

Every Street – DMS 1-21590

Outline Drainage Maintenance Operations

This section is intended to give an overview of the operation and maintenance for the drainage features included with the drainage strategy and in relation to typical details. Where proprietary products are specified, the manufacturer's instructions and recommendations should be followed in priority to this document unless specifically noted otherwise due to project constraints.

The recommended operations and frequencies are typical only and should be more frequent initially to ensure that there are no unforeseen issues with the operation and then adjusted to suit the site requirements.

Drainage components are indicated on Clancy Consulting Ltd Drainage Strategy drawing.

Components

The following components have been included within the drainage design for the proposed development:

- Manhole and Inspection Chambers
- Linear Drains
- Gullies and Floor Drains
- Pipework
- Flow Control Unit – Hydro-brake
- Permeable Paving

A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented.

It is assumed that the maintenance of the drainage network will be the responsibility of an on-site facilities management team.

A copy of the final construction drainage layout should be provided in the final Operations and Maintenance Manual.

The surface water network has been designed to accommodate the 1 in 100 year storm rainfall event plus an allowance for climate change particular to the requirements of the site. It may be that the exceedance flows above the 1 in 30 year storm rainfall event are stored within the site partially above ground, on non-habitable external landscaping, parking or other space. As the flows are generally being attenuated on site and within SuDS features there will be a period of time after storm events where the network is still partially or fully surcharged and is draining

down. Where this surcharging is still present after 48hrs appropriate action should be taken as noted below.

It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.

Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.

Long-term management practices include monthly sweeping of external paved areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilised during storm events and transported to the drainage system.

During the winter months, drainage features such as gullies and channels should be cleared of ice, snow, debris or litter.

Sediment/material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the filter drains and the upstream/downstream chambers.

Should any oil or fuel spillages occur, these are to be cleaned up locally to prevent contaminants being washed into the surface water system by rainfall. Spillages such as these should not be washed into the drainage system.

Manholes and Inspection Chambers

Description

Manholes providing rodding and jetting access to pipe work.

Normally manholes, in similarity to inspection chambers, are designed for access by operatives. Manholes must only be accessed after a risk assessment, and the implementation of a safe system of work, which identifies the specific risk to confined space.

Maintenance Issues

It is not likely that Manholes will present maintenance issues. However, they allow both the access to the drainage infrastructure and allow visual inspection from the surface of any key maintenance issues.

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Remove covers and ensure that there are no blockages. Inspect and ascertain any parts that are not operating correctly and resolve.	For 3 months after installation
	Check covers do not need repairing.	Monthly
	Check drainage is running freely by inspecting manholes and inspection chambers.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Suction sweeping and cleansing (to Water Jetting Association standards) and CCTV where appropriate.	2 – 4 Years
Remedial maintenance	• Silt removal • Inlet/outlet repair • Erosion repairs • System recovery following a pollution event • Manhole Cover replacement • Repairs to brickwork or concrete • Chancel repair	When required (tasks to repair problems due to wear, damage or vandalism)

Linear Drains

Description

Surface Water is drained over impermeable sections towards grated, or slot-type linear drains at low points and water is carried to below ground pipework.

Maintenance Issues

Linear drains could get blocked by silt or debris, causing flooding.

Linear drains frequently include silt traps at outlets which can cause siltation of downstream drainage infrastructure if the appropriate maintenance is not undertaken.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Inspect linear drains to make sure that there are no blockages at surface level. Remove covers to outflow boxes and check for blockages or siltation. Inspect and identify any parts that are not operating correctly and resolve.	For 3 months after installation
	Inspect linear drains to make sure that there are no blockages at surface level.	Monthly
	Remove covers to outflow boxes and check for blockages or siltation.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Jetting of linear drains and suction vacuuming of outlet boxes (to Water Jetting Association standards) and CCTV where appropriate.	1 – 2 Years
Remedial maintenance	• Silt removal • Inlet/outlet repair • Erosion repairs • System rehabilitation following a pollution event • Linear drain cover replacement • Chancel repair • Ensure that impermeable surfaces surrounding linear drains have not settled below top of linear drain level, causing ponding	When required (tasks to repair problems due to wear, damage or vandalism)

Gullies and Floor Drains

Description

Surface Water is drained over impermeable areas towards grated gullies at low points and water is carried to below ground pipework.

Foul Drains used for washdown purposes within the building.

Maintenance Issues

Gullies can become blocked by silt or debris, causing flooding.

Gullies include integral silt traps which can cause siltation of downstream drainage infrastructure if the appropriate maintenance is not undertaken.

