



DAMS/DYKES

MURRUMBIDGEE TO GOOGONG WATER TRANSFER PROJECT

Jet Grouting

AUSTRALIA



Owner

ACTEW

Engineer

Parsons Brinckerhoff

General contractor

Bulk Water Alliance

Period of works

February 2011-April 2011

Main figures

Jet grouting

installation of 112no. Ø1.2 m jet grouted columns (780lm)

Project description

The Murrumbidgee to Googong Water Transfer project involved transferring water from the Murrumbidgee River through an underground pipeline to Burra Creek in NSW, which flows into Googong Reservoir. As part of the ACTEW's scope of work, this project involved the construction of an intake/low lift pump station comprising a concrete box structure built into the riverbank.

Ground conditions

Menard had been requested to undertake a design analysis of the cofferdam embankment / jet grouting wall. The jet grouting system was designed to provide water cut-off (horizontal ingress) and stabilise/strengthen the future embankment for excavation works during the construction of the low lift pump station. During the execution of the jet grouted wall, unforeseen ground conditions were observed in the rock substratum and the fresh dacite rock was encountered deeper than expected. Ground conditions turned out to be particularly challenging throughout the project: some of the layers in the ground turned out to be weathered dacite overlaying softer residual material and the expected fresh dacite rock appeared to be highly fractured at some location.

Solution

At the request of BWA, post construction design check was undertaken to re-assess the embankment stability. As a result the calculated factor of safety was satisfactory and the stress developed in the jet grouting material was low and well within its allowable strength characteristics. Due to site constraint the drill rig operated up to 200m away from the batch facility/ high pressure pump involving the construction of underground road crossing point for grout hoses. Menard completed the installation of 112no. Ø1.2 m jet grouted columns (780lm) on a 5m wide working platform within one month in a sustainable manner which protects the health and ecology of the adjacent Murrumbidgee river.



Sustainable development

A safe distance between the jet grouted column and the edge of the platform was adopted in order to prevent grout seepage through the dredged sandy soil pores and therefore prevent water contamination by grout.