Ground Reinforcement Solutions

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TERRAM
Geosynthetics you can trust

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Grass & Ground Reinforcement

TERRAM brand products represent a range of solutions to reinforce, stabilise and protect grass and gravel surfaces. The chart opposite provides an indication of which product may be best suited for your project as determined by the existing ground conditions, the application and the frequency of use.

It is only in the last thirty years or so that the demand has grown for soft unpaved solutions that can be trafficked and are more aesthetically pleasing than concrete and asphalt.

However, soft paved options that also offer long-term performance have required technological advances.

It is now possible to construct walkways, service roads and car parks which are not only pleasing to the eye but can also be discreet, retain their appearance and continue to perform when other non-engineered alternatives are worn and unattractive.

TERRAM product solutions are predominantly natural grassed surfaces, whilst some can also provide gravel surfaces.

The products have been specifically developed with different trafficking requirements in mind because the demand can vary from occasional foot traffic to frequent-use or heavily-loaded vehicles.

Therefore, it is important for you to know that you are working with a leading company who offer a full range of professional solutions and who also have technical, industry-based experience to assess the problem and provide the most appropriate cost-effective solution, rather than offering a one-size-fits-all approach.

TERRAM products and manufacturing capability

Part of the Berry Global Inc, TERRAM manufactures geotextiles, geocells and geocomposites along with other related materials such geonets, porous pavers and grass protection meshes that are proven and trusted throughout the UK and abroad.

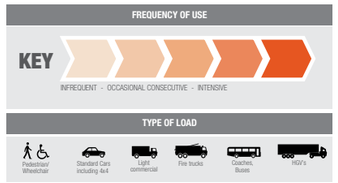
The TERRAM team provides a unique range of value engineered solutions for the construction of highways, railways, landfills, pipelines, coastal/ waterways defences and in landscape engineering.

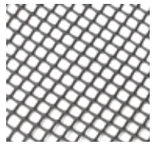
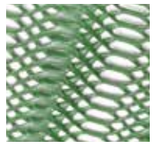
With unrivalled expertise and experience in geosynthetics, accumulated over a 40 year period since the first TERRAM products were launched, TERRAM remains committed to the development of innovative and cost-effective geosynthetic solutions.

Product Selector

for vehicular applications

The chart below provides an overview of which product may be best suited for your grass or ground reinforcement project as determined by the existing ground conditions, the application and the frequency of use. All products are suitable for pedestrian applications.



Product	Frequency Of Use	Suggested Applications	Loading	Page
 **TURFPROTECTA** Two grades of recycled plastic mesh for grass reinforcement	Infrequent vehicular use	Pedestrian/ wheelchair access routes		6
 **GRASSPROTECTA** Two grades of thick plastic grass reinforcement mesh	Occasional/Consecutive vehicular use	Overflow grass car park Pedestrian/ wheelchair access routes		8
BODPAVE 40 (Grass) Medium duty plastic porous paving grid for grass reinforcement	Occasional/Consecutive vehicular use	Grass car parks		10
BODPAVE 40 (Gravel) Medium duty plastic porous paving grid for gravel retention and stabilisation	Regular vehicular use	Car parks Driveways Cycle routes		10
BODPAVE 85 (Grass) Heavy duty interlocking plastic porous pavers for grass reinforcement	Occasional/Consecutive vehicular use	Grass coach parks Grass car parks Fire access routes		13
BODPAVE 85 (Gravel) Heavy duty interlocking plastic porous pavers for gravel retention and stabilisation	Frequent/Intensive vehicular use	Coach parks Fire access routes Car parks Driveways Cycle routes		13
TRUCKPAVE (Grass) Heavy duty recycled plastic porous paver for grass surfaces	Regular vehicular use	Overflow grass car parks Pedestrian/ wheelchair access routes		16
TRUCKPAVE (Gravel) Heavy duty recycled plastic porous paver for gravel	Frequent/Intensive vehicular use	HGV yards, HGV access roads Fire access routes Coach parks Car parks		16

This product selector is for guidance only. Many variables affect the final determination of the suitability of a product and we would advise speaking to our technical sales team for further guidance. Product selection determined by application & site conditions.

Turfprotecta™

Permanent grassed paths, pedestrian areas and wheelchair access routes on firm, well-drained ground.

TURFPROTECTA lightweight polyethylene mesh is used to reinforce grassed areas intended for access routes and pedestian use, which are prone to wear and smearing.

The Standard grade is suitable for:

- Paths
- Pedestrian areas
- Wheelchair access routes

The Heavy grade is suitable for:

- Access routes

TURFPROTECTA mesh is simple to install. The sward grows through the mesh apertures and knits with the filaments to create a strong, discreetly reinforced surface which is capable of withstanding vehicle loads, limiting damage and helping to reduce compaction.

The grass can be mown, rolled and fertilised as usual during this period. The mesh soon becomes unobtrusive. TURFPROTECTA mesh can also be installed onto newly-landscaped areas and seeded as required.

It is strongly advised that installation is carried out during the growing season to allow the sward to knit with the mesh prior to allowing traffic to use the area. This would normally be after a few weeks during the growing season. Immediate use could restrict growth and limit the effectiveness of the installation.

TURFPROTECTA mesh is a source-control product for Sustainable Urban Drainage Systems (SuDS) and is a suitable alternative to impermeable paved surfaces where natural grassed traffic routes are preferred, or where planning restrictions are applied or cost savings are being considered.

Newly landscaped installation using green TURFPROTECTA laid and covered with a layer of topsoil and seed.

