

# Decommissioning a Water Main Pipe with Terefil®



## INDUSTRY

Civil Infrastructure

## STRUCTURE

Water main pipe

## PROBLEM

Pipe decommissioning

## LOCATION

Beresfield, NSW

## DURATION / YEAR

4 days / September 2016

## TECHNOLOGY

Terefil®

## BUSINESS UNIT

Mainmark Australia

## Summary

The Hunter Water infrastructure upgrade project will see the region's oldest water tunnel being replaced and re-directed underground. As part of this project an in-ground water pipe in Beresfield, NSW, was being abandoned, with a new main to be constructed by Eire Construction. The water main, built and placed in the 1920s, needed to be decommissioned. However, its location underneath a highway, school grounds and private land meant digging it out was unfeasible and filling it using traditional means would create unacceptable disruption and require access to private property.

The pipe's construction and placement less than a metre underground meant there was a risk that it could rust and collapse, which would potentially damage the structures above it and incur high costs.

It was decided that the safest and most effective approach would be to fill the pipe.

A conventional approach would involve digging up to seven holes to access the pipe, which would take approximately a week to complete. Instead, Mainmark completed the project in just four days with a single hole, using its unique Terefil® lightweight cementitious fill.

One of the key features of Terefil® is its pumpability. Mainmark placed more than 400m<sup>3</sup> of Terefil® along 620m of the 900mm diameter pipe in a single shift. At its peak, the Mainmark team pumped 68m<sup>3</sup> of Terefil® per hour.

As a result, the pipe was safely filled without damage or inconvenience to the school or any local property owners.

## Decommissioning a Water Main Pipe with Terefil® continued

## Objectives

To safely decommission the ageing water main pipe without disrupting a local school or private property owners, Mainmark used a pressure grouting technique with its proprietary Terefil® cementitious grout. First, Mainmark had to fill a 620m section of the steel pipe running beneath and adjacent to several properties. Next, it had to fill a 115m section of the pipe running beneath the New England Highway.



Water main pipe running underneath a residential area

It was essential that the solution be placed from a single entry point without accessing private property, that the project be completed in less than four days, and that the pipe be structurally filled for maximum safety.



Water main pipe located beneath the New England Highway

## Solution

The unique ability of Terefil® to be pumped across long distances made it the ideal solution for this project, particularly as there was only one access point.

Terefil® proved highly effective, with Mainmark able to pump more than 400m<sup>3</sup> of the material over 620m, through a 900mm diameter pipe, in a single 10-hour shift.

Importantly, Mainmark's approach meant no private property owners were inconvenienced and the pipe under their properties is now safely decommissioned.

Ben Murray, construction manager, Eire Constructions, said, "Mainmark was professional in their work and provided a safe, efficient, well-controlled work site that needed minimal supervision. Final clean-up and demobilisation was quick and clean. They did what they said they would. If Eire has to perform grouting of this nature and extent again, Mainmark would be the first to be contacted."



620m of water main filled in one day