Gullies frequently include a trapped outlet which prevents liquids lighter than water (ie oil and fuel) departing the gully. If silt and light liquids do not get removed regularly silt and oil will move downstream to other areas of the drainage network, some of which may be difficult to access, or totally inaccessible.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Inspect to ensure that there are no blockages at surface level, and that the outfall is operating efficiently.	For 3 months after installation
	Inspect and identify any parts that are not operating correctly and resolve.	
	Check that there are no blockages at surface level.	Monthly
	Remove covers to check for blockages or siltation.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Remove oil and silt using specialist vacuum extraction plant.	1 – 2 Years
Remedial maintenance	- Silt removal - Inlet/outlet repair - Erosion repairs - System rehabilitation following a pollution event - Cover replacement - Structural failure of gully pot - Ensure that impermeable surfaces surrounding linear drains have not settled below top of gully cover level, causing ponding	When required (tasks to repair problems due to wear, damage or vandalism)

Pipework

Description

Below ground drainage pipework connects drainage inlets (gullies, linear drains etc) to manholes as well as providing connections between manholes.

Maintenance Issues

Pipes could become blocked by silt, debris fat, grease, or collapse. In addition, it's possible for pipe joints to become displaced or for roots to grow from the surrounding ground into the pipes.

These factors can cause a reduction in, or loss of, the hydraulic capability of the pipes which could cause flooding to land and buildings.

Defects in pipes could cause a reduction in stability to ground underlying foundations, thus, causing settlement and damage to buildings and external surfaces.

The material of pipes and associated couplings can be damaged if aggressive liquids are passed through the pipes.

It is recommended that trees are not planted within 3m of pipes to reduce the risk of root ingress.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Inspect and identify any parts that are not operating correctly and resolve.	For 3 months after installation.
	Monitor working of drainage at ground level. The indications damaged pipework's may include localised flooding or emission of smells.	Monthly
	Remove manholes covers to check for blockages.	Every 6 months
Occasional maintenance	CCTV pipework, clean to WRC Sewer Jetting Code of Practice. Resolve issues as appropriate.	1 – 2 Years
Remedial maintenance	• Silt removal. • Fat and Grease removal. • Erosion repairs. • Joint displacement. • Structural failure, cracking or collapse. • System rehabilitation following a pollution event.	When required (tasks to repair problems due to wear, damage or vandalism)

Vortex Controls

Description

Vortex controls, often called Hydro-brakes, are installed in some manholes to limit the rate of flow. Vortex controls are normally constructed in steel and installed in a manhole with a sump.

Maintenance Issues

Vortex controls could become blocked by debris, plastic bags or other sheet material. If silt is allowed to build up in the sump the operation of the device could be impeded causing flooding upstream.

Maintenance Regime

Schedule	Action Required	Frequency
Routine/regular maintenance (inc. inspections and monitoring)	Check manufacturer's specification. Inspect and identify any parts that are not operating, consult supplier and remediate as required.	For 3 months after installation
	Monitor working of drainage at ground level. Where localised flooding occurs, check the condition of all system elements.	Monthly
	Remove manholes covers to check for blockages. Remove sediment from pre-treatment structures, gullies, catchpits etc.	Every 6 months and following the leaf fall in autumn.
Occasional maintenance	Clean to WRC Sewer Jetting Code of Practice. Resolve issues as appropriate.	1 – 2 Years
Remedial maintenance	Inspect, and remedy to ensure that the features are in fully working order.	As required (tasks to repair problems due to wear, damage or vandalism).

Permeable Pavements

Description

Pervious pavements provide a pavement suitable for pedestrian and vehicular traffic, while allowing rainwater to infiltrate through the surface and into the underlying structural layers. The water is temporarily stored beneath the overlying surface and into the underlying structural layers.

Maintenance Issues

For permeable pavements typical issues relate to the build-up of silt within the voids, causing a decrease in capacity and porosity over time.

Maintenance Regime

Schedule	Action Required	Frequency
Regular Maintenance	Surface brushing for appearance and to reduce silt accumulation.	Monthly
	Brushing and suction sweep or jet wash and suction sweep particularly for block pavement in autumn after leaf fall.	Annually
	Mow grass edges to paving at 35-50mm and remove weeds and leaves.	As required
	Check outlets and control structures.	Monthly depending on detail
Occasional tasks	Jetting and suction where silt has accumulated in joints or voids. Replace grit and vibrate surface to lock for permeable block paving. Replace jointing material as required.	As required
Remedial Work	Where sinkage or surface damage occurs uplift blocks, remove grit bedding layer, geotextile if present and reinstate to design profile	As required

Permeable Pavements Maintenance Information

(Always refer to selected paving manufacturers maintenance guidance)