



Global Synthetics  
Australian Company – Global Expertise

AUSTRALIAN COMPANY // GLOBAL EXPERTISE

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# geonews

ISSUE 15

## 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.

## Upcoming seminar on Landfill design, research and current best practice

Excellence in Landfill Design Global Synthetics is pleased to announce, as part of our commitment to the advancement of the use of geosynthetics in Australia, a range of world class researchers and designers who will inform about recent advances in landfill design and landfill research. This is an opportunity to discover what is happening worldwide from speakers of authority.

Seminars will be held during the month of August 2018 in Perth, Sydney, Brisbane and Melbourne.

Seminars will run for the full day at each location.

In this series of seminars Global Synthetics will be addressing the latest findings on long term performance of lining systems, design methodology of drainage geocomposites for both gases and fluids and specifically addressing the filtration design of geotextiles in landfill caps and lining systems. The direction of overseas MQA and CQA trends will also be discussed with reference to world best practices and relevance to Australia.

Please visit our website [www.globalsynthetics.com.au](http://www.globalsynthetics.com.au) for full details of dates, speakers and costs to attend.

This is an opportunity not to be missed and so register early. There will be limited places available.

## Combigrid® Supports Pavement Construction on CBR 1% - Cunningham Highway, Warrill View, Qld

The Warrill View section of the Cunningham Highway carries some 5000 vehicles per day and as a major freight corridor between Sydney and Brisbane, 16% of that is heavy vehicles. This section of the Highway was extensively damaged during the major flooding activity in 2011. To improve safety and flood immunity, a 3km section of the Cunningham Highway through Warrill View has been upgraded with a combination of new road pavement and repairs to the existing pavement to provide better road infrastructure to further ensure this major route remains open in all weather conditions.

To improve the bearing capacity of the soft subgrade (existing <2% CBR) and therefore reduce the thickness of the required pavement, a geocomposite reinforcement solution was suggested by the designer. The geocomposite was a geogrid to provide reinforcement and a nonwoven geotextile to provide filtration and separation. The geocomposite had to comply with the requirements of a Type 2 reinforcement geosynthetic in accordance to QLD TMR specification for subgrade reinforcement: **MRTS58 (2015)**.

After reviewing some available products, **Combigrid® geocomposite** was selected to be used in this project. **Combigrid®** was approved for use by Queensland Department of Transport and Main Roads (TMR).

**Combigrid®** geocomposite is made of a biaxial laid and welded **Secugrid®** geogrid for reinforcement combined with an integral nonwoven geotextile (integrated between geogrid bars) for separation and filtration. **Combigrid®** offers higher radial stiffness than competing products, higher installation damage resistance, and better performance based on available full-scale trials, technical support offered, and successful application and experience on many previous TMR projects. More than 50,000 m<sup>2</sup> of **Combigrid® 40/40** was successfully used in the project.

**Combigrid®** has been approved by Qld TMR to meet MRTS58 requirements and has been successfully used in many large infrastructure projects including the Brisbane Airport New Parallel Runway access roads, Moreton Bay Rail Link platforms, Bruce Hwy upgrade Cooroy to Curra, D'Aguilar Highway upgrade and Gateway Upgrade North Project to mention a few.

Construction was completed in mid 2017.

For further information please contact [amir@globalsynthetics.com.au](mailto:amir@globalsynthetics.com.au)



