Aerial view of the pipe, extending more than 1.32 km from Greenbank to Flagstone in Logan, Queensland.

Logan City Council completes complex project with HDD

Logan City Council has completed the longest underground drilling program in the Queensland city's history by using HDD to drill through challenging geological conditions.

The horizontal directional drill (HDD) was part of a larger project between Greenbank and Flagstone Central that will initially service two new residential developments in Greenbank and North Maclean.

The council used HDD to lay pipes for more than 1.3 km from Greenbank to Flagstone to connect to a wastewater facility, with the new section of infrastructure comprising part of the 20 km of the Greater Flagstone trunk wastewater pipelines and four new pump stations.

Maxibor was responsible for the HDD installation of the polyethylene high stress crack resistant pipe, supplied by Iplex.

An important step for the community

The original time frame for the project was approximately five months; however, the project took nine months to complete due to harder than anticipated geological conditions.

Despite the slight delay, the project was able to reap multiple benefits for the community by allowing the transport of wastewater from homes and businesses in Greater Flagstone to the wastewater treatment plant at the Cedar Grove Environmental Centre.

Now, the Cedar Grove Environmental Centre and its related infrastructure can provide the capacity to manage wastewater flows from the growing communities in the region.

A history-making project

In addition to completing the longest HDD in the city to date, the council says its project saw polyethylene high stress crack resistant (PE-HSCR) pipe material used for a wastewater sewer rising main project for the first time in Australia.

Logan City Council Water Partnership Manager Mark Vaughan says the PE-HSCR material provides considerable improvement in material behaviour compared with previous HDPE materials.

"As there is a resin in the pipe material, it seals up any cracks caused by dragging of the pipe against the abrasive sandstone walls of the drill hole," says Mr Vaughan, adding the expected design life for these pipes is 100 years.

Logan City Council says the project was also the first in Australia to use an underground magnetics walkover locating system. As conventional tracking devices can only monitor the pipe to a depth of 20 m – and the drilled pipe was up to 54 m deep – alternative technology was required.

"The magnetics walkover locating system was a contractor-led initiative, as it can track the buried pipe up to 110 m depth," says Mr Vaughan.

Maxibor installing the pipe, which was supplied by Iplex.

Utilising contractors and local construction

The large project required the work of seven contractors, with peak construction seeing nine work fronts with a total of approximately 80 people. Maxibor were one of these contractors and were responsible for the HDD pipe installation.

Iplex supplied the PE-HSCR pipe, while local people and local businesses were also provided with additional employment and business during the construction.

An easy choice in trenchless

Logan City Council chose to use the trenchless method of HDD due to its lessened cost and environmental impact.

"Installing HDD instead of open trench pipeline improved the hydraulics of the sewerage rising main through undulating ground, which will reduce pumping costs and provide an improved value for money over the design life of the infrastructure," says Mr Vaughan.

Mr Vaughan says the offer value for money, minimal environmental impact by not disturbing waterways and reduced vegetation clearing through a koala sensitive habitat is why the council chose HDD as the trenchless method.

Due to these benefits, the project's success and improved hydraulics, the Logan City Council plans to use trenchless technology where possible in the future. •

For more information visit **www.logan.qld.gov.au**