# TRENCHLESS NEWS




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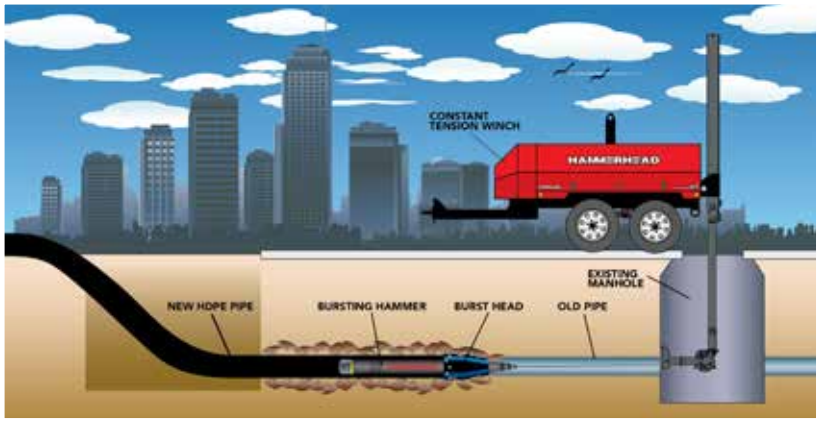
# Hammerhead goes underground

Ageing water infrastructure and associated pipe failures in urban areas throughout Gauteng are leading to a loss of millions of litres of potable water, while, in turn, sewerage leaks silently contaminate waterways and groundwater. Some of these installations range from 50 to over 100 years old, and urgent replacement strategies are therefore required.

"Throughout Gauteng, we've built our towns and suburbs over these buried pipelines and now it's mostly impossible to manually dig trenches and repair or replace pipes," explains Jan Bouwer from Gokor Construction, a specialist pipe-laying company. "We're increasingly being called to find ways of replacing these pipes, often situated under layers of underground infrastructure, and below houses, hospitals, roadways and buildings.




**An illustration of the Hammerhead pipe-bursting replacement process**

"One of the ideal approaches for the replacement of large-scale pipes is the application of pipe-bursting technology, an area where Gokor Construction has expert experience. At the business end is a purpose-built Hammerhead HG12 and Hydroguide pipe-bursting system, supplied and supported by local distributor ELB Equipment.

This technology allows special tooling to pass through and burst existing pipelines, while simultaneously pulling in a new (often larger diameter) replacement pipe behind it.

"In places like Tembisa, we were even able to replace a 70 m stretch in 38 minutes and the entire 170 m of pipeline in just two hours. In cases like this, it ensures the municipality is able to effect speedy upgrades and saves residents the inconvenience of digging up their properties, as well as providing a quick replacement service for water and sanitation," Bouwer continues.

Recent deployments include a project in Hyde Park: an urgent sewer upgrade for the replacement of 742 m of 250 mm pipe with new 350 mm HDPE pipes. 3S

# Pioneering an industry

Back in 1989, Tuboseal pioneered an industry by offering specialist trenchless pipeline repairs to the City of Cape Town. The problem was clear: pipeline faults located in hard-to-reach or built-up areas caused significant disruptions to society and infrastructure when repaired through conventional methods. Thus, the niche for alternative, trenchless solutions was born.

City officials back then were, however, faced with another set of challenges: tenders for trenchless pipeline rehabilitation did not exist. All trenchless repairs were done on a request for quote (RFQ) basis, placing severe limitations on the efficiency, scope and project size that could be accommodated in the municipal procurement systems for RFQs.

Moreover, the methods and materials used in these modern techniques were foreign to virtually all municipal and consulting engineers responsible for the maintenance of the municipal pipeline networks. Very few local engineers knew the specifications or had the skills required for the successful application of trenchless technologies.

During the 1990s, a collaborative process between pioneering trenchless contractors and City of Cape Town officials culminated in the publication of the first formal tender documents dedicated to trenchless pipeline rehabilitation. These were aimed at institutionalising systematic pipeline rehabilitation through a panel of specialist contractors, which would ensure that pipeline networks were maintained and upgraded using modern technologies in Cape Town – a major step by the city to create a progressive and cost-effective solution to maintain its pipeline assets. These technologies included CCTV inspections, pipeline cleaning, pipe-cracking, slip-lining and cured-in-place pipe (CIPP).

In the years that followed, Tuboseal played an important role in working with the city to introduce improved specifications and mechanisms to ensure that trenchless technology gained credibility and ubiquitous acceptance throughout the municipal fraternity. Continuously improving tender


documents and specifications ensured that the city was provided with quality workmanship and properly executed solutions that surpass conventional methods, both functionally and commercially.

Today, there are dozens of trenchless pipeline rehabilitation tenders in Cape Town and other municipalities throughout South Africa. Most often, they take the form of framework tenders, by which a panel of qualifying contractors is appointed to compete for rehabilitation projects during a two- to three-year period. This allows a great degree of efficiency and flexibility for city officials tasked with maintaining or upgrading pipeline networks. Tuboseal routinely competes on the following term tenders:

- Trenchless rehabilitation of water mains through pipe-cracking. This typically entails the replacement of asbestos cement pipelines with HDPE pipelines. Pipelines can be replaced size for size, or upsized where the new HDPE pipe can be of a larger diameter than the original pipe. Minimal excavations are required and the exposure to hazardous asbestos material is minimised.
- Trenchless rehabilitation of sewer mains through pipe-cracking and CIPP. This typically entails the relining of damaged sewer pipelines with CIPP liners, which ensures that pipelines are sealed, structurally reinforced and protected against corrosion for a design life upwards of 50 years.
- Trenchless rehabilitation of stormwater systems. This includes a wide range of trenchless techniques to clean, inspect and rehabilitate stormwater systems. While budgets for stormwater pipeline rehabilitation are often very limited, the frontiers of the trenchless technologies are often pushed due to larger pipeline diameters typically present in stormwater systems.

Framework tenders for trenchless technologies owe their existence to the entrepreneurship and persistent pioneering work done by Tuboseal and other stakeholders over the last three decades. It has been a privilege to play a role in building an industry so vital to the sustainable provision of basic water and sanitation services in South Africa. 3S