After just a few weeks the grass grows through the mesh offering a strong stabilised surface.

Fixing Pins & Pegs

Steel U-pins or plastic pegs to secure TURFPROTECTA to the ground. Yellow marker pegs are available if required.

Fixing pin & peg product details

PRODUCT	SIZE (mm)	OUTER	MATERIAL
U-Pins	170 x 70 x 6 dia.	50 Pack	Steel
Black Pegs	140 long	100 Pack	Recycled HDPE

Turfprotecta product details

SIZE (m)	GRADE	COLOUR	MESH APERTURE (Diamond/Oval)	WEIGHT	MATERIAL
2 x 30	Standard	Green/Black	25 x 27	550kg/m²	HDPE 100% Recycled
2 x 30	Heavy	Green/Black	22 x 27	660kg/m²	HDPE 100% Recycled

Grassprotecta™

Permanent grassed overflow car parks, residential parking, access routes, holiday park areas, verges and wheelchair access routes on firm, well-drained ground.

GRASSPROTECTA heavy-duty polyethylene mesh reinforces grassed surfaces prone to wear and smearing e.g. permanent car parking and heavily-used pedestrian areas. The oscillated mesh structure provides greater traction and significantly higher slip resistance when compared with standard mesh alternatives. GRASSPROTECTA mesh is available in three thicknesses: 10mm, 13mm and 14.5mm.

Benefits

- High level of reinforcement – up to 8t per static axle load on firm ground
- Suitable for permanent applications
- Can accommodate shallow slopes
- Fast and cost-effective installation
- No excavation or soil removal is normally required
- Higher slip-resistance than standard mesh products

GRASSPROTECTA mesh is simple to install. The sward grows through the mesh apertures and knits with the filaments to create a strong, discreetly reinforced surface which is capable of withstanding vehicle loads, limiting damage and helping to reduce compaction by reducing direct contact with the soil surface. The grass can be mown, rolled and fertilised as normal during this period and the mesh soon becomes unobtrusive.

GRASSPROTECTA mesh can also be installed onto newly-landscaped areas and seeded as required. It is strongly advised that newly-installed areas remain untrafficked until the sward and the mesh have knitted - normally after a few weeks during the growing season, increasing to a few months out of season. Immediate use may restrict growth and limit the effectiveness of the installation.

Applications

The Lite (10mm) grade is suitable for:

- Pedestrians, bikes and infrequent cars
- Grass paths
- Wheelchair access
- Lawn parking

The Medium (13mm) grade is suitable for:

- Overflow car parks
- Occasional cars and vans
- Golf buggy paths
- Verge stabilisation

The Heavy (14.5mm) grade is suitable for:

- Regular cars and vans
- Event grass parking
- Caravan park/holiday areas
- Grass car parks

GRASSPROTECTA mesh is a source-control solution for Sustainable Urban Drainage Systems (SUDS) and is a suitable alternative to impermeable, paved surfaces where occasional-used, natural-grassed, traffic routes are preferred, or where planning restrictions may be applied or cost savings are being considered.

Fixing Pins & Pegs

Steel U-pins or plastic pegs to secure GRASSPROTECTA to the ground. Yellow marker pegs are available if required.

Fixing pin & peg product details

PRODUCT	SIZE	OUTER	MATERIAL
U-Pins	170 x 70 x 6 dia.	50 Pack	Steel
Black Pegs	140 long	100 Pack	Recycled HDPE

Grassprotecta product details

SIZES (m)				GRADE	COLOUR	WEIGHT	THICKNESS	MATERIAL
1 x 10	1 x 20	2 x10	2 x 20	Lite	Green/Black	0.95kg/m²	10mm	Recycled/Virgin HDPE blend
1 x 10	1 x 20	2 x10	2 x 20	Medium	Green/Black	1.6kg/m²	13mm	Recycled/Virgin HDPE blend
1 x 10	-	2 x 10	2 x 20	Heavy	Green/Black	2kg/m²	14.5mm	Recycled/Virgin HDPE blend

Bodpave™40

Permanent grassed or gravel car parks, cycle paths, driveways, access roads and other trafficked areas where a structurally-sound, well drained base is present or will be installed.

BODPAVE 40's open cell structure allows unrestricted healthy grass root growth and water infiltration and can be used as part of a Sustainable Urban Drainage Systems (SUDS). The paver grids also incorporate 30mm 'ground-spikes' on the base which fix through the adjacent paving grid's edge-loops to provide the entire structure with firm anchorage and structural integrity.

BODPAVE 40 porous grass pavers are an interlocking cellular paving grid system for grass and ground reinforcement applications where there is regular pedestrian or vehicle use. BODPAVE 40 permeable paving grids allow full rainwater penetration and are manufactured from UV stabilised 100% recycled HDPE, in black or green. BODPAVE 40 pavers are strong, chemically inert & non-toxic, enabling them to provide a durable, safe & sustainable eco-friendly surface for trafficked areas.

