



CITY OF GREENSBORO

Water Resources

2020 Sewage Collection & Water Reclamation Plant Report

The Clean Water Act of 1999 (House Bill 1160) requires all entities that own or operate wastewater collection and treatment systems to make an annual report available to their customers. The purpose of the report is to show how a system operates, how well it performed during the year, what violations occurred, and other important information.

This report is produced in compliance with these requirements and covers the calendar year January - December 2020. It is submitted to the North Carolina Department of Environmental Quality. This report is available to all customers at the Water Resources Customer Service Center at 2602 S. Elm Eugene St. and online at www.greensboro-nc.gov/WastewaterReport.

The names listed are professionals designated by the State as the "Operators in Responsible Charge" (ORC) of the respective systems:

T.Z. Osborne Water Reclamation Facility
Permit Number: NC0047384
ORC: Bradley Flynt, 336-433-7262

Sewage Collection System Permit
Number: WQCS00006
ORC: Robert Martin, 336-373-2033

Contact Information

T.Z. Osborne Water Reclamation Facility
336-373-7740

www.greensboro-nc.gov/water

To report sewer overflows, please
contact 336-373-2033





T.Z. Osborne Water Reclamation Facility

VOLUME

- Maximum designed capacity of 56 million gallons a day
- Treated 13.3 billion gallons of wastewater in 2020

Originally constructed in 1984 with several major upgrades.

System Overview

The long history of water reclamation in Greensboro began with the construction of the original 4 million gallon per day (MGD) South Buffalo Creek Treatment Facility in 1928. Over the next ten years, the North Buffalo Water Reclamation Facility opened to provide secondary treatment for the northern half of Greensboro. By 1984, South Buffalo Creek Treatment Facility closed only to be replaced by T.Z. Osborne Water Reclamation Facility.

Currently, the City of Greensboro Water Resources Department operates one water reclamation plant and a sewage collection system that collects and transports sewage to this plant. The North Buffalo Facility was decommissioned in October 2017. It is now a transfer pump station and all wastewater is currently treated at the T.Z. Osborne facility.

The sewage collection and water reclamation system of the City of Greensboro begins with approximately 106,024 connections that serve homes, commercial establishments, and industries. Every day an average of 36.4 million gallons of sewage is generated in our homes and industries that must be collected, transported, and treated to very stringent standards before it is released back into the environment (in our streams). This service is provided by the City's Water Resources Department and is funded almost entirely from the user charges that are paid monthly by our customers.

The City of Greensboro operates a sewage collection system comprised of 1,446 miles of gravity lines, 33,917 sewer manholes, 50 pump stations, and 76 miles of pressurized sewage force mains. The system is subject to many federal and state rules and regulations designed to enforce the provisions of the Clean Water Act. All spills and overflows, of any volume, that reach surface waters must be reported to the State. The City of Greensboro notifies media any time a spill results in 1,000 gallons or more reaching surface waters.

Wastewater Treatment Plant Performance

The City of Greensboro's wastewater treatment plant operates under a National Pollutant Discharge Elimination System (NPDES) Municipal Wastewater Permit. This highly complex permit includes monitoring requirements and discharge limits. The permit can be viewed at our treatment plant upon request. Compliance with these permits requires our laboratory staff to conduct over 50,000 tests per year. Wastewater treatment plants have no control over some parameters, other than through regulating what industry and households can discharge to the sewers through the Industrial Waste and Pretreatment Program.

During 2020 the Water Resources Department treated over 13.3 billion gallons of wastewater and returned it to our streams. We are proud of the performance of these facilities, which is made possible by the dedicated efforts of the professionals who operate, maintain and conduct tests for the plant. All NPDES permit violations are reported to the State of North Carolina to ensure compliance with reporting regulations. A list of violations that occurred during the 2020 calendar year is at the end of this report (Table 1).

The City of Greensboro's water reclamation facility is a tertiary treatment plant that utilizes activated sludge processes. Solid waste (biosolids) generated in these processes is disposed of by a fluidized bed incinerator.



