



PIPE MATERIALS: Least Cost or Best Value?

Competitive Sealed Proposal Examines Pipe Materials in Bidding Process

By Tera Arthur

In the City of Tyler, Texas, a recently completed sanitary sewer project illustrates the water utility's desire for both quality and value. In an effort to maximize return on investment and secure the most qualified contractor, the city chose to use a competitive sealed proposal as its means of bidding approximately 43,000 lf of 15- to 30-in. pipe installed at depths of up to 26 ft with 250 manholes and two lift stations. The competitive pipe materials up for consideration: PVC (polyvinyl chloride) and VCP (vitrified clay pipe).

As the largest city in East Texas, Tyler is a fiercely independent community. Tyler uses city funds to finance a majority of its projects, so decisions are driven solely by what is in the long-term interest of the ratepayers. The city's Water Utilities Administration is responsible for both water distribution and collection for the City of Tyler and its Extra Territorial Jurisdiction that results in a service population of approximately 100,000 people using more than 1,000 miles of 2- thru 54-in. water and sewer mains.

The U.S. 69/I-20 project will serve a recently annexed area of the growing north end of Tyler and is part of the city's ongoing development. The newly installed pipe may not see full service loads for another 20 years but longevity was a key factor in the bidding process.

Lynn Hitt, P.E., from Wisenbaker, Fix & Associates, a Tyler division of KSA Engineers, was asked to provide two designs — one for an installation using VCP and the other for an installation using PVC. Aside from the pipe materials, the excavated trench widths and the embedment systems specified were the primary differences, and were driven by ASTM standards specific to each material.

"The city was really smart about how they approached this," according to Jeff Boschert, president of the National Clay Pipe Institute (NCPI). "Some municipalities seem to

want to simplify things by having a single standard trench detail for both rigid and flexible pipe design. In Tyler, they took the time and effort to properly design for both rigid and flexible pipe as the trench designs are not interchangeable. This created a clear and fair view of each of the competitive products."

Based on the design, contractors were required to provide two bids for the project. S. J. Louis Construction of Texas provided the lowest bids for both alternatives. The Alternative B (PVC) bid was \$4.878 million. The Alternative A (VCP) bid was \$5.125 million.

In an effort to ensure a full, transparent and fair evaluation of the facts, Greg Morgan, P.E., director of the Tyler Water Utilities opted to create a selection committee to critically analyze the costs and benefits of each bid alternate. The panel included city engineers, management, and a city resident who was also a contractor. The panel's unanimous recommendation was VCP.

So why did Tyler, Texas choose the higher bid and effectively pay a 5 percent premium for vitrified clay pipe?

"I believe there were several factors that led to the decision," said Boschert. "Modern clay pipe has factory applied flexible compression joints, thousands of years of proven history in the ground and the unchanging nature of vitrified clay are a few of those factors, but I believe the final determination was made when we presented the life cycle cost comparisons.

"These comparisons clearly establish the present worth of either alternative. Because Tyler has VCP in their system that has been in the ground and serving the community for over 100 years, a 100-year service life for VCP not only made sense, but was validated by experience, not just theory. VCP clearly delivers the best long-term value."

Representatives from NCPI and Mission Clay Products wanted to go the extra mile to ensure that the committee, the maintenance personnel and the citizens were confident in the final selection. Installation and inspection training was conducted for all key project participants including the contractor, the design engineer, and city inspection personnel prior to the start of the project. For the first month of the project representatives of the clay pipe industry were on hand consistently to assist as needed.

"We didn't really think the city would go with VCP," commented Shane Childers of S.J. Louis Construction. "Most cities use the lowest bid without looking 100 years down the road. I was apprehensive in the beginning since we had not put in clay pipe, but in the end the installation was not any more complicated than any other pipe."

"That's become a fairly common refrain," added Boschert. "Now that we're seeing more communities coming back to VCP, we've determined that providing workshop training covering both installation and inspection methods is a critical link in achieving a problem-free installation. When we get the contractor and their field crews, the owner, the inspector and the designer engineer together in attendance, they all know what is expected and how it should be delivered."

For Tyler Texas, vitrified clay pipe is a premium product that provides long-term performance. It's the right choice and the right value.

Tera Arthur works with the National Clay Pipe Institute and its member companies, a role she has held for more than 10 years, assisting in marketing and public relations.



Tyler Water Utilities has a service population of approximately 100,000 people using more than 1,000 miles of 2- thru 54-in. water and sewer mains. Despite being the higher bid, the city chose vitrified clay pipe for the installation of approximately 43,000 lf of 15- to 30-in. water and sewer lines.

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What is your organization's primary business?
(check one)

- A Water AND Wastewater Systems and/or Plants
- B Water ONLY Systems and/or Plants
- C Wastewater ONLY Systems and/or Plants
- D City/County Government
- E State/Federal Government
- F Engineering Firm
- G Financial Institution
- H Legal Counsel/Firm
- I Other _____

Which title group best describes your job title?
(check one)

- A Mayor
- B Commissioner
- C Council Member/Chairperson
- D City/County Manager
- E Owner/President/CEO/COO/Partner/Principle
- F Executive/VP/Senior VP
- G Director/Manager/Gen Mgr/Project Manager/Superintendent/Supervisor
- H CFO/Treasurer/Comptroller/Finance Director
- I Engineer (all) / Consultant / Estimator
- J Other _____

Which infrastructure activities are you involved in? (check all that apply)

- A Consulting, Design & Engineering Services
- B Drinking Water Distribution
- C Financial Planning
- D Infrastructure Security Systems
- E Sewer/Wastewater Collection Systems
- F Storm Water Collection
- G Trenchless Rehabilitation & Construction
- H Underground Utility Construction
- I Desalination
- J Smart Metering
- K Leak Detection
- L Energy Efficiency
- M Corrosion Control
- N Reuse/Recycle
- O Pipeline Assessment
- P Asset Management
- Q Other _____

What population does your water system serve? (check one)

- A 0-1,000
- B 1,001-5,000
- C 5,001-20,000
- D 20,001-100,000
- E Greater than 100,000