



DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
**BIANNUAL REPORT OCTOBER 2015**  
**COMBINED SEWER OVERFLOW (CSO)  
CONTROL ACTIVITIES**

# CLEAN RIVERS PROJECT NEWS



*The team poses with Lady Bird's cutterhead*

## Lady Bird Emerges!

It took just two years for Lady Bird to complete her journey from the Blue Plains Advanced Wastewater Treatment Plant to the DC Water Main Pumping Station. Lady Bird created a four-and-a-half-mile-long tunnel that will be used to help improve the water quality in the Anacostia River and she did it on time and under budget.

Lady Bird, the first tunnel boring machine (TBM) on the DC Clean Rivers Project, was designed and built in Schwana, Germany specifically for the work she would do on the Blue Plains Tunnel project. After being lowered into a 100-foot deep shaft, she began her dig on July 29, 2013. Her mission was to carve out the first section of the approximately 13-mile tunnel system that is being constructed for the DC Clean Rivers Project.

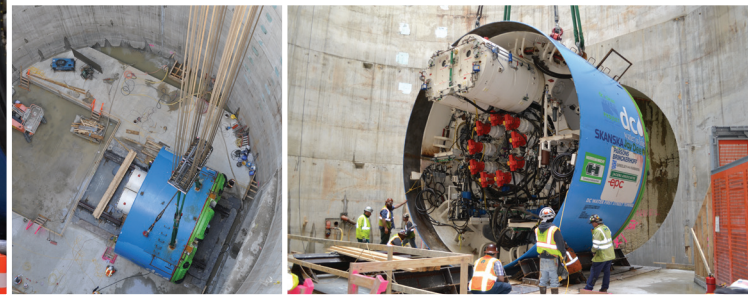
Under the watchful eye of her team of engineers and expert tradesmen, Lady Bird made her way north along the Potomac River, running parallel to Interstate 295, crossed under the Anacostia River at Poplar Point and ended at the Main Pumping Station near Nationals Stadium. As she traveled, she dug a 23-foot diameter tunnel that

will store and convey a mixture of sewage and stormwater during rainstorms to the Blue Plains Advanced Wastewater Treatment Plant to reduce combined sewer overflows (CSOs) to the Anacostia River.

Over the course of her journey, Lady Bird tunneled through the drop shaft at Joint Base Anacostia-Bolling, where her team made some minor repairs before sending her to the next leg of her trip. She then made her way to the Poplar Point junction shaft, for a bit of R&R and general maintenance. With just about a mile to go from Poplar Point, Lady Bird pushed forward, at one point traveling 150 feet in one day (far exceeding her expected 70-80 ft. average per day) and more than 600 feet in a week.

"This is a terrific milestone for DC Water's Clean Rivers Project," said DC Water CEO and General Manager George S. Hawkins. "We are fortunate that the tunneling went so smoothly, finishing on time and on budget, and I applaud our DC Water staff as well as Traylor Skanska Jay Dee and everyone else who took part in this successful dig." Her work on the DC Clean Rivers Project is now done. She





Lucy at her naming ceremony and being lowered into the shaft at the McMillan Main Mining Site

## Lucy in the Ground and Mining

On April 14, 2015, DC Water's third tunnel boring machine (TBM) was formally christened Lucy in honor of local legend Lucy Diggs Slowe. She is tasked with mining a 2,700 foot tunnel as part of DC Water's Clean Rivers Project First Street Tunnel (FST) Project.

The FST Project includes the construction of the main mining shaft at the McMillan Sand Filtration facilities, a small ventilation control structure, four shafts that range from 20 to 65 feet in diameter, four diversion chambers that will be built 30 to 45 feet below the ground surface, three connections ranging from 7 to 16 feet in diameter and from 60 to 375 feet in length, and a pumping station with a capacity to pump six million gallons per day (6 MGD).

Lucy will dig the tunnel 70 to 100 feet below ground, while

construction of the support structures will take place at construction staging areas that have been fenced in to ensure public safety.

For added safety and to ease the burden of construction for the impacted residents, several mitigation efforts have been put in place. These efforts include: the establishment of a 24 hour hotline, a shuttle bus service and three alternative parking areas for those who are impacted. Construction of the FST and its support structures is scheduled to be completed in Spring 2016.

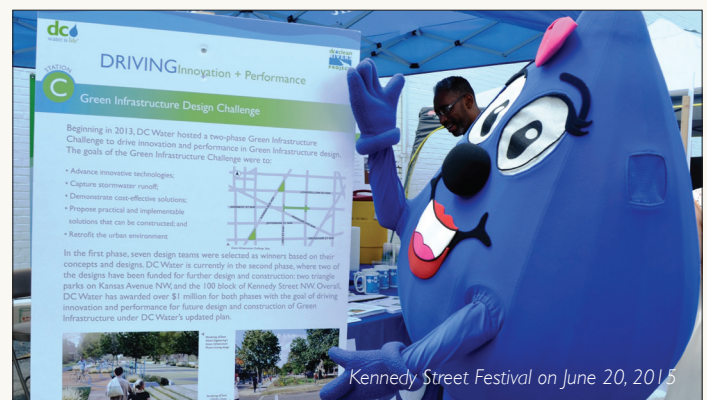
District residents voted on the name for this TBM. Lucy Diggs Slowe was a prominent local African American woman who—among a long list of accomplishments—was the first Dean of Women at Howard University. Lucy the TBM has quite a legacy to live up to.

