G & E
ENGINEERING
Since 1984

G and E Company Ltd

July 2026








G AND E COMPANY LIMITED
14/F Kiu Yin Commercial Building
361 – 363 Lockhart Road, Wanchai, Hong Kong
Tel: 2570 0103 Fax: 2570 0089 e-mail: info@g-and-e.com
website: www.g-and-e.com

G and E – A Perspective

G and E, a geosynthetics specialist, distributes a full range of geosynthetics from renowned global manufacturers. The Company also manages a competent installation contracting service team. To better serve our clients, design and engineering services have also been established in our portfolio. We aspire to provide our client engineering solutions, from application and design, supply of materials and their installation, to conformance testing and project commissioning.

G and E takes a strong vision in geosynthetics application, sustainable construction, and development by working closely with engineering communities, consultants, academic, industry organizations, research institutions, testing laboratories, contractors and education bodies, a mission to broaden geosynthetics' versatility.



We offer comprehensive and competitive services to application, design, installation, and testing, with superior attentiveness, professionalism, and international industry standard.



G and E is ISO 9001 quality management certified and a VSRS registered contractor, with a remarkably successful working relationship with a long list of clients, the government, stakeholders, contractors, designers, consultant engineers, overseas distributors and trading partners. The clientele extends to Macau, Southeast Asia and Southern China.

Talk to us today and see how our proposal can be an appropriate, cost-effective and time-saving solutions. We are in our 40th year in the industry, we have a library of experience to share and to support your project.

ISO9001:2015 | International Geosynthetics Society | Product Endorsement | Registered Subcontractor

January 2025

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G and E runs a global distribution network and sourcing agent of geosynthetics, as well as a provider of professional design and installation services.



Kai Tak Development - Reconstruction and Upgrading of Kai Tak Nullah

GEOTEXTILE:	Woven, non-woven, thermal bonded, needle punched, spun bond, special weave & composite
GEOMEMBRANE:	PE, PVC & EPDM membrane, keyed preformed, conductive & concrete protection liner, gas barrier, waterproofing sheet, leakage collection, contamination treatment & effluent containment system
GEODRAIN:	Geonet, geocomposite, cuspated drain, band drain, PVD, sheet drain, relief drain, raking drain
GEOGRID:	Uni-axial, bi-axial & tri-axial geogrid and composite geogrid, reinforced fill construction
EROSION CONTROL:	Erosion mat, concrete mat, coir mat, geocell, gabion, wire & cable mesh, concrete canvas, flexible rockfall barrier
MARINE:	Silt curtain, turbidity control, block mat, geotextile tube, oil & trash boom, geobag, geotextile container, concrete mattress
CLAY LINERS:	Geosynthetic bentonite liner, GCL and composite
TUNNEL:	Waterproofing membrane, invert drainage void former, GFRP, strip drain, geodrain
LANDSCAPE:	Geotextile filter, root barrier, drainage composite, roof drain, tree anchor, rigid drainage cell, grass paver, zero irrigation system
SERVICE:	Geomembrane leak location survey, HDPE pipe, geosynthetics fabrication, repair & testing, crib wall, reinforced fill slope and wall, ground stabilization, land decontamination

January 2025

REGISTRATION CERTIFICATE

this is to certify that the management system of

G and E Company Limited.

have been assessed by A CUBE TIC LIMITED and registered against the requirements of

ISO 9001:2015

scope of registration

General Construction installation work Service and sales of Construction material such as Geosynthetics

14/F Kiu Yin Commerical Building361-363 Lockhart Road, Wan Chai, Hong Kong

Sites Registered		
28		21/16729
EAC		Certificate Number
22nd January 2014	27th March 2024	27th March 2027
Date Original Registration	Date Of Re-registration	Expiry Date
27th January 2027	N/A	N/A
Next Re-Audit Due Date	Revision Date	Previous Expiry Date

Alfonso Pagliuca, President & Founder, A Cube TIC Limited

UKAS MANAGEMENT SYSTEMS 0273

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

ACT

This certificate is the property of A Cube TIC Limited Unit 5 Middle Bridge Business Park Bristol Road Portishead Bristol BS20 6PN UK and must be returned on request.

International Geosynthetics Society

CERTIFICATE OF CORPORATE MEMBERSHIP

2026

The International Geosynthetics Society

certifies that

G AND E COMPANY LTD

is a member in good standing of the International Geosynthetics Society and is a dedicated contributor to the professional and technical developments of geosynthetics.

Sam Allen
IGS PRESIDENT

Laura Carbone
IGS SECRETARY GENERAL

Member ID #13116 | Member Since: 2017 | Valid from January 1 – December 31, 2026

CONSTRUCTION INDUSTRY COUNCIL
建造業議會

Our ref本會檔號 ： RS/26/03
Your ref來函檔號：

24 March 2026

Mr Sau Tak NG
G and E Company Limited
14/F, Kiu Yin Commercial Building,
361-363 , Lockhart Road,
Wan Chai, Hong Kong

Dear Mr NG,

Registered Specialist Trade Contractors Scheme
(Register of Subcontractors)
Application for Renewal of Registration
(Application No.: RA028627, Registration No.: R004449)

We are pleased to inform you that your application for the following trade / specialty has been approved with effect from 02 June 2026 to 01 June 2029(both dates inclusive), the approval letter has been uploaded to the RSTCS Portal for download. -

01.09 General Civil Works
01.09.04 Geotechnical works
02.06 Tanking and Waterproofing

Pursuant to the Registration Undertaking, you are required to comply with the Rules and Procedures for the Register of Subcontractors(accessible via www.rstc.cic.hk), including but not limited to update the Committee of any changes of your Registration Particulars within specified period in the RSTCS Portal (https://eform.rstc.cic.hk).

Please be reminded to arrange for least one of your named company directors or proprietors to complete at least 1 hour of integrity training during the registration period in order to fulfill the renewal requirement of the registration.

Should you have any queries, please contact CIC Secretariat-Registration Services (Email:enquiry-rstc@cic.hk/WhatsApp 2100 9471/Tel: 2100 9400) and browse the Scheme Website (www.rstc.cic.hk) to take note the latest CPD trainings and related information

CONSTRUCTION INDUSTRY COUNCIL
建造業議會

Our ref本會檔號 ： RS/26/03
Your ref來函檔號：

Yours sincerely,



Jacky Yu
Manager - Registration Services
for Committee on Registered Specialist
Trade Contractors Scheme

38/F, COS Centre, 56 Tsun Yip Street, Kwun Tong, Kowloon, Hong Kong 香港九龍觀塘駿業街56號中海日升中心38樓
Tel電話：(852) 2100 9000 | Fax傳真：(852) 2100 9090 | Website網址：www.cic.hk

	Manufacturer	Brand Name	Product	Country of Origin	Product Description	Application	Model
1	ABG	Cavidrain, Cavidrain liner Deckdrain Roof drain Geocomposite "G" Pozidrain Deckdrain HF360	Drainage former for tunnel Geocomposite Water retention geocomposite	United Kingdom	Cuspated HDPE core Cuspated core with geotextile Egg cell draiange Thick suspated core with geotextile Geocomposite with woven geotextile	Tunnel drainage Retaining wall drainage Roof garden drainage Planter drainage core Basement drainage	CU 60 1250S, 1250SXD HF360
2		ACE Tube ACE Container ACE Former/mattress ACEGrid, high strength ACETex, high strength ACEMat ACEanchor ACE Geobag	Geotextile Tube Geotextile Container Geotextile Tube PET geogrid PET woven geotextile Special geosynthetic container Geotextile bag	Taiwan	Custom fabrication of geotextile into large container, mattress, tube and bag PVC coated PET yarn geogrid Higly permeable goetextile bag	Containment of contaminated waste Erosion protection Coastal structure Coastal protection Ground reinforcement Geotechnical containment Dewatering, desludging	ACEtube ACEbag U500 GG GT
3	BONTEXGEO	Bontec non woven Bontec woven High Flow woven BS	Non woven geotextile Woven geotextile High flow geotextile Heavy weight geotextile	Belgium Hungary	PP needle punched / heat bonded PP woven PP woven high peremability PP non woven	Soil fiter and separation Special drainage Membrane protection	NW 6, 10 & 20 SG 25/25 HF BS90
4	BSTD GEOSYNTHETICS	E'GRID GC E'GRID GG bi-axial E'Drain / Geocomposite E'Grid HDPE	Cellular confinement system Geogrid Geocomposite Geogrid	Qingdao China	Extruded HDPE geocell Bi Axial PP geogrid Geonet with geotextile jacket Reinforced fill construction	Erosion Control System Slope stability Slope draiange MSEW & steep slope	GC Series GG
5	G&E ENGINEERING Since 1984	GESC GT100-II Leak location survey GERD Raking drain GERD Relief drain	Customized silt curtain, anchor Geomembrane leak detection HDPE perforated drain pipe Relief Drain	Hong Kong USA	Prefabricated silt curtain system Customized geotextile panel Pipe assembly with lining and outlet Rock slope drainage	Environmental control Turbidity control Slope drainage Release of water	GESC - GT100 SDRGCL-OF GERD 200/30
6	CeTeau	CT-D Duradrain CT-SD	Prefabricated Vertical Drain (PVD) Degradable PVD Strip drain	Thailand Malaysia	Prefabricated vertical geocomposite Bio-Flex PVD Horizontal drainage	Accelerate settlement Sustainable PVD Lateral drainage	CT-D CT-SD
7	Q1 Q. CNE Company	GESC 15, 30 Ton bag Oil / trash Boom Sewoo Geofoam Geotextile fabrication service	Silt curtain Special container Oil curtain Expanded polystyrene Geotextile fabrication	Korea	Customized silt curtain Customized container Customized oil fence High density styrofoam Large sheet geotexitle	Turbidity control material containment/storage containment of oil spill Replace of soil Ease of installation	GESC DM15
8	GSE ENVIRONMENTAL	HDPE LLDPE White reflective HDPE liner Conductive liner	Geomembrane High temperature membrane Vertical barrier Leak detectable membrane	Thailand Canada China	HDPE membrane LLDPE membrane HDPE tunnel lining HDPE liner with conductive layer	Waste containment Gas mitigation Leakage collection/detection Check for leaks after installation	1 - 2 mm
9	MACCAFERRI	Gabion DT Wire mesh HEA panel, Steelgrid Flexible barrier Hellomac Steel & PP fibre ACBM GFRP Kikkonet Macres / Paralink Under water gabion Macline	Gabion & reno mattress Wire mesh Reinforced wire mesh Rockfall fences & flexible barrier FB monitoring system Concrete additives Articulated concrete block mat Removable soil nail Marine netting Reinforced fill construction Vehicle barrier Erosion control	Malaysia Indonesia Italy Philippines Italy China Malaysia China Malaysia UK Italy Malaysia	PVC wire gabion Double twisted wire rockfall netting Wire mesh with steel wire/cable Ring net flexible barrier fence PP and steel Cable connected concrete block Fiber glass soil nail Non biofuel net Soil reinforcement strip Impart barrier	Rock buttress Slope protection Rockfall & boulder masking net Debris flow flexible barrier FB management Increase flexural strength Coastal protection/underwater ballast Softeye system Trash boom/aguaculture Reinforced fill construction Road safety Diversion of water	P/8/2.7 P/6/2.2 HEA RMC, RB

	Manufacturer	Brand Name	Product	Country of Origin	Product Description	Application	Model
10	TENAX	T-Block TT slope HF geocomposite	Extruded HDPE geogrid Extruded HDPE sheet Tri-planar geonet /geocomposite Geocomposite	Italy	MSEW RE slope and wall geogrid Geonet/Geocomposite drainage High friction geocomposite	Reinforced fill construction Reinforced fill construction Drainage / gas relief layer Capping drainage	TT TT Tendrain HF / HF Plus
11	CONCRETE CANVAS	CC5 = CCT1 CCX U CCX M CCX B	Geosynthetic Cementitious Composite Mat (GCCM)	United Kingdom	Flexible concrete liner	Temporary slope protection Drainage channel lining Waterproofing, water containment	CCT1 CCT2 CCT3
12	TRI ENVIRONMENTAL	Testing in CA & TX Testing Suzhou Leak Location Survey	Geosynthetics testing services Leak detection service	USA China	HOKLAS MRA geosynthetic test Service to locate membrane leakage	Conformance testing service CQA procedure	
13	Tensar	InterAx RE slope & panel wall Asphalt reinforcement geogrid	Stabilization geogrid RE slope and MSEW wall Glasgrid	Wuhan, China	Tri-axial PP geogrid Extruded HDPE geogrid Polyester bitumen geogrid	Soft soil stabilization Reinforced fill construction Pavement reinforcement	Triax RE
14	GREEN TEX GLOBAL	CCM 700 Coir log Stitched blanket	Biodegradable erosion mat Coir mat Turf reinforcement mat	India	Coir geotextile Coir fabrication Jute geotextile	Erosion protection Soil saver Vegetation enhancement	CCM700
15	MatteX	GeoMatt geotextile	Non-woven geotextile Woven geotextile	Saudi Arabia	PP needle punched non-woven Light woven geotextile	Soil filter & separation Soil stabilization	NP
16	SKAPS	Geotextile Geocomposite Geovolt	Geotextile Geocomposite Conductive geotextile	India USA USA	PP woven & non woven Geonet / geotextile composite	Soil filter & separation Drainage	GT TN
17		RG-EP	Geogrid	Taiwan	Woven coated polyester geogrid	Paving block geogrid	RG50-50EP
18	FREUDENBERG INNOVATING TOGETHER	Enkamat Enkagrid Enkadrain	Erosion Mat Geogrid	Germany	Polyamide erosion mat Polyester welded geogrid	Slope works Reinforced soil	Enkamat 2020-1
19	MEGAPLAST	HDPE Lining	Geomembrane	India	HDPE membrane	Lquid containment / barrier	
20		Non Woven geotextile	Non woven geotextile	India	PP needle punched / heat bonded	Soil fiter and separation	
21	Global Synthetics	Hydrocell, Prodrain ProTank Turfpro	Rigid Drainage core Water Retention Box	Australia	HDPE plastic core HDPE module box	Planter/ retaining drainage Retain water under planter	Hydrocell ProTank
22	築綠生態 有限公司	Suspended pavement		Taiwan			
23	GEPS	Non Woven Geotextile		India			

	Manufacturer	Brand Name	Product	Country of Origin	Product Description	Application	Model
24		Geocomposite	Drainage	India			
25		Platipus Plati grip	Earth Anchoring system Soil anchor	United Kingdom	Percussion anchor system Anchored reinforced grid solution	Slope stabilization Sturcture tie back anchor	S2, 4, 6
26		Raking drain	Slope water release pipe Geosyntheitc clay liner	China	HDPE perforated pipe Waterproofing		
27	Root barrier Roof drainage / planter drain Geotextile Geocell Turf cell, Turpro Drainage cell Trellis PP netting Drainage strip Tree anchor Biodegradable erosion mat Nonbiodegradable erosion mat Waterproofing Zero irrigation system	Solmax - HDPE ABG - Deckdrain/Roofdrain Bontexgeo - NW 6 Bost'd - Geocell Global Synthetic - Hydrocell ↑ Global Synthetic - Hydrocell ↓ Bost'd - bi-axial grid ABG - strip drain Gripple - tree guying kit CCM - Coir geotextile Freudenberg - Enkamat Maccaferri - Macline Global Synthetic - ProTank	HDPE geomemrbane	Thailand UK Begium China Malaysia Australia China South Africa UK India Germany China Australia			1.0 mm NW 6, NW10 E'grid GC Gelbolck Hydrocell E'Grid 2020 Megaflow TGK 3,4 CCM700 Enkamat 20 TMAT ProTank

G & E
ENGINEERING
Since 1984

Content

- Geotextiles
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- Waterproofing & Containment
- Erosion Control
- Environmental Control
- Tunneling
- Landscape
- Others
- Geosynthetics Testing

Geotextiles

Executive Summary

Geotextiles are permeable fabrics used to separate, filter, reinforce, protect, or drain soil. Typically made from polypropylene or polyester, they are woven or non-woven and come in normal white, grey, or dark grey colors.

G and E supplies a wide range of woven and non-woven geotextiles, ranging from very lightweight to heavy-duty, low to high strength, and with extreme permeability.

Selected geotextiles include:
BontexGeo Bontec SG25/25 – lightweight woven for filter and as a protection cover
BontexGeo Bontec NW10 & NW20 – non-woven needle punched for general filtering
BontexGeo Bontec SNW120 – non-woven, heavy-duty for cushioning and separation
Mans Geo MGT30 – non-woven with high flow rate for raking drain
Mattex GeoMatt - needle-punched and thermal bonded non-woven geotextiles
Skaps – non-woven geotextile in dark grey color, with ASTM specification
ACE Geosynthetics GT – high-strength PET woven geotextile for reinforcement
ACE GT100-II – woven and heavy-duty for silt curtain
Manufactura Fontana – heavy non-woven for membrane protection
GEPS - Needle-punched and thermal bonded non-woven geotextiles

In addition to the above, G and E carries a wide range of special-characteristics geotextiles, composite geotextiles, and fabricated geotextile panels. Depending on project requirements, G and E can make recommendations on the most appropriate and cost-effective geotextiles for any application, handling method, and testing.

Stitching prefabrication of geotextile in a jumbo panel can be customized into sizes to facilitate site deployment.

Geotextile

Geotextiles are engineered woven or nonwoven fabrics manufactured from synthetic polymers, such as polypropylene and polyester. It is used with foundation, soil, rock, earth, or other geotechnical-related material as an integral part of a manufactured product, structure, or system.

Various Areas of Applications of Geotextiles

- Embankment
- Filter & Drainage
- Foundation
- Landfill
- Landscape
- Protection Layer
- Reclamation
- Soil Separation
- Tunnel

At G and E, we have woven and non-woven geotextiles in stock available for prompt delivery.



Formation Separation (ND/2024/07)



Filter Drainage (Tai Po Golf Course)



Planter Filter & Drainage (HKHA20210526)



Sand Blanket Separation (C3205)

BontexGeo, Belgium – Bontec

- SNW120 – Cushioning
- NW10 & NW20 – Filtering
- NW6 – Landscaping

- **Manas Geo Tech, India**: MGT30 – Raking drain
- **Mattex, Saudi Arabia**: GeoMatt NP – Drainage
- **Geo Source, India:** GST - Protection
- **SKAPS, USA**: SW & GT – Landfill
- **ACE, Taiwan**: ACETex GT – Reclamation, Silt Curtain

The Geotextiles Distributed by G and E

- In compliance with most specifications
- Ample stock for prompt delivery
- Competitive pricing
- International technical support
- Quality assurance program
- Supplied more than 25,368,000 m^2 since 1984
- Approvals from various consultants, architectural firms, public institutions, various government departments, and most institutions.

Contact Us Today for a Quotation

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多用途土工布

土工布(又稱隔尿布) 是必不可缺及實用的土木工程建築材料。因應不同的工程需要, 出現了編織及非編織兩大類. 土工布主要的原材料為聚丙烯.

土木工程中土工布用途廣泛

- 填海
- 海堤
- 隧道
- 園藝
- 堆填區
- 地基處理
- 隔泥幕
- 保護層
- 過濾與排水
- 排水喉/管/渠應用

G and E 為了方便你們, 專門備有各類型编織及非编織土工布存倉, 隨時送貨


Filter Drainage (Tai Po Golf Course)


Formation Separation (ND/2024/07)


Planter Filter & Drainage (HKHA20210526)


Sand Blanket Separation (C3205)

比利時 BontexGeo - Bontec
NW6 • 園藝排水, 過濾
SNW120 • 加墊, 加厚
NW10 & NW20 • 一般過濾

沙地 Mattex GeoMatt NP • 排水土工布
美國 SKAPS SW & GT • 堆田土工布
台灣 ACE ACETex GT • 填海, 隔泥膜
印度 Manas Geo Tech MGT30 • 排水溝
印度 GEPS GST • 保護

G and E 代理的土工布

- 符合各項工程規範要求
- 充足存貨
- 優惠價格
- 國際品牌
- 可信賴質量認證

- 四十多年來各工程供應量超過二千五百多萬平方
- 有多間顧問公司, 建築司樓, 及公營機構的批核, 也包括建築署, 地政署,水務署, 渠務署, 路政署, 環保署, 房屋署, 土木工程拓展署, 港鐵公司, 港燈公司等等

聯絡我們查詢產品詳情, 價格及送貨

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Ver. 18_May 2026

Geotechnical

Executive Summary

Maccaferri Rockfall Barrier / Flexible Fence

Flexible barriers are well accepted for rock fall/debris flow mitigation. They are designed and supplied in a 'kit form' with components, including panel mesh, anchor posts, footing plates, energy dissipater, cables, anchor wire, and shackles. Maccaferri barriers are available in impact capacities from 100 kJ to a massive 9,000 kJ, completed with a recognized European full-scale test accepted by GEO. We could provide anchor design, system supply, installation, and commissioning.

Maccaferri Geogrid Reinforced Fill Construction

Paraweb geogrid is used in the Macres system where concrete panel facings are connected to reinforcement strips and are then tied back into the retaining soil mass by friction and anchor. Paralink geogrid is used in the Terramesh system where gabion facings are laid over the geogrid to establish a grass slope facing is established. Maccaferri geogrid has a GEO Design Data Sheet in 2022.

TENAX TT Geogrid Reinforced Fill Construction

TENAX TT geogrids are manufactured by extruding and mono-directional drawing of high-density polyethylene (HDPE) grids. The application is in soil reinforcement and reinforced fill construction using the proprietary T-Block Wall System and Rivel Reinforced Slope System. TENAX TT geogrid has had GEO endorsement certification since 1996, superseded by Design Data Sheet in 2022

Tensar Geogrid Reinforced Fill Construction

HDPE RE geogrid is commonly used in reinforced fill slope construction, where geogrid is wrapped back to retain the soil mass caused by friction. A well-established technical office can provide design, engineering, particular application, testing, and training support to projects worldwide. Tensar geogrid has had GEO endorsement certification since 1990, superseded by Design Data Sheet in 2022

Tensar InterAx Geogrid

Tri-axial geogrid that interlocks and limits granular movement. Best for soft soil stabilization, especially used on low bearing capacity subgrade for temporary construction traffic, haul road, reduction of differential settlement, and minimizing unpaved road rutting. InterAx has been proven to reduce granular reinforcement thickness, saving many costs.

Maccaferri Gabion

Maccaferri's double-twisted mesh gabion is ideal for buttresses and drainage. It will not unravel or unzip when exposed to extreme loads or when wires within the mesh are cut or damaged. Maccaferri gabion has a recommended design life of up to 120 years. The Galfan and the new Polimac coatings overtake the durability of traditional PVC coatings.

ACE Geosynthetics Geogrid

High-strength polyester geogrid, up to 1,000 kN/m, offers excellent basal reinforcement, which is often useful in the construction of embankments in marine engineering or over soft soil.

BOSTD Bi-axial Geogrid

A PP biaxial ground stabilization geogrid improves bearing to soft soil area, increases loading capacity, and provides a load transfer platform for pile, column, and vertical support.

Platipus Anchor

A percussion ground anchor solution is designed to achieve a high load at low depth and the ability to accept the T lock at lower termination. This chisel drive point interlocks the soil under pull-out tension and minimum penetration into the subgrade.

Maccaferri HEA panel

A steel cable panel is made by weaving one continuous high-tensile steel cable into a panel joint at the crossing points, tightened with a patented unraveled double knot. Selvedge wire rope can be ferruled along the perimeter. The panel can be shackled and anchored on the slope to stabilize disturbed objects and boulders.

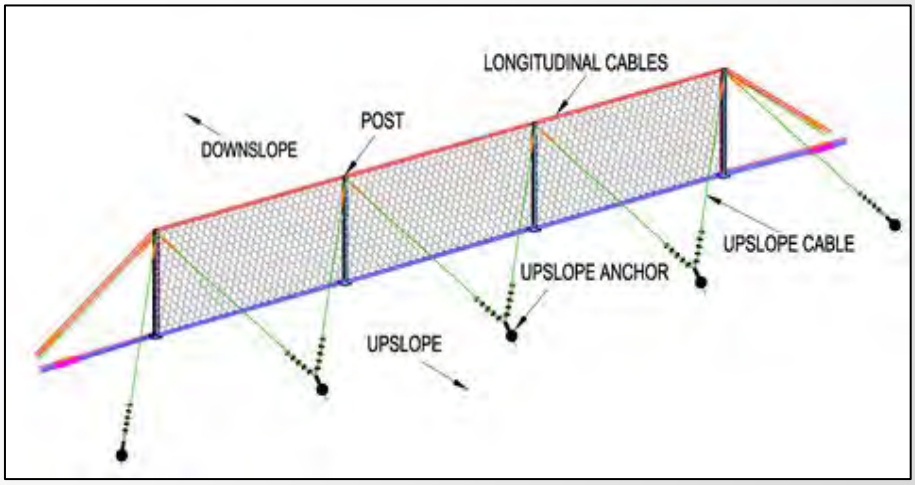
AnchorSOL Wall & Crib Wall

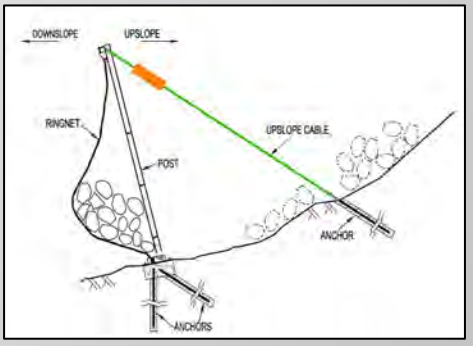
Reinforced fill wall construction with concrete panels, steel bar reinforcement, and proprietary crib wall design.

Flexible Barrier

Rockfall protection barriers have been implemented since the early 90's following the casualty on the Tuen Mun Highway. The barrier is a steel catch fence consisting of a complex design of a metal frame, steel cable, ring net, wire mesh, and an energy-dissipation device. It is a passive system that focuses on containing, intercepting, or diverting falling boulders and sliding debris, thereby averting danger to infrastructures and properties in the vicinity.







The barrier is typically anchored at a specific location upslope of target protection areas using a soil nail, rock dowel, or mini pile. It is supplied as a system with individual components that can be assembled on site.

G and E introduced the RMC Flexible Barrier to Hong Kong in 2009. Since then, we have commissioned over 63 projects totaling over 15.9 km of slope mitigation for the Government, private developers, institutions, and property owners.

Characteristics of the Rockfall Barrier

- Certified performance under the EU European Assessment Document
- Full-scale testing with a test block, dropped from a height of up to 33m
- Impact energy absorption to relieve load
- Up to 7 m tall and long length
- Heavy-duty galvanized steel member
- Real-time incidence monitoring system



LPMit, Mui Wo, GE/2017/20, July 2021

Our Services

- Design of flexible barrier system
- Design of anchoring system
- Provision of a checking engineer
- Provide professional indemnity insurance
- Supply and installation contracting
- Technical support and testing
- Maintenance and monitoring



LPMit 2017, Tai O, GE/2021/19, January 2025

Our Experiences

While most of the work centers on slope mitigation under GEO and CEDD, the RMC system is well accepted by HyD, ArchSD, MTR, and the private sector, as well as housing, hospital, school, and hotel development projects.



Site Formation at Cheung Muk Tau
CV/2023/09, February 2026



Desalination Plant at TKO
13/WSD/17, August 2023



LPMit 2015, Stubbs Road
GE/2020/06, February 2026



LPMit 2014, Tai Po
GE/2020/20, July 2025



PHD at Chung Nga Road West
HKHA20220449, February 2026



HKIS Activities Center
September 2025



Tung Chung New Town Extension
NL/2020/05, August 2023



PHD at ex-Mount Davis Cottage Area
SD/2022/01, April 2025



Columbarium at On Hing Lane
SS J510, May 2025

G and E Company Limited

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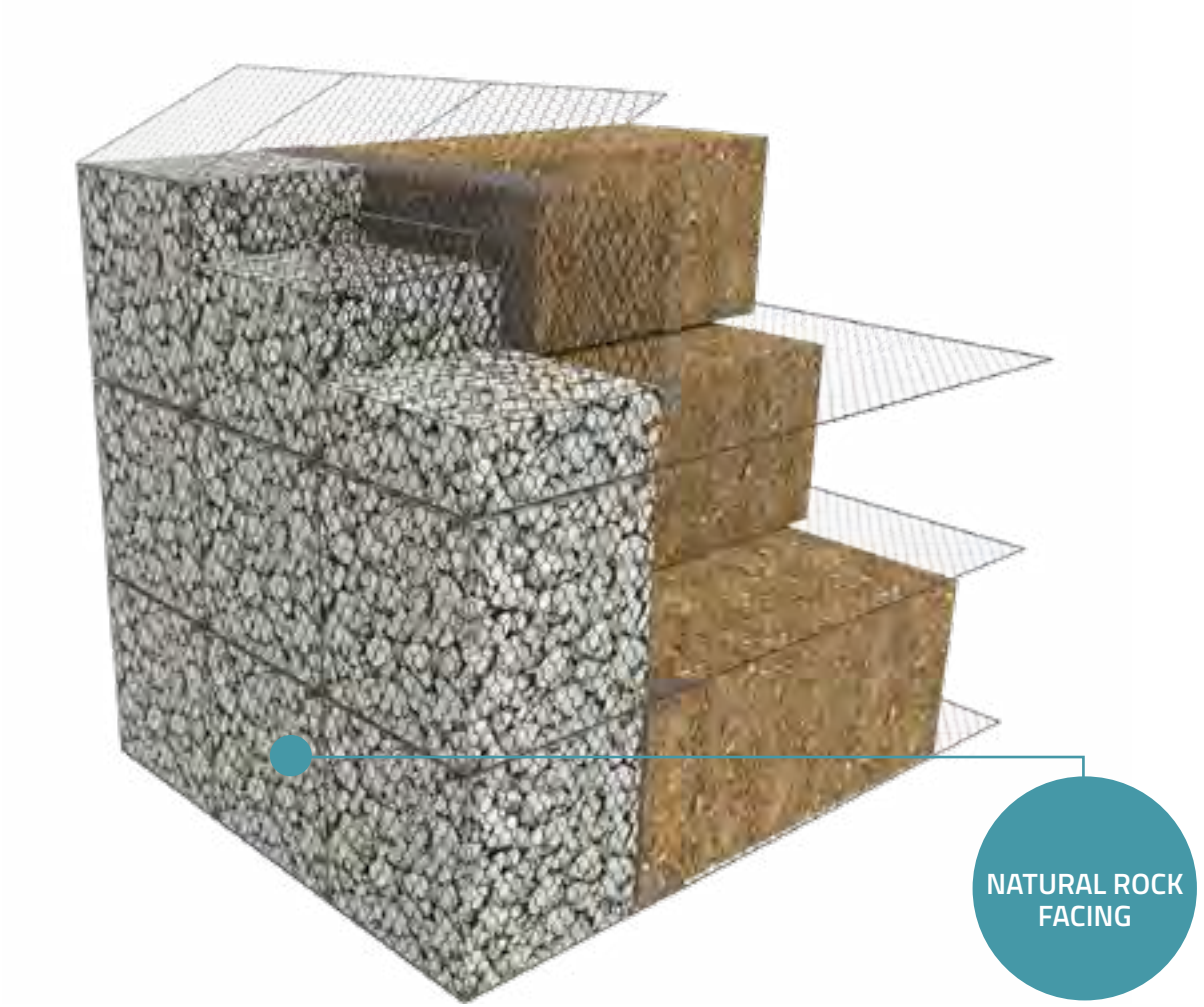
ver. 6_May 2026

TERRAMESH™ SYSTEM

TerraMesh™ System is a modular system used to form a rock-faced mechanically stabilized earth wall with vertical facing.

