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A contractor uses hydroexcavation to help repipe a Florida assisted living facility without disturbing its health care mission

By **Scottie Dayton**

Toilets backing up in the 40 private rooms in the east and west wings of Darcy Hall of Life Care, an assisted living facility in West Palm Beach, Fla., kept full-service Rapid-Rooter Plumbing Sewer and Drain Services in Pompano Beach busy – first once, then twice, then three times per month.

When the stoppages became persistent, Martin Shutterly, maintenance manager, budgeted emergency replacement of the east wing's laterals and mainline. Because traditional open-cut would interrupt care, require bypass pumping, and dislodge residents from their rooms, Shutterly again called Rapid-Rooter, an expert in hydroexcavation, tunneling and repiping.

"We had inspected the 50-year-old sewer system when the problems began," says owner Don Rice. "The inverts of the 3- and 4-inch cast-iron mains were badly deteriorated, and the jagged sides snagged fibrous materials and debris flushed down toilets. Even many laterals were blocked."

Coordinating the repair so the facility remained 100 percent functional involved intricate planning with Shutterly. Using a hydroexcavator from Vac-Con Inc., Rapid-Rooter plumbing manager Jon Carpenter and three men completed the work in three weeks, causing barely a ripple in life at Darcy Hall.

Chasing the pipe

Within one week of receiving the go-ahead, Rice and Shutterly solved the logistics and work began. Carpenter set up the equipment on a

pinpointed the positions of the laterals with the NaviTrack locator from RIDGID, marking their locations on the outside of the 245-foot-long building.

Where the sewer main exited the structure, the crew hand-dug a 5-foot-deep starter hole to get below the footer. "Hand digging is a precautionary measure," says Rice. "The starter hole sets up the tunnel entrance and staging of safety equipment." Throughout the project, the men followed OSHA confined-space standards, using gas monitors,

crew chased it upstream 35 feet to the first lateral using the hydroexcavator. Sold by Felix Denman of Southern Sewer Equipment Sales in Ft. Pierce, and manufactured to custom specifications by Vac-Con Inc., the truck has a 12-cubic-yard debris tank and a 1,000-gallon water system rated at 60 gpm/3,000 psi with variable flow. The Dresser Roots positive displacement

"The unloader valve was a critical component to the job. It enabled the jetting technician to switch instantly from low pressure-high flow to high pressure-low flow when he hit pockets of coral in the entry points."

Jon Carpenter

grassy area near the east wing. After they reinspected the pipes using a SRECO-FLEXIBLE Inc. camera, they

recovery equipment, tripods, and ventilation.

After exposing the mainline, the

TOUGH JOB

PROJECT:

Replace sewer pipes in a wing of an assisted living facility

CUSTOMER:

Darcy Hall of Life Care, West Palm Beach, Fla.

CONTRACTOR:

Rapid-Rooter Plumbing Sewer and Drain Services, Pompano Beach, Fla.

EQUIPMENT:

Custom-built hydroexcavator, Vac-Con Inc.

RESULTS:

Pipes replaced without moving or disturbing the residents



Top: Workers shovel clean mason sand into the gunite hopper during the backfilling process. Right: Rapid-Rooter's Vac-Con hydroexcavator was custom built by Southern Sewer Equipment Sales, Ft. Pierce, Fla. (Photos courtesy of Rapid-Rooter Plumbing Sewer & Drain Services)





This badly corroded cast-iron lateral was typical of the sewer pipes under Darcy Hall before rehabilitation.



Workers inserted anchors, then threaded in hangers to support the Schedule 40 PVC replacement pipe.

blower delivers 5,000 cfm/16-inches Hg. An unloader valve on the jetting system lets technicians regulate the flow at the nozzle.

Needlepoint nozzles were used throughout the excavation. Once the men reached the first lateral, they excavated a 20-foot-long access tunnel underneath the building to it. The entry point paralleled the lateral and intersected at a right angle with the mainline. They repeated the process, requiring eight entry points, 35 feet apart, for ease of repairs, safety, and ventilation.

Soils were native sugar sand or coral and coral rock. "The unloader valve was a critical component to the job," says Carpenter. "It enabled the jetting technician to switch instantly from low pressure-high flow to high pressure-low flow when he hit pockets of coral in the entry points."

Once the excavation reached the building, clean backfill replaced the original soil. Progress in sandy areas measured 50 feet per day; the longest distance was 60 feet. The men used a 6-inch flexible hose, vacuuming 11 to 12 cubic yards of dewatered debris per day. Occasionally, they hauled a second load. Decanted water was discharged at the local wastewater treatment plant. It took five 10-hour days to excavate 400 feet, the combined length of the mainline, laterals, and entry points.

Under the slab

Replacing the mainline and laterals up to the toilet flanges and vent stack basins took another week. One worker, lying on his back, used a hammer drill to bore into the building's concrete foundation slab. He inserted an anchor, then threaded in a hanger (steel rod with loop through which the Schedule 40 PVC replacement pipe slipped).

Meanwhile, the other men slid in the pipe, glued the 20-foot sections together, and hung it alongside the old line. "We coordinated each day's

work with Martin," says Rice. "Jon told him which rooms we would work on, and Martin informed the staff. We usually waited until the residents went to lunch, then connected a bunch of bathrooms." Connections took 10 to 15 minutes. As the men advanced, they removed the old hangers and corroded pipe.

Backfilling took another week, but only because of a process pioneered by Rapid-Rooter. "We use a gunite machine made by REED Concrete Pumps and Gunite Machines (Chino, Calif.) and an 800-cfm air compressor," says Rice.

"The guys shovel clean mason sand into the hopper. It's conveyed through a hose and projected at high velocity into the tunnels. The simultaneous placement and compaction meets the required engineered 100-psf compaction rate." Working downstream, the men backfilled about 40 cubic yards per day.

Shutterly was so pleased with the speed and results of the noninvasive work that he hired Rapid-Rooter to repipe the identical west wing, with identical results. ■

M O R E I N F O :

Dresser Roots Blower

877/363-7668
www.rootsblower.com

REED Concrete Pumps and Gunite Machines

909/287-2100
www.reedpumps.com

RIDGID

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www.ridgid.com

SRECO-FLEXIBLE Inc.

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