



Example Specification

Polystorm
NBS Specification

July 2014

R12 DRAINAGE BELOW GROUND

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STORAGE TANKS – PLASTIC UNITS

Manufacturer: Polypipe Civils

Product reference: Polystorm

Polystorm is a range of structurally strong individual cells built up to form a free standing structure. Having a high void ratio the system will provide either an attenuation or infiltration drainage solution.

Consult with Polypipe Civils for recommendations and details.

Refer to Engineer Drawings xxxxxx

Polystorm PSM 1

BBA Cert 06/4297

Size: 1000mm x 500mm x 400mm

Material: Polypropylene

Weight: 9kg

Storage Volume: 190 litres

Load bearing Capacity: 40 tonnes

Volumetric void ratio: 95%

Inlet Connections: xxx mm

Outlet pipe diameter: xxx mm.

Silt trap: Consult with Polypipe Civils for recommendations and details.

Installation: Consult with Polypipe Civils for recommendations and details.

Polystorm-R PSM 1A

BBA Cert 06/4297

Size: 1000mm x 500mm x 400mm

Material: 95% Recycled Polypropylene

Weight: 9kg

Storage Volume: 190 litres

Load bearing Capacity: 61 tonnes

Volumetric void ratio: 95%

Inlet Connections: xxx mm

Outlet pipe diameter: xxx mm.

Silt trap: Consult with Polypipe Civils for recommendations and details.

Installation: Consult with Polypipe Civils for recommendations and details.

Polystorm Lite PSM 2

BBA Cert 06/4297

Size: 1000mm x 500mm x 400mm

Material: Polypropylene

Weight: 7kg

Storage Volume: 190 litres

Load bearing Capacity: 20 tonnes

Volumetric void ratio: 95%

Inlet Connections: xxx mm

Outlet pipe diameter: xxx mm.
Silt trap: Consult with Polypipe Civils for recommendations and details.
Installation: Consult with Polypipe Civils for recommendations and details.

Polystorm Xtra PSM 3
Size: 1000mm x 500mm x 210mm
Material: Polypropylene
Weight: 6kg
Storage Volume: 98 litres
Load bearing Capacity: 80 tonnes
Volumetric void ratio: 94%
Inlet Connections: xxx mm
Outlet pipe diameter: xxx mm.
Silt trap: Consult with Polypipe Civils for recommendations and details.
Installation: Consult with Polypipe Civils for recommendations and details.

Polystorm Inspect PSM 4
Size: 1000mm x 500mm x 400mm
Material: Polypropylene
Weight: 9kg
Storage Volume: 188 litres
Load bearing Capacity: 40 tonnes
Volumetric void ratio: 95%
Inlet Connections: xxx mm
Outlet pipe diameter: xxx mm.
Silt trap: Consult with Polypipe Civils for recommendations and details.
Installation: Consult with Polypipe Civils for recommendations and details.

Polystorm Access

A 1000mm x 500mm access shaft shall be formed within the Polystorm geocellular structure.
Access base units to be provided at the base of the inspection shaft and to be interlocked with the Polystorm cells.
An access turret unit shall be installed on top of the Polystorm structure, above the inspection shaft
A 500mm diameter inspection shaft shall be extended from the access turret on the surface of the Polystorm structure to finished ground level.
A 350mm reduced access shaft cap at the top of the shaft shall be installed to conform with inspection chamber regulations.

The transport, handling and storage of materials shall be carried out in accordance with Polypipe's recommendations, subject to the approval of the Engineer.

The Geocellular units shall be installed strictly in accordance with the manufacturer's recommendations and in a manner that will not cause damage.

The constructed conduits shall be surrounded with a suitable separation/filtration geotextile prior to carefully backfilling with material approved by the Engineer.
Bedding layers and backfills shall be as specified by the Engineer.

Jointing: each unit shall be connected to adjacent units with purpose-made interlocking clips to prevent lateral displacement.

Workmanship generally: Pre-laying checks: surface acceptability; before laying check that substrate surfaces are compacted and free from ridges and undulations

Accessories: Jointing clips, Shear Connectors, Flange adaptors

SOAKAWAY SYSTEMS – PLASTIC UNITS

Manufacturer: Polypipe Civils

Product reference: Polystorm

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Refer to Engineer Drawings xxxxxx

Polystorm PSM 1

BBA Cert 06/4297

Size: 1000mm x 500mm x 400mm

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Weight: 9kg

Storage Volume: 190 litres

Load bearing Capacity: 40 tonnes

Volumetric void ratio: 95%

Inlet Connections: xxx mm

Outlet pipe diameter: xxx mm.

Silt trap: Consult with Polypipe Civils for recommendations and details.

Installation: Consult with Polypipe Civils for recommendations and details.

