

THE **SMARTER** WAY TO MANAGE STORMWATER



www.rainsmartsolutions.com

THE RAINSMART ADVANTAGE

**SMARTER GLOBAL
STORMWATER MANAGEMENT
SOLUTIONS**



CORPORATE PROFILE

Rainsmart Solutions Pty Ltd is a unique company which provides engineered environmental solutions in the fields of geo-synthetic, stormwater management, and green roofs.

Rainsmart Solutions is a young dynamic company with vast team experience. The team comprises of professionals from engineering and environmental fields providing a creative and holistic approach to urban development in an environmentally sustainable manner. We offer a comprehensive range of engineered eco-friendly products and technical skills to ensure successful application of our products.

Since commencing business Rainsmart Solutions Pty Ltd. has expanded rapidly to become a leading designer and distributor of innovative landscape & engineering products and applications.

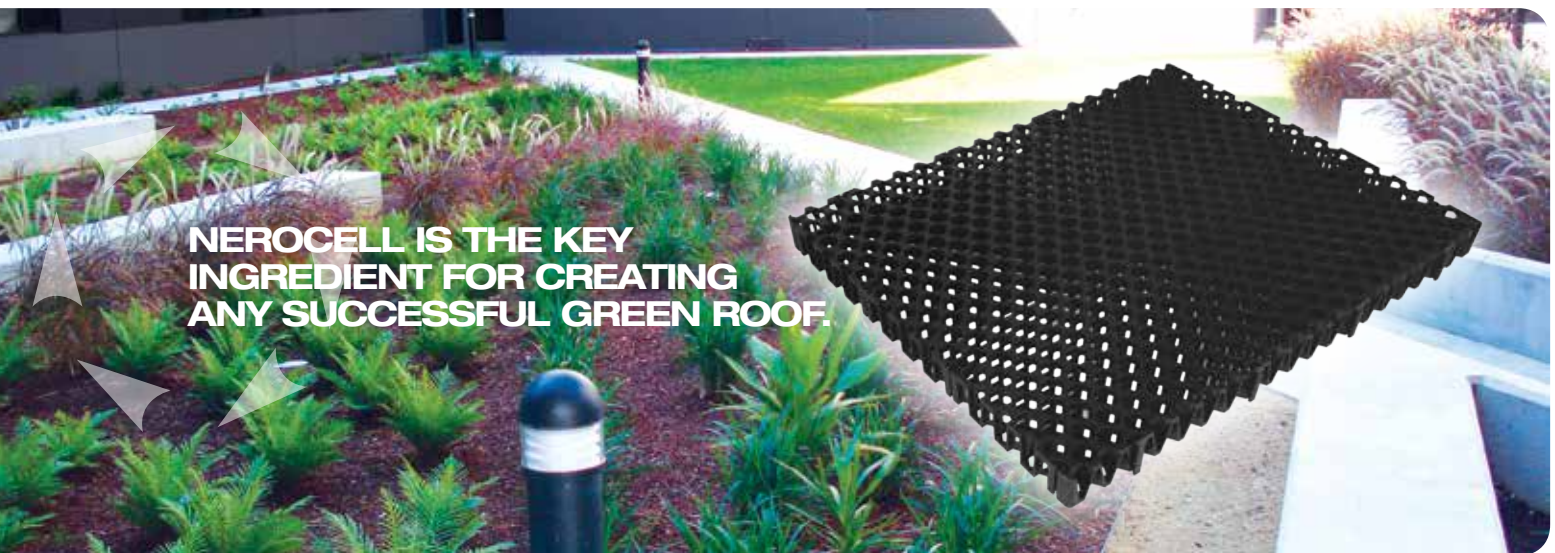
Our product range covers 50mm grass & gravel pavers for permeable car park and traffic surface, 30mm drainage cell for subsurface irrigation for roof & podium gardens, sub-soil drainage tank modules for underground retention, infiltration and stormwater detention tanks, we distribute our product range throughout Australia, Asia, Middle East, Europe and also service many other international markets.

Rainsmart Solutions Pty Ltd. has the support of professionals, dedicated and technically skilled distributor and agent network worldwide that works closely with specifiers and end-users to provide safe, sustainable, cost effective solutions to the construction, engineering and landscape industries.

Our track record is strong, and proven in designing and implementing some of the most complex and unique environmentally friendly projects. Please refer to some of our high profile projects on our "Recent Project" Section of the website.



PRODUCT INSIGHT



15 REASONS TO HAVE A RAINSMART ROOF GARDEN

1. Economic benefits
2. Saves on drainage charges
3. Increase the utility and value of the building
4. Increase the lifespan of the roof
5. Improved insulation from heat and cold
6. Reduce noise pollution
7. Regional subsidies available
8. Environmentally friendly
9. Retain plants and microhabitats on an area left to nature
10. Create new habitats for plants, animals, and people.
11. Reduce the strain on the sewerage system by improving water retention
12. Improve the climate through the resulting evaporation
13. Filter out dust and pollutants
14. Oxygen produced and CO₂ absorbed via photosynthesis
15. Reduce smog through absorption

✓ Lightweight

Only 3.5kg/m² compared to 250kg/m² of gravel.

✓ High load bearing capacity

Supports up to 150t/m² & construction traffic loads.

✓ Ideal conditions for plant growth

Unique cup structure holds approximately 85L/m² of perched water used for passive irrigation during prolonged dry periods. Excess water is removed.

✓ Easy and quick installation

Comes in pre-clipped panels for fast installation.

✓ No heavy machinery required

Easy to transport and carry.

✓ Environmentally friendly materials

Made from recycled plastic.

✓ Improves water quality

Unique hexagon cut-out design for multi-directional vortex flow to enhance oxygenation and improve water quality.

Rainsmart NeroCell drainage systems provide the perfect solution for creating a successful green roof without any traditional problems of leaking and cracking. The 30mm NeroCell drainage cells provide a uniform surface as well as internal void space for effective draining of excessive water during heavy rainfalls.

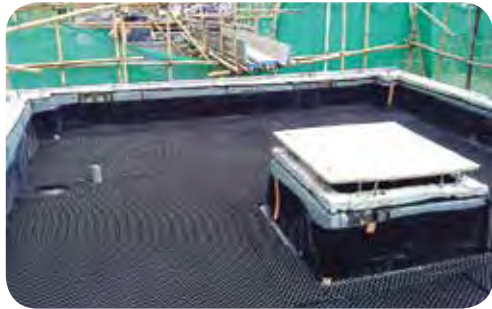
NeroCell systems' unique cup structures provide water retention for passive irrigation and build up a perched water table in the above soil profile for the vegetation to flourish in prolonged dry periods. NeroCell is made from recycled polypropylene and is inert to soil-borne bacteria and chemicals.

