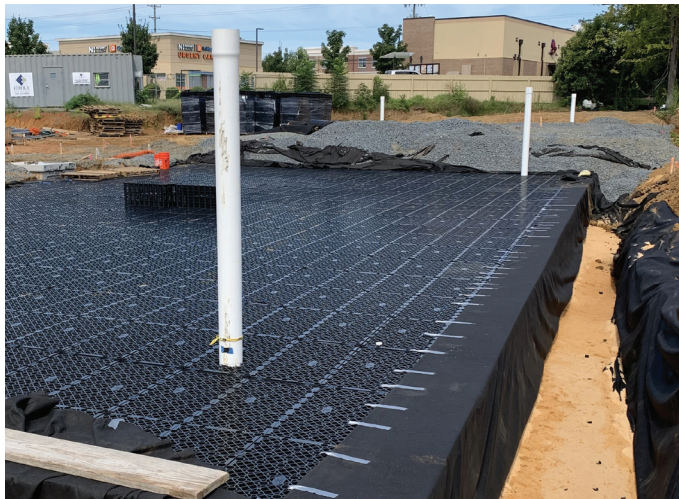
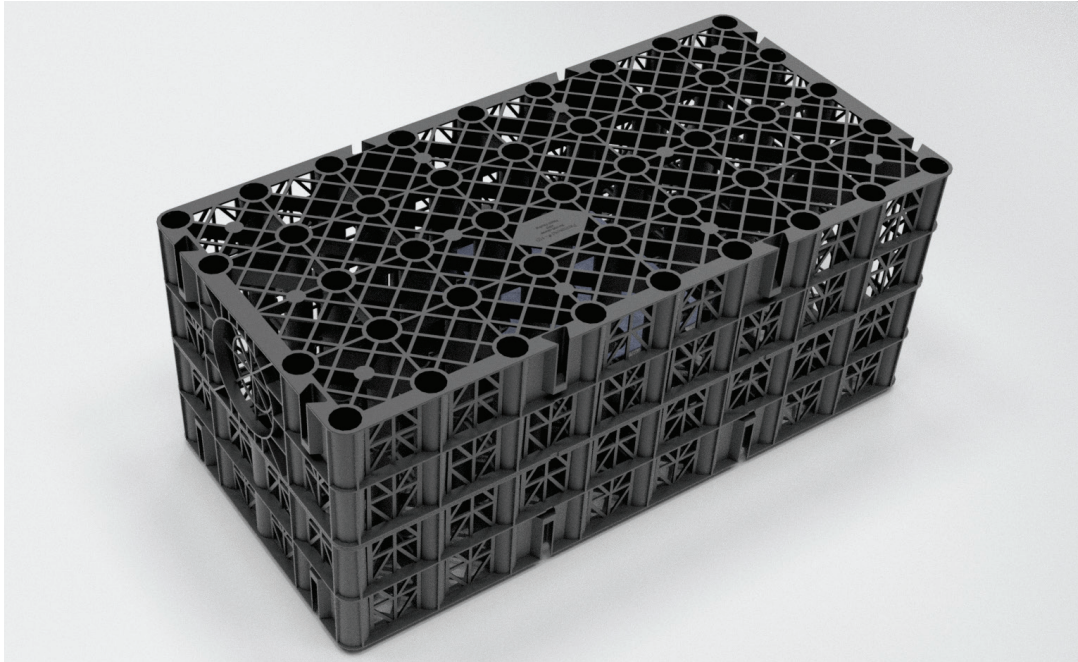


