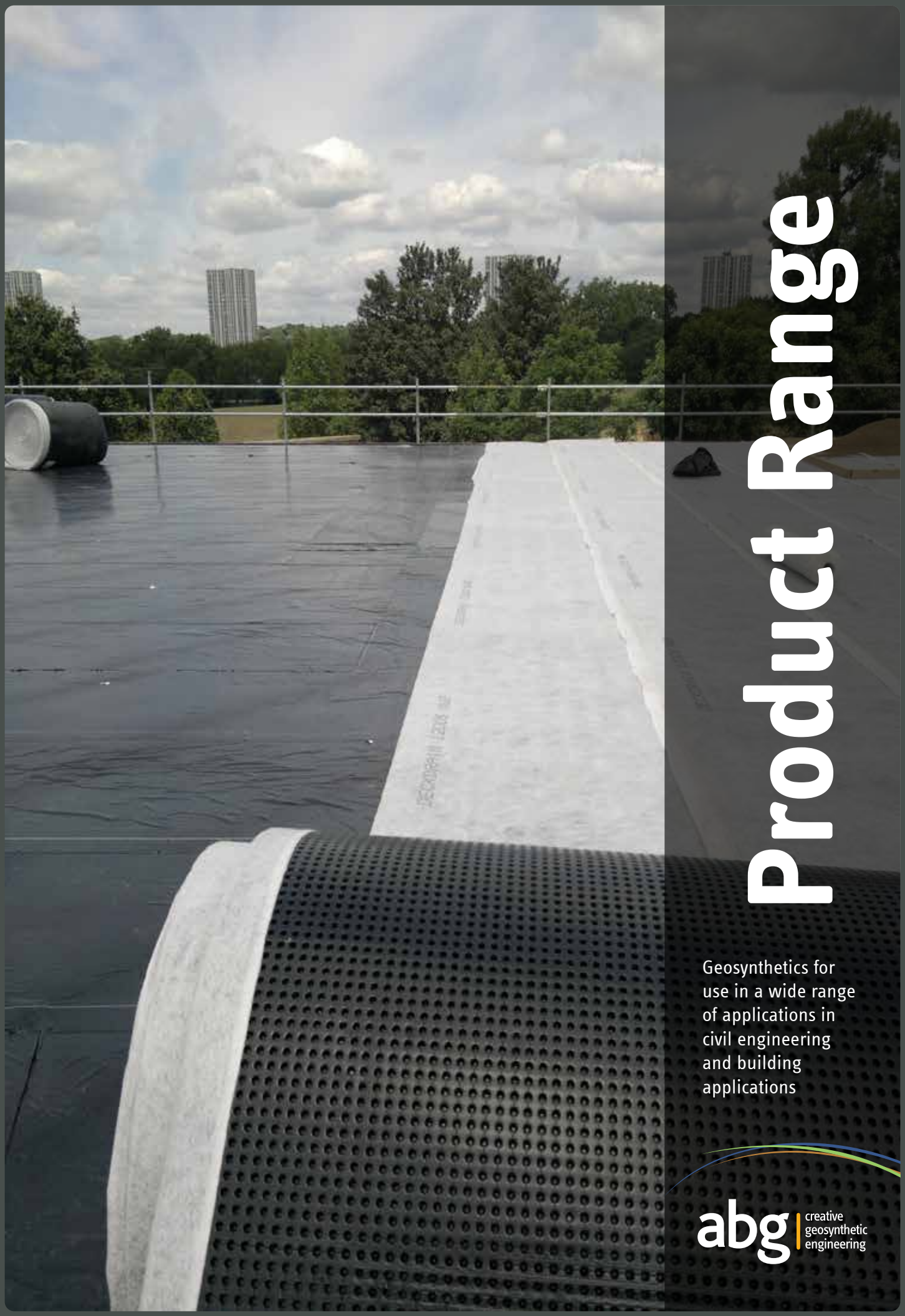

Product Range

Geosynthetics for use in a wide range of applications in civil engineering and building applications

abg creative geosynthetic engineering

About ABG

ABG are a market leader in the development, manufacture and technical support of high performance geosynthetics with applications in many civil engineering, environmental and building projects.