NeroCell's shallow and effective drainage profile helps landscapers make use of mature plants in a roof garden which needs soil depth and water retention properties.

High temperatures in summer cause thermal expansion in concrete and can cause water proofing to crack, but with its unique design and void properties, NeroCell helps this heat escape and hence reduce the risk of cracking, enhancing building life.

NERO CELL APPLICATIONS

PLANTER BOX



Water
Proofing Layer
Geotextile
30mm Nero
Drainage Cell
Coarse
Permeable Soil
Mix
Drainage
Outlet

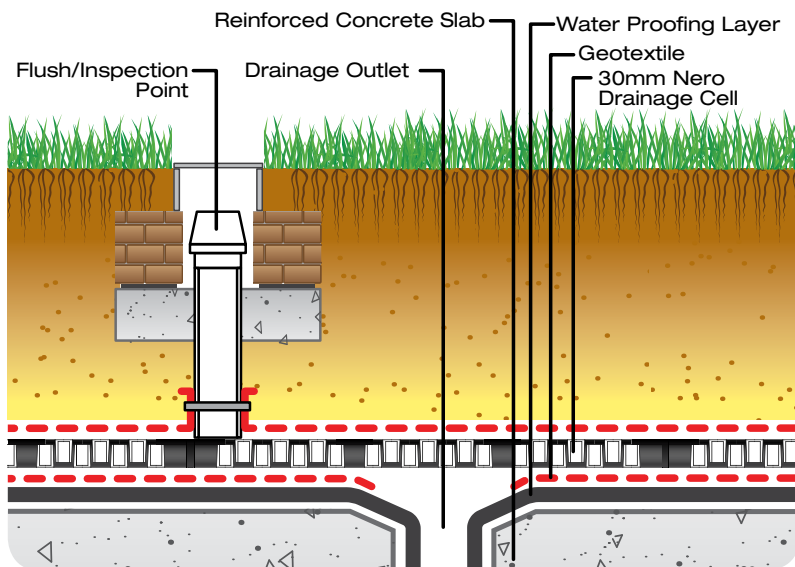
Rainsmart 30mm Nero Cell is an ideal light weight Drainage product for Planter Boxes. Its ability to remove only access water, and its ability to create a perched water table for the root zone, enhances plant growth and Green foliage.

The 30mm Nero Cell when used vertically on the planter box walls allows the heat from concrete to escape, and reduces the possibility of heat induced cracking in the waterproofing layer.

30mm Nero Drainage Cell also acts as an air gap and provides an insulation effect.

NERO CELL APPLICATIONS

HORIZONTAL DRAINAGE UNDER PAVED AREAS & PODIUM SLAB



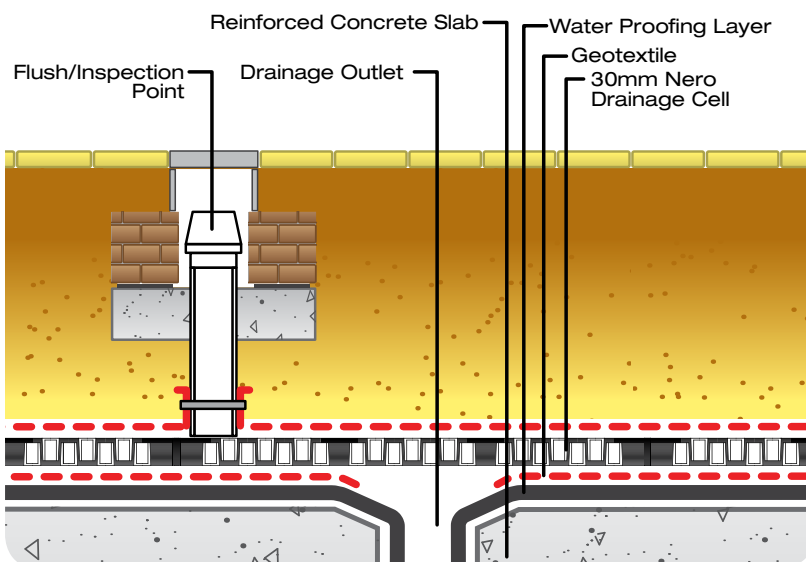
The concrete slab must have sufficient load bearing strength to support the soil depth required. 30mm Nero Drainage cell are extremely light weight, approximately 3.5 kg/m² compared with 250Kg/sqm of gravel draining material the low weight is an obvious advantage.

During heavy rainfall periods Podium & Roof gardens must be able to infiltrate water quickly, and transport it to the drainage outlet hence the horizontal water draining capacity is extremely important. 30mm Nero Drainage Cell creates a perfect void for draining access water, as there is no obstruction to the horizontal flow of water within the cell structure.

Furthermore, in certain dry periods the 30mm Nero Drainage Cell layer has cups which act as water reservoirs for the plants, providing passive irrigation.

