Seaham Quarry Project

Water Factsheet

December 2023

Building something great

A groundwater impact assessment has been undertaken in accordance with the Secretary's Environmental Assessment Requirements (SEARs) for the Project, as part of preparing the Environmental Impact Statement (EIS). The assessment aims to predict the potential effects of quarrying activities on the groundwater system in the surrounding area, including:

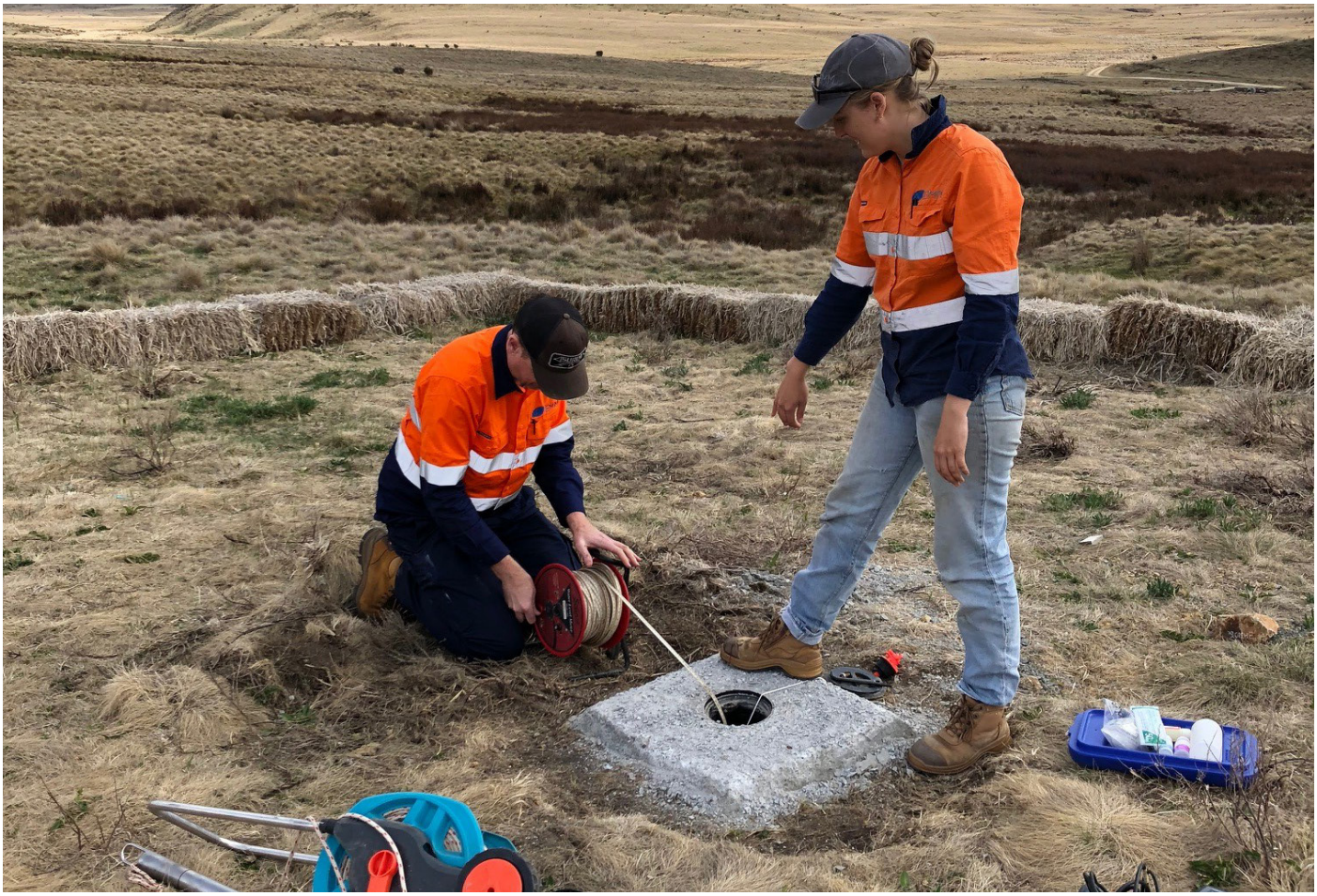
- potential impacts on groundwater levels, availability and quality
- the availability of purchasing water allocations, in accordance with the water sharing plans and water regulations
- potential surface water impacts
- the groundwater inflow to the Quarry, from excavation below the water table, which is between 50 and 75 metres below natural ground level, near the Quarry.

To inform the assessment, data was acquired from public sources (i.e. vegetation mapping, public bore databases and geology mapping) and site-specific data was collected from a dedicated groundwater monitoring network and hydrogeological drilling program.

A numerical groundwater flow model was used to assess changes in groundwater flow and levels from the Project activities. Changes were assessed within the relevant:

- groundwater sources, including the alluvial and fractured rock groundwater systems
- surface water sources, including the Williams River and Newcastle water catchments.

Grahamstown Dam is a major drinking water dam, which receives its main inflow from the Williams River, as well as its own catchment.



