RENISON D DAM STAGE 1 -

Tailings Storage Facility

Date: **Dec 2017 – Apr 2018** Principal: **Bluestone Mines Tas JV P/L** Project Value: **$17.1M**

TASK

In December 2016, Shaw Contracting commenced construction of a new tailings dam to support existing operations at the Renison Tin Mine.

The project involved the construction of a 700,00m^3 earthen dam wall with a pressurized grout curtain, clay core, horizontal and vertical filters, PAF waste rock cell, concrete decant tower structure, monitoring instrumentation and an emergency spillway. Total excavation volume was 1,200,000m^3.

CHALLENGES

Low strength liquefiable silt up to 10m deep was encountered in the dam foundation excavations leading to slump and could not support the weight of earthmoving plant during excavation. Shaw had to redesign temporary batters to allow works to continue.

Availability, quality and conditioning of clay for the dam's core was also an issue which was overcome by the site team. After additional geotechnical investigation, Shaw found a suitable source of clay 2km outside of the dam's impoundment area. Sediment control was a major issue. Similarly, the project needed to navigate Potential Acid Forming (PAF) material.

Annual rainfall averaged 2,200mm which is over 3 times more than Hobart and Launceston's average. This presented a significant challenge to clay core placement which was overcome by using weather forecasting data in combination with detailed long term and short-term program planning. Over 50 pieces of mobile plant were used on this project.

Vertical sand filter boxes were used to place 10,000 m^3 of sand filter material and prevent contamination between materials. Excavators used to place the boxes were fitted with GPS allowing a final construction tolerance of +/-50mm.

OUTCOMES

Shaw as able to successfully deliver this project overcoming the numerous site material, isolation and weather challenges it posed notably avoiding any quality issues nor major safety incidents.