



onwasa.com

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# **Onslow Water and Sewer Authority**

## **2023 Annual Report**

### **Wastewater System Performance**



**ONFLOW WATER AND SEWER AUTHORITY  
2023 ANNUAL REPORT  
WASTEWATER SYSTEM PERFORMANCE**

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# ONSWLOW WATER AND SEWER AUTHORITY 2023 ANNUAL REPORT WASTEWATER SYSTEM PERFORMANCE

## INTRODUCTION

Under the North Carolina Clean Water Act of 1999 requirements, the Onslow Water and Sewer Authority (ONWASA) has prepared this Annual Report on the performance of all domestic/municipal wastewater treatment facilities and wastewater collection systems operated and maintained by ONWASA. The Annual Report provides basic physical and permit information for each facility and summaries of monthly activity and overall performance.

During 2023, ONWASA managed five (5) treatment facilities and eight (8) collection systems. This includes:

- The Hickory Grove Wastewater Treatment Plant is inactive and scheduled for permanent closure in March 2024.
- The Holly Ridge Wastewater Treatment Plant, with a collection system serving the Town of Holly Ridge and surrounding areas.
- In November, the North Topsail Wastewater Treatment Facility and collections system were acquired. They serve the North Topsail and Sneads Ferry areas.
- The Northwest Regional Water Reclamation Facility, with a collection system serving the Town of Richlands and northwestern Onslow County.
- The Summerhouse Wastewater Reclamation Facility, with a collection system serving the Summerhouse at Everett Bay residential development.
- The Swansboro Wastewater Treatment Facility, with a collection system serving the Town of Swansboro and surrounding areas.
- In November, the Webb Creek Wastewater Treatment Facility was acquired, with a collection system serving the Fox Trace Subdivision.
- The Springdale Area collection system, which sends wastewater to the City of Jacksonville for treatment and disposal.
- The Piney Green Road area collection system, which sends wastewater to Marine Corps Base Camp Lejeune for treatment and disposal.

ONWASA's continuing goal through wastewater collection and treatment is to protect public health and safety by minimizing the risk of contamination to surface and ground waters so they will continue to be available as a drinking water resource for future generations. We hope this information helps the reader understand ONWASA's daily effort to manage and improve the wastewater treatment process. We are committed to providing this information because informed customers better support our continuing efforts.

A copy of this report is available for public review on ONWASA's website at [www.onwasa.com](http://www.onwasa.com) and ONWASA's Main Office, 228 Georgetown Road, Jacksonville, NC.

Questions about this report may be addressed to:

ONWASA  
228 Georgetown Rd.  
Jacksonville, NC 28540  
Attn: 2023 Annual Report Wastewater System Performance

Or by calling ONWASA's Main Office at (910) 455-0722.

### **CERTIFICATION**

I, Seth A. Brown, certify that the information contained within this report represents the configuration and operation of the above-referenced facilities for the reporting period. Data on treatment capacity and flow rates are based on readings taken at individual facilities and reported monthly to the North Carolina Department of Environmental Quality per their operating permits.

  
\_\_\_\_\_  
**Signature**

20241107  
\_\_\_\_\_  
**Date**

Deputy Chief Operations Officer  
\_\_\_\_\_  
**Title**

## TREATMENT FACILITY INFORMATION HOLLY RIDGE WASTEWATER TREATMENT PLANT

### Facility Description

The Holly Ridge Wastewater Treatment Plant is located at 286 North Jenkins Street within the Town of Holly Ridge. This facility is a wastewater treatment lagoon with a permitted capacity of 0.260 MGD. Treatment equipment includes a headworks with manual bar screen and grit chamber; influent flow measurement via an ultrasonic flow meter; a 1.82-million-gallon capacity lagoon divided into four (4) treatment cells and a settling cell via floating curtain baffles; eleven (11) floating aerators/mixers to enhance sludge digestion; tablet chlorine disinfection system; an effluent pump station with duplex 450 GPM pumps; and, 17,900 ft. of 8-inch diameter force main to direct effluent to a spray irrigation site for final discharge. The spray irrigation site, located at 220 Dolph Everett Road, is a 0.240 MGD facility consisting of a 13.30-million-gallon storage lagoon; ten (10) spray fields totaling 93.42 wetted acres; and an irrigation pump station with dual 700 GPM pumps and an effluent flow meter that distributes flow to almost 800 spray heads. There are no on-site employee facilities, so this location is monitored by staff from ONWASA's Summerhouse Wastewater Treatment Plant.