We supply pre-fabricated units that do not require cuts on site. A back panel and diaphragms are connected to the main fascia unit, thus creating the rectangular shaped cells used for stone confinement. When the fascia unit is filled with suitable gabion stones, structural backfill is then placed upon the soil reinforcement geogrids and compacted.



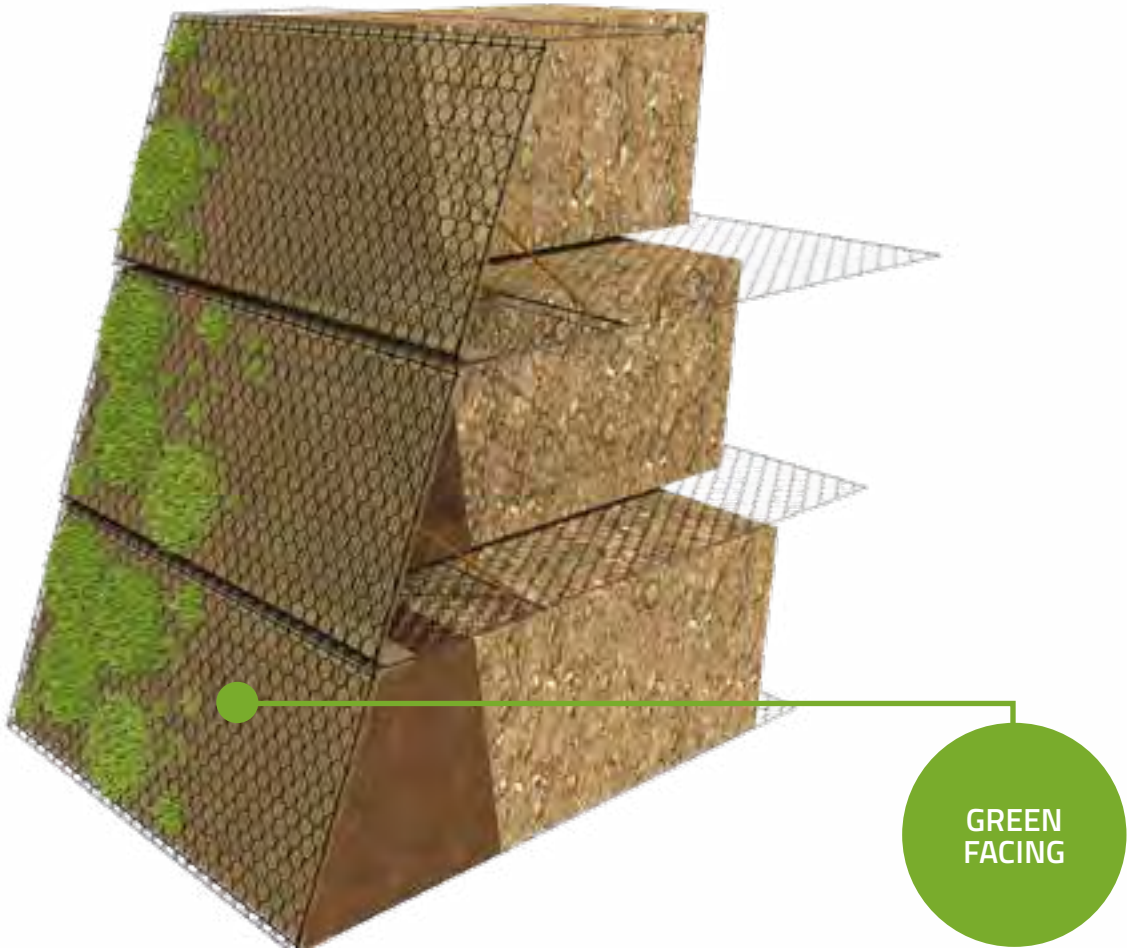


TERRAMESH™ GREEN

TerraMesh™ Green is an environmentally friendly modular system used to form green-faced soil reinforced slopes and embankments.

The pre-fabricated units are simply erected on site, the bracing angles support the face at the designated angle. A good quality topsoil is placed immediately behind the front face: the topsoil together with the angled front and the erosion control blanket are designed to promote a rapid vegetation growth.

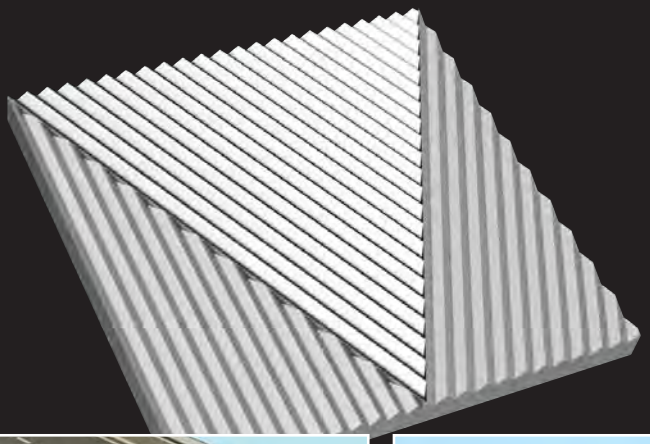


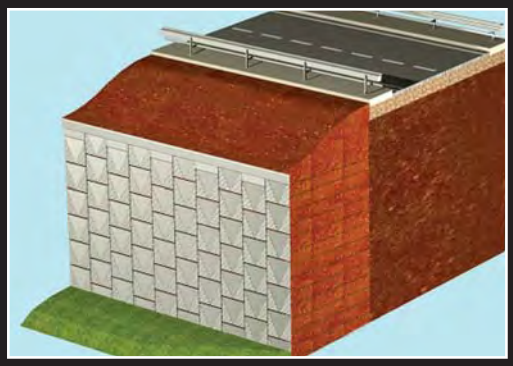


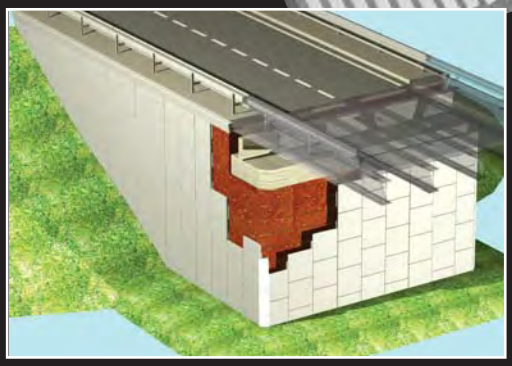
MACCAFERRI

Applications

- Road Structures
- Rail Structures
- Hydraulic Works
- Civil Engineering









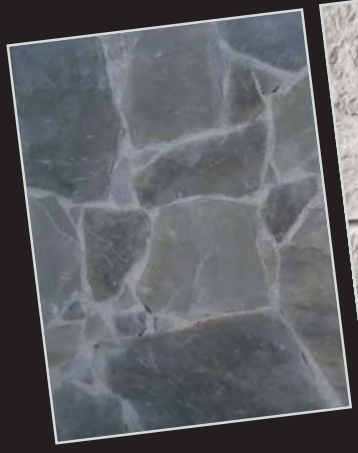
Possible finishes

Concrete facing

The facing is produced using a suitable **mix of concrete and reinforcing steel**.

The number of connections for the soil reinforcement, cast into the concrete facing, is defined by the design parameters.

Various types of finishes, such as cut stone, may be used depending on the architectural requirements.



Cut stone



Examples of finishes achieved with Re

Railway overpass
Fidenza (Italy) -Italferr SpA







New road system in the University Area of Venice



HDPE Geogrid
Reinforced Fill Slope & Wall

Applications

- Retaining Wall
- Abutment construction
- Embankment enlargement
- Site formation with steep inclination
- Debris flow, rockfall barrier, and noise barrier
- Temporary construction platform
- Ground consolidation surcharge

T-Block System Mechanical Stabilized Earth Wall (MSEW)



Vertical Surcharge (Wrap Back System)



Surcharge Bund at Residential Development at Wo Shang Wai, Yuen Long, 2012



Surcharge Bund at Tseung Kwan O South Station (MTRC617), 2007

Reinforced Fill Wall (MSEW)



MSEW at NENT Landfill, 2004



Vertical river embankment along Shenzhen River, 2003

68˚ Reinforced Fill Slope (Wrap Back System)



Embankment at NENT Landfill, 2005

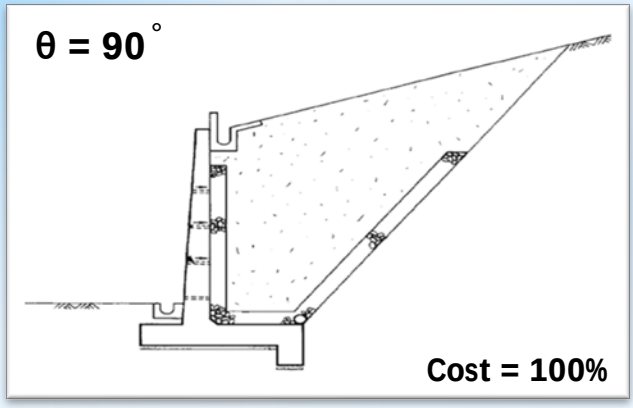


G-Block

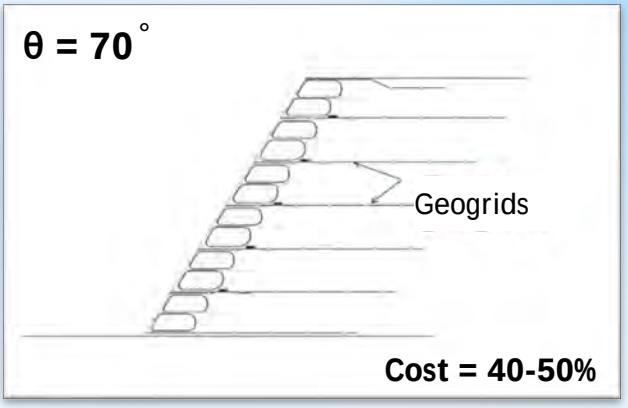


Embankment at HKZMB BCF Vehicle Clearance Plazas, HY/2013/03, 2017

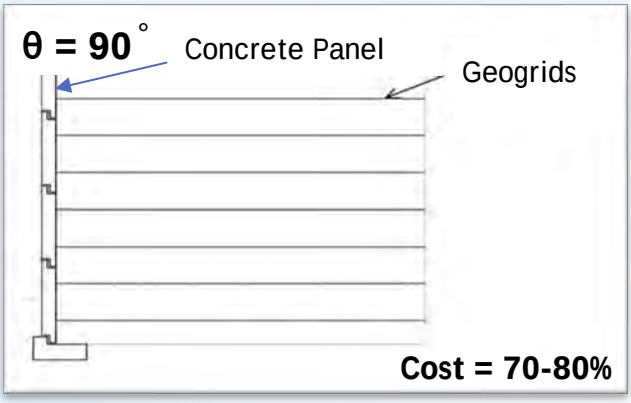
Retaining Wall (Conventional Construction)



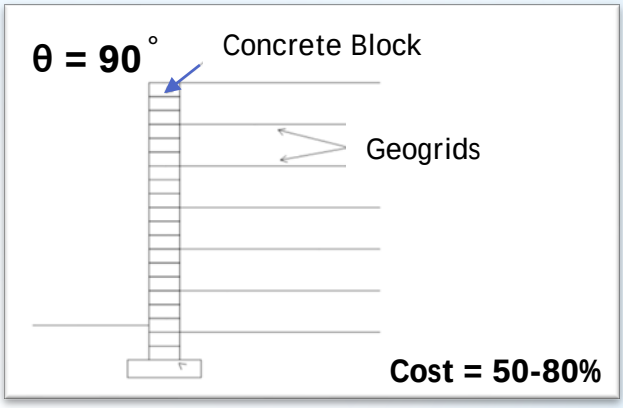
Reinforced Fill Slope (Wrap Back System)



Reinforced Fill Wall (Panel System)



Mechanically Stabilized Earth Wall (MSEW)



Advantages

- 20% to 60% cost saving
- Time saving on construction
- Fast and easy construction, no steel & heavy foundation
- Sustainable construction
- Architectural & vegetation aesthetic facing
- No maintenance

Our Services

- Preliminary design & budget
- Design & calculation
- Submission for approval
- Method statement & drawings
- Block and panel fabrication
- Installation technical support
- Conformance testing
- Earthwork subcontracting
- ICE / Supervision

Recognized Specifications


The Government of the Hong Kong Special Administrative Region

Environment, Transport and Works Bureau
Government Secretariat

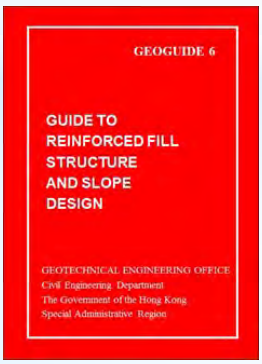
Ref : ETWB(W) 515/70/01
Group : 11

29 August 2003

Environment, Transport and Works Bureau
Technical Circular (Works) No. 24/2003

Permanent Reinforced Fill Structures and Slopes

ETWB Technical Circular No. 24/2003
on design with RE Construction


GEOGUIDE 6

GUIDE TO REINFORCED FILL STRUCTURE AND SLOPE DESIGN

GEOTECHNICAL ENGINEERING OFFICE
Civil Engineering Department
The Government of the Hong Kong Special Administrative Region

GEO Office
Geoguide 6
Guide to Design
RE Structure &
Slope

REINFORCED FILL PRODUCT DESIGN DATA SHEET
No. RF 1/2025 & RF5/2025

Geotechnical Engineering Office, CEDD

G and E Company Limited
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website: www.g-and-e.com

ver. 14_Jun 2026

Tensar® GEOGRID

Tensar International is a renowned leader in the manufacture and provision of soil reinforcement and ground stabilization, with decades of experience in state-of-the-art geogrid technology. A well-established technical office provides design, engineering, special application, testing, and training support to projects worldwide.

Tensar Diversity



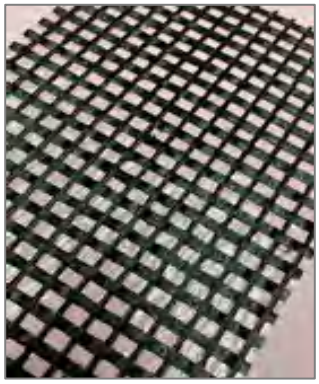
Uni-Axial Geogrid
Reinforced Fill Slope and Wall



Bi-Axial Geogrid
Soil Reinforced



Tri-Axial Geogrid
Ground Stabilization in Weak Subgrade

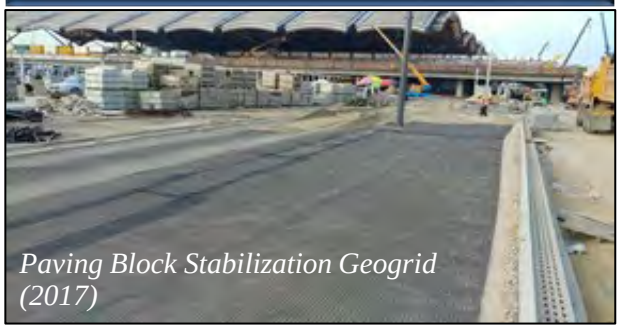


Polygrid
Glasgrid for Pavement Joint



Composite Geogrid with Geotextile
Reinforcement and Separation

Project References in Hong Kong



Paving Block Stabilization Geogrid (2017)



Mechanical Stabilized Earth Wall (MSEW)(2007)



Embankment Stabilization (2020)



Hong Kong Park Reinforced Fill Slope (2021)

Together with Tensar, we endeavor to provide an effective solution (design brain in Kuala Lumpur and the UK), an economical product (production in India and China), and efficient logistics (delivery from Changsha).

G & E ENGINEERING Since 1984

G and E Company Limited

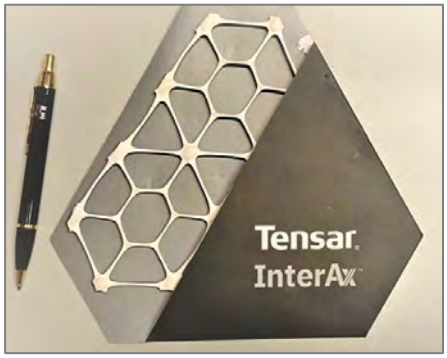
14th Floor, Kiu Yin Commercial Building, 361-363 Lockhart Road, Wanchai, Hong Kong
Tel: 2570 0103 Fax: 2570 0089 e-mail: info@g-and-e.com website: www.g-and-e.com

ver. 2_June 2026

InterAx Geogrid

Tensar introduces the concept of soft-ground stabilization through the radial stiffness of a triaxial hexagonal-aperture geogrid, with improved load distribution demonstrated by a full-scale traffic load test.

InterAx geogrid provides a mechanically stabilized layer (MSL) when granular aggregates interlock within the geogrid's triangular-patterned apertures. The particle confinement inhibits soil movement and deformation and improves bearing; thereby, MSL can be designed with minimal thickness. This performance solution offers significant economic benefits when less granular material is needed, resulting in a typical 33% reduction in carbon emissions.

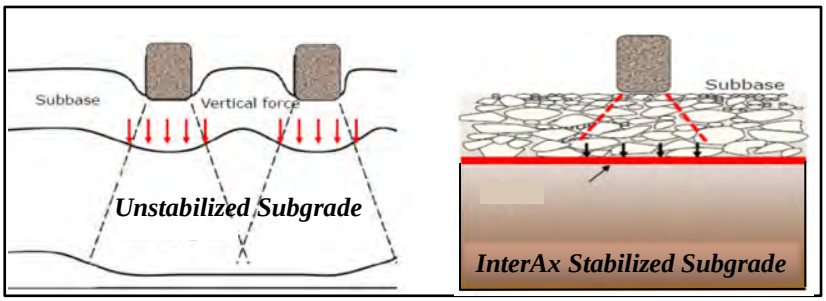


InterAx Geogrid

Characteristics of InterAx Geogrid

- HDPE integral geogrid with high radial stiffness
- Rigid high strength junction to confine granular
- Distribute load in 360°
- Optimum aperture to interlock granular
- Lightweight roll
- Easy to install


Stiff InterAx Geogrid



Function of InterAx Geogrid

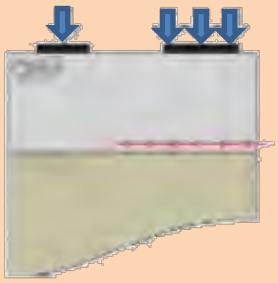
Reduce capping thickness, use less granular



Prolong service life, get more traffic



Improve bearing capacity, allow heavier loading



Maintain a flexible, stiff platform



Capping weak deposits

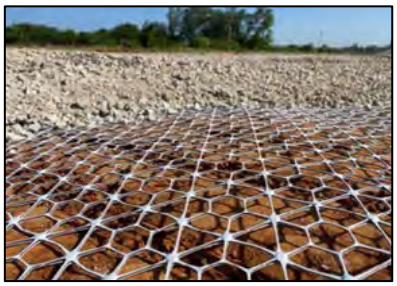


Control differential settlement



Services that We Offer

- Design support with engineering analysis
- Application concept
- Method statement
- Installation assistance


InterAx on very soft soil


World Cup Stadium South Africa, 2010

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ver. 2_Jun 2026

Gabion & Reno Mattress

Gabion is a common construction tool for containing rocks. Gabions can be placed and stacked to form a flexible, permeable, monolithic structure. Maccaferri developed the gabion in Italy 140 years ago and brought the product to Hong Kong in the early 1970s. The mesh comprises double-twisted zinc-PVC-coated steel woven wire in accordance with EN10223-3 and EN10245-1.



Features of Gabion

- Double-twisted unraveled configuration
- Durable to the natural environment
- Highly permeable
- Coating life expectancy of more than 120 years
- BBA certified

Applications

- Coastal protection
- Architectural feature
- Marine engineering
- Gravity structure
- Revetment
- River training
- Buttress barrier

Characteristics

- Follow EN10223-3 and EN10245-1 standards
- Heavily galvanized steel wire
- PVC coating
- Customized dimension
- Available in circular and triangular shapes



River Training
May 2010



Soil Retainment Buttress
June 2025



River Channel Alignment
January 2009



Drainage Improvement
November 2008



Gabion Buttress
December 2023



Embankment Protection
June 2014

Different Applications of Gabion

Slope Mitigation – Check Dam



LPM, Luard Road, November 2015

Architectural Feature



Shek Mun Estate, August 2019

River Training



Drainage improvement, May 2010

Coastal Protection



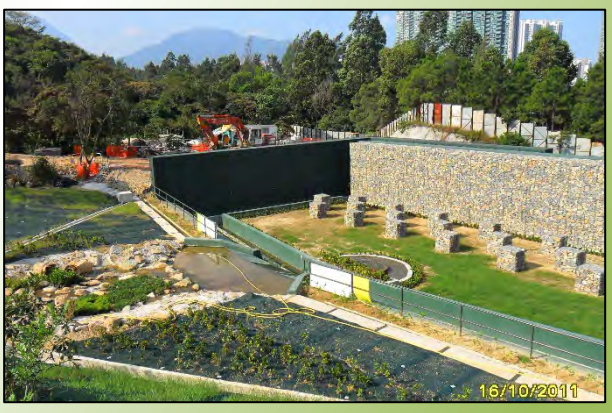
Tai O Development, December 2004

River Embankment Stability



Improvement to Lam Tsuen River, January 2006

Rigid Barrier



LPM, Cheung Tung Road, March 2013

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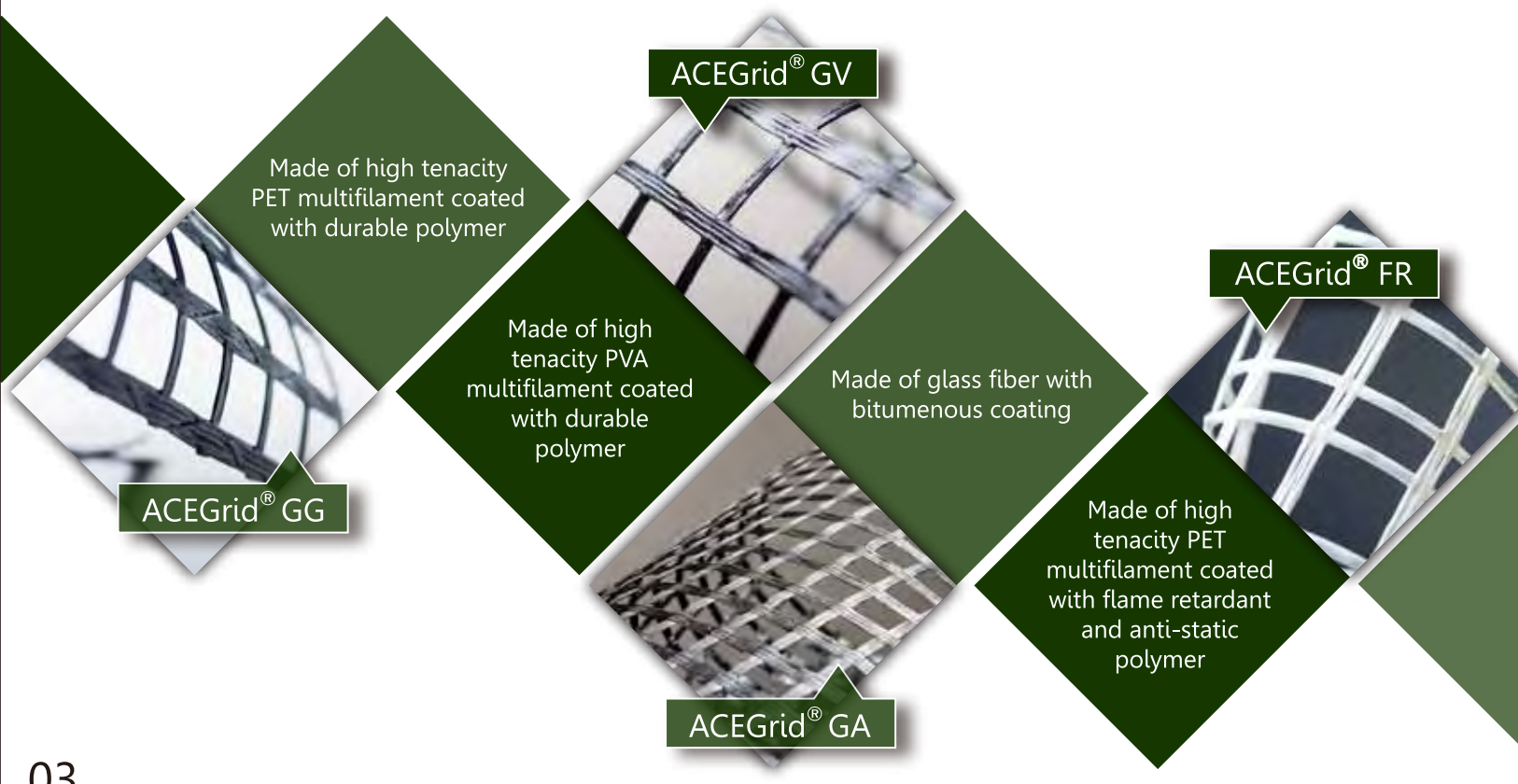
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e-mail: info@g-and-e.com website: www.g-and-e.com

ver. 6_May 2026

ACEGrid®

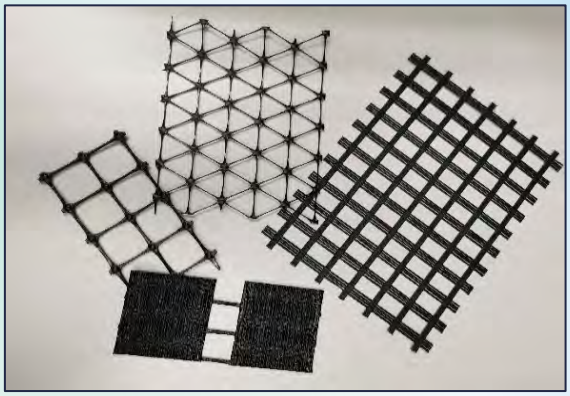
ACEGrid® is the registered trademark of ACE Geosynthetics for all its geogrid products. Generally, ACEGrid® is a flexible geogrid made of high molecular weight and low-creep polymeric yarns, to a wide range of ultimate tensile strength for different applications. It is coated with protective substance(s) to enhance the overall resistance to abrasion, ultraviolet, weathering, acid, alkali, bio-decomposition, and/or other external conditions that may influence the performance. Most flexible ACEGrid® use high-modulus PET (polyethylene terephthalate, commonly known as polyester) yarns as the essential material, which provides excellent tenacity and high strength to satisfy the strength requirement for engineering applications.

Different types of ACEGrid® are engineered to take care of different engineering needs and applications. There are ACEGrid® GG, ACEGrid® GV, ACEGrid® GA, and ACEGrid® FR.



Uni & Bi-Axial Geogrid

Uni & Bi-axial geogrid comes in woven high-strength polyester (PET) filament, extruded polypropylene (PP) sheet, or welded co-polymer yarn. Geogrids are used primarily in civil, marine, and geotechnical engineering. There is a wide range of characteristics and specifications to suit a host of applications.



