

Rehabilitation of an existing corrugated steel culvert under the Hume Highway, Broadford, Victoria.

An innovative solution to re-structuring deteriorating culverts



Our Message



"ITS PipeTech deliver cost effective, high quality, low risk solutions for all pipeline and culvert rehabilitation, extending the life of existing assets and infrastructure utilising environmentally responsible processes and methodologies".

Better Smarter Outcomes

Project Details



BEFORE



AFTER

Industry: Road

Client: VicRoads

Project: Hume Highway Culvert Renovation

ITS PipeTech has identified an exciting and innovative (patent protected) structural concrete lining system for renovating deteriorating and aging man entry pipelines, culverts and tunnels for water/wastewater, road and rail applications. Developed and widely used throughout the UK, the award winning Tunneline system is a simple in situ concrete lining technique utilising lightweight manhole accessible formwork and high strength pressure injected concrete. ITS has recently entered into an exclusive long term relationship with the M3 Group (the technology owners) to develop the Tunneline system throughout Australia. The first contract to be completed using this technology for VicRoads has given the asset a new 100 year lease of life eliminating the risk to Australia's most prominent highway from potential damage had the culvert not been repaired.

The system combines high strength concrete with steel reinforcement and specialist pumping technology together with an innovative bespoke formwork system. This results in the ability to install a pressure-placed compacted reinforced in situ concrete lining that can be designed to act as a stand-alone or composite liner in accordance with relevant Australian Standards.

Tunneline is a one pass operation and requires little or no pre works to stabilise the existing host condition. It is able to line all existing profiles and will also accommodate both vertical and horizontal bends as well as size and shape transitions within the existing hosts. It can be used to line all known culvert material types from 1200 to 9000mm. It can be designed as a stand alone structure or as a composite form where some part of the existing host tunnel structure is taken into consideration in the final design. Not only can it be designed to withstand external loading from rail and road traffic under limit state conditions and also to AS5100 and AS2566 but can also be designed to accommodate internal pressures from sewers and water mains up to 12 Bar and as such are designed as water retaining structures. In larger diameter applications, having the option to choose a fully structural, rigid solution is an attractive proposition.

The VicRoads project involved the rehabilitation of an existing 2300mm id multi-plate corrugated steel culvert, 100m long under the Hume Highway at Broadford in Victoria. The existing culvert had severe invert erosion and its close proximity to an adjacent access culvert was giving rise for concern. Tunneline technical specialists, working with ITS Trenchless developed a design that provided full structural support in a new 2000mm diameter culvert that was installed within the existing host culvert. ITS trenchless installed the lining in 10 days. Using this technology is a first for ITS trenchless, a first for VicRoads and the first successful installation of this technology in Australia.



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