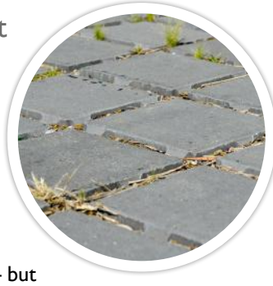
Tips for undertaking maintenance

Things to look for and how to fix them.

Uneven surface /damaged sub-grade material	**Water ponding on the pavement /blocked pavements**
An uneven paving surface can result from the sub-grade material failing to provide an even base (from frequent wetting and drying). The paving and sub-grade material may need to be reset. Consider installing an impermeable liner (e.g. geotextile) below the drainage layer to prevent wetting and drying of the sub-grade. Issues for normal paving (like tree roots) may also be relevant.	Water ponding on porous pavements may be a result of sediment blocking the pavers. Remove any visible sediment build up by vacuum sweeping or using a broom. Dispose of sediment in nearby grassed areas or garden beds. Refill joint between pavers if required. Care needs to be taken with high pressure hoses as they can cause damage to loose material in the joints and sub-grade. In some cases resetting the pavers with thorough cleaning of accumulated sediment may be necessary.
Rubbish, leaf litter or sediment	**Scour or erosion of joint material**
It is important not to let sediment accumulate as it will block pavers or sub-grade material. Use a broom or high pressure hose as appropriate to remove and dispose responsibly. Care needs to be taken with high pressure hoses as they can cause damage to loose material in the joints and subgrade.	Erosion (particularly between the pavers) may result if water is concentrated in one spot (e.g. near a down pipe or point where water flows onto the porous paving or is concentrated by uneven surfaces). It may be necessary to re-profile the surface, resetting the gravel or material around pavers, adding more joint and drainage layer material.
Boggy soils caused by water not being able to drain from the site	**Blocked underdrainage**
Water should be moving through the pavers/joints to the sand/gravel drainage layer and into the subgrade material. Boggy soils may occur if an underdrain is blocked or is needed (if not initially installed). If an underdrain has been installed, lift the pavers to check for blockages. If an underdrain isn't present check for clogging of pavement and consider installing an underdrain if the problem persists.	Underdrainage is provided to collect the water moving through the pavers and direct it to the stormwater network. Often an inspection pit is provided so you can check that water is flowing in the underdrain following rainfall. If there is no water flowing, lift the pavers to check for blockages.

Porous pavement



Porous pavement can be created with traditional masonry tiles that have a porous jointing material between the tiles. The jointing material is often loose and not robust like typical grouting material – but it plays an important role in allowing the water to move through to the ground below. Care needs to be taken to not cause damage with high pressure hoses. It is important to sweep, top up joint material and occasionally reset the pavers to maintain an even surface.

Permeable pavement

Permeable pavement describes tiles that have been designed to allow water through (i.e. the tiles are porous). The permeable pavement can be laid with more robust grouting material. This means that a high pressure hose can be used to clean the pavers (although in some cases this may drive dirt further into the pores of the paver). Cleaning dust and dirt from the tile surfaces with a broom or vacuum sweeper will reduce clogging of open pores in the tiles, extending the functional life of the pavement.

For more information please visit **www.portphillip.vic.gov.au**
or contact the Sustainability team via:

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Maintenance manual

Porous pavements

Site address: _____

Planning permit number: _____

Porous pavement maintenance

This manual lists the key tasks required to maintain porous pavement and the recommended frequency of each task. This manual can be submitted with planning permit applications for developments that include the installation of a domestic porous pavement. Once endorsed, the property owner is responsible for continuous implementation of porous pavement maintenance, in accordance with the guidance in this manual.

Porous pavements allow water to drain through the pavement surface and seep into the ground below. This benefits vegetation by improving access to air and water. It also helps the environment by reducing the amount of stormwater runoff and pollutants that enter the Bay.

Porous pavements can be constructed with loose gravel, structural gravel, structural grass, masonry pavers or engineered pavers. It is important to include a layer of sand or gravel under the porous pavers to improve drainage. In areas where soils have poor drainage (e.g. heavy clays) an underdrain may be needed under the drainage layer. In the City of Port Phillip soils are typically sandy and well drained so underdrains are often not required. However, this must be confirmed on a site by site basis.