Key Features

- Large variation in strength
- Large variety of apertures
- Excellent long-term performance
- Stable to UV and aggressive environment

Applications

- Ground improvement
- Road & pavement reinforcement
- Seawall embankment reinforcement
- Subgrade stabilization
- Work platform and foundation

Services offer

- Application design
- Supplying geogrid
- Customized production
- Installation assistance
- Conformance testing

Hong Kong Zhuhai Macau Bridge Boundary Crossing Facility (2017)





Left: Airport Vehicular Tunnel Advance Works (2021)





Right: Tung Chung New Town Reclamation (2019)

HKZMB BCF (2017)

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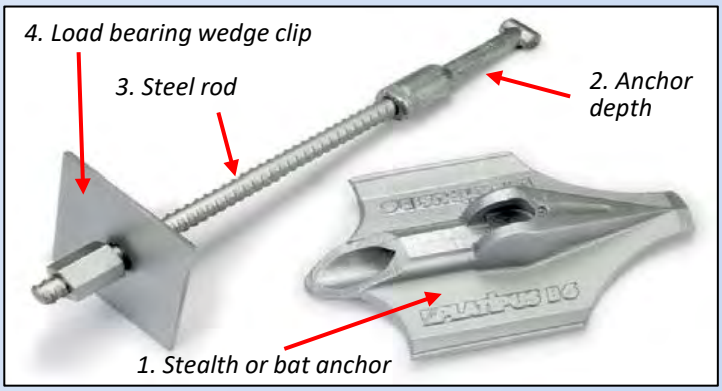
ver. 3_Jun 2026

PLATIPUS
EARTH ANCHORING SYSTEMS

Platipus is a unique mechanical percussion anchor system that consists of a soil nail or a steel wire coupled to a headlock device. When driven into the soil to a minimal depth, the rod or wire can be tensioned to activate the lock mechanism, creating a highly resistant pull-out. A bearing plate and wedge grip top fitting lock the load transmitted from the headlock. It is supplied in a complete assembly to a pre-determined depth and strength.

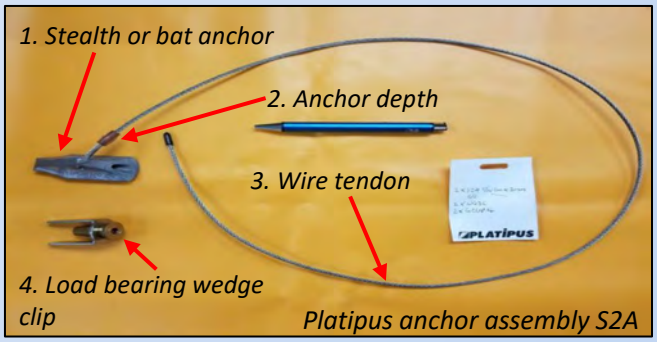
The Four Components of Anchor

1. Stealth or bat anchor, chisel drive point with load locking gear
2. Position anchor depth termination
3. Wire tender or steel rod or strap loading carrying element
4. Top fitting load-bearing plate & bolt or wedge grip.



Characteristics of the Anchor

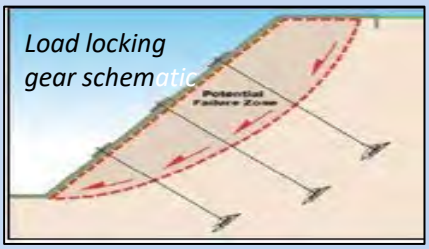
- Lightweight, corrosion-resistant
- Fast & easy to install, requires no grouting
- Minimal disturbance to soil
- Immediate quantifiable load (10 – 200 kN)



Platipus anchor assembly S2A

Applications of the Anchor

- Fastener for erosion and scouring
- Shallow slip remedial
- Temporary cut stability
- Retaining structure tie back
- Rock retention
- Buoyancy anchor
- Guyed wiring
- Scaffolding security
- Foundation support
- Surface cover pinning




Erosion mat secured by Platipus anchor 3rd runway, Hong Kong


Slop stabilization and erosion mat anchor


Temporary embankment stabilization

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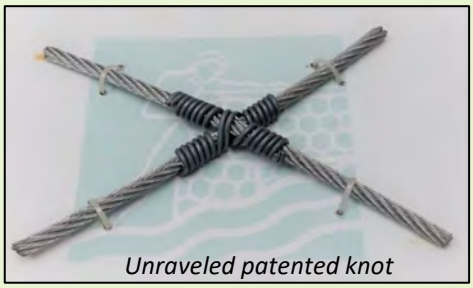
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ver. 5_Jun 2026

HEA Panel

While wire mesh can mask the slope face, thereby locking small rocks, boulders, and debris, a stronger system is needed. A steel cable mesh developed by Officine Maccaferri S.p.A is now available.

High Strength Absorption (HEA) panel is made up of a single 8-12 mm, heavily galvanized steel cable woven into a net panel with maximum dimensions up to 5 m x 10 m, apertures of 300 to 400 mm, and junctions locked by an unraveled patented knot. Multiple panels can be stacked to provide extensive coverage and anchored with soil nails, dowels, or other fixtures.



Unraveled patented knot

Features of HEA Panel

- Patented lacing knot locks cable junction, prevent unraveling
- High tensile 240-310 kN/m , puncture resistance 210-450 kN
- Strong stiffness and rigidity
- Durable with minimal maintenance
- Simple and easy to install



Loose rock confinement

Applications

- Consolidate slope surface
- Prevent rock detachment
- Guide debris to the slope toe
- Improve slope surface stability
- Contain unstable loose rock



Rock slope stabilization



Slope protection



Slope stabilization

Our Services

- Application design
- Anchor design
- Method statement
- Installation of HEA panel



LPMit, Po Lo Che, Sai Kung
GE/2015/07, February 2019



PHD at Po Fu Lam, CV/2020/01
February 2024



HEA panel gabion

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ver. 5_May 2026

AnchorSOL®

MSE Retaining Wall



Main Components:

Discrete Concrete Facing Panel

The aesthetically pleasing facial panel of AnchorSOL Wall is made of durable grade 30MPa concrete. The inverted-T or Octogonal shape precast concrete facing panel is featured with flexible interfaces between the panels which can easily be formed to suit to all wall geometry alignments. These panels are interlocked with each other to tolerate differential settlement and flexible movement with insertion of elastomeric rubber pads or resin bonded cork and joint filler material such as closed cell polyurethane foam strip in between joints.



Reinforcing Tendons

The inextensible reinforcing tendon of AnchorSOL Wall is made of high tensile carbon steel rod with hot-dipped galvanized to prevent corrosion. To further warrant the prevention of corrosion, a sacrificial thickness is considered in the design.

Drainage Geocomposite

Executive Summary

ABG Deckdrain, Pozidrain

Deckdrain is a high-performance geocomposite drainage layer that replaces the stone filter layer with a polymeric core and filters geotextile. Its cuspated structural drainage system is specifically developed to provide high flow capacity under extremely high loading with added protection to waterproofing. It comes in various thicknesses from 10 – 65 mm with geotextile on one or both sides.

TENAX HF Geocomposite

TENAX HF is a landfill geocomposite with an HDPE drainage core with EVA co-extrusion and single PP geotextile. The presence of EVA greatly enhances the frictional behavior of the product when placed in contact with a smooth geomembrane, saving the use of double-sided textured geomembrane and double-sided geotextile geocomposite.

G and E Relief Drain

Relief drain is a geocomposite drainage system with a core formed by multi-layers of geonet encased in an outer layer of non-woven geotextile and an impermeable jacket on one side. It is best for drainage when high water flow is expected. Typical applications include rock slope work, underground structures, and foundations.

G and E Raking Drain

Raking drain is a perforated drainpipe with a non-perforated invert. It is typically installed on a slope when internal water requires an outlet that can quickly release water pressure.

BOSTD E'Drain

E'Drain is a geocomposite consisting of a tri-planar drainage geonet with a top and bottom geotextile. The combination of geotextile (filter and protection function) and geonet (provides the flow path) offers a complete system of "filter-drainage-protection". It is commonly used in drainage within the soil, usually in a fill slope.

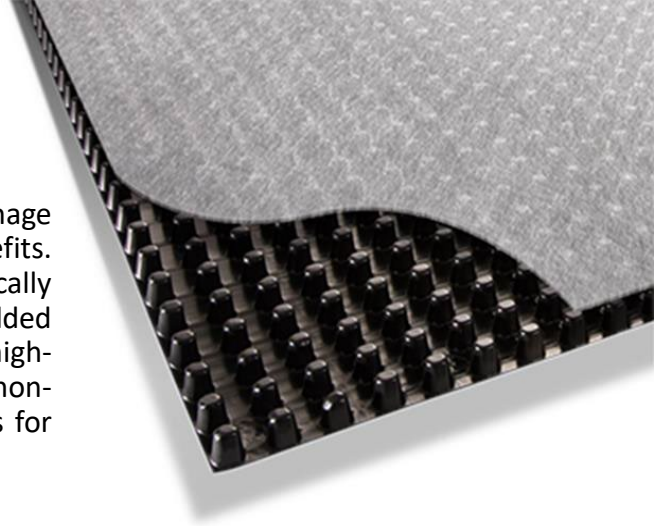
CeTeau Strip Drain

Strip drain is a narrow strip of horizontal drainage geocomposite designed to replace costly sand or granular drainage blankets and complement prefabricated vertical drains (PVD) to discharge water. Strip drains find drainage applications in tunnels, embankments, slopes, sports fields, golf courses, and landscaping.

Geo Source Bi-axial Drain

GS-Drain is a geocomposite consisting of a bi-planar drainage geonet with top and bottom geotextiles. It is commonly used in simple drainage systems in soil mass.

Deckdrain



Deckdrain is a high-performance geocomposite drainage layer that replaces granular filter layers with distinct benefits. Deckdrain structural drainage systems have been specifically developed to provide high flow capacity and added protection to waterproofing. Deckdrain consists of a high-strength, flexible polyethylene cuspated core with a non-woven geotextile bonded onto either one or both sides for perforation.

Deckdrain is Unique

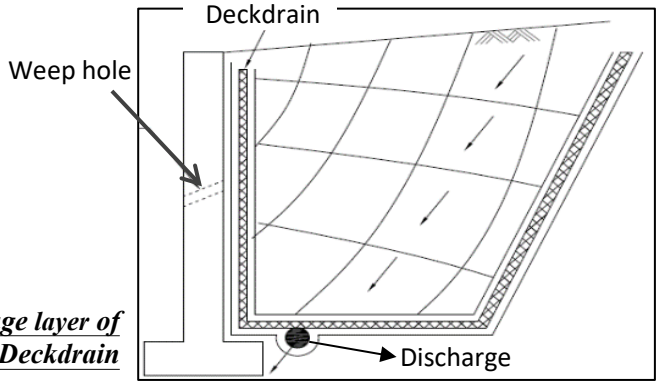
- Equivalent to Miradrain and other geocomposites and most cuspated geocomposites
- Compatible with the waterproofing system
- Double-sided perforation option
- Ready stock and economical
- Made in the UK with CE marking

It's Convenient to Use

- Ready stock for delivery
- Simple installation
- Roll dimension: 1.1m (W) x 45m (L)

Applications of Deckdrain

- Relieve water pressure to the buried structure
- Drainage behind structural wall
- Capillary break layer below base slab
- Roof garden drainage



Vertical drainage layer of Deckdrain



Slope Drainage at Police Facilities in Kong Nga Po March 2021 (ND/2018/01)



Slope Drainage at TKO – Lam Tin Tunnel February 2025 (NE/2015/01)



Drainage on Structure at NENTX Landfill, May 2024 (EP/SP/77/15)



Slope Drainage at TKO – Yau Yue Wan October 2023 (CV/2021/04)

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G and E Company Limited

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ACT ISO 9001 : 2015
UKAS MANAGEMENT SYSTEMS 0273

Deckdrain as Drainage Layer



Retaining Structure Drainage, Columbarium in Shek Mun, June 2023 (SS J510)



Drainage behind Structural Wall San Wai Sewage Treatment Works June 2020 (DC/2013/10)



Planter Drainage, North-West Kowloon Reclamation Site 6 and Fat Tseung Street March 2021 (HKHA20150547)



Drainage on Structure, TKO – Ying Yip Road September 2024 (CV/2023/02)



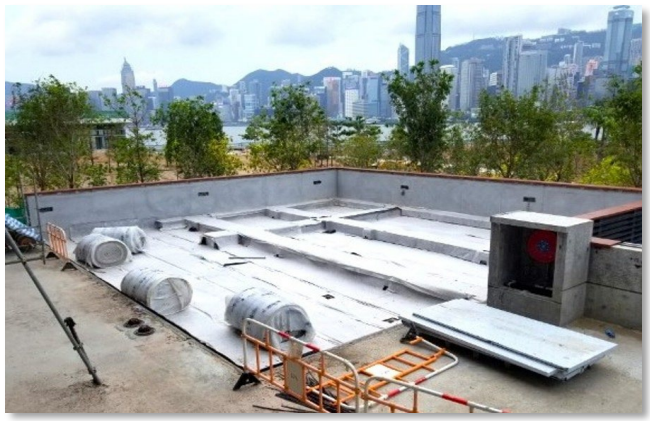
Drainage behind Structural Wall Anderson Road Quarry Site February 2023 (ED/2020/02)



Drainage on Structure Fanling North New Development January 2023 (ND/2019/04)



Slope Drainage, Anderson Road Quarry Site April 2021 (NE/2016/01)



Planter Drainage, WKCD August 2018 (CC/2016/3B/045)



Planter Drainage, Anderson Road Quarry Site, July 2025 (SS L515)



Slope Drainage HKZMB Link Road July 2017 (HY/2011/09)

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Deckdrain ver. 15_Nov 2026

Tenax HF

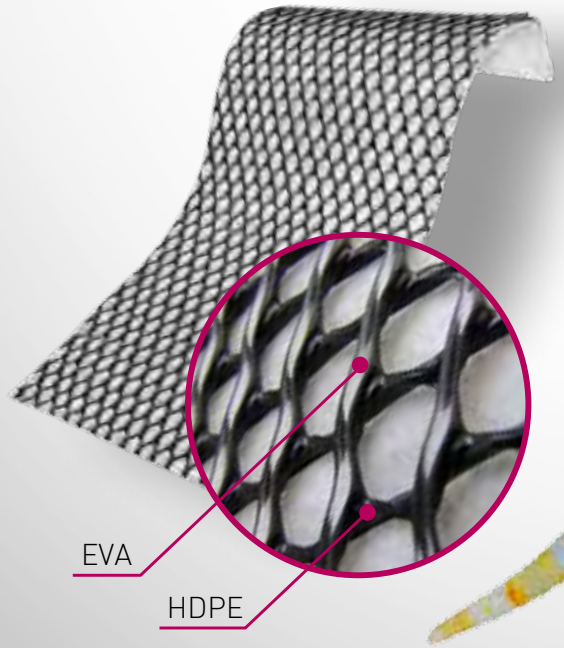
High Friction geocomposites:
TENAX's solution for permanent landfill capping

1. **TENAX HF has flow rates up to 50% higher** than traditional double sided geotextile geocomposites of the same weight.

2. Directly laid on a smooth HDPE geomembranes **TENAX HF** can ensure an interface friction angle up to **4 times** greater than traditional double sided geotextile geocomposites.

3. The use of smooth HDPE geomembranes with **TENAX HF guarantees substantial cost savings.**

4. The high interface friction angle guarantees, even with steep slopes, a **high factor of safety** in landfill capping veneer stability analysis.





TENAX HF and **HF PLUS** geocomposites are a combination of a geonet made by extruding **HDPE/EVA** laminated to a PP nonwoven filter geotextile.
The presence of a thin EVA (Ethyl Vinyl Acetate) layer on the ribs of the geonet without the filter geotextile and placed in contact with the smooth geomembrane, guarantees a significant improvement in the frictional characteristics at the interface drainage geonet/geomembrane, whichever geomembrane is used.

CE
0799-CPD-25

SGS ITALY Certificate n°IT93/0008.01
SGS U.K. Certificate n° IT93/2568.01

TENAX GEOSYNTHETICS

Relief Drain GERD 200/30



Relief drain is a geocomposite drainage system with a core formed from layers of geonet encased in an outer jacket of non-woven geotextile and an impermeable fabric.

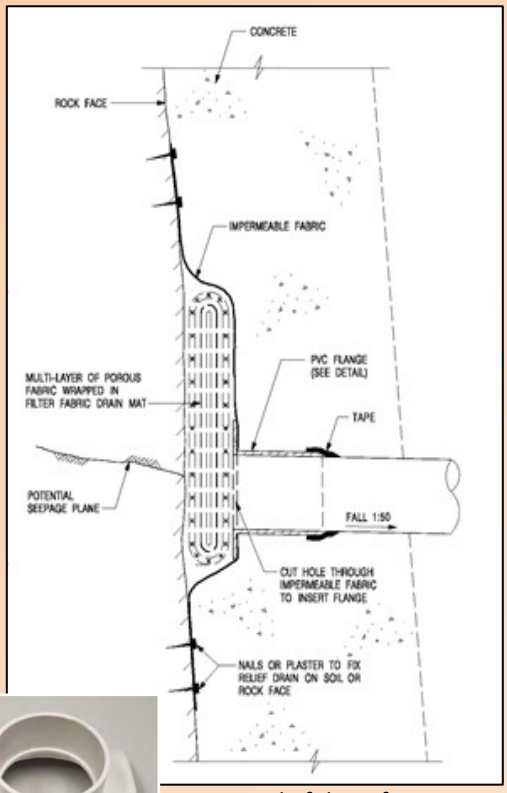
The geonet configuration multiplies the high transmissivity of individual geonets to provide a high discharge capacity, and the geotextile prevents soil migration into the flow path. The impermeable fabric contains and diverts any water within the flow path to a relief point of a PVC flange accessory that can be connected to an external pipe to release water.

Relief drain is supplied in 4 m units and is light and handy to install. The impermeable fabric can be unwrapped and nailed to the profile surface, thereby holding the drain in place. The flange can be taped onto an opening in the impermeable fabric at any location where the outlet pipe is desired.

A relief drain is best for drainage when high water flow is expected; place it against this area. Concrete can be applied over the impermeable fabric. Through the flanged pipe, water can be discharged freely to relieve pressure. Typical applications are found in underground structures, slope work, foundations, and catchments.



Relief drain flange accessory



Relief drain from CEDD drawing no. C2404D





Relief drain at Anderson Road Quarry Development



ver. 10_May 2026

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G and E Raking Drain

G and E Raking Drain is a perforated High-Density Polyethylene Pipe (HDPE Pipe) used to lower groundwater levels and relieve groundwater pressure at depth. It is also prescribed as a contingency measure to address uncertainties in groundwater conditions behind slopes and potential adverse effects in the subsurface, e.g., from utility leakage. The drain comes in two sizes that comply with CEDD's typical arrangement drawing no. C2403E.

Typical Assembling of Raking Drain and Accessories



65mm End Cap | 65mm Raking Drain | 65mm Coupler | 65mm Raking Drain | 40mm Raking Drain

Raking Drain Description

The pipe is made of High Density Polyethylene (HDPE) and is of 3-D perforated design with opening area to allow groundwater passage and an impermeable one third invert to collect and drain away

Raking Drain Properties

Product Description	Test Standard	Unit	Raking Drain 40	Raking Drain 65
Physical Data				
Length	-	m	4	4
Diameter	-	mm	40	65
Average Thickness	-	mm	4.5	5
Physical Properties				
Tensile Strength	ASTM D 638	kN/m^2	≥ 21,300	≥ 21,300
Flexural Strength	ASTM D 790	kN/m^2	≥ 6,800	≥ 6,800
Compressive Strength	ASTM D 695	kN/m^2	≥ 22,000	≥ 22,000
Opening Area Data				
Ratio of Opening Areas	-	%	≥14	≥8
Ratio of Circumferential Opening	-	%	50-70	50-70
Accessories				
Connection Coupler Diameter	-	mm	40	65
Connection Coupler Length	-	mm	≥ 200	≥ 200
End Caps	-	mm	40	65

ver. 6_May 2026

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E’DRAIN



E’DRAIN GEOCOMPOSITE FOR ROAD DRAINAGE APPLICATIONS

It is well understood that water penetration into a roadbed or sub-base accelerates damage to the structure. A saturated structure will suffer hydrodynamic effects under traffic loads, generating excess pressures and increasing failure rates. Water may enter the structure as rainfall or capillary rises from below. In either case, the presence of water will increase the structure's failure rate.

A road with a well-designed and constructed drainage system has a useful life of approximately 2-3 times greater than a road without such a drainage system.

ENVIRONMENTAL DRAINAGE

With the increasing popularity of green roofs and roof gardens, E’DRAIN Geonet provides a lightweight, efficient water drainage system that minimizes roof loads.

It can also be used for land drainage for parks and gardens, sports grounds, golf courses, landscaping, and other land uses.

Laying E’DRAIN geocomposite under planted soil can remove excess rainwater or provide an irrigation path using stored excess water to maintain a good hydraulic balance when needed.

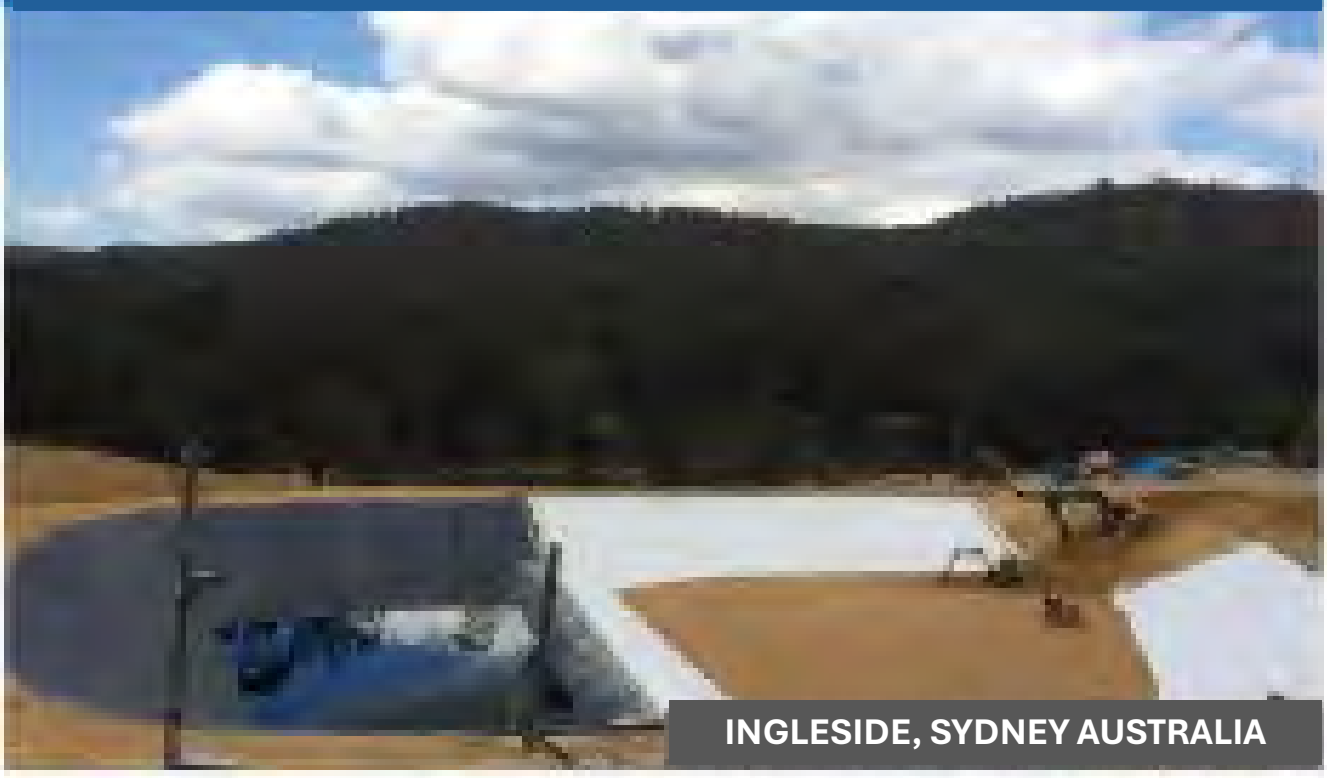
E’DRAIN

INSTALLATION OF E’DRAIN GEOCOMPOSITE IN RESERVOIR



APOLLO BAY VICTORIA, AUSTRALIA

KIMBRIKI OF RESOURCE & RECOVERY



INGLESIDE, SYDNEY AUSTRALIA

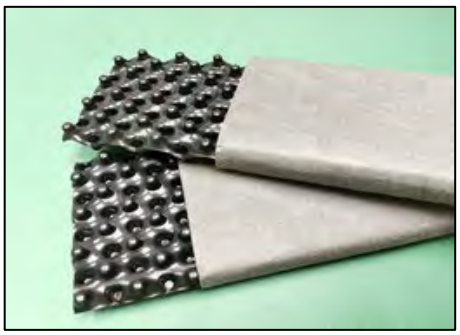
Horizontal Strip Drain

Ground Drainage

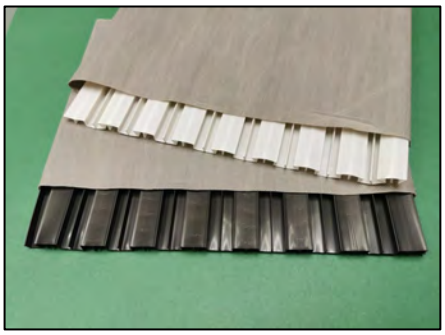
A strip drain is a narrow, 200–300 mm-wide geocomposite with a strong, rigid polymeric core wrapped in filter geotextile that provides efficient water discharge. It was designed to complement a prefabricated vertical drain (PVD) by laterally draining water from soft soil to the peripheral outlet, replacing the use of a sand or granular drainage blanket. The application has been extended to provide a network of water passages to relieve pore pressure in isolated locations and direct it to a proper sump. This is now widely used in underground structures, tunnels, and basement construction.



Strip Drain complimenting PVD



CeTeau Strip Drain



Daehan Horizontal Drain

The Material

- Light weight in handy coil
- Low in cost
- Engineered with proven performance
- Replaces granular materials
- Simple to install



Ground consolidation treatment
Lok Ma Chau Loop, June 2019 (YL/2017/03)



Basement Vertical Drainage
Tsuen Wan, August 2019

Applications

- Underground structure
- Ground improvement
- Slope & Embankment
- Landscaping
- Tunnel



Tunnel Drainage, Shatin Sewage Treatment Works to Caverns, November 2020 (DC/2018/05)



Basement Drainage Network
Kwun Tong, March 2021

ver. 3 May 2026

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Protecting and Preserving





GCO SOURCE

Waterproofing & Containment

Executive Summary

GSE Geomembrane

GSE HDPE & LLDPE geomembrane is a smooth high- and low-density polyethylene geomembrane manufactured with a film-grade quality resin specifically formulated for flexible impermeability. It is used in waterproofing, liquid barrier, and fluid containment applications that require excellent environmental resistance, endurance properties, and long durability.

GSE Conductive Lining

Conductive lining is a smooth, patented, spark-testable geomembrane that contains a specifically formulated conductive layer on the bottom. Electrical testing can be carried out by scanning the membrane, and a hole will bridge the circuit with this conductive layer, thereby providing a signal at any punctured location. The conductive lining is ideal for post-installation quality assurance.

AKS Concrete Protection Liner (CPL)

CPL is an HDPE concrete embedment membrane liner integrated with studs that can be cast into a concrete structure to form an integrated unit. It is used to protect concrete structures against extreme conditions and aggressive environments and is very often waterproof.

Union Plastic Corporation (CPL)

PVC, polyvinyl chloride and the liner come with a T-lock that fits the application of concrete protection, where the keys are cast into the concrete along the pipe run or on a concrete structure. PVC is flexible and conforms to most structure profiles, protecting the concrete and offering waterproofing.

Macline Geosynthetic Clay Liner (GCL)

Sodium bentonite can be encapsulated between two layers of geotextile to form a waterproofing membrane. GCL comes in rolls and can be laid over any area needing waterproofing, such as tunnels, landfills, underground structures, and canal lining.

Coletanche Elastomeric Bituminous Geomembrane

Coletanche is a bituminous geomembrane that can be used to repair HPDE geomembrane damage underwater. A piece of the bituminous membrane can be vulcanized onto HDPE with special adhesive mastic by weight in a submerged condition.

HDPE Geomembrane

High-Density Polyethylene (HDPE) geomembrane has proven to be the most popular lining material, with superb resistance to chemicals, biological agents, ultraviolet radiation, and thermal degradation, and is inert in most environments.

Since it was introduced to Hong Kong in the early 90's, over 6,000,000 m2 have been approved and used by the government and most consultants for landfills, theme parks, housing developments, and institutions. Contractors find the material cost and time efficient.

We are pleased to share our 30 years of experience in the application, design, supply, installation, commissioning, and repair of HDPE geomembrane lining systems.

APPLICATIONS

Waste Containment



SENT Landfill, December 2001



Shuen Wan landfill, December 2001



Penny's Bay development, March 2003

Tank Lining



Aviation Fuel Facilities, January 2007

Lake & Lagoon Water Retention



Discovery Bay, May 2011



Venetian Hotel, October 2007



Disney Inspiration Lake, August 2018



TKO district open space, January 2011



Sky City Golf Course, June 2007

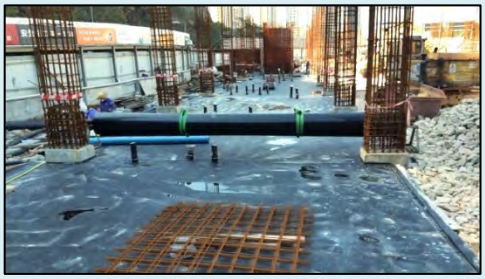
Gas Barrier



Fire Service Training School
October 2021



TKO Package 2, Phase 3
September 2009



Girls School, Kwun Tong
January 2016

Tunnel Waterproofing



Lam Tin Tunnel
February 2001

Leakage Collection



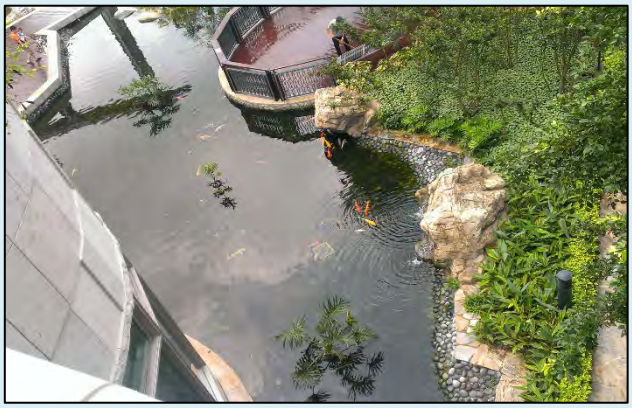
Hiram's Highway
November 2018

Aquaculture



Fish farm at Cheung Chau,
March 2016

Water Features



TKO Central Park, May 2013



Pak Kong Golf Academy, October 2015

Special welding method and jumbo roll size enabled economical, effective, and fast installation into an integrated impermeable lining system, ideal for large-scale liquid containment, waste compound, gas barrier, aquaculture, water interception, material separation, waterproofing, water sports, and landscaping features.

ver. 6_May 2026

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LEAK LOCATION CONDUCTIVE LINER

Solmax's **Leak Location Conductive** liner is a co-extruded geomembrane that features a bottom conductive layer. The conductive layer allows for a wide variety of electrical leak surveys to be performed on exposed and covered applications, with greater reliability than surveys using non-conductive geomembranes.

