



NewsLetter

JULY 2012 EDITION

The South African Chapter of
the International Geosynthetic
Society



Established in 1994 and Dedicated to the Scientific and
Engineering Development of Geosynthetics and Associated
Technologies

A newsletter of the Geosynthetics Interest Group of South
Africa in Association with the South African Institution of Civil
Engineering

PRODUCED BY GIGSA : www.gigsa.org

Gundle Geosynthetics strengthens its activities throughout Africa

The Gundle name is well known in the field of Flexible Geomembrane linings in South Africa, and the ever increasing demand for Geosynthetic materials in greater Africa, particularly for infrastructure, mining and environmental projects, continues to afford Gundle Geosynthetics (Pty) Ltd many an opportunity to extend the company's activities throughout the African continent.


Gundle's main activities lie in the supply and installation of geomembrane lining materials for environmental protection, predominantly in the landfill and mining industries but also to a growing extent for water storage facilities in the agricultural sector.

Well established in South Africa for decades, additional opportunities are continually being secured in other parts of the continent to complement the growth strategy of the company, which is active in Mozambique, Eritrea, the Democratic Republic of Congo, Botswana, Zimbabwe, Uganda, Tanzania, Ghana, Liberia, Sudan and Burkina Faso.

Pre-manufactured geomembrane liners incorporating geotextile protection layers are being supplied to road

construction contractors for temporary site water storage during major construction activities, while supplementary geosynthetic materials such as geosynthetic clay liners, geotextiles, and geogrids are also supplied and installed as part of an extensive product and service offering.

Gundle Geosynthetics prides itself on well trained and equipped installation teams, which are dispatched from South Africa for the installation of many lining projects. In most countries the installation teams are expanded and supported by locally available personnel who benefit significantly from the training and technology skills transfer received along with income. Joint ventures with local companies are formed on many projects – a well proven model, assisting in significantly improved communication and efficiencies within the workforce. These partnerships also lead to important benefits including convenient, rapid region-based installation support which in turn provides a more competitive service. With Gundle's assistance, local joint venture partners have acquired liner welding equipment to execute small projects within the community themselves, especially for small water storage facilities to support food garden projects.



BENEFACTOR MEMBERS (IN ORDER OF JOINING)

Engineered Linings • Kaytech • Aquatan • Geotextiles Africa • SRK Consulting • Jones & Wagener • Gundle Geosynthetics
ARQ Consulting Engineers • Reinforced Earth South Africa • Maccaferri South Africa • Gast • Fibertex • Fraser Alexander Construction NexTube
Stefanutti Stocks Mining Services • Golder Associates • Rhino Geosynthetics • Total Terrain Lining Systems • AKS Lining Systems • Hefer Plant Hire cc

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Gundle Geosynthetics strengthens its activities throughout Africa

Gundle Geosynthetics sources its range of geosynthetic products from reputable South African and foreign manufacturers, and ensures that these materials conform to South African and international standards in accordance with the requirements of specifying entities and specific climatic conditions in Africa. The Company has an ISO certification and is affiliated to internationally recognised geosynthetics societies. To date, more than 3.8 million

square metres of geosynthetic materials have been installed in African countries - over and above more than 11 million square meters already installed in South Africa.

One such project is Gundle's contract in Burkina Faso, located some 300 km from Ouagadougou, the capital. This involves the installation of HDPE Geomembranes for tailings facilities, raw water storage and heap leach pads.



Gundle's geomembrane installation in Burkina Faso. This is a 1.5 mm thick HDPE geomembrane for a tailings facility application.

The Gundle Group (Pty) Ltd. is a level 4 Broad Based Black Economic Empowerment business and forms part of the Winhold Ltd group of companies, which is listed on the Johannesburg Stock Exchange. The company plans to continue its success to date, while at the same time ensuring a sustainable and value-added, social and economic contribution to the various industries, markets and geographic regions in which it operates.

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Heard on Kulula 255 just after a very hard landing in Cape Town : The flight attendant came on the intercom and said, "That was quite a bump and I know what y'all are thinking. I'm here to tell you it wasn't the airline's fault, it wasn't the pilot's fault, it wasn't the flight attendant's fault, it was the asphalt."