### General Information

Permit Number:	WQ0019907
Permit Type:	Wastewater Irrigation System
Facility Type/Operation:	Grade 2 WWTP and Surface Irrigation
Operator in Responsible Charge (ORC):	Kary Herndon
Contact Phone (Summerhouse):	(910) 937-7575

### Performance During 2023

Permitted Capacity:	0.240 MGD <sup>(1)</sup>
Average Daily Flow Treated:	0.215 MGD
Percent of Permitted Capacity:	96%
Maximum Daily Flow Treated:	0.446 MGD (Dec 27 <sup>th</sup> )
Total Gallons Treated:	78,429,700 <sup>(2)</sup>
Percent Change from 2022:	+32.6%

#### *Performance Notes:*

- (1) Actual treatment capacity is based on the spray irrigation permitted capacity of 0.240 MGD.
- (2) Total Gallons Treated can vary significantly, depending on the flow volume diverted to the Summerhouse WWTP (see Comments).

### Comments

In May 2019, a project to replace the six (6) existing floating aerators in the lagoon with eleven (11) new floating aerators/mixers and an automated control system was completed and put into service. The new aerators are designed to accelerate the digestion of sludge within the lagoon while reducing operating costs, as they use a much smaller motor and less electricity to accomplish the same task as the older aerators.

In 2019, an environmental engineering firm under contract with ONWASA completed work on a Capacity Evaluation Study of this facility. A copy of this document is available for review at the ONWASA Central Office, 228 Georgetown Road, Jacksonville, NC. This study included an assessment of existing conditions at the plant, projections of future population growth and sewer demand in the service area, and the development of alternatives to address that future demand. In November of 2023, ONWASA took over operations of the North Topsail WWTP. Currently, plans are to construct a force main to transmit the wastewater to North Topsail WWTP and Summerhouse WRF. Summerhouse WRF is in the planning phase for upgrades to handle the flow from Holly Ridge WWTP beyond what the plant already receives.

### Permit Violations During 2023

The following is a list of all violations reported to NCDEQ under the operating permit for this facility:

**Month:**

Violation:

Cause:

Corrective Action Taken:

Known Environmental Impacts:

**July**

Monthly Avg. influent flow

Heavy rainfall.

Divert more flow to Summerhouse WRF for treatment.

None.

**Month:**

Violation:

Cause:

Corrective Action Taken:

Known Environmental Impacts:

**August**

Monthly Avg. influent flow

Heavy rainfall.

Divert more flow to Summerhouse WRF for treatment.

None.

**Month:**

Violation:

Cause:

Corrective Action Taken:

Known Environmental Impacts:

**September**

Monthly Avg. influent flow

Heavy rainfall.

Divert more flow to Summerhouse WRF for treatment.

None.

## TREATMENT FACILITY INFORMATION NORTH TOPSAIL WASTEWATER TREATMENT PLANT

### Facility Description

The North Topsail Wastewater Treatment Plant is located at 1095 State Hwy 210 in Sneads Ferry. This facility utilizes a membrane bioreactor (MBR) treatment system and high-rate infiltration basins for disposal with a design maximum capacity of 1.00 MGD. Treatment equipment includes a 254,320-gallon aerated flow equalization tank with two 1,200 GPM submersible pumps and two ten horsepower (hp) floating mechanical aerators; dual 2-millimeter (mm) rotary drum fine screens with an auto wash using treated effluent; two 41,888-gallon membrane bioreactor (MBR) aeration basins served by two 711 CFM blowers with ten membrane cassettes, a 386 GPM permeate pump, fine bubble diffusers, and a turbidimeter for each MBR aeration basin; an ultraviolet (UV) disinfection unit containing two banks with 48 bulbs per bank. The MBR plant runs in tandem with a 42.2-acre three-cell facultative lagoon with 57 million gallons (MG) of capacity; a tablet chlorinator; a 138,875-gallon chlorine contact chamber; an irrigation pump station dual 1800 GPM pumps and an effluent flow meter with a design maximum capacity of 0.542 MGD.