## Green Projects from the GI Challenge Move Forward

DC Water's Green Design Challenge produced innovative ideas to green DC and manage stormwater runoff before it enters the combined sewer system. DC Water is awarding over \$1 million for design and construction to bring the winning designs to fruition.

The **Kennedy Street Green Infrastructure Streetscape Project** is being designed for the 100 block of Kennedy Street, NW. This project includes bioretention planters and curb extensions, permeable parking lanes and public art, among other GI features and will be constructed in coordination with the District Department of the Transportation's (DDOT's) streetscape improvement work anticipated during Spring/Summer 2016.

The **Kansas Avenue Green Infrastructure Parks Project** includes two triangle parks located at Kansas Avenue and 2nd Street, NW and Kansas Avenue and 3rd Street, NW. This project consists of bioretention (or rain gardens), and a permeable paver plaza, among other features that will make these two parks the jewels of their neighborhood!



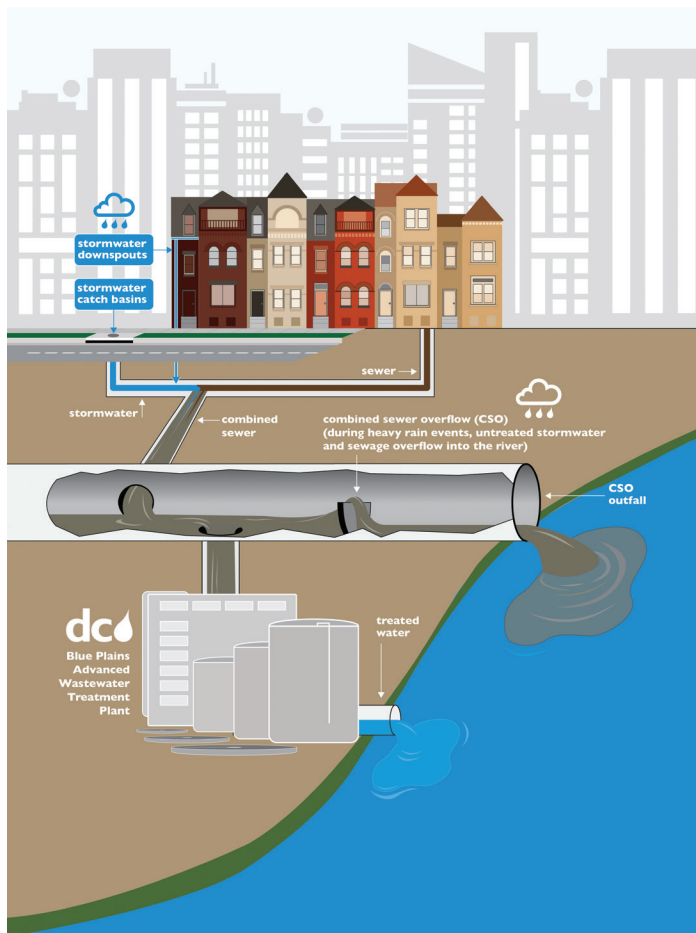
As part of DC Water's commitment to partner with other agencies, stakeholders and community members, DC Water conducted two public meetings, presented during ANC meetings, and participated at community events to share the designs with the community and solicit feedback. There was great engagement from community members.

To learn more about DC Water's Green Challenge visit: [dcwater.com/greenchallenge](http://dcwater.com/greenchallenge).

## FAQs About the Combined Sewer System

### What is a Combined Sewer?

A combined sewer is a single pipe that carries both sanitary wastewater and stormwater runoff. Many older cities in the United States are served by combined sewers. In the District, the combined sewer system was designed and built by the U.S. Army Corps of Engineers. Modern practice is to build two pipes in the street—one for stormwater runoff, and one for wastewater from homes and businesses.



### What is a CSO and why does it occur?

A CSO is a combined sewer overflow. During dry weather, sewage from homes and businesses is conveyed to the District's wastewater treatment plant at Blue Plains, where the wastewater is treated to remove pollutants before being discharged to the Potomac River. During certain rainfall conditions, the capacity of a combined sewer may be exceeded. When this occurs, the excess flow, a dilute mixture of wastewater and stormwater runoff, is discharged to the Anacostia River, Potomac River, Rock Creek and tributary waters. The Federal Clean Water Act allows CSOs, but the Environmental Protection Agency (EPA) requires communities to develop a plan to address overflows. There are 53 CSO outfalls listed in DC Water's existing discharge permit from the EPA.