Prez Sez

Dear Members,

I have commented a number of times that one of our aims is to host a technical course or seminar instructed by an international specialist in a respective field at least yearly. In view of this I am pleased to announce that Prof. Jonathan Fannin of the University of British Columbia has agreed to talk to us on reinforcement and filtration in two sessions in November this year. The reinforcement course will form the main subject and will also be presented in Cape Town and Durban. Details of the event are provided later in this newsletter and on our website (which brings me to another matter).

We have recently launched the new GIGSA website with a new look and feel but also adding technical content and links to industry. As GIGSA is an industry-driven organization for the benefit of industry, success is subject to a collective effort. Please visit us at www.gigsa.org and we would really appreciate feedback and technical contributions.

On the specifications front we are also making good progress where general ISO standards on geosynthetics and some index properties of geotextiles have been reviewed and are currently being processed within the relevant SANS technical committee for ultimate approval

by the SABS as national standards. GIGSA's standards sub-committees can do with additional industry input and we request interested parties to join GIGSA's SABS technical sub-committees. More detail on these activities can also be found under the articles tab on our website.

Until next time,

All the best.



Geosynthetic Greetings,

Anton Bain

President

anton@jaws.co.za

"scientia potentia est" (Attrib Sir Francis Bacon)

Geotextile sector booming in China

China's geotextile market currently exceeds 300 million square meters, with 40% of the volume being nonwoven geotextiles, says geosynthetica.net. From 2006 to 2010, the country's manufacturing output of geotextile materials rose more than 35% annually, according to information exchanged during the December 3 China Geotextiles Composite Materials Summit 2011 held in Lingxian, Shandong.

In an article from Yarns and Fibers Exchange (YNFX), Li LingSshen, president of China Nonwovens and Industrial

Textiles Association (CNITA), attributes much of the geotextile market's growth to sustained, heavy infrastructure investment, particularly in regards to water management and transportation.

YNFX reports that geotextiles are among the construction materials emphasized in China's 12th five-year plan, which provides guidance on development from 2011 to 2015.

The nation's output of geotextiles rose to 405 000 tons in 2010 and is expected to reach 730 000 tons by 2015.

(Reprinted from www.geosynthetica.net)



Preliminary Announcement

GIGSA Presents Short Courses on Filtration and Drainage in Pretoria, Durban and Cape Town over 5 – 9 November 2012

GIGSA is preparing to present CPD-accredited short courses on:

- **Geosynthetic Reinforced Soil**
- **Geotextiles in Filtration Applications**

To download the complete South African course prospectus and to register, go here: www.gigsa.org

**Presenter: Professor Jonathan Fannin DPhil, P.Eng
Professor and Associate Head (Graduate Programs)
University of British Columbia, Canada**

Jonathan Fannin obtained a B.Sc. (Civil Engineering) from the Queen's University of Belfast, and a D. Phil. (Geotechnical Engineering) from the University of Oxford for studies on geosynthetics for soil stabilisation. Thereafter, he joined the Norwegian Geotechnical Institute, Foundation Engineering Section. He moved to the University of British Columbia, joining the faculty in 1989, and attaining promotion to Full Professor in 2001. His professional service has included Chair of the Canadian Geotechnical Society (CGS) Geosynthetics Division, Board Member of the North American Geosynthetics Society, and Associate Editor of the Canadian Geotechnical Journal.

He lectures on soil mechanics and the practice of geotechnical engineering, with application to civil engineering earthworks, and to natural resources engineering in the forest sector.

Courses taught at the undergraduate level include introductory soil mechanics (CIVL 210). Subjects taught at the graduate level include advanced soil mechanics (CIVL 570) and designing with geosynthetics (CIVL 579). Additionally, he has delivered professional short courses on specialist topics to practising engineers in Canada, the USA, Europe and SE Asia. He has twice been recognised by the University of British Columbia for his outstanding contributions to teaching excellence, with a Killam Teaching Prize (1998 and 2004), and, more recently, received the President's Teaching Award from the Association of Professional Engineers and Geoscientists (2008).