These high-performance, co-extruded, high-density polyethylene (HDPE) and linear low- density polyethylene (LLDPE), geomembranes are designed for use in applications where you can't afford a leak, and where rapid, accurate, reliable testing is a priority.

Solmax's **Leak Location Conductive Liner** continues our legacy of innovative product development, providing the maximum protection against leaks, to help ensure that the environment and surrounding communities are safe and your investment is secure.

LAYERS OF RELIABILITY

All Solmax product series are made with the finest raw materials to enable exceptional elasticity, environmental stress crack resistance, and excellent multi-axial elongation performance.

With proper testing and maintenance, **Leak Location Conductive Liner** delivers resilience against extreme temperatures and harsh conditions, providing extended ground protection against hazardous waste and chemicals, year after year.

A textured finish is available on one or both sides of the geomembrane for applications that require increased frictional resistance.

OUR LEAK LOCATION CONDUCTIVE LINER IS DESIGNED **FOR USE IN APPLICATIONS WHERE YOU CAN'T AFFORD A LEAK.**



Concrete Protection Liner

Concrete structures for the containment and treatment of waste, effluent, sewerage, and corrosive materials are subject to deterioration in an aggressive environment. Concrete protection lining seals the concrete surface from harmful contact.

A concrete protection liner is a flexible geomembrane with studs or ribs on one side that lock the liner to the concrete surface. It is a virtually impermeable, integral, in-situ, durable coating that is permanently keyed into the structure.

Material

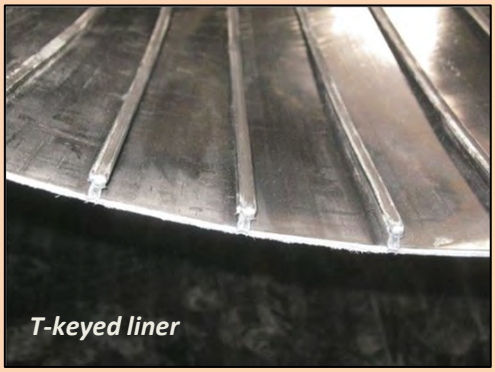
PVC Polyvinyl chloride or HDPE high-density polyethylene, thickness of 1 – 5 mm, roll width 1.3 – 2.0 m x 20 – 75 m length. It can be tailored to fit the structure's dimensions and welded to form an integral impermeable cover layer. The material has been approved by DSD, EPD, and CEDD.



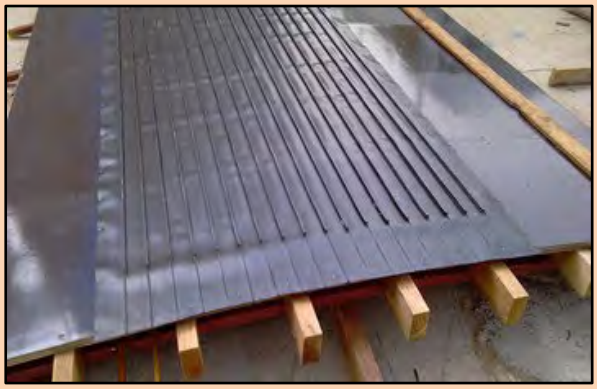
Concrete Protection liner

Applications

- Sewer pipe
- Sewerage treatment plant
- Effluent containment
- Waste handling
- Aeration system
- Organic digester
- Bio-gas tank
- Waterproofing







T-Keyed liner on timber formwork

Concrete protection liner has to be pre-fixed onto the formwork (by nailing, clipping, or adhesion). After the concrete is poured, the liner is attached to the concrete. Formwork is then removed; all exposed liner will be reinstated by heat tacking/welding along jointing edges and patching over penetrations to form a continuous impermeable protective surface. Spark testing is used to detect defects across the entire surface and pinpoint areas for repair. Pipe and other penetrations follow proprietary detailing.



Studliner on formwork

Characteristics of Concrete Protection Liner

- Durable to contain effluent
- Higher abrasive resistance
- Strong adhesion to concrete, no pull out
- Relief of back pressure from a concrete crack
- High strength that bridges concrete cracks
- Long design life of 100 years
- Simple maintenance and re-welding repair



HATS Stage 2A, Upgrading Works at Stonecutter Island Sewage Treatment Works DC/2009/10, May 2015



HAT Scheme Stage 2A, Upgrading Works at Stonecutters Island Sewage Treatment Facilities, DC/2009/17, October 2011



Outlying Islands Sewerage, Siu Ho Wan DC/99/10, September 2006



Ting Kau and Sham Tseng Sewerage DC/2006/14, May 2008





Upgrading Works at Stonecutters Island Sewage Treatment Works, DC/2009/18, September 2015

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ver. 4_May 2026

Geosynthetic Bentonite Clay Liner

Sodium Bentonite Waterproofing Layer

Geosynthetic Clay Liner is a geocomposite of a layer of sodium bentonite encapsulated between two geotextiles to form a liner for numerous fluid containment and water barrier applications.



GCL uses non-woven geotextile in the upper layer to encapsulate the bentonite swelling clay as a carrier, and a woven geotextile layer beneath for dimensional stability. Needling punching the layers offers reinforced internal shear. HDPE film lamination offers the best sealing effectiveness.

Versatile Sealing Applications of GCL System

- Flood protection
- Underground waterproofing
- Water containment, ponds & lakes
- Landscape waterproofing
- Waterstop to foundation and basement structure
- Wetland creation



Installation of GCL

Benefits of GCL System

- Reduce construction costs by replacing compacted clay
- Self-sealing overlaps to ensure integrity
- Quick and easy to install, minimal substrate preparation
- Withstands differential settlement
- Flexible with the structure conformity
- Environmentally safe - no chemicals, additives & non-toxic
- Uniform peel strength provides multi-directional shear strength



Pond Lining using GCL

Our Service

- Design, supply, and delivery
- Method statement and testing
- Installation and site report
- System commissioning



ZIS Planter Waterproofing, PHD at Anderson Road Quarry Sites, July 2025 (HKHA20210573)



ZIS Planter Waterproofing, PHD at Wang Chiu Road, April 2026 (HKHA20210526)



Wetland Waterproofing, Development of Lok Ma Chau Loop, January 2022 (YL/2020/02)

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ver. 3 May 2026

Erosion Control

Executive Summary

Maccaferri Wire Mesh

Maccaferri Wire Mesh, a rockfall netting mesh, is manufactured from renowned double-twisted galvanized steel wire mesh coated with PVC or Polimac in dark green or grey. The netting is flexible and does not unravel or unzip should some of the wires break. It is commonly used in erosion control, slope protection, and reinforcement.

BOSTD Geosynthetics Geocell

A Perforated Cellular Confinement System is an expandable honeycomb geocell structure that offers an environmentally friendly and economical solution to earth stabilization, slope protection, and channel protection with low handling cost, no wastage, minimum maintenance, easy installation, and reliability. It helps provide optimum root lock-up for vegetation, acts as a natural drainage pattern in soil, and increases frictional interlock with concrete and stone. Application is also found in retaining soil to the greening of rock fill slope.

CCM Coir, Coir Log & Coir Stitched Blanket

A 100% organic coir fiber, fully biodegradable weaved erosion mat. It protects against surface soil erosion, retains moisture, prevents soil dries out, promotes vegetation growth, and eventually decays into plant nutrients, an ideal product for slope erosion protection.

Concrete Canvas - Geosynthetic Cementitious Composite Mat (GCCM)

Concrete Canvas, a GCCM, is a flexible, concrete-impregnated fabric that hardens on hydration to form a thin, strong, durable, waterproofing, and fire-resistant concrete layer. It is ideal for slope protection, erosion control, channel lining, concrete structure remediation, bund and culvert lining, weed control, and pipe protection, particularly in remote areas with difficult access to mixers, plants, equipment, or limited working space. It is fast to install, requires little skill, and is cost-effective.

Tenax Multimat

Multimat is a 3D polypropylene mat made from stitching layers of flat and calendar-durable netting. It is used for erosion protection on steep slopes and embankments, rivers, lakes, shorelines, and golf courses. It provides micro stability at the slope surface and helps create an artificial root system, which helps nature develop its own strong green solution for long-term erosion protection.

Freudenburg Enkamat

Enkamat is a 3D polyamide mat made from weaving extruding filament yarn for erosion protection to slope and embankment. It provides micro stability at the slope face and enhances the root system, which helps nature to develop its own long-term solid green solution. Enkamat is flame retarding resistant.

Presto Geoblock

Geoblock offers a design that handles the most demanding load support and turf protection requirements. It supports various loadings, from pedestrian trails and walkways to emergency access lanes. The Geoblock system provides high environmental benefits with low ecological impact.

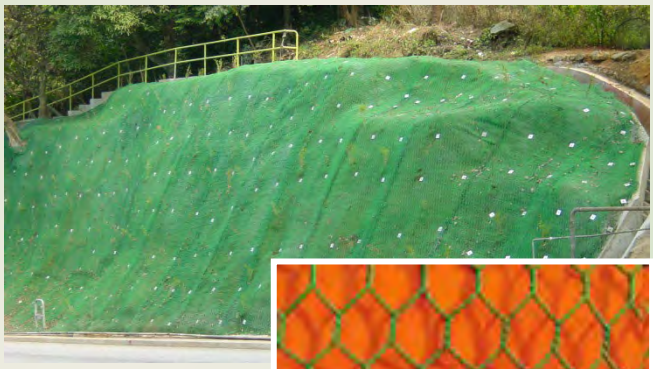
Garware - Flexible Rope Net Gabion

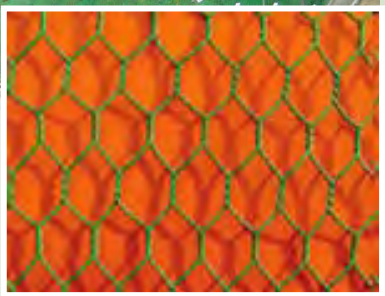
Flexible rope net gabions are stone-fill units encompassed in a polymer rope net that is highly resistant to degradation and corrosive environments. They are widely used to provide scour protection and underwater construction.

MACCAFERRI Wire Mesh

Galvanized PoliMac Coated Rockfall Protection Netting

Steel woven wire mesh is used as a drapery system to prevent rocks and debris from falling onto roads and railways. Due to the characteristics of double twist, the steel wire mesh has high tensile characteristic that can confine loose rocks/debris and will not be unraveled in the event of wire breakage.





Advantages of Double Twisted Mesh

- Mesh does not unravel if one of the wires should fall
- High tension and punching stress resistance
- Maximum continuity at joints without the need to overlap mesh
- Low installation costs

Wire Mesh Product Description

Maccaferri's PoliMac is a more advanced organic coating. The mesh comprises double-twisted zinc and PoliMac-coated steel woven wire following EN10223-3 and EN10245-1.



Erosion Control at Anderson Road Quarry, March 2019



Erosion Control at Tolo Highway August 2012



Erosion Control at Tuen Mun Chek Lap Kok Link, March 2018

Material Properties	
Steel Wire of nominal 2.2mm diameter	Conform to EN10223-3
Galvanized coating on wires 230g/m^2	Conform to EN10244-2
Opening of mesh of 80mm x 60mm	Conform to EN 10223-3
PoliMac coating of nominal 0.5mm thick	Conform to EN10223-3 and EN10245-1
Color of Polimac Coating	Dark Green
Roll size	2 - 3.95 m (W) x 20 - 50m (L)
Wide width tensile strength (MD)	40kN/m

* Lacing wire is included

ver. 4_April 2025

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Geocell

Perforated Cellular Confinement System

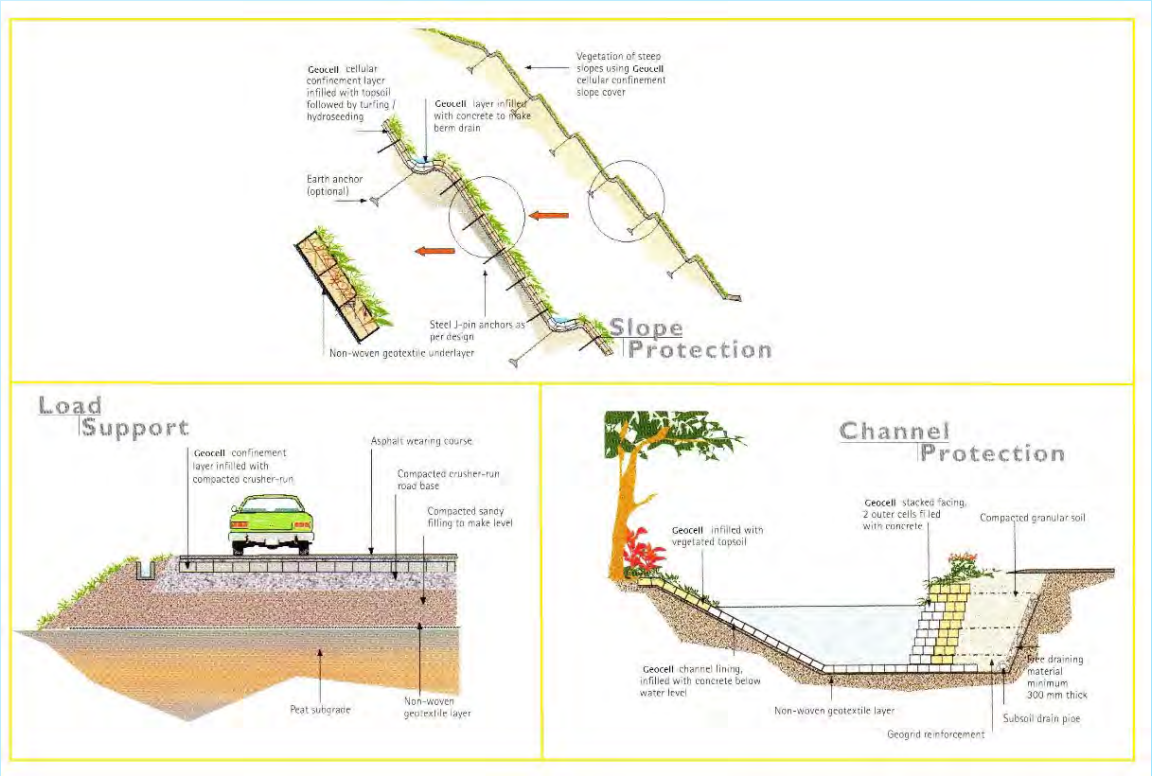
Vegetation on Hard Surface

Geocell Perforated Cellular Confinement Systems are expandable honeycomb structures that offer an environmentally friendly, sustainable, economical solution for earth stabilization, slope protection, erosion control, and channel protection, with low handling costs, minimal waste, minimal maintenance, easy installation, and reliable performance.

The Applications of Geocell

1. Stabilize and vegetate the slope surface
2. Soft soil reinforcement and ground stabilization
3. Shoreline and channel protection

Applications



Some Projects in Hong Kong





Geocell stabilizes the soil, which allows vegetation to thrive. (DC/2007/12)



Geocell was used as a Roof Garden Soil retainer - Central – Wan Chai Bypass – Central Interchange. July 2018 (HY/2009/18)



Soil Retainment for Landscaping – Site Formation and Infrastructure Works at Kong Nga Po. March 2023 (ND/2018/01)

Soil Retainment for Landscaping on slope – Anderson Road Quarry Site – Road Improvement Works. March 2025 (NE/2017/03)



Services Provided by G and E Co. Ltd

1. **Engineering design**
2. **Method statement & drawings**
3. **Supply & installation of Geocell**
4. **Horticultural expertise**

Geocell sections are manufactured from High-Density Polyethylene (HDPE) strips that contain carbon black for UV light stabilization.
Sheet thickness of 1.25mm, cell size (L x W) of 244mm x 203mm or 488mm x 406mm.
Collapsible into 2.44m or 3.35m (L) x 125mm (W) for ease of handling.
Cell thicknesses of 100, 150, 200 & 300mm are available.

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ver. 12_May 2026

Coir Geotextile



Coir geotextile is a natural and biodegradable mat for erosion control. Coir is 100% organic fiber naturally resistant to rot, mold, and moisture. It's tough and durable, with the right characteristics to protect slopes from erosion. Coir is also easy to install, maintain, and patch up. Over time, eco-friendly coir disintegrates completely, leaving only humus nutrients to support vegetation.

Application of Coir Geotextile

- Road embankments
- Soil erosion control
- Re-vegetation
- Hill slide slopes
- Soil bio-engineering
- Landscaping
- Golf courses

Technical Information

- Roll dimension: 1m (W) x 25m (L) OR 2m (W) x 50 m (L)
- Standard weight*: 750g/m^2

**Local project requirement is 750g/m^2. GTG700 complies with this requirement.*

Convenient to Use

- Wide variety of weaves and densities
- Lightweight, simple installation

Selective job reference over the years. Full list available upon request.





Third Golf Course at Kau Sai Chau. Before and after



Access Road joining She Shan Road, Tai Po, and Improvement of Nam Wai Road, Sai Kung, November 2018 (HY/2014/13)



SENT Landfill
August 2022 (EP/SP/10/91)



Third Runway Concourse
May 2022 (C3405)



Station Square at Kai Tak, July 2023 (SS G506)

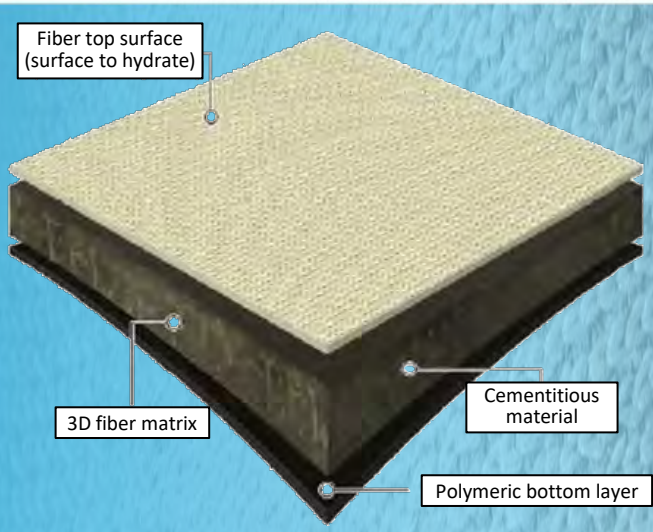
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GTG ver. 7 May 2026

CONCRETE CANVAS

Geosynthetics Cementitious Composite Mat

Concrete Canvas (Geosynthetic Cementitious Composite Mat, GCCM) is a flexible, formulated dry concrete mix and fiber-impregnated mat that hardens and sets on hydration to form a thin, strong, durable, waterproof, and fire-resistant concrete layer. This concrete-on-a-roll product can be applied to any surface and is developed, patented, and manufactured in the United Kingdom.



Applications

- Slope protection
- Erosion control
- Drainage channel lining
- Concrete structure remediation
- Bund & culvert lining
- Submarine pipe protection
- Marine structure protection



Slope Protection at Lamma Island
August 2024 (GE/2022/05)



Laying of Concrete Canvas

Benefits

- Fast and cost-effective
- Requires no working space
- Requires no equipment (ideal for remote areas)
- Simple to install, like laying an erosion mat
- No regular maintenance



Slope Protection in Southern Regions
August 2025 (07/LANDS/24)



Slope Protection, Highways Term Contract, August 2025 (06/HY/2017)

Properties

- Tested to ASTM D8364
- Design life of 120 years
- High flexural, puncture, and abrasive strength
- Chemical, abrasive, biological, weather, fire, and root-resistant
- Non-hazardous
- CE marking, ETA & BBA certification



Slope Protection in Pik Wan Road,
April 2021 (CV/2019/03)

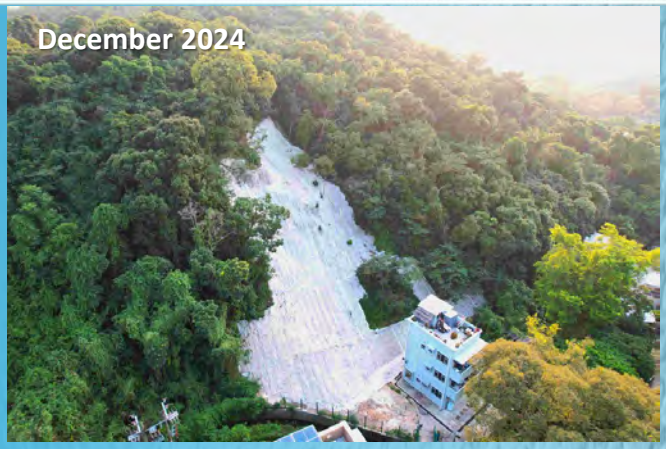


Temporary Slope Protection in Hilltop Villa, September 2023

CONCRETE CANVAS

Effective Erosion Control over time (03/HY/2023)









Characteristics

- Flexible, conforms to most profiles
- Rapid strength gain
- Performs well in wet conditions and with seawater
- Low carbon, eco-friendly, low washout
- PVC waterproofing backing
- In-situ testing with Windsor Pin tester
- Individual roll package



Batch Roll (1m W x 10m L)



Bulk Roll (1m W x 170m L)

Each roll is 1 m wide x 10 m long and can be handled by hand. Bulk rolls come in 100 m lengths. Wide-width rolls of 2–3 m are available. Once unrolled, laid, and pegged, you can spray water to saturation. It will set in 1-2 hours, harden in 24 hours, and continue to gain strength up to 40 MPa, typical of concrete behavior and characteristics.

ver. 15_Sep 2026

G&E ENGINEERING Since 1984

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Geosynthetics Cementitious Composite Mat (GCCM)

合成英泥石屎毯



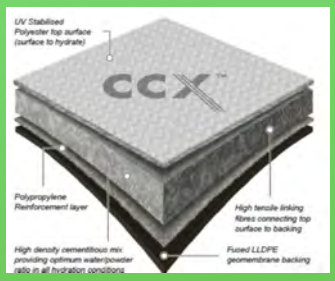
Rainstorm on 7th Sept 2023
Sai Kung Hilltop Villa
Temporary Concrete Cover

CONCRETE CANVAS®
Concrete Impregnated Fabric...



Concrete in a roll for temporary slope protection

- ***No Shotcrete***
- ***No Ready Mix***
- ***No Equipment***
- ***No Mobilization***
- ***Instant Protection***
- ***Less CO_2 Emission***



Simple – lay to profile, anchor pin, screw overlap, water, and set



Use of Winch



Lay to Profile



Anchor Pinning



Overlap by Screw



Hydration



Concrete Cover





Lamma Island Pak Kok Village - eroded surface being covered instantly



Lamma Island Family Walk

Concrete Canvas is a flexible, formulated dry concrete mix and fiber-impregnated mat that hardens and sets on hydration to form a strong, durable, waterproof, and fire-resistant concrete cover surface

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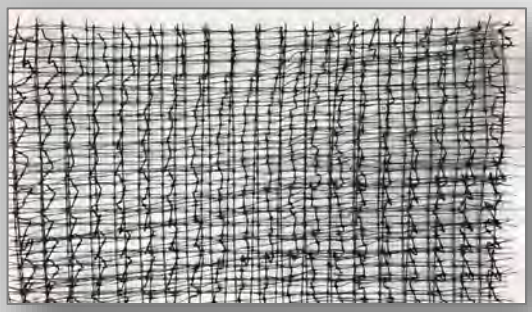
ACT ISO 9001 : 2015

UKAS MANAGEMENT SYSTEMS 0273

Erosion Control Mat

Erosion Control Mat is a 3-dimensional, non-biodegradable polypropylene or polyamide mat with a UV stabilizer master, carbon black, and fire retardant, made by weaving or welding layers of mesh for erosion control and restricting soil movement on sloping ground. Its high tensile strength, corrugated filament, and excellent durability ensure long-term performance.

TENAX **Multimat**



- Made of polypropylene net
- Composed of extruded and bioriented polypropylene grids, laid on top of each other and tied up by means of a black yarn
- Designed for the protection and growing of grass on slopes



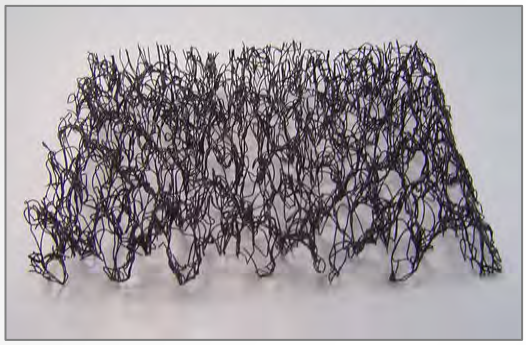






Tsing Yi North Coastal Road (HY/98/03) – Multimat 100, still performing well after more than two decades

Freudenberg **Enkamat**



- Made of polyamide filament
- Six monofilaments welded together to form a tough, open-structured matting
- Provides an artificial root system for reinforcement and strong vegetation for erosion protection of slopes



PHD at Pok Fu Lam South
August 2025 (CV/2020/01)



TKO - Ying Yip Road
June 2024 (CV/2021/03)



Anderson Road Quarry Site
December 2023 (ED/2020/02)



Shatin Sewage Treatment Works
April 2020 (DC/2018/05)

ver. 5_May 2026

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Presto GEOBLOCK System

Porous Pavement System

Presto's GEOBLOCK system offers numerous environmental advantages over hard-surface pavements, resulting in cost savings and aesthetic benefits for property owners. Design to handle the most **demanding load support** and **turf protection** requirements, the system supports a wide variety of loadings. From pedestrian trials and walkways to emergency access lanes, the GEOBLOCK system provides high environmental benefit with low environmental impact.

ENVIRONMENTAL AND ECONOMIC BENEFITS

HIGH PERMEABILITY

- Increases groundwater recharge and decreases surface runoff associated with storm water discharge from paved areas.

IMPROVES STORMWATER QUALITY

- Increases natural water infiltration and reduces non-point source pollution.

RECYCLED CONTENT

- Made in the USA, it uses up to 97% recycled polyethylene.

PROVIDES A COOLER SURFACE

- Reduces the heat island effect related to traditional hard pavements.

IMPROVES AESTHETICS

- Protects a sustainable vegetated surface or other attractive infill material.



Design and Build of Infrastructure Works for Tseung Kwan O Stage 1 Landfill Site (Phase 1). Contract No. HY/2009/05. July 2010.





Installation of Geoblock 5150 at Tseung Kwan O Stage 1 Landfill Site

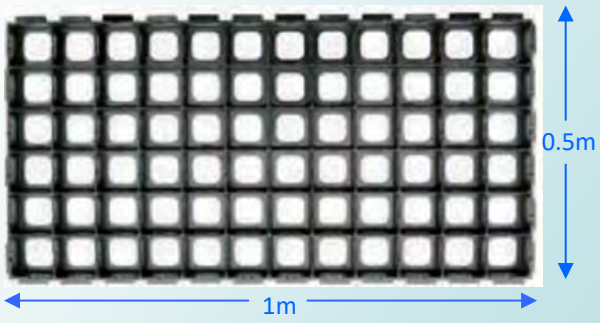
The Geoblock system was chosen for this project because of its weight-bearing capacity. The access road shall be capable of supporting a load as heavy as a fire truck. Meanwhile, vegetation can grow along the paved road, creating a greener environment. An area of 2,975 sq m of Geoblock 5150 was installed as the fire access along the toe of the Tseung Kwan O landfill site. This access road can take up more than 24 tons of vehicular loading and is fully turfed.



Landscape Paving for Fire Access at Shatin Transfer Station, May 2017 (EP/SP/76/14)

ITEM	GEOBLOCK 5150	GEOBLOCK 2
Material	Up to 97% Recycled Polyethylene	
Color	Dark shades of gray to black	
Carbon Black	1.5% - 2.0%	
Fire Test	Non-flammable	
Dimensions	0.5m (W) x 1.0m (L)	
Cells per Unit	72	128
Cell Size	79mm x 81mm	57mm x 57 mm

Full Size Geoblock Unit



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ver. 11_May 2026

Environmental Control

Executive Summary

ACE Geotextile Container

ACE Geotextile Container is made of high-strength ACETex PP geotextile, up to 200 kN/m. It is commonly used to contain contaminated material before disposal. There is a non-woven geotextile internal lining to confine small particles. Units are custom fabricated to size to fit any barge/hopper dimension. When opened, a closeable, sealable, or zipable cover is attached to each unit, allowing efficient filling. Lifting mechanisms are also available. When the container is filled, the cover is stitched or zipped up, and the unit can be disposed of from a split barge at an appropriate dump site or lifted and deposited in a designated location. ACE Geotextile Container can effectively contain and seal contaminated sediment for dredge management solutions.

ACE Geotextile Tube

A flexible configuration integrated with single or multiple pieces of high-strength woven geotextile into tubular containment. It is highly durable and has great permeability, especially when stitched into specific dimensions. The tube is deployed into a marine structure that finds applications in shoreline protection, beach restoration, wetland creation, marine construction, and dewatering facilities.

G and E Silt Curtain

Silt curtain encloses turbidity and minimizes influence on the outside sensitive area in marine engineering. The design of the silt curtain system, with enough engineering considerations, is critical to its performance and durability. It requires minimum maintenance and repair and optimum cost-effectiveness. It usually comes in a 20-m span, customized to water depth, complete with float and ballast chain in an easy-to-assemble unit.