# Permavoid® 400MD™

GEOCELLULAR SYSTEM FOR END-OF-LINE APPLICATIONS



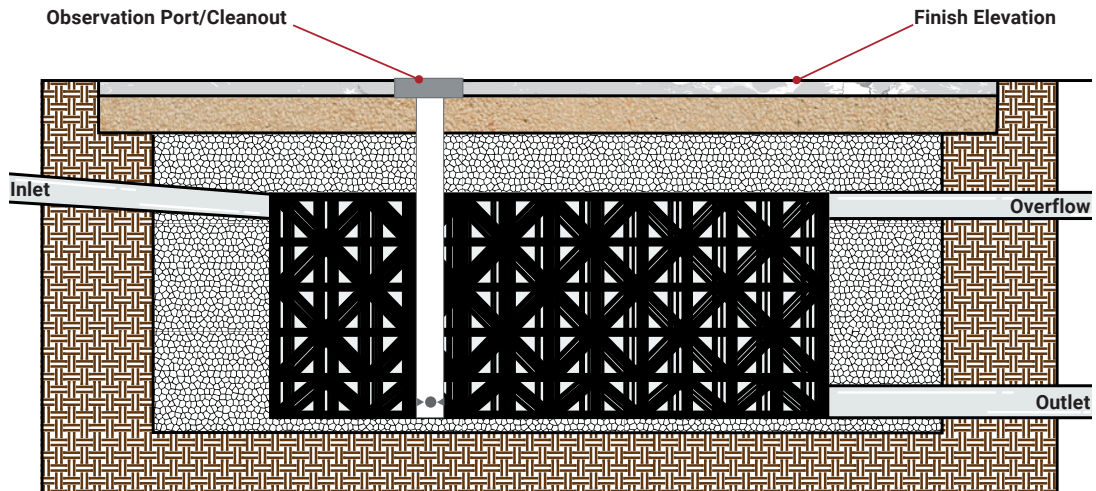
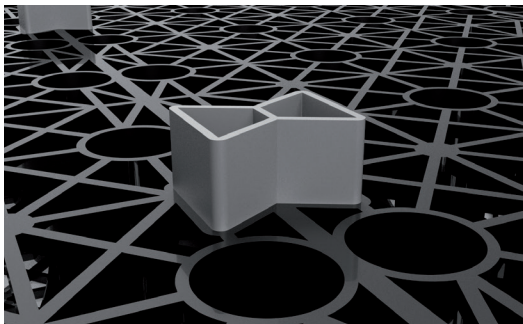
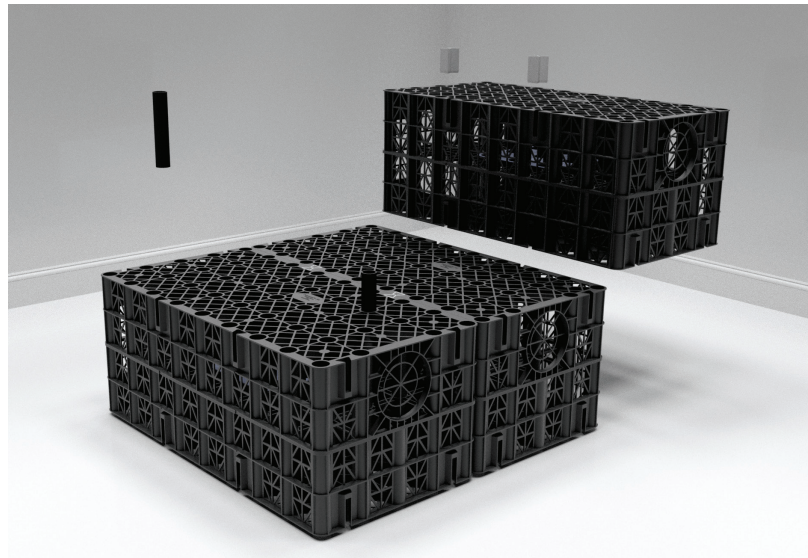
PERMAVOID 400MD

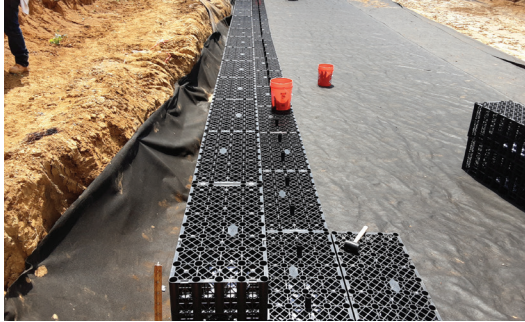


## Permavoid® 400MD™

Permavoid 400MD Geocellular System is designed to manage end-of-line bulk volumes of storm water for retention, attenuation or infiltration. It has been structurally tested in accordance with Ciria C680; the only known protocol that measures long term performance such as “plastic creep” for geocellular modular structures.

Developed in Holland for use in dynamic soil applications, interlocking mechanical keys are used to create a monolithic plane or structural raft. This structural raft transfers physical loads over greater areas and limits differential settlement. Whereas most modular, geocellular systems are individual columns held in place by the surrounding substrate and are influenced by poor soils and concentric loads.