### General Information

Permit Number:	WQ0005849
Permit Type:	High-Rate Infiltration System and Spray Irrigation
Facility Type / Operation:	Grade 4 MBR and Facultative lagoons
Operator in Responsible Charge (ORC):	Dwight Peterson
Contact Phone:	(910) 937-7575

### Performance During 2023

Permitted Capacity:	1.542 MGD <sup>(1)</sup>
Average Daily Flow Treated:	0.541 MGD
Percent of Permitted Capacity:	36%
Maximum Daily Flow Treated:	1.210 MGD (Dec 18 <sup>th</sup> )
Total Gallons Treated:	197,318,297 gallons.
Percent Change from 2022:	+8.20%

#### *Performance Notes:*

*(1) Permitted Capacity is separated by the disposal of each treatment facility on the permit. The MBR plant has a permitted flow of 1.0 MGD, and the lagoon plant has a permitted flow of 0.542 MGD.*

### Comments

The North Topsail WWTP was permitted as a three-cell facultative lagoon and 19-field spray irrigation system in July 1988. In August 1997, the permit modifications were approved for the Parshall flume, ultrasonic flow meter, and manual bar screen before the facultative lagoons. The spray irrigation system was expanded from 19 to 34 fields in March 2003. In February 2011, the permit modifications for phases 1 and 2 of the Membrane Bioreactor plant and high-rate infiltration basins were approved.

To maintain compliance with the NPDES permit, samples are pulled from the MBR plant effluent three times a week, facultative lagoon effluent twice a week before spray irrigation, the groundwater lowering system once a week, and a downstream surface water monitoring system once a month.

In November 2023, ONWASA acquired the North Topsail Wastewater Treatment Plant. As of April 2024, projects are in place to construct a force main from Holly Ridge WWTP and Summerhouse WRF to North Topsail WWTP.

### Permit Violations During 2023

The following is a list of all violations reported to NCDEQ under the operating permit for this facility:

**Month:**

Violation:

Cause:

Corrective Action Taken:

Known Environmental Impacts:

**December**

Monthly Avg. Total Nitrogen, Daily Ammonia

Mechanical failure and MLSS

Increased wasting and sludge haul. Replaced blower and pressure release valves.

None.

## **TREATMENT FACILITY INFORMATION NORTHWEST REGIONAL WATER RECLAMATION FACILITY**

### **Facility Description**

The Northwest Regional Water Reclamation Facility is located at 189 Mills Field Road, one mile southeast of the Town of Richlands. This facility utilizes a sequencing batch reactor (SBR) treatment process and high-rate infiltration basins for effluent disposal, with a permitted capacity of 1.273 MGD. Treatment equipment includes an elevated headworks with fine screen/grit removal system; two 1,830,000-gallon SBR tanks with aeration equipment and axial flow jet motive pumps; an 822,000-gallon flow equalization basin with axial flow jet motive pumps; two rotating stainless-steel disk filter assemblies with automated backwash for tertiary treatment, and a triple bank ultraviolet disinfection system with a sodium hypochlorite back-up and chlorine contact chamber. Treated effluent is sent via an on-site pumping station and force main to one of four (4) high-rate infiltration basins (totaling 6.99 acres) located immediately southeast of the plant. Waste sludge from the treatment process is sent to one of two 614,000-gallon aerobic sludge digesters for further treatment and eventual land application for disposal.

### **General Information**

Facility Permit Number:	WQ0034367
Permit Type:	High-Rate Infiltration
Facility Type:	Sequencing Batch Reactor
Operator in Responsible Charge (ORC):	Mark C. Young
Facility Phone:	(910) 937-7572

### **Performance During 2023**

Permitted Capacity:	1.273 MGD
Average Daily Flow Treated:	0.383 MGD
Percent of Permitted Capacity:	30.23%
Maximum Daily Flow Treated:	1.146 MGD (Dec 30 <sup>th</sup> )
Total Gallons Treated:	139,340,592 gallons.
Percent Change from 2022:	+11.12%

### **Comments**

This facility was severely damaged in September 2018 because of localized flooding during Hurricane Florence. This included the failure of 30 electrical motors for pumps, aerators, and other process equipment, along with the failure of electrical distribution and automated control systems. Both the disk filters and UV disinfection systems were also damaged and rendered unusable. During 2019, the plant was run in a manual mode of operation with a total bypass of the disk filter/UV systems and installing a temporary disk filtration system in an adjacent outdoor parking area. Flooded motors and pumps were also rebuilt/replaced.

