



Global Synthetics
Australian Company – Global Expertise

geonews

ISSUE 10

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WELCOME

Global Synthetics is a 100% Australian owned company staffed by engineers with extensive experience in geosynthetics in Australian conditions. Large stock supplies are held throughout Australia to service your requirements efficiently.

This newsletter showcases some recent projects with which Global Synthetics has been proud to be associated.

Gateway Upgrade North



With Brisbane's ever increasing population and pressure put on the city's road networks the Gateway Motorway was in desperate need of an upgrade including widening to accommodate this growth.

With the federal government committing \$1 billion in funding and contributions of some \$230 million from the Qld State Government, works are under way for the start of the Gateway Motorway Upgrade North project, known as GUN1.

This upgrade will consist of 11.3 kms of road between Nudgee and Bracken Ridge over some very soft, low lying ground conditions.

The initial design for the works consisted of a number of geosynthetic products required to strengthen these low CBR areas and to maintain economical pavement depths.

Global Synthetics were asked by the successful contractor Fulton Hogan to submit a quotation for the required geosynthetic products. After a review of the products submitted by Global Synthetics and a subsequent review by Main Roads Qld that all the products submitted were within specification and to Main Roads stringent standards, Global Synthetics were awarded the supply contract for the geosynthetics required for the project.

The geosynthetic products required included, **Geofirma**® nonwoven geotextiles from strength Classes B through to E, in accordance with MRTS27. **ACETex**® high strength woven polyester geotextiles and **Ceteau**® wick drains were also supplied.

Due to the low CBR in areas where construction access and piling platforms were required, **Secugrid**® multiaxial geogrids were chosen as sub- base reinforcement.

Additionally supplied were **Link**® rock mattresses, **JuteLok**® erosion control matting, sediment control products and **ProTank**® modular tank system.

The GUN1 early works are due for completion mid 2015 with the major works to start approximately mid 2015 and take 3 years for a final completion of the project.

For further information please contact paul@globalsynthetics.com.au

Seminar series on Bentofix®

Global Synthetics Pty Ltd has a strong commitment to the education of contractors, government instrumentalities and consultants in appropriate and current practices for the use of geosynthetic products.

A recent seminar series was held both in Australia and New Zealand on the use of a revolutionary development in the use of geosynthetic clay liners (GCL's). The series of seminars were held throughout Australia and New Zealand and was specifically addressing the benefits of using a polymer coated geosynthetic clay liner in a range of applications that may have traditionally excluded this product.

Professor Kerry Rowe, an eminent researcher of geosynthetic clay liners presented a half day course on his latest research findings and provided the benefits of adding an intimately bonded polymer coating to the product. The product may also be textured to widen the applications of use in steep slope applications.

Global Synthetics are available to discuss these benefits as in landfill caps, contaminated soils, methane and gas closure and where groundwater conditions may not have been suitable in the past, for the use of a geosynthetic clay liner.

The Bentofix GCL has an established presence here in Australia for over 30 years and has gained a reputation as being a product of quality.

For additional information please contact info@globalsynthetics.com

Brisbane Airport - New Parallel Runway

Brisbane Airport (Qld) is located on a 2700 hectare precinct. The site sits on an old river delta which consists of highly compressible, low load bearing soils.

Forecasts of annual passenger growth, including both domestic and international travellers, will increase from 21 million p.a. in 2012 to approximately 50 million p.a. in 2035.

Brisbane Airport required expansion of their runway and associated facilities to handle the increase in aircraft movements. A new parallel runway needed to be constructed.

The low lying nature of the site required extensive dredging and reclamation of the site. Extensive ground modification treatments were required to improve site geotechnical conditions and allow the early works construction activities to proceed.

One aspect of works required the construction of a 4.5 km. long pipeline (1 m in diameter), such that some 15 million cubic metres of dredged sand could be pumped from the adjacent Moreton Bay onto the site for reclamation works for the new runway.

To allow for the construction of the pipeline and to effectively support construction and maintenance traffic for this pipeline an innovative solution was necessary.