# Bentofix® Raises the Bar for an Iron Ore Giant

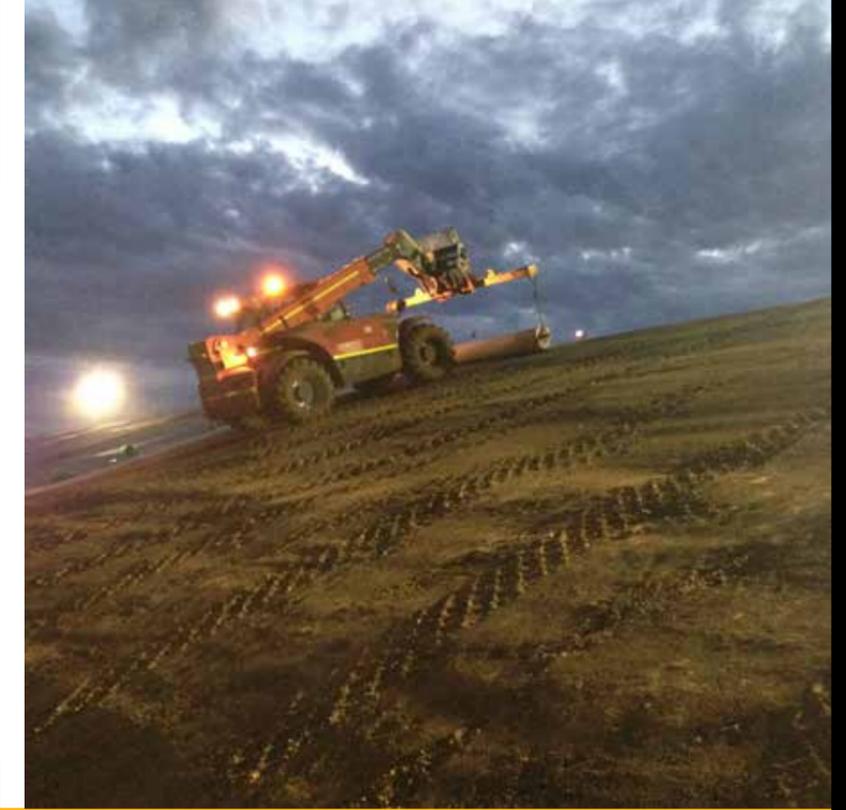
CITIC Pacific's operational Sino Iron project, located at Cape Preston some 100km southwest of Karratha in Western Australia, stands among the most modern and technically advanced mines in history. It is the first fully owned and operated Chinese iron ore mine in Australia and was built for a massive \$10 billion. CITIC have overcome enormous difficulties in building this state-of-the-art 'mega-mine' in the middle of nowhere, having implemented world-leading technology on many levels. CITIC are operating the largest dump trucks of their type and the largest SAG mills (crushing mills) in the world at Sino. CITIC's designers also pushed technology limits by incorporating state of art lining materials in their tailings storage facilities (TSFs).

Recently, two TSF expansions incorporated Bentofix® Geosynthetic Clay Liner (GCL) as part of an advanced composite lining system. The construction team chose Bentofix® for its ability to safely satisfy the design intent by complying with environmental regulations, significantly reducing the risk of leakage and improving the recovery and recycling of water from tailings to other mine processing streams....a critical component to any TSF barrier system.

Global Synthetics supplied Bentofix® grade 'NSP 5400j' to meet the project specification & comply with the onerous Victorian BPEM standards for third party quality testing and monitoring. One of the reasons why Bentofix® complies with these standards is that it comprises one of the purest forms of sodium bentonite & does not incorporate any polymer additives to artificially enhance its sealing properties. There is little to no verifiable testing or documentation substantiating the long term performance of 'altered' sodium bentonites in GCL barrier applications. All constituent parts of the Bentofix® product are declared on its technical datasheet in accordance with local & international regulatory standards (EPA Vic, GRI USA, EA UK).

Jaylon Industries was chosen to install lining systems for both expansion contracts. Jaylon faced challenging timelines running night time shifts under floodlight. Over 130,000m<sup>2</sup> of Bentofix® across the two TSF stages have been installed by Jaylon for Sino Iron thus far. The barrier system is designed to protect the surrounding environment for centuries beyond the 25 design life of the Sino Iron lease.

For further information please contact [sean@globalsynthetics.com.au](mailto:sean@globalsynthetics.com.au)



# Western Sydney Business Park – ACEGrid®/ Keystone® Retaining Wall – Solves Warehouse Issue

**H**orsley Drive Business Park, located in Wetherill Park- is a newly-established industrial estate in Western Sydney. Its focus is not just on business efficiency but with quality of environment as a priority. The location is highly convenient to the Sydney customer markets, however the site selected and the subsequent construction of the warehouse facility necessitated a proven, aesthetically pleasing retaining structure, consistent with the quality of this modern warehouse and distribution area of Sydney.