Treatment processes and procedures have been modified several times to adapt to the damaged systems at the plant, and many of the permit violations noted below can be attributed to operating under extremely adverse conditions. In November 2019, a construction contract for the first recovery project, restoration of the existing disk filters and installation of a new, flood-resistant open channel UV system, was bid and awarded; work began in early 2020. In March 2021, two additional projects, restoration of electrical distribution and automation systems, along with improvements to reduce risk in future flood events, were awarded, and remediation continued through 2023 with projected completion expected in February 2024.

### **Permit Violations During 2023**

The following is a list of all violations reported to NCDEQ under the operating permit for this facility.

<b>Month:</b>	<b>May</b>
Violation:	Daily BOD and Ammonia
Cause:	Hurricane Florence Recovery Project - Plant operation to automation from manual.
Corrective Action Taken:	SCADA programming adjustments to chemical feeds, batch step timing, and increased process control sampling.
Known Environmental Impacts:	None.
<b>Month:</b>	<b>June</b>
Violation:	Daily BOD and Ammonia, Monthly Avg. Phosphorus
Cause:	Hurricane Florence Recovery Project - Plant operation to automation from manual.
Corrective Action Taken:	We continued working on SCADA programming adjustments to chemical feeds, batch step timing, and increased process control sampling.
Known Environmental Impacts:	None.
<b>Month:</b>	<b>August</b>
Violation:	Daily BOD, TSS, and Fecal Coliform
Cause:	Fecal Coliform – tank level caused head pressure siphon. BOD and TSS – third-party lab hold times.
Corrective Action Taken:	We diverted flow to upset ponds, repaired chemical feed systems, increased disinfection, and reduced the EQ tank level.
Known Environmental Impacts:	None.

## TREATMENT FACILITY INFORMATION SUMMERHOUSE WASTEWATER RECLAMATION FACILITY

### Facility Description

The Summerhouse Wastewater Reclamation Facility is located at 351 Holly Ridge Road, southeast of the Town of Holly Ridge. This facility utilizes a membrane bioreactor (MBR) treatment system and high-rate infiltration basins for disposal with a design maximum capacity of 0.180 MGD. Treatment equipment includes headworks consisting of two automated bar screens and a cyclone-style grit removal system; a 184,000-gallon aerated equalization basin supplying four MBR trains rated at 100,000 gallons per day each (currently, only two trains are operational); and an ultraviolet light post-treatment disinfection system with a sodium hypochlorite back-up. Treated effluent is then sent to one of two high-rate infiltration basins (totaling 7.1 acres) in the Summerhouse at Everett Bay housing development. Waste sludge from the trains is sent to one of two 129,400-gallon aerated digesters for further treatment and eventual land application for disposal.

### General Information

Permit Number:	WQ0029945
Permit Type:	High-Rate Infiltration System
Facility Type / Operation:	Grade 3 MBR with High-Rate Infiltration Basins
Operator in Responsible Charge (ORC):	Kary Herndon
Contact Phone:	(910) 937-7575

### Performance During 2023

Permitted Capacity:	0.180 MGD <sup>(1)</sup>
Average Daily Flow Treated:	0.061 MGD
Percent of Permitted Capacity:	34%
Maximum Daily Flow Treated:	0.209 MGD (July 25 <sup>th</sup> )
Total Gallons Treated:	22,387,874 gallons.
Percent Change from 2022:	+26.27% <sup>(2)</sup>

#### *Performance Notes:*

*(1) While the design capacity for the Summerhouse facility is 400,000 gallons per day, only two of the four MBR systems are online. Basin 1 is limited to 80,000 gallons per day, and Basin 2 is limited to 100,142 gallons per day.*

*(2) Total Gallons Treated can vary significantly, depending on the flow volume diverted from the Holly Ridge WWTP (see Comments on Page 11).*

## Comments

Due to the low number of completed homes in the Summerhouse at Everett Bay development, which is the sole source of wastewater flow for this treatment facility, and the limited capacity of the Holly Ridge Wastewater Treatment Plant, a portion of the wastewater generated from the Holly Ridge collection system was diverted to the Summerhouse facility through a pump station on Jenkins Street and an 18,000-foot-long force main that terminates at the plant.

