

# Corps Keeps Public Water Clean Naturally

[cenews.com/article/10358/corps-keeps-public-water-clean-naturally](https://www.cenews.com/article/10358/corps-keeps-public-water-clean-naturally)

Watershed protection projects allow minimal filtration of drinking water supplies.

JoAnne Castagna, Ed.D.



Third Brook was highly susceptible to failure after a major flood.

*Photo: Delaware County Soil and Water Conservation District*

**News stories about** lead-contaminated water flowing out of faucets in Flint, Mich., and the troubles the city is having as a result raise concerns about other cities' drinking water supplies. Among water quality efforts nationwide, the U.S. Army Corps of Engineers has an inter-agency program that helps keep New York City's drinking water clean and safe. Recently, one of the program's projects was completed successfully in the Town of Walton, N.Y., to protect drinking water and also sustain this rural community.

The program — the New York City Watershed Environmental Assistance Program — assists in creation of projects that protect the water quality of New York State's watersheds that provide drinking water to millions of New York City residents and businesses.

"New York City prides itself on its minimal filtration of its drinking water," said Rifat Salim, project manager, U.S. Army Corps of Engineers. "In 1996, all of the municipalities in the New York City watershed region came to an agreement. They wanted to avoid the creation of a huge filtration plant. Instead of a plant, they agreed to have small projects throughout the region to provide the public with clean water with minimal filtration. This is how our program came about."

The New York City watershed region encompasses approximately 2,000 square miles and includes three watershed systems — Catskill, Delaware, and Croton — all located north of New York City in the counties of Greene, Schoharie, Ulster, Sullivan, Westchester, Putnam, Dutchess, and Delaware.

The Town of Walton is in Delaware County. A while back, a major flood devastated the rural town and damaged many homes and businesses, resulting in approximately \$30 million in losses. Trees along streams were uprooted and fell into the streams, were carried down the waterways, and clogged several bridges. The fast-moving water had nowhere to flow but out onto the streets, flooding businesses and homes.

When stream banks start failing, all of the materials that used to be on the bank become potential contaminants to the water that eventually becomes New York City's drinking water. This flood didn't cause water contamination, but such events could.

"These slope failures can do a lot of damage to the water," Salim said. "When the slopes or embankments get eroded, a lot of sediment and soil enters the stream. These sediments cause turbidity in the water. It then flows into the reservoir and eventually adversely effects New York City drinking water."

One of the streams that was severely eroded during this flood was the Third Brook. Third Brook flows into the West Branch Delaware River, which in turn flows into the Cannonsville Reservoir. This reservoir provides 97 billion gallons of water to New York City's drinking water supply.



Third Brook today is stabilized and vegetated.

*Photo: JoAnne Castagna, Public Affairs, U.S. Army Corps of Engineers*

To keep this water safe, steps were taken to stabilize Third Brook. The agencies that worked together included the Army Corps' New York District, the New York State Department of Environmental Conservation, Delaware County Soil and Watershed Conservation District, the New York City Department of Environmental Protection, Village of Walton, and the Town of Walton.

According to Graydon Dutcher, project manager and administrator of the Delaware County Soil and Water Conservation District, they stabilized the toe of the failing stream banks with stacked rock walls or rock rip rap and provided protection to the streambed with the placement of in-stream structures such as boulder riffles.

"We had to use large rock to stabilize the toe of the banks and the stream bed itself because the stream has no floodplains," Dutcher said. "All of the floods, large and small, are contained within the limited channel. This produces very rapid stream flow. Wherever it was possible, we buried the rocks and planted around them with native vegetation. This combination creates a more diverse and flood resilient stream corridor. We also hydro-seeded all of the bare slopes and planted willow stakes and native trees along the floodplain, which provides for habitat and increases the stream's long-term stability."

Salim added, "This vegetation helps stabilize the slopes. The roots stabilize the soil and they can also absorb contaminants before they reach the stream, providing us cleaner water."

Clean water is beneficial to fish and aquatic life. Sediments that get into the water may be composed of phosphorus and pathogens, or parasites. Algae in the water may feed off these nutrients and deplete the water's oxygen,

adversely affecting water quality.

An added benefit to stabilizing the slopes is that it helps to protect from flooding and returns the stream corridor to more aesthetically pleasing and natural-appearing embankments, some of which are in the backyards of homes.

The project is already showing success. "The landowners have expressed gratitude for completing the project," said Dutcher. "This project has already seen a few high-water events just after installation and the stream's response has been very favorable."

**JoAnne Castagna, Ed.D.**, is a public affairs specialist and writer for the U.S. Army Corps of Engineers, New York District. She can be reached at [joanne.castagna@usace.army.mil](mailto:joanne.castagna@usace.army.mil).