

Only rigid, concrete pipe allows close spacing (3 feet) between dual runs.



A Pipe Tugger assists with homing 96-inch diameter O-ring gasketed joints.



Pipeline Utilities developed a handheld device to compact haunches of large diameter and elliptical pipes.



## 96 Under 95

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Pipeline Utilities, of Riviera Beach, Florida, is installing 96-inch diameter reinforced concrete pipe (RCP) culvert at the interchange of I-95 and State Road (SR) 68. [Pipeline Utilities is a subcontractor to Ranger Construction Industries \(Vecellio Group, Inc.\) on the \\$78.3M project to widen I-95 for an 8.7-mile section from SR 70 to SR 614<sup>1</sup>](#). Ranger is the prime contractor for the design-build project, which includes team members Wantman Group, Atkins Global, and Cone & Graham.

RCP is being supplied by [Rinker Materials Concrete Pipe Division<sup>2</sup>](#). Project plans specified a 374-foot dual run of 96-inch diameter pipe with an ASTM C 76 Class IV strength classification.<sup>3</sup> Rinker conducted an in-plant hydrostatic test to demonstrate the joint performance to the [Florida Department of Transportation \(FDOT\)<sup>4</sup>](#). The in-plant joint test involved externally pressurizing the joint to 13 psi for 10 minutes to ensure no infiltration through the joint per ASTM C 443.

Pipeline Utilities is using four Komatsu hydraulic excavators to install the pipe, which weighs 13.5 tons per joint. A Komatsu PC400LC excavates the trench, a PC600LC installs the pipe, and a PC220LC and a PC200LC backfill along both sides of the trench. A pipe tugger winches the pipe joints together. Superintendent Matthew Craddock<sup>5</sup> manages an efficient crew of six men in the trench and two excavator operators.

Pipeline Utilities developed a handheld compaction device to tamp soil into the haunches of the 96-inch diameter pipe. Soil compaction is the most laborious part of the installation, especially since FDOT specifications require 100 percent standard proctor density up to the roadway subgrade, and 6-inch lifts until one foot above the pipe crown. From one foot above the crown, 12-inch lifts are allowed, but the approximate 30 feet of fill will be 100 percent SPD compacted.

In addition to the 96-inch diameter ASTM C 76 Class IV pipe, Rinker Materials is supplying 15, 18, 24, 36, 48, 60, and 72-inch diameter round ASTM C 76 Class III pipe and 12-inch x 18-inch and 38-inch x 60-inch elliptical ASTM C 507 Class III pipe.

The I-95 interstate freeway from SR 70 to SR 614 widening project started in June 2011 and is expected to be completed in early 2015.

## REFERENCES

1. Ranger Construction Industries web site, [www.rangerconstruction.com/index.php/en/projects-company-news/featured-projects/item/2-\\$783-million-i-95-widening-resurfacing-st-lucie-county-florida-design-build](http://www.rangerconstruction.com/index.php/en/projects-company-news/featured-projects/item/2-$783-million-i-95-widening-resurfacing-st-lucie-county-florida-design-build)
2. Rinker Materials Concrete Pipe Division website [www.rinkerpipe.com/default.shtml](http://www.rinkerpipe.com/default.shtml)
3. 90% Construction Plan Submittal, Wantman Group Inc., Financial Project ID 413046-1-52-01, October 7, 2011.
4. Florida Department of Transportation web site, [www.dot.state.fl.us/publicinformationoffice/construc/district4pio/stlucie.shtml](http://www.dot.state.fl.us/publicinformationoffice/construc/district4pio/stlucie.shtml)
5. Matthew Craddock, of Pipeline Utilities, Inc., contributed to this article.

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