

Westbury Hospital, Wiltshire

Backhouse Housing Limited

Drainage Maintenance Plan



1 Overview of Maintenance required for Sustainable Drainage Systems (SuDS)

- 1.1 It is important to ensure that thought is given to the long-term maintenance of SuDS features during the feasibility and planning stages. By ensuring SuDS features are correctly monitored and maintained throughout their lifetime, the amount of deterioration in performance that could occur over time is prevented or limited. This ensures that the feature will continue to work at full capacity as required in the design.
- 1.2 The type of required maintenance is determined by many factors, including;
 - Type of SuDS scheme
 - The size of the contributing catchment relating to each SuDS component
 - Land-use associated with contributing catchment
 - Level of construction ongoing within the contributing catchment
 - Planting types
 - Habitat types that have been created
 - Amenity and visual requirements of the area
- 1.3 Maintenance regimes should be regularly assessed to make sure that the approach is still meeting the drainage, landscape and any other objectives.
- 1.4 In accordance with CIRIA C753 – 'The SuDS Manual', maintenance can be split into three main categories; Regular maintenance (including inspections and monitoring), Occasional maintenance and Remedial maintenance.
- 1.5 Regular maintenance covers basic tasks which are carried out on a predictable and frequent schedule. Such activities include inspections, vegetation management and litter/debris removal.
- 1.6 Occasional maintenance includes tasks which are likely to be required infrequently and cannot be predicted as easily as regular maintenance tasks. This covers tasks such as sediment removal.
- 1.7 Remedial maintenance covers tasks which are required to resolve faults within the system found during regular inspections. Although in good design the requirement of this type of maintenance is limited, faults still occur. These faults and the corresponding maintenance actions required are generally site specific and difficult to predict.
- 1.8 Detailed information for the maintenance required for the SuDS features applicable to this project can be found in the following sections of this document.

2 Adopted Drainage

- 2.1 The adopted site drainage will be designed and installed in accordance with the local Water Authority and Highway Authority guidelines and specifications.
- 2.2 The local Water Authority adopts the drainage infrastructure under Section 104 of the Water Industry Act and the local Highway Authority adopts the drainage infrastructure under Section 38 of the Highways Act.
- 2.3 Once adopted, the local Water Authority and Highway Authority maintain the drainage infrastructure in line with their own maintenance regimes.

3 Private Drainage

- 3.1 The private drainage will be designed and installed in accordance with Part H of the Building Regulations. Once the drainage is approved by Building Control it is maintained by the respective property owner(s) or appointed Management Company.
- 3.2 This private drainage would be maintained using the following regime;

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required take remedial action.	Monthly for 3 months, then six monthly
	Remove debris from gullies, manholes, headwalls and flow controls.	Every 6 months
	Remove debris from catchpits upstream of private attenuation/soakaways.	Every 6 months
	Inspect gullies, manholes, headwalls, flow controls, attenuation and soakaways.	Annually
	Jetting of pipes.	Every 5 years
	Internal inspection of pipes (CCTV).	Every 10 years
Occasional Maintenance	Repair/rehabilitate gullies, pipes, manholes, headwalls and flow controls.	As required
	Repair/rehabilitate private attenuation/soakaways.	As required

4 Geocellular/modular crates

- 4.1 Geocellular crates are modular, high void ratio, systems used to create an underground storage structure.
- 4.2 Geocellular/modular crated systems are designed in accordance with CIRIA guidelines and should be maintained using the following regime;

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Debris removal from catchment surface (where may cause risks to performance).	Monthly
	Where rainfall infiltrates into blocks from above, check surface or filter for blockage by silt, algae or other matter. Remove and replace surface infiltration medium as necessary.	Monthly (and after large storms)
	Remove sediment from pre-treatment structures.	Annually, or as required
Remedial Actions	Repair/ rehabilitation of inlets, outlet, overflows and vents.	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed.	Annually and after large storms

5 Swales

- 5.1 Swales are used to convey surface water drainage or intercept overland run-off from both urban and rural catchments.
- 5.2 Swales are designed in accordance with CIRIA guidelines and should be maintained using the following regime;

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Litter and debris removal.	Monthly, or as required
	Grass cutting – to retain specified design height.	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants.	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect infiltration surfaces for ponding, compaction and silt accumulation. Record areas where water is ponding for > 48 hours.	Monthly or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 year, then half yearly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Half yearly
Occasional Maintenance	Re-seed areas of poor vegetation growth. Alter plant types to better suit conditions, if required.	Annually, or if bare soil is exposed over 10% or more of the swale treatment area
Remedial Actions	Repair erosion or other damage by re-turfing or reseeding.	As required
	Re-level uneven surfaces and reinstate design levels.	As required

Maintenance Schedule	Required Action	Recommended Frequency
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface.	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip.	As required
	Remove and dispose of oils or petrol residues using safe, standard practices.	As required

6 Rain Gardens

- 6.1 Areas of shallowed landscape depressions which are typically underdrained and rely on engineered soils and enhanced vegetation and filtration to reduce runoff downstream.
- 6.2 Bioretention areas are designed in accordance with CIRIA guidelines and should be maintained using the following regime;

Maintenance Schedule	Required Action	Recommended Frequency
Regular Inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water 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 blockages	Quarterly
Regular Maintenance	Litter and debris removal.	Quarterly (or more frequently for 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
Remedial Actions	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years

7 Infiltration Basins

- 7.1 Infiltration basins are designed to store runoff in vegetated depressions and gradually infiltrate it into the ground.
- 7.2 Infiltration basins are designed in accordance with CIRIA guidelines and should be maintained using the following regime;

Maintenance Schedule	Required Action	Recommended Frequency
Regular Inspections & Maintenance	Litter, debris and trash removal.	Monthly
	Grass cutting – for landscaped areas and access routes.	Monthly (during growing season), or as required
	Grass cutting- meadow grass in and around basin.	Half yearly (spring before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants.	Monthly (at start, then as required)
	Inspect banks of upper basin for signs of scour/erosion or instability, owing to runoff from the adjacent agricultural land.	Half yearly, or as required.
Occasional Maintenance	Re-seed areas of poor vegetation growth.	Annually, or as required
	Prune and trim trees and remove cuttings.	As required
	Remove sediment from pre-treatment system when 50% full.	As required
Remedial Actions	Remediate excess scour or erosion which might result in instability of the bank for the upper basin, owing to runoff from the adjacent agricultural land.	As required
	Realignment of rip-rap.	As required
	Repair/rehabilitation of inlets, outlets and overflows.	As required

Maintenance Schedule	Required Action	Recommended Frequency
	Rehabilitate infiltration surface using scarifying and spiking techniques if performance deteriorates.	As required
	Re-level uneven surfaces and reinstate design levels.	As required
Monitoring	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc. for evidence of physical damage.	Monthly
	Inspect inlets and pre-treatment systems for silt accumulation. Establish appropriate silt removal frequencies.	Half yearly
	Inspect infiltration surfaces for compaction and ponding.	Monthly