



Emergency Action

Flood Causes Sewer Break; City Turns To HDD For Fast Solution

by Jeff Griffin • Senior Editor

*(far left) The drill rig was set up on one side of the river and made a pilot bore under the river bottom to the other side.
(left) AS the pullback is completed, the HDPE pipe surfaces at the pilot hole entry point.*

Completing trenchless installations with horizontal directional drilling (HDD) equipment has become a routine part of many utility construction projects. As an increasing number of project owners and general contractors understand the advantages of using HDD equipment, they do not hesitate to take advantage of this innovative method of underground construction. This often results in unusual and challenging assignments.

When flood waters caused the rupture of a 16-inch sewer main under the Guadalupe River in New Braunfels, TX, as much as two million gallons of raw sewage per day entered the river. Obviously, fast action was needed to stop the flow and prevent a major environmental disaster. But how can that be done when the sewer line break is under a flooding river?

“Directional drilling really was the only solution,” says Mickey Redwine, president of Dynamic Cable Construction Co. Inc. “A bore could be made under the river to install a new section of pipe which could be tied into the sewer system on each side of the river.

“We got a call from the city late on a Friday afternoon,” says Redwine. “At 8 a.m. Saturday, we were in New Braunfels in an emergency meeting with the city council. By noon our equipment was being mobilized.”

No time for bids

There wasn’t time for bidding or extended negotiations. “New Braunfels officials were aware of the directional drilling process,” says Redwine. “We had never worked for the city before, but were recommended as a contractor who was not far away and willing to help.”

The city and Dynamic Cable reached a verbal agreement that morning, and a contract was not signed until after work was under way. “This was an emergency, and everyone understood we had to move quickly,” Redwine says. “Proceeding in this way exhibited a lot of trust by both parties.”

In order to expedite the start of work, the Texas Department of Transportation waived permit requirements and four semi-trailer trucks hauled the drill rig, auxiliary fluid system, an excavator and related equipment the 225 miles to New Braunfels. All personnel and equipment were on site Sunday afternoon.

High waters had receded, but dramatic evidence of the damage remained.

“We set up the drill near a sewer system lift station, between two slabs where houses had been,” says Redwine. “Both had been swept away. A 30-foot sailboat was hanging at a vertical angle from high in a tree. There were clothes, family photos and other personal items strewn over the area. It was very sad.”

The rain had fallen so quickly, fast-rising water had surprised many of those living in the area.

A local man told Redwine “that when he decided it was best to leave, water had not yet entered his house. By the time he got outside to go to higher ground, the water level was up to his chest.”

Redwine says effects of contamination were obvious: “Upriver, the water was clean, but downstream the pollution clouded the water, making it appear a dark, ugly color.”

Quick bore

Even in the wet conditions, the Dynamic Cable crew experienced no difficulty staking down the Contractors Manufacturer Service CMS 180 drill rig capable of 200,000 pounds of pullback force and 38,000 foot pounds of torque. The Tulsa Rig Iron mud system used has a capacity of 500 gallons per minute. Minimum depth was maintained 15 feet below the river bottom; maximum depth was 65 feet from grade.

The 1,800-foot-long pilot bore was made through a variety of difficult soil formations. “Sand, gravel, clay, solid rock . . . just about everything was there,” says Redwine.

A 6 ½ -inch Master downhole mud motor was employed, and Sharewell personnel provided guidance services with a Tensor wireline steering tool. Oil field bits and backreamers were used.

The pilot bore exited on the opposite side of the river and the hole was enlarged to 30 inches in two backreaming passes before 18-inch-diameter HDPE pipe was pulled into place. The city provided support equipment and crews for connecting the new section of pipe.

The pilot bore required two days, backreaming took another day, and pullback was completed in a single day. A week after arriving in New Braunfels, Dynamic Cable crews were back home.

Redwine says that all personnel involved in the project got great satisfaction from being able to help stop what could have been a major environmental catastrophe.

“Raw sewage contamination is serious any time it occurs,” says Redwine. “But the Guadalupe is an important tourist attraction where float trips are very popular. Failure to stop the sewage flow quickly could have caused an economic disaster for the area.”

Dynamic Cable Construction is a turnkey contractor with corporate offices in Ben Wheeler, TX. The company specializes in long-haul and local telecommunications projects, horizontal directional drilling, and does a variety of other types of underground construction throughout the United States.