Jonathan has authored or co-authored over 100 papers in journals, conference proceedings and research reports as well as authored or made contributions to 4 books. His current research activities focus on ground improvement with geosynthetics; slope stability and landslide risk management as well as seepage-induced internal instability and piping phenomena in soils. For a list of his publications, go here: http://www.civil.ubc.ca/documents/faculty_publications/FA_NNIN_Full-Pub-Record_April-2011.pdf

For more information about Prof Fannin, go here: <http://www.civil.ubc.ca/people/faculty/faculty-fannin.php>



Why you should attend

This short course will offer insight into the state of the art use of geosynthetics in reinforcement and filtration. If you are involved in the design or construction of reinforced soil structures or drainage applications such as earth embankment dams, roadside drainage, structure basements or even golf course construction, you cannot afford to miss this course.

Continuous Professional Development

Accreditation of CPD points (1 point for full day course and 0.5 points for half day course) are pending and will be finalised following the course. Refer to www.gigsa.co.za for confirmation in December 2012.



GIGSA Applauds Pro-active Waste Facility Owners and their Professional Service Providers

In 2009 and 2010 the National Department of Environment Affairs led a broad consultative process around the development of revised waste classification and containment standards. GIGSA was an active participant in this process, and the draft regulations were gazetted for public comment in July 2011.

In this consultative process, shortcomings of the containment barrier system standards contained in the second edition of the Minimum Requirements for Waste

Disposal by Landfill (MR) were identified and addressed in revised liner layout proposals.

While it was envisaged that these revised regulations would be in effect by now, they have not yet been promulgated and this has led to an awkward situation in the broader industry, where some players continue to pursue the absolute minimum of acceptable standards contained in the historic MRs, while others have recognized the environmental risk emanating from those provisions and pursue the best practical environmental option as contained in the 2011 gazetted notice, despite the economic burden of competing with those who do not.

We have identified some waste facility owners that have elected to pursue the appropriate modern and environmentally responsible standards, and they include Messrs Sappi at their Ngodwana Macrodump Extension, Messrs Cape Gate at their Materials Recovery Storage, Messrs Enviroserv at their Holfontein Hazardous Waste Facility; the Rustenburg Waterval Landfill, and Eskom's Tutuka Power Station. Their consultants being Golder Associates Africa; Jones and Wagner Consulting Engineers; and Peter Legg Consulting.

GIGSA applauds these parties and trusts other waste generators will too.

We invite others not mentioned here to inform us where they are complying with the proposed lining standards.

Editor



We contend that for a nation to try to tax itself into prosperity is like a man standing in a bucket and trying to lift himself up by the handle.
Sir Winston Churchill



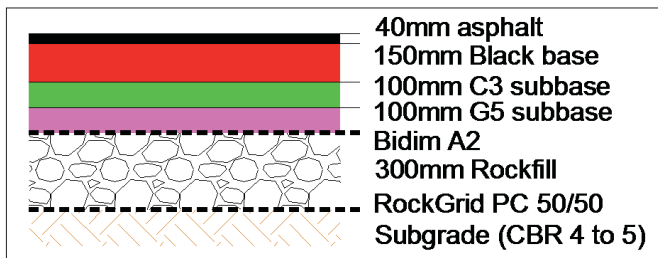
Case History: N6 Rehabilitation Structural Problems Solved

Sections 3 and 4 of the National Route 6 – from Ezibeleni to JJ Serfontein – pass through the centre of Queenstown in the Eastern Cape. This approximately 3 km stretch of road recently underwent repair work which included widening, rehabilitation and patching.

Severe restrictions were imposed on this work due to space constraints, existing services and traffic accommodation, as this N6 route is a hive of activity almost 24 hours a day. Problems were encountered when higher than average rainfall and expansive insitu clay subgrade conditions with a CBR 4 - 5 and $PI \geq 9$ resulted in a waterlogged box cut. A blast rock drainage layer was tried on the subgrade, but was found to heave unacceptably and become contaminated with mud during compaction. Kaytech's 'RockGrid PC 50/50' geogrid (27 509 m) was then placed between the rockfill and subgrade to separate, stiffen and reinforce the rockfill layer.