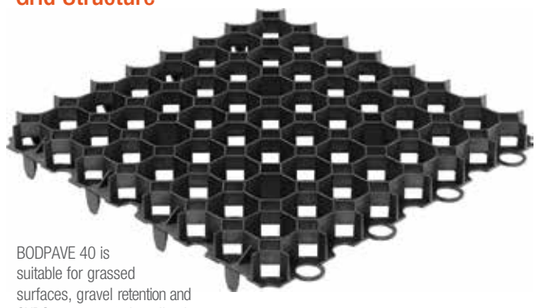
Applications

- Car parks
- Wheelchair and disabled access
- Pedestrian walkways
- Golf buggy paths
- SUDS source control

Features & Benefits

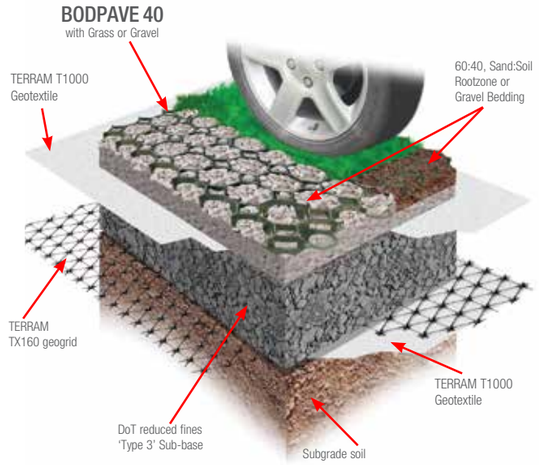
- Load bearing capacity up to 150t/m^2 - will cope with static axle roads up to 60kN.
- Supplied as 4 pre-connected pavers (1m x 1m) - allows rapid installation
- Interlocking connections per paver- excellent lateral transfer of traffic loads
- 95% open surface structure- SUDS source control compliant
- Grass or gravel finish-free draining and naturally pleasing appearance.
- Reduced-Dig System, reduces installation time and costs, also helps rapid establishment and usage after installation.

Grid Structure



BODPAVE 40 is suitable for grassed surfaces, gravel retention and SUDS source control applications.

Typical profile

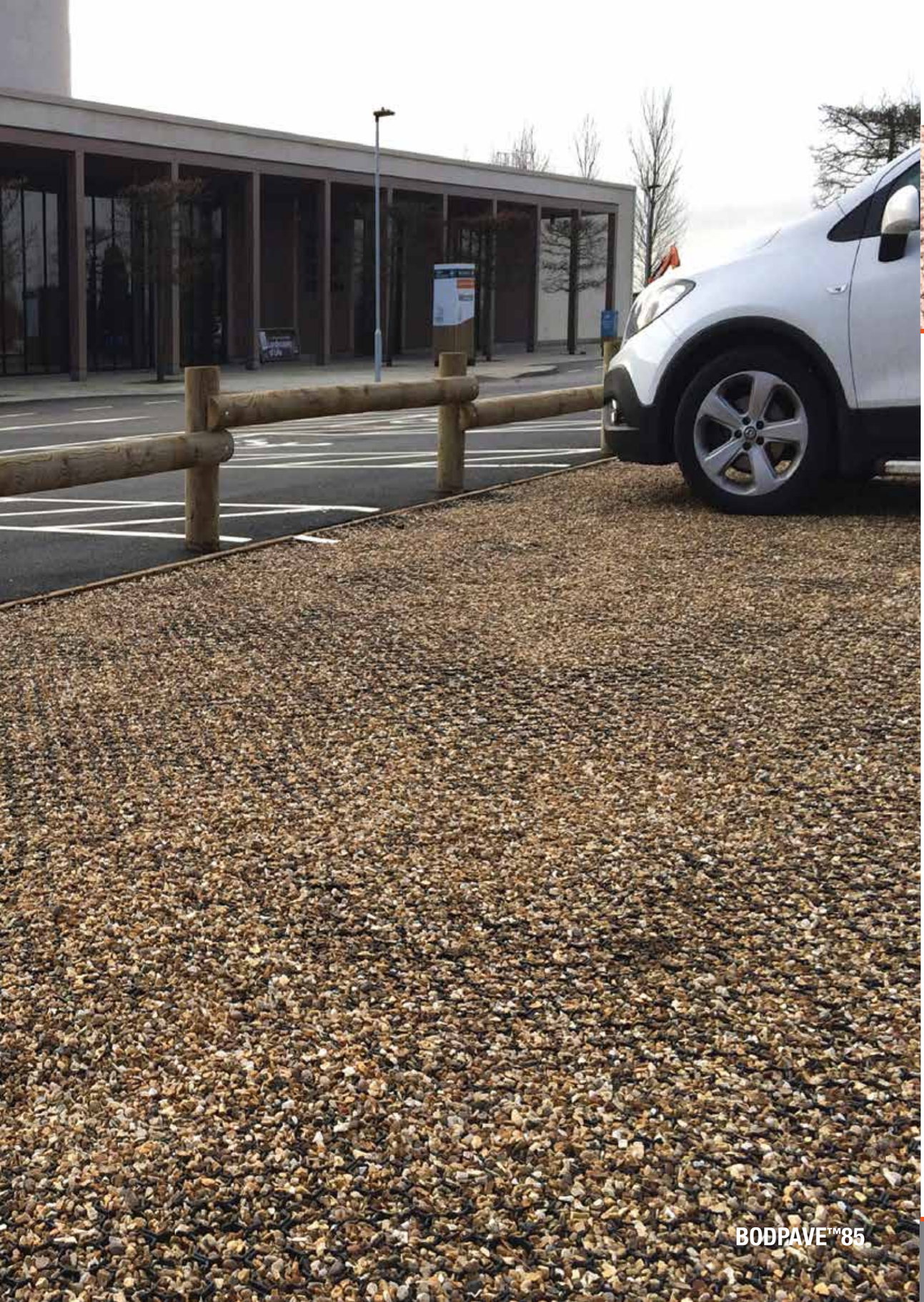


Not all layers will apply to every application and drainage may be required. Please refer to design guidance documents.

