

Renewing Culverts with Ribline

Corrugated metal culverts are susceptible to corrosion, particularly when the galvanised coating has worn away. Steel reinforced polyethylene Ribline provides a smooth abrasion resistant, inert liner.

The Problem:

The Western Freeway at Bungaree, near Ballarat, passes over a bank of seven corrugated metal culverts each 1800mm nominal diameter and approximately 113 metres in length. Despite being less than 30 years old, the inverts (bases) of the culverts were showing deterioration due to corrosion and abrasion.

The Solution:

Ribline, with its steel reinforced polyethylene composition, can be designed as a structural liner for large diameter culverts. Being installed by a winding machine, it can be installed from worksites with limited area.

The Project:

Ribline was selected for this project because it was capable of meeting the onerous structural design and installation requirements. The smooth inner surface meant that the flow capacity of the culverts was increased.

A liner was designed with a steel reinforcement configuration that could withstand loads from soil and traffic as if the host culverts had no remaining strength.

Before installation of the liner could commence, considerable site preparation work was needed.

An existing overgrown access track to the face of the culverts was cleared and a narrow hard standing area constructed.

The winding machine was placed adjacent to each culvert's opening at the headwall and set to wind the largest diameter liner that could fit into the culvert. Barrels of liner about 50 metres

long were wound and then winched along steel rails in the base of the culvert, with successive barrels of the liner being joined by welding.

After installation the liner was fixed in position with cementitious grout filling the annulus between the outside of the liner and the inside of the culvert.

The Project was completed without excavation and with minimal disturbance to the surrounding community.



Culverts with liners in various stages of completion. The culvert on the left has been grouted and end sealed and is virtually complete. The centre two culverts have yet to be grouted, while the far culvert has yet to be trimmed.