ABG specialises in providing environmental protection systems for a wide range of applications including:

- Landfill lining and containment.
- Surface and sub-surface water retention for sustainable drainage (SUDS).
- Green and blue roofs
- Gas dispersal, cut-off trenches and capillary break layers for contaminated land remediation.
- Structural drainage systems.
- Soil retention and erosion control for slopes and waterways.
- Low cost retaining walls and reinforced soil structures.
- Systems for the extended life of rigid and flexible pavements.

Compared with traditional methods of engineering, projects involving earthworks or drainage can be performed with reduced environmental impact and at lower cost using sustainable geosynthetic solutions from ABG.

ABG is a privately owned company formed in 1988, with its own manufacturing facility at Meltham, in the heart of the Yorkshire Pennines. Through this time, the company has developed a reputation for delivering innovation using quality products and supported with outstanding customer service. This has resulted in steady and continuing growth.

The ability for rapid product development ensures that ABG supply the most innovative and cost effective solution to most engineering problems involving water or soil retention.

Where required, all products are CE marked and approved for use by leading UK and international authorities. Research and development are given high priority. Collaborative research is undertaken with leading British Universities and knowledge hubs to develop improved design methods.

Laboratory facilities are used to undertake regular quality control testing, product development and to provide clients with specific design values. Many landfill projects have been completed involving ABG products meeting the rigorous quality control and testing requirements of the CQA plan.

Technical support is provided for all of our products by our well trained and experienced staff, many of whom are Chartered Civil Engineers. This extends to design, design confirmation, feasibility study, cost advice and installation.

ABG also regularly provides a complete package solution from design to installation, through our approved installers, working in partnership with the design and construction team.

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Cert no: 570
ISO 9001
ISO 14001

CO2e Assessed Organisation

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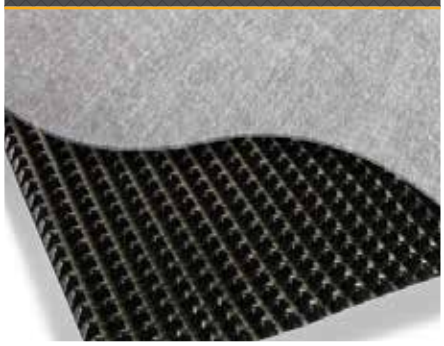
Landfill drainage & gas dispersal systems



Pozidrain® geocomposite drainage layer is designed specifically as a replacement to filter stone. It forms a robust drainage system for the collection of leachate and ground water in landfill containment systems. It can also be used as a gas venting system for the collection and dispersal of gases from the perimeter of landfills and from below the capping layer. Pozidrain® also have applications in the restoration of contaminated land where it can be used to form a highly effective capillary break layer.

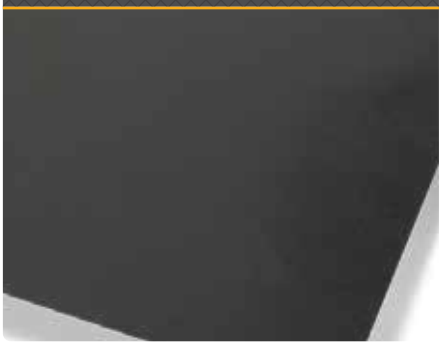
Pozidrain consists of a cuspated core bonded to a geotextile filter fabric. This bonded construction prevents intrusion into the drainage passages under the action of backfill material, ensuring continuity of void even under high loads.

Pozidrain® G builds on the proven technology of Pozidrain but utilises a patented lattice core which offers many benefits over systems based on drainage strips. This unique core configuration allows the system to be used on very steep capping applications.

Pozidrain® Protector has a heavy weight protection fleece included in the composition allowing it to be used in basal applications where it acts as a leachate collection layer whilst providing protection to the underlying lining system

Leakdrain is used for leakage detection within the landfill base lining. Installed between the primary and secondary lining system it allows the detection of leaks whilst safely draining away leaked fluids.

GCL and Geomembrane lining systems



ABG lining systems are designed to provide liquid and gas barriers in many sectors including waste disposal and landfill lining, capping, reservoirs, canals and ponds, environmental lining of roads and projects in contaminated land, waterproofing of structures.

