CASE HISTORY
Rev: 00, Issue Date 01.06.2010

GEOTECHNICAL/SOIL REINFORCEMENT/BASAL REINFORCEMENT

Product: Paralink 850L

Problem

The Newcastle Coal Infrastructure group (NCIG) constructed a new export terminal on Kooragang Island. The embankment supporting the new 66 mega tons per annum coal loader on the project required the use of a high strength geosynthetic to reinforce the rail loop embankment which was 10 metres high, 120m long and 60m wide.

Connell Hatch specified that the high strength reinforcement needed to have a long term design strength of 450kN/m at 5% strain to achieve embankment stability. The two main concerns were that the embankment fill consisted of fly ash, with pH values in excess of 12 and that the particle size up to 100mm resulting in potentially high installation damage factors.

Solution

Paraproducts have been extensively used with fly ash fill in the past and were first used in the Newcastle Western Bypass in 1988 and also on the Preston Road Flyover in the United Kingdom. This previous experience together with testing provided enough confidence for Connell Hatch to specify Paralink as the desired high strength reinforcing geogrid.

In consultation with Maccaferri Australia and Linear Composites the consultants, Connell Hatch, decided on two layers of Paralink 850L due to the aggressive conditions on site. Paralink’s polyester filaments are highly resistant to chemical degradation and the polyethylene sheath coating prevents the load carrying yarns from being damaged during installation. The polyethylene sheath also protects the polyester yarns from chemical degradation.

Due to the varying widths of the embankment, Maccaferri Australia were able to manufacture and supply the rolls to specific lengths which were colour coded for ease of identification. This sped up installation, reduced the amount of wastage and provided a cost saving to the Contractor. Installation was aided by the use of a Maccaferri lifting and dispensing frame together with a installation layout drawing.

Client name:
NEWCASTLE COAL INFRASTRUCTURE GROUP

Main contractor name:
CONNELL HATCH

Consultant:
CONNELL HATCH

Product used:
PARALINK 850L

Construction date:
AUGUST 2008

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