



Consulting Engineers

Mill Lane, Rustington

Maintenance Manual for Drainage Systems

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Appendix 1 – Drainage Proposals

1.0 Introduction

This report has been produced to provide general maintenance procedures for the various components of the foul and surface water drainage systems serving the proposed development at land adjacent to Mill Lane, Rustington, Littlehampton, West Sussex.

This document has been produced in accordance with current best practise and the recommendations and guidance set out in CIRIA C697 'The SuDs Manual'.

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2.0 Surface Water Drainage

This section of the report will provide general maintenance procedures for the various components comprising the surface water drainage system serving the proposed development.

2.1 Permeable Pavements

Permeable surfaces need to be regularly cleared of silt and other debris to ensure their permeability is preserved. Current advice suggests that a minimum of three surface sweepings per year. However, manufacturer's specific recommendations should always be followed.

A brush and suction cleaner, which can be a lorry mounted device or smaller precinct sweeper, should be used and the sweeping regime should be as follows:

1. End of winter (April) – to collect winter debris
2. Mid-summer (July/August) – to collect dust and flower other plant type deposits
3. End of autumn (November) – to collect leaf fall.

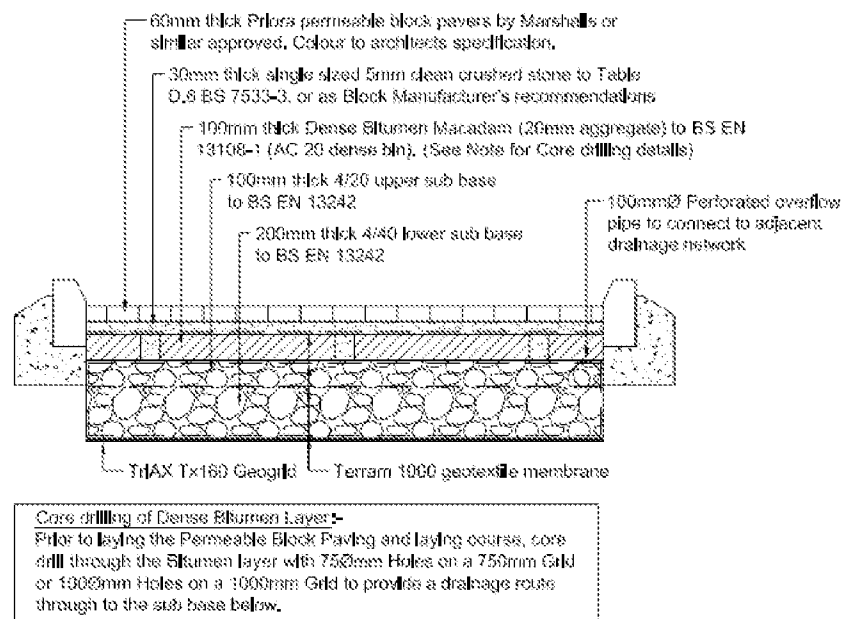
In addition to surface sweeping and vacuuming the following maintenance regime would also be recommended.

Maintenance Schedule	Required Works/Action	Frequency
Regular Maintenance	Brushing and Vacuuming.	Three times a year as above or as required following further monitoring
Occasional Maintenance	Removal of weed growth.	3 Monthly
Ongoing Monitoring	- Inspection for evidence of poor operation or ponding marks. - Inspect debris accumulation on surface and adjust sweeping regime if necessary. - Inspect silt accumulation in inspection chambers and remove as necessary. - Inspect silt accumulation in overflow pipework and remove as necessary.	3 Monthly, 24-48h after a storm Annually Annually Annually

Table 2.1 – Recommended Maintenance Requirements

Rehabilitation of the surface laying course should be carried out if evidence of poor performance is observed during the quarterly inspections. If it is deemed necessary the following procedures should be followed:

1. Lift block pavers and set aside or reuse removing jointing material.
2. Remove laying course and geotextile membrane.
3. Inspect cores and replace granular fill as required.
4. Renew geotextile membrane.
5. Renew laying course, block pavers and jointing material in accordance with the construction detail shown in figure 3.1 below.



