



Department of
Design and
Construction

OFFICE OF
COMMUNITY OUTREACH
AND NOTIFICATION

Sewers

Installing our
city's underground
sewer systems



OUR SEWER SYSTEM

In New York City, when water flows down a sink or is flushed down a toilet, it enters a vast sewer system. This crucial network consists of over 7,000 miles of underground pipes that the City government maintains to protect public health and safety. The NYC Department of Design and Construction (DDC) is at work in every neighborhood to improve, install, and repair the city's sewer system.

Some of the pipes in use today are over a hundred years old. DDC installs new sewers to replace these older sewers. We upgrade the sewer system to increase local capacity when an area grows or usage is expected to increase. We also install storm sewers that can handle more stormwater to reduce flooding on city streets.

Installing Sewers

ENGINEERS MAY CHECK existing sewers for cracks, leaks, and breaks by sending remote-controlled cameras down into sewers to visually inspect them. They also review older records and survey the area to help determine where to place new sewers. Workers identify and locate existing infrastructure and any utility lines that may be within the road.



SEWERS THAT DDC INSTALLS can be as small as 10 inches across and as large as fifteen feet wide by nine feet tall. Small pipes are made of vitrified clay, a clay mixture that has been treated at a high temperature for durability. Larger sewers are reinforced concrete. At low-lying areas, pump stations may provide the pressure needed for sewage and stormwater to flow through pipes. Those sewers are made of ductile iron, which is strong and long-lasting.

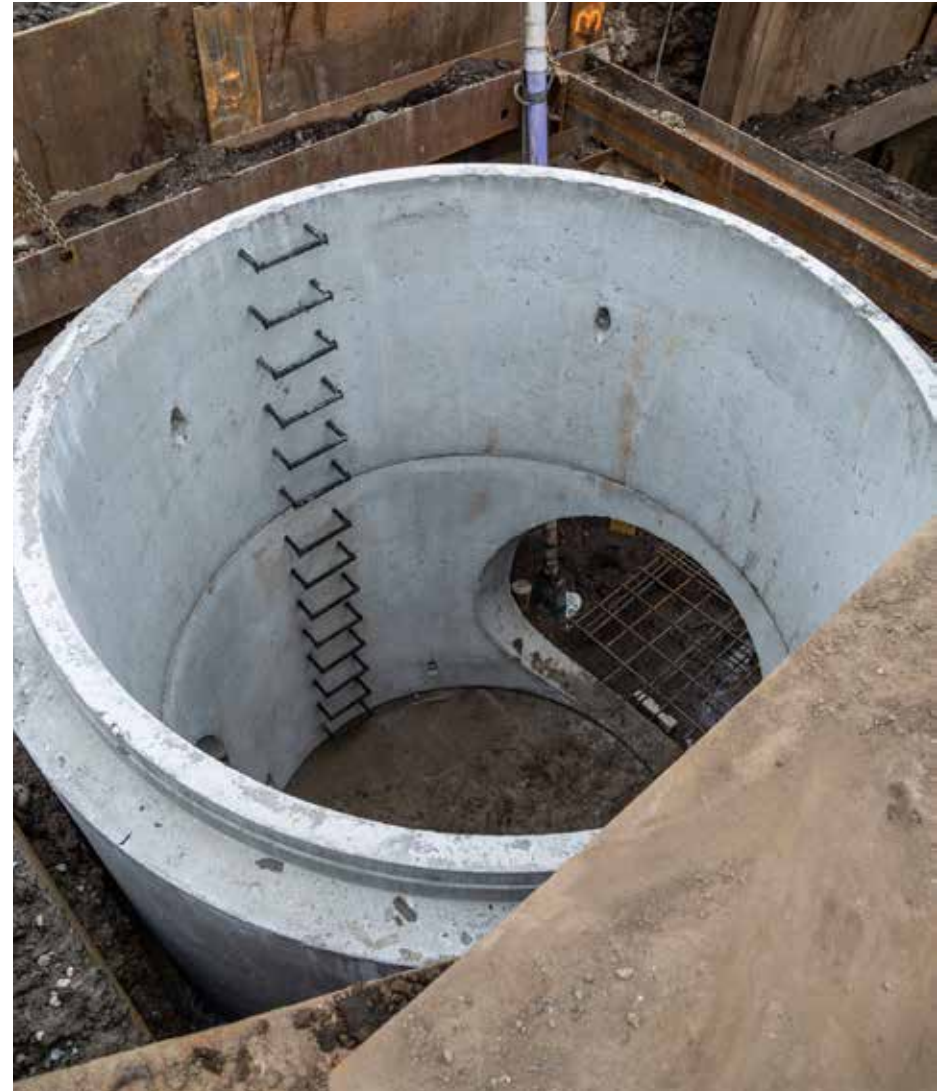
*Left: Reviewing documents on site, Queens
Below: Clay pipes before installation, Queens*



THE MOST COMMON WAY to replace or install a sewer is to dig into the roadway. Workers cut directly into the road and then dig large trenches where the new sewer will be installed. Most sewers are installed between 10 to 25 feet under the ground. Steel structures hold up the sides of the trenches and protect workers inside trenches during construction.



SOME SEWERS CAN be more than 50 feet below the ground. Additional support may be needed to support the weight of sewers in poor soil conditions. Workers may drive supporting structures called piles into the sewer trench. Piles prevent the sewers from sinking deeper into the ground after installation.



Left: Working beneath the roadway, Queens
Below: Installing an underground chamber, Queens

OLDER SEWERS are removed. New pipes are machine lifted and carefully placed into the ground. When installing sewer pipes, manholes are installed at regular intervals to allow access for later repairs and maintenance. Large chambers, underground structures that can hold large amounts of sewage and stormwater, may be installed at corners where sewers meet.

*Below: Older pipes, Manhattan
Right: Restoring the road, Queens*



SEWERS PIPES ARE covered with sand and the trenches are filled with clean soil. The road will be properly restored to ensure vehicles can drive safely. Newly installed sewers will last for many decades, helping protect the health of our city.



NEW YORK CITY'S sewer system includes both combined sewers and storm sewers. A combined sewer carries both stormwater and sewage, usually to a wastewater treatment plant. A storm sewer carries only stormwater runoff and the flow is directed into local waterways. Most sewers in New York City rely on gravity to carry sewage and stormwater through pipes.

Catch basins are an important part of our sewer system. New York City has about 135,000 catch basins. These drains collect stormwater from streets and sidewalks. Instead of pooling on the streets, stormwater flows down the drain and enters the sewer system. DDC installs catch basins around the city to reduce flooding and improve the quality of life.



FOR SEWERS OVER 30 feet underground, new pipes are usually installed with a trenchless technique called microtunneling. Instead of digging a trench, workers excavate two shafts and place a microtunnel boring machine into one of the shafts. The machine drills across the project area until it reaches the second shaft, sometimes over 100 feet away. As the machine drills, sewer pipe is placed behind the machine until the entire tunnel is lined with new pipe.

*Left: A catch basin, Queens
Below: Microtunneling, Queens*



The NYC Department of Design and Construction installs, replaces, and repairs sewers in partnership with the NYC Department of Environmental Protection (DEP). DEP oversees a citywide effort to better manage stormwater for residents to improve the health of local waterways and prevent flooding. DEP also manages 14 wastewater treatment plants. These facilities treat 1.3 billion gallons of wastewater each day.

To learn more about the NYC Department of Environmental Protection, visit nyc.gov/dep

For more information about the NYC Department of Design and Construction, visit nyc.gov/ddc



Box sewer
installation,
Queens