Landfill Drainage

Final Capping, Pozidrain, Wollert Landfill, Victoria, Australia

Case Study

Project Description

Operated by Hanson, Wollert Landfill is a Waste Management Association of Australia (WMAA) Gold Excellence Award winning landfill. Since its opening in 2000, Wollert Landfill has been providing the safe disposal of waste for households, as well as commercial, industrial and demolition businesses across the state of Victoria. The landfill is constructed in cells that hold about 500,000 tonnes of waste and take 18 months to fill. Golder Associates were approached to design a cost-effective final capping system to meet the high environmental standards operated by the site.

The Challenge

The filled landfill cell needed to be safely capped with a permanent cover system which prevented the infiltration of water and the escape of gas which is converted to electricity. The proposed final capping comprised a three layered geosynthetic permanent capping treatment: a geosynthetic clay liner (GCL), a 1.5 mm LLDPE liner and a geocomposite drainage layer. A suitable geocomposite was required to provide adequate drainage underneath the 1m non-descript crush rock (NDCR) overburden.

The Solution

Designer Golder Associates established that the pressure of the NDCR overburden would necessitate the selection of a suitable geocomposite.

Project Information

Client	Hanson Landfill Services
Contractor	Cornfoot Bros Civil Contractors
Consultant	Golder Associates
Products	Pozidrain 7S250/NW8
Quantity	51,000m^2
Benefits	• Replaced 51,000 tonnes crushed stone • Increased landfill void • Cost savings to client • Rapid installation • Superior drainage compared to geonets

ABG Pozidrain Geocomposite

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abg creative geosynthetic engineering

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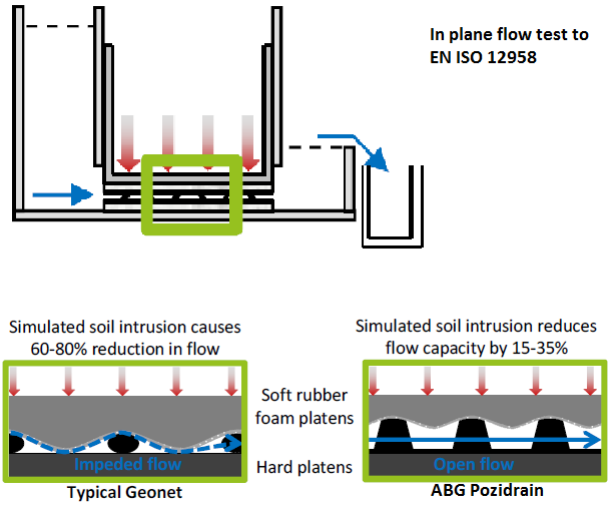
Working with ABG, it was determined that in-plane water flow values from tests obtained using soft foam platens should be used in the calculation of the required drainage (see diagram opposite). Testing with soft foam platens simulated the soil overburden and the resulting intrusion of the geotextile into the drainage core under a given pressure. Pozidrain 7S250/NW8 was chosen to meet the necessary water flow. In addition to the benefit of a more competent flow, Pozidrain with one geotextile and a virtually impermeable core provides a cost saving compared to a geonet with two textiles. Pozidrain's unique drainage core also served to provide the lining system with an additional measure of protection. Pozidrain was delivered to site and successfully passed the rigorous conformance testing.



Site simulation testing showing the superior void spanning ability of ABG Pozidrain over a typical geonet core drainage composite

The ABG Service

ABG provided flow testing and design advice from chartered civil engineers, drawing on over 25 years of landfill experience.

Large rolls butted together on top of the geomembrane with a geotextile overlap at the edge ready for tack welding

Tack welding of the geotextile overlap with a Leister gun to ensure that the rolls remained in place whilst backfilling

Contact ABG today to discuss your project specific requirements and discover how ABG past experience and innovative products can help on your project.

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