Bodpave 40 product details paver

PAVER SIZE (mm)	QUANTITY (per m^2)	COLOUR	WEIGHT (Nominal)	LOAD BEARING CAPACITY	MATERIAL
500 x 500 x 40	4 Grids	Green	4.8kg/m^2	150tonnes/m^2	100% Recycled Polyethylene
500 x 500 x 40	4 Grids	Black	4.8kg/m^2	150tonnes/m^2	100% Recycled Polyethylene

TERRAM Data Sheets, Installation & Design Guidances and Case Studies can be downloaded from **www.terram.com**

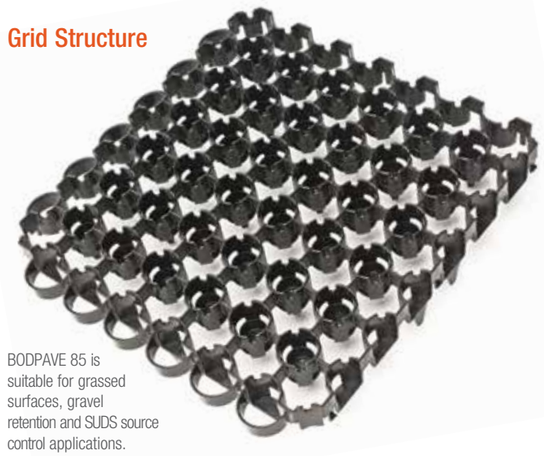


Bodpave™85

Permanent grassed or gravel car and coach parking bays, fire access routes, helipads,taxiways, cycle paths, driveways, access roads and other trafficked areas where a structurally-sound, well drained base is present or will be installed.

TERRAM BODPAVE 85 is an interlocking cellular porous plastic paving grid system for ground reinforcement which can be installed with either a grass or gravel filled surface. BODPAVE 85 units are manufactured in the UK from UV stabilised 100% recycled waste plastic and are strong, chemically inert & non-toxic. The unique design of the BODPAVE 85 units resist lateral movement, improves traction and allows expansion & contraction whilst promoting optimum grass growth, root protection and surface stabilisation. BODPAVE 85 porous paving provides a durable, safe and environmentally friendly surface for trafficked areas with a very low carbon footprint compared to traditional paving solutions.

Grid Structure



BODPAVE 85 is suitable for grassed surfaces, gravel retention and SUDS source control applications.

Applications (Grass or Gravel)

- Car Parking / Coach Parking bays
- Overspill / overflow grass car parks
- Emergency Service (Fire access routes)
- Grass aircraft taxiways & helipads
- Walkways and disabled access routes
- Golf buggy paths
- Driveways and residential lawn parking
- SUDS source control

BODPAVE 85 installation for a gravel car park.

TERRAM Data Sheets, Installation & Design Guidances and Case Studies can be downloaded from **www.terram.com**

Bodpave™85

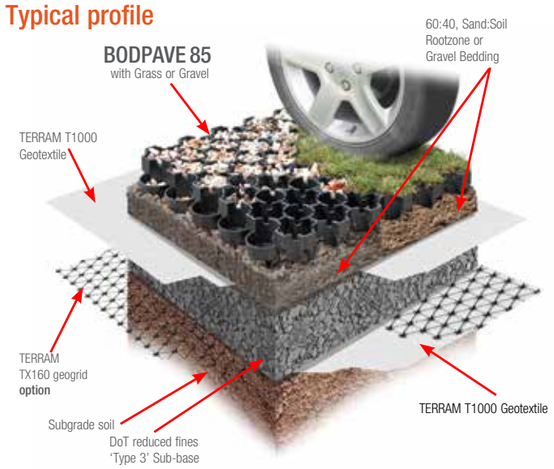
Features and Benefits:

- Load bearing capacity up to 400t/m² - will cope with static axle loads up to 100kN
- Supplied as 4 pre-connected pavers (1m x 1m) - allows rapid installation
- 24 interlocking connections per paver – excellent lateral transfer of traffic loads
- 18 ground spikes per paver – excellent shear connection with the ground allows slopes up to 1:8 / 12% / 7° and generally no pinning required
- Expansion/contraction tolerant – suitable for hot and cold climates
- Manufactured from 100% recycled and recyclable polymers – highly sustainable, non-toxic and chemically inert to chemically naturally found in soils
- British manufactured - lower transport carbon footprint for UK deliveries
- 92% open surface structure- SUDS source control compliant
- Grass or gravel finish - free draining and naturally pleasing appearance
- Paving grids can be offset by 1 cell increments – east to fit around obstacles

Sustainable Drainage System (SUDS) - Source Control

The open cell structure of TERRAM BODPAVE 85 provides high surface water infiltration and is ideally suited to provide source control within a Sustainable Urban Drainage System (SUDS). BODPAVE 85 permeable paving grids should be installed onto a well prepared, free draining, firm and relatively level existing or newly constructed sub-base. By careful specification of suitable materials the sub-base can be designed to hold rain water (source control SUDS) allowing it to slowly drain away into either the underlying ground or surface water drainage system depending upon site conditions. Construction profiles for each application will be determined by specific site conditions & loading criteria. Detailed specification, design and installation guidance literature and technical information are available to download from www.terram.com. Please note that for all BODPAVE 85 grass paver/ gravel paver installations, we strongly recommend that all areas should have sufficient drainage prior to the installation. Failure to ensure this may result in the product not performing as intended.
Please note that regular tight turning of vehicles and "dry" steering may cause damage to the units and/or displace gravel infill; vehicle manoeuvring should be carefully considered at specification/design stage. Gravel filled units may require some maintenance when subjected to regular channelised and turning traffic loadings. For confirmation of the correct construction profile required and guidance on suitable loadings please contact our office on 01621 874200 to speak with a member of our technical team.

