



A PEER crew member checks as the CCTV camera enters the sewer via a manhole

Reducing risks and increasing safety

Sewer lateral inspections can prevent and identify cross bores – preventing danger and saving time and money

For the past two years, environmental engineering firm PEER Consultants' field services discipline has been performing sewer lateral inspections for contractors that are responsible for placing new gas lines on behalf of the gas utilities in the US Mid-Atlantic region.

These contractors may use any of the following techniques for these placements: open trenching, horizontal directional drilling (HDD), or a mole-push technique, in which the contractor pushes the new line through a sewer cleanout (an accessible opening or manhole).

In this paper, the term contractor applies to all three methods, though HDD is used in the vast majority of cases. In any of these three techniques, the contractor does not want to cause damage to an existing lateral through penetration, scraping or breakage. It has been noted (Kennedy, 2010) that systems may not be submitted to the local Dig Safe data base, so independent verification of lateral location is essential.

Water and sewer utilities have very stringent requirements for non-utility employees that need to enter their assets. PEER's

long-standing relationship with the water and sewer utilities in the region helps the Field Services discipline easily obtain the necessary permits to enter the required assets, thus facilitating the process.

TRENCHLESS METHODS

When PEER works with a contractor as a client, its task is to locate laterals so that the contractor can avoid them when placing gas lines. This process entails the CCTV camera moving along the main sewer line until a lateral is reached. Then, a smaller, robotic camera moves along the lateral. This smaller camera uses Sonde technology to send a signal.

At the same time, a crew member is walking the ground surface with a locating wand, following the signals. When a signal is received noting the depth below ground surface to the lateral, that depth is recorded, and the lateral location

C S M
BESSAC

TUNNELING CONTRACTOR

ALL EXCAVATION TECHNIQUES

- Pipe-jacking with microtunnel boring machines
- EPB or slurry TBM's
- Air pressure TBM's
- Hard rock TBM's



MANUFACTURING AND MAINTENANCE

INTEGRATED PLANT

- Construction of TBM and back-up
- Construction of muck trains
- Refurbishment of equipment
- Construction of specific and tailor made equipment



ENGINEERING

DEDICATED ENGINEERING DEPARTMENT

TUNNELS - MICROTUNNELS

WE'RE HIRING

Join Our Team

All positions

recruitment@csmbessac.com

ONGOING WORKS

Costa Rica - San-Jose

France - Dunkerque

France - Nice

France - Paris

USA - Miami

Equatorial Guinea - Bata

France - Montpellier

Chile - Antofagasta

Georgia & Azerbaijan

Morocco - Casablanca

Sewer

Water Gallery

Subway

Subway

Sewer

Sewer

Sewer

Sea Outfall/Intake

2 River Crossing

Sea outfall

1700 m ID 2,50 m

5000 m ID 3,00 m

3200 m ID 8,50 m

2200 m ID 7,75 m

1600 m ID 2,50 m

5800 m ID 1,50 m

2376 m ID 1,20 m

1380 m ID 2,00 m

1600 m ID 1,80 m

1100 m ID 2,10 m



A close-up of the CCTV camera used for the sewer lateral inspection, as soon as it came out of the manhole

is marked on the ground with spray paint.

It is important to note that this is typically a 'real-time' operation in that the contractor is in the field at the same time, close behind, placing the new lines.

Lateral inspections are typically



completed from the sewer mainline, but if the inspections cannot be completed from the mainline, inspections are conducted using a push camera, which allows the crew to manually 'push' the CCTV camera from the cleanouts on a person's property to (rather than from) the mainline.

For the work completed so far, for the most part, it has only been necessary to mark above-ground the locations of the sewer laterals, and then perform CCTV inspections of the laterals after the gas lines have been installed.

Based on the contractor's judgment, PEER might be asked

to immediately inspect the sewer lateral after the gas line is placed to ensure that no cross bore has been created. In rare cases, the consultancy may detect a penetration or breakage, and the contractor can make repairs immediately. This procedure reduces environmental damage and decreases total costs.

