

A domestic installation of the Exec

Terraforce: Pioneering permeable paving in a reluctant market

One of the fastest growing approaches to green site development in the last year or two is permeable paving, yet, contrary to popular belief, it seems the approach has been around for years, with the local market reluctant to recognise the obvious potential. Karin Johns, freelance journalist, interviews a major stakeholder in the industry to find out more.

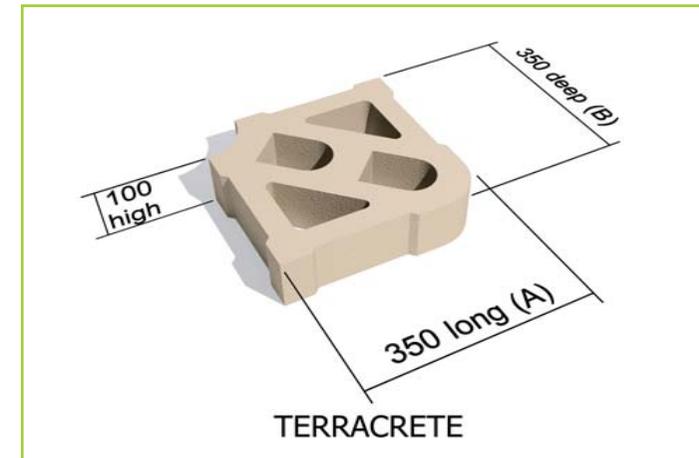
Back in 1994 Terraforce, local and international licensor of interlocking, hollow core concrete products obtained the rights to the German Exec concrete paving system which can be installed in a number of attractive patterns as well as in various permeable patterns.

Tested by the Institute of Hydraulic Engineering at Karlsruhe University, Exec Ecopaving is capable of infiltrating 400L (sec/ha). During that same year the system was launched by Dave King of Inca Cape.

Holger Rust, owner of Terraforce for the past 28 years, was hopeful that this new approach would excite the market with its water-wise features, but 13 years ago, awareness of the benefits and



Industrial application of Exec Ecopaving



advantages of permeable paving was virtually non-existent:

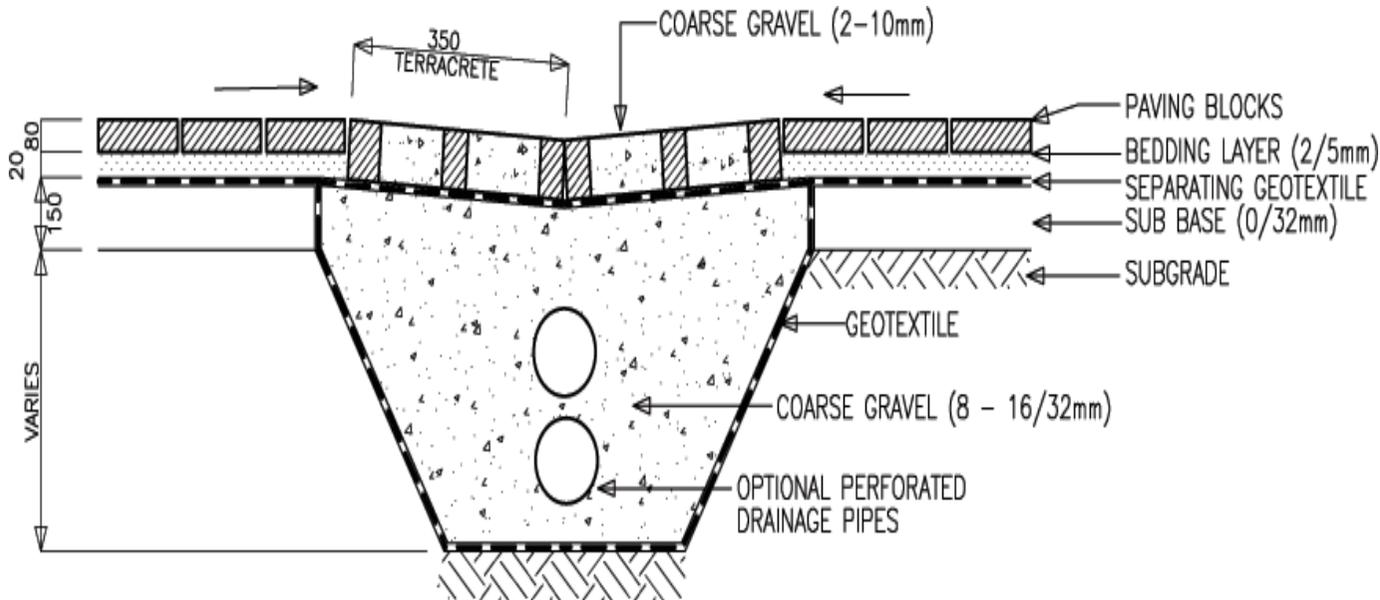
"Exec remained a small player, available from Deranco blocks in Port Elizabeth. Meanwhile we developed Terracrete hardlawn, a larger version of Exec with internal openings, suitable for installing hard-wearing, permeable eco-surfaces on roadways, parking areas or for mixed use installations such as stormwater detention ponds as well as for general erosion control measures."

Terracrete was launched in 1999 and received a cool reception in the market. Says Rust: "Even the development of plastic moulds that allowed for production on a small scale with minimal capital outlay did not help much. Finally, during the years 2002 to 2004 specifiers started to accept the concept and sales started to pick up."

Today Terracrete is available locally in the Western, Eastern and Northern Cape, KwaZulu-Natal and Gauteng and internationally in Swaziland, Namibia, The United Arab Emirates, India, Australia and Turkey.