In November, a hydrogeologist began a capacity analysis of the current high-rate infiltration basin (Basin #2) to determine if it would support a higher flow rate. If this is verified by field testing, a permit modification request will be submitted to NC DEQ to approve a higher Permitted Capacity. In addition, an environmental engineering firm reviewed corrective actions for Basin #1, which was unusable due to an impervious (clay) layer on the pond bottom.

In 2019, an environmental engineering firm under contract with ONWASA completed work on a Capacity Evaluation Study of this facility. A copy of this document is available for review at the ONWASA Central Office, 228 Georgetown Road, Jacksonville, NC. This study included an assessment of existing conditions at the plant, projections of future population growth and sewer demand in the service area, and the development of alternatives to address that future demand. These included the construction of a replacement treatment facility and sending all flow to a third party for treatment/disposal. In December, the ONWASA Board of Directors reviewed the alternatives presented. It directed the engineering firm to conduct additional analysis on capital and operating expenses for selected alternatives before making a final recommendation on how to proceed. In November of 2023, ONWASA acquired the North Topsail WWTP; plans are to construct a force main to transmit the wastewater to North Topsail WWTP and upgrade Summerhouse WRF to increase treatment and disposal capacity.

## Permit Violations During 2023

The following is a list of all violations reported to NCDEQ under the operating permit for this facility:

<b>Month:</b>	<b>April</b>
Violation:	Daily Ammonia Exceedance
Cause:	Low dissolved oxygen
Corrective Action Taken:	Slowed flow through the anoxic zone, increased wasting, and Micro C feeds.
Known Environmental Impacts:	None.
<b>Month:</b>	<b>May</b>
Violation:	Monthly Avg. Total Nitrogen
Cause:	Mechanical failure
Corrective Action Taken:	Anoxic mixer and DO probe replaced.
Known Environmental Impacts:	None

**Month:**

Violation:

Cause:

Corrective Action Taken:

Known Environmental Impacts:

**June**

Monthly Avg. Total Nitrogen

Digester decant and mechanical failure

Increased Micro C feed during decant and replacement of air manifold.

None.

**Month:**

Violation:

Cause:

Corrective Action Taken:

Known Environmental Impacts:

**July**Monthly Avg. Total Nitrogen, Total Phosphorus.  
Daily Ammonia

High water temperature

We increased DO at influent EQ and reduced digester decant speed. We also began more intensive process control testing.

None.

**Month:**

Violation:

Cause:

Corrective Action Taken:

Known Environmental Impacts:

**August**Monthly Avg. Total Nitrogen, Total Phosphorus.  
Daily Ammonia

High water temperature

Increased DO at influent EQ, reduced digester decant speed, and more intensive process control testing.

None.

**Month:**

Violation:

Cause:

Corrective Action Taken:

Known Environmental Impacts:

**September**

Monthly Avg. Total Phosphorus

Low detention time

Increased wasting and membrane cleaning.

None.

**Month:**

Violation:

Cause:

Corrective Action Taken:

Known Environmental Impacts:

**October**

Monthly Avg. Total Nitrogen

Upset pond recirculation

Increased wasting, Micro C feeds, and recirculation.

None.

**Month:**

Violation:

Cause:

Corrective Action Taken:

Known Environmental Impacts:

**November**

Monthly Avg. Total Nitrogen

Upset pond recirculation, low DO

Increased blower times on EQ and decreased upset pond recirculation to EQ.

None.

## **TREATMENT FACILITY INFORMATION SWANSBORO WASTEWATER TREATMENT FACILITY**

### **Facility Description**

The Swansboro Wastewater Treatment Facility is located at 199 Williams Street, just outside the incorporation limits of the Town of Swansboro. This facility utilizes a conventional activated sludge treatment process and high-rate infiltration basins for effluent disposal, with a permitted capacity of 0.600 MGD. Treatment equipment includes an aerated equalization basin and headworks with automatic bar screen and grit removal system rated at 1.5 MGD; two 300,000-gallon capacity oxidation ditches with aeration rotor assemblies; three secondary clarifiers; two rotating cloth disk filters with automatic backwash; and an ultraviolet light post-treatment disinfection system with a sodium hypochlorite back-up. Treated effluent is sent via an on-site pumping station and force main to one of four high-rate infiltration basins (totaling 15.24 acres) located six miles west of the plant on Parkertown Road. Waste sludge from the treatment process is sent to a 46,900-gallon aerated sludge digester and 315,000-gallon aerated sludge holding tank for further treatment and eventual land application for disposal.