A soil reinforced wall consisting of a soil reinforcement geogrid marketed as ACEGrid® connected to a concrete block facing system marketed as Keystone® was selected. The Keystone® wall was up to 6m in height with a 3m Link gabion wall at the wall base. The wall was constructed by Retaining Solutions Pty Ltd. Total wall area was in excess of 1500m<sup>2</sup>.

### ACEGrid® uniaxial polyester geogrid information:

ACEGrid® is an engineered polyester geogrid that has exceptionally high strength characteristics at low levels of strain. The product is additionally coated with a polymer that provides high resistance to long term degradation and the effects of mechanical damage during grid placement.

ACEGrid® polyester geogrid has minimal post construction strain issues and allows a wall to maintain constructed shape over design lives of 100+ years.

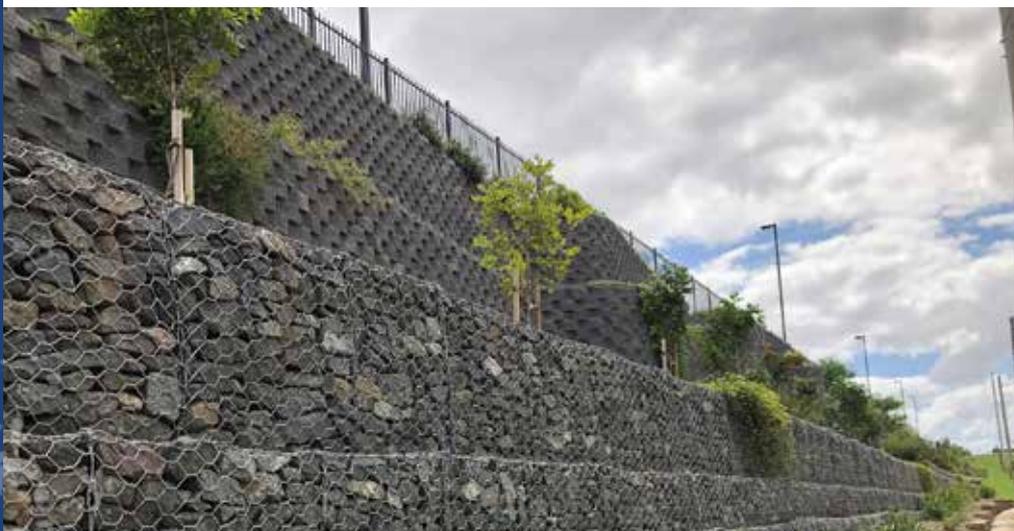
The ACEGrid® polyester geogrid is extremely easy to place and will not “recoil” such as will happen with some competitor geogrids increasing installation costs.

### Keystone® Compac® segmental retaining wall using Acegrid® geogrid reinforced soil

ACEGrid® geogrids were used behind a masonry dry-stacked unit, called Keystone® Compac® blocks. The wall design incorporates a reinforced soil mass, whereby the soil is compacted between layers of geogrid. The geogrid provides shear strength to the compacted select fill, as well as connection strength to the face block. Thorough wall analyses of internal, external and global stability checks are required to determine the reinforced soil block dimension (plus geogrid tail length, grade and spacing).

To add to the natural landscape of the site, a **Link® gabion mass gravity wall** was constructed below the Keystone® reinforced soil wall. This fully permeable gabion structure blends into the natural environment and can be additionally coated to provide maximum longevity.

Should you require information on any aspect of this solution or require design assistance please contact [ray@globalsynthetics.com.au](mailto:ray@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	Transnet®
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®
Geosynthetic Sand Container	GeoRock™

[www.globalsynthetics.com.au](http://www.globalsynthetics.com.au)

For a comprehensive product catalogue, please email [info@globalsynthetics.com.au](mailto:info@globalsynthetics.com.au)

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