

## ENVIRONMENTAL PROGRAMS AND SERVICE INITIATIVE

As part of a commitment to support educational awareness and promote better learning, Shelby offers tours of the wastewater treatment plant to various interest groups. For a tour of the plant, contact the Wastewater Plant Supervisor at 704-484-6850.

### FATS, OILS and GREASE PROGRAM

Grease is a leading cause of sewer blockages and overflows in the sewer system and can lead to sewer back-ups into homes. The City urges residents to help our fight against grease:



- Never pour grease down the drain.
- Scrape grease and food scraps into the trash.
- Use sink strainers to prevent food scraps from going down the drain.

The Fats, Oil and Grease (FOG) Program seeks to reduce these occurrences by education to the public on how to prevent grease from entering the sewer system.

Special emphasis has been placed on food service establishments, but we all need to do our part to keep grease out of the sewer system. For more information on our program, contact the Pretreatment Coordinator at 704-484-6850.

#### Copies of this report are available at:

- City Hall at 300 South Washington Street
- Utilities Operations Center at 824 West Grover Street
- First Broad River Wastewater Treatment Plant at 1940 South Lafayette Street.
- On the City's website at [www.cityofshelby.com](http://www.cityofshelby.com).

For more detailed information, contact the Water Resources Director, David Hux at 704-484-6840 or [david.hux@cityofshelby.com](mailto:david.hux@cityofshelby.com).

Brochure Number: WWT1003-000

## INFRASTRUCTURE IMPROVEMENTS

### Sewer Collections System

- **Sewer Replacements**
  - ◆ Arey and Trade St. (504')
  - ◆ Dale, Trade and Morgan St. (529')
  - ◆ Trade, Campbell and Morgan (1,379')
- **Sewer Point Repairs**  
Identified through sewer assessments or by staff
- **Sewer Extension**
  - ◆ James Love School Outfall

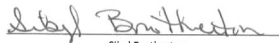
### Ongoing Projects for 2018

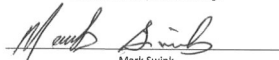
- **Asset Inventory Assessment Grant**—\$150,000 grant to assess the condition of the sanitary sewer system. The Uptown Shelby areas have some of the oldest infrastructure in the City. Assessment will include manhole inspections and video inspection of the sewer lines. With the evaluation, the City will develop a more detailed/ prioritized Capital Improvement Plan for the sanitary sewer system.
- **Westside Sewer Improvements** — Installation of parallel gravity sewer line (estimated 19,000 feet) in West Shelby to increase sewer capacity for the Washburn Switch Area. Work will include lift station upgrades and the installation of a parallel section of sewer force main near College Avenue and River Bend Golf Club. Total estimated cost is \$8.6 million.

### Wastewater Treatment Plant

- **Influent Improvements** — \$6.6 Million project to upgrade Influent and Preliminary Treatment systems of First Broad Wastewater Treatment Plant. Construction is to begin March 2018.
- **Biosolids Handling Improvements** — \$14 Million project to upgrade Biosolids handling facility. Design has been completed. Construction tentatively scheduled for Winter 2018.

I certify under penalty of law that this report is complete and accurate to the best of my knowledge. I further certify that this report has been made available to the users or customers of the named system and that those users have been notified of its availability.

  
Sibyl Brotherton  
First Broad WWTP Supervisor/  
Operator in Responsible Charge

  
Mark Swink  
Field Operations Superintendent/  
Operator in Responsible Charge



# ANNUAL SYSTEM PERFORMANCE REPORT 2017



#### Facility Information:

**First Broad River Wastewater Treatment Plant**  
1940 South Lafayette Street  
Shelby, North Carolina 28152



#### Permits:

**Collection System: WQCS00037**  
**Wastewater Treatment: NC0024538**  
**Compost Facility: WQ0007780**  
**Laboratory Certification: 238**  
**WWTP Stormwater Permit: NCG110040**

**City of Shelby Utilities**  
824 West Grover Street  
Shelby, North Carolina 28151

## SYSTEM OVERVIEW

The City of Shelby wastewater collection and treatment system serves a customer base of 8,276 residential, commercial, and industrial users. During last year the First Broad River Wastewater Treatment Plant (WWTP) collected and treated an average of 3.37 million gallons per day (MGD); included in this flow is wastewater from Kingstown and Fallston.

