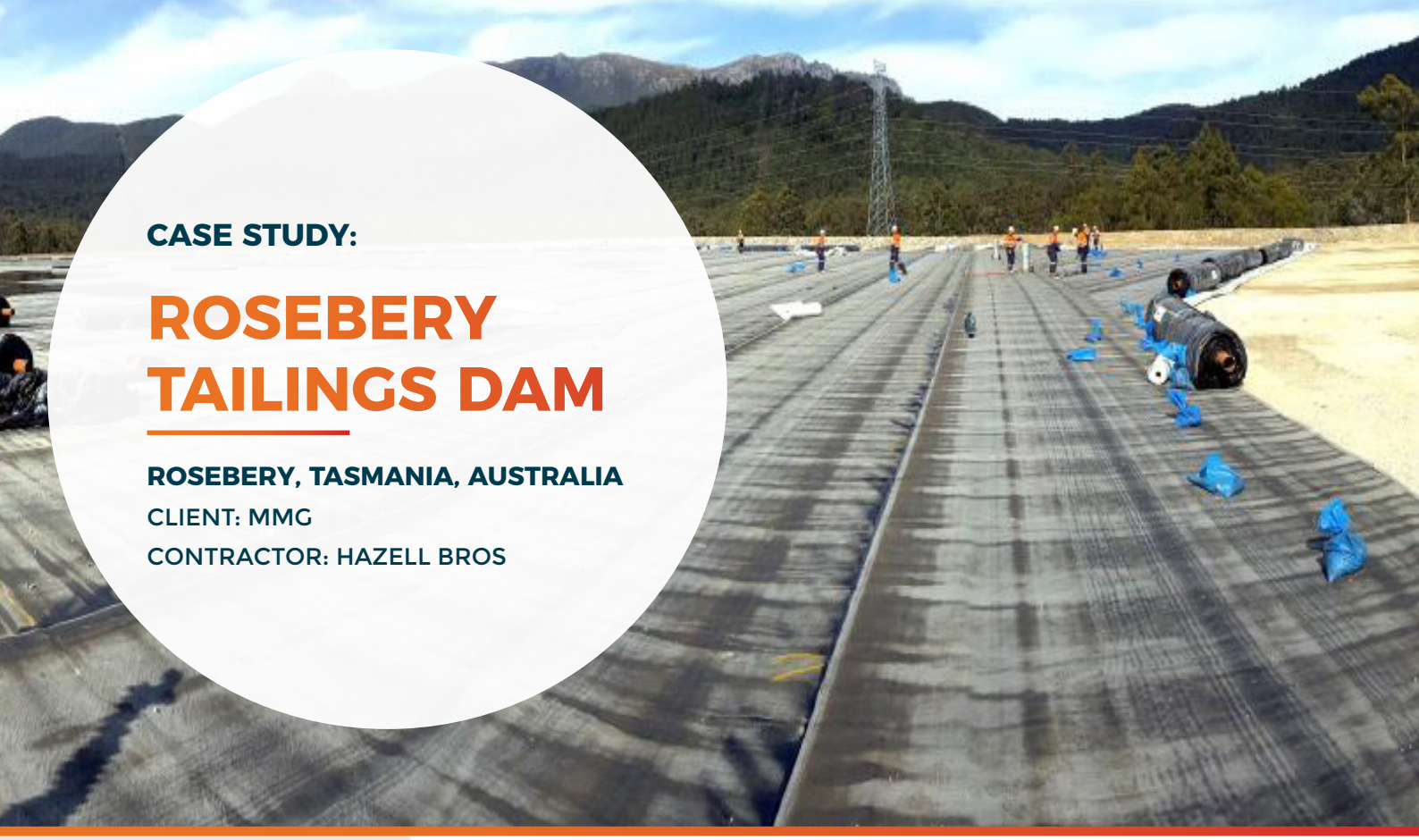

CASE STUDY:

ROSEBERY TAILINGS DAM

ROSEBERY, TASMANIA, AUSTRALIA

CLIENT: MMG

CONTRACTOR: HAZELL BROS

bidim ®

bidim geotextile is the most well known nonwoven geotextile product on the market today. It leads the way in terms of technical performance and versatility and has applications in virtually every civil engineering construction project.

bidim nonwoven geotextiles provide an effective, economical solution to a range of engineering problems including weak soil, rutted and cracked roads and liquid and gas leaks from landfill sites. All bidim nonwoven geotextiles are manufactured in Australia to ISO 9001 standards and are supported by a rigorous MQA process as well as being designed to meet the requirements of Australian and New Zealand road authorities.

bidim nonwoven geotextiles provide excellent filtration and features a strong three-dimensional structure with high elongation. bidim nonwoven geotextiles also have a high melting point and high UV resistance.

As part of long term planning to extend the life of the mine at the Rosebery site, and achieve the best environmental outcomes, MMG engaged ATC Williams to engineer methodology to address some minor historical seepage into the Stitt River, increase capacity and dam safety, and extend the life of the old 2/5 tailings dam in the town of Rosebery.

The mine mainly produces lead, zinc, and copper, as well as gold and silver, and has been operating for 82 years.

MMG awarded the contract to Tasmanian firm Hazell Brothers, who then engaged two major sub-contractors;

- Geotas to supply and install the Teranap Bituminous liner, and Geofabrics Australasia bidim A64 cushion geotextile

- Keller to install the cement / bentonite cut-off wall and grout curtain.

The scope in general terms, was to install approximately 2 kms of cement / bentonite slurry in a deep trench around the perimeter of the existing dam, to create a waterproof seal down to bedrock. The Teranap Bituminous liner was then anchored into the cut-off wall, and laid over the surface where crushed material was used to construct the new dam walls. The liner was then run up the face of the new walls, and secured in an anchor trench.

geotas
www.geotas.com

Geotas installed 190,000 m² net area of the Teranap 531 liner and 250,000 m² of upper and lower bidim cushioning geotextile.

This bank of 6,000 m² took one day to install.

Teranap was chosen for this project for its weldability and flexibility to conform to irregular shapes and surface conditions.

Hazell Brothers drilled, blasted, excavated, crushed, and moved over 1 million cubic metres of material during the construction, and Geotas installed 190,000 square metres net area of the Teranap liner, and 250,000 square metres of upper and lower cushioning geotextile.

Conditions during construction were very challenging, with over 1 metre of rain during the first month alone, high wind events, and snow. Geotas, with the help of Aeramix Pty Ltd, developed efficient methodology for the deployment of the liner, including a specially constructed hydraulic spreader bar attached to a 36 ton excavator, which was used to pick up the 1,800 Kg rolls, and accurately place the liner with a 200 mm overlap. This enabled installation of over 6,000 square metres per day, when conditions allowed.

As the liner was being placed over Bidim A64 geotextile, a flame retardant material Verecran, was laid under each join to protect the geotextile from damage during the torch welding. At times, installation was required on quite steep slopes, approaching 1:1, and the use of harnessing of the crew, safely enabled the process to continue manually, without issues. Teranap was chosen for this project for its weldability and flexibility to conform to surface conditions.

CQA on site was refined with the assistance of ATC Williams, and included trial weld shear testing, visual and air lance testing of every seam, and trowelling of the molten material at welding. Vacuum box testing was also performed on all three way overlaps. In every instance on site where the liner was placed under tension for various reasons, there was no observed failure of any welded seam, which provided us with great comfort that the process was extremely robust.