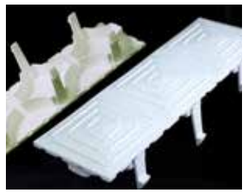
Typical profile



Not all layers will apply to every application and drainage may be required. Please refer to design guidance documents.

Car Park Bay Markers

TERRAM also manufacture car park bay markers that have been designed to snap-fit into the square-shaped cells of the BODPAVE 85 units. Each marker is 215mm x 70mm and can used to create dashed or solid lines and L or T shapes. They can be fixed permanently in place by used a suitable exterior grade high-strength adhesive.



Line marker details

COLOUR	SIZE	MATERIAL
White/Yellow	215 x 70	HDPE

Bodpave 85 product details

PAVER SIZE (mm)	NOMINAL CELL SIZE (mm)	QUANTITY (per m²)	COLOUR	WEIGHT (Nominal)	LOAD BEARING CAPACITY	MATERIAL
500 x 500 x 50	67 Plaque (Curciform) & 46 Round	4 Grids	Black	6.24kg/m²	400tonnes/m²	Recycled Polyethylene
500 x 500 x 50	67 Plaque (Curciform) & 46 Round	4 Grids	Green	6.24kg/m²	400tonnes/m²	Recycled Polyethylene
Ground Spikes:	*Each paver includes a 35mm integral ground spike*					
Assembled Size on Pallet:	*1000mm x 1000mm (4 units)*					
Weight:	*6.24kg per m² / 1.56kg per tile*					
Pallet Dimensions:	*1000mm x 1000mm x 2340mm / Contains 18 units / 45 layers (45m²) / Total pallet weight 300kg*					

Truckpave™

Permanent grassed or gravel HGV access roads, HGV yards, fire access routes, coach parks and car parks where a structurally-sound, well drained base is to be installed.

Manufactured from recycled mixed polymers, TRUCKPAVE cellular paving is robust, durable and capable of withstanding all levels of traffic up to and including coaches, dustcarts and HGVs.

TRUCKPAVE's cells can be filled with either grass seed/topsoil or gravel, making them suitable for stabilising areas where a grass or stone surface is desirable. TRUCKPAVE pavers are the economic, environmentally-friendly and lightweight alternative to concrete grass concrete-type pavers.

Applications

- Lorry, coach and car parks
- Emergency fire access roads
- HGV service access roads
- Road widening
- Grass verges, including where HGV overrun occurs
- Footpaths
- Service yards and other areas where forklift trucks operate
- Lay-bys
- Loading areas

Features & Benefits

- Units are less than 50% weight of concrete alternatives substantially reducing manual handling risk.
- Truckpave has tongue and groove interlock- additional stability.
- Meets SLW60 load category- vehicles up to 60t gross weight, 10t wheel load.
- Flexible and resistant to cracking.
- Low permeability of the cell walls ensure soil fill remains hydrated with better grass growth.
- Non- toxic and inert material harmless to plants and animals.
- Manufactured from recycled mixed polymers- very low carbon footprint.
- Load bearing capacity up to 1500 tonnes/sqm- will cope with axle load up to 200 kN.

Installation

TRUCKPAVE pavers should be installed onto a well-prepared, free-draining, firm and relatively-level stone sub-base (a reduced-fines Type 3 for example). The sub-base can be mechanically stabilised using either a Terram Geocell or Geogrid allowing a reduction in the overall thickness of the sub-base depth. The sub-base is overlaid with a Terram T1000 separation geotextile and a bedding layer of coarse sand or grit.

Once laid, the paver cells can be filled with a free-draining angular stone (e.g. 10mm gravel) or a good quality friable top soil and grass seed at 30/40 g/m^2. Excess topsoil or stone should be removed from the surface, ensuring the cells are not overfilled. The topsoil settlement that will occur within the paver cells is desirable as this will allow grass growth without direct impact from traffic.

Perimeter pavers should be restrained using pinned timber sleepers or precast kerbs allowing for an expansion joint. The pavers can be cut with a hand saw or power cutter for fitting around obstructions. The whole area should be compacted with either a plate vibrator or a small roller compactor.

For large TRUCKPAVE installations with full edge restraint to all sides it may be advisable to allow for expansion due to fluctuations in temperature. Please contact our technical sales team for advice on this or any other issues relating to design and installation of the pavers.

TRUCKPAVE PRODUCT DETAILS

PRODUCT	DIMENSIONS (mm)	WEIGHT	UNITS (Nominal)	UNITS/Sqm	COLOUR
TRUCKPAVE 80	600 x 400 x 80	9kg	4.17	80 No (19.18m^2)	Grey

TERRAM Data Sheets, Installation & Design Guidances and Case Studies can be downloaded from **www.terram.com**

TERRAM GEOCELL Tree Root Protection

Protect tree roots from vehicle traffic, whilst maintaining water and nutrient absorption using TERRAM GEOCELL.

Using TERRAM GEOCELL for tree root protection ensures the roots beneath are protected from vehicle loads by confining the sub-base and stabilising the ground. When the permeable TERRAM GEOCELL is filled with a porous, no fines, free-flowing aggregate the system allows easy passage of air and water providing essential nutrients to the roots. TERRAM GEOCELL is ideal for "No-Dig" situations.

