

# New Interceptor Placed in Unstable Soil

**T**he original 60-in. West Fork Interceptor was built and placed in service in the early 1960s and is one of the major pipelines that transports wastewater flows to the 162-mgd Central Regional Wastewater System (CRWS) Treatment Plant in Grand Prairie, TX. A new interceptor, which is expected to meet system requirements through 2020, will vary in size up to 110-in. in diameter and requires 10,000 linear ft of pipe.

Trinity River Authority (TRA) owns and operates the system. *Intra*, the TRA newsletter, described several factors TRA had to consider when specifying a pipe material: “The West Fork (WF) Relief Interceptor will be located in unstable soil conditions in a relatively narrow space between existing pipelines and a levee that surrounds the CRWS

plant. In addition the gravity-fed pipe must be placed at depths varying from 20 to 42 feet underground.”

TRA specified two options for the new pipe. The first was centrifugally cast fiberglass reinforced polymer mortar (CCFRPM) pipe, selected for its longevity. Here is another excerpt from *Intra*: “Because of the corrosion resistant aspects of the centrifugally cast fiberglass pipe material, the pipe should be able to serve the region well beyond the minimum 50-year design life requirements of the Texas Commission on Environmental Quality.”

To safely handle the loading condition from the static soil column and the dynamic live loading, HOBAS PIPE USA ([www.hobas.com](http://www.hobas.com)) provided a pipe with a minimum pipe stiffness of 46 psi. Pipe stiffness was increased to 72 psi in areas where soil conditions required

cover depths greater than 20 ft. The other specified pipe material was a 360-degree PVC lined concrete pipe.

Archer Western Construction (Arlington, TX), installed the first phase, WF-1, which includes 108-in. pipe. The second phase, WF-G-2, that is now in service, was installed by Oscar Renda Contracting (ORC, Roanoke, TX). Contractors used several installation methods throughout the various phases of the project. Although the majority of the pipe has been installed by direct bury, CCFRPM pipes were also utilized inside a two-pass system and in above ground applications. In a two-pass system, the first pass is the primary tunnel, and the second pass (pipe inside the first one) is the carrier pipe. This is a common construction method for long or larger diameter tunnels or tunnels that have curves or other fea-

tures that prohibit direct jacking.

WF-G-2 is one of several projects ORC is installing using the CCFRPM pipe. ORC has been using HOBAS for many years due to the product's advantages. “We love the product and the staff. The pipe provides tremendous advantages over concrete pipes due to the lighter weight and fewer joints. This allows us to increase our daily production. It is rare to see the installation rates with other materials that we have been able to achieve with HOBAS. We have seen installation rates



*Lightweight CCFRPM pipes are easy to handle at the job site.*

of up to 800 feet per day with the 90-inch diameter and 600 feet a day with the 104-inch diameter. I can attribute this to the ease of installation," said Rudy V. Renda, regional manager, ORC.

Of course, there are reasons for the success of the installations in addition to the pipe. ORC, a family-run business, is continually striving to provide safer, higher quality techniques for installation. "We began with one machine over 30 years ago, and now we compete on some of the largest municipal projects in the nation. A driving force behind the company's growth is our team approach. All levels of the organization contribute ideas and influence our success," Renda said.

### Superior Test Rates

Given the diameter of the installation, the length of the projects, and the installation rates, it was not uncommon to lay a week's worth of pipe before testing was accomplished. This could be performed with confidence due to the reliability of the joining system.

"It is very rare that we have complications during the testing phase.

However, when we have had problems, they can be quickly and easily repaired without having to excavate the pipe," said Renda. "The fiberglass material is very repairable and HOBAS field service technicians are available to perform the work or train installation crews on site."

The next Phase of WF will soon begin and the CCFRPM pipe has again been chosen by the installation contractor, BRH Garver (Houston, TX). The project includes over a mile of 90-in. diameter CCFRPM pipe to be installed by direct bury.



*CCFRPM pipes were chosen for the grand Prairie project for long life and corrosion resistance.*



*In two-pass tunnel installation, CCFRPM pipes are cost-effective since the high-strength, thin-walled product permits a smaller primary tunnel. Note the steel ring beams and wooden lagging used to construct the primary tunnel in the two-pass system.*



*In Grand Prairie, a rail system was established to remove spoil from the tunnel and later install the new pipe.*