

# PEZZIMENTI TUNNELBORE

Specialising in: Highly Accurate, Laser-Guided Microtunnels



**PENRITH**

**OPEN-FACED SHIELD**



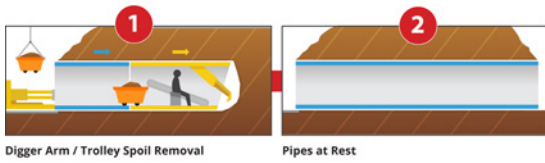
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CULVERT REPLACEMENT - PIPEJACK METHOD WITH DIGGER ARM

Pipejack with Open-Faced Shield



OUTCOME

Free Pipe



TOTAL

99m  
+ 83m



DIAMETER

Ø1500



GROUND

Sand + Clay  
+ Cobbles



CARRIER PIPE

Ø1200  
RCJP



OUTER CASING

Not  
Required



**As part of the Mulgoa Rd widening works, McConnell Dowel (MCD) was required to lay 250m of DN1200 RCJP stormwater from adjacent to Mulgoa Rd Penrith to the nearby Peachtree Creek.**

The new main runs parallel to an existing concrete stormwater pipe of similar diameter and directly adjacent to the Nepean District Competition Tennis Courts. In fact, the edge of the main is directly below the Eastern most courts.

Open cut was not an option in this instance given the mains proximity to the courts and the imminent chance of settlement. As a result, microtunnelling was chosen as the preferred method of installation.

Client / Head Contractor  
**MCCONNELL DOWELL**

Location  
**PENRITH**

Length / Pipe  
**99M + 83M**  
**DN1200 J-SERIES RCJP**

Categories  
**OPEN FACE MICRO SHIELD**



## THE INFAMOUS NEPEAN COBBLES



### Ground Condition

The ground conditions consisted of clay, sandy clay and the infamous Nepean cobbles. These cobblestones can be anything from lucky stone to coconut size and up to 200MPa in strength. When in amongst the softer sand and clay strata, they cannot be broken up using a traditional microtunnelling cutters. As there is no bearing capacity to push and break them, they tend to get thrown around the face and overcut can occur.

Thus, an open face, piloted microtunnel shield was chosen. This technique is traditionally used in fill or soft ground conditions. The method has proven to be very effective when challenging ground is expected and when installing or replacing larger diameter culverts (DN 1200 and above).

**Whilst a DN1200 pipe is very tight for a piloted system, the main advantages are:**

- Complete access to the face. Should a blockage or foreign object be present, it can be far more easily removed by the Drill Head Operator;
- Ability to extract material that may not generally be transported via a vacuum or slurry pipe – e.g. clay and cobbles together
- Dry spoil removal – as all of the spoil is removed without water or drilling fluids, there is no need to take it to a tip

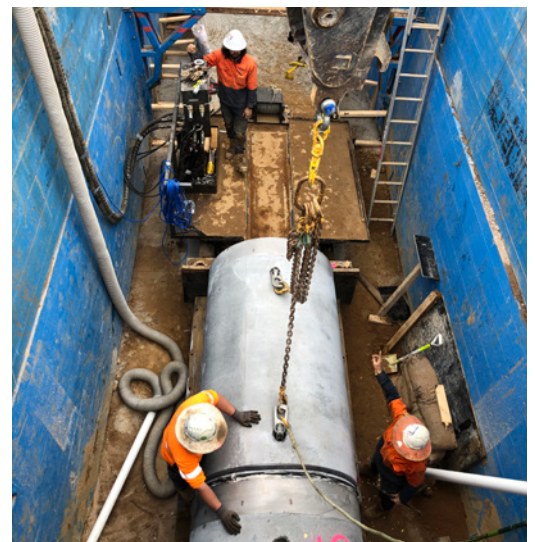






The Project went as planned at a rate of three pipes per day. There was no settlement recorded along the alignment or the tennis courts.

**For more information on the Open-Face Shield microtunnelling method used in this project, contact Pezzimenti and book a presentation session with your team.**







For all inquiries – including Job  
Inspections, Quotations and Project  
Feasibilities – please don't hesitate to  
contact Pezzimenti Tunnelbore. We  
are confident we'll hit the mark on your  
next microtunneling project.

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**WHEN ACCURACY MATTERS**