Typical Permeable Parking Area Construction

Design 3% < CBR < 4%

Fig 2.1 – Typical Permeable Parking Area Construction.

2.2 Attenuation Tanks

Regular inspection of geo-cellular storage systems is required to ensure effective long term performance of the system. Maintenance needs of the system should be monitored and schedules adjusted to suit the specific requirements of the development.

The following maintenance regime would be recommended as a minimum but actions and frequencies should be adjusted to suit the specific requirements of this development. However, manufacturer's specific recommendations should always be followed.

Maintenance Schedule	Required Works/Action	Frequency
Regular Maintenance	Inspect and identify incorrect operation.	Monthly
	Debris removal from catchment area using sweeping and vacuuming.	3 Monthly
	Removal of sediment from pre-treatment components i.e catchpits.	Annually

Table 2.2 – Recommended Maintenance Requirements

Current best practise suggests that underground geo-cellular storage systems are constructed with access 'turrets' to ease future maintenance. These 'turrets' allow the annual removal of any silts or sediments directly from the tank ensuring effective long term performance.

2.3 Flow Controls

Regular inspection of flow control devices is required to ensure effective long term performance of the system. Maintenance needs of the system should be monitored and schedules adjusted to suit the specific requirements of the development.

The following maintenance regime would be recommended as a minimum but actions and frequencies should be adjusted to suit the specific requirements of this development. However, manufacturer's specific recommendations should always be followed.

Maintenance Schedule	Required Works/Action	Frequency
Regular Maintenance	Inspect and identify incorrect operation.	Monthly
	Removal of sediment from pre-treatment components i.e catchpits.	Annually

Table 2.3 – Recommended Maintenance Requirements

2.4 Oil/Petrol Interceptors

Regular inspection and maintenance of interceptor is required to ensure effective long term performance of the system. Maintenance needs of the system should be monitored and schedules adjusted to suit the specific requirements of the development.

The following maintenance regime would be recommended as a minimum but actions and frequencies should be adjusted to suit the specific requirements of this development. However, manufacturer's specific recommendations should always be followed.

Maintenance Schedule	Required Works/Action	Frequency
Regular Maintenance	- Removal of stored oil/petrol. - Inspect and identify incorrect operation. - Removal of sediment from pre-treatment components i.e catchpits.	Product dependant Monthly Annually

Table 2.4 – Recommended Maintenance Requirements

It is recommended that all interceptors are fitted with high level alarms to ensure the system does not exceed its oil and sediment storage capacity. The alarm should be linked to the building management system to ensure the system is constantly monitored.

It is also recommended that all interceptors are installed and commissioned by the manufacturer, or their approved sub-contractor to ensure correct operation from first installation.

2.5 General Maintenance

Regular inspection and maintenance of drainage systems is essential to ensure effective long term performance. Maintenance needs of the system should be monitored and schedules adjusted to suit the specific requirements of the development.

The following maintenance regime would be recommended as a minimum but actions and frequencies should be adjusted to suit the specific requirements of this development. However, the previous discussed, component specific regimes and any manufacturer's specific recommendations should always be followed.

Maintenance Schedule	Required Works/Action	Frequency
Routine Maintenance	- Inspect and identify incorrect operation. - Debris removal from catchment area using sweeping and vacuuming. - Removal of sediment from pre-treatment components i.e catchpits.	Monthly 3 Monthly Annually

Table 3.5 - Recommended Maintenance Requirements

3.0 Foul Water Drainage

This section of the report will provide general maintenance procedures for the foul water drainage system serving the proposed development.

3.1 General Maintenance

Regular inspection and maintenance of drainage systems is essential to ensure effective long term performance. Maintenance needs of the system should be monitored and schedules adjusted to suit the specific requirements of the development.

Maintenance Schedule	Required Works/Action	Frequency
Routine Maintenance	Inspect and identify incorrect operation.	Monthly

While it is accepted that the current proposals include a foul water pumping station, this will be offered for adoption under a Section 104 agreement and future maintenance of this system will become the responsibility of Southern Water.



Appendix 1

Drainage Proposals

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