Permeable paving or eco-surfaces are now the latest

Intermediate drainage channel



trend, a little belated but at last the market is now willing to look at a new directions and ideas in paving practice.

Rust himself describes a new method of creating permeable and efficient drainage/infiltration in existing paved areas or in new areas that are to be paved with asphalt or interlocking clay/concrete pavers:

"The incorporation of drainage lines along edges, around perimeters and at predetermined centers across parking/storage areas or roadways makes it possible to up-grade existing ones or enhances drainage/infiltration of new installations. This method can also be applied when new service

or irrigation lines have to cut across existing parking areas while trees are established at the same time."

Rust says Terracrete is ideally suitable for this purpose as it is a paving block with openings (40% open) compared to paving blocks with widened joints (app. 15% open). The bigger openings allow for coarse infill to be used which means better infiltration and easier maintenance. In addition, something that is often neglected, this allows tree roots to breathe, to absorb water and nutrients that get washed off the paved areas.

Rust is currently working together with Dr Sohnke Borgwardt, landscape architect and consulting

engineer and leading expert on the subject in Germany, to highlight findings about the method suggested by Rust.

Bearing in mind that infiltration with this method does not occur over the whole area but rather at certain intervals, Sohnkes' findings are as follows:

- A high rate of infiltration as required here demands the maximum open surface area possible without compromising stability.
- Coarse infill 2-10mm (ASTM No. 8) or 2-5mm (ASTM No. 9) will be best suitable as it will not clog up as fast as would be the case with sand 0-2mm or 0-5mm. Infiltration rates are higher with coarse infill and regular maintenance by vacuum washing the gravel is very feasible in a way that would not be possible with finer infill.
- This method is very suitable for upgrading drainage of existing areas or new ones where the presence of heavy vehicles or high traffic volumes could compromise conventional permeable paving. It represents an important management tool for affordable drainage, sustainable and environmentally sound.
- Effective long term performance depends on professional design, proper choice of materials and aggregates as well as accurate installation, supervision of the building process and maintenance.

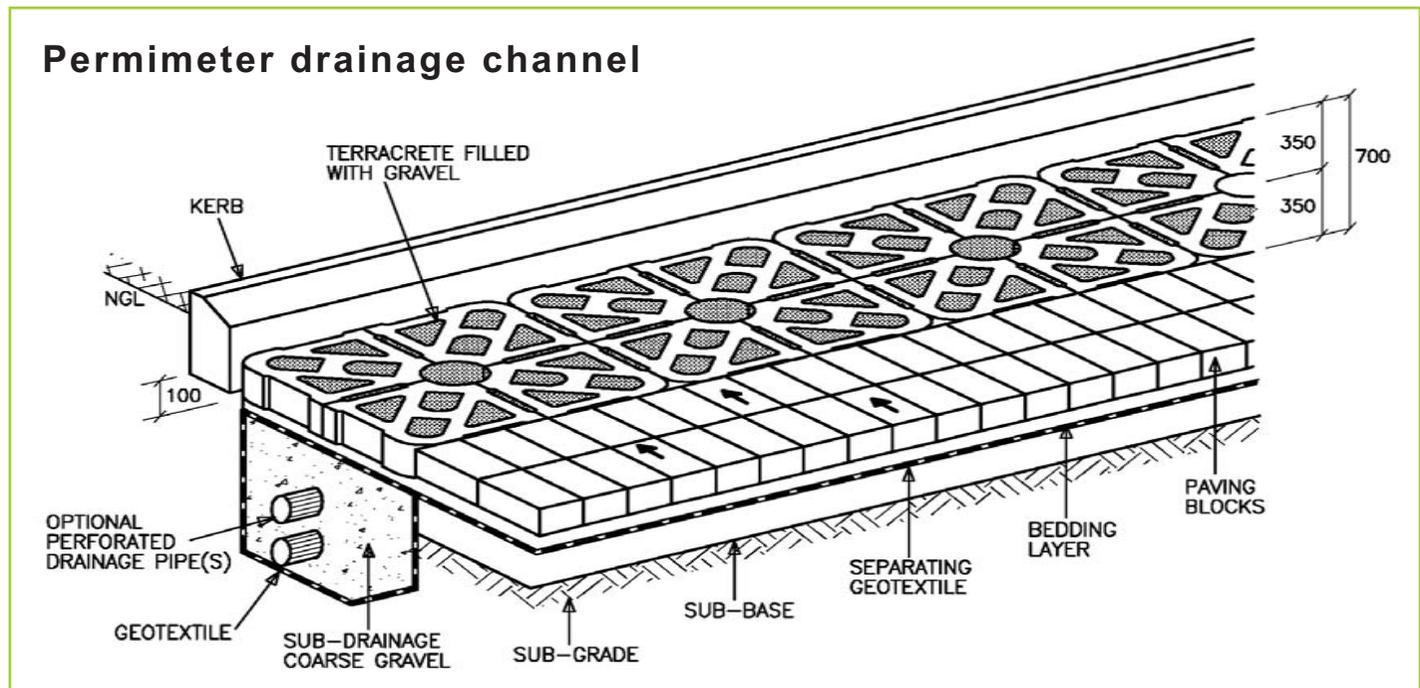
Rust estimates that this method will prove to be more cost-effective and easier to maintain than its alternatives. Rust also adds that Terraforce, together with its local and international licensees, continues to be committed to further developing the product and its applications, closely liaising with Industry experts, such as Dr Sohnke Borgwardt.



Parking area with Terracrete



Driveway for light traffic



Perimeter drainage channel