NERO CELL APPLICATIONS

HORIZONTAL DRAINAGE UNDER PAVED AREAS & PODIUM SLAB

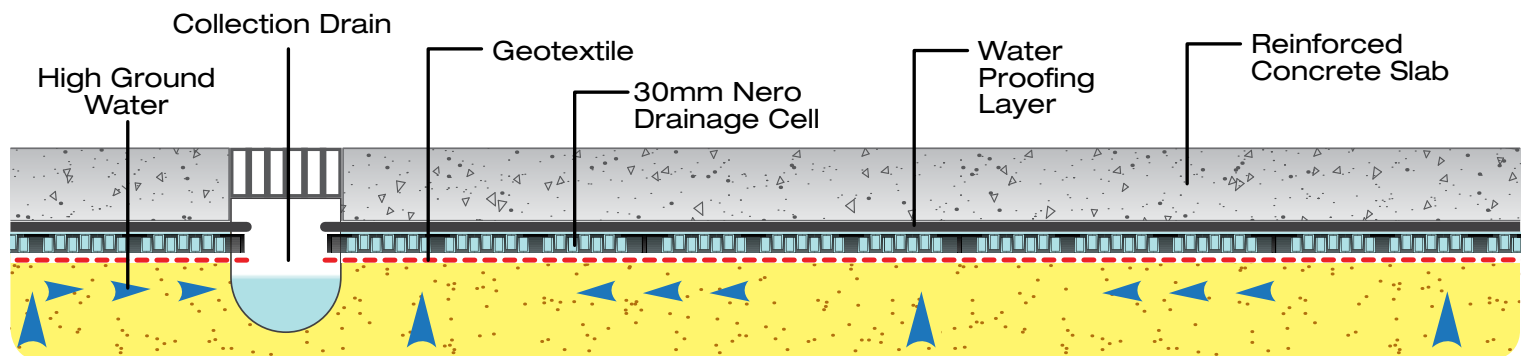
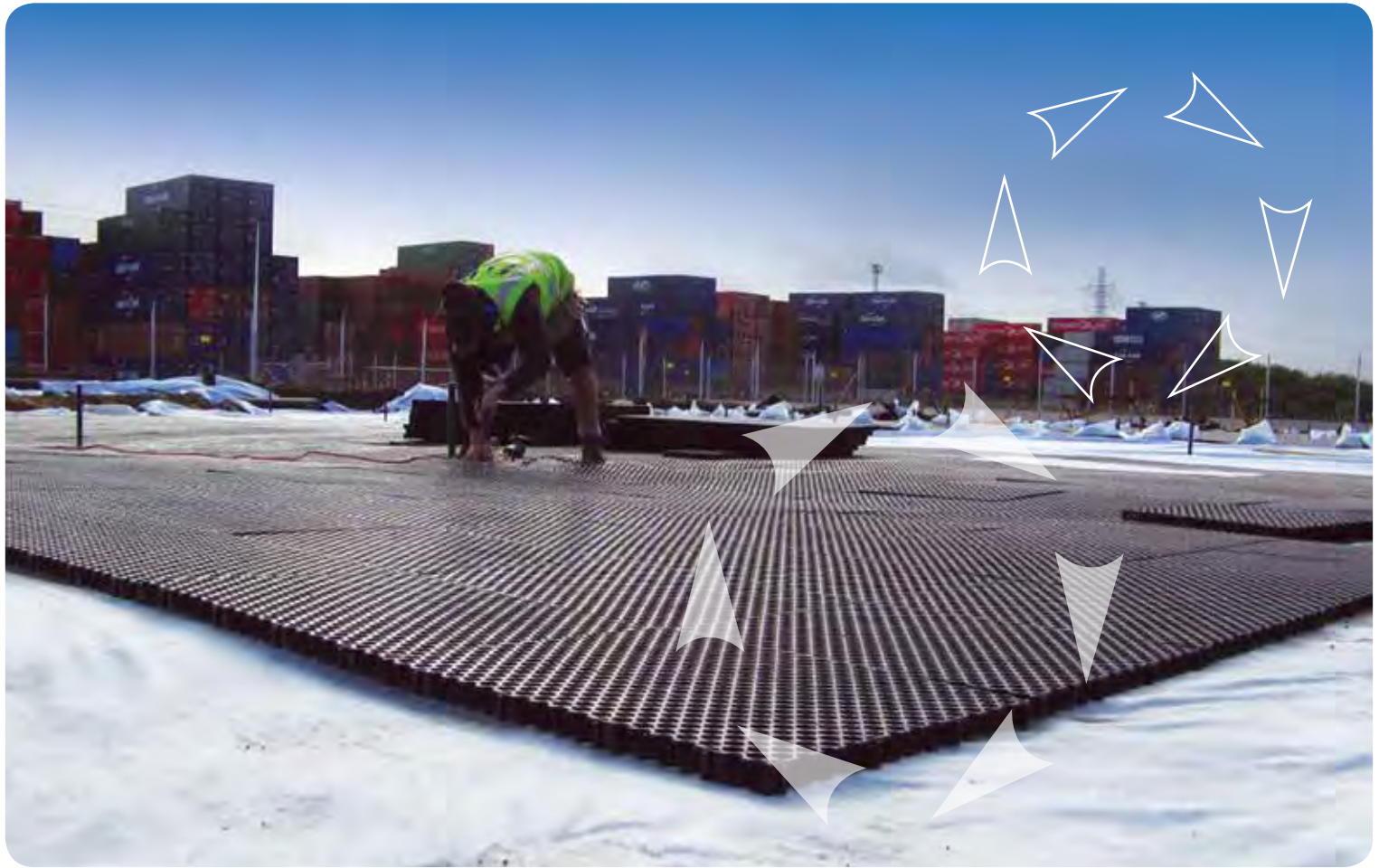


An intensive roof garden includes planting of small to medium shrubs, grassed areas and occasional trees. They can cover the entire area at the same level or be stepped up to form islands. Intensive roof planting projects need a lot of water supply, 30mm thick Nero Drainage cell offers a perfect drainage solution.

Its high load bearing capacity and water retention properties help designers to choose from a wide variety of plant species which adds life & colour to the garden.

NERO CELL APPLICATIONS

UNDERDRAIN FOR HIGH GROUND WATER TABLE



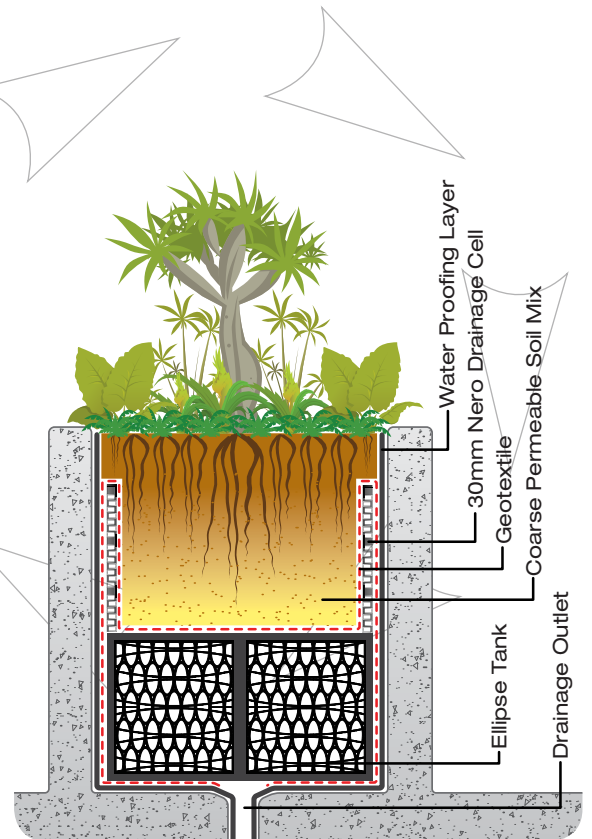
Rainsmart 30mm & 50mm Drainage Cells are very commonly used as an underdrain, to capture and discharge rising ground water and eliminating any hydrostatic pressure build-up.

