

RENISON D DAM

Stage 4B TSF Lift

Date: Sep 2025 – April 2026

Principal: BMTJV

Project Value: \$5.6M



TASK

Continuing on from multiple previous lifts, Shaw preceeded to complete the next lift of the D Dam Tailings Storage Facility at the Renison mine. The project incorporated the placement of over 50,000m³ of various materials including filters, rock and clay materials to place generate a 2m lift of the dam along the 1.5km dam wall.

CHALLENGES

Construction on the west coast of Tasmania always presents challenges due to isolation of location and changeable weather. This representing Shaw's 7th season at the Renison mine, Shaw were uniquely placed to deploy lessons learnt into project success this time. Up to 30 personnel were working remotely during the period retaining our strategy of our personnel taking up local accommodation to demonstrate community intent. Shaw also maintained a remote workshop on the site so servicing, maintenance and repair of plant and equipment could be completed locally effecting quick turn arounds.

Wet weather is a constant issue on the west coast affecting the ability to complete the works efficiently. Shaw invested in haul roads and deployed intelligent borrow and placement designs along with strategic staging layout to maximise the opportunity for efficiency whilst maintaining a quality outcome. A key constraint was having sufficient material prepared to receive the bituminous liner during favourable (warm) weather conditions. This was a key driver to project success.

D Dam is a strategic asset of the mine which is constantly in use. Integration of our works with mine operations is key for both parties. Shaw coordinated closely with BMTJV to make sure that tailings discharge operations were not impeded during dam wall lift operations, decant structure augmentation or spillway realignment.

OUTCOMES

This project represents the latest in a success upgrade operation for the Renison Mine. This success is based on constant communication with the dam, collaboration with the Superintendent and a professional and capable works team.

RENISON MINE - D DAM - STAGE 3

Decant Structure



Aug 2022 - Jun 2023

Value: \$9.4M

Task

Bluestone Mines of Tasmania (BMTJV) engaged Shaw to conduct a further lift of its tailings dam – D Dam. Shaw had previously completed stages 1+2 ahead of this Stage 3.

Primarily the project was to lift the tailings dam by winning and placement of over 200,000m³ of material, a major feature was a decant structure running up the face. The structure was appended to the structure previously installed by Shaw including insitu slab construction, RCBC installation and stitching pours due to the angular nature of the works.



Challenges

Working on the west coast of Tasmania always presents challenges due to the unfavourable climatic conditions. During the construction timeframe, more than half the days allocated for the project were impacted by wet weather. Continued wet weather negatively impacted production but also had the potential to decrease quality outcomes. Shaw engaged a number of strategies to minimize the impact of this by engaging rock quarrying and placement activities during wet weather and having a continuous programme of access road upgrade to maintain access across the site. This not only improved productivity outcomes but also had a substantive impact on the safety of machine operation.



While a construct only project, it was identified that there was a deficiency in the design with regards to the proposed cuts of the RCBC elements. Due to the extended time of design turnaround and the precast nature of the elements, quick and efficient site changes were required. Shaw was able to accommodate these changes by working with its concrete team to mitigate the dimensional and structural issues in consultation with the designer and client without unnecessary impact to the programme.



Another issue for the site was the fact that the site required the dam to remain operational. This meant working against a rising level of water in the dam. Due to site circumstances the decant structure was one of the last elements for installation with potential critical impacts if the water level interacted with the construction. Shaw worked with relevant partners to ensure the tailings dam remained operational.



Outcome

Ultimately, Shaw was able to deliver the project to the specifications and requirements of the client. Such was the performance of Shaw on this project, it was awarded further variation works to continue construction and upgrade of the dam once the initial scope of works had been completed. Shaw anticipates continued operations at Renison Mine on the back of our successful operations to date.

RENISON MINE D Dam – Stage 3



Aug 2022 - Jun 2023

Value: \$9.4M

Task

Bluestone Mines of Tasmania (BMTJV) engaged Shaw to conduct a further lift of its tailings dam – D Dam. Shaw had previously completed stages 1+2 ahead of this stage 3.

The works involved the detailed upgrade and lift of an engineered dam incorporating Zone 1, 2 and 3 material – over 200,000m³ of material - as well as a bituminous liner supplied by the Principal – over 25,000m².

The works also included the extension of the existing decant structure utilizing reinforced box culverts for the installation.



Challenges

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During construction, Zone 2 material supply was unexpectedly halted by the supplier. To avoid delays to the delivery of the project, Shaw had to enact a strategy to obtain the relevant sand materials. Unfortunately, due to distance and the type of quarries available, Shaw was not able to single source this material, rather utilize multiple suppliers and mix to generate a compliant material. Ultimately, Shaw was able to achieve this outcome without impact to the ongoing quality or programme.