ACE Concrete Mattress

Grouting former is made from geotextile as a bag or mattress, which finds practical applications in underwater concrete work. The mattress and bag are customized to size and are fitted with concrete infill ports. Pumped concrete is confined to set in the pre-determined dimension and thickness. The system is ideal for seawall repair, scouring protection, and repair of marine concrete structures.

Maccaferri Articulated Concrete Block Mat (ACBM)

Articulated concrete block mats are used for underwater ballasting and structure protection. Standard concrete block units are cast with polymeric reinforcement, interlinking the blocks into specific panels of various dimensions. The entire panel can be lifted and placed in water precisely, rapidly, and conveniently to a specific location.

Q ONE Oil Trash Boom

Soft floating curtains are specially designed to prevent floating objects from entering sensitive areas and to contain the spread of contamination in the marine environment. They come in a floating system with a net or screen attached under it to trap unwanted objects.

ACE Geobag

Geobag is a jumbo bag fabricated from geotextile. It can be customized to a large holding capacity, easy operational size, convenient closing mechanism, body reinforcement, and lifting hardness. The best applications are in handling granular material, retaining structure, and waste containment. High-permeability geotextile is often used for dewatering.

Efficient and Cost Saving Way to Handle Type 3 Contaminants

ACE Geotextile Container & Geotube

ACE Geotextile Container is made of high-strength ACETex PP geotextile up to 200 kN/m. There is a non-woven geotextile internal lining to confine small particles. Units are custom-fabricated to size to fit any barge/hopper dimension. A closable cover is attached to each unit; when opened, it allows efficient filling. Small and liftable units are also available.

When the container is filled, the cover is then stitched up, and the unit can be disposed of from a split barge at an appropriate dump site or lifted and deposited in a designated location. ACE Geotextile Container can effectively hold and seal contaminated sediment for dredge management solutions.



ACE Geotextile Container before unfolding



ACE Geotextile Container is Cost-Effective

ACE Geotextile container is manufactured in Taiwan under a single fully integrated operation, from tape production to weaving of geotextile to seaming of the container. Production lead time and logistics are extremely efficient.

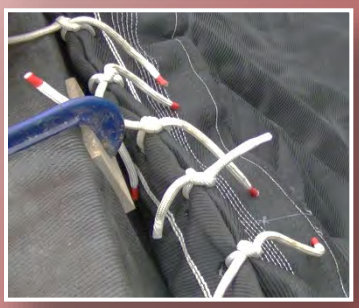


Hand sewing to stitch the cover





Disposal of type 3 marine sediment at Shatin to Central Link – NSL Cross Harbour Tunnel, October 2016, SCL1121



Knots to tie up the stitched seam

Ver. 10_May 2026

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APPLICATION (Shore Protection)

Erosion and sedimentation are the two fundamental problems that coastal and river management is fighting with. However, natural disasters and the raise of man-made structures sometimes make the problems worst. The application of ACETube® is an easier way to prevent shoreline erosion, protect coastal infrastructure, and enable dredging of river channels to reduce the possibility of flooding.





ACETube® can be applied in the following constructions and engineering purposes:

Shoreline Remediation
Dune Reinforcement
Groin
Detached Breakwater
Submerged Breakwater

Coastal Infrastructure Protection
Reclamation Works
Cofferdam Construction
Pipeline Protection

River / Wetland Remediation
River Bank Protection
Wetland Remediation
River channel Dredging

Harbor Dredging
Channel Sediment Dredging
Harbor Basin Sludge Dredging

G and E - Silt Curtain



G and E has established a silt curtain fabrication facility in Korea, leveraging a professional factory setup, trained and skilled workers, access to quality geotextile and components, efficient operations, and fast delivery from Busan to Hong Kong. G and E Silt Curtain (GESC series) has a standard unit and a customized model.



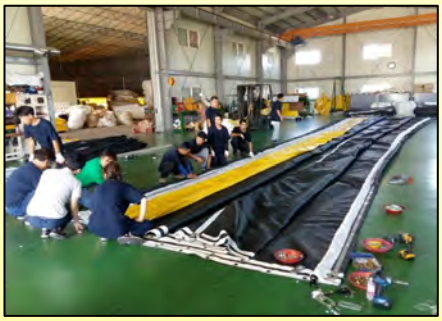
Proto-type silt curtain

We can supply silt curtain systems with:

- Customize design & drawing based on requirements
- Engineer to site condition constraint
- Fabricate to a specific depth and length
- Supplement with accessories and installation components



Handling of the silt curtain



Fabrication of silt curtain



Factory in Ansung, Korea

The silt curtain will be delivered in a pre-assembled package, including the float, geotextile curtain, ballast chain, and other accessories, readied for immediate deployment. The anchor system is optional.

Silt Curtain Types

G and E Silt Curtain system comes in various types to suit all environments.
There are:

- **Hanging type** – a typical floating system for an enclosed work area
- **Standing type** - suspended in mid-water to allow marine traffic
- **Barge type** – for attachment to a vessel or a marine structure
- **Cover head type** - for coastal calm area
- **Frame type** - for enclosure of grab bucket
- **Double chain type** – a waving skirt to accommodate tidal change



San Shek Wan Sewage Treatment Works, August 2023 (DC/2020/02)



Tuen Mun – Chek Lap Kok Link December 2016 (HY/2012/08)



Tung Chung New Town February 2024 (NL/2020/05)



Provision of village Sewerage Sai Kung, January 2024 (DC/2019/09)



Barge type



Cover head type



Double chain type

There are various float sizes (buoyancy requirements), different geotextile grades (strength requirements), a variety of steel plates (connection integrity), a reinforcement belt (stiffening the curtain body), and several bottom chains (adequate ballast weight) to configure the most appropriate system.

Silt Curtain Accessory

Optional accessories include a sub-float to counterbalance wave action, a market buoy to identify anchor position, a market light to signal alignment, a fluke & ton bag anchor to replace an anchor block, as well as PP rope, a shackle, and an anchor wire.



Marker light



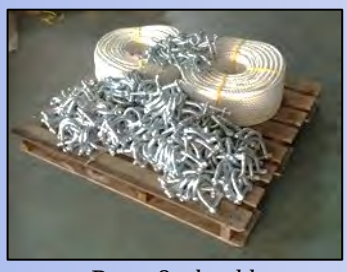
Marker buoy



Sandbag anchor

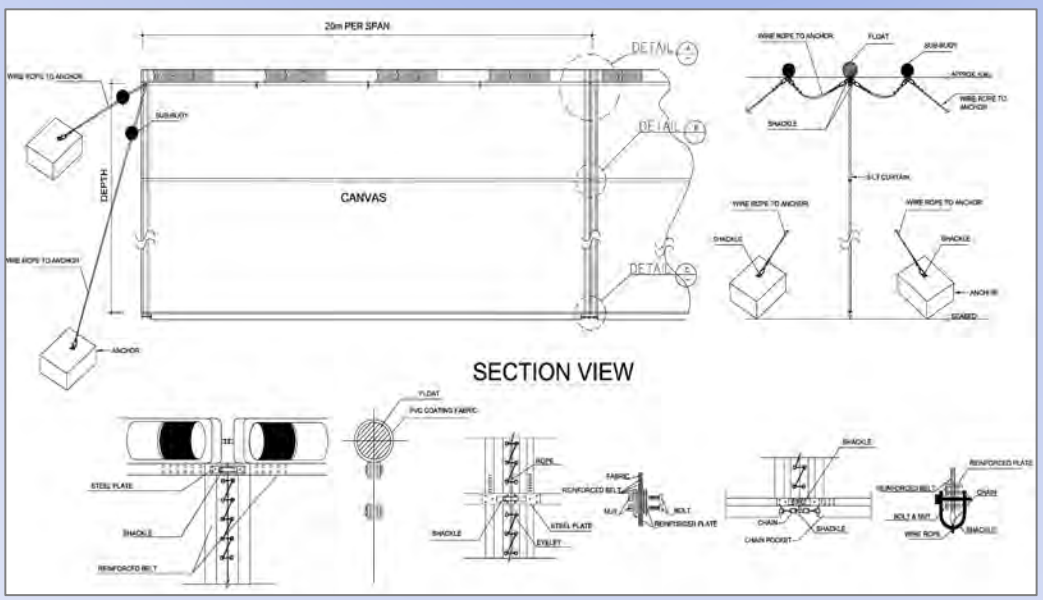


Anchor wire & cable



Rope & shackle

Typical Design Drawing of Silt Curtain





Fluke anchor



Sub-float

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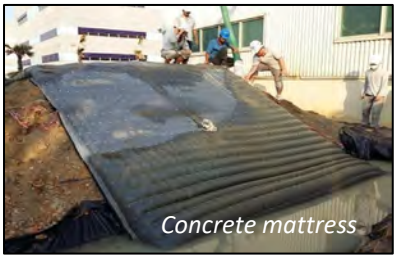
website: www.g-and-e.com

ver. 9_May 2026

Concrete Mattress

Geotextile Former

A geotextile bag is fabricated into a mattress, into which grout can be infilled to form a concrete surface layer. The geotextile formwork can be filled in situ at any location.


Concrete mattress

Articulated Concrete Block Mat (ACBM)

Small precast concrete units can be laced together to form a similar concrete mattress with easy articulation. The mat is supplied flat and can be lifted and placed anywhere.

Customized panel sizes are available, with thicknesses of 100–500mm, fully fabricated at the factory for immediate deployment.


ACBM

Applications

- Coastal & seawall protection
- Embankment erosion control
- Submarine pipeline cover
- Scouring protection
- Underwater ballast



Shing Mun River scouring protection, July 2005


Embankment protection at Tseung Kwan O, April 2019

The Beauty of Concrete Mattress

- Simple underwater operation
- No need conventional formwork
- Flexibility to conform to irregular surface
- Easy to apply, efficient and precise
- Stable and sustainable
- Cost effective

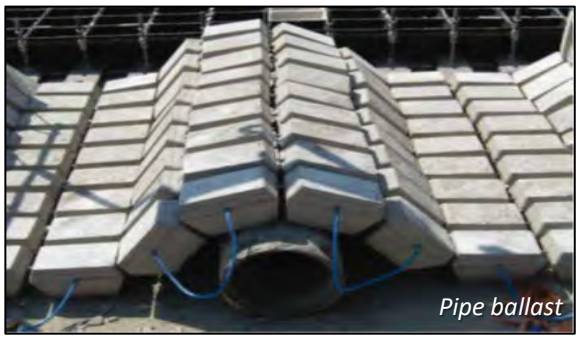

Handling filled Concrete Mattress



Loading of ACBM

Services that We can Provide

- Application design
- Fabrication and supply of panels
- Method statement and installation assistance


Pipe ballast

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ver. 6_May 2026



Articulated Concrete Block Mattresses ACBM



MACCAFERRI

Trash Boom

Trash boom is installed in areas to prevent the spread of trash, floating objects, and marine debris by intercepting their outward route to the sea. It is basically a floating fence that can be anchored to the shoreline and fixtures at sea to confine trash in potentially polluted areas. Collection and removal of trash can be easily managed within a working zone.



Features of the Trash Boom

- **Excellent Water Resistance**
  Uses PET woven fabric with PVC coating as body fabric, with anti-mold treatment that prevents discoloration over a long period of time, and would not deform

- **High Durability**
  All joints (seams) are heat-welded with high frequency against strong winds, severe tidal changes, and are very sturdy even in bad weather

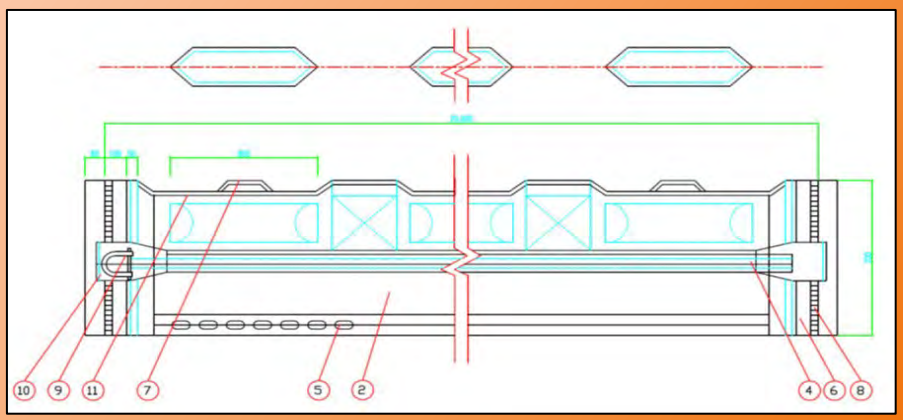
- **Easy to Transport and Store**
  It comes in a 20 m span, is lightweight, fully pre-fabricated, ready to be deployed, and requires little maintenance

- **Can be Customized for Various Site Conditions**
  Type A for the water surface and Type B for the sea











Packing of the trash boom

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ACE Geosynthetics

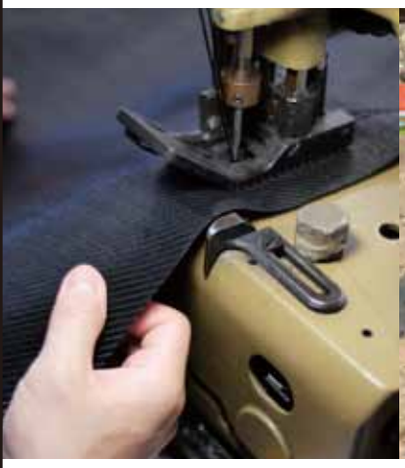


ACEBag™

PRODUCT

ACEBag™ is the registered trademark of ACE Geosynthetics for all its geotextile bags. In general, ACEBag™ is a woven container with high tensile strength, strong seam, high loading capacity and appropriate textile texture for engineering application. Its size and design can be customized to satisfy the desired purpose.

A bag is composed of durable geotextile (ACETex®), strong handler loop, and appropriate sewing thread; and it can be produced in different design for different requirements. The materials used for ACEBag™ fabrication are mainly polypropylene or polyester woven geotextile. Seams on the ACEBag™ are sewed by skilled technicians with thread of durable yarns. This ensures the overall product quality and performance.









Tunneling

Executive Summary

ABG Cavidrain

Cavidrain is a pre-formed cavity, void former, and drainage system designed to relieve water penetration from tunnels and other underground structures by replacing the granular layer. Concrete can be cast into the former to form the base slab, with an underneath drainage passage. Cavidrain is also used in road and rail tunnels, mine shafts, interceptors, etc.

ABG Cavidrain Liner

Cavidrain Liner is a highly flexible cuspated LLDPE that provides a drainage layer that collects infiltration water from the tunnel wall while acting as tunnel waterproofing. It has a good B2 fire resistance rating and can be handled as a typical tunnel waterproofing membrane.

Union Plastic Corporation

PVC Liner is a highly flexible geomembrane specially designed for high-performance tunnel lining applications. It comprises a black core layer and colored signal layers, greatly facilitating visual inspection. Whether used in a new design or retrofit installation, PVC Tunnel Liner provides a unique combination of security, sealing integrity, and installation efficiency.

Maccaferri Glass Fiber Reinforced Polymer (GFRP)

Glass fiber reinforced polymer rebar has a continuous thread profile with high friction effect to improve overall strength capacity for slope and cut face stabilization. Coupler and termination accessories are available to suit your requirements. It is widely used in soft-eye design when temporary reinforcement needs to be easily cut and removed with further excavation.

CeTeau Strip Drain

Strip drain is a horizontal drainage geocomposite in a narrow strip that replaces costly sand or granular drainage blanket. It is designed to complement water discharge in the tunnel at specific locations in the vault where a sudden high water flow is encountered.

Maccaferri Steel and PP Fiber

Maccaferri Wirand steel fiber gives concrete mixing a combined compressive and bending strength, a substantial increase in toughness, and an improvement in reinforcement performance. Steel fiber is ideal for replacing reinforcement bars in tunnel shotcrete, slope remedial, and industrial flooring. Special dosage equipment is available to control batching. Maccaferri Fibromac is a mono-filamentary fiber made from virgin PP that can be integrated into cementitious products to constitute a homogeneous matrix, able to inhibit plastic shrinkage cracking and to reduce explosive spalling and structural damage in the event of a fire.

Cavidrain® Invert

Cavidrain Invert is a pre-formed drainage layer into which the concrete floor slab can be easily cast, replacing crushed stone and pipes traditionally used to collect and transport away infiltration water. It is optimised for high in-plane flow to mitigate problems caused by calcareous deposits.

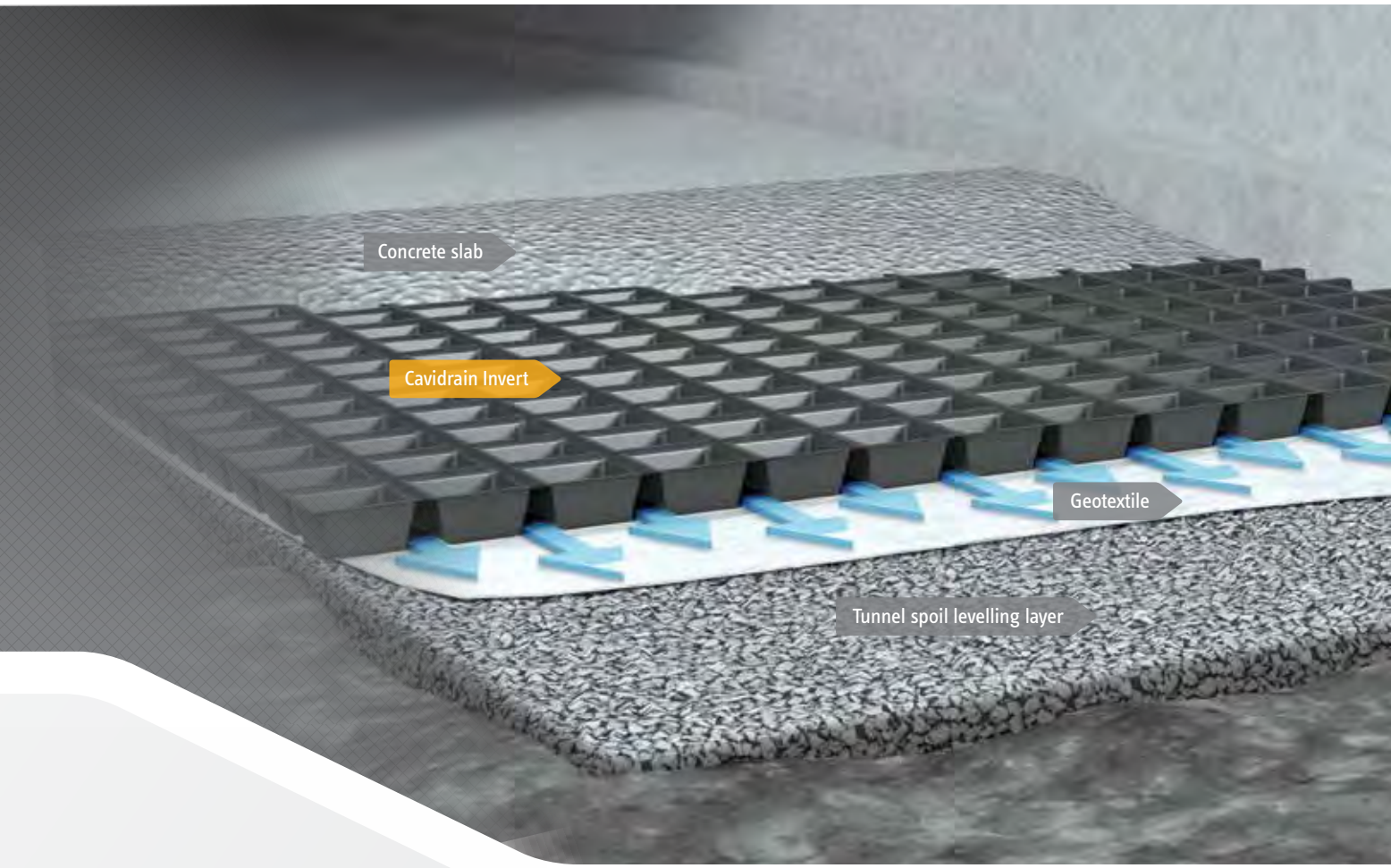
Traditional tunnel invert constructions favour the extensive use of crushed stone together with a longitudinal collection pipe. There is a significant cost in time and money associated with excavating the trench, and crushing and grading the stone before installation. Considerable stone thickness is required to meet drainage requirements.

With a typical thickness profile of 40 mm or 60 mm, Cavidrain Invert reduces excavation requirements. It can be installed in conjunction with the waterproofing and leads to a significantly faster construction programme by removing the invert drainage construction from the critical path.

Cavidrain Invert provides a pre-formed drainage layer into which the concrete floor slab may be cast and replaces both the invert trench and pipe to transport water along the tunnel invert. It has an in-plane water flow capacity far in excess of crushed stone. The profiles are optimised for maximum bearing area and have been designed to withstand the compressive loads arising have the placement of wet concrete. The profiles are chosen to be compatible with the concrete aggregate size such that concrete completely fills the cuspates and once cured, the ultimate load capacity of Cavidrain Invert is that of the concrete fill.

Cavidrain Invert combined with Cavidrain Liner system







APPLICATIONS

- New tunnel construction
- NATM constructed tunnels
- Cut & cover tunnels
- Drill and blast tunnels
- TBM tunnels
- Station boxes
- Cable tunnels
- Highway tunnels
- Railway tunnels
- Hydroelectric power caverns
- Radioactive storage repositories
- Retro-electrification

BENEFITS

- Simplified invert drainage system
- Reduced excavation requirements
- Significantly reduced project time scales
- Materials & labour cost reduction
- Reduced invert excavation depth
- Improved drainage capacity
- Highly resistant to calcification

For ABG product datasheets, CAD details, design guidance & other technical information call +44 (0)1484 852 250 or email geo@abgltd.com

UNION

HDPE V-Lock Anti-Corrosion Liner



UNION PLASTICS CORPORATION

MACCAFERRI

Versatile
engineering

GFRP CRG Bolts

A reliable, high performance system for soil nailing and bolting

Our GFRP CRG bolts are engineered from unidirectional glass fibre in a polyester resin matrix, with a continuous threaded profile. This profile and construction delivers significant performance improvements in friction effect (pull-out) and tensile strength.

A steel fitment enables these GFRP elements to be post-tensioned in bolting applications. A self-drilling system is available to address collapsible soil conditions.

GFRP CRG bolts are corrosion resistant, making them an ideal solution in aggressive environments such as mining works.

Our bolts form part of a system of carefully selected components including hexagonal nuts and couplers.



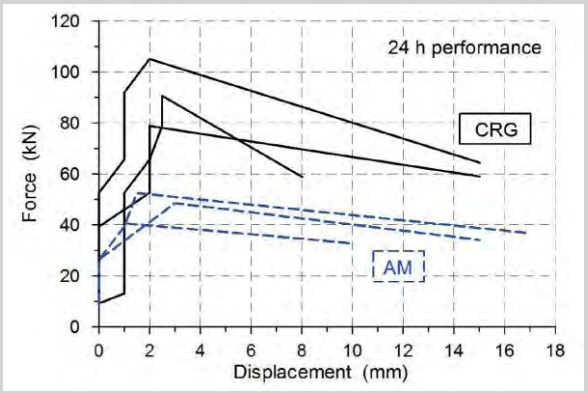


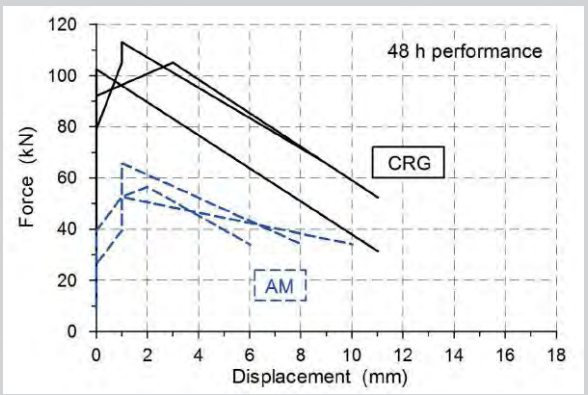
CRG profile detail



The pictures (above) show the different mechanical interaction between bars and cement grout during laboratory pull-out tests on conventional GFRP bars (regular threading AM) and GFRP CRG (CRG).

The graphs (right) show results from laboratory pull-out tests on standard improved adherence (AM, dashed lines) and corrugated (CRG, solid lines) bars, 24 hours and 48 hours after grout injection.





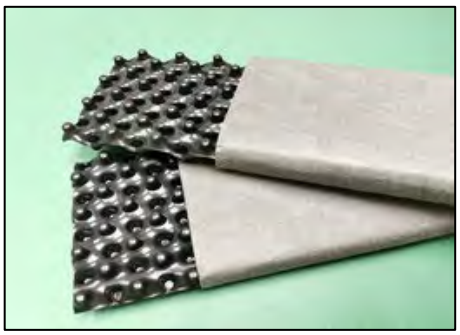
Horizontal Strip Drain

Ground Drainage

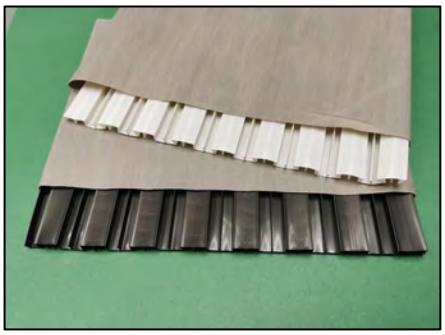
A strip drain is a narrow, 200–300 mm-wide geocomposite with a strong, rigid polymeric core wrapped in filter geotextile that provides efficient water discharge. It was designed to complement a prefabricated vertical drain (PVD) by laterally draining water from soft soil to the peripheral outlet, replacing the use of a sand or granular drainage blanket. The application has been extended to provide a network of water passages to relieve pore pressure in isolated locations and direct it to a proper sump. This is now widely used in underground structures, tunnels, and basement construction.



Strip Drain complimenting PVD



CeTeau Strip Drain



Daehan Horizontal Drain

The Material

- Light weight in handy coil
- Low in cost
- Engineered with proven performance
- Replaces granular materials
- Simple to install



Ground consolidation treatment
Lok Ma Chau Loop, June 2019 (YL/2017/03)



Basement Vertical Drainage
Tsuen Wan, August 2019

Applications

- Underground structure
- Ground improvement
- Slope & Embankment
- Landscaping
- Tunnel



Tunnel Drainage, Shatin Sewage Treatment Works to Caverns, November 2020 (DC/2018/05)



Basement Drainage Network
Kwun Tong, March 2021

ver. 3 May 2026

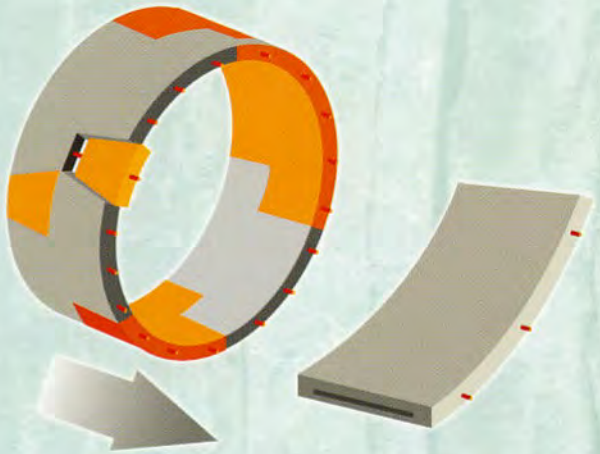
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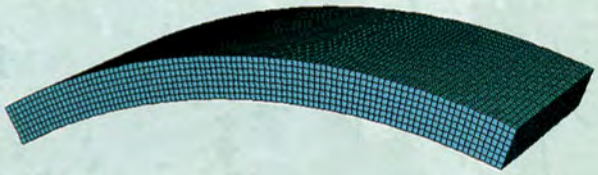
Steel Fiber Reinforced Concrete Precast Tunnel Segments

The precast tunnel segment vault has the double function of final lining and in contrast to the tunnel boring machine (TBM) during excavation.
The tunnel segment are pre-cast and packaged in a pre-casting facility before delivery and placement on site.
Steel fibres reinforced concrete is cast or pumped directly inside the formworks.
It is possible to use fibre reinforced concrete precast tunnel segment in case of reduced loading conditions during TBM pressure.



Advantages:

- Better aesthetic quality
- Better mechanical strength of the material due to the industrialised productive process
- Improved precasting production, thanks to partial or total elimination of steel reinforcement cages
- Improved damage resistance during transportation and placing
- Reduced concrete thickness as no reinforcement cover depth is required
- Improved durability in aggressive environment



Anti-fire Protection

Cast or pumped in situ Synthetic/Cellulose Fibre Reinforced Concrete

Cellulose reinforced concrete is a concrete composite reinforced with steel fibre and synthetic/cellulose fibres. This compound is particularly suitable to improve fire resistance of the tunnel final lining.
The cellulose concrete can be cast or pumped directly inside the formworks.