This is a 50 kN/m biaxial composite polyester geogrid which offers the reinforcement characteristics of geogrids and wovens, coupled with the useful hydraulic qualities of needlepunched nonwovens. In this product, the nonwoven carrier is reinforced with a warpknitted grid of high tenacity polyester multifilament yarns, and a characteristic benefit of this type of composite geogrid is that the nonwoven component protects the reinforcing elements during the critical installation phase, minimizing damage to the reinforcing component.

The high-tensile modulus (high tensile strength at low elongation) polyester reinforcing layer also exhibits low creep characteristics (creep is defined as time-dependent deformation of a reinforcing material due to the application of a continuing and constant force).



The layerwork on this project

Creep reduces tensile strength in long-term behavior in many polymers used for reinforcing products (Ref SANS 207: "The design and construction of reinforced soils and fills"), however, the high-strength multifilament polyester yarns in RockGrid PC demonstrate a very low creep tendency.



Waterlogged box cut



RockGrid PC reinforcing laid in trench



G5 subbase placed on reinforced layer

Due to the permittivity and transmissivity characteristics of the needlepunched nonwoven carrier fabric, this product also provides good filtration and drainage characteristics, facilitating the reduction of pore water pressure and improving the soil shear characteristics, thereby increasing stability.

The RockGrid PC 50/50 has proven to work well on this project, and the technique was adopted for a greater portion of the contract.



GeoAmericas 2012 Conference: Report-back from Kelvin Legge

The above conference was held in Lima, Peru over 1 – 4 May under the auspices of the IGS, and was attended by a number of South African delegates. Kelvin Legge was there and has provided the following feedback on the technical committee meeting on barriers :

1. The technical committee on barriers met on Thursday the 3rd May between 12:00 and 14:00 (although it started in Peruvian time)
2. The meeting was chaired by Kent von Maubeuge with his management committee and prominent persons present including Dr Natalie Touz-Foltz; Malek Bouazza; Kerry Rowe; Peter Legg; Piet Meyer; Martin Schafer; myself and several others. It was noted that the committee comprises some 60 persons most of whom were not present and that there is a somewhat open participation in contributions.
3. Minutes of the meeting are anticipated and as I recall the discussion revolved essentially about how to best pursue the IGS objectives of information dissemination to the membership and what level of information should be available.
4. The primary probable media would be the use of the IGS website and it was suggested that reference works are listed/hosted for membership convenience.
5. In discussion it was accepted that the focus is on barrier systems, and not barriers in isolation. Thus the adjacent drainage and leak detection components interaction is to be recognised.
6. The need for competent barriers in environmental protection resulting in diverse standards across the world (noting the world wide survey on standards) was briefly discussed and it was suggested I draft a brief in this regard for the management committee consideration.
7. There is a call for consideration of regional leaders over and above chapter representatives.
8. It was agreed that attention needs to be given to both introductory and state of the art references with acknowledgment of innovative solutions. This is particularly pertinent as there is a tendency of using experts to present introductions whereas members are actually in search of solutions.

In fear of reporting too much of my own opinion I suggest that the minutes from the secretary Dr Touze-Foltz should be relied upon as and when they become available.

Kelvin also provided the following comment:

“The GeoAmericas conference exhibition area had some superb samples on display, but they could not be taken home, although blind persons were allowed to touch...”



(Editor's Note): I have many pictures of Kelvin, taken at IGS -related conferences all over the world, including Vienna, The Hague, Singapore, Yokohama, Nuremburg, Cape Town, etc. At every one of these conferences he has landed up with a pretty girl on his arm or on his lap. How does he do it?

GIGSA hears that Jonathan Sykes has returned from the UK to take up the position of Director: Sales and Marketing at Benefactor Member Engineered Linings, and will be based in Cape Town. Welcome back Jon!