EXISTING CROSS BORES

PEER's Field Services team is also working with gas utilities in the performance of their abatement programmes to identify any existing cross bores in sewer laterals in their system for ►

Preparing to pull out the camera from the manhole once the inspection is complete

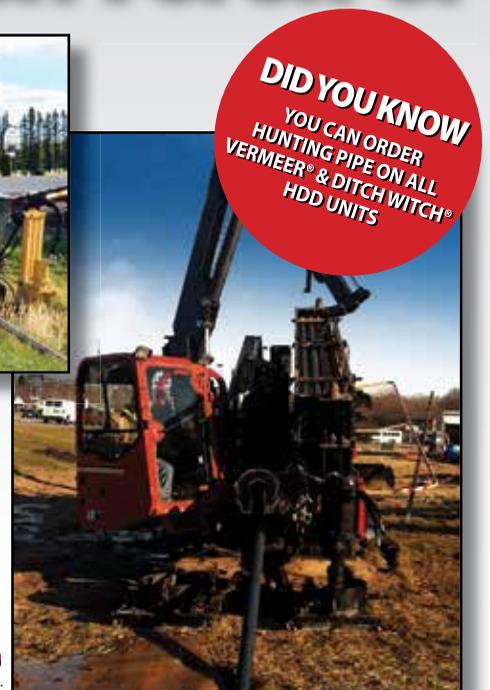
The Industry Standard

On any given day, Hunting drill pipe is at work on more jobsites than any other pipe on the market.

Even the OEM's buy it from us. Why? Because it's the pipe that you asked for. The one your toughest jobs have proven and your operator's swear by. From raw materials to final machining, every stick of Hunting drill pipe is built to stricter standards than any other pipe in the industry.

For the best-fitting, hardest-working pipe in the business, along with the roadmaps and the tooling to make your switch seamless, see your HDD dealer today and ask for Hunting.

Toll Free: 855-867-9296 | huntingtrenchless.com



DID YOU KNOW
YOU CAN ORDER
HUNTING PIPE ON ALL
VERMEER® & DITCH WITCH®
HDD UNITS



HUNTING TRENCHLESS
MADE IN THE U.S.A.
Vermeer® is a registered trademark of the Vermeer Corporation.
Ditch Witch® is a registered trademark of The Charles Machine Works, Inc.

The TV screen inside the truck that displays the view inside the sewer pipes in real time

► immediate removal and repair of the gas line.

This effort began when a utility saw the work that the consultancy was performing for the gas contractors and realised the potential benefits. This process is only slightly different from the work done for contractors, since the information to be reported is simply whether a cross bore exists or not. When one is found, the location is noted and reported.

This reporting should improve safety. In the event that a clogged sewer lateral occurs and a plumber goes in to clear a line with an existing cross bore, a gas explosion may very well take place, causing fatal injuries and severe property damage (Kennedy, 2010).

Other challenges include the following: dirty and root-ridden sewers; the cost of using and maintaining the necessary equipment and personnel to



perform the job; the need for control traffic in certain locations; and co-ordination with other companies and agencies.

FINAL THOUGHTS

Field experience suggests that there are two to three cross bores per running mile of installed distribution pipe (Wallbom and Grade, 2010). In PEER's experience thus far, after inspecting over 95,000 linear feet (approximately 18 miles/29km) of mainline sanitary sewer and over 1,500 laterals, only two or three cross bores have been found during the course of the inspection work performed in the last

year. When PEER has performed an advance inspection of the laterals, prior to the gas line being pulled, no cross bores have been detected.

The company is not aware of any other firm (in the area) using lateral inspections to pre-emptively locate the laterals prior to placing new gas lines, which makes this project and the work being performed unique to PEER.

Using the same techniques to detect cross bores in existing locations further enhances safety. Included is reduction of the risk of someone accidentally sending a root cutter up a lateral to clear a blockage when it is in fact a cross bore, causing a potentially disastrous gas leak.

PEER's experience has shown that use of these techniques does indeed not only reduce costs, but can also substantially improve safety. Its successes also indicate the value of locating laterals prior to placing new gas lines. ▼

“Field experience suggests that there are two to three cross bores per running mile of installed distribution pipe”

Peterborough Arena. East of England Showground. Peterborough. PE2 6XE UK

NO-DIG LIVE 2014

16-18 September 2014

The UK's only event dedicated to trenchless technology

- Daily demonstrations of equipment in live working environment
- Free entrance to the exhibition
- Free attendance at Breakfast Briefings
- New programme of introductory trenchless seminars
- UKSTT Training Seminars
- Free parking

Don't miss out - Contact Paul Harwood today to check availability and secure your stand. Email - pharwood@westrade.co.uk or call 0845 094 8066.

REGISTRATION IS NOW OPEN!
Register online at www.nodiglive.co.uk

www.nodiglive.co.uk

Supported by UKSTT Patrons



nationalgrid



Organised by



Supported by



Media partners