The high load bearing capacity and a 95% internal void surface ratio makes it an ideal solution for parking lots, roads, and building foundations affected by high groundwater.

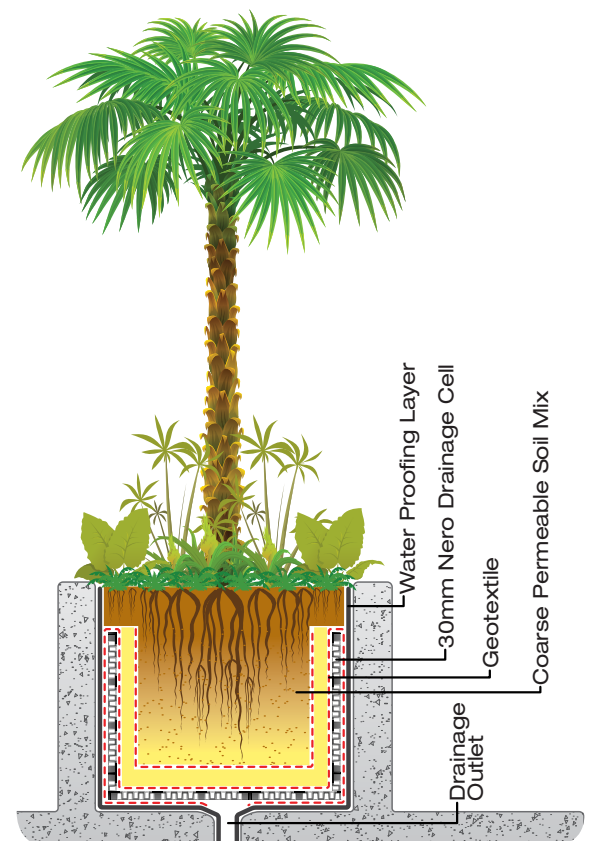
Nero Cell is also commonly used as a capillary break in saline environments in (i.e. reclaimed land), salt water rising through capillary action in root zones can destroy gardens. Void created by a layer of Nero Cell eliminates the rising capillary action and protects the sweet soil and root zone above it.

NERO CELL APPLICATIONS

VOID FILLER

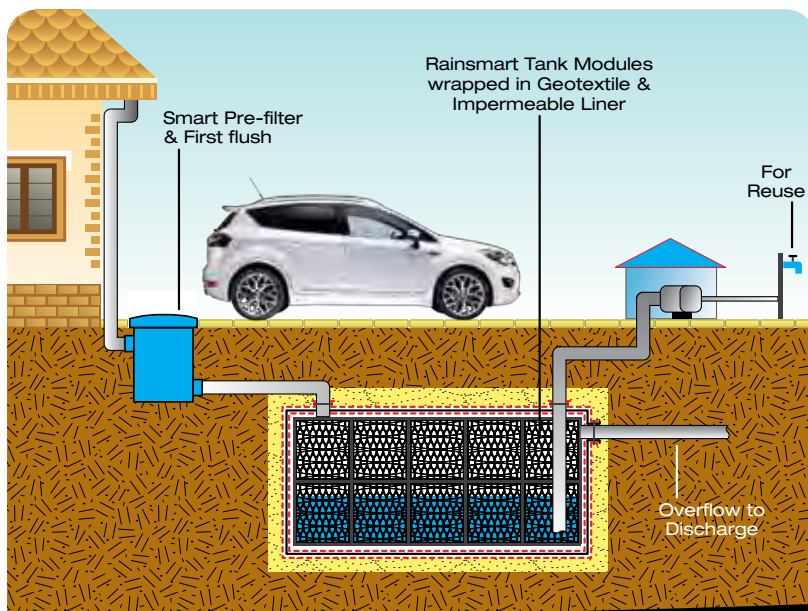


MATURE PLANTING



MODULAR TANK APPLICATIONS

RETENTION SYSTEM (RECYCLING)



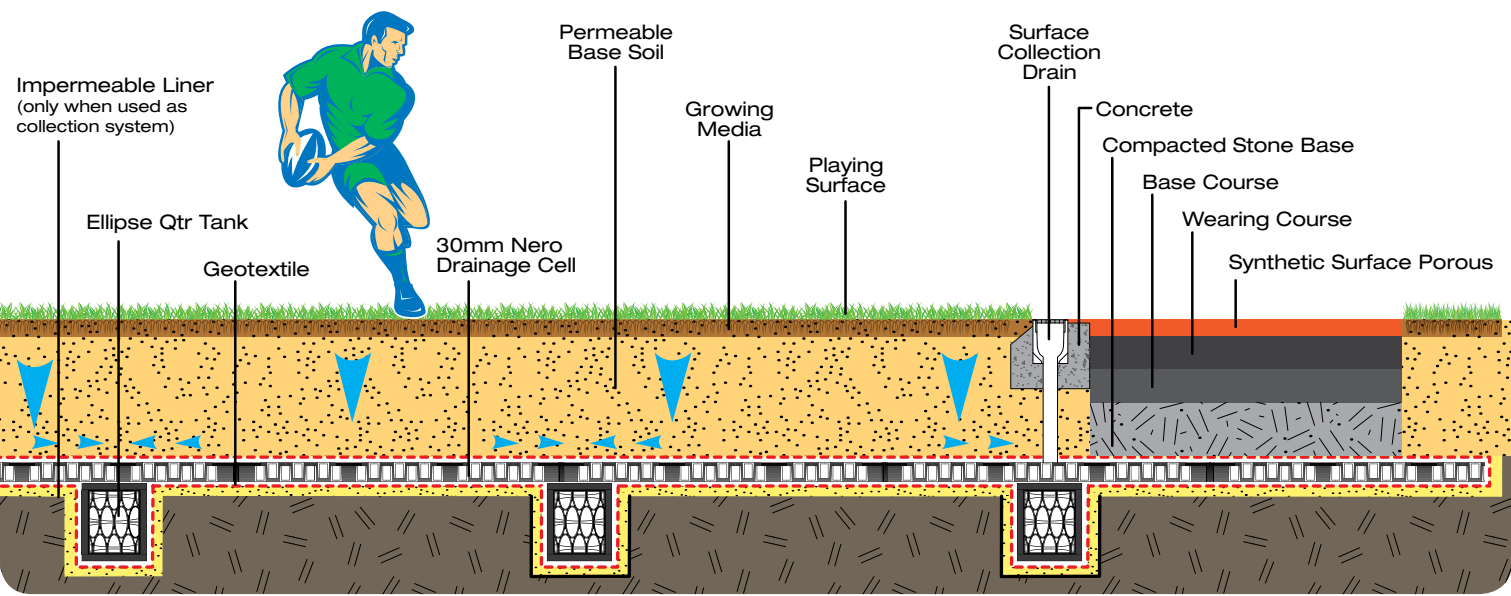
Rainwater harvesting has become more economical and a smarter approach to water management. This approach ensures stormwater is a precious resource rather than a problem.