Typical Applications

- Permanent Woodland Trails
- Paths & Cycleways
- Driveways*
- Roads
- Access Routes*
- Parking Areas

**See Arboricultural Advisory and Information Services APN12: Driveways close to trees*

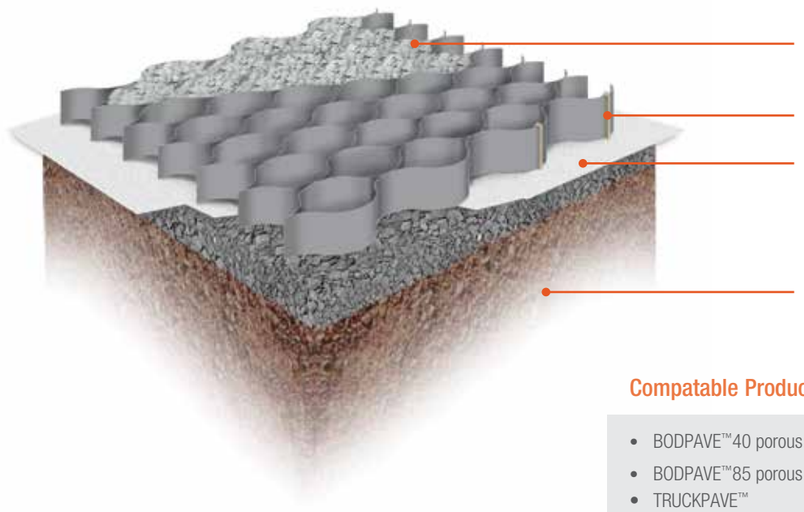
TERRAM GEOCELL is supplied as flat packed panels which are opened to form the honeycomb-like structure. These are positioned and pinned to the ground using fixing pins and filled with a suitable, permeable infill.

TERRAM GEOCELL confines the infill and ensures that downward forces are spread laterally, reducing pressure on the sub-base. Without this cellular system, the surface would become rutted and compacted with the traffic loads, damaging the tree roots and potentially resulting in the death of the tree.

WHY TERRAM GEOCELL?

- Lightweight and easy to handle, reducing installation costs.
- Permeable geotextile allows free flow of water, essential in tree root applications.
- The flexible TERRAM geotextile material allows TERRAM GEOCELL to effectively adapt to any variations in the terrain.
- TERRAM GEOCELLS are easily cut to size without damage, therefore reducing cost.

Typical Profile



Compatable Products

- BODPAVE™40 porous pavers
- BODPAVE™85 porous pavers
- TRUCKPAVE™
- TERRAM geotextile filter
- Geogrid

Fixing Pins

Fixing pins available upon request.

Product Details

PRODUCT	PANEL SIZE (m)	CELL Dia & DEPTH (mm)	PANEL WEIGHT	PERMABILITY (l/m²s)
GEOCELL 25/10	5 x 7	250 dia x 100	17kg	20.0
GEOCELL 25/15	5 x 7	250 dia x 150	25kg	20.0
GEOCELL 22/20	6 x 3	220 dia x 200	20kg	20.0

* These are typical profiles only.

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TERRAM GEOCELL Erosion Control

Combat slope erosion and stabilise surfaces using TERRAM GEOCELL.

Using TERRAM GEOCELL to control erosion ensures better resistance to the erosive effects of wind and water run-off. As TERRAM GEOCELL is made from permeable geotextile, it allows water to flow freely between cells encouraging drainage and vegetation.

Typical Applications

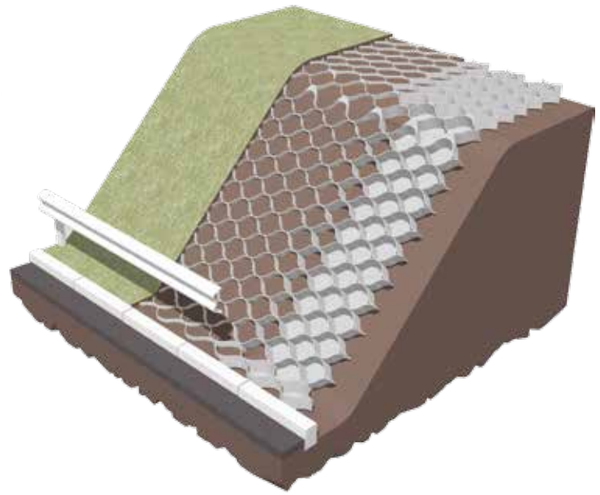
- Cut or Fill Embankments
- Dams or Spillways
- Revetments
- Abutment Protection
- Geomembrane Protection
- Soil-nailing Cover
- Landfill Lining

TERRAM GEOCELL is supplied as flat packed panels which are opened to form the honeycomb-like structure. These are positioned and pinned to the ground using fixing pins and filled with a suitable, permeable infill.

TERRAM GEOCELL can be used on slopes up to 1:1 and is flexible enough to be formed around trees and other obstacles. Seeded topsoil is the most suitable fill for less-exposed slopes with small shrubs, offering improved protection, whilst a granular material offers the highest protection.

WHY TERRAM GEOCELL?

- Lightweight and easy to handle, reducing installation costs.
- The flexible TERRAM geotextile material allows TERRAM GEOCELL to effectively adapt to any variations in the terrain.
- TERRAM GEOCELLS are easily cut to size without damage, therefore reducing cost.



Fixing Pins
Fixing pins available upon request.

