

Sliplining Saves Sewers in New Jersey

By James W. Rush

During the summer months, tourists flock to the shore towns of Ocean County, N.J., to enjoy the surf and sand. It's the job of the Ocean County Utilities Authority (OCUA) to make sure there are no disruptions to this vital source of revenue.

OCUA has a fleet of TV trucks as part of an on-going program of sewer inspection. OCUA spends about \$3 million annually on sewer renewal, using cured-in-place piping, sliplining and open-cut replacement, according to Knut Nielsen, project engineer for OCUA.

Recently, inspections revealed about 10,000 ft of 36-in. reinforced concrete pipe along Route 9 in Bayville that was suffering from H₂S corrosion. The 25-year-old pipeline had deteriorated to the point where the steel reinforcement was visible. Without some sort of repair, a collapse was a possibility.

OCUA implemented a \$2 million program to repair the line, of which about 2,400 ft was targeted for sliplining. The area to be sliplined was adjacent to Route 9, a busy thoroughfare. Sliplining was an attractive alternative because crews could construct the insertion pits without disrupting

"We've used PE slipliners in the past, but in this case the segmental liner turned out to be more cost-effective because it eliminated the bypass pumping," said Bob DePonte, Metra Industries/Spiniello project manager.

To slipline the damaged section, crews first had to build an insertion pit long enough to accommodate the 15-ft segments. On this project, three insertion pits were constructed

for runs ranging from 300 to 800 ft. The limiting factor was the number of bends because the flow provided buoyancy during insertion.

"If you have good flow and good velocity, you actually have to hold the pipe back," Nielsen said.

Once exposed, crews removed the crown of the pipe so that the slipliner can be lowered into the pipeline. Typically, a backhoe is used to excavate the pit, lower the slipliner into position in the host pipe and then push it into place. The Vylon slipliner is equipped with a locking feature so that each pipe segment snaps together. Bulkheads are also constructed at each end to constrain the pipe. Once the pipe is sliplined, the annulus is filled with a lightweight grout.

Most of the pits were constructed downstream of the manhole, but one segment presented a unique



Metra Industries/Spiniello used Lamson Vylon PVC Slipliner to restore 2,400 ft of 36-in. ID concrete pipe in Ocean County, N.J.



problem. Had the line been underneath the roadway, CIPP would have been a more likely alternative, Nielsen said. In addition, one run of pipe crossed underneath the roadway, so using CIPP would have required bypass pumping across the road.

Metra Industries/Spiniello was awarded the contract. OCUA had previous experience sliplining with fiberglass pipe, but specified PVC to evaluate its performance and cost-effectiveness. Lamson Vylon PVC Slipliner with an ID of 30 in. was used by Metra/Spiniello.

This section contained a 90-degree bend at the manhole, with limited space between the manhole and the road. As a result, the crew constructed the pit on the opposite side of the manhole and drilled through the wall of the manhole to insert the slipliner. Once the liner was in place, the crew repaired the manhole wall.

Metra Industries/Spiniello completed the sliplining portion of the project, including restoration, in less than two weeks, Nielsen said.

James W. Rush is editor of Trenchless Technology.