	\$ 160	\$ 5,902,200
3	Restoration	1	LS	\$ 1,650,000	\$ 1,650,000

Subtotal \$ 7,705,500

Design 12% \$ 924,660

Total \$ 8,630,160

BGJWSC NORTH MAINLAND WRF
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DOMESTIC ANTIDEGRADATION ANALYSIS

WASTELOAD ALLOCATION – MAY 19, 2025

May 19, 2025

Mr. Andrew Burroughs, Executive Director
Brunswick-Glynn Joint Water and Sewer Commission
1703 Gloucester Street
Brunswick, Georgia 31520

RE: Wasteload Allocation Transmittal
North Mainland Water Pollution Control Plant
New Discharge to South Altamaha River
EPD # WLA000292
New Discharge to Brunswick-Altamaha Canal
EPD # WLA000293
New Discharge to Tributary of Brunswick-Altamaha Canal
EPD # WLA000294
Glynn County, Altamaha River Basin

Dear Mr. Burroughs:

The Georgia Environmental Protection Division (EPD) has completed its evaluation of the wasteload allocation request for the discharge of 1.5 MGD of treated domestic wastewater into the South Altamaha River (WLA000292), the Brunswick-Altamaha Canal (WLA000293), or a Tributary of the Brunswick-Altamaha Canal (WLA000294) in the Altamaha River Basin. The following wasteload allocation is valid for one year from the date of this letter unless a written extension is requested and granted. The wasteload is provided for planning purposes only.

Recommended effluent permit limits (all locations):

Constituent/Parameter ⁽¹⁾	Limit
Effluent Flow Rate (MGD)	1.5
Five-Day Biochemical Oxygen Demand (mg/L)	5.0
Total Suspended Solids (mg/L)	5.0
Ammonia, as N (mg/L)	1.0
Total Phosphorus, as P (mg/L)	1.0

⁽¹⁾ Values are maximum monthly averages except as noted.

⁽²⁾ If an ultra-violet light or ozone system is used to treat bacteria, the TRC limit will only apply when chlorine is in use at the facility.

Recommended effluent permit limits (continued):

Constituent/Parameter ⁽¹⁾	Limit
Dissolved Oxygen, Minimum (mg/L)	6.0
<i>Enterococci</i> (#/100 mL)	4
pH, Minimum – Maximum (Standard Units)	6.0-9.0
Total Residual Chlorine, Daily Maximum (mg/L) ⁽²⁾	0.5
Orthophosphate, as P (mg/L)	Monitor
Organic Nitrogen, as N (mg/L)	Calculated
Nitrate-Nitrite, as N (mg/L)	Monitor
Total Kjeldahl Nitrogen, as N (mg/L)	Monitor
Total Nitrogen, as N (mg/L)	Calculated

(1) Values are maximum monthly averages except as noted.

(2) If an ultra-violet light or ozone system is used to treat bacteria, the TRC limit will only apply when chlorine is in use at the facility.

Priority pollutant limitations and aquatic toxicity testing requirements will be determined at a later date. Please also be aware that EPD will be developing a Nutrient Permitting Strategy in the upcoming months that may result in a total nitrogen limit and/or reduced total phosphorus limit.

BGJWSC will also be required to submit an *Antidegradation Analysis* justifying the proposed discharge, an *Environmental Information Document* to evaluate the direct and indirect environmental impacts of the project, and a *Design Development Report* to describe the proposed treatment process. EPD must concur with all the documents before a draft NPDES permit for the requested flow rate can be issued. Please submit the reports for review to the Wastewater Regulatory Program.

In addition, the BGJWSC must evaluate if their Watershed Protection Plan (WPP) covers the expanded service area. If this is not the case, the WPP must be revised to include the new area.

If you should have any questions, please contact me at (470) 251-2564, or via email at patrick.daugherty@dnr.ga.gov.

Sincerely,



Patrick Daugherty
Municipal Permitting Unit
Wastewater Regulatory Program

cc: Andrew Burroughs, BGJWSC (aburroughs@bgjwsc.org)
Angela Bryan, Four Waters Engineering (abryan@4weng.com)
Josh Welte, EPD Water Quality Modeling Unit (josh.welte@dnr.ga.gov)