System Improvements

Water Resources is proud that given the capacity of our treatment plant and the age of our collection system, our permit departures have been minimal. Recognizing the changing climate of environmental concern, total compliance is our commitment to our customers.

In an effort to continue to improve our wastewater collection system and meet the demands of new regulations, various capital improvement projects have been initiated. To prepare for State and Federal nutrient reduction regulations and the Jordan Lake Rules, upgrades at the T.Z. Osborne facility are currently underway to provide a higher level of treatment. This \$115 million four-phase construction project will be completed in spring 2021 in order to comply with the new Total Nitrogen discharge limits effective January 2021.

Protecting the System

Each year, the City of Greensboro evaluates the wastewater collection system and prioritizes needs and resources. The system is monitored and maintained daily with the implementation of both preventative and corrective maintenance measures. In addition, the City of Greensboro continually improves the system using an aggressive program to rehabilitate old infrastructure that exhibit signs of deterioration. Planning and making improvements to our wastewater collection system extends the life and operating efficiency of the City's sewer system.

Summary of Collection

In 2020, there were 44 Sanitary Sewer Overflows (SSOs) in our community which is a slight increase from the 42 spills reported in 2019. SSOs occur when problems in the system cause sewage to emerge from manhole covers, service cleanouts or plumbing fixtures. The major contributors to sewer overflows include wipes, trash or debris, tree and shrub roots, grease, pump station equipment failure, and pipe failures or breaks. Listed on the following pages are the compliance and violation records for T.Z. Osborne treatment plant that exceeded the permit parameters and the list of SSOs that exceeded 1,000 gallons.

The annual sewage and water reclamation plant report is available at the following City of Greensboro locations: the Melvin Municipal Office Building, the T.Z. Osborne Wastewater Facility, the J. Edward Kitchen Operations Center, and also on the City's website: www.greensboro-nc.gov/WastewaterReport.

Fats, Oils and Grease Program

Grease that comes from cooking oils, gravy, lard or shortening, and butter or margarine may not look harmful as a liquid, but when they cool they get thick and stick to pipes.

Cooking oil, fats, and grease that enter the sanitary system from household drains and poorly maintained grease traps in restaurants, food and meat processing factories, and other food establishments can result in sanitary sewer overflows (SSOs). Sewer overflows and backups can cause health hazards, damage home interiors and threaten the environment.

The City of Greensboro Water Resources Department implements a Fats, Oils, and Grease (FOG) policy designed to educate and enforce proper disposal of FOG within the community. The FOG policy educational and enforcement programs are intended for all customers (Food Service Establishments, Nursing/Group homes, Schools/Cafeterias, Industries, and Residents) that discharge wastewater into the City of Greensboro Sanitary Sewer System with the aim of mitigating or eliminating SSOs that are grease related. The City of Greensboro FOG policy requires all commercial and food service establishments to install and regularly maintain an appropriately sized grease trap or interceptor.

To learn more, please visit www.greensboro-nc.gov/FOG



Tips to Prevent Sanitary Sewer Overflows

- Remember No Wipes in Pipes! Only flush the four Ps: Pee, Poop, Puke & (toilet) Paper. 
- Place cooled oil and grease into trash bins or covered collection containers. Never pour grease down the drain!
- Scrape food scraps from dishes into trash bins.
- Wipe off all fats, oils, grease and food residue from dishes and cookware into trash bins.
- Use a strainer in the sink to collect excess food particles.
- Clean up grease spills with absorbent material and place into trash bins. 