Polystorm-R PSM 1A

BBA Cert 06/4297

Size: 1000mm x 500mm x 400mm

Material: 95% Recycled Polypropylene

Weight: 9kg

Storage Volume: 190 litres

Load bearing Capacity: 61 tonnes

Volumetric void ratio: 95%

Inlet Connections: xxx mm

Outlet pipe diameter: xxx mm.

Silt trap: Consult with Polypipe Civils for recommendations and details.

Installation: Consult with Polypipe Civils for recommendations and details.

Polystorm Lite PSM 2

BBA Cert 06/4297

Size: 1000mm x 500mm x 400mm

Material: Polypropylene

Weight: 7kg

Storage Volume: 190 litres

Load bearing Capacity: 20 tonnes
Volumetric void ratio: 95%
Inlet Connections: xxx mm
Outlet pipe diameter: xxx mm.
Silt trap: Consult with Polypipe Civils for recommendations and details.
Installation: Consult with Polypipe Civils for recommendations and details.

Polystorm Xtra PSM 3
Size: 1000mm x 500mm x 210mm
Material: Polypropylene
Weight: 6kg
Storage Volume: 98 litres
Load bearing Capacity: 80 tonnes
Volumetric void ratio: 94%
Inlet Connections: xxx mm
Outlet pipe diameter: xxx mm.
Silt trap: Consult with Polypipe Civils for recommendations and details.
Installation: Consult with Polypipe Civils for recommendations and details.

Polystorm Inspect PSM 4
Size: 1000mm x 500mm x 400mm
Material: Polypropylene
Weight: 9kg
Storage Volume: 188 litres
Load bearing Capacity: 40 tonnes
Volumetric void ratio: 95%
Inlet Connections: xxx mm
Outlet pipe diameter: xxx mm.
Silt trap: Consult with Polypipe Civils for recommendations and details.
Installation: Consult with Polypipe Civils for recommendations and details.

Polystorm Access

A 1000mm x 500mm access shaft shall be formed within the Polystorm geocellular structure.
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A 350mm reduced access shaft cap at the top of the shaft shall be installed to conform with inspection chamber regulations.

The transport, handling and storage of materials shall be carried out in accordance with Polypipe's recommendations, subject to the approval of the Engineer.

The Geocellular units shall be installed strictly in accordance with the manufacturer's recommendations and in a manner that will not cause damage.

The constructed conduits shall be surrounded with a suitable separation/filtration geotextile prior to carefully backfilling with material approved by the Engineer. Bedding layers and backfills shall be as specified by the Engineer.

Jointing: each unit shall be connected to adjacent units with purpose-made interlocking clips to prevent lateral displacement.

Workmanship generally: Pre-laying checks: surface acceptability; before laying check that substrate surfaces are compacted and free from ridges and undulations

Accessories: Jointing clips, Shear Connectors, Flange adaptors

GEOTEXTILE MEMBRANES – FILTER

Manufacturer: Polypipe Civils

Product reference: Permafilter SuDS Treatment Geotextile

Material: Non-woven, dimpled, needle punched polymeric material comprising a proprietary blend of polyester fibres

Size: 2.4m x 100m roll or 5.25 x 50m roll

The dimpled geotextile shall incorporate hydrophilic (water attracting / oil repellent) and hydrophobic (oil attracting / water repellent) properties to achieve oil retention.

Physical Properties shall be:

Element	Unit	Value
Physical Properties		
Weight per unit EN 965	g/m ²	300
Mechanical properties		
Tensile strength EN ISO 10319 (md / cmd)	KN/m	9 / 12
Elongation at max. load EN ISO 10319 (md / cmd)	%	56 / 55
Static puncture (CBR-Test) EN ISO 12236	N	1575
Push-through displacement EN 918 (cone drop test)	mm	27
Characteristic opening size, O ₉₀ EN ISO 12956	µm	77
Hydraulic Properties		
Water permeability EN ISO 11058	L/m ² /s	57
Other Properties		
Air permeability ISO 9237	L/m ² /s	1000
Maximum Oil Retention	L/10 m ²	6
Effluent discharge at max. oil loading	ppm	10

Jointing: 300mm overlap

Installation: Remove humps and sharp projections and fill hollows before laying.

Protect from damage due to:

- Exposure to light, except during laying (maximum five hours)
- Contaminants

- Materials listed as potentially deleterious by geotextile manufacturer
- Damage, until fully covered by fill
- Wind uplift, by laying not more than 15 m before covering with fill

GEOTEXTILE MEMBRANES – IMPERVIOUS

Manufacturer: Polypipe Civils

Product reference: Heavy Duty Impermeable Geomembrane

Material: Polypropylene

Size: 2m x 100m, 3m x 100m and 6m x 100m roll

A single layer cold applied robust welded flexible membrane suitable for waterproofing to structures and for water containment. Membrane to be nominal 1mm thick laid with welded seams.