In recent years Rainwater recycling concepts have made some water critical projects possible. Stormwater collected from impermeable surfaces like roofs, driveway, parking lots and roads can be filtered and stored underground in tanks for future use.

The tank modules are wrapped in high strength impermeable liner to avoid any water loss. The tank can be accessed via a surface pump through the common inspection and take off point. The rainwater can be used for irrigation of landscaped area, fire protection, car washing and/or industrial processes for thermal energy transfer. Rainwater can be used for household usage with appropriate online carbon and UV filters.

NERO CELL APPLICATIONS

SPORTS FIELDS



PRODUCT INSIGHT



16 REASONS TO HAVE RAINSMART NERO PAVE

1. Reduce impermeable areas in development
2. Filters Hydrocarbon Drips
3. Reduces impermeable surface and adds green space to the development
4. Reduce Stormwater Runoff rate and volume
5. Reduce urban heat Island effect
6. Reduces Erosion and Soil Migration.
7. Reduce Non point source pollution
8. Real reinforced Grass surface
9. Made up from Recycled Material
10. Recharges Groundwater
11. Multipurpose use of the surface
12. Reduce Stormwater infrastructure cost
13. Low Maintenance cost.
14. Complies with WSUD (Water Sensitive Urban Design)
15. Suitable for use as grass or gravel surface
16. Minimum site preparation and Easy installation

✓ Create Permeable Surface

Water infiltrates through the profile, reduces Stormwater Runoff and provides Bioremediation

✓ Reduces Surface Temperature

Grassed surface is much cooler, reducing the temperature around the building and in turn reducing the Heat Island effect.

✓ Reuse of Stormwater

Collected Stormwater can be reused and possible elimination of traditional stormwater systems.

✓ Lightweight & easy to install

The Nero Pave is supplied in 1.2 sqm pre-clipped panel making it easy to install by unskilled labourer without the use of any heavy machinery.

✓ Strong Structure & high load capacity

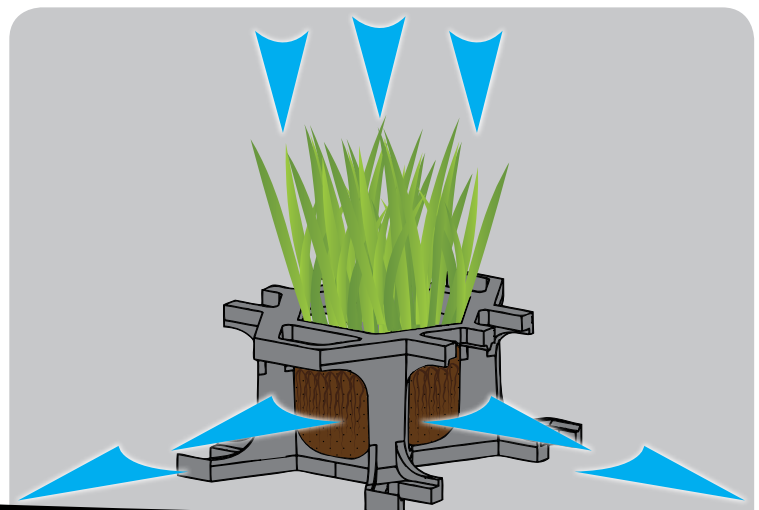
Nero Pave can support heavy loads up to 230 t/sqm unconfined, and suitable for heavy traffic movement.

✓ Allows multi directional Root Growth

Unique hexagonal cut-outs and 3-dimensional open grid design allows for unrestricted lateral and vertical root development. This forms an interlockable grid effect once established.

✓ Provides protection and anti compaction

Nero pave cell structure provides a protective casing around the grass nodule making grass regeneration quick and efficiently. At the same time provides protection for the root zone from compaction due to Pedestrian and vehicular activities resulting in a naturally looking vegetated surface.