### **General Information**

Permit Number:	WQ0023261
Permit Type:	High-Rate Infiltration System
Facility Type:	Activated Sludge with Extended Air
Operator in Responsible Charge (ORC):	Mark Young
Contact Phone:	(910) 937-7539

### **Performance During 2023**

Permitted Capacity:	0.600 MGD
Average Daily Flow Treated:	0.424 MGD
Percent of Permitted Capacity:	71.0%
Maximum Daily Flow Treated:	0.731 MGD (September 23 <sup>rd</sup> )
Total Gallons Treated:	154,687,220 gallons.
Percent Change from 2022:	+27.3%

### **Comments**

An environmental engineering firm under contract with ONWASA completed work on a capacity evaluation study for this facility. A copy of this document is available for review at the ONWASA Central Office, 228 Georgetown Road, Jacksonville, NC. This study included an assessment of existing conditions at the plant, projections of future population growth and sewer demand in the service area, and the development of alternatives to address that future demand. These included the construction of a replacement treatment facility, expanding the existing plant, and sending all flow to a third party (the French Creek WWTP aboard Marine Corps Base Camp Lejeune) for treatment/disposal. In December 2019, the ONWASA Board of Directors reviewed the alternatives presented. It directed the engineering firm to conduct additional analysis on capital and operating expenses for selected alternatives before making a final recommendation on how to proceed.

**Permit Violations During 2023.**

The following are all violations reported to NCDEQ under the operating permit for this facility:

**Month:**

**March**

Violation:

Daily fecal coliform exceedance.

Cause:

Denitrification in Clarifier

Corrective Action Taken:

Cleaned all downstream equipment and increased disinfection.

Known Environmental Impacts:

None.

**Month:**

**June**

Violation:

Daily and monthly average—fecal coliform exceedances.

Cause:

Increase in temperature, low DO, denitrification in clarifiers.

Corrective Action Taken:

Increased disinfection, cleaned all downstream equipment, and increased rotor speeds to increase DO.

Known Environmental Impacts:

None.

**Month:**

**December**

Violation:

Daily exceedances for BOD, NH<sub>3</sub>, and TSS.

Cause:

Heavy rain event, significant influent surge.

Corrective Action Taken:

Increased DO, detention time, and sampling.

Known Environmental Impacts:

None.

## **TREATMENT FACILITY INFORMATION WEBB CREEK WASTEWATER TREATMENT PLANT**

### **Facility Description**

The Webb Creek Wastewater Treatment Plant is located at 250 Zachary Lane, southwest of the town of Swansboro. This facility utilizes a membrane bioreactor (MBR) treatment system and surface water discharge with a maximum capacity of 0.350 MGD. Treatment equipment includes two (2) rotary drums screens, 39,300-gallon equalization basin, Two (2) 38,350-gallon Pre-Aeration Basins with air diffusers, One (1) 32,800-gallon Post-Anoxic Basin with mixer, Two (2) 20,750-gallon MBR Basins with eight (8) 0.04-micron membrane cassettes, One (1) 38,350-gallon Aerobic Digester with air diffusers, One (1) Effluent Wash Water Wet Well with two (2) 128 GPM submersible Wash Water Pumps, one (1) Effluent Composite Sampler, one (1) Effluent Lift Station Wet Well with two (2) 1,100 GPM submersible Effluent Pumps, One (1) 55-gallon Peracetic Acid Tank with containment and dual 280 GPH metering pump system for effluent disinfection.

