



NJUG CASE STUDY 58: A safe and innovative approach to service pipe replacement

Winner of the 2011 NJUG Quality Award

The National Joint Utilities Group (NJUG) is the UK industry association representing utilities on street works issues. The 41 utility companies and 17 contractors¹ we represent work to deliver gas, electricity, water and telecommunications to both individual consumers and UK plc.

NJUG members need to continue to drive forward further improvements. We have therefore developed the NJUG Vision for World Class Street Works, which revolves around six main principles:

1. Safety is the number one priority
2. Utilities deliver consistent high quality
3. Utilities work together and in partnership with local authorities and contractors to minimise disruption
4. Utilities keep the public fully informed on all aspects of works
5. Utilities maximise use of sustainable methods and materials
6. Damage to underground assets is avoided

This case study is an example of NJUG delivering on these principles and turning the vision into reality.

Overview:

Since June 2011, Veolia Water Central (VWC) and Kobus have collaborated to develop a global first: A way to replace 3/8th service pipes with minimal excavation. The Kobus pipe puller feeds a cable through the pipe which fills it with special formula Kobite. This locks with the pipe to create a single 'composite rope', then attached to the new MDPE pipe and pulled through. As the old pipe is pulled out, the new pipe replaces it. The innovative development has transformed a formerly dangerous and burdensome process into a safe and speedy procedure. Veolia has already purchased its first two Kobus machines, and in the future will strive for zero utility strikes using this method.



Case Study:

Background

Veolia Water believes that utility companies should strive to deliver their works in the most efficient, safe and environmentally-friendly fashion, at the lowest cost. In June 2011, Veolia Water Central (VWC) paired with Kobus, a company that has designed a new method of replacing all metallic as well as plastic service pipes, to develop an innovative solution for replacing 3/8th service pipes with minimal excavation. The Kobus pipe puller is a global first that will help Veolia rise to a higher standard in utilities provision.

Traditional Methods

¹ NJUG's current members are Energy Networks Association (representing electricity and gas), Water UK (representing all water and wastewater companies), National Grid, BT Openreach, and Virgin Media. Our associate members are Clancy Docwra, Skanska, Balfour Beatty, Morgan Sindall, Carillion, First Intervention, Laing O'Rourke, Compass, AMEC, Enterprise, Morrison Utility Services, Fastflow Pipeline Services, May Gurney, CLC Ltd, PJ Keary and Murphy Ltd. Including members through trade associations, NJUG represents forty-one utility companies, seventeen utility contractors.

Veolia Water Central undertakes around 40,000 jobs per year, around 3,200 of which are service pipe replacements to properties. There are two traditional methods for replacing a service pipe to a house. The first is known as “open cut”. Around 75% of replacements are done by an open cut method, which is time consuming, expensive, and leads to extensive traffic congestion. This method also suffers on average 8 utility strikes per month. The second is known as “moling”, developed two decades ago. Moling requires two excavations and the insertion of a small cylindrical tube to work off compressed air and displace the ground from one excavation to the other. Though moling is quicker and causes less disruption than the open cut method, there remains a risk of damage to other utilities hit as the tube travels through the ground – around 96 utility strikes per year.

The Kobus Alternative

Kobus Pipe Puller takes a different approach. To replace a water service pipe, it feeds a cable through the pipe, filling the pipe with special formula Kobite. This locks with the pipe to create a single ‘composite rope’. The cable is then attached to the new MDPE pipe and pulled through. As the old pipe is pulled out, the new pipe replaces it. The range of calibrated cables and adjustable force of the pulling ensures that the old pipe slides out of the ground exactly as the new pipe is pulled through, filling the space it has left behind.



The Kobus pipe puller in action

The Benefits

In recent North London trials, a number of 8 metre lead service pipes crossing the full width of a road were replaced in an incredible 225 seconds. The Kobus method poses no threat to other utilities, and there are environmental benefits in that the old pipe is not left in the ground. Traffic congestion on a majority of jobs is also significantly reduced: operators only have a launch and receive pit, with usually just one highway excavation to make a connection to the water main.

Veolia Water Central has purchased its first two Kobus machines, and using this method seeks zero utility strikes in the future. The collaboration has led to a substantially reduced highway working time, a safer environment for our teams and reduced unit costs.

The other main benefits are a substantial reduction in traffic congestion (helping us reduce the 5% that are attributed to utility works), and a smaller carbon footprint.



Matthew Rowlatt, Veolia Water Central Director of Community Operations (right), views the demonstration of the Kobus Pipe Puller at Veolia’s permanent Pipe Pulling Test Site in Luton.

Stats at a Glance			
Kobus running costs	£62,400	Area of reinstatement not required	2524.8 m ²
Number of days of labour saved	1008	Area of reinstatement savings	*£426,691 (based on £169/metre)
Number of open cut jobs per year	2417	Total estimated savings per year using Kobus	*£898,000

**The cost savings are prediction only based on historical data but could be subject to change after a validity period*