NERO PAVE APPLICATIONS

PERMEABLE GRASS PAVING



Existing Ground Surface

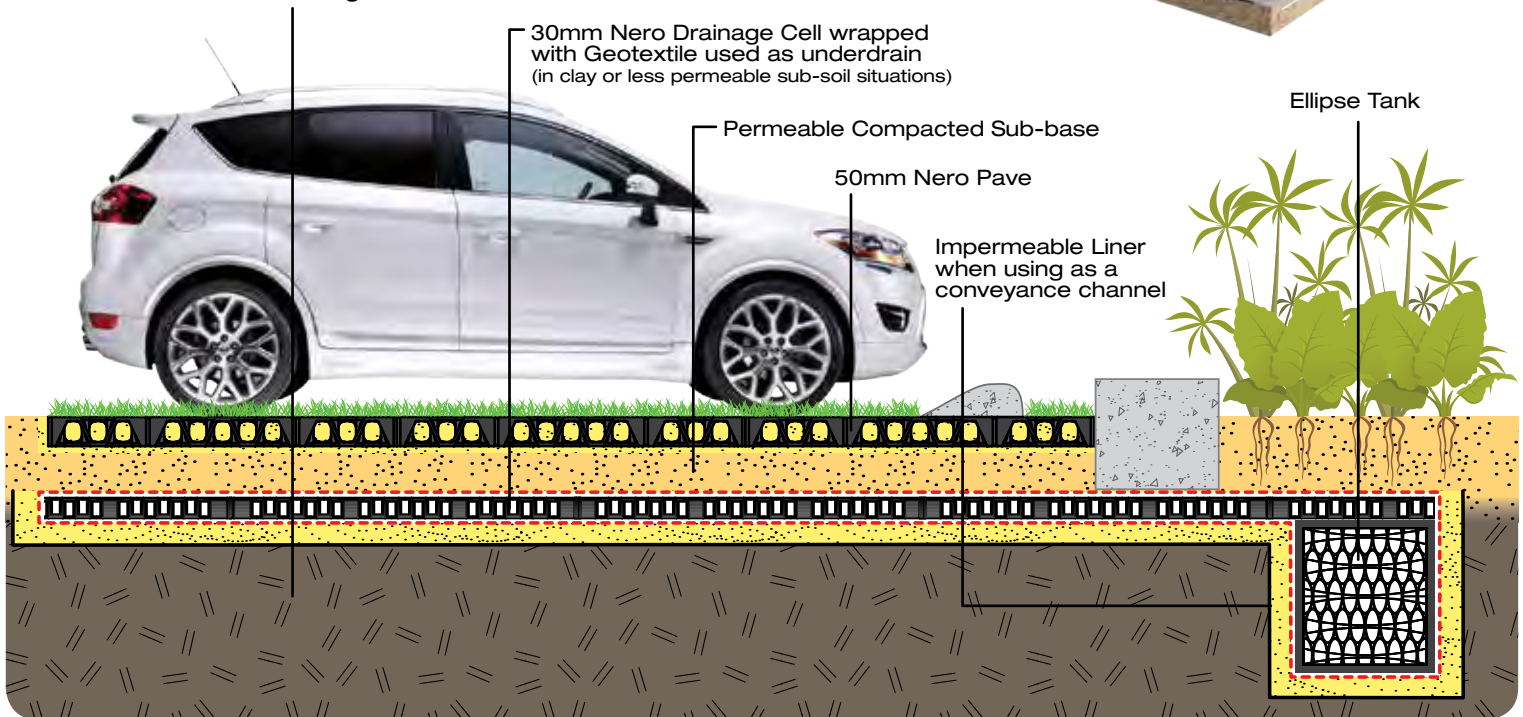
30mm Nero Drainage Cell wrapped with Geotextile used as underdrain
(in clay or less permeable sub-soil situations)

Permeable Compacted Sub-base

50mm Nero Pave

Impermeable Liner when using as a conveyance channel

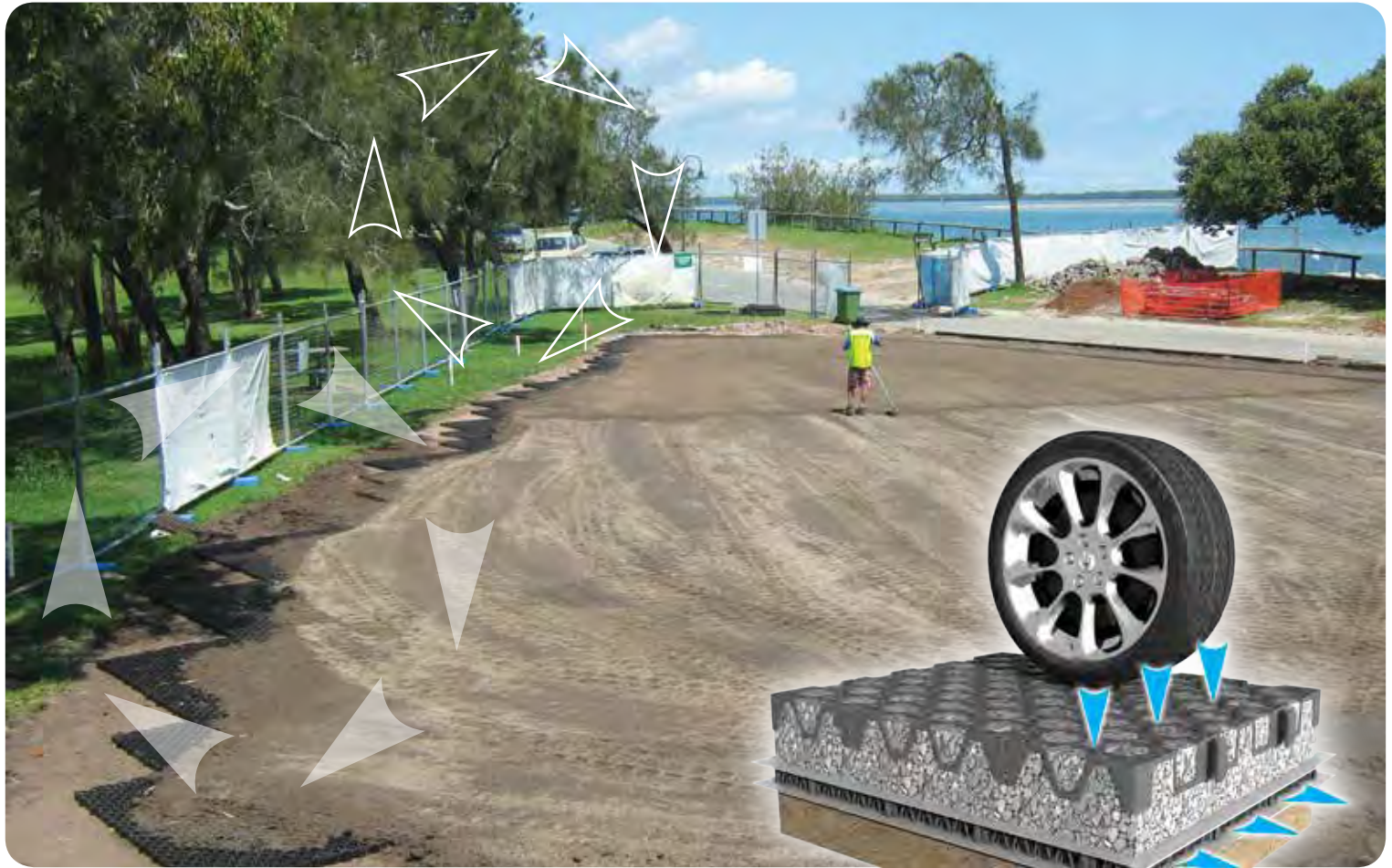
Ellipse Tank



Nero pave allows you to create a Permeable Grassed surface for parking, or driving. Nero Pave provides a high load bearing capacity while protecting vegetation from compaction. 95% internal void ratio means more space for root development and stormwater infiltration. Surfaces installed with Nero pave can reduce or eliminate the need for traditional stormwater structures. Porous surfaces reduce run-off, increase groundwater recharge, and improve quality of stormwater discharge.

