

Renewal instead of repair with GRUNDOBURST

Static Pipe Bursting

Renewal of pressure and gravity sewer pipes

Cast iron water main replaced with Grundoburst 800G

Contractor:

Earney Contracts Lt

Brief description:

Pipe bursting techniques have been recently employed on the High Bangor/ Donaghadee Road Watermain Replacement, near Bangor in Northern Ireland.

The project consisted of the replacement of 2,700 m of 100 mm cast iron water main up-sized with a 250 mm PE Pipe. The whole project was planned to be completed by open cut techniques, however, the main contractor, Earney Contracts Ltd of Lisburn, selected a 400 m section of this work to trial TT UK's 80 t GRUNDOBURST 800G pipe bursting system.



The 800G is supplied with the TT Group's patented Quick-Lock bursting rods. These rods have a simple click lock, ladder rod system as opposed to the traditional screw threaded rods with a friction drive. QuickLock rods offer huge advantages in time and labour savings, giving continuous operation ie no need to stop bursting in order to connect or disconnect rods, greatly reduced wear and tear on the bursting rod threads and the rig jaw components.

The section of trial work chosen ran along the verge of Donaghadee Road. Had this section been open-cut, traffic disruption for up to two weeks would have been inevitable. The use of TT's pipe bursting techniques kept disruption to a minimum.

Excavations were taken out at approximately 100m intervals, where the GRUNDOBURST 800G hydraulic bursting rig was positioned and the QuickLock rods were pushed up the existing 150 mm water mains in readiness for bursting. The QuickLock rods and foot remote control allows for a constant auto rod cycle.



Upon arrival at the reception pit, the lead pilot rod is removed and replaced by a Roller Cutter Blade assembly, 300mm expander and a towing head pulling in the new 250mm PE water main. The final connections are made to the Roller Cutter Blade and Articulated Swivel Joint which are easily connected to the burst rod string located in the existing water main pipe. Once the tooling connection is complete the 800G rig is then operated in pull-back mode and bursting commences. The Roller Cutter Blade and expander is pulled into the existing water main subsequently bursting it and displacing the pipe fragments into the surrounding soil as the new water main is installed concurrently. During the pull-back operation the QuickLock burst rods pass through the rig and back into the next 100m section of existing 4" main thus enabling a 2-way burst providing yet even further time saving. In normal circumstances a hydraulic bursting rig of capacity 30 – 50 t would have been selected for this pipe material/ diameter. However in this instance, the 800G rig had been selected for demonstration purposes. Consequently combined with the high quality and superb features of the rig and the 80 t capacity, the 800G rig made light work of the 400 m section. With typical rod pushing times 60 minutes, pull back/bursting times were as little as 65 min.

Also due to the advanced design of the Roller Blade Cutter, the tonnage required to burst the actual pipe was typically as little as 16 – 20 t (32 t for joint and repair collars).



The complete GRUNDOBURST 800G system, comprising of the Hydraulic power pack, bursting rig, QuickLock rods and ground engaging tooling is easily transported on a 7.5 tonne truck. Following the success of the first trials Thomas Earney, has since purchased his own TT 800G GRUNDOBURST rig and is delighted with the significant time savings being made and says that using traditional open cut would have taken at least two weeks, whereas with careful planning and preparation using hydraulic pipe bursting the project was completed in only two days.

Simon Brown, RE for this Water Service project, also commented on the beneficial time savings made using bursting. Based on the simplicity of the operation and the saving on reinstatement of a highway, he considered that Water Service would have no problem utilising pipe bursting in appropriate circumstances.

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