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SGSnews

Southern Geosynthetics Supplies Pty Ltd Volume 10, Issue 2: September 2012

CANAL at Wollert Landfill

New applications for geosynthetics in landfills are constantly evolving. One of the latest is the use of CANAL 8208 geocomposite liner at the Wollert Landfill north of Melbourne.

Manager Sam Bateman of Hanson Waste saw the potential to use CANAL as an alternative to GCL's or LLDPE liner for temporary slope protection.

Manufactured by Huesker in the USA, CANAL 8208 comprises a 0.5mm PE liner combined with 260gsm non-woven protection geotextiles bonded to either side. CANAL 8208 is extremely tough and has higher puncture resistance than 2mm HDPE and high interface friction properties to allow its use on steep slopes. Prior to being adopted for use, CANAL was rigorously tested to ensure it met all the strict requirements of the EPA.

As each landfill cell is completed a cover layer is placed on the leading side slope of the cell to contain gas and odour emmissions.

Common practice is to use a **GCL** or **LLDPE** with 500mm of aggregate cover but CANAL offered the added advantage of not requiring a cover layer. There is the added benefit that the hot-melt glued seams of CANAL could be done by civil contractors, without special welding equipment. The wide 7.6m rolls maximised site coverage. Testing of the glued seams found excellent seam strength and watertightness - the CANAL ruptured before the glued seam did!

CANAL is ideal for a range of civil applications including lining of channels, dams and dam spillways. CANAL has also proven ideal for use lining underground modular water storage tanks.

Inside:

Seaming of CANAL with hot melt glue

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Fortrac 3D

Fortrac 3D High Performance Turf Reinforcement Mat (HPTRM) offers superior erosion control performance, as confirmed by new independent AASHTO NTPEP* and European COMCOAST^ testing.

Independent testing* in the USA by the NTPEP program has proven that Fortrac 3D reinforced grass has a limiting water flow velocity greater than 7.3m/sec. That is , at the maximum available flow the reinforced grass system could not be failed! Large scale channel erosion tests were performed according to ASTM D-6460 over a 12 month period to confirm limiting flow velocity and hydraulic shear strength.

This testing correlates well with dike over-topping testing carried out separately in Holland through "COMCOAST"^. Fortrac 3D was shown to be the best geosynthetic for preventing soil erosion. Slopes reinforced with Fortrac 3D withstood flows of 50L/m/s, a ten fold increase on the un-reinforced allowable flow rate. Even when a hole was cut in the surface, progressive erosion was not possible and the undelying soil was protected by Fortrac 3D. The conclusion of wave overtopping testing at Delfzijl was that Fortrac 3D was a great success.

Fortrac 3D is a development of the well-known Fortrac geogrid. Fortrac 3D is a flexible, three-dimensional 18mm thick reinforcement grid made from high-tenacity, low-creep polyester, PVC coated for long-term durability. Fortrac 3D is available in a range of strengths from 30 to 120 kN/m.

The key advantages of **Fortrac 3D** over other TRM's are:

- Maximum Flow Velocity rigorously tested and results published
- Strongest mats on market - Maximum strength, 30 to 120 kN/m at minimum strain, 12.5% elongation at break, keeps soil in place.
- Open mat allows highest light penetration and maximum rapid seed germination
- Flexible structure ensures mat maintains intimate contact with the soil
- Soil Friction Value →1 ensures surficial slope stability

Fortrac 3D offers the best alternative technical solution to hard rock armour, concrete channels, rock mattresses or interlocking concrete blocks. At under $6.00/sqm, **Fortrac 3D-30** is the most cost effective solution available.

