

## Paradise Dam

# Fact Sheet: Apron Foundation Geological Mapping

September 2021

### Introduction

Strengthening and stabilising work is required as part of the long-term remediation of Paradise Dam, known as the Dam Improvement Project (DIP). One of the key activities will be to improve erosion protection of the riverbed directly downstream of the dam.

Sunwater has undertaken a range of geotechnical investigations, including apron foundation geological mapping, to build a greater understanding of the foundation rock at Paradise Dam.

Information about the broader scope of geotechnical investigations was previously shared in the following Fact Sheet: [Paradise Dam Essential Works Geotechnical Investigations October 2020](#).

### What is geological mapping?

Geological mapping involves exposing, cleaning, and recording the location and properties of geological features within foundation rock. This provides information about how the area might perform when exposed to various physical phenomena, e.g., to understand the potential for scour when exposed to spillway flows.

### How was the geological mapping undertaken at Paradise Dam?

The geological mapping undertaken at the dam this year involved the following steps:

- Removing overlying sand and gravel in a 15,000 square metre area downstream of the existing apron at Paradise Dam (as shown in Figure 1) using excavators, a vacuum truck and pressure cleaning equipment (refer to Figure 2 & 3).
- Photographs of the area were taken using a drone.
- A team of geologists spent three months making observations and recording a detailed map of the rock types and features across the 15,000 square metre area (refer to Figure 4).

### Preparing the downstream area for the next phase of remediation work

The cleaning process required for the geological mapping has allowed placement of 18,000 cubic metres of concrete (refer to Figure 5 and 6) to level the surface. This is called 'dental' concrete as it fills in the gaps in the existing surface. Concrete from the spillway lowering was crushed and the aggregate recycled for this work. The dental concrete has been placed in preparation for the DIP works as an extension to the apron is required under any of the spillway height options being considered.



Figure 1 – Extent of geological mapping area at Paradise Dam



Figure 2 – Preparatory excavation work



Figure 3 – Rock clean-up for mapping and dental concrete



Figure 4 – A geologist undertaking mapping work



Figure 5 – Dental concrete being placed





Figure 6 – Dental concrete curing

## How does this help the next phase of remediation work?

The geological mapping influences dam stability and scour assessment and, ultimately, dam remediation measures. The extent of riverbed protection required immediately downstream of Paradise Dam and, the work required to strengthen the dam structure itself will be informed by the results of these investigations.

## Next steps

The geological mapping data will be incorporated into the 3D geological model previously prepared for the dam. In addition, the foundation stability analysis will be updated during the next phase of engineering design work. This will refine the remediation measures required to bring the dam back into alignment with dam safety requirements, including the Australian National Committee on Large Dams (ANCOLD) guidelines.

## Stakeholder engagement

Sunwater is committed to ongoing engagement with the community to ensure transparency during the works at the dam. We will continue to share updates as the work progresses with a dedicated Community Reference Group and Paradise Dam Industry Forum that include representatives from local government, peak bodies, customers, and downstream residents. Information is also regularly shared on Sunwater's Paradise Dam Facebook page and the project webpages on the Sunwater website.

## Questions?

Please contact us on (07) 3120 0270 or [paradise.dam@sunwater.com.au](mailto:paradise.dam@sunwater.com.au) with any questions. For general enquiries, please contact customer support by phone on 13 15 89 or live chat via [sunwater.com.au](https://www.sunwater.com.au), Monday-Friday 8:30am-4:30pm.

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