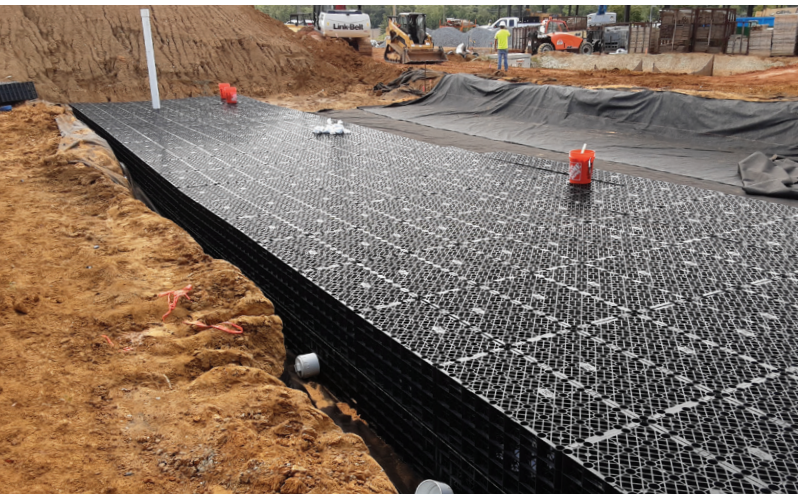


The premanufactured modules lower the cost to construct underground storage systems because there is no individual unit assembly required. This benefit also negates the structural failures seen due to field assembly on similar competing products.

The assembled units can easily be stored off site and placed more rapidly reducing sub trade conflict during construction and thereby expediting the project finish.



When guidelines are followed, these robust units allow interim construction by allowing traffic through the critical path prior to the final paving. Allowing construction traffic prior to final paving provides a lower cost, more aesthetic product to be delivered to the owner for less money.



## Benefits & Advantages

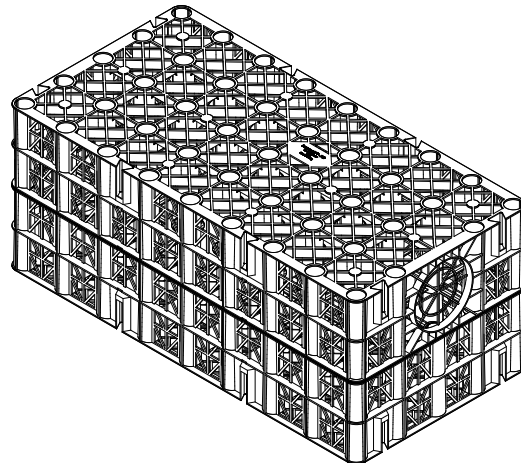
- 95% void ratio providing greater water storage capacity with reduced excavation and disposal costs
- 3D flow throughout the structure removes the need for distribution pipes
- Access for inspection and maintenance can be facilitated by the inclusion of Permavoid inspection ports.
- Modular units allow flexibility of shape, ideal for narrow strips or restricted areas
- Lightweight yet robust, affording excellent Health and Safety and installation benefits
- Unique rounded corners for ease of use and reduced likelihood of membrane punctures
- Suitable for most end of line tank applications
- Suitable for retention, attenuation and infiltration systems
- The modular cells are manufactured from polypropylene
- 100% recyclable at the end of its service life

PHYSICAL PROPERTIES		
Material	Polypropylene	
Weight per unit	21.9 lbs	9.9 kg
Length	39.37 in	1000 mm
Width	19.69 in	500 mm
Depth	15.75 in	400 mm
Area per unit	5.382 ft <sup>2</sup>	0.500 m <sup>2</sup>
Occupied volume per unit	7.063 ft <sup>3</sup>	0.200 m <sup>3</sup>
STRUCTURAL PROPERTIES		
Vertical compressive yield	88.5 psi	610 kPa
Lateral compressive yield	9.1 psi	63 kPa
Vertical deflection strength	221 psi / in	60 kPa/mm
Lateral deflection strength	16.2 psi / in	4.4 kPa/mm
Vertical creep limit (60 year)	23.5 psi	162 kPa
Lateral creep limit (60 year)	4.5 psi	30.9 kPa
HYDRAULIC PROPERTIES		
Average perforate surface area	55%	
Volumetric void ratio	95%	
Void volume per unit	6.710 ft <sup>3</sup>	0.190 m <sup>3</sup>
OTHER PROPERTIES		
Recycled content	100%	
Recyclability	100%	
Country of origin	United States of America	

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