

Project Features Pipe Bursting with Fusible PVC Pipe System

The massive Interstate 80 project to replace bridges and re-build interchanges and roadway along this major east-west corridor has prompted other utility improvements along the way. One of these—in South Salt Lake, Utah—involved replacement of an aging 18-inch asbestos-cement water transmission line beneath Roberts Avenue. As part of the Utah Department of Transportation’s State Street to 13th East Utility relocation project, the line was one of several water utilities tar-

geted for upgrading due to potential settlement during the road project.

Pipe bursting was selected as the pipe replacement technology by the city and the engineering consultant, Horrocks Engineers (Pleasant Grove, Utah). The reasons were quick installation and the tightness of the site, and because asbestos-cement pipe can be problematic if excavated and removed. Pipe bursting would simply force the pipe fragments into the surrounding soil.

Fusible PVC pipe was chosen for the replacement pipe because of its reduced material costs and installation costs, and its ability to attain the desired pipe internal diameter (ID) and pressure class without pipe upsizing.



It took only four hours for the static bursting machine to burst over 800 linear feet of asbestos-cement pipe and pull in the replacement.

“The difficulty of a pipe burst project relates directly to the increase in size (upsizing) of the new replacement pipe relative to the existing pipe,” said Bo Boettcher, for Underground Solutions Inc., the developer and provider of fusible PVC pipe systems. “Eliminating or reducing the degree of upsizing in pipe bursting reduces the risk that soil displacement from the operation will disturb adjacent underground utilities or cause surface heave.”

These risk mitigation benefits can make a difference in pipe bursting applications where displacement of debris and space limitations on the site are important “go-no-go” factors. That was the case in South Salt Lake.

“This stretch of I-80 runs through an area with a lot of residential population,” said Dennis Pay, the city’s Public Works Director. “Water mains and sewer lines run parallel to the roadway and criss-cross underneath it. The geotechnical engineers with the Utah Department of Transportation determined that pressure from new fill material could jeopardize the Roberts Avenue water line.”

Pay said a number of options were explored to replace the line, including open trenching.

“With open trenching we had concerns that we wouldn’t have enough room to run a new line, and we also wanted to preserve an existing curb and gutter. Trenching would have

CASE STUDY

forced us into a costly replacement,” he said.

The handling and disposal of the old asbestos pipe fragments was another issue, as was time—the city wanted to avoid any service disruptions to its customers.

Underground Solutions’ Fusible C905® pipe was selected because it did not need to be upsized to attain the re-

quired 18-inch ID and 235 psi pressure class. Also, the use of larger diameter HDPE pipe might possibly have disturbed several buried utilities in close proximity to the water line. Finally, PVC pipe could be more easily tapped by city crews using standard off-the-shelf fittings and past crew experience.

Smooth Operation

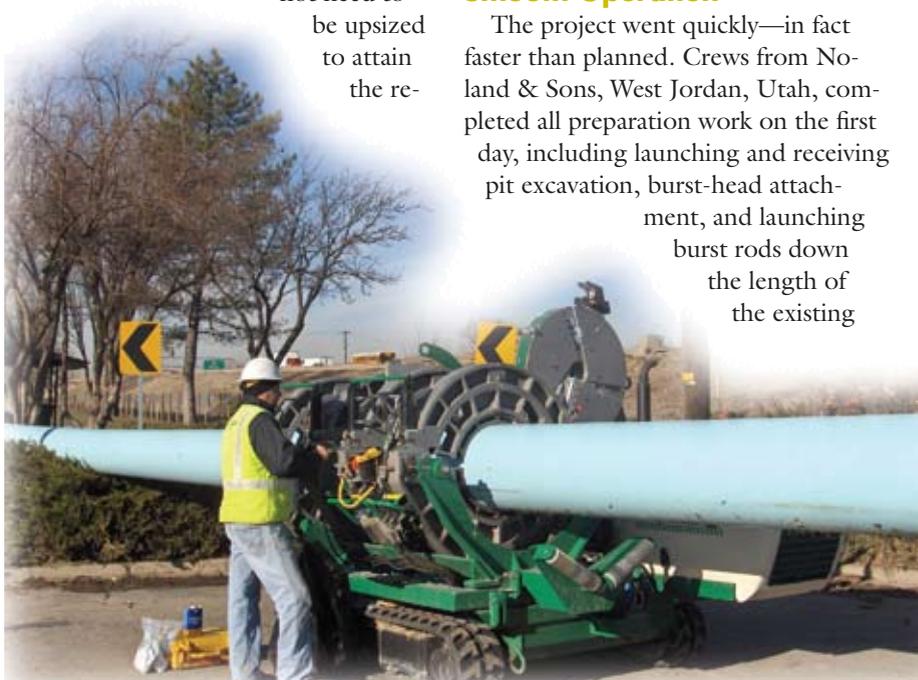
The project went quickly—in fact faster than planned. Crews from Noland & Sons, West Jordan, Utah, completed all preparation work on the first day, including launching and receiving pit excavation, burst-head attachment, and launching burst rods down the length of the existing

pipe. Using a TT Technologies 1250G Grundoburst® static bursting machine, it took only four hours on the second day to burst over 800 linear feet of AC pipe in a single pull and replace it with fusible PVC pipe.

The Grundoburst machine is able to burst many pipe materials including ductile iron and steel. The unit’s bladed cutting wheel system is a very “clean” process that requires less power than other static systems and helps prevent potential damage to the product pipe. An attached expander spreads and displaces the split pipe into the surrounding soil while simultaneously pulling in the new pipe.

“We anticipated a three-day job,” Pay said, “and we were surprised and pleased it only took two days. In fact I went out to see the pull on the third day, but they were all finished. I missed it.”

Fusible PVC pipe products are available in DIPS and IPS sizes up to 36-inch diameter, and are typically extruded in 20-, 30-, and 40-foot lengths, with custom lengths available. They are NSF-61 and NSF-14 certified, meet AWWA C900 and C905, and have passed industry relevant tests by independent testing laboratories. **WW**



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