CONFERENCE CALENDAR 2012

some important Geosynthetic Seminars and Conferences in 2012



www.eurogeo5.org

EuroGeo 5 – Valencia Spain – 16-19 September 2012

http://www.eurogeo5.org/index_i.php

The International Geosynthetics Society (IGS) has organized the "EuroGeo" European Congress for the past 15 years via the respective national chapters. The first Congress was held in Maastricht, followed by EuroGeo2 in Bologna, EuroGeo3 in Munich, and EuroGeo4 in Edinburgh in 2008. The next EuroGeo, EuroGeo5, is being organized by the Spanish IGS Chapter, which has set the City of Valencia as the venue.

SEPTEMBER

International Conference on

Ground Improvement and Ground Control

Transport Infrastructure Development and Natural Hazards Mitigation

ICGI Wollongong 2012 - (30 October – 2 November 2012)

University of Wollongong

<http://www.icgiwollongong.com/index.cfm>

"This Conference will act as a platform to disseminate the most recent research and field advances to the geotechnical community around the globe and is expected to be the biggest Ground Improvement conference to be held in Australia. Outstanding keynote lectures, State of Art (SOA) presentations, heritage lectures and numerous technical discussions will contribute three days of scientific and technical discourse followed by attractive excursion encompassing the natural landscape of the south coast of New South Wales."

OCTOBER

GA2012

GEOSYNTHETICS ASIA 2012

5th Asian Regional Conference on Geosynthetics

10 to 14 December 2012 Bangkok, Thailand

Deadline for Submission of Abstracts to GA2012: 31 May 2011

<http://geosynthetics-asia2012.com/>

DECEMBER

Geosynthetics

2013 April 1-4, 2013
Long Beach, California

www.geosynthetics2013.com

<http://www.geosynthetics2013.com/index.cfm>

GRI-25: A 25-Year Retrospective of Geosynthetics and Glimpses Into the Future. Geosynthetics 2013 is honoured to host the annual GSI Conference (GRI-25). Speakers will address the history and background of environmental and transportation regulations; resin and additive developments; manufacturing of all of the different types of geosynthetics; ASTM, ISO and GRI standards developments; development of generic specifications; progression of design methods; trends in contracting; and institutional developments like IGS, NAGS, GSI, GMA, etc... etc.

APRIL 2013

CONFERENCE CALENDAR 2012

some important Geosynthetic Seminars and Conferences in 2012

International Symposium on Design and Practice of Geosynthetic-Reinforced Soil Structures



Faculty of Engineering, Bologna University, Bologna, Italy: 14-16 October, 2013

<http://www.civil.columbia.edu/bologna2013/>

The Symposium is organized under the auspices of the Department of Civil, Environmental and Materials Engineering (DICAM), University of Bologna, Italian Geotechnical Association, International Geosynthetics Society, and Technical Committees TC 101 (Laboratory Stress Strength Testing of Geomaterials) & TC 305 (Geotechnical Infrastructure for Megacities and New Capitals) of the International Society of Soil Mechanics and Geotechnical Engineering

OCT 2013

<http://www.10icg-berlin.com/>



SEPT 2014

*This is a story which is perfectly logical to all males:
A wife asks her husband, "Could you please go shopping for me and buy one carton of milk, and if they have eggs, get 6." A short time later the husband comes back with 6 cartons of milk. The wife asks him, "Why did you buy 6 cartons of milk?" He replied, "They had eggs."*

The Editor

The GIGSA Newsletter is published on a sort-of-quarterly basis.

Contributions and compliments eagerly received. Criticism may take some time to respond to...



Peter Davies

GIGSA Newsletter Editor

Send your contributions, comments and suggestions for the GIGSA newsletter to the Editor at: peter@kaytech.co.za



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 <p>AKS</p>	<p>www.aks.co.za PO Box 240, Milnerton, Cape Town, 7435 Tel: (021) 551 4210 Fax: (021) 552 6318</p>	 <p>H</p>	<p>www.heferplant.co.za PO Box 2962, Kocksvlei, 1764 Tel: 082 496 8696 Fax: (011) 692 4068</p>