

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 Superintendent 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 backups 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.



**HELP US
PREVENT
SEWER
OVERFLOWS!**

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.

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

Brochure Number: WWT1003-000

INFRASTRUCTURE IMPROVEMENTS

Sewer Collections System

- **Sewer Outfall Projects** — A \$3.3 Million construction project completed in June 2015. This project included replacement of 10,690' of sewer line.
Completed Outfalls: Carolina St. to Marion St., Graham St. to Gidney St., Highway 74 to Mitchell St., Linton Barnette, and First Broad WWTP
- **Sewer Replacements**
 - ◆ KFC - Grover St. (181')
 - ◆ Arey & S Dale Sts (195')
 - ◆ Edgewood Rd. ROW (165')
 - ◆ Frederick St. to Jefferson St. at Bolt Dr. (647')
 - ◆ Hendrick Outfall (2,800')
 - ◆ N Lafayette St. & Grover St. (840')
- **Various Point Repairs** — Grover St.
- **Manhole Repairs** — Frederick St., Jefferson St., Hendrick Outfall, W Elm St., Crescent Dr., Hawthorne St.

Wastewater Treatment Plant

- **Plant Upgrade** — In July of 2014, construction began on a \$10 million wastewater treatment plant upgrade project designed to allow the City to meet more stringent limits imposed by the State of NC. Construction is be completed by March 2016.
- **Compost Upgrades** — Currently evaluating options for solids handling improvements at the First Broad River Wastewater Treatment Plant.

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.

Brad Greene
First Broad WWTP Supervisor/
Operator in Responsible Charge

JD Kimble
Field Operations Supervisor/
Operator in Responsible Charge



ANNUAL SYSTEM PERFORMANCE REPORT 2015



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
ISO 14001 Certified

SYSTEM OVERVIEW

The City of Shelby wastewater collection and treatment system serves a customer base of 8,094 residential, commercial, and industrial users. During last year the First Broad River Wastewater Treatment Plant (WWTP) collected and treated an average of 3.36 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 211 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, 26.3 miles of sewer lines (12.7%) were cleaned by rodding/jetting/bucket cleaning, 0.54 miles of sewer lines were videoed to inspect sewer lines for problems, and the City acoustic tested 4.4 miles for blockages. During the year, Field Operations also conducted inspections of 154 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 Environment and Natural Resources (NCDENR). During the year thousands of samples are collected and analyzed to document compliance and to monitor plant operations.

Wastewater Treatment Plant Compliance

Date		Result	Limit
*9/21/2015	PH	5.7 s.u.	6.0 s.u.
*11/9/2015 (week of)	Fecal Coliform (geometric mean)	1400 col./100 mL	400 col./100 mL

**In conjunction with construction project at the First Broad WWTP.*

NCDENR 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 2015 through December 2015.

Sanitary Sewer Overflows Spills greater than 1,000 gallons

Date	Address	Gallons	Cause
4/19/15	312 Windsor Dr	24,000	HR
4/19/15	320 Windsor Dr	14,025	HR
4/19/15	1138 E Marion St	22,500	HR
4/19/15	1940 S Lafayette St	120,000	HR
4/20/15	702 Phillips St	20,250	HR
12/29/15	3028 Charles Rd	20,250	HR
12/30/15	3028 Charles Rd	81,000	HR
12/30/15	1601 Lackey St	50,700	HR
12/30/15	312 Windsor Dr	18,000	HR
12/30/15	1735 Linton Barnett Sr Dr	195,750	HR
12/30/15	1120 Ladell Ln	6,000	HR

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

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