NERO PAVE APPLICATIONS

PERMEABLE GRAVEL PAVING



Existing Ground Surface

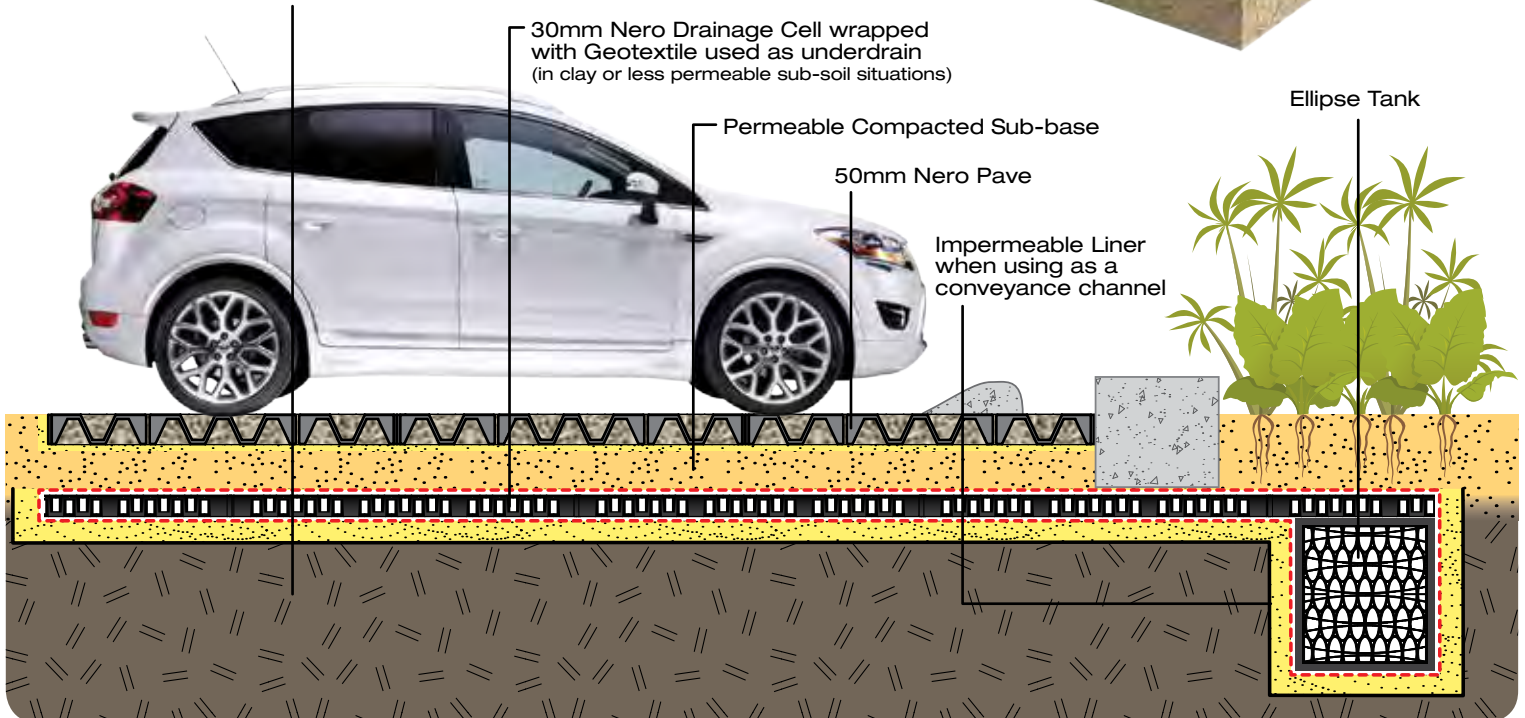
30mm Nero Drainage Cell wrapped with Geotextile used as underdrain
(in clay or less permeable sub-soil situations)

Permeable Compacted Sub-base

50mm Nero Pave

Impermeable Liner when using as a conveyance channel

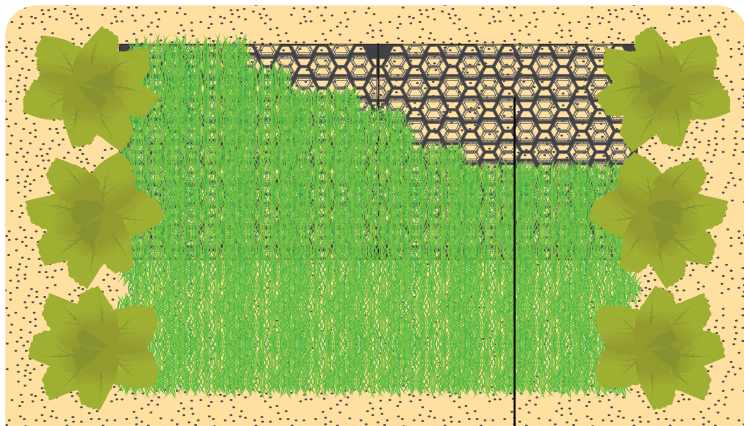
Ellipse Tank



Nero pave allows creating a Permeable gravel surface for parking, or driving. Nero Pave provides a high load bearing capacity while providing a perfect containment of gravel. Extensively used parking surfaces can be maintenance free using gravel filled Nero Pave.