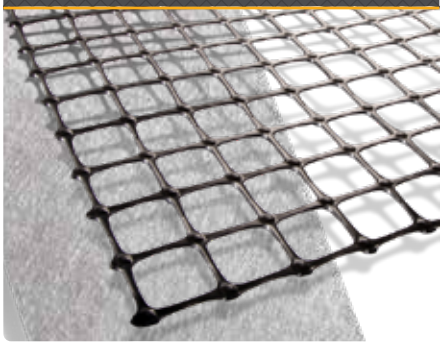
ABG lining materials have high chemical stability, even at elevated temperatures, and are resistant to all common chemicals, including petrol, oils and leachate.

Alphaline geomembranes are manufactured from high quality virgin Polyethylene (PE) and Polypropylene (PP) in a quality controlled environment to ensure whole life integrity of the product.

Claymat Geosynthetic Clay Liner (GCL) utilises Sodium Bentonite, long recognised as an ideal impermeable barrier material, in a convenient sandwich between two layers of geotextile. The result is a thin, flexible, clean, easily transported and installed lining system.

In many applications the performance of the Alphaline and Claymat lining is enhanced by the associated specification of Pozidrain® geocomposite drainage and protection layer.

Stabilisation, Reinforcement & separation



ABG offer a full range of woven and non-woven geotextiles for many civil engineering, environmental and building projects.

Terrex® SNW offers a range of thick needle punched non-woven geotextiles in the weight range 300-5000g/m^2. They are primarily for the protection of geomembrane liners, filtration in coastal revetments and drainage trenches in very fine grained materials e.g. PFA.

Terrex® NW offers a light-weight range of geotextiles ideal for filtration or separation applications and landscaping applications.

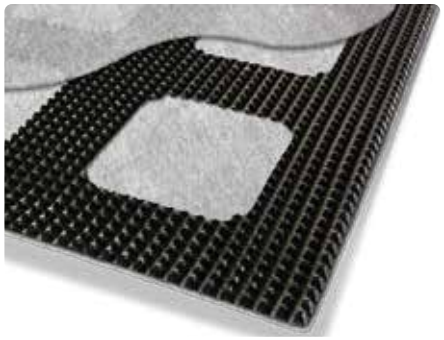
Terrex® geotextiles are used in the manufacture of Pozidrain® to create a very substantial protection and drainage layer with just one installation cost.

Abtex geotextiles are low-cost wovens for applications in access roads.

Gridtex is a high performance woven geotextile engineered for stabilisation applications and is ideal for strengthening a wide range of soils. It is capable of fulfilling many of the functions required of a geogrid whilst at the same time offering all the benefits of a woven geotextile.

Abgrid offers a value geogrid for stabilisation and strengthened embankments.

Trigrid® is an innovative high performance geogrid combining fibre-reinforced polymer strips within a protective sheath with junctions that are high-strength welded which helps create an interlocking structure.



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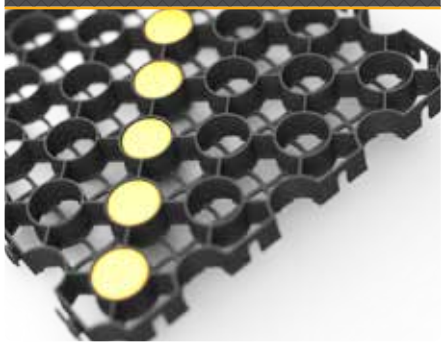
Porous paving systems



Sudspave® is a system of interlocking cellular paving units designed for the stabilisation of trafficked grass or gravel surfaces. Applications include car parks, emergency and maintenance vehicle access roads, cycle paths and pedestrian areas.

Sudspave® offers a cost-effective, robust and aesthetic solution for many applications where gravel retention or grass reinforcement is required, and where source-control of surface water forms part of a Sustainable Drainage System (SuDS) design.

Truckcell® is a heavy-duty cellular paving system designed for intensive usage and high-load traffic applications. The cells can be filled with topsoil and seeded, or with gravel to provide a robust structural surface capable of carrying HGV traffic.

Manufactured from 100% recycled plastic, it is strong enough to withstand trafficking from vehicles with high wheel loadings such as trucks, buses, fire appliances and refuse vehicles, making it suitable for applications such as HGV parking and access roads, car and coach parks and emergency vehicle access routes.