### When do CSOs occur?

CSOs occur during wet weather and are more frequent in wet years than dry years. During years with average rainfall, DC Water estimates that combined sewers overflow into the Anacostia and Potomac rivers about 75 times annually, spilling nearly 1.5 billion gallons into the Anacostia and 850 million gallons into the Potomac. Rock Creek averages 30 CSO events and 52 million gallons of overflow a year.

### Where are CSO Outfalls?

There are 10 CSO outfall locations on the Potomac River, 15 on the Anacostia River and 28 along Rock Creek and its tributaries. DC Water has posted signs for each outfall location.

### What are the possible public health impacts of CSOs?

CSOs may pose a danger to the public because of the rapid flow of water exiting the outfalls and the potentially harmful substances it may contain. The public is advised to stay away from any sewer pipe discharge. CSOs could affect the receiving waters for up to 24 hours during small rainstorms and for up to three days when it rains one inch or more.

### What are the environmental impacts of CSOs?

CSOs can adversely affect the quality of rivers and streams by contributing to high bacterial levels and low dissolved oxygen levels, which are harmful to fish and other aquatic life.

### What is a Dry Weather Overflow (DWO)?

In dry weather, sanitary wastewater normally flows to the Blue Plains Advanced Wastewater Treatment Plant through pipes with regulators. During wet weather, regulators are designed to let the excess flow discharge directly to a river or creek. If regulators become blocked by debris or trash, wastewater can also overflow during dry weather. This is called a dry weather overflow (DWO). DC Water has an intensive maintenance and inspection program to prevent DWOs from occurring. If you see a CSO outfall discharging during dry weather, call DC Water at (202) 612-3400.

### Where can you get more information?

You can learn more by visiting DC Water's website at [dcwater.com/cleanrivers](http://dcwater.com/cleanrivers). You may also contact DC Water's Office of External Affairs at (202) 787-2200.

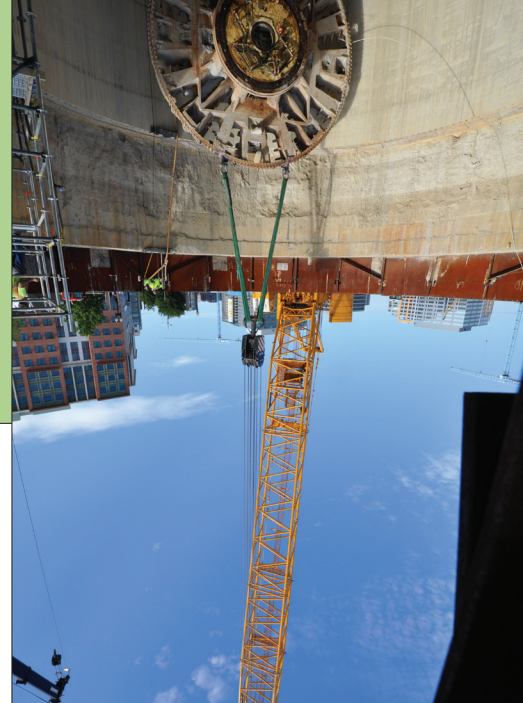
The complete text of the Long Term Control Plan for Combined Sewer Overflows can also be found at the following public libraries: Capitol View, Mount Pleasant, Northeast, Woodridge, Southeast, Shepherd Park, Tenley-Friendship and Washington Highlands.



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### Division I on the Move

The Main Pumping Station Diversions Project (Division I) has made significant progress since work began eight months ago. The project remains on schedule for a 2017 completion. The first step was to re-align N Street, SE, and relocate underground utilities. This work is still underway.

The purpose of the project's new underground sewer structures will divert combined sewer overflow into the new tunnel dug by Lady Bird to keep from overflowing into the Anacostia River. This flow will be stored in the Blue Plains Tunnel during rainstorms, to be released and treated at the Blue Plains Wastewater Treatment Plant, providing significant improvement in the quality of the District's waterways. The rendering illustrates the work to be done at Main Pumping Station in Southeast.

Front view of Main Pumping Station



Shaft Structure

8-ft black fence (Future)

Tide Gate Structure

Tide Gate Structure and Shaft Structure



Note: Building on The Yards 'Parcel L' (multi-story building on the left of both illustrations) is shown for illustration purposes only.

continued from page 1 **Lady Bird**

was ceremoniously raised to the surface in July to be de-commissioned. She is owned by the contractor who performed the work, and is capable of going on to bore another tunnel somewhere in the world.

Additional projects are currently under construction to build facilities to divert sewage and stormwater runoff to the tunnel that Lady Bird built, which will come on-line in the spring of 2018.

DC Water's Clean Rivers Project will incorporate two methods to keep combined sewage and stormwater from overflowing into waterways, during heavy rains in the parts of the city with a combined sewer system. The first is to build underground tunnels that will hold combined sewage and stormwater until rain subsides, then convey it for treatment at Blue Plains. The second is to create green infrastructure to capture and infiltrate rain on-site before it can reach the combined sewer system.



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