Construction Sequence

Installation procedures should be carried out in accordance with the Health and Safety at Work Etc. Act (1974) and any other relevant legislation. Special attention should be paid to temporary work requirements in excavations.

Excavate to the required plan dimensions and level, ensuring that the excavation orientation will allow easy installation of connecting pipework. Consideration should be given to maintaining construction plant access for reinstating around the installed Polystorm units. A minimum 300mm working space is required around the structure but 500mm is recommended for safe working practice.

Ensure that the ground bearing capacity at the formation level is sufficient for the proposed operational loads. The base of the excavation should be smooth and level, free of large stones and soft spots. Any soft spots should be excavated and replaced with suitable compacted granular material.

The type of geosynthetic material used to encapsulate the Polystorm units will determine the installation requirements. Please note the following information is generic and advice from the geosynthetic manufacturer should be sought to ensure that the appropriate protective measures are taken to comply with any proprietary requirements.

a) Attenuation Application

Place and compact a 100mm thick bedding layer of coarse sand. Line the base and sides of the excavation with a protective geotextile before placement of the impermeable geomembrane. Install the geomembrane, Hydro WMS sealing joints by wedge welding in accordance Ciria 698 site handbook for the construction of SUDS, making an allowance for the connecting pipework or adapters. To ensure that the integrity of the geomembrane has been maintained, it is recommended that an inspection of the material is carried out, and welded joints are air tested in accordance with Ciria 698.

If water is present, we recommend that the excavation depth is over dug by 200mm, with a base layer of 'TERRAM', overlaid by 150mm of compacted 'Type 1 road stone', topped off with a 50mm layer of pipe bedding.

Polystorm shear connectors are placed between all layers of Polystorm units to give structural support to the tank. Sufficient Polystorm clips are placed connecting Polystorm units to maintain rigidity of the tank prior to backfilling the sides, the adjacent units being connected with two Polystorm clips.

Place the Polystorm shear connector into the recess created by the unit columns, two number per unit. Install the next layer of Polystorm units, positioning the units in the upper layer so that they exactly mirror the position of the units in the lower layer. Repeat the above procedure until the necessary depth of Polystorm structure has been achieved.

160mm EN 1401-1 pipes connect directly into the convenient knock-out incorporated in the end of each cell. Connection to 110mm EN 1401-1 pipes or other products is accommodated through the use of standard Polypipe adapters. Specially fabricated Polystorm units are available that allow connection of 225 & 300mm Ridgidrain pipes. A Polystorm structure requires ventilation (attenuation application only) to ensure proper hydraulic performance. Consideration should be given as to how this ventilation is to be installed.

Complete the geosynthetic encapsulation of the entire Polystorm structure, forming joints where appropriate. Re-examine the geotextile for damage and joint integrity.

Contractor

Backfill around the sides of the encapsulated units, forming a thick layer of coarse sand or Class 6H selected granular material immediately adjacent to the units. Where required, remaining excavated areas around the units should be backfilled with Class 6N or 6P selected granular material, in accordance with MCHW, Volume 1, or similarly approved specification.

Above the wrapped Polystorm units, place and lightly compact a minimum 100mm thick layer of either coarse sand or Class 6H selected granular material (with 100% passing the 5mm sieve), in accordance with MCHW, Volume 1, Series 600.

Final backfilling of the installation is dependent on the expected operational loads.
(NB Compaction plant over and immediately adjacent to the Polystorm units shall not exceed 2300 kg/m width).

Field conditions (eg landscaped areas)

The backfill material that lies within 300mm above the Polystorm units should be free from particles exceeding 40mm in diameter, in accordance with Class 8 material to Series 600, Volume 1, MCHW. Final backfilling up to finished ground level may be achieved using selected as-dug material. Backfill material should be placed and compacted in layers no greater than 300mm, or in compliance with the approved specification.

Lightly trafficked (eg restricted access car park

Backfill with Class 1 or 2 material in accordance with MCHW, Volume 1, Series 600. Backfill material should be placed and compacted in layers not greater than 150mm. Where the Polystorm units are installed beneath a paved area, the pavement sub-base may form part of the backfill material provided that minimum cover depths are maintained.

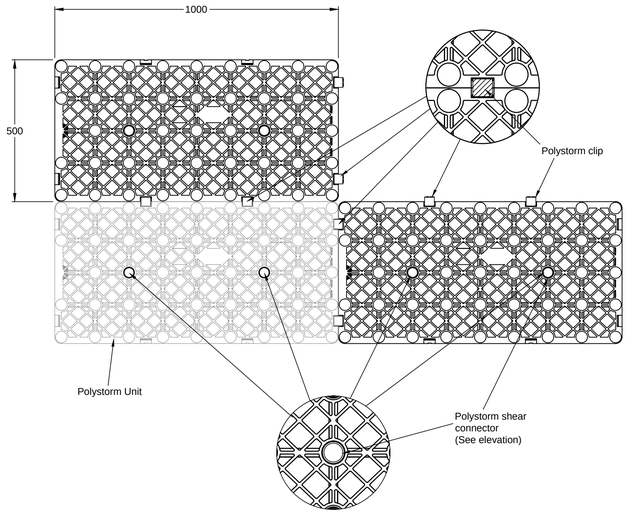
Heavily trafficked (eg service areas or roads)

Contact Hydro WMS Technical Services for further information and guidance.

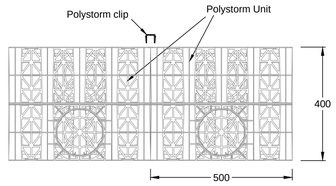
Complete pavement construction or landscaping over the Polystorm system.