A geocomposite, called **Combigrid**[®], was used to improve subgrade conditions and minimise the thickness of pavement works. **Combigrid**[®] is a geogrid, made from factory welded prestressed textured polypropylene bars. Incorporated and integrally connected between these bars is a nonwoven geotextile that provides the necessary filtration and drainage characteristics required of the product.

All early works tasks associated with the construction of the new runway have been completed. Currently there is an ongoing programme of monitoring settlements associated with the surcharging of the new runway areas. The majority of settlements should be achieved by 2018. The consolidation process has been assisted by the use of Global Synthetics **Ceteau**[®] wick drains allowing for an acceleration of consolidation periods for this project.

For further information please contact jason@globalsynthetics.com.au



Coulthards Creek upgrade – Landlok® Turf Reinforcement Mat (TRM) solution

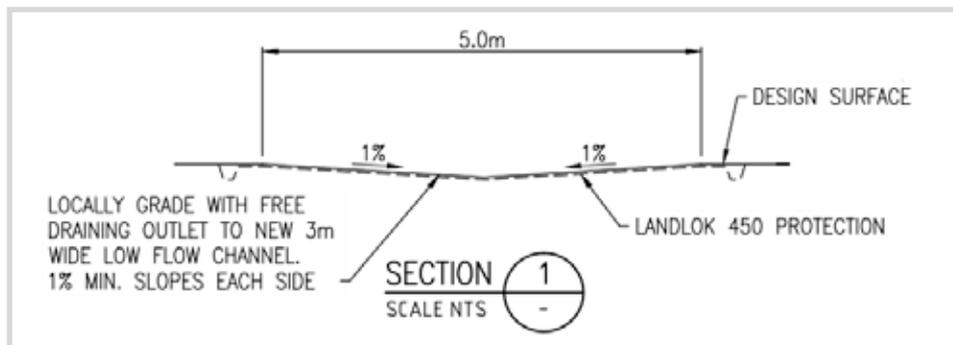
Coulthards Creek upgrade – Landlok® Turf Reinforcement Mat (TRM) Solution

Moreton Bay Regional Council (MBRC) a progressive local authority north of Brisbane-Qld proposed to undertake works for the upgrade of Coulthards Creek between Leitchs Road and the North Coast railway line, which comprises a combination of concrete lined channel and open floodway. A culvert upgrade including the reconstruction of an existing bikeway required protection of the new embankment from erosion during periods of overtopping.

The low-lying Coulthards Creek area is commonly sodden and difficult to maintain. To ensure the protection of people and property from the impacts of flooding to improve maintainability MBRC proposes to undertake works that include constructing a new wider concrete channel, earthworks to re-profile the

drainage area, raising the existing bikeway, replacing the existing low-level culverts and providing scour protection.

The solution involved modifying the Coulthards creek channel to include a low flow invert including control of the erosion adjacent to the concrete invert. Council was looking for an economical, environmentally compatible yet technical solution. At the same time, they were looking for vegetated surface in the treated areas. Due to a recurring issue of scour adjacent to low flow channels in the area it was recommended that a combination of erosion control and turf reinforcing be used directly adjacent to limit the potential for this to occur. To achieve a suitable solution, the Consultant investigated various options and finally, Propex **Landlok 450®** Turf Reinforcement Mat (Landlok 450® TRM) was selected as the most technically compliant yet economical solution. To determine the performance of this system, several standard tests were reviewed.



This erosion control system can withstand high velocities and associated high tractive shear stresses in open channels and is more economical than other traditional methods such as concrete and using rocks or rock mattresses. The presence of this system ensures erosion protection even in time of drought or reduced vegetation and remains in place to enhance the vegetation and root reinforcement of the established plant growth over long time periods..

For further information please contact amir@globalsynthetics.com.au



SRWRA chooses Bentofix® for its Adelaide Landfill

Southern Region Waste Resource Authority (SRWRA) is a regional subsidiary established by the Cities of Onkaparinga, Marion and Holdfast Bay, located in Adelaide's Southern suburbs. This site is one of the major waste disposal sites in metropolitan Adelaide, receiving in excess of 160,000 tonnes of waste annually.