Product Details

PRODUCT	PANEL SIZE (m)	CELL Dia & DEPTH (mm)	PANEL WEIGHT	PERMABILITY (l/m²s)
GEOCELL 22/20	6 x 3	220 dia x 200	20kg	20.0
GEOCELL 25/10	5 x 7	250 dia x 100	17kg	20.0
GEOCELL 25/15	5 x 7	250 dia x 150	25kg	20.0
GEOCELL 35/10	5 x 7	350 dia x 100	11kg	20.0
GEOCELL 35/15	5 x 7	350 dia x 150	17kg	20.0

* These are typical profiles only.

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Grasscarpet

Temporary reusable grass covering to provide clean and stable pedestrian or vehicular access.

GRASSCARPET is a heavy-duty composite comprising of a grass-protection mesh bonded to a strong non-woven geotextile. It is used to provide two functions: temporary protection or access over grassed surfaces; particularly in wet and muddy conditions:

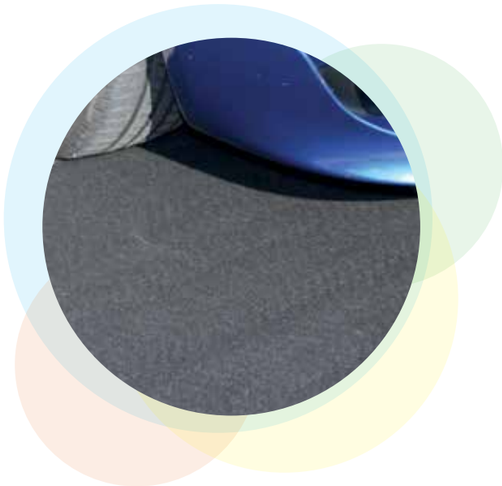
- With the mesh laid face down on the ground and the geotextile upwards, the composite GRASSCARPET provides a clean, stable and safe surface for pedestrians, whilst protecting the grass from damage.
- With the geotextile laid face down on the ground and the mesh upwards; the composite GRASSCARPET stabilises the grass surface to resist deformation and pumping-up of mud, during temporary vehicle access.

The GRASSCARPET mesh is manufactured using part-recycled high density polyethylene (HDPE) and it is formulated to provide slip resistance.

GRASSCARPET composite is an ideal covering for wet and muddy grass:

- Garden parties, weddings, exhibitions and concerts
- Marquee flooring and paths
- Temporary car parks and wheelchair access routes
- Temporary pedestrian and vehicle access routes

For Fixing Pins & Pegs see page 9.



Grasscarpet product details

SIZE (m)	WEIGHT	CBR PUNCTURE RESISTANCE	MATERIAL (Carpet)	MATERIAL (Mesh)
2 x 20	2.4kg/m²	Green/Black	Polypropylene	Polypropylene

Safety Rubber Mat

Permanent impact absorbing, slip resistant permeable matting for play areas, fitness/ fun trails and pathways.

TERRAM SAFETY RUBBER MAT's are environmentally friendly, slip resistant and impact absorbing. They are ideal for children's play areas; around most multi-function play frames, springers, swings, fitness/fun trails and pathways. The rubber mats are placed onto existing grass areas and secured to the ground. The grass sward grows through the mat's apertures.

Benefits

- Tested by RAPRA to BS EN 1177:1998 3m Critical Fall Height (CFH)
- Used on flat or contoured grass surfaces
- Unobtrusive once the sward has grown
- Wheelchair and pushchair accessible
- Absorbs shock and noise
- Excellent durability
- Slip resistant
- Resist wind uplift once secured correctly
- Apertures allow for drainage to leave the surface dry
- Requires no special skills or tools to install
- No costly base works unlike conventional tiles or wet-pour, rubber surfacing

Check the suitability of this product prior to installation as the CFH value will be affected by soil type, moisture and grass cover.

If the area is prone to being wet and soft then it is best to first stabilise the area with TURFPROTECTA Standard mesh. Otherwise the Safety Rubber Mats are placed directly over the area and secured using plastic pegs with the mat edges coupled together using cable ties (suitable pegs and ties are available to purchase). See the full Specification, Design and Installation Guidance Note which can be downloaded from www.terram.com.

PRODUCT	CABLE TIES	BLACK PEGS
MATERIAL	Nylon	HDPE
SIZE (mm)	90 long	140 long
OUTER	100 pack	100 pack

Safety rubber mat product details

ROLL SIZE (m)	WEIGHT	THICKNESS (mm)	COLOUR	MATERIAL
1 x 1.5	12kg	62.5	Black	Recycled Rubber

TERRAM Data Sheets, Installation & Design Guidances
and Case Studies can be downloaded from **www.terram.com**

Terram Geotextile

Permeable filter/separator geotextile for separating sub-base construction layers from intermixing.

Terram non-woven standard geotextiles deliver separation and filtration. They are resistant to all naturally occurring soil acids and alkalis and is unaffected by biological contaminants such as bacteria or fungi.

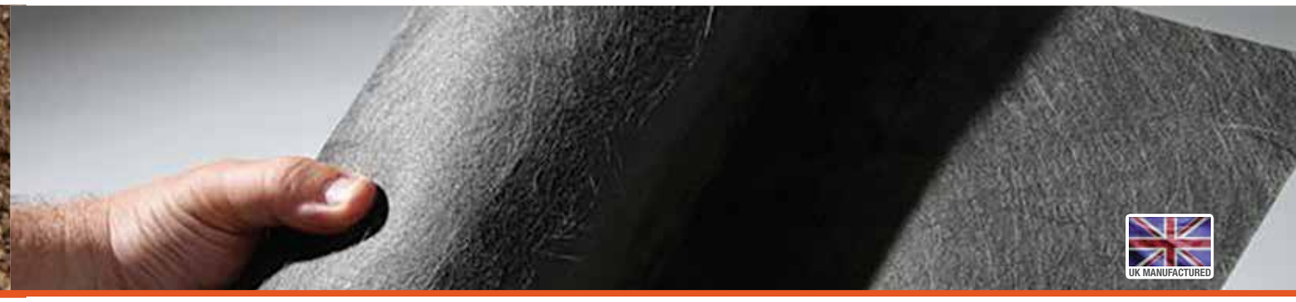
Terram geotextiles are important to use in paving construction, particularly for installations involving BODPAVE 85 porous ground reinforcement paving grids - for grass or gravel surfaces, in applications including car parks, access roads and pavements.