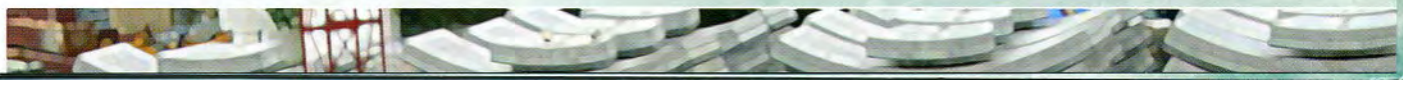
Advantages:

- Improve fire resistance
- Improve abrasion and impact resistance
- Reduce plastic shrinkage cracking
- Improve freeze/thaw durability
- Reduce permeability



fire resistance test





Preliminary Lining

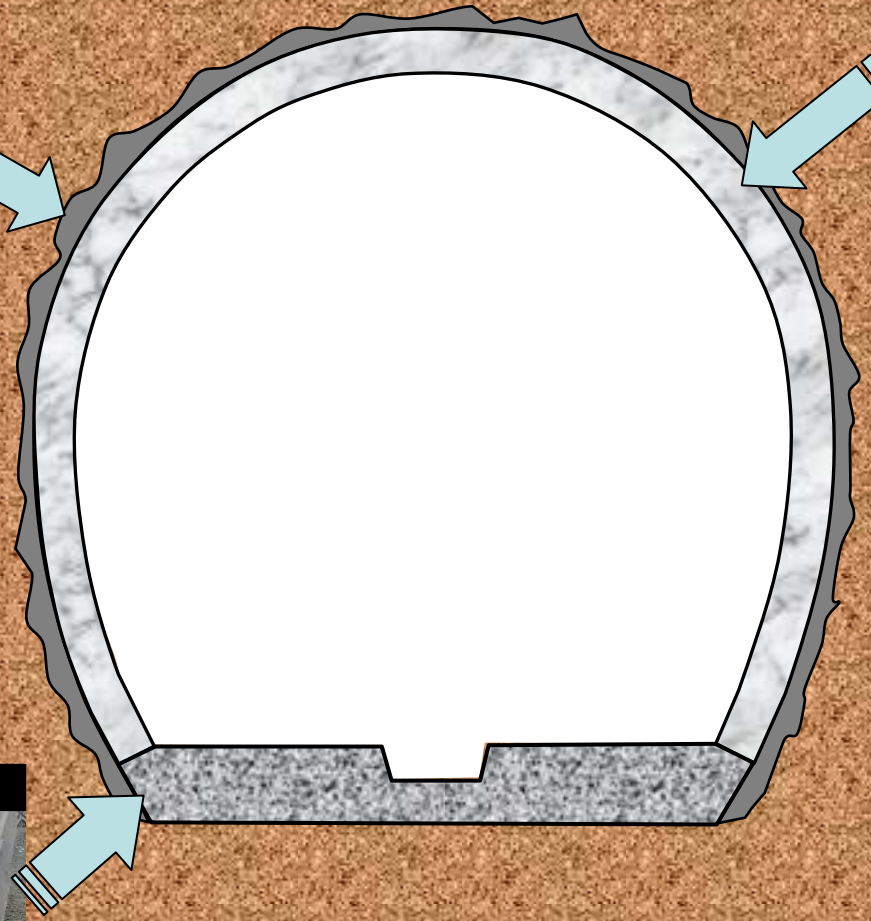


Wirand **FS 3N** or **FS 7** could be apply here with the sprayed concrete (shotcrete)

Final Lining



Wirand FF1, **FF 3** or additional **Polypropylene Fibre** could be used for this pre-cast lining segment.



Invert Segment



Wirand FF1 and **FF 3** could used for this invert segment

Landscaping

Executive Summary

CCM Coir Biodegradable Erosion Mat

Biodegradable Erosion Mat is a natural coir mat woven from 100% organic fiber. It protects surface soil from erosion, retains moisture, prevents soil dries out, and promotes vegetation growth. Eventually, it decays into plant nutrients. It helps natural vegetation take root and provides optimum nutrients.

Freudenberg Non-Biodegradable Erosion Mat

Non-Biodegradable Erosion Mat is a three-dimensional PA/PP mat made from weaving layers of flat and calendar-durable netting for erosion protection. It provides micro stability to prevent wash-off and reinforces the root system to form a strengthened soil cover, which helps develop its robust green solution for long-term erosion protection.

BOSTD Geocell

A Perforated Cellular Confinement System is an expandable honeycomb geocell structure that offers an environmentally friendly and economical solution to slope protection and reliable soil confinement. Soil can be placed in each compartment, where plants can be established. The system also provides optimum root lock to vegetation, acting as natural drainage patterns in the soil.

BontexGeo Geotextile

Geotextile is a permeable nonwoven synthetic textile material that allows water to pass through but not soil. It separates soil and drainage aggregate in planter boxes or planting areas, offering long-term drainage and filter reliability.

ABG Drainage Geocomposite

Drainage Geocomposite is a geocomposite drainage layer that offers distinct benefits over stone filter layers. Its structural drainage systems have been specifically developed to provide high flow capacity and protect waterproofing layers.

ABG Roofdrain

Roofdrain is a special geocomposite that offers drainage function and water retention to support vegetation growth on the roof garden. It supplements soil moisture and sustains growth with minimal thickness of the growing medium, a lightweight prerequisite on the roof. The separation geotextile also prevents soil from washing off.

GSE HDPE Root Barrier

Root barrier is an impermeable HDPE membrane that inhibits root growth from affecting building structures, interfering with utilities, protecting the waterproofing system, and retaining moisture from leaching away. The HDPE geomembrane is lightweight, flexible, durable, and environmentally inert. It comes in customized roll sizes or panels to fit site requirements.

GSE HDPE Pond Lining

Waterproofing membrane is sought for landscape water features, stream course, ornamental pond, and artificial lake. HDPE geomembrane is widely used as a lining system and containment barrier. The membrane is flexible, durable, and weldable to form into integral panels to fit any shape and dimension to complete watertightness.

Global Synthetic Drainage Cell

Drainage cell is a thick, rigid plastic drainage core panel that supports extreme loading and provides high transmissivity, suitable for storm drains in paving areas, water retention compartments, and sustainable landscaping. A geotextile will keep soil migration into the structure.

Global Synthetics Grass Paver

Turfpro is a lightweight, high-strength turf stabilization paver designed to protect grass root zones and stabilize the surrounding soil when subjected to vehicular traffic. When filled with gravel chips instead of soil, it can also be used to construct porous pavements for parking areas.

Gripple Anchor

A unique and versatile percussion-driven earth anchor system using tripod guy fixing kits, steel wire, webbing strap, deadman block, and ratchet tensioning device to secure trees, stabilize root balls, and upright trunks, ideal for transplanting large trees.

Kaytech Megaflow

Megaflow, a panel drainage composite system, is an HDPE panel core wrapped in a non-woven needle-punched geotextile. Its high flow rate capacity and high compressive strength resistance are designed for subsoil drainage networks. It comes in coils and has a proprietary adapter to pipe and other external drain connections.

Global Synthetic Zero Irrigation System Protank

Protank water retention box is a unique modular subsurface drainage system that occupies space within the soil to harvest and store water that can be reused for sub-irrigation. It comes in panels that can be assembled into standard-sized box modules. A geotextile is needed to wrap around the boxes; sand and soil can be placed around the box, forming an empty water storage compartment.

Building Green Ecological Suspended Pavement

Suspended pavement supports traffic loading and allows soil underneath the pavement not to take loading. As such, tree roots are encouraged to spread out rather than push up paving, drainage capacity is improved, surface water is better controlled, and air-water exchange is allowed. The system is made from recycled plastic. Each member can easily be assembled into boxes that can be interlocked into large cavities over extensive areas. It is designed and tested to take 400 Kpa to support traffic loading.

Maccaferri Kikkonet Climber Mesh

Kikkonet is a hexagonal double-twisted non-mesh made from extremely strong, lightweight, and stable polyethylene terephthalate. It does not unravel, corrode, or deteriorate in most environments and is inert to plant growth. The mesh is ideal for outdoor climber trellis and marine growth containment, where durability is treasured with the least maintenance.

Coir Geotextile



Coir geotextile is a natural and biodegradable mat for erosion control. Coir is 100% organic fiber naturally resistant to rot, mold, and moisture. It's tough and durable, with the right characteristics to protect slopes from erosion. Coir is also easy to install, maintain, and patch up. Over time, eco-friendly coir disintegrates completely, leaving only humus nutrients to support vegetation.

Application of Coir Geotextile

- Road embankments
- Soil erosion control
- Re-vegetation
- Hill slide slopes
- Soil bio-engineering
- Landscaping
- Golf courses

Technical Information

- Roll dimension: 1m (W) x 25m (L) OR 2m (W) x 50 m (L)
- Standard weight*: 750g/m^2

**Local project requirement is 750g/m^2. GTG700 complies with this requirement.*

Convenient to Use

- Wide variety of weaves and densities
- Lightweight, simple installation

Selective job reference over the years. Full list available upon request.





Third Golf Course at Kau Sai Chau. Before and after



Access Road joining She Shan Road, Tai Po, and Improvement of Nam Wai Road, Sai Kung, November 2018 (HY/2014/13)



SENT Landfill
August 2022 (EP/SP/10/91)



Third Runway Concourse
May 2022 (C3405)



Station Square at Kai Tak, July 2023 (SS G506)

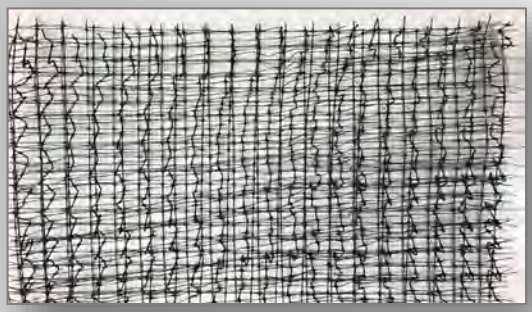
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website: www.g-and-e.com

GTG ver. 7 May 2026

Erosion Control Mat

Erosion Control Mat is a 3-dimensional, non-biodegradable polypropylene or polyamide mat with a UV stabilizer master, carbon black, and fire retardant, made by weaving or welding layers of mesh for erosion control and restricting soil movement on sloping ground. Its high tensile strength, corrugated filament, and excellent durability ensure long-term performance.

TENAX **Multimat**



- Made of polypropylene net
- Composed of extruded and bioriented polypropylene grids, laid on top of each other and tied up by means of a black yarn
- Designed for the protection and growing of grass on slopes



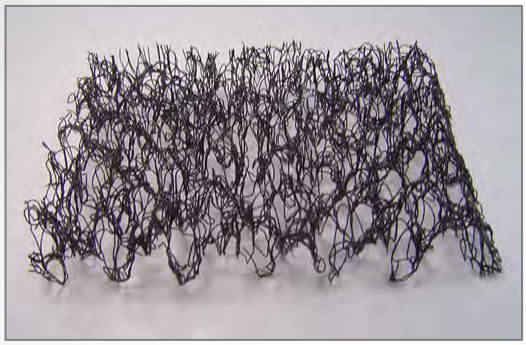






Tsing Yi North Coastal Road (HY/98/03) – Multimat 100, still performing well after more than two decades

Freudenberg **Enkamat**



- Made of polyamide filament
- Six monofilaments welded together to form a tough, open-structured matting
- Provides an artificial root system for reinforcement and strong vegetation for erosion protection of slopes



PHD at Pok Fu Lam South
August 2025 (CV/2020/01)



TKO - Ying Yip Road
June 2024 (CV/2021/03)



Anderson Road Quarry Site
December 2023 (ED/2020/02)



Shatin Sewage Treatment Works
April 2020 (DC/2018/05)

ver. 5_May 2026

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Geocell

Perforated Cellular Confinement System

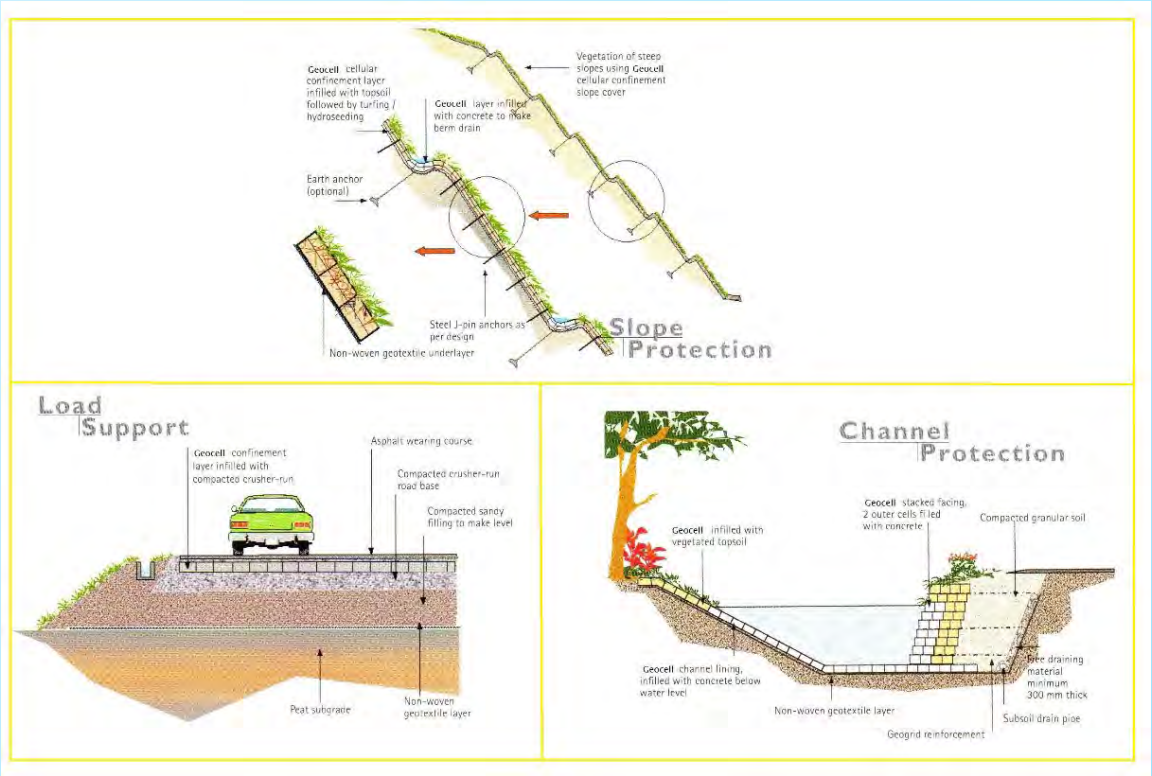
Vegetation on Hard Surface

Geocell Perforated Cellular Confinement Systems are expandable honeycomb structures that offer an environmentally friendly, sustainable, economical solution for earth stabilization, slope protection, erosion control, and channel protection, with low handling costs, minimal waste, minimal maintenance, easy installation, and reliable performance.

The Applications of Geocell

1. Stabilize and vegetate the slope surface
2. Soft soil reinforcement and ground stabilization
3. Shoreline and channel protection

Applications



Some Projects in Hong Kong





Geocell stabilizes the soil, which allows vegetation to thrive. (DC/2007/12)



Geocell was used as a Roof Garden Soil retainer - Central – Wan Chai Bypass – Central Interchange. July 2018 (HY/2009/18)



Soil Retainment for Landscaping – Site Formation and Infrastructure Works at Kong Nga Po. March 2023 (ND/2018/01)

Soil Retainment for Landscaping on slope – Anderson Road Quarry Site – Road Improvement Works. March 2025 (NE/2017/03)



Services Provided by G and E Co. Ltd

1. **Engineering design**
2. **Method statement & drawings**
3. **Supply & installation of Geocell**
4. **Horticultural expertise**

Geocell sections are manufactured from High-Density Polyethylene (HDPE) strips that contain carbon black for UV light stabilization.
Sheet thickness of 1.25mm, cell size (L x W) of 244mm x 203mm or 488mm x 406mm.
Collapsible into 2.44m or 3.35m (L) x 125mm (W) for ease of handling.
Cell thicknesses of 100, 150, 200 & 300mm are available.

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ver. 12_May 2026

Geotextile

Geotextiles are engineered woven or nonwoven fabrics manufactured from synthetic polymers, such as polypropylene and polyester. It is used with foundation, soil, rock, earth, or other geotechnical-related material as an integral part of a manufactured product, structure, or system.

Various Areas of Applications of Geotextiles

- Embankment
- Filter & Drainage
- Foundation
- Landfill
- Landscape
- Protection Layer
- Reclamation
- Soil Separation
- Tunnel

At G and E, we have woven and non-woven geotextiles in stock available for prompt delivery.



Formation Separation (ND/2024/07)



Filter Drainage (Tai Po Golf Course)



Planter Filter & Drainage (HKHA20210526)



Sand Blanket Separation (C3205)

BontexGeo, Belgium – Bontec

- SNW120 – Cushioning
- NW10 & NW20 – Filtering
- NW6 – Landscaping

- **Manas Geo Tech, India**: MGT30 – Raking drain
- **Mattex, Saudi Arabia**: GeoMatt NP – Drainage
- **Geo Source, India:** GST - Protection
- **SKAPS, USA**: SW & GT – Landfill
- **ACE, Taiwan**: ACETex GT – Reclamation, Silt Curtain

The Geotextiles Distributed by G and E

- In compliance with most specifications
- Ample stock for prompt delivery
- Competitive pricing
- International technical support
- Quality assurance program
- Supplied more than 25,368,000 m^2 since 1984
- Approvals from various consultants, architectural firms, public institutions, various government departments, and most institutions.

Contact Us Today for a Quotation

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Ver. 8_May 2026

Deckdrain



Deckdrain is a high-performance geocomposite drainage layer that replaces granular filter layers with distinct benefits. Deckdrain structural drainage systems have been specifically developed to provide high flow capacity and added protection to waterproofing. Deckdrain consists of a high-strength, flexible polyethylene cuspated core with a non-woven geotextile bonded onto either one or both sides for perforation.

Deckdrain is Unique

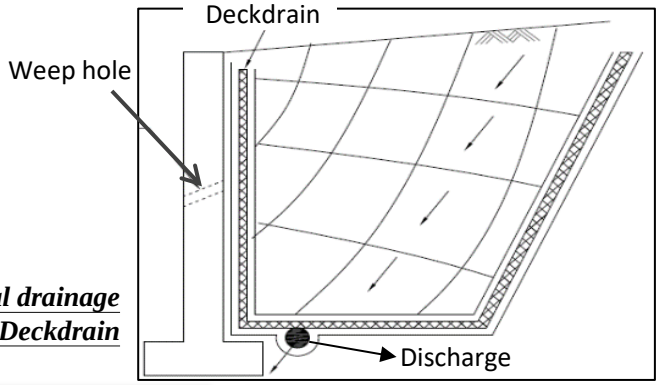
- Equivalent to Miradrain and other geocomposites and most cuspated geocomposites
- Compatible with the waterproofing system
- Double-sided perforation option
- Ready stock and economical
- Made in the UK with CE marking

It's Convenient to Use

- Ready stock for delivery
- Simple installation
- Roll dimension: 1.1m (W) x 45m (L)

Applications of Deckdrain

- Relieve water pressure to the buried structure
- Drainage behind retaining wall
- Capillary break layer below base slab
- Roof garden drainage



Vertical drainage layer of Deckdrain



Retaining wall drainage at Police Facilities in Kong Nga Po March 2021 (ND/2018/01)



Retaining Structure Drainage at NENTX Landfill, May 2024 (EP/SP/77/15)



Fill Slope Drainage at TKO – Yau Yue Wan, October 2023 (CV/2021/04)



Slope drainage at TKO – Lam Tin Tunnel February 2025 (NE/2015/01)

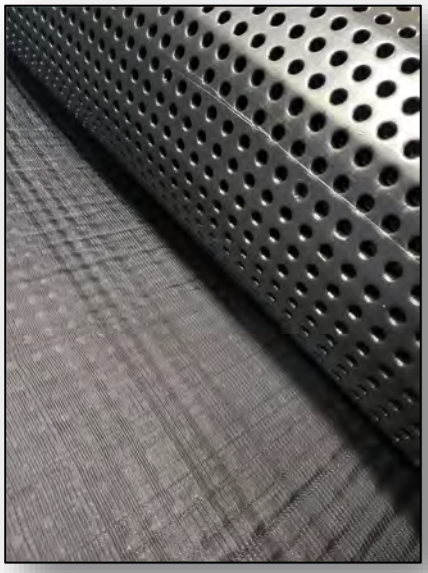
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Deckdrain ver. 14_May 2026

Deckdrain 1250S/HF360

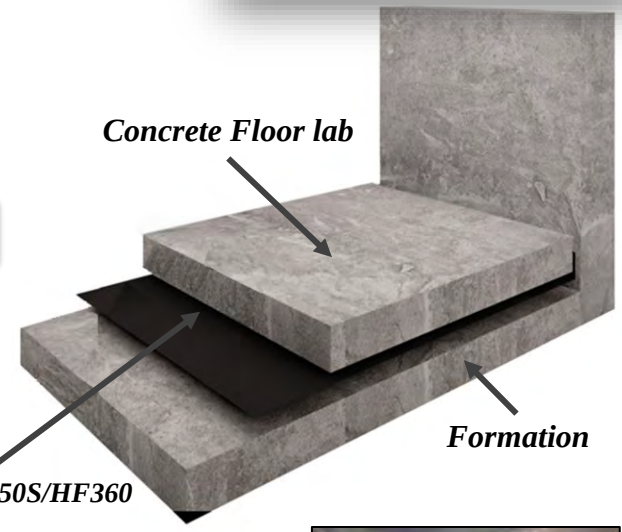


Deckdrain1250S/HF360 is a drainage composite consisting of a high compressive strength HDPE cuspated core bonded with a woven geotextile, and manufactured in the UK. The 10 mm-thick core provides a high-water-flow path, and the stiff woven geotextile filters particles entering the core during backfilling and concrete pouring, allowing water to pass through.

Deckdrain1250S/HF360 is used when effective drainage and relief of overburden pressure are sought underneath the basement floor slab and underground walling.

Characteristics of Deckdrain 1250S/HF360

- Consistent high flow drainage capacity
- High puncture resistance and compressive strength
- Excellent chemical resistance
- Long design life with reliable performance
- No health hazard to human and the environment



Benefits of Deckdrain 1250S/HF360

- Can replace granular for easy and rapid installation with minimal maintenance
- Stand up to direct concrete pour
- Lightweight and flexible small roll size
- Can be easily cut to size by utility knife
- Competitive pricing
- Made in UK with CE marking

Application of Deckdrain 1250S/HF360

- Relieve overburden hydrostatic pressure
- Basement slab drainage
- Diversion of underground water
- Protection to waterproofing



Packed material on site



Basement slab drainage at No. 53 – 55A Kwun Tong Road Development August 2022



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Green Roof

A green roof system comprises several components that work together. We at G and E can provide products for filtering, drainage, water retention, and root control.

Filtering Layer – Geotextile

BontexGeo *Bontec NW6*



Bontec NW6 needle-punched and thermally bonded non-woven PP geotextiles, designed to offer optimum performance on planting soil and drainage aggregate separation, as well as waterproofing layer protection.

Drainage Layer – Geocomposite

ABG *Roofdrain / Deckdrain*



Roofdrain and Deckdrain are lightweight and robust drainage geocomposites. Their synthetic core thickness ranges from 10 to 50mm and has drainage and filter functions. Roofdrain provides a water storage reservoir of 4 to 14 L per square meter to nourish the roof garden via capillary break. The geocomposites come in a small roll for easy manual handling.

Root Barrier – HDPE Geomembrane

Solmax *HDPE Membrane*



A root barrier is needed as an impermeable HDPE membrane that prevents root growth from affecting building structures and utilities, protects the waterproofing system, and retains moisture from leaching away. HDPE geomembrane is an impenetrable layer to inhibit root migration. It is lightweight, flexible, durable, and environmentally inert.

Check with us on applications, specifications, price, stock, and delivery

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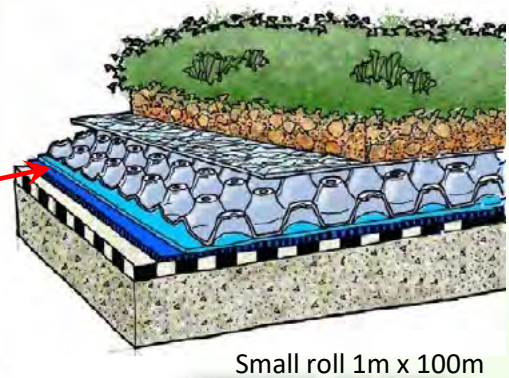
SOLMAX
HDPE Membrane Root Barrier System

A green roof offers recreational space, which is highly significant for healthy living. It also reduces the maintenance and cooling costs of buildings, as well as other environmental benefits.

A root barrier is needed as an impermeable layer on the roof to prevent plants from affecting building structures, protect the waterproofing system, and prevent moisture from leaching away.

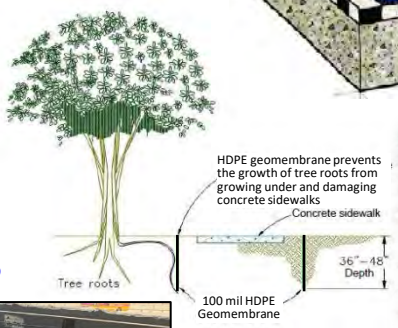
Advantages of Using SOLMAX HDPE Geomembrane

- An impenetrable layer, lightweight and flexible
- Durable, inert to the environment, harmless to plant growth, and strong enough to control root migration
- Act as rooftop waterproofing
- Factory fabricated to sizes, easy to handle
- Readily available stocks in Hong Kong



SOLMAX HDPE Geomembrane

- Can fabricate a width of from 1.0m to 7.0m
- Thickness can range from 0.75mm to 3.0mm
- Uses only virgin resin to ensure durability
- Roll length up to 100m



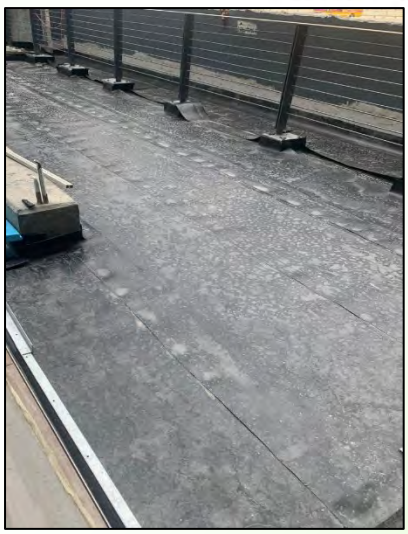


Small roll 1m x 100m

Selective Local Project References



TKO – Lam Tin Tunnel
October 2022 (NE/2015/01)



Station Square at Kai Tak,
May 2023 (SS H508)



Cyberport
October 2021



ver. 15_May 2026

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Landscape

The landscaping system comprises several components that work together. We at G and E can provide products for filtering, drainage, water retention, and root control.

Filtering Layer – Geotextile

BontexGeo *Bontec NW6*

Bontec NW6 needle-punched and thermally bonded non-woven PP geotextiles, designed to offer optimum performance on planting soil and drainage aggregate separation, as well as waterproofing layer protection.



Filter Geotextile Housing Project

Drainage Layer – ABG

Roofdrain / Deckdrain

Roofdrain and Deckdrain are lightweight and robust drainage geocomposites. Their synthetic core thickness ranges from 25 to 50mm and has drainage and filter functions. Roofdrain provides a water storage reservoir of 4-14 L/m^2 to nourish the roof garden via a capillary break. The geocomposites come in a small roll for easy manual handling.



Planter Drainage Anderson Road Quarry

Root Barrier – Solmax

HDPE Membrane

A root barrier is needed as an impermeable HDPE membrane that prevents root growth from affecting building structures and utilities, protects the waterproofing system, and retains moisture from leaching away. HDPE geomembrane is an impermeable layer that inhibits root migration. It is lightweight, flexible, durable, and environmentally inert.



Root Barrier, landscape project, Cyberport

Cellular Confinement System – BOSTD

Geocell

A Perforated Cellular Confinement System is an expandable honeycomb geocell structure that offers an environmentally friendly and economical solution for slope protection and reliable soil confinement. Soil can be placed in each compartment in which a plant is established. It also provides optimal root anchorage for vegetation and acts as a natural drainage pattern in the soil.



Soil Stabilization, Tsuen Wan Drainage Tunnel

Drainage Cell – Global Synthetics

Hydrocell

The Hydrocell is a thick, rigid plastic drainage core panel that supports extreme loading while providing efficient drainage. Its rigid plastic structure with excellent compressive strength and high transmissivity makes it ideal for paving areas, roof gardens, planter boxes, and other sustainable landscaping systems.



Planter Drainage, Ching Hong Road

Grass Paver – Global Synthetics

Turfpro

Turfpro is a lightweight, high-strength turf-stabilization paver designed to protect grass root zones and stabilize surrounding soil under vehicular traffic. It can also be used in the construction of porous pavements for car parks, when filled with gravel chips rather than soil.



Climber Mesh – BOSTD

E'GRID Geogrid

Geogrid Climber Mesh is a square mesh made from extremely strong, lightweight, and stable Polypropylene (PP), which makes it acquire high tensile strength and durability. It does not corrode or deteriorate in most environments and is inert to plant growth, making it an ideal trellis for climbers.



Tongkin Street Nursery

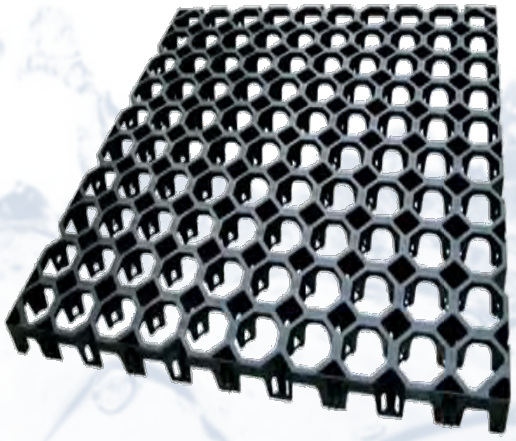
Check with us on applications, specification, price, stock and delivery

G & E ENGINEERING Since 1984

G and E Company Limited

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Hydrocell



Hydrocell is a unique modular drainage system designed in Australia to provide a consistent flow path for the collection and discharge of water under heavy loading. It comes in 30 & 50 mm thick, in a 500 x 600 mm interconnectable panel. A geotextile is often laid over to keep soil from entering the matrix. Granular material can be infilled when it can support road traffic.