Reuse of onsite materials is a key ingredient to the ongoing operation of the Renison Mine. The site is characterised by Lacustrine materials which do not necessarily have strong dam construction properties. That notwithstanding, the client sought to complete a trial of these materials in dam wall construction. Shaw had to determine a strategy, in consultation with the client, to test the suitability of this material as well as a construction methodology.

Outcome

Ultimately, Shaw was able to deliver the project to the specifications and requirements of the client. Such was the performance of Shaw on this project, it was awarded further variation works to continue construction and upgrade of the dam once the initial scope of works had been completed. Shaw anticipates continued operations at Renison Mine on the back of our successful operations to date.



Excavation & Placement

Date: Jul 2021 to Sept 2021

Principal: BMTJV

Project Value: \$500k



TASK

Shaw Contracting were contracted to excavate 3B rock material from inside the footprint of Renison's D Dam. This material was identified during the D Dam Stage 2 lift as being suitable for use on the dam wall and close to the current tailings level. Once covered by tailings this material is no longer accessible so had to be removed prior to the level rising. Works undertaken were:

- Sampling to ensure material met environmental requirements
- Designing and operating the pit to ensure personnel and equipment were safe below the level of the tailings
- Pit dewatering
- Maintain and operate the dam roads to deliver the 3B to both D1 and D2 walls

CHALLENGES

- Winter production on the West Coast of Tasmania is always difficult. Rain, snow, sleet and wind were part of normal operations.
- Renison were discharging tailings into D Dam during the project so no interruptions to their normal operations was required.
- The ideal location for the 3B fill was D2 wall. The material was scheduled to be direct placed rather than stockpiling. Direct placement is always cheaper and easier than handling the material multiple times. Access to D2 was via D1 so an effective method of wall access was required for articulated trucks.

OUTCOMES

Shaw Contracting completed the project with no interruptions to Renison's tailings discharging. We initiated the downstream raise of D1 wall early to enable reliable access to D2 wall for articulated trucks. The downstream raise provided a solid and effective road for trucks with no damage to D1 wall. We also constructed a ramp down the batter of D2 for access to D2 without the requirement to travel trucks along D2 wall. Again D2 wall was not damaged. For Renison's Stage 3 works the pre-work on both D1 and D2 walls provides early start capacity and reduces the material required whilst at the same time increasing D Dams ultimate capacity.

Renison D Dam Stage 2 Tailings Storage Lift to RL2168m

Date 2020/2021

Principal Bluestone Mines Tasmania JV Pty Ltd

Project Value \$7M

Tasks

Shaw Contracting constructed the Renison's D Dam in 2018, this dam was designed to be lifted over several campaigns to its final crest height. The initial dam was planned to be full with tailings in early 2021 requiring a lift to increase capacity. The project was undertaken over 2020/2021 period and comprised of:

- Clearing forest areas to ultimate dam footprint.
- Piezometer relocation and extensions.
- Locating, testing and managing wall materials from onsite borrows areas.
- Preferentially sourcing materials from inside of the existing dam footprint to maximise the dam volume.
- 4m lifts on 4 separate wall structures. This included a clay core, coarser outer material, and a combination of imported filter materials.
- Relocation of the emergency spillway.
- Procurement and installation of pre-cast decant components onto a new concrete slab to extend the decant structure to match the lifted wall.

Shaw Contracting were awarded the project in October 2020, the team mobilised quickly to meet the needs of our valued Client and were on site working by early November 2020.

Challenges

Any project on the West Coast of Tasmanian has significant obstacles to overcome, they include:

- The timeframe between the project being awarded and Shaw requiring to start the works was extremely short, as Shaw have a large team of highly skilled operators and fleet of internally owned equipment, the team were able to meet this tight timeframe required to make the project a success.
- As inclement weather is an ongoing problem working on the West Coast of Tasmania and generally cold days affecting material dry back, completing the 270,000m³ of Clay Core material was a challenge, Shaw managed the sequence of works to always have areas that could be constructed when the weather was bad whilst still maintaining program.
- Procuring and delivering of 13,000m³ of sand filters from third party suppliers.
- Working around an operational tailings dam and mining operation that was in continual operation needed careful co-ordination between Renison's operations and Shaw's management team.

Outcome

Shaw Contracting completed the project safely, without incident, on time, on budget and to the satisfaction of Bluestone Mines Tasmania JV Pty Ltd. There were many challenges encountered and overcome by the Project Delivery Management Team still meeting the Project Completion Date, this was a significant achievement for a 6-month project of this type.

Shaw utilised local operators and materials where possible to grow the already well established relationships with the local communities developed from other projects undertaken in the area. Shaw invested in an additional 6 Articulated Dump Trucks, 49t Excavator and D7 Dozer to expand the fleet to meet the tight program requirements. Based on this performance and relationship developed with Renison, Shaw Contracting were offered additional work on other projects to assist the mine with project completions during the D Dam works.



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 700,00m³ 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 1,200,000m³.

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 m³ 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.

