

## CIPP Installed Along Busy Mountain Highway

As the only paved access route to scenic Mount Lemmon near Tucson, Ariz., the Catalina Highway sees more than 1 million travelers per year. Mount Lemmon is a popular destination for bicycling, motorcycling and hiking enthusiasts, and also is home to the southernmost ski resort in the U.S.

When the Pima County (Ariz.) Department of Transportation (DOT) discovered large cracks forming in the pavement directly above storm water culverts that transversed the highway, the county assumed that the storm water pipes themselves were in a similar state of disrepair.

Western Slope Utilities (WSU), an Inliner Technologies licensee, in a partnership with its parent companies Granite Construction and Kenny Construction, was tapped to install Inliner cured-in-place pipe (CIPP) in 31 storm culverts ranging from 24 to 48 in. in diameter.

Granite, a traditional heavy construction company with roots in road construction, material mining and production that had a long-standing relationship with Pima County DOT, was charged with field support and traffic control for the project. Kenny Construction contributed field management support. Stantec was the design engineer, with Brown & Caldwell serving as the inspecting engineer.

The pipes were full of silt, rocks and other environmental debris, so none of the parties involved with this project were certain of the ultimate conditions of the pipes being renewed.

The work was performed in areas of land owned by the U.S. Forest Service with highly sensitive environmental considerations, including 14 species of owl, two of which are legally protected. Work was limited to 6 a.m. to 6 p.m. so as to not disturb them.

Because the work was performed along this two-lane winding mountain highway with no access to water or wastewater discharge for the cure water, the CIPP tubes were installed with air pressure, then cured with steam; then the small amount of condensate was hauled off site



for disposal. The vehicle and equipment staging areas were limited, and workers had to wear fall protection equipment for work performed at the downstream ends of the pipes being renewed.

Because Catalina Highway is the only paved access route to Mount Lemmon, precise traffic control sequencing was important to keep the route free for tourist and residential access.

The contract allowed for 126 calendar days, but the WSU-Granite-Kenny team successfully completed the work in 70 days.

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