The landfill operation, which for many years operated as a traditional landfill site, is now a modern, well managed waste disposal site that reflects the best landfill waste technologies and construction methods available, complying with or exceeding legislative and design requirements.

The operation employs a landfill manager and seven (7) on site personnel operating a variety of its own earthmoving and landfill equipment.

This landfill is unique, as the current operating waste containment cell (Cell 4) is not expected to reach its capacity for over 23 years. As the waste body in this cell increases in height, the existing embankments periodically require elevating & relining. As per strict EPA guidelines and third party specification, a Geosynthetic Clay Liner (GCL) is to be installed over each successive prepared cell wall.

Bentofix® B4600 Geosynthetic Clay Liner was selected and approved for this installation. With several types and brands of Geosynthetic Clay Liners Available in Australia, Bentofix® B4600 was best suited for this specific application for several reasons -

- Increased Sodium Bentonite Clay (powdered) content for maximum barrier performance.
- Superior 'Peel Strength' characteristics providing multi-directional internal shear strength.
- Tailored geotextile mass selection to ensure site specific puncture protection.
- Excellent ability to withstand differential settlement.
- 5 metre roll width minimising overlap wastage.
- Self-sealing roll edge overlaps.

The Bentofix® B4600 satisfied all the technical requirements of SRWRA's designers, Tonkin Consulting & was quickly and easily installed by the landfill operator with the assistance of specialised lifting equipment provided by Global Synthetics Pty. Ltd.

For further information please contact sean@globalsynthetics.com.au



www.globalsynthetics.com.au

For a comprehensive product catalogue, please email info@globalsynthetics.com.au

Call our Geosynthetic experts on:

- SYDNEY PHONE: (02) 9725 4321
- PERTH PHONE: (08) 9459 4300
- BRISBANE PHONE: (07) 3865 7000

- ADELAIDE PHONE: (08) 8384 8894
- DARWIN PHONE: 0411 171 737
- HOBART PHONE: 0410 665 016
- MELBOURNE PHONE: (03) 9791 1772

Global Synthetics Technical Presentations

Global Synthetics has offices in Brisbane, Melbourne, Sydney, Perth and Adelaide. Our company has a strong desire to present the best use of geosynthetics throughout our Region.

Why not contact your local office of Global Synthetics and discuss with them the opportunity of a technical presentation on geosynthetics, relevant to an area of interest to your business.

Suggested topics and the best use of geosynthetics may include a presentation on the following:

- Soil reinforcement of slopes and walls.
- Erosion protection using geosynthetics and replacement of rock and concrete
- Pavement Design using geosynthetics as a means of extending pavement life or reducing pavement depth
- Geosynthetic Clay Liners (GCL's).

Ring one of our engineers in your local state and discuss your requirements. We can then programme a suitable time to visit your office.

For further information contact your local Global Office or email alda@globalsynthetics.com.au

Product Listing

PRODUCT TYPE	PRODUCT
Geotextiles - Nonwoven	ProFab [®]
Geotextiles - Nonwoven	Geofirma [®]
Geotextiles - Woven	ProFab [®]
Geotextiles - Reinforcement	ACETex [®]
Geogrids - Pavement	Secugrid [®]
Geogrids - Reinforcement	ACEGrid [®]
Rock Mattress	Link Mattress
Gabions	Link Gabions
Geosynthetic Clay Liners	Bentofix [®]
Geocells	Miracell [®]
Geomembranes	Carbofol [®] & ProLiner [®]
Geonet	ProNet [®]
Sheet Drains	ProDrain [®]
Drainage Cells	Hydrocell™
Water Tanks Modular	ProTank [®]
Erosion Blankets - TRM	Landlok [®]
Erosion Blankets - TRM High Performance	Pyramat [®]
Erosion Blankets - Biodegradable	JuteLok™
Silt Fences	Global
Floating Silt Curtains	Global
Dewatering Tubes	ProTube [®]
Wick Drains	CeTeau [®]