It should be noted that infiltration systems are not generally installed under roads due to the reduction in load bearing capacity of saturated soils. Specialist advice should be sought where this type of installation is proposed.

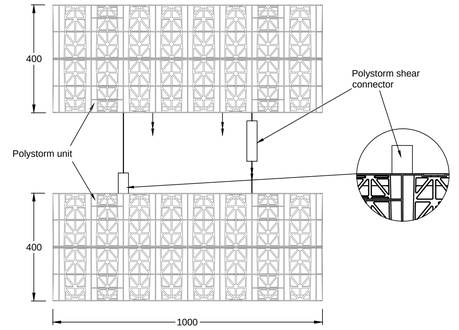
In attenuation systems, where groundwater may be present, a boyancy check should be undertaken to ensure that the imposed overburden pressure exceeds any uplift forces generated.



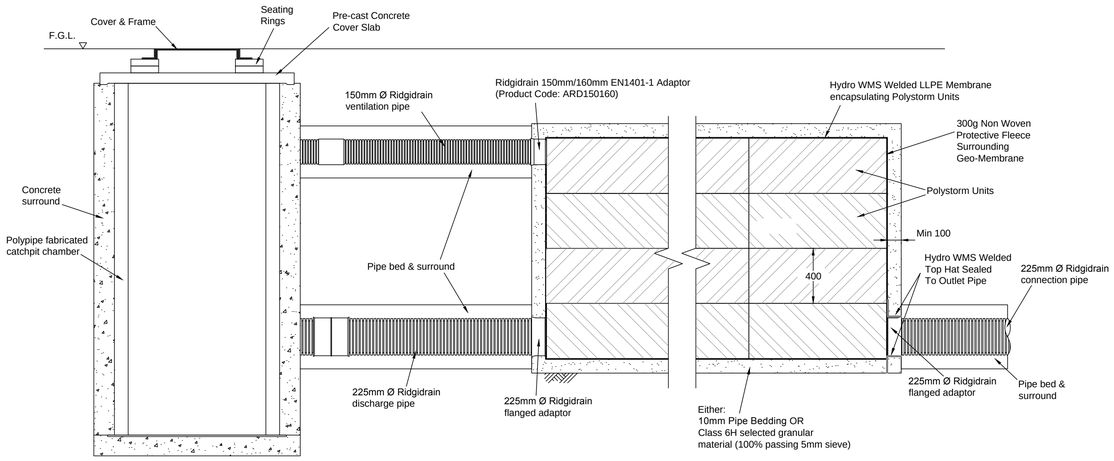
POLYSTORM CONNECTORS
PLAN VIEW
(Scale 1:10)



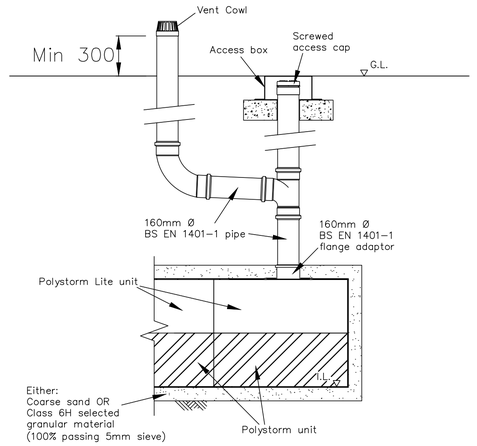
POLYSTORM CONNECTORS
END VIEW
(Scale 1:10)



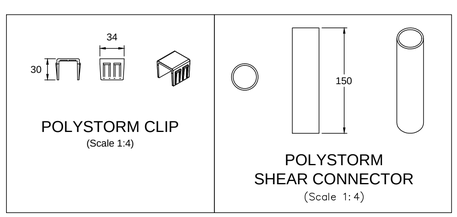
POLYSTORM CONNECTORS
ELEVATION
(Scale 1:10)



HYDRO WMS ATTENUATION
TYPICAL INSTALLATION DETAIL
(Scale 1:20)



VERTICAL VENT PIPE CONNECTION
[DETAIL 2]
(Scale 1:20)



Technical Specification Overview	
Unit Type	Polystorm-R
Product Code	PSM1A
Dimensions	(w) 1 x (d) 0.5 x (h) 0.4m
Total Volume	0.2m³
Unit Weight	9.0Kg (Approx)
Water Storage Volume	0.19m³ (190 litres)
Void Ratio	95%
Ultimate Vertical Compressive Strength	Maximum 650 kN/m²
Ultimate Lateral Compressive Strength	Maximum 63 kN/m²
Short-Term Vertical Deflection	Maximum 70.1 kN/m² per mm
Short-Term Lateral Deflection	Maximum 4.4 kN/m² per mm
Estimated Long Term Vertical Deflection (creep)	0.2798 Ln (design life in hrs)
	[Based on an applied test load = 162 kN/mm²]
	Creep data limit 60 years
Estimated Long Term Lateral Deflection (creep)	1.0192 Ln (design life in hrs)
	[Based on an applied test load = 30.8 kN/mm²]
	Creep data limit 60 years

REV	AMENDMENT	DATE

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CLIENT

JOB TITLE
POLYSTORM STORMWATER MANAGEMENT SYSTEMS

DRAWING TITLE
HYDRO WMS ATTENUATION CONSTRUCTION DETAILS

STATUS
FOR INFORMATION ONLY

SCALE	DATE	DRAWN	CHECKED
Various	20/08/15	MB	

PROJECT No.	DRAWING No.	REV