

RESTRAINED JOINT INTEGRAL BELL PVC PIPE PROVES RESILIENCE IN STATIC PIPE BURSTING

When the community-owned water utility of Moorhead, Minnesota opted to replace a 360-foot section of aging six-inch cast iron water main, crews agreed static pipe bursting would be the best method for the project, particularly given the limited amount workspace in the town's busy retail area.

Project Type:
Water Main

Application:
Static Pipe Bursting

Owner:
Moorhead Public Service

Product Used:
Certa-Lok® C900/RJIB
PVC Pipe

Contractor:
KPH, Inc.

Sub-Contractor:
Red Pederson Utilities, Inc.

CHALLENGE

The region's corrosive soils and previous problems with cast iron and ductile iron pipe mandated the specification of a thermoplastic pipe for corrosion resistance. While the project team considered restrained-joint PVC pipe, there were concerns regarding its resiliency for this specific static pipe bursting application.



APPLICATION

Upon the recommendation of pipe distributor DCMC Sales, the project team authorized the use of Certa-Lok® C900/RJIB Restrained Joint Integral Bell PVC Pipe from NAPCO. The product features the Certa-Lok mechanical pipe joining system utilizing a combination of precision-machined grooves and a nylon spline to provide high tensile strength in pulling or pushing installations. A flexible elastomeric gasket within the integral bell provides a solid, pressure-certified hydraulic seal.

"We've installed plenty of fused, high-density polyethylene and PVC pipe via pipe bursting, but this was the first time we conducted a burst with a cartridge-loaded, integral bell PVC pipe," said Red Pederson, owner of the pipe bursting sub-contractor RPU.

Pipe bursting is more cost-effective than open-trench installation under asphalt or landscaped areas at any depth. Plus, it's more affordable than open trench any time the depth requires trench safety devices, regardless of surface materials or conditions. Pipe bursting also reduces a contractor's carbon footprint since it requires far less excavation or disruption of landscaping, and fewer loads of dirt and rock transported to dump sites, compared to open-trench jobs.



MUNICIPAL CASE STUDY

SOLUTION

NAPCO's on-site support for the installation included the use of a TensiTrak® Pullback and Pressure Monitoring System from Digital Control, Inc. Since it is connected to the drill head and the new pipe, TensiTrak can be used during pullback to measure the pull force and annular mud pressure on the pipe to help identify any problems before they occur.

Throughout the burst and pullback, TensiTrak readings showed no excessive pressure to threaten the tensile strength of the PVC pipe. The pull force peaked at just over 11,000 pounds—well below the 24,300-pound limit for eight-inch restrained-joint PVC pipe.

The water main replacement ran smoothly and was completed in about three hours. The new pipe passed pressure testing and the contractors and customer were satisfied with the results.

“The pull forces were very low and the TensiTrak showed we had an extremely low drag pressure,” Pederson said. “I drove away from the site with the realization that the pipe bursting world for us had changed. We'll be using more restrained-joint PVC pipe in our projects from now on.”