The sewer collection system consists of gravity sewer lines, lift stations, and force mains that convey wastewater to the First Broad River WWTP. The City owns and maintains 213.7 miles of gravity sewer and force main lines with 19 lift stations. The City of Shelby also maintains five (5) lift stations for Fallston and three (3) for Kingstown.



Aerial View of the First Broad River WWTP

## WHAT IS WASTEWATER?

Wastewater is sewage from your home's sinks, toilets, bathtubs, and washing machines. People also create wastewater at work. Offices, businesses and manufacturers create not only domestic wastewater but also can create wastewater combined with the discharge associated with manufacturing processes or services.

The City of Shelby's collection system and lift stations direct the flow of the wastewater to the First Broad River WWTP for treatment. The First Broad River WWTP is located on South Lafayette Street.

## HOW DO WE TREAT WASTEWATER?

Wastewater treatment plants clean our wastewater and prevent pollution from getting into the environment. When wastewater enters our 6 MGD facility, bar screens catch and remove trash and large objects. Grit chambers then remove heavy particles like gravel, sand, seeds, and coffee grounds. The wastewater then flows through large settling tanks called clarifiers where heavy solids settle to the bottom and are removed. After the primary clarifiers, the liquid portion

flows into the aeration basin where microorganisms break down the pollutants.

The wastewater then flows into final clarifiers where the microorganisms settle out and are returned to the basins. The flow is disinfected before the treated water is returned to the First Broad River.

The solids, which have been removed from the process, are pumped to a holding tank where they are held until they are processed through our Compost Facility, where the solids are combined with bark mulch and treated for 30+ days. After processing, the compost is provided to the public for home use around trees and flowers. The product is also being used as fertilizer for pastures.

## COLLECTION SYSTEM MAINTENANCE

The Field Operations Division maintains collection system pipes and lines in order to prevent sanitary sewer overflows (SSOs) and keep wastewater flowing through the collection system to the treatment plant for treatment. During this report year, 32.95 miles of sewer lines (15.9%) were cleaned by rodding/jetting/bucket cleaning, 7.21 miles of sewer lines were videoed to inspect sewer lines for problems, and the City acoustic tested 1 mile for blockages. During the year, Field Operations also conducted inspections of 148 exposed aerial crossings and also performed maintenance of sewer right-of-ways. Field Operations is responsible for installation of sewer connections and also perform repairs to problematic connections, lines and manholes. Smoke testing is also performed to determine sources of inflow and infiltration.

Plant Maintenance conducts inspections of all lift stations and performs both preventative and corrective maintenance on the stations and the force mains. The City's lift stations are equipped with alarm systems and are served with back-up generation (either permanent or portable capabilities).

**Dumping waste into the City's manholes without permission is illegal. Residents can report suspicious activity, sewer overflows and other sewer issues any time by dialing (704) 484-6866.**

## COMPLIANCE SUMMARY

The City of Shelby's First Broad WWTP has permit limits and monitoring requirements regulated by the North Carolina Department of Environmental Quality (NCDEQ). During the year thousands of samples are collected and analyzed to document compliance and to monitor plant operations.

## WASTEWATER TREATMENT PLANT COMPLIANCE

No violations during 2017

NCDEQ requires all wastewater collection and treatment systems to annually report to its customers all sanitary sewer overflows, violations of state-issued permit limits and reporting requirements. The following overflows and violations occurred from January 2017 through December 2017.

## SANITARY SEWER OVERFLOWS

### Spills Greater Than 1,000 Gallons Reaching Surface Water

Date	Address	Gallons	Cause
6/25/17	412 Whisnant St	1,800	RG

**D**—Debris \*\* **DG**—Debris and Grease \*\* **DR**—Debris and Roots \*\* **E**—Equipment \*\* **G**—Grease \*\* **HR**—Heavy Rain \*\* **PG**—Paper and Grease \*\* **PF**—Pipe Failure \*\* **R**—Roots \*\* **RG**—Roots and Grease \*\* **SW**—Severe Weather

### Monthly Spill Totals As Reported to NCDEQ

Jan	0	May	0	Sep	0
Feb	0	Jun	1,800	Oct	0
Mar	10	Jul	20	Nov	0
Apr	0	Aug	0	Dec	0

All overflows and violations have been corrected and reported to the State of NC. No environmental impacts or fish kills occurred with these events.