2020 Wastewater Treatment Plant Compliance/Violations

TABLE 1

T.Z. Osborne - NPDES Municipal Wastewater Permit #NC0047384

MONTH	EFFLUENT PARAMETER VIOLATION	TYPE OF VIOLATION
January	Carbonaceous Biochemical Oxygen Demand (CBOD)	Weekly Average
	Flow	Monthly Average
May	Flow	Monthly Average
August	Fecal Coliform	Weekly Average
	Carbonaceous Biochemical Oxygen Demand (CBOD)	Weekly Average
	Carbonaceous Biochemical Oxygen Demand (CBOD)	Monthly Average
September	Residual Chlorine	Daily Maximum
	Fecal Coliform	Weekly Average

2020 Wastewater Treatment Plant & Sewer Compliance/Violations

TABLE 2

Sewage Collection System - Permit #WQCS00006

Sewage Spills from Collection System Exceeding 1,000 Gallons

PERMITTEE: CITY OF GREENSBORO

INCIDENT STARTED	VOLUME REACHING SURFACE WATER	SURFACE WATER NAME	LOCATION	PROBABLE CAUSE
1/17/2020	8,500 gallons	North Buffalo	3918 Baylor St.	Pipe failure
1/21/2020	1,200 gallons	Horsepen Creek	7017 W. Friendly Ave.	Roots
2/6/2020*	234,000 gallons	North Buffalo	1310 Sunset Dr.	Severe weather/heavy rainfall
2/6/2020*	19,500 gallons	North Buffalo	1310 Sunset Dr.	Severe weather/heavy rainfall
2/6/2020*	39,000 gallons	North Buffalo	1109 Sunset Dr.	Severe weather/heavy rainfall
2/6/2020*	39,000 gallons	North Buffalo	1201 Sunset Dr.	Severe weather/heavy rainfall
2/6/2020*	21,000 gallons	South Buffalo	2318 Emerywood Rd.	Severe weather/heavy rainfall
2/6/2020*	240,000 gallons	South Buffalo	2318 Emerywood Rd.	Severe weather/heavy rainfall
2/6/2020*	4,200 gallons	South Buffalo	1518 W. Meadow Rd.	Severe weather/heavy rainfall
2/6/2020*	72,000 gallons	North Buffalo	2200 Sharonbrook Dr.	Severe weather/heavy rainfall
2/6/2020*	6,000 gallons	North Buffalo	2701 St. Regis Rd.	Severe weather/heavy rainfall
3/11/2020	10,500 gallons	South Buffalo	6103 Landmark Center Blvd.	Debris in line
4/17/2020	4,000 gallons	South Buffalo	1617 Stanley Rd.	Debris in line
4/17/2020	3,000 gallons	South Buffalo	1619 Stanley Rd.	Debris in line
4/25/2020	3,000 gallons	Horsepen Creek	4032 Battleground Ave.	Debris in line
5/5/2020	1,500 gallons	North Buffalo	US 29 S & Textile Dr.	Pipe failure
5/5/2020	9,000 gallons	North Buffalo	810 Warehouse St.	Debris in line
5/8/2020	3,500 gallons	South Buffalo	1619 Stanley Rd.	Debris in line
5/9/2020	1,500 gallons	South Buffalo	2508 Grimsley St.	Grease
5/10/2020	2,200 gallons	South Buffalo	1619 Stanley Rd.	Debris in line
5/19/2020	2,200 gallons	South Buffalo	1619 Stanley Rd.	Debris in line
5/21/2020*	12,000 gallons	North Buffalo	1109 Sunset Dr.	Severe weather/heavy rainfall
6/29/2020	2,700 gallons	South Buffalo	1618 Maplewood Ln.	Pipe failure
10/30/2020	2,000 gallons	Lake Jeanette	2518 Glen Meadow Dr.	Debris in line
11/12/2020*	24,000 gallons	North Buffalo	1600 Westend Pl.	Severe weather/heavy rainfall
11/12/2020*	13,500 gallons	North Buffalo	1402 Briarcliff Rd.	Severe weather/heavy rainfall
11/12/2020*	27,000 gallons	North Buffalo	1906 Sharonbrook Dr.	Severe weather/heavy rainfall
11/12/2020	3,800,000 gallons	North Buffalo	2199 N. White St.	Power failure
12/21/2020	2,000 gallons	North Buffalo	2105 Spring Garden St.	Pipe failure

*Severe amounts of rain overwhelmed the collection system