Advanced Turf® is a high-performance grass rootzone reinforcing system that allows the formation of natural grassed surfaces with the strength and durability to carry frequent vehicle traffic.

Green & blue roof systems

Roofdrain is designed for use in extensive green roof systems. It provides both drainage and attenuation in a convenient, lightweight and cost effective system.

The drainage design of intensive green roofs requires only a simple soil layer; by contrast the modern method of an extensive green roof requires a combination of efficient drainage and water attenuation in order to allow the ecology to flourish.

Roofdrain allows the storage of water within the nodes of the of the HDPE core whilst facilitating the efficient drainage of any excess water away from the roof. This helps prevent the root growing media from drying out during dry periods and from becoming waterlogged during periods of wet.

When used within a roof construction Roofdrain provides a versatile system for the collection of surplus seepage water at the base of the growing medium and for the prevention of water pressure on the structural waterproofing

Deckdrain also has applications in roof construction, particularly in podium decks and the construction of ballasted roofs where it forms an highly efficient drainage layer that quickly conveys water to the roof outlets.

On blue roofs, Roofdrain and Deckdrain are used to create a void capable of attenuating rainwater collected on the roof. Once within the system, the discharge is controlled by patented restrictor outlets designed specifically for each project.

Geocellular stabilisation systems

ABG manufacture a range of geocell systems suitable for many sub-base stabilisation applications.

Abweb is a three dimensional cellular matrix designed to strengthen weak soils in horizontal applications such as access roads, car parking areas and site compounds. It can be used as a standalone system or as part of a complete pavement system in conjunction with other products such as Abgrid and the Sudspave® or Truckcell®.

Abweb TRP is used as part of no-dig solution for the construction of trafficked areas above protected tree roots.

Using Abweb TRP allows the construction of a surface capable of carrying vehicular traffic whilst still permitting the flow of water and nutrients into the root structure.

Concertinaweb is a geocellular containment system which confines and strengthens infill materials and provides a cost effective solution for the reinforcement of roadside verges. When installed, Concertinaweb helps prevent verge failure and material loss in the event of vehicles overrunning. It can also be used to prevent stone scatter from verge drainage systems.

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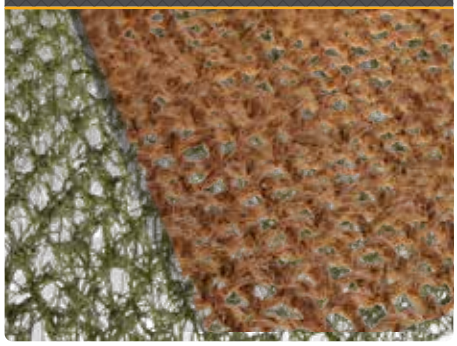
Erosion control systems



ABG offer a comprehensive range of environmentally friendly erosion control materials including biodegradable or non-biodegradable, seeded and unseeded. They are designed for providing surface protection and enhancing the structural stability of soil slopes.

Erosamat® Type 1 & 1A are low cost biodegradable erosion control mats made from woven jute. They are used as an economic and environmentally friendly erosion control material for surfaces that will support plant growth.

Erosamat® Type 2 is a heavy duty long life coir biodegradable erosion mat. It is designed to prevent soil erosion and help establish new vegetation on areas of loose soil and in situations of high run-off and high water velocity.

Erosamat® Type 3 is a closely packed matrix of polypropylene fibres thermally bonded together to create a tough and flexible, long lasting erosion control mat. It is suitable for all situations where an element of non-biodegradable erosion control is required. As a system it provides the structure that allows the root reinforcement necessary for natural vegetation to resist the extreme effects of wind, rain and water erosion.

Erosaweb is a honeycomb mattress of interconnecting strips that form pockets to hold and strengthen the infill material. Ideal for severe erosion problems on steep slopes.

Reinforced earth system

Abslope SM is an economical and structurally flexible sustainable earth retaining slope system developed for road embankments, acoustic bunds, amenity slopes, land reclamation projects and housing developments to meet the demands of Engineers, Architects and Developers. The system consists of a proprietary steel mesh facing panel and retained earth, reinforced with ABG geogrids.