NERO PAVE APPLICATIONS

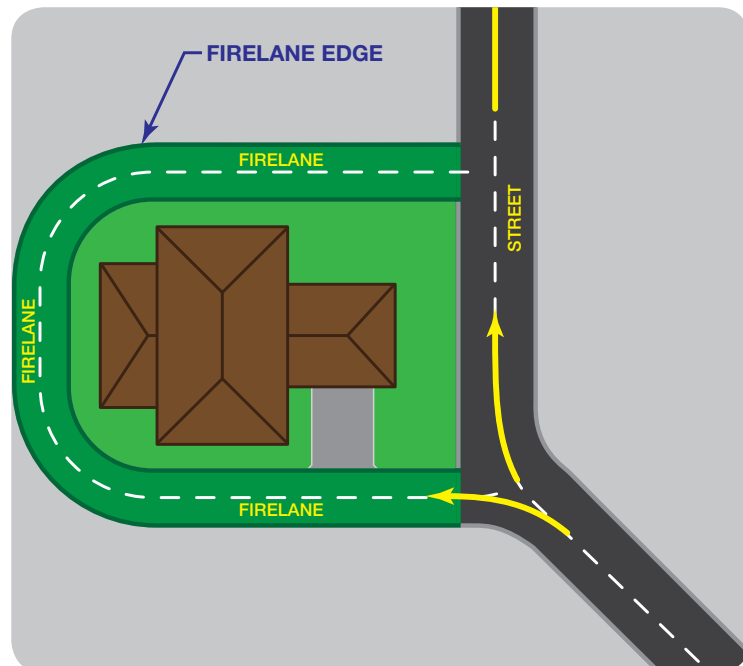
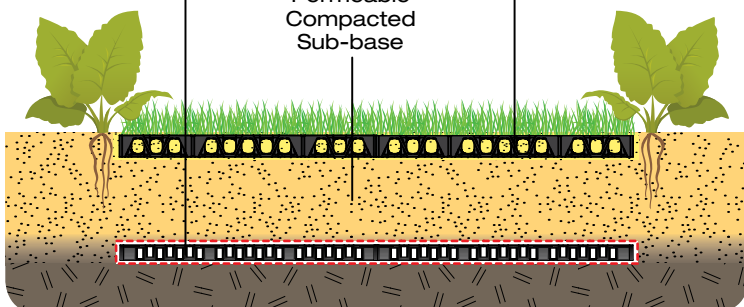
ACCESS ROADS



30mm Nero Drainage Cell
wrapped with Geotextile
used as underdrain
(in clay or less permeable
sub-soil situations)

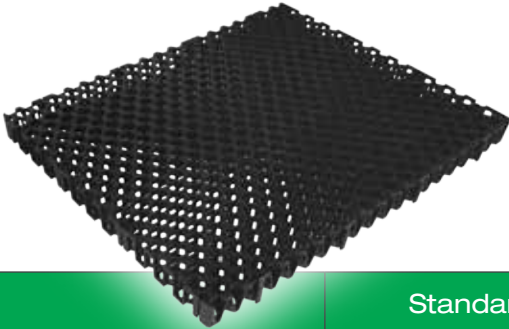
50mm Nero Pave

Permeable
Compacted
Sub-base



Fire lanes are constructed of a hard, all-weather surface capable of supporting the heaviest emergency vehicle and equipments. High confined crush strength of NeroPave offers a fast, economically feasible and proven solution to Fire lanes and Access lane construction.

NERO DRAINAGE CELL (30mm / 1.18")



Special Features:

- Unique cup structures which provides passive irrigation during prolonged dry weather. And only removes excess water.
- Unique hexagon cut-out design for multi directional vortex flow to enhance oxygenation and improve water quality.
- Unique surface design to manage optimum vertical flow and create perch water table on the surface & in the above permeable soils.
- Largest piece size (500mm x 600mm) with clips for fast and easy installation.
- High Crush Strength to support Heavy loads.

	Standard Used	Metric	Imperial
Width		500mm	1,64'
Length		600mm	1,97'
Height		30mm	1.18"
Surface Void Area		> 68% void	
Internal Void Area		95%	
Material		90% Recycled Polypropylene + 10% Propriety Mix	
Colour		Black	
Biological & Chemical Resistance		Unaffected by moulds and algae, soil-borne chemicals, bacteria and bitumen, Oils & light Acid, Alkaline Solutions.	
Service Temperature		-10°C to 85°C	-14F to 185 °F
Compressive Strength/ Ultimate Load	ASTM D1621	>140 t/m ²	> 199.12 psi
Flow Rate	ASTM D4716	>18.95 Ltrs/m.s @1%gradient	> 5.02 gals/m.s @1%gradient

NERO PAVE (50mm / 2.0")



	Standard Used	Metric	Imperial
Width		500mm	1,64'
Length		600mm	1,97'
Height		50mm	1.96"
Surface Void Area		>90% void	
Internal Void Area		>95% void	
Material		90% Recycled Polypropylene +10% Propriety Mix	
Biological & Chemical Resistance		Unaffected by moulds and algae, soil-borne chemicals, bacteria and bitumen	
Service Temperature		-10°C to 85°C	-14°F to 185°F
Compressive Strength/ Ultimate Load	ASTM D1621	>225 t/m ²	>320.02 psi
Flow Rate per unit width unfilled	ASTM D4716	>23.5 lt/m.s @ 1% gradient	>6.20 gals/m/s @ 1% gradient

COMPRESSIVE STRENGTH TEST - CONFINED FILLED WITH SAND

Filled with sand	Area (sqm)	Area (sq inches)	Load (Kg)	Load (Lbs)	Compressive strength (t/m ²)	Compressive Strength (PSI)
*110 mm diameter load.	0.03799 m ²	58.884 in ²	169650.61	374015.10	±4465.66	± 6351.662

THE SMARTER WAY TO MANAGE STORMWATER



RAINSMART HEAD OFFICE

2/12 Stoddart Road
Prospect, Sydney - NSW - 2148
Australia

Ph: +61 2 9631 6555

Fax: +61 2 9631 6556

Email: info@rainsmartsolutions.com

Web: www.rainsmartsolutions.com



Distributor Details:

LAURIE VERCOE

Rainsmart-National BDM

Mobile: +64 21 936 730

Email: info@gpil.co.nz

www.gpil.co.nz

NOTE: All RainSmart Products and Systems are Design Registered or Design Registration Pending.

Safety Factors: Engineers, designers and geotechnical engineers should design and calculate safety factors to a serviceable limited state to suit specific project. In case of doubt, consult your nearest distributor or representative.

Disclaimer: All information provided in this publication is correct to the best knowledge of the company and is given out in good faith. This information is intended only as a general guide, no responsibility can be accepted for any errors, omissions or incorrect assumption. As each project is unique, and as Rainsmart Solutions Pty Ltd. and its distributors and agents worldwide have no direct control over the methods employed by the user in specifying, installing or supervising of its products hence no responsibility is accepted by Rainsmart Solutions Pty Ltd. and its distributors and agents worldwide. Users should satisfy themselves as to the suitability of the product for their purpose.