

Upgrades From Cesspools to Advanced Systems Begin on Long Island, New York

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On the eastern end of New York's Long Island, Suffolk County is home to wealthy communities such as the Hamptons. It's also home to a large number of cesspools, which are blamed for a number of water-quality problems along the county's shoreline.



The finished system awaits new grass to grow in.

To address the problem, local officials have begun a campaign to replace cesspools as the only predominant means of wastewater treatment. In August 2017, the town of East Hampton became the first in the county to require low-nitrogen wastewater systems in all new construction and projects involving substantial renovation. The town also approved a rebate system that will give people money to replace older systems with those that reduce nitrogen to 19 mg/L, and these rebates can be paired with a similar rebate program adopted by the county.

Pilot project

John Crandell, who owns A & A Sewer and Drain Maintenance, became involved in the nitrogen-removal effort through a county pilot program. What the county wanted to do was test various systems for their ability to remove nitrogen, Crandell says.

The county picked 19 homeowners to receive free systems donated by manufacturers and free service for five years, also donated by the manufacturers. Crandell worked with Joe Densieski of Wastewater Works, the local distributor for Hydro-Action systems, and Tom Foster of Eco Supply, the local dealer for Hydro-Action.

“So the three of us teamed up and put five Hydro-Action systems in on the island to start this project,” Crandell says. “Suffolk County first approved Hydro-Action in the spring of 2017, only five to six months before we did our installation.”

It was the first advanced system to be approved, and the county will be taking samples for tests, as will Hydro-Action in conjunction with Wastewater Works, to monitor how the system works under Long Island conditions. As Crandell understands the process, units will be monitored for a year, and then another 15 will be installed. Once 20 units are in the ground and meeting the county limit of 19 mg/L of nitrogen, the Hydro-Action units will be out of the provisional stage. The five units are averaging only 12 mg/L, Crandell reports.

Step by step

The site for this installation was a four-bedroom, single-family home in the community of Dix Hills, just about in the middle of Long Island. Water from the community drains mostly toward Long Island Sound. The home chosen for the pilot installation sits on a lot of about a half acre, but the system had to fit between the home and a street. The plan also called for the existing 1,000-gallon concrete septic tank to be pumped out, cleaned and abandoned in place.

“That was required by the health department in the first pilot program. They want to make sure the new technologies work as expected before they authorize people to rip out the old systems,” Crandell says. If something went wrong, the old tanks could be quickly reconnected. But as the pilot project went on, county specialists saw the new technologies were working, so the next set of plans provide for removal of old tanks, he says.

System details

From the wall of the house, wastewater leaves in a 4-inch, Schedule 35 PVC pipe and travels 10 to 12 feet to the first of two Hydro-Action tanks. The first is 300 gallons and is for anaerobic treatment.

Wastewater then flows by gravity into an 836-gallon tank where air is introduced for aerobic digestion of organics. Air comes from a Hiblow USA HP-100 linear air compressor. At the bottom of this tank is a recirculation pump, a Zoeller Pump N264 nonclogging vortex impeller design with a 2-inch discharge.

Water returned to the first tank is introduced at the bottom. This induces a swirling motion in the tank to keep the solids from settling, Crandell says. For the first 30 days, a pump ran in

the anaerobic tank, too. That was a Barnes SP33 (Crane Pumps & Systems) submersible effluent pump capable of handling 1/2-inch solids. Its only purpose was to produce an initial mix of the solids, and it won't be turned on again unless the system must be pumped down and restarted, he says.

Only 10 percent of the water is drawn out of the second tank for dispersal. That flows through a 4-inch, Schedule 35 PVC pipe into a cesspool about 12 feet from the tanks.

For these pilot projects, the cesspools are being reused, Crandell says. But, of course, the effluent flowing in now is cleaner.

The system is controlled by a custom control panel from Septic Products.

The only piece of equipment Crandell needed was a John Deere 60D mini-excavator. It did the digging and had enough power to set the tanks in the hole, he says.

All the tanks were fitted with risers and lids from Polylok Inc. / Zabel.

No power, no problem

Because the wastewater flows through the unit by gravity, there is an advantage, Crandell says. If the power fails, the system will continue working as a gravity-fed conventional septic system. It won't aerate, but it also won't back up into a home in the absence of power. And although the power grid seems to have improved lately, there have been frequent, long, and widespread outages on Long Island in the past, he says.

For systems that do not allow gravity flow in the event of a power loss, the county is requiring either an overflow pipe with a separate drainfield or a backup generator.

Because of the water quality problems, business will not be slowing down for Crandell and other installers anytime soon.

"Since the county started on this project and began the second phase of testing with the installation of more systems, I've been getting a lot of calls from people who want the Hydro-Action system," Crandell says.