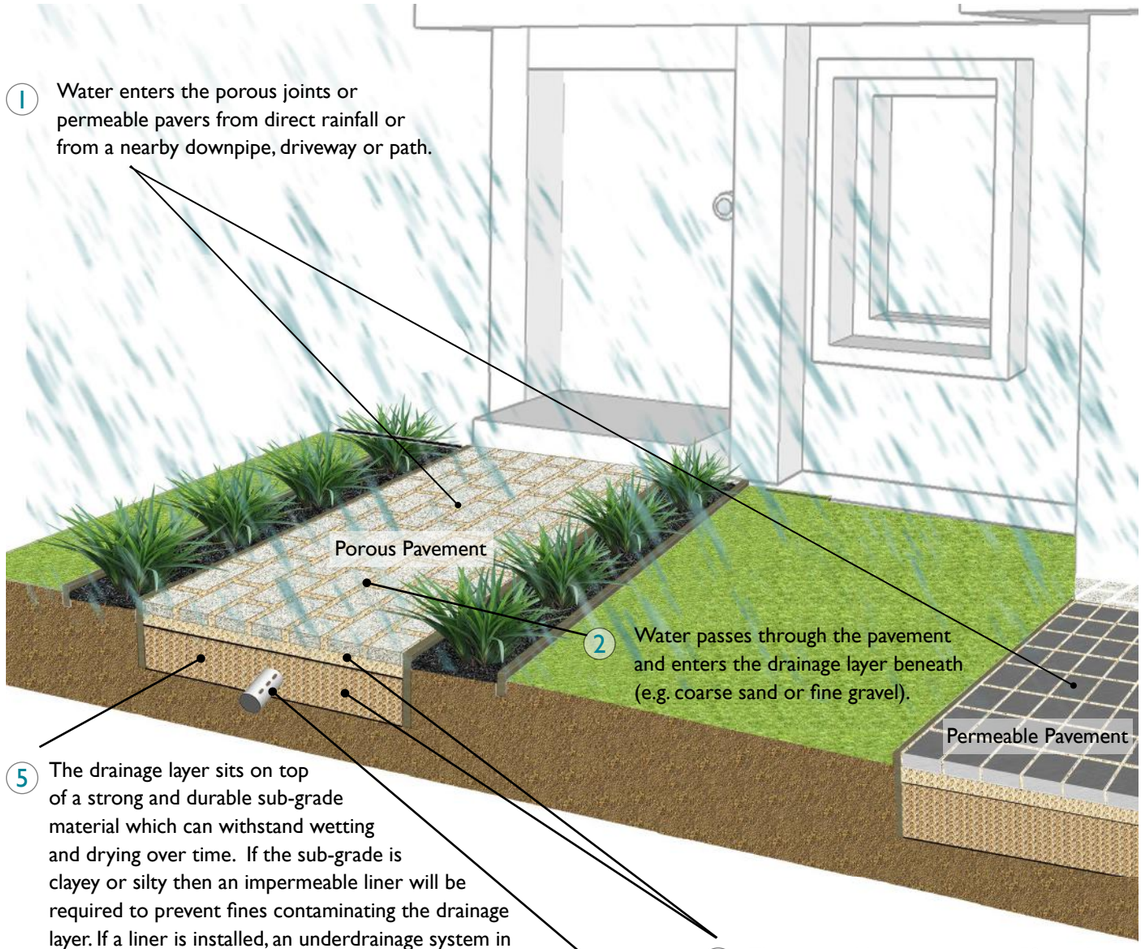
Maintenance should focus on keeping the pavement porous so that water can continue to soak through it.

Porous pavement location	
Planning drawing number showing porous pavement location	
Porous pavement construction date	
Date of final building inspection	
Area of porous pavement (m^2)	
Area of catchment (m^2) (e.g. paving and/or roof) directed to the porous pavement (this will include the area of the pavement itself)	

Maintenance Overview

Porous Pavement Maintenance

The following diagram identifies the key items which are important for permeable pavements and their maintenance.



Maintenance Checklist

The property owner is responsible for checking the maintenance items in this checklist at the recommended frequency at the bottom of the table. The maintenance log at the bottom of the page should be filled in once each maintenance check is complete. Upkeep of this maintenance log should continue throughout the life of the porous paving.

Item	Porous pavement element	Inspection item	Y/N	Likely maintenance task
1	Inflow to porous joints and/or permeable pavers	Has the material in the joints or drianage layer been eroded away or displaced by concentrated water flow?		Re-profile the surface with hand tools and top up joint and drainage layer material.
		Is there rubbish, leaf litter or sediment blocking the inflows?		Remove by hand and dispose responsibly.
2	Blocked pavement	Is water ponding and not draining through the pavement?		Remove sediment build up by vacuum sweeping or manually sweeping. Once removed, dispose of sediment in nearby grassed areas or garden beds.
		Is there unwanted vegetation in the pavement?		
3	Soggy and boggy soils	Is water not draining away from the area creating boggy and wet areas?		Ensure that the bedding and drainage layers contain approriate material and haven't become blocked by fines/sediment. Replace this material as needed. If the problem persists consider installing an underdrain to enhance drainage. If an underdrain has been installed lift the pavers to check for blockages.
4	Underdrainage (if required)	Does water in the underdrain enter the local stormwater network after a storm?		Use an inspection pit (if available) to ensure that water is flowing in the underdrain following rainfall. If there is no water flowing lift the pavers and check for blockages.
5	Uneven pavements	Is the sub-grade material failing causing pavement to move and become uneven?		Consider installing an impermeable liner (e.g. geotextile) below the drainage layer to prevent wetting and drying of the sub-grade.

Maintenance frequency

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
x			x			x			x		

+ after heavy rainfall

Maintenance Log

Maintenance date	Maintenance undertaken