Physical Properties shall be:

Property	Test Method	Value	Unit
Thickness	ASTM D-751	1	mm
Density	ASTM D-792	0.9	g/cm ³
Tensile Stress	ASTM D-638	18	N/mm
Elongation	ASTM D-638	>700	5
Puncture Resistance	FTMS 101C (method 2065)	150	N
Tear Resistance	ASTM D-1004	60	N
Dimensional Stability	ASTM D-1204 (1hr @ 100°C)	2	%
Stress Crack Resistance	ASTM 5397	100	%
Volatile Loss (5% loss max)	ASTM D-1203 (method A)	0.2	%
Ozone Resistance	ASTM D-1149	No Cracks	
Carbon Black Content	ASTM 1603	2-3	%
Moisture Vapour	ASTM E96	<0.1	g/m ² /day

Jointing: min. 120mm overlaps

- Application temperature of membrane shall be greater than 4°C
- Primer not required
- Number of Layers: One
- Extrusion welding shall be accepted only in areas where twin seam welding is in-appropriate

Installation: Remove humps and sharp projections and fill hollows before laying.

Protect from damage due to:

- Exposure to light, except during laying (maximum five hours)
- Contaminants
- Materials listed as potentially deleterious by geotextile manufacturer
- Damage, until fully covered by fill
- Wind uplift, by laying not more than 15 m before covering with fill

GEOTEXTILE PROTECTION FLEECE

Manufacturer: Polypipe Civils

Product reference: Permatex 300 Protection Fleece

Material: Polypropylene

Size: 2.4m x 100m roll or 5.25 x 50m roll

Heavy Duty reinforced protection geotextile fleece is a 3 layer composite, scrim reinforced, low elongation, heavy-duty needle punched geotextile, applied to all external surfaces of Permavoid attenuation tanks. The Geotextile is to be used as a protection layer in conjunction with Heavy Duty Waterproof Impermeable Geomembrane.

Physical Properties shall be:

Property	Test Method	Value	Unit
Mass per unit area	EN ISO 9864	300	g/sq.m
Thickness under load 2kPa	EN ISO 9863-1	2	Mm
CBR puncture resistance	EN ISO 12236	4000	N
Dynamic Cone Drop	EN ISO 13433	11	Mm
Tensile Strength (min) at max. load	EN ISO 10319	25	kN/M
Tensile Extension (max) at max. load	EN ISO 10319	50	%
Protection Efficiency	EN ISO 14575	300	N
Breakthrough Head	EN ISO 10319	nil	mm
Coefficient of Permeability	EN ISO 11058	55x10-3	m/s
Characteristic opening size	EN ISO 12956	70	microns

Jointing: 300mm overlap

Installation: Remove humps and sharp projections and fill hollows before laying.

Protect from damage due to:

- Exposure to light, except during laying (maximum five hours)
- Contaminants
- Materials listed as potentially deleterious by geotextile manufacturer
- Damage, until fully covered by fill

Wind uplift, by laying not more than 15 m before covering with fill

OIL AND PETROL SEPARATOR UNITS - PLASTICS

Polystorm Medium Duty with Biomat Treatment

Manufacturer: Polypipe Civils

Product reference: Polystorm Medium Duty with Biomat Treatment

Material: Recycled plastic

Size: 1000mm x 500mm x 400mm

Weight: 9 kg

Storage Volume: 190 litres

Load bearing Capacity: 40 tonnes

Volumetric void ratio: 95%

Inlet Connections: xxx mm

Outlet pipe diameter: xxx mm.

Silt trap: Consult with Polypipe Civils for recommendations and details.

Installation: Consult with Polypipe Civils for recommendations and details.

Hydrocarbon pollutants are removed from the surface water via a buoyant geocomposite located inside a Polystorm geocellular unit. The composite will interact with the free product oil, allow the formation of a biofilm on a solid surface and provide the opportunity for nutrient recycling within an active biofilm development.

The system is intended to provide an environment which is ideal for the encouragement of oil degrading micro organisms where moisture, oil and oxygen from the atmosphere are all available in a situation supplied with a large surface area for oil adsorption and biofilm attachment.

Pollution prevention performance: Oil retention capacity - 56g/m²

Consult with Polypipe Civils for recommendations and details.

Accessories: Jointing clips, Shear Connectors, Flange adaptors

INSTALLING UNDERGROUND STORAGE TANK UNITS

The Installer will provide apparatus for the off-loading and handling of modular pipework and fittings in accordance with manufacturer's requirements / recommendations and good practice. Any components suffering damage resulting from any means, will be immediately rejected from the site. Making good of damaged components will not be permitted.

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