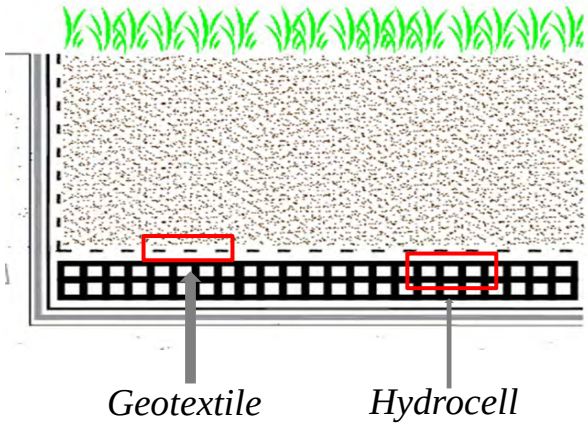
Applications

Used in any application where a high compressive strength, positive drainage system and durable is required. Such applications include:

- Planter boxes
- Roof gardens
- Landscaping
- Playground areas
- Golf and sports field
- Roads and road drainage

Benefits

- Easy installation, minimal maintenance
- High compressive strength & high flow rate
- Lightweight - high strength to weight ratio
- Reduces rainfall run-off with a large open surface and high internal void ratio
- Highly chemical and biological resistant
- Re-cyclable, environmentally sustainable
- More flexible than most “rigid” systems
- Far cheaper than granular drainage





Planter drainage at Ching Hong Road
August 2023 (HKHA20190687)



Drainage layer at Tuen Mun – Chek Lap Kok Link
August 2020 (HY/2017/10)

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Hydrocell™ Superior Drainage System

General

Hydrocell™ is a unique modular drainage system designed to distribute and support vehicle and landscaping loads, whilst maintaining a positive drainage path for the collection and discharge of water.

In many buildings, owners and architects are recognising the importance of incorporating landscaping features that offer enhanced amenity for residents or workers in these buildings as well as offering significant thermal and environmental advantages.

Podiums, pedestrian areas, roof gardens, planter boxes and sporting fields will all benefit from having a reliable and efficient drainage system installed.

Other engineering structures, such as landfills, where the collection of leachates is required, will benefit from having an efficient system of collection and treatment of these highly polluted wastes such that they cannot re-enter ground water systems. Significant loads are generated in landfills with many metres of waste overlying the drainage system. **Hydrocell™** is able to withstand very high compressive loads.

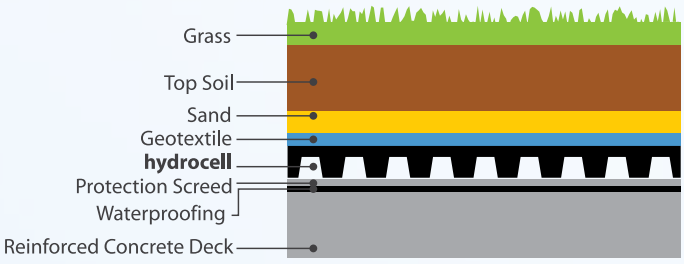
The **Hydrocell™** product comes in a convenient panel size with integral clips that make the task of installation very simple and economical.

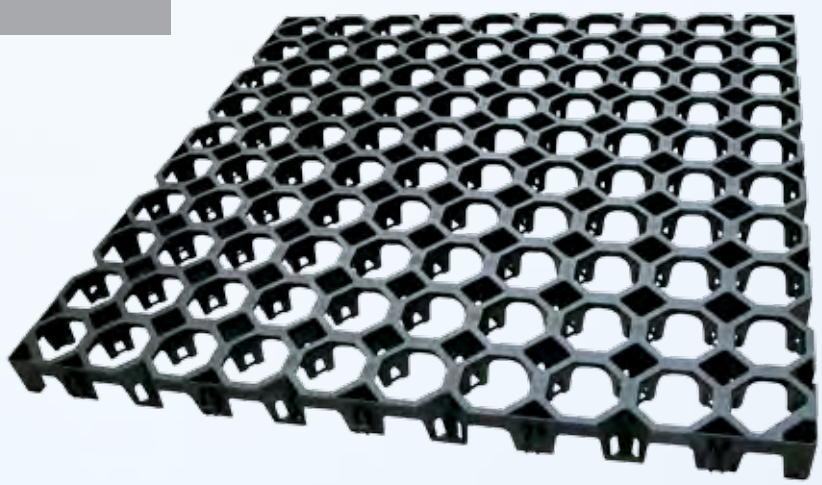
To achieve best performance of the **Hydrocell™** system, ensure that any waterproofing has been applied and allowed to cure for the manufacturers recommended time prior to placement of the **Hydrocell™**. The installer may need to provide some additional protection to the membrane prior to placement of the **Hydrocell™** product.

The **Hydrocell™** is placed into position with the studs facing down. Once suitable areas of **Hydrocell™** are in positioned, a nonwoven geotextile such as ProFab® AS140 or Geofirma® AS 150A is placed on top of the **Hydrocell™**. Generally a minimum overlap of 300mm at joins of the geotextile should be maintained. It is advisable to place a minimum 150mm of clean washed graded sand above the geotextile and then placement of any additional soils above this layer.

Should you require additional placement advice please do not hesitate to contact you local Global Synthetics office.

TYPICAL DETAILS OF A ROOFTOP GARDEN





Global Synthetics ProTank®

Global Synthetics is an Australian owned and operated company specialising in subsurface drainage, soil and ground stabilization, retaining walls, erosion control and lining systems.

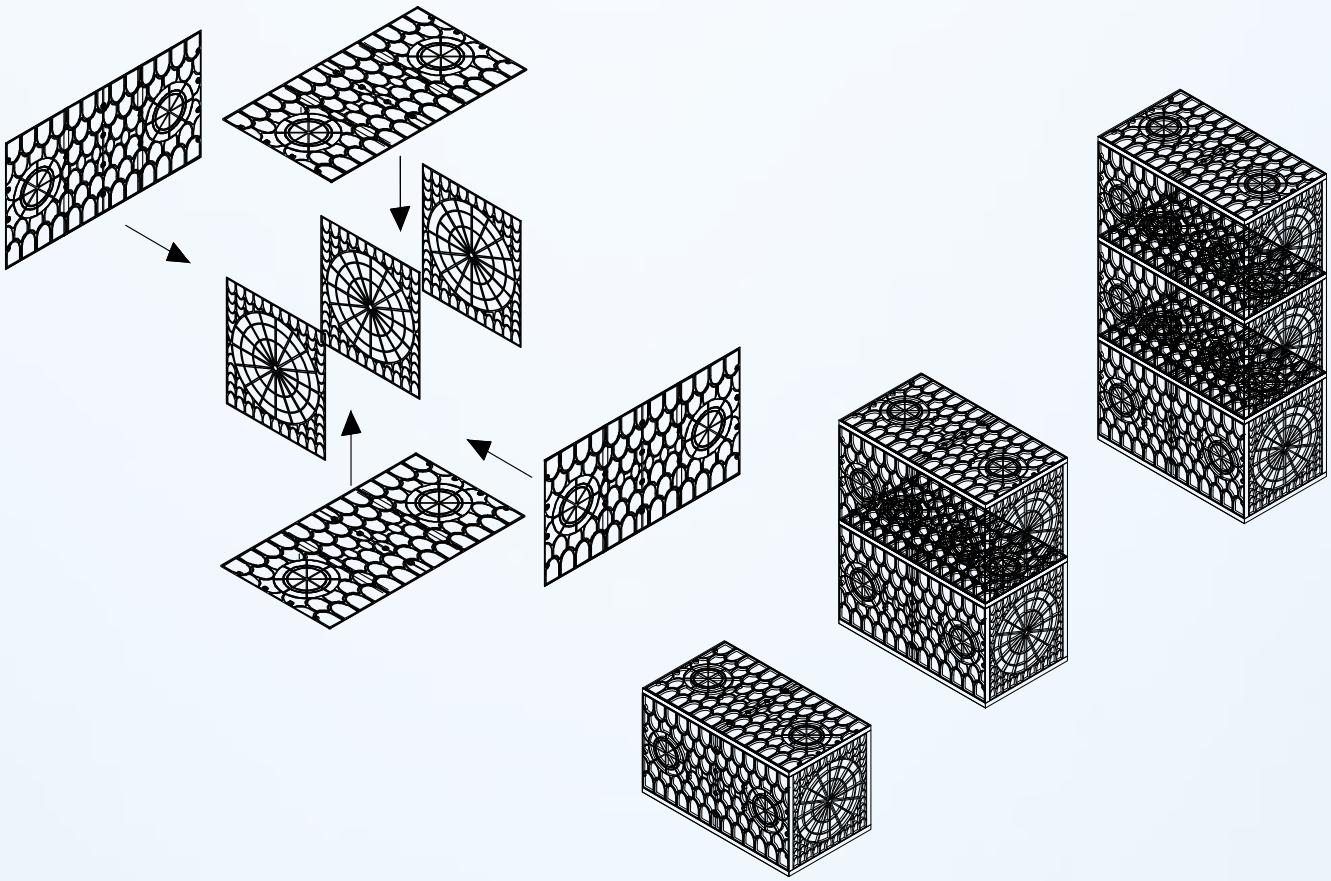
ProTank® is a unique modular subsurface drainage system designed to collect water at its source. **ProTank®** has the flexibility to infiltrate, attenuate, detain or harvest water for re-use.

ProTank® can be installed under driveways, car parks, roads, landscaped areas and other trafficable applications. The unique domed webbing profile of the **ProTank®** components provide exceptional strength (refer to loading allowances on page 7).

Modules are assembled using just two components or 'plates,' both having dedicated entry ports to cater for five different pipe sizes. The smaller plate can accommodate pipes up to 300mm diameter. This makes **ProTank®** modules ideal for connection to domestic and commercial services. The dedicated entry ports negate the need to cut holes in the module which sacrifice structural integrity.

Features and Benefits

- Manufactured from premium quality recycled resin to meet the most demanding performance requirements.
- Generous internal and surface void area provides optimum storage and/or infiltration capacity.
- Easy access via specially designed ports on every surface of the module. This ensures trouble free access and maintenance.
- No requirement for imported drainage aggregate or special fill.
- Low cost, light weight and fast safe installation.
- Can be installed as a 'single block gallery' or 'finger gallery' to accommodate a variety of hydraulic conditions and space allowances.





Presto GEOBLOCK System

Porous Pavement System

Presto's GEOBLOCK system offers numerous environmental advantages over hard-surface pavements, resulting in cost savings and aesthetic benefits for property owners. Design to handle the most **demanding load support** and **turf protection** requirements, the system supports a wide variety of loadings. From pedestrian trials and walkways to emergency access lanes, the GEOBLOCK system provides high environmental benefit with low environmental impact.

ENVIRONMENTAL AND ECONOMIC BENEFITS

HIGH PERMEABILITY

- Increases groundwater recharge and decreases surface runoff associated with storm water discharge from paved areas.

IMPROVES STORMWATER QUALITY

- Increases natural water infiltration and reduces non-point source pollution.

RECYCLED CONTENT

- Made in the USA, it uses up to 97% recycled polyethylene.

PROVIDES A COOLER SURFACE

- Reduces the heat island effect related to traditional hard pavements.

IMPROVES AESTHETICS

- Protects a sustainable vegetated surface or other attractive infill material.



Design and Build of Infrastructure Works for Tseung Kwan O Stage 1 Landfill Site (Phase 1). Contract No. HY/2009/05. July 2010.





Installation of Geoblock 5150 at Tseung Kwan O Stage 1 Landfill Site

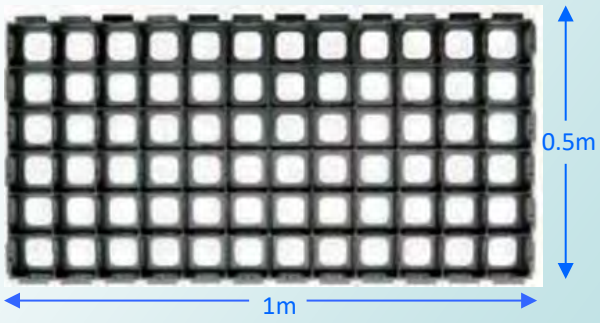
The Geoblock system was chosen for this project because of its weight-bearing capacity. The access road shall be capable of supporting a load as heavy as a fire truck. Meanwhile, vegetation can grow along the paved road, creating a greener environment. An area of 2,975 sq m of Geoblock 5150 was installed as the fire access along the toe of the Tseung Kwan O landfill site. This access road can take up more than 24 tons of vehicular loading and is fully turfed.



Landscape Paving for Fire Access at Shatin Transfer Station, May 2017 (EP/SP/76/14)

ITEM	GEOBLOCK 5150	GEOBLOCK 2
Material	Up to 97% Recycled Polyethylene	
Color	Dark shades of gray to black	
Carbon Black	1.5% - 2.0%	
Fire Test	Non-flammable	
Dimensions	0.5m (W) x 1.0m (L)	
Cells per Unit	72	128
Cell Size	79mm x 81mm	57mm x 57 mm

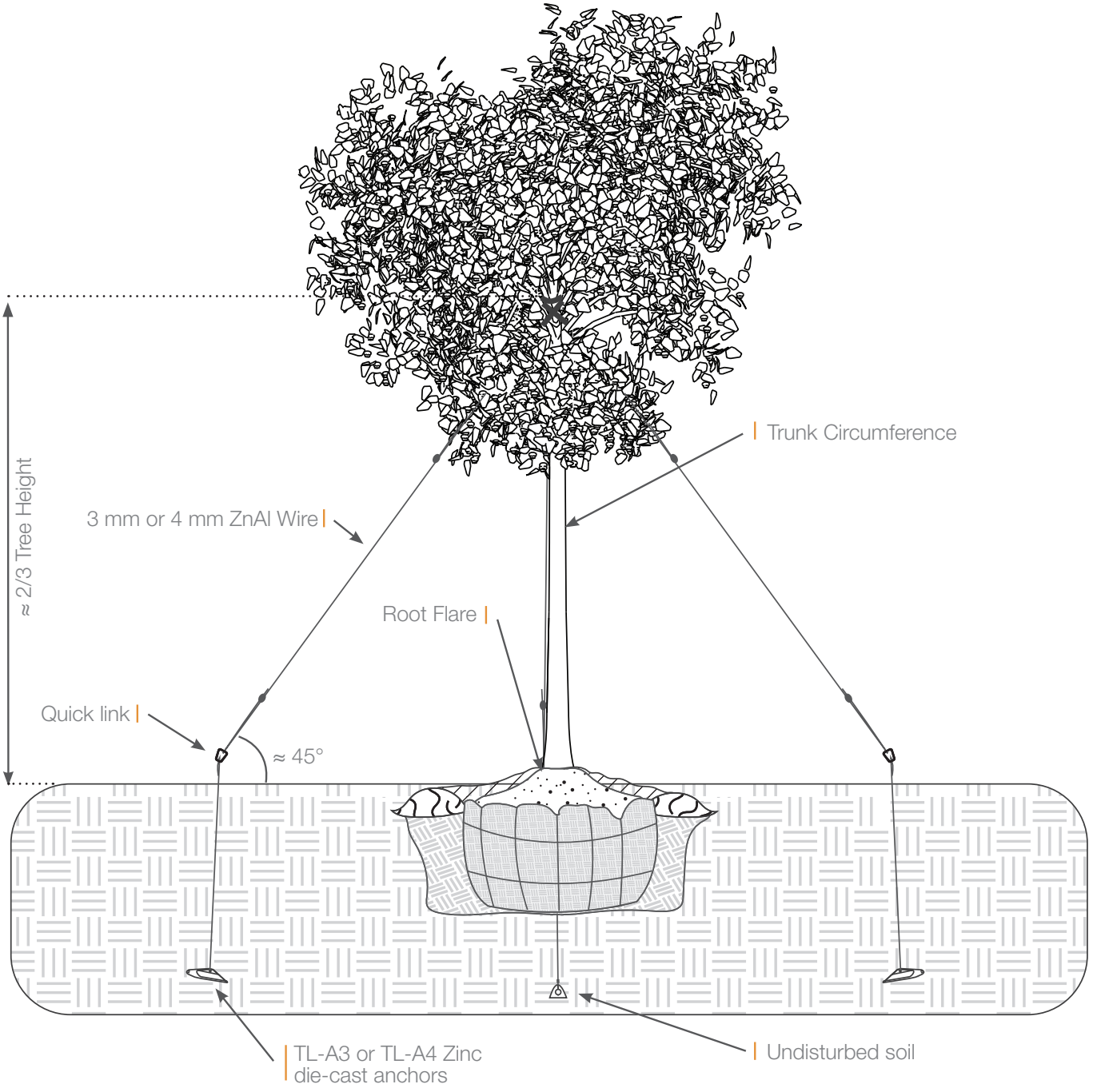
Full Size Geoblock Unit



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Tree Guying Kit



Product	Trunk Circumference	Tree Height	Reccomended Install Tools	Tensioning Method	Contents
TGK3	up to 25 cm	2.5 - 4.5 m	GPD Drive Tool	Gripple Tensioner & Torq Tool	3x TL-A3, 3x Quick Links, 3x 3 mm (1*19) 4.5 m wire rope, Gripple Plus Medium tensioners & 3 protective rubber sleeves
TGK 4	up to 45 cm	4.5 - 7.5 m	GPD Drive Tool	Gripple Tensioner & Torq Tool	3x TL-A4, 3x Quick Links, 3x 4 mm (1*19) 5 m wire rope, Gripple Plus Large tensioners & 3 protective rubber sleeves

Applications

Megaflo™ is a cost effective and easy-to-install solution for all subsoil drainage works including:

- Roadside edge drains;
- Under kerb drainage;
- Cross drainage across highways;
- Under drains for road widening;
- Sportsfield drainage;
- Vertical drainage behind retaining walls;
- Vertical drainage behind shotcreting;
- Leachate collection drains;
- Mine tailings and heap leach drains.
- Piggy back drains.



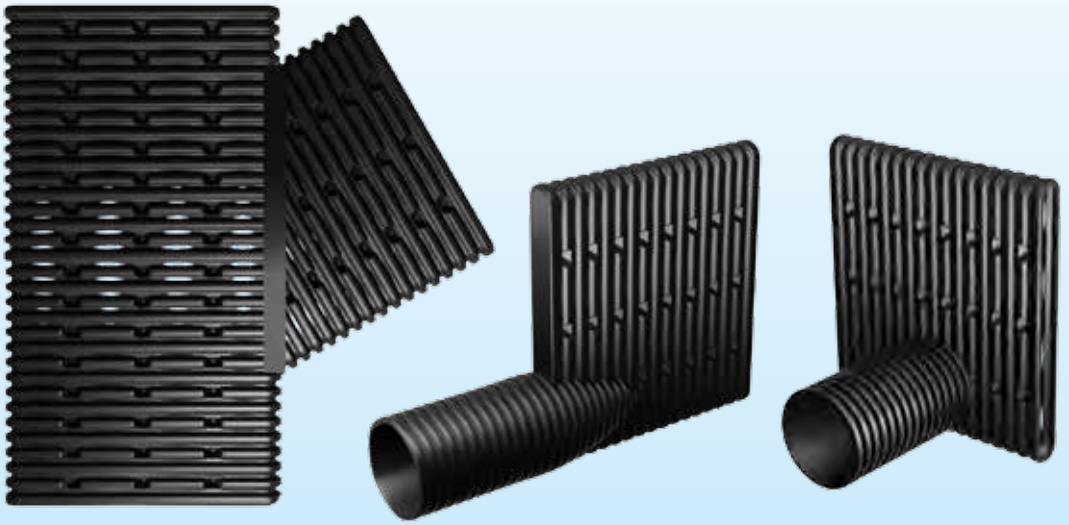


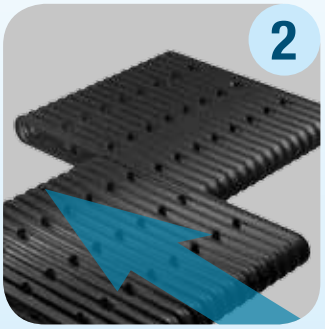


Fittings

Megaflo™ is v-notched and interlocked at the ends. Ends and side outlet fittings are available. T-pieces and Y-junctions are custom made. Ensure the geotextile is wrapped completely around the coupler to prevent ingress of fine soil particles into the drain.

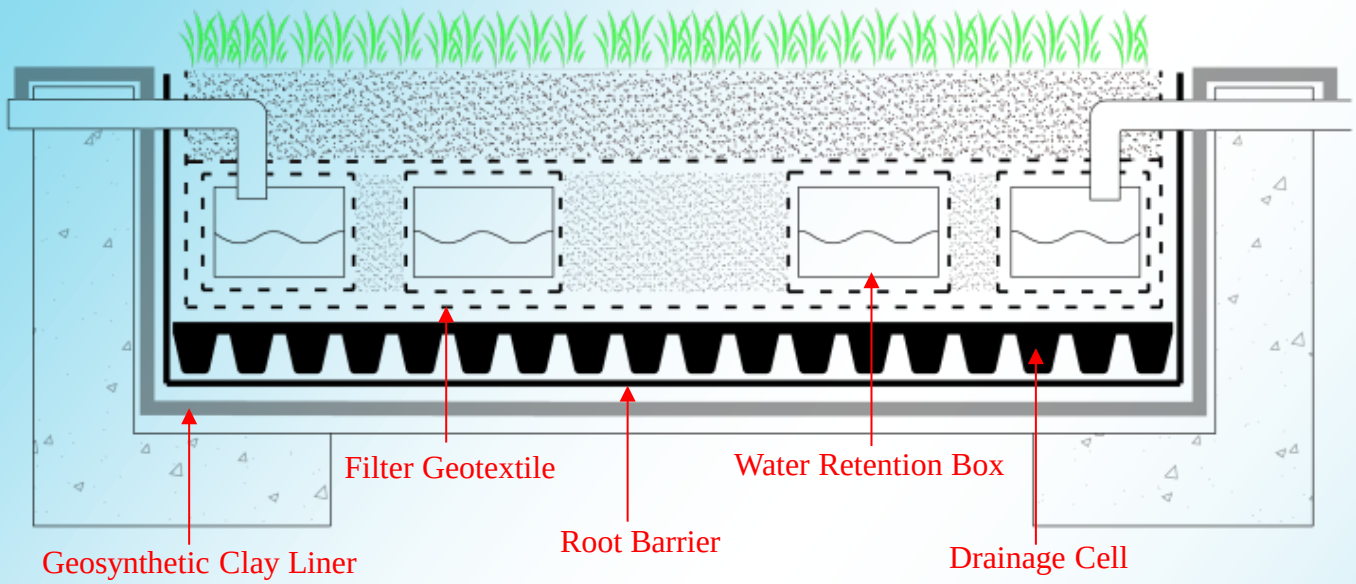








Zero Irrigation System



Zero Irrigation System (ZIS) is now a sustainable system that combines rainwater harvesting and urban drainage to nourish subsoil moisture for landscaping. We develop applications and supply a wide range of geosynthetics that serve as basic components – filter geotextile, root barrier, drainage cell, water retention box, and waterproofing geosynthetic clay liner.

Filtering Layer – Geotextile

BontexGeo *Bontec NW6*

A geotextile is a permeable, non-woven synthetic textile material. Geotextile allows water to pass through but not soil. It prevents soil and sand from entering the water retention boxes and the drainage cell at the invert. It is a lightweight fabric that is easy to handle.



Filter Fabric, PHD at Anderson Road Quarry Site, March 2024 (HKHA20190293)

Root Barrier – Solmax *HDPE Membrane*

A root barrier is an impermeable membrane that inhibits root growth, preventing it from affecting building structures, interfering with utilities, damaging the waterproofing system, and retaining moisture that would otherwise leach away. HDPE geomembrane is an impenetrable layer for controlling root migration. It is lightweight, flexible, durable, and environmentally inert.



Root Barrier, Anderson Road Quarry, October 2022 (NE/2016/01)

Drainage Cell – Global Synthetics

Hydrocell

Drainage cell is a thick, rigid plastic drainage core panel that supports extreme loading and provides high transmissivity, suitable for invert draining in planting areas, complementing the Zero Irrigation System and water retention application. A geotextile will prevent fine material from entering the core.



Drainage Layer, PHD at Tai Po Area 9, August 2024 (HKHA20190169)

Water Retention Box - Global Synthetics

ProTank

The water retention box is a unique modular subsurface drainage system that occupies space within the soil to harvest and store water for reuse in sub-irrigation. It comes in panels that can be assembled into standard-sized boxes. A geotextile is needed to wrap around the boxes; therefore, sand and soil can be placed around the boxes, forming an empty water-storage compartment.



Water Retention Box PHD at Wang Chiu Road, January 2026 (HKHA20210526)

Geosynthetics Clay Liner – Maccaferri

Macline WL10 GCL

Sodium bentonite can be encapsulated between two layers of geotextile to form a geosynthetic clay liner (GCL), a waterproofing membrane. It is at the base of the ZIS planting area, essential to supplement the concrete waterproofing system to prevent water harvested from leaking away. It also cushions any waterproofing lining.



Planter Waterproofing, PHD at Wang Chiu Road, January 2026 (HKHA20210526)

We can provide liaison with architects on technical details, shop drawings, mock-up sampling, installation methodology, and site assistance. Check with us on specifications, price, stock, and delivery.

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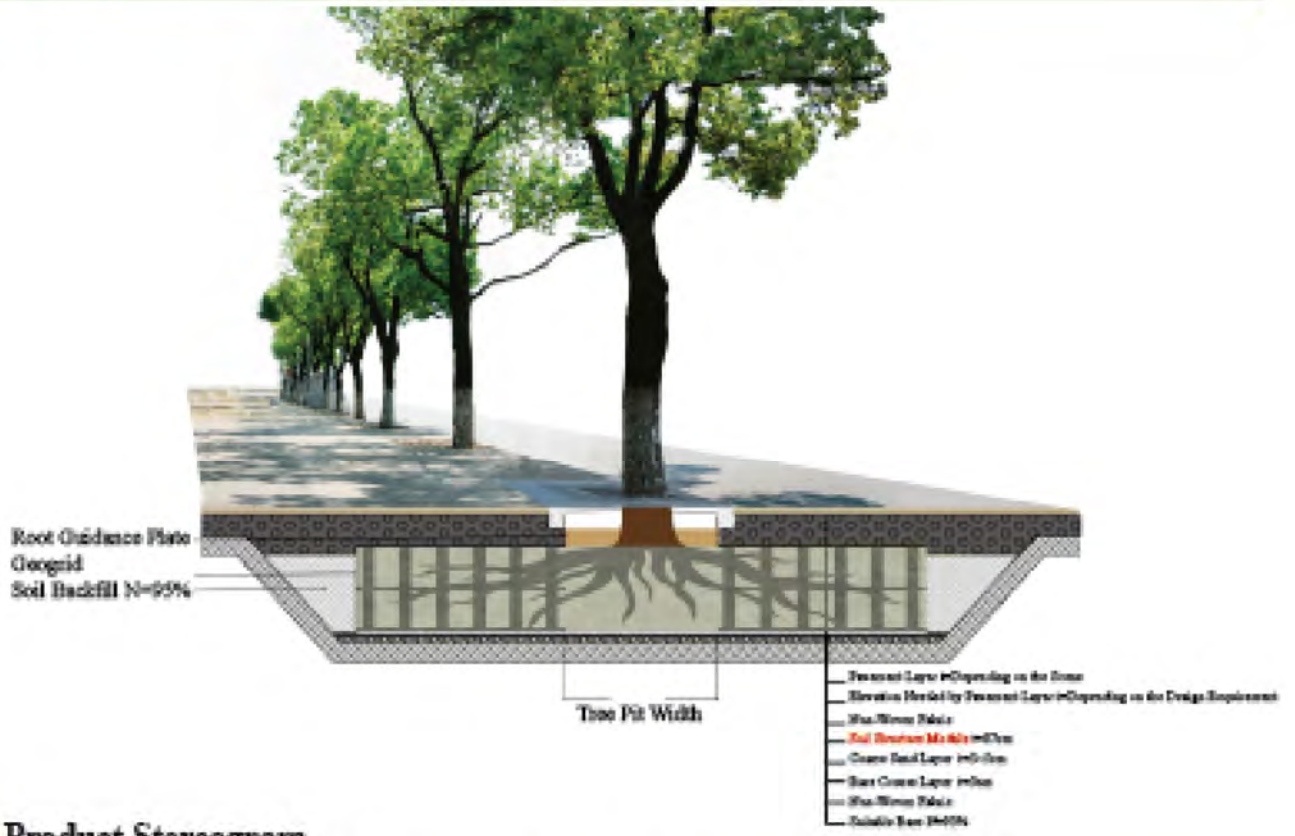
Soil Structure Module

According to a study by the United States Environmental Protection Agency, almost all urban water environment problems are attributed to one cause: soil and vegetation lose the function of water retention and evapotranspiration. The study also pointed out that the pollution purification capacity of trees with 75cm diameter is nearly 70 times that of trees with 7.5cm diameter.

The poor growing environment of sidewalk trees commonly provided in Taiwan, the narrow tree pit and the compacted tree pit soils reduce the water retention environment and filtration capacity of the plant pit, resulting in the poor growth of planting trees, even the floating root effect. This not only leads to the damage of the sidewalk pavement and also affects the streetscape. It is easier to blow down the trees with unstable root systems in the rainy season, causing the loss of social property and even the doubts of the people's safety.

Building Green Ecological Co., Ltd. has developed the Soil structure module. In order to solve the current water environment problems in Taiwan cities, it systematically integrates the tree, soil and urban water retention capacity to improve and protect our important urban water environment and urban landscape.

