

Pipe bursting provides viable alternative for rehab work

By Greg Key, U.S. Pipe

As the Environmental Protection Agency tightens groundwater quality regulations, old leaking sewers lines made of pipe clay, AC (Asbestos Cement), RCP (Reinforced Concrete Pipe) and old Cast Iron materials, which have rigid joints and did not seal as well as the modern day bottle tight joints like the TYTON GASKET[®] push on joint, can be a major source of groundwater contamination. The rigid joints do not accommodate ground movement or settlement that occurs over the years and causes the shallow joints to either separate or break from the rigidity. As a result, major metropolitan areas such as Atlanta have begun incorporating pipe bursting as an alternative method for sewer rehab work.

Proactive water resource managers and city mayors, including Atlanta's Mayor Shirley Franklin, have made a commitment not only to help clean up the environment but also to their residents because clean water is beneficial for the municipalities and the entire community.

A recent example of trenchless technology and pipe bursting is highlighted in an April 2007 project for the City of Atlanta - Group 1 Phase 1, Pipe Bursting-Contract B. The contractor was Wade Coats Contracting with the engineering done by North American Pipe Line Management Inc. The goal of the rehab work was to increase the carrying capacity of the aging sewer system. Continued growth and development had begun to burden and overwhelm the sewer system that, at best, was designed with a projected forecast of 20 years of growth. Most systems in the United States were installed in the late 1940s and 1950s. This project consisted of upsizing 8" Ductile Iron pipe with **U.S. Pipe's** 10" TR FLEX[®] PC-350 Ductile Iron pipe.

Ductile Iron pipe can be used to burst pipe materials such as clay, Asbestos Cement, PVC, HDPE, steel, concrete and Ductile Iron. In order for cast iron pipe to be burst with Ductile Iron pipe, the soil resistivity surrounding the cast iron pipe must be equal to or greater than 2000 ohm-cm. If a protective lining is needed for an aggressive sewer application, Protecto 401 is readily available.

In 2001, Portland Utilities installed some of the first Ductile Iron pipe at the Lantern Lane rehab project in Fulton County, Ga. This project aimed to increase the flow capacity by bursting 8" clay pipe and pulling in 12" TR FLEX[®] PC-350 Ductile Iron pipe with Protecto 401 interior lining. Protecto 401 lining is a Novalac ceramic quartz-filled epoxy that protects the pipe from aggressive sewer gas present in some sewer systems. For the critical segments of this project, including the pipe running parallel and across creeks and between houses, Ductile Iron pipe was used for its strength and rugged durability. These segments consisted of three pulls of approximately 200 feet.

In the Atlanta project, plastic pipe was not suitable to be pulled in because it would have been easily damaged by the sharp and jagged edges left from fragmented cast iron pipe that resulted from the bursting process. As a result of these fragments, the city specs called for Ductile Iron pipe to be used. A 150-foot burst was successfully completed using **U.S. Pipe's** Standard 10" TR FLEX[®] PC-350 Ductile Iron pipe with a bury depth of 15 feet. This method allowed the city to save money because they did not have to

replace the unsuitable soil with new back-fill had the project been done in the open-cut method.

Another notable project in Flippen, Ga., in June 2006 consisted of upsizing an 8" Ductile Iron line to a 10" Ductile Iron pipeline. An engineering study revealed that an addition to a new subdivision required the flow capacity to be increased. The existing line was 20 feet deep in compacted clay. Open-cut trenching would have made this a dangerous project and the vast amount of soil from the excavation would have blocked residents from their homes and been costly to transport back and forth while the existing pipe was removed and new pipe lain. The total pull length was 230 feet and each 18-foot pipe took three to four minutes to pull in. The contractor on this job was Southeast Pipe Survey Contracting.

The pipe used for the burst was standard 18-foot long restrained joint TR FLEX[®] pipe. The pipe was installed using the cartridge method and a standard trench box. This method allowed for a compact job site, required very little space for pipe assembly and did not call for traffic control. The joint assembly is quick, usually 20 seconds or less for 4- to 20-inch pipe. In each of these installations the owner saved money on the pipe material by using standard TR FLEX[®] pipe because there was no need for the special bell-less pipe, which does not have flexible joints, requires long lead times, is very expensive and requires other pipe materials that can be damaged during the installation process.

The burst were made using static pulling equipment provided by TT Technology. This equipment is compact and features a unique trouble-free automatic actuating system that quickly advances and pulls the rods back by hydraulic cylinders and is as rugged as it is reliable. The existing pipe is split, or burst, using either a wheeled wedge-type splitter, which is used for cast or Ductile Iron, steel or plastic pipe, or a bursting cone, which is used for clay or AC pipe. The equipment is available in different sized rigs to fit every bursting condition and pipe requirements.

These are just a couple of examples of the many successful jobs that have taken advantage of standard restrained joint TR FLEX[®] Ductile Iron pipe and its proven durability and stellar track record in the trenchless piping world.



MR. FIX-IT-ALL
1000 Peachtree St. NE
Atlanta, GA 30309
404-525-1111
www.mrfixitall.com

CITY OF ATLANTA
Shirley Franklin, Mayor
DEPARTMENT OF WATERSHED MANAGEMENT
Sewer Rehabilitation - Pipe Bursting
Sewer Group 1 - Phase 1
Contract (B)
CLEAN WATER ATLANTA

drinking water, stormwater, wastewater
Clean Water Atlanta Project Number
404-529-9211
www.cleanwateratlanta.org



