

Pipe Bursting Rehabs in Marin County Sewers

by Kyle R.P. Brooks

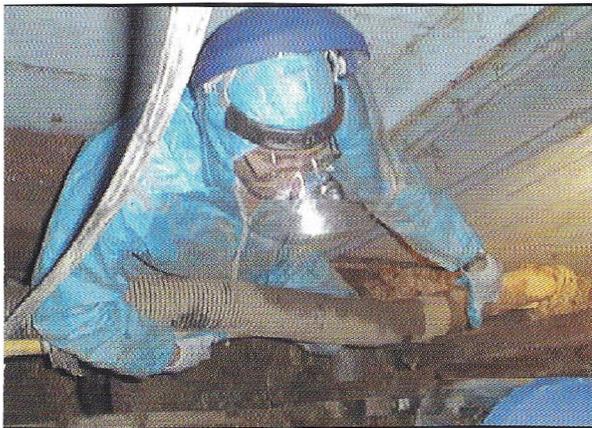
When Sanitary District #5 of Marin County needed to replace 500 ft of 8-in. clay sewer pipe underneath the street and sidewalks of Upper Main St. in Tiburon, Calif., pipe bursting was seen as an effective way to replace the pipe without creating unnecessary disruption to the town and its businesses.

According to Robert Lynch, maintenance supervisor to the sewer district, it was felt that relining the pipe would not work because the pipe was so badly deteriorated. Many pipe joints were completely off-line, and at least one section of pipe was almost completely collapsed.

Certain challenges faced the project right from the start, the main one being the string of businesses that were situated directly above the project. The area, known locally as "Ark Row" contains many fancy shops along a 350 ft. stretch of Main Street. Additionally, Lynch describes Tiburon as a small, wealthy town with homes selling at or around the million-dollar mark. The town and its businesses would not tolerate ripping up the street and sidewalks to replace the pipe.

Unseen Project

This is where TRIC Trenchless, of Oakland, entered the picture. "This is a pretty nice area, and they didn't want all the



Horizontal vacuum excavation is being used in one of three locations to put a lateral tap on the main sewer nearly 10 ft away. This remote process eliminates the need for shoring or a hole large enough for a man.

opened pavement and steel plates all over," said Ward Carter, president of TRIC. "That would have driven a lot of those stores right out of there." TRIC Trenchless offers a line of pipe bursting equipment that combines small size with high pulling power. The model chosen for the Tiburon project weighs well under 200 lbs, but has the pulling power of up to 60 tons.

Roto Rooter Plumbers of Marin County, located in San Rafael, was the contractor for the project. This was the company's first experience in using pipe bursting, but according to company president Don Caligari, it was not the first experience with trenchless methods. "We were one of the first companies in our area using TV inspection and sliplining, and we felt that pipe bursting would be a good addition to what we do," said Caligari.

The pipe bursting equipment from TRIC Trenchless enabled crews to lower the equipment into the manhole with one man, and then pull from manhole to manhole. Much of the work was accomplished from existing manhole space, leaving the majority of the surface along the project path largely untouched.

This does not mean there was no excavation at all. Much of the sewer main was buried up to 12 ft deep. In order to access it for the lateral connections, it was necessary to put about six holes into the street or sidewalk. Also, the area was highly congested with other buried utilities. According to Lynch, crews had to jackhammer through layers of asphalt, then concrete, then dig with a backhoe to about 10 ft, where they would then run into one or two water mains, a gas main, and sometimes more, just above the sewer.

Vacuum excavation eliminated hours of hand-digging around the water and gas lines, and still other laterals were accessed using vacuum excavation through crawl-spaces or basements below the buildings and the sidewalk.

Cost-effective Method

Nevertheless, the alternative was to dig up the whole street to replace the line, a more disruptive, cost-prohibitive proposal.



Ward Carter stands by an entry pit with a pipe fusion machine. The white marks on the pipe indicate the entry and fusion points.

"To open-cut this project would easily have taken two months," said Lynch. "When you figure in digging up the street and sidewalks and taking out all the trees, we had estimated the cost to be around \$400,000 to \$500,000. Pipe bursting came in at only about a third as much, so clearly this was the best way to go."

Roto Rooter and TRIC installed new 8-in SDR 11 polyethylene pipe, pulling it into place behind a 12-in. cutting head and using about 15 tons of pulling power. The pull was staged in 250-ft intervals. "We set up in one manhole, pulled about 250 ft, then picked up the equipment and set up again in another manhole and completed the pull," said Carter.

According to Lynch, from the first jackhammer blow into the pavement to the last lateral tap was about two weeks, adding that the most time-consuming part of the job was just the preparation.

Roto Rooter's Klyse said that he was very impressed with the operation. "It was unbelievable. I didn't think the machine would be able pull through that hard ground at that depth."

According to Ward Carter, the Marin County sewer district has expressed interest in using the technology to replace some 10-in. lines in the near future. For the business people and residents of the area, that can only be a good thing.

Kyle Brooks is an editorial consultant to Trenchless Technology.