



LINN STREET

SUDS MANAGEMENT & MAINTENANCE PLAN

The drainage at the above site has been designed in accordance with United Utilities and the government's Sustainable Urban Drainage System (SUDs) guidance documents. Rain gardens, permeable pavements and cellular storage have been constructed to store, attenuate and reduce peak rainfall run-off.

Please see the enclosed drainage drawing 1284-900 Drainage Layout drawing which shows the drainage systems rain garden areas, permeable pavement driveways and the cellular storage tank attenuation.

The stone underneath the rain gardens and permeable pavements and the cellular storage is wrapped in geotextile membrane to prevent silt from filling the voids within the stone. Rain falling on the rain gardens and pavements passes down through the grass and soil and permeable paving into the voids within the stone foundations, and then trickles into the collecting drain pipes, which connect to the underground cellular storage tank. The tank then discharges to United Utilities main drainage pipe. The outlet flow from the site is restricted by a vortex flow control device, to prevent overloading of the UU's drainage system.

The infiltration rate of a rain gardens and permeable pavements will decrease due to the build-up of detritus in the aggregate but will stabilise with age. However, evidence suggests that infiltration rates always remain higher than rainfall rates, so, even with little maintenance, there should be sufficient infiltration to accommodate rainfall events. It is advisable to sweep the pavement to remove debris but this should not be any greater than is normally undertaken on traditional pavements.

If the permeable pavements are damaged, they can be repaired by replacing the permeable blocks as is normally undertaken on traditional pavements.

Winter – de-icing

Use DE-ICING SALT, not ROCK SALT. The most commonly available rock salt leaves gritty residue which will clog the joints and reduce the permeability of the surface. De-icing salt does not include grit. Although more expensive, de-icing salt bags contain only salt rather than a grit-salt mixture; therefore it can de-ice a larger area, if spread more thinly.

Because permeable pavements retard the formation of ice on the pavement surface, the need to use de-icing compounds is reduced.

Maintenance responsibilities

Mosscaire St Vincents Housing Association will be responsible for the maintenance of SUDS on the Linn Street site, and will undertake the activities outlined below at suitable intervals.

Permeable Paving maintenance

Long term maintenance

After many years of use, if ponding/ puddles appear on the pavement after rain, this indicates that there is clogging of the pores. Pressure washing & vacuum equipment can then be used to restore permeability. Permeable paving surfaces have been found to be still effective after 25 years.

Regular Maintenance Schedule

The following maintenance will be required every six months:

- Regular frequency brushing or washing of the surface to remove silt.
- Regular frequency inspection of the overflow inspection pipework to check for debris/silt.
- Clean out any debris/silt as required.
- Replacement of permeable paving, stone and geotextile membranes as specified as required (due to normal wear and tear).
- Drainage pipework inspection chambers and aco channels shall be checked for debris/silt; clean out, flush or vacuum as required.
- Remove silt from the cellular tank's upstream silt trap chamber – this can be done by vacuum tanker.

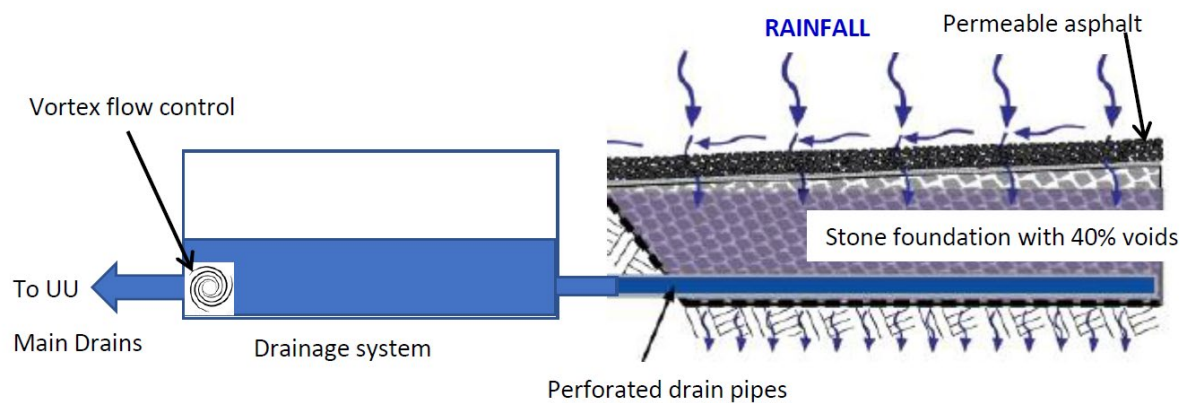


Fig 1. Indicative sketch of Permeable Pavement

Operation and maintenance requirements for bioretention systems (rain gardens)

The following are operation and maintenance requirements for bio-retention systems

Maintenance Schedule	Required Action	Typical Frequency
Regular Inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing waters levels in underdrain (if appropriate) to determine if maintenance is necessary.	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Regular Maintenance	Remove litter and surface debris and weeds	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays	Quarterly to biannually
Occasional maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years

The SUDS Management & Maintenance information will be included in the Homeowners User Guide and Scheme Maintenance Manuals.