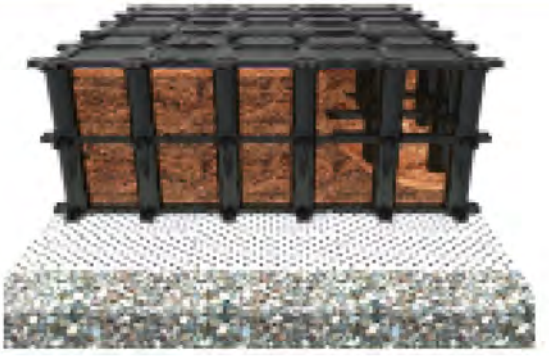
Soil Sturcture Module Diagram



Product Stereogram

Soil Structure Module Product Developed by Building Green Ecological Co., Ltd.





Others

Executive Summary

GSE Leakage Collection System

HDPE membrane conveniently collects and diverts water leaks from the pipeline to the designated sump to avoid oversaturation of adjacent soil. It is durable, easy to install, cost-effective, and most of all, meets WSD specifications for leak-proofing in leakage collection systems. Fabrication service to channel dimension and adhesive tape are also available for installation.

CeTeau Prefabricated Vertical Drain (PVD)

Prefabricated vertical drains or band drains are widely used in reclamation to encourage consolidation by extracting water from the soft marine deposit faster, allowing this layer to settle quickly. They also have electrokinetic and vacuum consolidation options to speed up water discharge.

Fusiontech HDPE Pipe

Special fabrication and customizing services are available for HDPE pipe fabrication in marine engineering, mining, stormwater drainage, and pipe rehabilitation.

Sewoo Geofoam

Geofoam is high-grade expanded polystyrene (EPS) specially designed for use in geotechnical engineering as a lightweight fill alternative (about 1% of the weight of soil) and hollow formwork. It comes in blocks of specific dimensions. It has advantages where there is a load bearing constraint or limited fill source. It improves the construction schedule and lowers costs at the same time.

Daehan Hori-Drain

A prefabricated pocket-style strong drainage core with a non-woven jacket. It can be installed in a rapid drainage network of channels to collect a large volume of water and discharge it to a sump. It is best used in underground structures and basements.

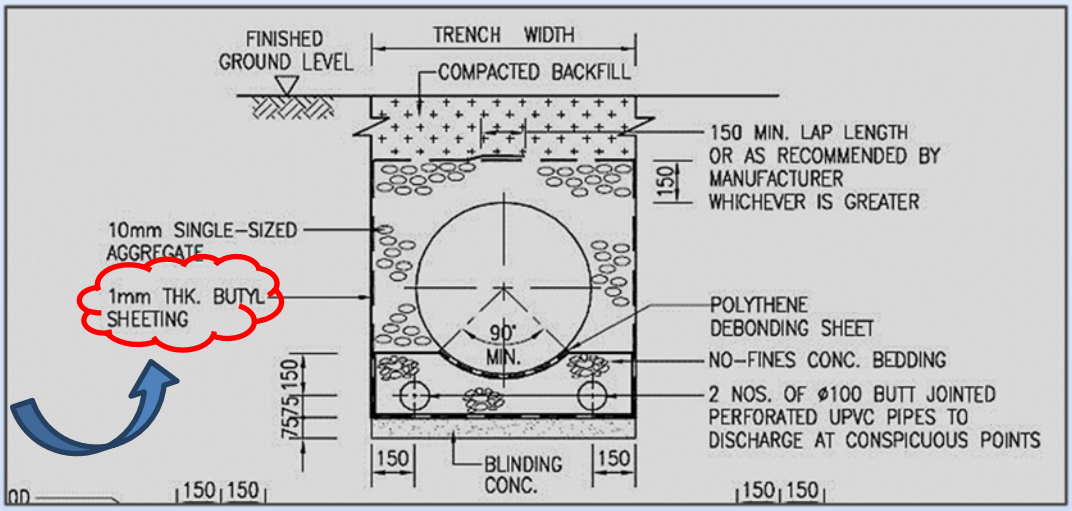
ACE Dewatering Geobag

High-permeability geotextile can be fabricated into sizeable bags that sludge can be pumped into. Using flocculation, water content can be drained out very quickly from the bag, leaving the sludge solidified for ease of handling and disposal. It offers fast and efficient dewatering capability.

Sheeting of Leakage Collection System

An Alternative to Butyl Rubber

Want something that is **convenient** to use, **easy** to install, readily **available** and deliver, **cost-effective,** and **complies** with the WSD specification for leakage collection system sheeting? Polyethylene (HDPE) membrane is your choice.



HDPE Membrane

- Meets WSD specification for sheeting of the leakage collection system
- Convenient to use, install, and lap
- Widely used in Hong Kong since 1995
- Large rolls or custom sheets, less wastage
- Can fabricate into panels that fit the pipe trench



Hiram's Highway Improvement November 2018 (HY/2014/16)



Hong Kong University May 2023



Police Facilities Kong Nga Po December 2022 (ND/2018/01)



Fresh Water Service Reservoir January 2024 (2/WSD/20)

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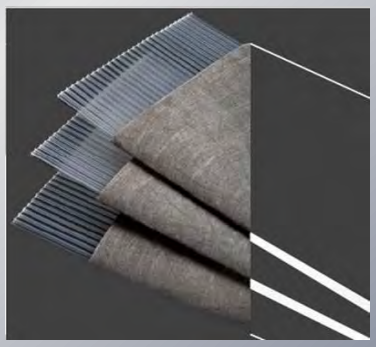
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Pre-Fabricated Vertical Drain (PVD)

Ground Improvement Technique

Pre-fabricated Vertical Drain (PVD) ground improvement systems are the most widely used methods to accelerate the consolidation process and avoid post-construction differential settlement. By introducing vertical drains, the drainage paths are shortened, and therefore the time required for excess pore water pressure induced by the loading operation to dissipate will be significantly reduced. Accelerated consolidation can now be done by vacuum technique.



The material has been used in Hong Kong since the early 80's in:

- Yau Ma Tei and Tseung Kwan O reclamation
- Kwai Chung container port terminal 9 development
- Infrastructure for Penny's Bay development
- Wo Shang Wai development
- Hong Kong – Zhuhai – Macau bridge



Hong Kong-Zhuhai-Macau bridge – Hong Kong Link Road – Scenic Hill. Jan 2013 (HY/2011/03)



Hong Kong-Zhuhai-Macau bridge – HK Boundary Crossing Facilities. Feb 2014 (HY/2010/02)



Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works, April 2019 (NE/2015/02)

Our Service

- Assist in consolidation design
- Supply of band drain
- Conformance test
- Installation to specific site
- Vacuum consolidation
- Customized fabrication



Ground consolidation treatment



Telescopic rig operation under flyover, 14m installation with head clearance of 8m.



Telescopic rig operation under power lines, 18 m installation with 12 m head clearance.

PVD ver. 9 May 2026

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website: www.g-and-e.com

Pipemakers Australia

Water & Civil Systems



Product Information

Polyethylene (PE) pipe is used for numerous water and civil applications including domestic water supply, drainage of major roads and highways, agricultural drainage and sports oval drainage, race tracks, golf courses, parks and gardens.

Pipe is manufactured under AS/NZS 4130 from PE that complies with AS/NZS 4131. PE Standards and WaterMark licensed to AS/NZS 4130 by SAI Global.

It is an easy to install system that is strong, flexible and corrosion resistant.

PE pipe can be joined using compression fittings, electrofusion systems or butt-welding.



Pressure Unit Conversion

PN	kPa	m	bar	psi
4.0	400	40	4.0	58
6.3	630	63	6.3	90
8.0	800	80	8.0	116
10.0	1000	100	10.0	145
12.5	1250	125	12.5	181
16.0	1600	160	16.0	229
20.0	2000	200	20.0	290

Support Distances PE100

Size (mm)	PN 6.3	PN 8	PN 10	PN 12.5	PN 16	PN 20
20	0.5	0.5	0.6	0.6	0.6	0.7
25	0.5	0.6	0.7	0.7	0.7	0.8
32	0.6	0.7	0.8	0.8	0.9	0.9
40	0.7	0.9	0.9	1.0	1.0	1.1
50	0.9	1.0	1.0	1.1	1.2	1.2
63	1.0	1.2	1.2	1.3	1.4	1.4
75	1.1	1.3	1.4	1.5	1.5	1.6
90	1.3	1.5	1.6	1.7	1.7	1.8
110	1.5	1.7	1.8	1.9	2.0	2.1
125	1.6	1.8	2.0	2.1	2.2	2.3
140	1.7	2.0	2.1	2.2	2.4	2.5
160	1.9	2.2	2.3	2.5	2.6	2.7
200	2.2	2.5	2.7	2.9	3.0	3.2

Pipe Capacity of Trucks- PE100

Pipe Outside Diameter (mm)	No. of Pipes
63 (100m)	35
75 (100m)	25
90 (100m)	24
110 (100m)	20
110	300
125	224
140	195
160	132
180	120
200	100
225	81
250	64
280	56
315	42
355	42
400	30
450	25
500	20
560	15
630	12
710	9
800	6

Guide Only: Weight restrictions may apply. Maximum weight for all trailers is 19T. Special trailers may carry more. Contact the Pipemakers sales office for clarification.

FOAM CONTROL®

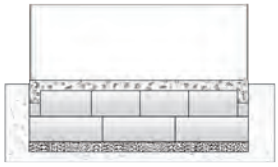
EPS

Foam-Control EPS Geofoam Solves Problems for these Common Applications:

Lightweight Roads



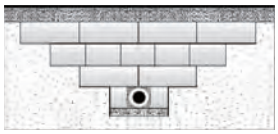
Foundations



Retaining Walls



Weight Reduction for Utilities



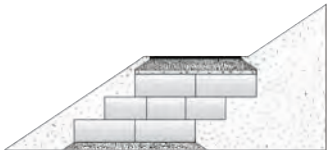
Bridge Abutments



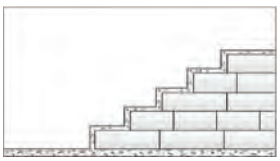
Weight Reduction for Structures



Side Hills



Elevation Changes/ Stadium Seating





CONTROL, NOT COMPROMISE.®

Fill face-off:
Choosing Foam-Control Geofoam over other fill materials.

- Extremely lightweight to reduce lateral or bearing loads
- Predictable engineered performance
- Various Types available to meet project specific strength requirements
- Can be installed in various weather conditions
- Foam-Control with Perform Guard® protects against termites

Perform Guard® TERMITE RESISTANT

* Perform Guard is not a barrier, but should be used in conjunction with a total Pest Management Program available from a reputable Pest Control Operator.

SETTLEMENT. **CONTROL YOUR** LATERAL LOADS. **CONTROL YOUR** LIABILITY. **CONTROL YOUR** BEARING LOADS. **CONTROL YOUR** ELE







AL INTEGRITY. **DON'T COMPROMISE YOUR** LONGTERM PERFORMANCE. **DON'T COMPROMISE YOUR** DESIGN. **DON'T COMPROMISE Y**

ACE Geosynthetics

ACETube® Dewatering System

High-Performing and Flexible Sludge Dewatering Treatment Technology



2020

www.geoace.com



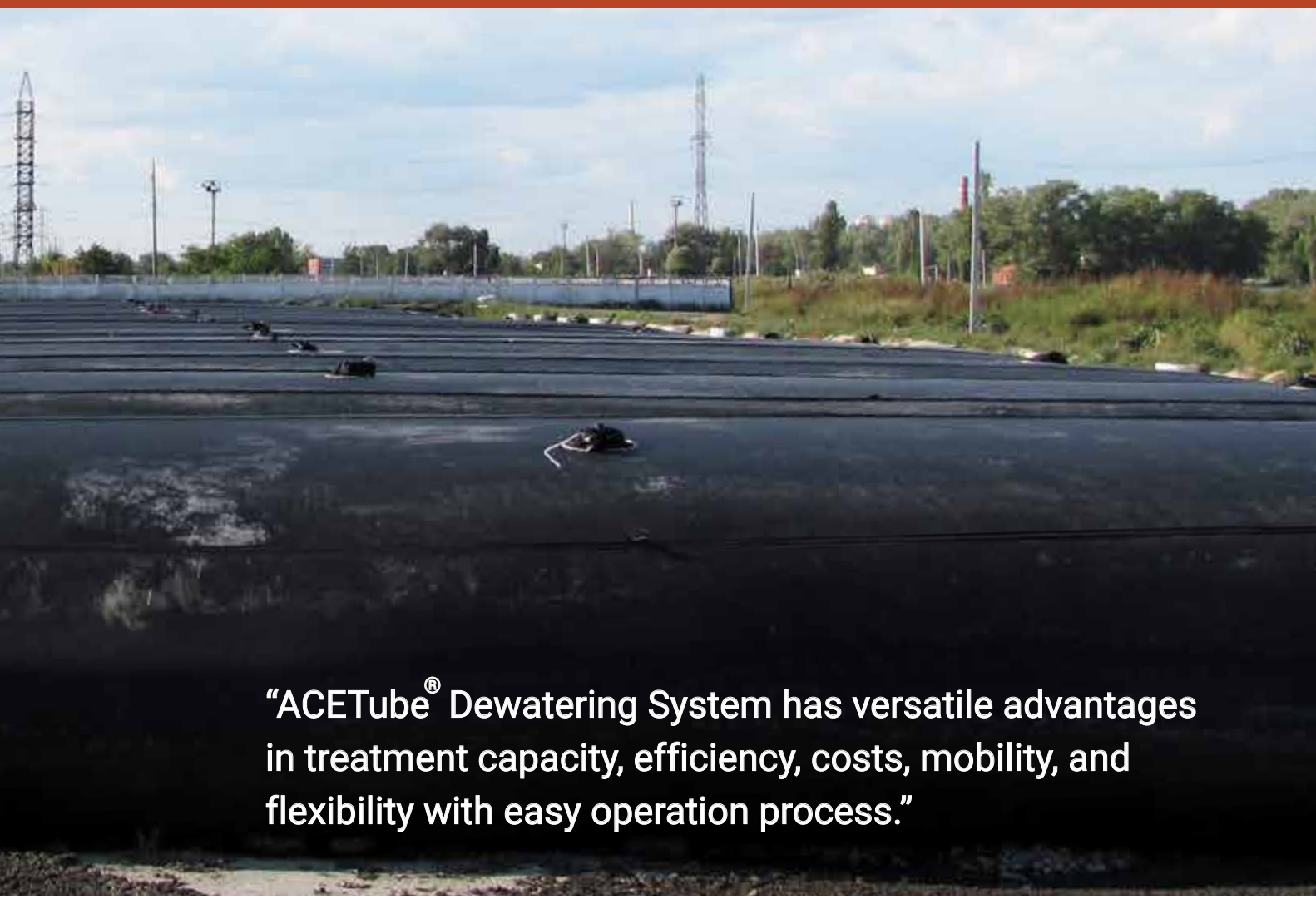
The Smart Solution for Sludge Dewatering

Sludge, a semi-solid slurry, is generated from various industrial and refining processes, covering industrial waste management, mining operations, water and wastewater treatment, and construction. Sludge can also naturally form, such as in the case of lagoons or rivers sediments, and agricultural activities. By disposing the sludge in landfills, the by-product, does not only decrease space utilization rate, but may incur environmental and public health distresses. Since sludge is hard to relocate and its discharge must be codified, dewatered sludge is the solution to dispose of contaminated sediments and treatment difficulties such as transportation and quantity.

Treatment efficiency and cost-effectiveness are two crucial concerns toward dewatering treatment. In general, there are two traditional common types used in dewatering treatment- drying beds and filter press. However, some disadvantages are involved in both methods. For instance, low dewatering efficiency, pricey facility installation, site and land restriction, and high carbon emission. Hence, an innovative method launches, ACETube® Dewatering System is a solid-liquid separation system having versatile advantages in treatment capacity, efficiency, costs, mobility, and flexibility with an easy operation process including three major steps- extraction, dewatering, and consolidation. After the sludge is pumped into ACETube® dewatering tube, the monolithic-tubular filter container made of high tensile strength and permeability geotextile, effects of pressure and gravity dewater it. This method does not require an increase in the separation efficiency by an extra external force. Besides, the deployment of the dewatering system is simple with very few requirements of space and equipment. ACETube® dewatering system offers a satisfying treatment experience from small to large-scale projects within budget.



ACETube® dewatering tube, the key component of the dewatering system, is made of high permeability geotextile with optimal apertures to enhance filtration performance.



"ACETube® Dewatering System has versatile advantages in treatment capacity, efficiency, costs, mobility, and flexibility with easy operation process."

Three-steps Operation

STEP 1
Extraction

Sludge is extracted and pumped into ACETube® dewatering tubes at a rate determined by either the pump suction capacity and/or the sludge content. According to the situation per case, polymers might be added, to agglomerate the suspended particles into flocs.



STEP 2
Dewatering

During/after the filling process, the water dissipates through the fabric under both pressure and gravity effects while the dewatered solid particles are retained within the geotextile tubes.



STEP 3
Consolidation

Under steady consolidation, sludge remains in the tube. Sufficient sunlight and air exposure further dry the retained solid particles, thereby leaving little or no moisture contents thereafter. This significantly reduces the sludge's volume making removal and disposal work easier.



Geosynthetics Testing

Executive Summary

British Textile Technology Group (BTTG)

BTTG is a leading independent laboratory in geosynthetic testing based in the UK and recognized worldwide. For many years, BTTG has been represented on the British Standards (BSI), European (CEN), and International (ISO) committees for geosynthetics. BTTG is HOKLAS accredited via UKAS in the United Kingdom.

TRI Environmental Inc – Geosynthetic Testing

TRI is a leading U.S. laboratory providing geosynthetic testing worldwide. It is distinguished to be the first laboratory to achieve accreditation by the Geosynthetic Accreditation Institute (GAI). Along with its core capabilities in laboratory testing, TRI has expanded to offer full service in every phase of the geosynthetic project cycle. The lab has most of the accreditation qualifications in MRA with HOKLAS. A new facility has been established in Suzhou, China, to be more efficient in serving Asia.

TRI Environmental Inc – Leak Location Survey (LLS)

TRI specializes in the investigation of geosynthetic leakage and offers field services to survey and identify leakage using the latest ASTM standard electrical scanning and analysis techniques. They can mobilize to perform testing worldwide and provide full survey reports pinpointing defects for repair both from California and Suzhou.

Bombay Testing Research Association (BTRA) – Geosynthetic Testing

BTRA is a well-established laboratory in India under ISO 17025 accreditation from NABL, India, and GAI-LAP, GSI, USA, and is mutually recognized by HOKLAS, capable of testing most geosynthetic material for international engineers and contractors.

FITI Testing & Research Institute – Geosynthetic Testing

FITI is a well-established laboratory in Korea with ISO 17020 & 17025 accreditation from KOLAS, Korea, and GAI-LAP, GSI, USA. It is mutually recognized by HOKLAS and is capable of testing most geosynthetic materials for international engineers and contractors.



GEOSYNTHETICS

AN INTRODUCTION

BTTG was formed in 1988 by the merger of the Shirley Institute and the Wool Industry Research Association, organisations that were founded shortly after the First World War. Over the past 85 years both organisations have made a major contribution to the development of textiles and performance materials.

High Performance Materials Laboratories

The High Performance Materials laboratories are located in new, custom designed premises in Trafford Park, Manchester. They undertake physical testing on geosynthetics and other high performance materials. Their clients include Landfill Operators, Local Authorities, Consulting Engineers, Contractors, Manufacturers and Waste Regulation Authorities.

The new laboratory building contains three separately conditioned laboratories and a large sample preparation area with a loading bay to handle samples directly from site.

Advanced Materials Services Ltd

The High Performance Materials laboratories trade as part of Advanced Materials Services Ltd, a wholly owned subsidiary of BTTG. Advanced Materials Services operates on three sites and performs physical and fire testing on Construction Products and Performance Materials. It incorporates the Fire Technology Services laboratories in Leeds and Altrincham, and the BCTC Carpet Technical Centre in Leeds. Advanced Materials Services is also able to offer CE marking services under the Construction Products Directive, PPE Directive, Toys Directive and Maritime Equipment Directive.

Staff

The staff in the High Performance Materials laboratories are led by Clarissa Austin and have an average length of service of over ten years. In total they have nearly 100 years of combined testing experience to draw upon. All new staff undergo a three stage UKAS approved training programme before obtaining full competence to undertake testing for clients.

The High Performance Materials laboratories are regarded as the leading U.K. laboratories for geosynthetic testing.

Accreditation

The High Performance Materials laboratories have full UKAS accreditation to ISO 17025 for an extensive range of geosynthetic tests, including opinions and interpretations.

First U.K. lab to be UKAS accredited for testing geosynthetics (1990)

Widest range of UKAS accredited tests offered by any U.K. lab

Represented on British (BS) European (CEN) and International (ISO) technical committees for geosynthetics

Coordinated and participated in many inter-lab trials in standards and test method development



UKAS TESTING
1066

BTTG HIGH PERFORMANCE MATERIALS



A Texas Research International Company

Service • Reliability • Experience • Independence

GEOSYNTHETIC
Testing Services





For any questions on ASTM D8265, contact:
Abigail Gilson
abeck@tri-env.com

TRI-Environmental.com

ANNOUNCING ASTM D8265: ELECTRICAL METHODS FOR MAPPING LEAKS IN INSTALLED GEOMEMBRANES

The newly published ASTM D 8265 is a product of over a decade of applying advanced GPS-based mapping technologies to soil and/or water-covered survey areas. By electrically mapping hundreds of sites, a greater understanding of the methods emerged, including how site features affecting current flow in the survey area greatly affect leak detection sensitivity and resulting method functionality. In order to understand what is happening in the voltage field anywhere, a reviewer must have a glimpse of the big picture, i.e. what is happening everywhere, since it is all part of the same electrical circuit. Poor leak detection sensitivity is typically a function of poor survey area preparation. Proper site preparation for ELL is not considered mandatory in other ASTM standards. ASTM D 8265 details exactly how the survey area must be prepared in order to maximize the effectiveness of the methods. The following features of ASTM 8265 have an immediate impact on the ELL industry.

Firstly, it requires the reporting of any site issues that compromise survey area preparation. This assists in true transparency in ELL work and application and is very important to the user of the technology.

Secondly, it requires the reporting of applied voltage and resulting site response current.

Thirdly, the standard requires electrically mapping the entire survey area so that everything affecting the survey is visible, and this map must be presented in the final report as a required element. The required voltage map shows everything affecting the survey area

ANNOUNCING ASTM D8265: ELECTRICAL METHODS FOR MAPPING LEAKS IN INSTALLED GEOMEMBRANES

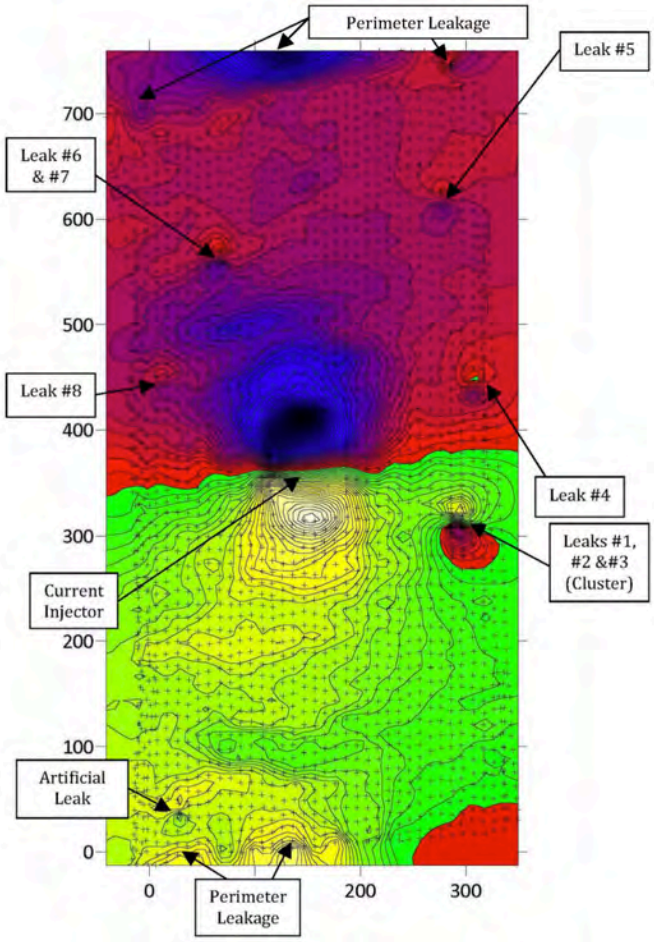


Figure 1: Example of electrical map created by dipole method ELL survey per ASTM D8265

For any questions on ASTM D8265, contact: **Abigail Gilson**
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TRI-Environmental.com

during an ELL survey. Factors affecting site isolation are visible as current leaks. The extent of influence of an actual or artificial leak is visible. In tandem with an understanding of applied voltage and site response current, the source of any issues with sensitivity or the lack of locating leaks becomes immediately apparent. The voltage map also shows the quality of the data. Poor data quality, caused by localized dryness or even operator error, are also visible. This gives invaluable information on how reliable the data set is. Every point of data acquisition must appear on the electrical map, identifying any areas that might have been missed by the survey.

Most importantly, the electrical mapping provides an additional level of detection sensitivity by viewing the electrical anomalies in plan view rather than as a graphical plot. Patterns created in the voltage field by a leak may not have a large enough magnitude to be noticeable in a graphical plot, but the pattern remains discernible on an electrical map.

One example of this is provided in **Figure 1**. The colors on the map represent voltage values recorded during an ELL survey and make it easy to recognize a shift from positive to negative values. Negative values are represented by red changing to blue with increasing magnitude and positive values are represented by green changing to yellow with increasing magnitude. The negative/positive polarity of the entire survey area is created by the current injector electrode. The characteristic leak signal voltage pattern is opposite that of the current injector electrode, since current is exiting the survey area at current leakage locations and entering the survey area at the current injector location.

Anomalies indicative of leak locations on this map feature a positive circular peak on top of a negative circular peak, separated by closely spaced contour lines, similar to the shape of a butterfly on its side. This particular site had some isolation issues in addition to multiple holes. The smallest leak signal, Leak #8, was a knife slice that was so small that it was not visibly discernible when the cover material was removed.

The newly published ASTM D8265 provides a long overdue leap forward in ELL method effectiveness and transparency.

For any questions on ASTM D8265, contact Abigail Gilson at abeck@tri-env.com.

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Tel: 2570 0103 Fax: 2570 0089 website: www.g-and-e.com

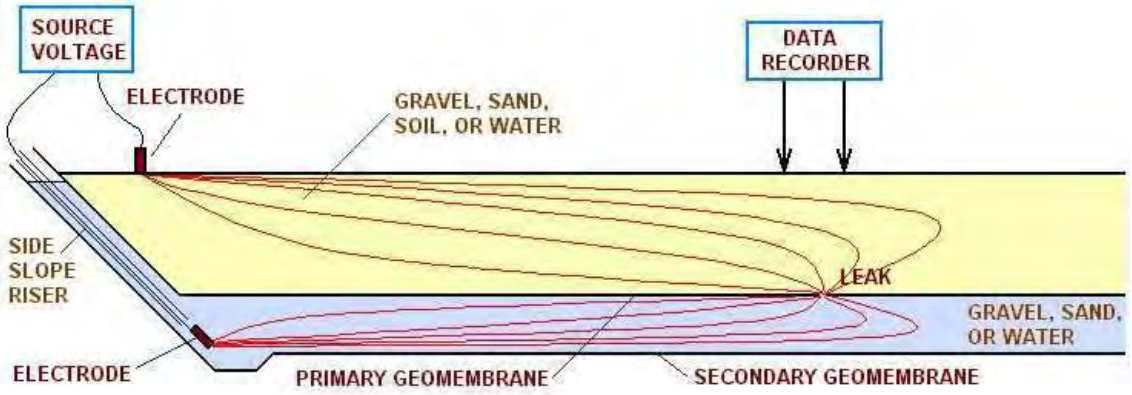
Electrical Leak Location Survey

Introduction

An electrical leak location survey of the soil-covered geomembrane of a newly constructed landfill or water-holding structure is a very cost-effective method for finding leak that occurs while placing a protective soil cover over the geomembrane liner. Damage caused by heavy machinery while installing earth materials on geomembranes is the most significant cause of damage to geomembrane. The method has a distinct advantage because testing is done after the final construction and after the geomembrane liner has been subjected to construction and loading activity. Most importantly, it helps saves the huge cost of the mitigation measures that may result fromthe leaks.

Principle of Electrical Leak Location

The electrical leak location method is a powerful tool used to detect electrical paths through leaks in a geomembrane liner. A voltage is applied to an electrode placed in the soil or water covering the liner and to an electrode placed in the leak detection zone for double-lined systems or connected to earth ground for single-lined systems. Because the geomembrane liner is an electrical insulator, current will flow only through leaks in the liner. This current produces localized anomalous areas of high current density near the leaks. Electrical measurements are then made on the soil or in the waterto locate these points of current flow through the leaks.



The electrical leak location method is suitable for liquid containment and ponds. Surveys with soil on the liner are important to detect leaks caused by machinery used to emplace the soil cover.

With the proper implementation of equipment and survey procedures the electrical leak location method can easily detect and locate 0.6 square mm leaks in liners covered with water and 6 square mm leaks in liners covered with 600mm of soil. The amplitude of the leak signal is proportional to the amount of electrical current flowing through the leak in the liner.

National Accreditation Board for Testing and Calibration Laboratories

NABL

CERTIFICATE OF ACCREDITATION

THE BOMBAY TEXTILE RESEARCH ASSOCIATION

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

LAL BAHADUR SHASTRI MARG (L.B.S. MARG), GHATKOPAR (WEST), MUMBAI, MAHARASHTRA, INDIA

in the field of

TESTING

Certificate Number: TC-6941

Issue Date: 28/02/2022 Valid Until: 27/02/2024

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity : THE BOMBAY TEXTILE RESEARCH ASSOCIATION

Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer

GEOSYNTHETIC TESTING

RELIABILITY ASSESSMENT





"Committed To Quality"

FITI Testing & Research Institute