The slope can be constructed to a face angle of 60° to 70° and the steel mesh facing is lined with a vegetation liner to assist establishment of a grassed slope face. The Abslope system provides an environmentally friendly and economic alternative to conventional retaining structures such as concrete gravity walls or gabion baskets.

Vegetated retaining wall system

Webwall® is a flexible retaining wall system that utilises geocell technology. Using Webwall® green faced walls with near vertical faces can be built quickly and easily with the added benefit of using site won materials as fill, saving the import of materials on to site.

Cost savings over traditional retaining wall constructions together with a green vegetated finish can be achieved by using Webwall® system. It is ideal in situations with weak foundation soils and often allows site won materials to used as fill thereby saving on the cost of removal and also the cost of importing structural fills.

The retaining wall structure is formed from horizontal layers of Webwall® filled and placed one on top of another. The front face of the structure can be filled with top soil and then vegetated through seeding or planting to create a vegetated finish.

Webwall® forms an ideal facing to reinforced soil structures.

It offers many cost advantages over other retaining wall systems including lower labour costs, no heavy machines or cranes and reduced construction time. Webwall® also has a significant carbon saving.

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Structural drainage systems

Deckdrain is a high-performance geocomposite drainage layer that directly replaces traditional granular drainage stone.

When used in structural drainage, Deckdrain forms a robust drainage system designed to relieve external water pressure from buried structures such as behind retaining walls, on cut and cover tunnel construction, podium decks and roof gardens and buried tanks and service reservoirs.

It may be laid horizontally or vertically and provides high flow capacity whilst affording protection to waterproofing systems. Using Deckdrain reduces the amount of excavation required on site and enables site material to be used as backfill.

Deckdrain has also been developed further for use under block paving drainage. In this application its function is to collect and remove seepage water from the sand course below the block paving. Without Deckdrain, the sand can easily become saturated. In this condition, the sand will liquefy under traffic loading resulting in settlement and rutting. Deckdrain offers a cost effective method of preventing this type of failure.

Deckdrain is BBA approved for use in highway drainage applications.

Piledrain is designed as an effective solution to the treatment of joints between contiguous and secant bored concrete piles in basement and retaining wall construction.

Cavity drainage systems

Cavidrain is a cavity drainage system designed specifically to relieve water penetration from basements and buried structures. It is suitable for use in both new and existing structures conforming BS8102.

Traditional methods of ground water exclusion are difficult to install reliably in the modern deep basement with piled slabs and secant piled walls. Cavidrain provides a waterproofing system that enables fast track construction by eliminating wet trades and removing the installation of separate waterproofing from the critical path.

The low profile of Cavidrain maximises the available internal space. It is very easily and quickly installed, making Cavidrain® a very cost effective waterproofing system.

In tunnel drainage applications Cavidrain provides a drainage layer to collect infiltration water from behind tunnel linings. Cavidrain may be used alone or form part of a system incorporating geomembranes. Typically the Cavidrain is fixed to the excavated face of the tunnel and sprayed concrete is applied directly to the back of the Cavidrain sheet.

Cavidrain can also be used in the formation of tunnel invert drainage where its efficient flow channels can remove the requirement for an aggregate drainage layer. Once in position, the Cavidrain is covered with concrete and, once cured, it's strength is equivalent to the concrete used.

Cavidrain is suitable for use in road and rail tunnels, mine shafts, interceptor sewers and service tunnels.

Ground drainage systems

Fildrain drainage geocomposite is a cost effective alternative to traditional stone drainage. It collects and channels liquids and gases to a carrier pipe for transportation to a suitable discharge point. It has many applications in highway and embankment drainage.

Fildrain has a very high flow capacity, many times that of traditional crushed stone (specific data is available). This is due to the unique open structure created by the dimpled construction which allows unhindered water flow through out the sheet of Fildrain.

The Fildrain range of drainage products has many applications and is typically used for the drainage of highway edges, car parks, airfields and similar applications

Fildrain also has applications in the drainage of embankments and reinforced soil structures, cut-off trenches on contaminated land and landscape applications where a narrow trench is dug and the Fildrain placed within and backfilled using excavated materials.

Fildrain can also be used as the basis of a gas collection system beneath man made reservoirs and snow water ponds to prevent 'whales' forming due to gas trapped below the geomembrane.

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