Groundwater sampling example

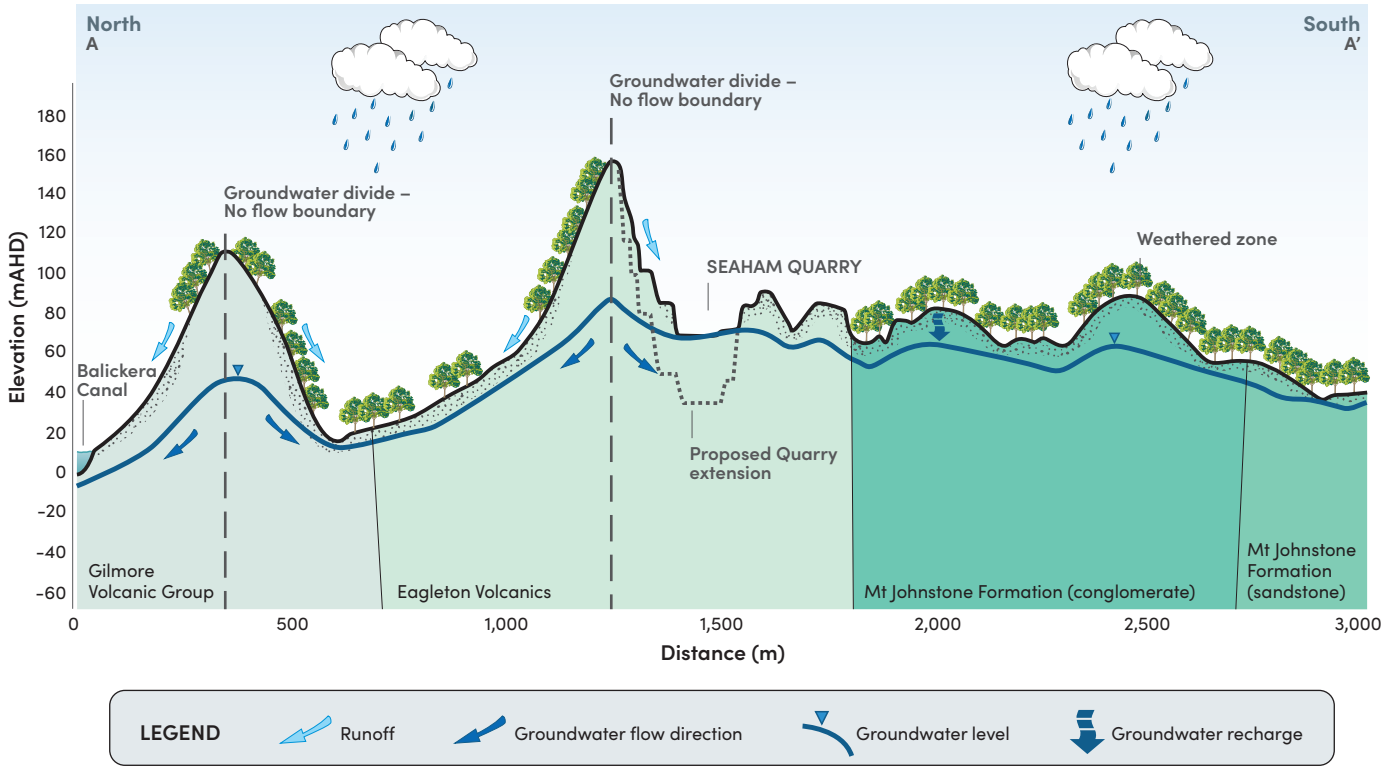
Key findings

The relatively low permeability of the fractured rock aquifer, deep regional water table and minimal observed groundwater inflows during historical quarry operations, indicate the Project will only have very localised impacts on the regional groundwater systems. A figure is provided below, showing the proposed Quarry extension and intersection with the regional groundwater table.

The localised anticipated drawdown within the elevated bedrock ridgeline is not expected to affect the alluvial groundwater systems associated with Williams River and Nine Mile Gully. The localised steep drawdown is expected to lead to small volumes of groundwater inflow to the Quarry, over the life of operations.

The assessment found that:

- with the regional water table is 50–75 metres below the natural ground level, there will be minor groundwater drawdown and inflow to the Quarry
- private groundwater water users (i.e. nearby bores) will not be affected (i.e water levels or quality)
- there will be negligible impacts resulting from reduced groundwater flow to the Williams River and Newcastle water catchment
- there will be minor impacts to groundwater dependant ecosystems that access groundwater opportunistically during drier periods, including plant communities and aquatic habitats
- there is sufficient availability in the water market to purchase groundwater expected to be used by the Project i.e. 33 megalitres per year, ensuring security for other water users near the Quarry.



Seaham Quarry intersection with regional groundwater systems

Management/ mitigation measures

Groundwater management and mitigation measures will include:

- developing a Water Management Plan, which will include:
  - ongoing groundwater monitoring and reporting commitments
  - spill management and responses
  - ongoing groundwater monitoring.
- The groundwater model will be validated every two years, which will involve:
  - evaluating the groundwater model assumptions and calibration
  - incorporating additional data into the model including groundwater levels and extraction volumes.