Physical Properties of Fortrac 3D-30

Property	Test Method	SI units[1]
Mass/Unit Area	ASTM D-5261	300 g/m²
Thickness[2]	Measured	17.27 mm
Tensile Strength, MD	ASTM D-6818	30 kN/m
Elongation at Break	ASTM D-6818	12%
Light Penetration (% passing)	ASTM D-6567	63%
UV Resistance @ 500 hours	ASTM D-4355	100%
Seedling Emergence	ASTM D-7322	380%
Limiting Velocity (Vegetated)[2,3]	ASTM D-6460	7.3 m/sec
Limiting Shear (Vegetated)[2,3]	ASTM D-6460	637 Pa
Manning's "n" (Unvegetated)[2]	ASTM D-6460	0.028

[1] MARV - Minimum average roll values are based on a 95% confidence level.
[2] Fortrac 3D combined with single net straw blanket.
[3] At maximum available flow, system had not reached failure.

Standard Roll Size: 4.5m wide x 100m long = 450sqm

*See the full results at:
www.ntpep.org/Documents/Technical_Committee/ECP/ ECP-2010-01-011-175-Huesker-3D-Unveg+VegChannel-Dec11-Final.pdf

^ see www.comcoast.org

Reinforced Soil

German geosynthetics pioneer Huesker is recognised as a world leader in reinforced soil technology.

Huesker won the 2010 IGS award for the "development of geosynthetic reinforcements made of innovative polymers". Technical Director of Huesker , Dr-Ing. Alexiew is a member of the working group that developed the new German guide for design of geosynthetic reinforced structures - EBGEO, which is recognised as the state of the art.


Huesker "Green Wall"

Huesker's Fortrac geogrid finds wide usage in modular block retaining wall structures and has RTA (now RMS) pre-approval for use in Keystone, Allan Block, Landmark and Vertica systems. Check the RTA website to confirm that Fortrac has amongst the highest design strengths according to the RTA design code R57.

Huesker is also known for its Green Wall system that makes use of a simple steel mesh lost formwork face combined with Fortrac soil reinforcement. Other innovative systems include the Ringtrac geotextile encased sand columns for piling in extremely soft soils. Huesker designers, through local partner Southern Geosynthetics, work closely with clients to develop cost effective solutions to a range of geotechnical problems.

Recently at Mt.Anderson, near Omeo in Victoria's high country, the DSE were faced with a large road slip and Huesker designers provided design support for the use of Fortrac geogrids in a reinforced slope. A simple "wraparound" face was adopted to complete the steepened slope. Flexible Fortrac geogrids are ideal for wraparound structures and have BBA certified design life of 120 years.

Visit the Huesker trade booth at the upcoming ICGI (Int.Conference on Ground Improvement) at Wollongong during 30th Oct to 2nd Nov and meet Huesker technical director Dr-Ing Alexiew.

Rainsmart Stormwater Modules

Rainsmart has released a new range of half height Ellipse modules.

These modules offer greater flexibility of application in low clearance situations and greater crush strength of 31 tonne/sqm. These modules were employed at a recent rainwater harvesting project at Dubbo, the largest of its kind in Australia, where an underground storage of 11 megalitre was installed under a sports field.

Recent testing in the USA proved the **Rainsmart Ellipse modules** are capable of easily supporting AASHTO HS-25 loads with a safety factor greater than 2. Call today for a copy of the report.

Sales Manager - Robert Mazniovski

Robert Mazniovski has recently been appointed Victorian Sales Manager for SGS. Robert brings experience in civil drafting, contracting and business management to our group.

Robert will be pleased to assist clients find the most cost effective geosynthetics solution to their projects. As Robert says, "make sure you always get three independent quotes to ensure you have the most competitive offer".

Contact Robert on 0409 953 136 or robert@geosynthetics.com.au

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To save you money SGS now has a new office number **1300 069 394**. It only costs you $0.30 to contact us from anywhere in Australia. Check out our new web site at **www.geosynthetics.com.au**

The new easy-to-navigate format allows you to quickly access all product and technical information. For your convenience we also have an on-line purchasing form.

All I want for Christmas is increased road funding!

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