

CASE STUDY

Reduced Costs For Complex Bypass Pumping Plan



When the integrity of underground pipes deteriorates, water flow to critical systems may be compromised. Aging infrastructure requires attention and maintenance, and sewer rehabilitation projects can be executed to repair lines and keep a community's wastewater system fully functional and operational. At Sunbelt Rentals, we are well versed in the challenges associated with underground pipe rehabilitation and can offer full turnkey solutions for bypasses, including design, installation and maintenance, to ensure uninterrupted fluid transfer throughout the duration of the project.

This expertise came into play on a cured-in-place pipe (CIPP) lining project in Bessemer, Ala. Jefferson County commissioners selected Layne Inliner as the prime contractor on the project, and Sunbelt Rentals was awarded the subcontractor role for the bypass system.

Headed up by our Pump & Power Services division, the Sunbelt Rentals team determined that five runs of 18-inch HDPE pipe were needed to achieve the 40 million gallons per day (GPD) flow and to reduce the total dynamic head

on the bypass system. The Sunbelt team then selected the best route for the bypass, which included pipe placement in a drainage canal that ran through the town, alleviating extended disruption of nearby roadways and properties and reducing the cost of placing additional suction structures on the sewer.

The scope of work and rental equipment included:

- Bypass of 6,100 feet of 54-inch diameter reinforced concrete sewer pipe
- Design and installation of five runs of pipe, 18-inch HDPE pipe totaling 18,500 feet
- Six 18-inch Quiet Flow™ sound attenuated diesel trash pumps
- Three McElroy 617 TracStar fusion machines
- 24-inch 425 horsepower auto-priming diesel pump to elevate excess creek water below a railroad bridge

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“The project involved one of the largest lining projects in recent years for Jefferson County. The size and magnitude of the bypass made for one of Sunbelt Rentals’ more challenging bypass installations.”

- Ladd Gould

Sunbelt Rentals National Strategic Account Manager

Source: CIPP Project Requires Complex Challenging Bypass Pumping Plan

The construction phase of the bypass posed some challenges, as the town of Bessemer was plagued by torrential downpours and tornadoes, resulting in approximately 2,000 feet of discharge piping being washed down the creek. Sunbelt crews worked around the clock to retrieve the discharge pipe and keep the project on schedule. Because of the severe weather and future threat of flash floods, we worked with the project engineer to create a new bypass pumping plan.

The new route used a significantly smaller portion of the creek for the project, reducing liability but resulting in extensive traffic control measures and a necessary road cut. After the revised plan was put into place, the bypass system ran continuously and without incident for eight weeks. Our Pump & Power crews also provided a 24/7 on-site pump watch with a fully-stocked service vehicle the entire time.

“The technician was responsible for monitoring, servicing and fueling the pumps. In addition, the technician was also responsible for monitoring the air pressure in the pneumatic plugs blocking the 72-inch sewer line. Due to the large diameter of the sewer, the plugs have a limited amount of allowable back pressure so the surcharge levels in the sewer were closely monitored by the readings from the pump transducers.”

- Ladd Gould

Sunbelt Rentals National Strategic Account Manager

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Despite the demanding conditions, the CIPP lining was completed ahead of schedule, allowing Sunbelt Rentals to wrap the bypass early. In addition, the bypass breakdown took only about a third of the setup time and was executed in stages to minimize the number of times the pipe needed to be handled. Our engineered solutions, in conjunction with the combined efforts of strong partners, resulted in early project completion and an upgraded underground system for Jefferson County.

This case study is based on an article that appeared in the July 2013, Vol. 68, No. 7 issue of Underground Construction Magazine.

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