

HAIL CREEK SPILLWAYS & DROP STRUCTURES HAIL CREEK, QLD, AUSTRALIA

ENVIRONMENTAL/HYDRAULIC STRUCTURES/WEIRS & DROP STRUCTURES

Product: Maccaferri Reno Mattresses, PVC/Zinc Gabions

Problem

Flood management within a remote mine site is not always the easiest problem to solve, given the rainfall patterns in northern Queensland. The problem at Hail Creek, a coal mine approximately 60km west of Mackay, was recently addressed, with the installation of a series of hydraulic structures to mitigate the impact of flood events.

Solution

The hydraulic structures involved included a dam spillway, a low wall channel spillway and construction of a polishing dam. The project value was approximately \$1 million.

The spillways were constructed from Reno mattresses 230mm, 300mm and 500mm deep, with gabion structures being used to form the spillways' drop structures and energy dissipation baffles. All the steel mesh Reno mattresses and gabions were heavily galvanised and PVC coated to ensure durability of the structures in the extreme environment.

Earthtec Constructions Pty Ltd (Earthtec) undertook the project to construct the floodways and spillways, and the works commenced in February with completion expected in August.

Consultant name:

GOLDER ASSOCIATES

Contractor name:

EARTHTEC CONSTRUCTIONS PTY LTD

Product used:

PVC/ZINC RENO MATTRESSES 6M X 2M X 0.23M
- 100 UNITS

PVC/ZINC RENO MATTRESSES 6M X 2M X 0.30M
- 45 UNITS

PVC/ZINC JUMBO RENO MATTRESSES 6M X 2M
X 0.50M - 650 UNITS

PVC/ZINC GABIONS 4M X 1M X 1M - 150 UNITS

PVC/ZINC GABIONS 4M X 1M X 0.5M - 150 UNITS

PVC/ZINC GABIONS 2M X 1M X 0.5M - 12 UNITS

Construction date:

FEBRUARY 2003



During construction

Date: Feb 2003



Filling gabion baskets

Date: Feb 2003



During construction of drop structure

Date: Feb 2003

Solutions (Cont'd)

These floodway works probably represent the largest such works in Australia, and complement other major constructions using Maccaferri Products in recent years including the Alpine Way Restoration following the Thredbo Landslide.

Benefits

With the benefit of highly experienced crews, Earthtec have received a number of recognitions for their quality of work and on site safety record. Being a mine site, a significant emphasis is placed on safety and Earthtec's crews are justifiably proud of their excellent safety record.

Maccaferri, the supplier of the gabions and Reno mattresses, worked closely with Earthtec ensuring the supply of the units to the remote site met Earthtec's delivery program and the project quality requirements.

Rock for the works was made and supplied from an on-site facility which was able to produce materials to meet the required specifications of strength, durability and grading.

Adjacent units are laced together to resist the hydraulic forces, encouraging the units to act as a monolithic structure rather than individual units. A key factor in the ease of construction, was Earthtec's use of pneumatic lacing guns to dramatically reduce the time required to connect the units.

The use of PVC/Zinc coated steel mesh gabions and Reno mattresses in hydraulic applications is growing, with a similar structure being planned for the Kemira mine in NSW.

Earthtec has a rich history in gabion and Reno mattress installations, with further details available on www.earthtec.com.au.



Drop structure almost complete

Date: Feb 2003



Low wall channel spillway

Date: Feb 2003

Maccaferri Pty Ltd

22 Powers Road, Seven Hills, NSW, 2147 - Australia
PO Box 575, Seven Hills, NSW, 1730
Tel. (+2) 8825 6300 - Fax (+2) 8825 6399
E-mail: sales@maccaferri.com.au - Web site: www.maccaferri.com.au

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