### **General Information**

Permit Number:	NC0089877
Permit Type:	Surface Water Discharge
Facility Type / Operation:	Grade 3 MBR with Surface Water Discharge
Operator in Responsible Charge (ORC):	Robert Marston
Contact Phone:	(910) 937-7575

### **Performance During 2023**

Permitted Capacity:	0.350 MGD
Average Daily Flow Treated:	0.229 MGD
Percent of Permitted Capacity:	65%
Maximum Daily Flow Treated:	0.315 MGD (September 1 <sup>st</sup> )
Total Gallons Treated:	76,020,434 gallons.
Percent Change from 2022:	-6.51%

### **Comments**

The Webb Creek WWTP was converted from a Sequencing Batch Reactor (SBR) to the current Membrane Bioreactor (MBR) plant in 2019. The Sequencing Batch Reactor (SBR) was decommissioned when the Membrane Bioreactor (MBR) plant came online.

To maintain compliance with the NPDES permit, samples are pulled from the MBR plant effluent three times a week and the upstream and downstream surface water monitoring system every week. The NPDES permit gives the plant two sets of limits depending on the time of year: the winter months from November 1<sup>st</sup> to March 31<sup>st</sup> and the summer months from April 1<sup>st</sup> to October 31<sup>st</sup>. These parameters include flow, biochemical oxygen demand, total suspended solids, ammonia, nitrogen, Enterococci, dissolved oxygen, phosphorus, pH, and temperature.

In November of 2023, ONWASA took over ownership and operations of the Webb Creek Wastewater Treatment Plant.

**Permit Violations During 2023**

The following is a list of all violations reported to NCDEQ under the operating permit for this facility:

**There were no permit violations for 2023.**

## 2023 COLLECTION SYSTEM SUMMARY

### Facility Description

The ONWASA sanitary sewer collection system consists of four independent regional systems associated with treatment facilities operated by ONWASA and two systems where wastewater is pumped to a third party for treatment and disposal. Existing facilities (mains, manholes, and pumping stations) are of a wide range of materials, ages, and physical conditions since they were originally constructed by various local governments or private developers and later consolidated into ONWASA. The following spreadsheet provides basic information on each regional system, and the number of customers served.

### General Information

Permit Number: WQCS00249  
Permit Type: System-Wide Collection System  
Operator in Responsible Charge (ORC): Justin Sanderson  
Contact Phone: (910) 937-7560

### System Operation and Maintenance

In addition to regular maintenance and cleaning of sewage pumping stations and force main air release valves, 53,992 linear feet of gravity sewer main was cleaned throughout the system.

### Sewer Overflow Events in 2023

The following is a list of the reported sewer overflow events in all regional collection systems during calendar year 2023. Discharges over 1,000 gallons in volume, or those entering surface waters, are reported to the North Carolina Department of Environmental Quality.

**Month/Day:** September 19, 2023

**Regional Collection System Affected:** Swansboro

**Location:** 1304 Hammocks Beach Rd, Swansboro, NC

**Cause:** Power Outage and Pump Station Equipment Failure

**Corrective Action:** Corrected pump station equipment and cleaned area

**Estimated Volume:** 16,500 gallons

**Receiving Stream:** Queens Creek

**Long-Term Environmental Impact:** Unknown

## ONWASA COLLECTION SYSTEM INFORMATION

*(Statistics as of 12/31/2023)*

Area	Grade / Type	Total Piping Length (Feet)	Number of Pumping Stations	Number of Service Connections		Receiving Treatment Facility
				Residential	Commercial	
Holly Ridge	Grade 1 / Domestic	118,860	9	1,702	58	Holly Ridge WWTP (1)
Piney Green	Grade 1 / Domestic	210,258	11	2,346	25	French Creek WWTP (2)
Richlands	Grade 2 / Domestic	321,835	21	1,053	158	Northwest RWRF
Crown Point	Grade 1 / Domestic	0	12	1444	25	Webb Creek WWTP
Springdale	Grade 1 / Domestic	30,896	2	304	6	City of Jacksonville WWTP
Swansboro	Grade 2 / Domestic	262,218	33	2,070	206	Swansboro WWTF
Summerhouse	Grade 1 / Domestic	74,350	5	524	4	Summerhouse WWRF
North Topsail	Grade 1 / Domestic	510,203	101	1180	25	North Topsail WWTP
<b>TOTALS</b>		<b>1,528,620</b>	<b>194</b>	<b>10,623</b>	<b>507</b>	

Notes: (1) A portion of the flow from the Holly Ridge Collection System is sent to the Summerhouse WRF via force main interconnection.  
 (2) This facility is aboard Marine Corps Base Camp LeJeune.