

Project Profile

Geosynthetic Clay Liner at Blanchetown Quarry



Client	Adelaide Brighton Cement
Location	Blanchetown, South Australia
Duration	October 2018 to January 2019
Contract	Lump Sum Construct Only
Cost	\$0.5 million

Project Overview

Adelaide Brighton Group produces and markets clinker, cement and lime products under the Adelaide Brighton Cement and Cockburn Cement brands, premixed concrete and aggregates under the Hy-Tec brand and concrete products under the Adbri Masonry brand.

Adelaide Brighton Cement own and operate a gypsum quarry located on the outskirts of the town of Blanchetown in regional South Australia. A by-product of the cement and lime production operations is cement kiln dust, which is currently being stored in resource depleted sections of the quarry.

In order to reduce the risk of vertical migration of potential contaminants in the dust reaching the underlying Murray Group Limestone aquifer, Adelaide Brighton Cement required a storage cell with a geosynthetic clay liner to safely store the cement kiln dust.

McMahon Services

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The Storage Cell (Cell 1), was designed to meet the requirements of the South Australian Environmental Protection Authority's *Guidelines for environmental management of landfill facilities (municipal solid waste and commercial and industrial general waste)*. Adelaide Brighton Cement engaged McMahon Services to undertake the construction works to achieve this objective.

Scope of Work

Works comprised the construction of the liner, evaporation swale and bund for Cell 1 with approximate dimensions of 260m by 40m wide and a total area of 10,400m². The geosynthetic clay liner required for Cell 1 had extremely low permeability, which required adjoining sheets overlaid and adhered with Bentonite paste, followed by an additional layer of Cell 1.

Cut, fill and compaction earthworks were first undertaken to ensure design levels of the subgrade, swale and batters were achieved. The delivery team ensured that the sub-grade layer of the cell was free of rocks, sticks, roots and sharp objects, and that the geosynthetic clay liner was installed in accordance with the manufacturer's specifications.

The final stage of the works was the placement of a 300mm protective layer of suitable cover material. At project completed, earthworks totalled 11,600m³ of which 3,000m³ was the protection layer, while 10,300m² of geosynthetic clay liner was installed.

Workforce peaked at eight personnel who completed 2,200 work hours, while achieving zero safety or environmental incidents.