Terram geotextiles (e.g. T1000) allow full water penetration whilst separating fine material (soil/sand) from larger material and offers essential ground stabilisation. The geotextile fabric can be used in conjunction with a geogrid to further improve sub-base performance.

Geotextile product details

PRODUCT	SIZE (m)	CBR PUNCTURE RESISTANCE (Mean peak strength)	TENSILE STENGTH	MATERIAL
T1000	4.5 x 100	1500N	8kN/m	Non-Woven PP/PE
T900 Minipak	4.5 x 11.1	1350N	7.5kN/m	Non-Woven PP/PE

Terram Rootguard™



Root control barrier to protect buildings, walls, paths, access roads, drainage pipes and underground cables from root damage.

TERRAM ROOTGUARD is used to protect buildings, walls, paths, drainage pipes, cables and lawns from potential damage caused by root development.

Tree roots grow very close to the surface and are the cause of considerable damage. Structures with shallow foundations can be undermined. Damaged pipes, or pipes with faulty joints can become blocked by roots. Root growth is also known to cause desiccation of soils to the extent that soil shrinkage can result in parts of the foundation no longer being supported. When this occurs structures may subside and crack and in these circumstances expensive underpinning may be the only solution..

TERRAM ROOTGUARD is a geotextile manufactured from polypropylene/polyethylene fibres. It provides excellent resistance to root development; confirmed in numerous trials and commercial projects.

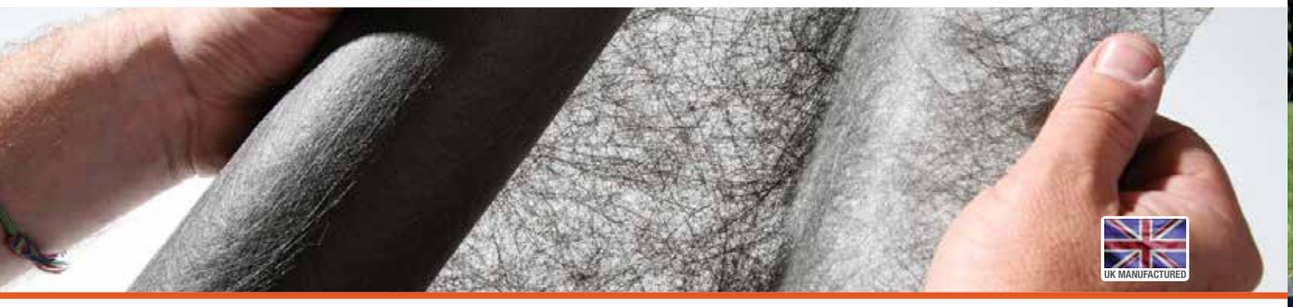
TERRAM ROOTGUARD has high tensile strength, high puncture resistance and is capable of withstanding the differential forces that can develop in clay soils.

Terram rootguard product details

PRODUCT	ROLL SIZE (m)	WEIGHT	CBR PUNCTURE RESISTANCE	COLOUR	MATERIAL
TERRAM Rootguard	2.25 x 25	260g/m^2	3250N	Black	Non-Woven PP/PE

TERRAM Data Sheets, Installation & Design Guidances
and Case Studies can be downloaded from **www.terram.com**

Terram Weedguard



Permanent permeable weed suppression geotextile for landscaping, gardening and construction applications.

TRERRAM WEEDGUARD is proven for suppressing weeds in landscaping and garden applications without the need for chemicals. This geotextile is designed to allow the passage of water, oxygen and nutrients while blocking weeds. TERRAM WEEDGUARD is installed at the interface between soil and a decorative layer such as bark chippings, stone chippings, pebbles or gravel.

- Weed-control fabric which avoids the use of chemicals
- Lightweight and simple to install
- Maintenance free and resistant to microbiological and chemical attack
- Ideal for landscaping, garden beds and beneath decking

TERRAM WEEDGUARD is supplied in roll sizes to suit small gardens to large landscape project:

The geotextile is unobtrusive grey, easy to cut, does not fray, simple to position, flexible to adapt to uneven ground and can be secured using plastic pegs. *(See page 23).*

Terram weedguard product details

ROLL SIZE (m)	WEIGHT	CBR PUNCTURE RESISTANCE	COLOUR	MATERIAL
2.25 x 50	90/g/m^2	1000N	Dark Grey	Non-Woven PP/PE

TERRAM Data Sheets, Installation & Design Guidances and Case Studies can be downloaded from **www.terram.com**

Further market specific literature available:

- Railways
- Road and Highways
- Forestry & Landscaping, Fruit & Viticulture

www.tubex.com

Application specific literature, product data sheets, case studies and installation guides are available on request or can be freely downloaded from **www.terram.com**

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TERRAM excels in the innovative application of technology to create versatile, high-performance materials which are unique, cost-efficient and deliver significant added value.

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