

INTERFLOW'S NON-DESTRUCTIVE EXCAVATION STRATEGY

As cities grow, so do the challenges confronting developers and contractors responsible for navigating dense urban locations and complex underground service networks. Specialists in water infrastructure renewal, Interflow provides the full range of services to water utilities, utilising non-destructive hydro excavation as its preferred method to safely expose underground assets.

An increasing need for safe and accurate location of underground services in congested, built-up areas has seen infrastructure renewals experts Interflow to rely on hydro excavation for non-destructive excavation.

WATER MAIN RENEWAL

When Interflow's pipe bursting operations were interrupted when the bursting head became stuck under a large tree on a water main renewal project for South East Water, Interflow was presented with a dilemma. However, excavation was clearly needed to identify and then rectify the problem.

National and local regulations, along with conditions of the contract specified that the works should not cause damage to mature trees. Traditional mechanical excavation risked damaging the tree roots and potentially the viability of this old, well established tree.

To resolve the situation, South East Water's arborist and Interflow collaborated and turned to hydro excavation, a technique increasingly used for non-disruptive excavation.

Hydro excavation combines a high-pressure water nozzle with an air vacuum tube. A jet of water progressively breaks up the soil, with the slurry produced being sucked up by a tube into a truck-mounted debris tank. By controlling the pressure used around the tree roots, damage to the protective bark can be avoided.

The process produces an accurate, small diameter 'pothole', which the operator does not need to enter, leaving underground services undamaged and the surrounding soil undisturbed. When the jet spray reaches a utility pipe, conduit, concrete box – or in this case tree roots – it cleans around the object



The historic tree, which was protected by the use of hydro-excavation.

without causing mechanical damage. On this project, hydro excavation revealed that a large tree root had wrapped itself tightly around the pipe, preventing the pipe bursting head from continuing its work.

By carefully uncovering the tree root, Interflow completed the works while causing no lasting damage to the tree.

"We're using hydro excavation more often as it is a safer option in the congested, built up areas where pipeline renewal is most often needed, including on this South East Water project where we were able to avoid the risk of damaging a mature tree," says Interflow Melbourne Operations Manager Robert McEwen.

URBAN CONGESTION

Hydro excavation is increasingly being relied on for the safe and accurate location of underground services in congested, built-up areas.



A hydro excavator is used to safely expose underground assets.

With Australia's population of almost 25 million continuing to grow at a rate of just under 2 per cent each year, and the country becoming more urbanised, there's an ongoing building and infrastructure boom. Increased population densities mean the number and required capacity of underground services continues to grow.

The congestion of underground assets has led to an increasingly complex challenge facing developers and contractors: break the ground in built-up areas and there is a risk of digging straight into underground services – water, sewer, power, gas, telecommunication or fibre optics – laid near each other.

Adding to the sensitivity of excavation is that the oldest of these assets are coming to the end of their effective life, with continuing programs of refurbishment taking place in most metropolitan areas.

An invaluable industry-sponsored service, Dial Before You Dig, is widely relied on to

help identify utility locations; however, plans showing locations of services installed decades ago are not always accurate. The risk and responsibility for accidental underground strikes remains ever present, resulting in expensive and disruptive, even disastrous, consequences for the contractor.

While underground locating devices are available, non-destructive excavation methods conclusively detail the existence, location and alignment of service conduits. The efficiency of the method has even led some asset owners to make it mandatory to expose buried services before commencing any works onsite.

South East Water Reliability Delivery Manager Mike Stokes says the utility has used hydro excavation for a number of years with great results.

"We first started using hydro excavation on a fast paced 235 km horizontal directional drilling pressure sewer project in 2014, where not damaging federally protected trees and identifying poorly recorded utility assets was vital," says Mr Stokes.

"It's since become the de facto solution for safely proving assets on our water main renewal program, as we deliver more projects

replacing the older assets in the congested inner city of Melbourne.

"Customer and community expectations are high, and damaging the significant amenity provided by these older trees or removing them isn't an option."

THE SAFE SOLUTION

To meet this growing need, hydro excavation is being increasingly used to locate and isolate underground assets and other obstacles. This process offers a quicker, more accurate and safer excavation, particularly compared with hand or

machine digging. It is non-disruptive and compact, needing only a small site footprint compared to machine digging – an important advantage in built-up areas.

Interflow has broad experience in dealing with the challenges of renewing and maintaining water networks, dating back to the 1930s across Australia and New Zealand. The company says it has now adopted hydro excavation as its preferred non-destructive excavation method, to continue meeting its commitment for improved safety and productivity. T

ABOUT INTERFLOW

Interflow is an Australian-owned company, which recently celebrated 81 years servicing major water authorities, and local and regional councils across Australia and New Zealand. The company is a leader in infrastructure renewals, using its patented technology and supported by world-leading products and techniques. Interflow works in collaboration with its customers, offering: design/construct management; a life cycle approach to investigation and rehabilitation; construction services including Trenchless Technology; and reactive and proactive maintenance services in the potable water, wastewater, stormwater, rail, road and defence sectors. The company has the capabilities to work on pipelines with diameters between 100 mm and more than 3,000 mm, as well as offering the full range of ancillary services.

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