

Ready by Kickoff

Major downtown renovations had to be completed in time for Super Bowl XXXIX.

Jacksonville, FL, has one of the top sports-entertainment complexes in the country that includes Alltel Stadium, the city's new Veterans Memorial Arena, and The Baseball Grounds of Jacksonville. The arena and the minor-league ballpark are the elements of a major construction program that helped make Jacksonville's downtown area so vibrant. But both had to be completed in time for Super Bowl XXXIX that was played on February 6, 2005 in Alltel Stadium, the former Gator Bowl.

Before the arena could be built, JEA, the City of Jacksonville Utility Department responsible for infrastructure and utilities, had some major tasks to accomplish. JEA had to relocate Duval Street and the associated large diameter trunk sewer force main that ran under it to make room for the new construction.

Further investigation revealed an aging sewer that was severely deteriorated and leaking under A. Philip Randolph Boulevard, right where the ballpark and arena would be built. The solution was the Arena Deep Utilities and related projects that included the Duval Street realignment and replacement of the large diameter sewer force main under A. Philip Randolph Boulevard.

Initially, the project included replacement of about 2,000 linear ft of 48-in. sewer force main, which was needed for the Duval Street realignment. The JEA then added 3,000 linear ft of pipe to replace the deteriorated sewer under A. Philip Randolph Boulevard.

JEA used to stand for Jacksonville Electric Authority, but as its scope was expanded, it became simply "JEA." Its electric system serves more than 360,000 customers in Jacksonville and

parts of three adjacent counties. Its water system serves more than 240,000 water customers and 186,000 sewer customers, or more than 80 percent of all water and sewer utility customers in its service area.

HOBAS (www.hobaspipe.com) worked with JEA and the contractor, each of which was instrumental in getting this work planned and completed. Allan Boree P.E., W & S standards engineer, who served as design engineer, and Norman Francis, field engineer, both represented JEA. Chris Blank was project manager for J. B. Coxwell Contracting Inc.

Blank outlined the project, "There were two phases. In the first, we moved Duval Street 75 to 100 yards to accommodate the new Baseball Grounds and the Jacksonville Veterans Memorial Arena. Then, we had to rebuild the existing roadways around the other three sides to accommodate it. Until we dug up the old Duval Street sewer, we didn't realize that its top was almost corroded through."

Boree, involved in the project from its inception, discussed the design aspects: "This was the second project for which we had used HOBAS in a force main. We had used it before on a 54-inch sewer force main project and on many gravity sewer applications from 66-inch up to 84-inch, much of it for sliplining. It started in 1988 when we used it to slipline 4,000 feet with 66-inch diameter sections. Over the past ten years, we have used 12 to 15 thousand linear feet of HOBAS pipe on rehabilitation projects. It was a proven product for us and we knew it would work. So, I assisted on getting it approved for this application."

Including JEA and other nearby agencies, a total of more than six miles of the pipe has been installed in the Jacksonville area since 1988 according to a company spokesman.

Blank also said, "One thing we liked



A vegetable-based lubricant helps make push-together assembly quick and easy.



Fiberglass flanged connections made it easy to connect the pipes to the valves.

is the weight of the material and being able to handle the 20-foot sections with lighter equipment. I used mainly a medium size Caterpillar excavator. The excavation was only eight to nine feet deep and the line required only three to five feet of cover. The joints provided easy push-together assembly and installation was simple in the crushed rock embedment.”

Uniform Subsurface Conditions

The contractor generally encountered relatively uniform subsurface conditions that consisted mainly of fine sand often with silt or clay. The groundwater table was high, varying from two to seven ft below the surface.

Francis added, “Everything went along smoothly so we could install 300 feet a day without any problems, including several direction changes, which required bends. We also had 48-inch diameter valves to permit isolating a section for future taps. The pipe manufacturer supplied mitered fittings for the bends and pipes with flanged connections that mated perfectly with the valves.

“We had used HOBAS, but never for a pressure application. We needed a 48-inch pipe that would pressure test up to 150 psi, the JEA standard. Although the line generally operates at much lower pressures, this varies so sometimes it might be pumped up to 125 psi.”

Project engineers also wanted to use the pipe because it is unaffected by any kind of sewer gas and it has a large ID. The pipe that the manufacturer supplied was 48-in. nominal diameter 36-psi minimum pipe stiffness, 100-psi nominal pressure class. Although nominally 48-

in., the ID was oversized at 48.9 in. with an OD of 50.8 in.

The FWC coupling joint meets ASTM D4161 for joint tightness, which includes hydrostatic testing under pressure, in straight alignment, under shear loading, and angular deflected conditions. These pipes with a 100-psi rating had an initial burst in excess of 400 psi, providing a short-term safety factor of at least four. Although the pipe material was not new to JEA, the pressure side was, and it worked out well for the agency.

The pipe manufacturer’s regional managers are direct employees of the company. There are more than 17 area managers and sales executives throughout the country and each has a thorough understanding of the product and its capabilities. The regional manager for Florida, Claude Hoops, is a 44-year veteran of the pipe industry.

Francis summed it up, “Claude stayed with us for the whole project, nursed it all the way through. If any questions came up, answers were provided immediately. Their area manager is a good man and really knows the product.

“After we got it all in, we tied it all together, pressure tested it, and it has been working ever since. We haven’t had any problems. Our goal was to do it right the first time because we didn’t have time to dig up streets to correct mistakes, and that’s exactly the result we got. It’s been very successful. It’s an excellent pipe and I would use it again.”

JEA has been so pleased with the performance of the product in sliplining and direct bury that only centrifugally cast fiberglass pipes like HOBAS are among the acceptable products for gravity applications. Now, the pipe has been added to the Jacksonville JEA specifications for 24-in. and larger pressure mains.

GE



This T branch is one of a variety of custom manufactured fiberglass fittings that met the site-specific needs in Jacksonville.