

Interim Drainage Maintenance and Management Plan



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Project	Denver Storage, Okehurst Lane, Billingshurst
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1 Introduction

- 1.1 This Interim Drainage Management and Maintenance Plan has been prepared as the initial draft of the Document that will become the Drainage Maintenance and Management Manual.
- 1.2 The Drainage Maintenance and Management Manual will be completed as part of the Operation and Maintenance Manual to be provided by the Principal Contractor on completion of construction.
- 1.3 This is a live document and will be added to through the final design, construction and handed over to the Site Management on completion where it will be used to guide and record the maintenance and management of the site surface water SuDS system.

2 The Site Sustainable Urban Drainage System (SuDS)

2.1 Overview

- 2.1.1 The SuDS system for this development collects surface water from the roofs and directs it to a rainwater harvesting tank which provides treatment and supplies the site with potable water. If the rainwater harvesting tank is full any excess rainwater from the roof is directed from the rainwater harvesting tank into a storage trench beneath the parking area and access roadways from where it is discharged to the watercourse at the southwest corner of the site. The access and parking areas are permeable paving with voided stone below for treatment and conveyance to the storage trench which discharges to the watercourse at the southwest corner of the site.

2.2 How the system functions

- 2.2.1 The driveways and parking areas are proposed as a permeable surface with voided stone beneath, this is typically referred to as a permeable paving system. The voided stone is unlined to allow soakage to ground and the voided stone layer provides the required storage volume.



- 2.2.2 The surface water falling on the permeable area is filtered through the permeable paving into the voided stone layer beneath.
- 2.2.3 Surface water falling on the roofs is collected in the gutters and channelled to rainwater pipes which convey the water to ground level and into the rainwater harvesting tank. The vortex upstream of the rainwater harvesting tank and catchpits trap silt and debris and provide a point of access for maintenance.
- 2.2.4 The permeable paving system provides filtration and water quality improvement to the surface water ensuring that at the point of discharge the surface water has received suitable mitigation against the low risk of pollution from the site use.
- 2.2.5 The rate of infiltration in the underlying soils is extremely slow and the majority of rainwater will be discharged through a Hydro-Brake flow control device that is designed to restrict discharge to the watercourse to 6.1l/s.
- 2.2.6 A plan detailing the proposed drainage system is attached to the rear of this schedule.

3 Schedule of Maintenance

- 3.1 Once appointed the Contractor will prepare a site specific method statement for the control of silt and other pollutants during construction. CIRIA Report C532, Control of water pollution from construction sites, provides further guidance on this.
- 3.2 The Contractor will maintain the proposed drainage system during construction and until the handing over of the site.
- 3.3 Upon completion the Principal Contractor will collate the data sheets, operation and maintenance details of all materials and components used in the construction of the site drainage system and they will be incorporated into this document.
- 3.4 These details will be issued to the Site Management for their records.
- 3.5 There are three categories of maintenance activities:
- **Regular maintenance** consists of basic tasks done on a frequent and predictable schedule, including vegetation management, litter and debris removal, and inspections.
 - **Occasional maintenance** comprises tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks (sediment removal is an example). The table below summarises the likely maintenance activities required for each SUDS component and specific maintenance activities is given in the following sections.
 - **Remedial maintenance** comprises intermittent tasks that may be required to rectify faults associated with the system. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, and as such timings are difficult to predict. Remedial maintenance items can comprise items such as:

- inlet/outlet repairs
- reinstatement or realignment of edgings, or other erosion control
- infiltration surface rehabilitation
- construction stage sediment removal (although this activity should have been undertaken before the maintenance contract)

3.6 The following maintenance schedule details the typical tasks to be undertaken at different intervals.

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Manage vegetation and remove nuisance plants – aesthetics	As required
	Litter and debris removal	Monthly or as required
	Cleaning of gutters and any filters on downpipes	3 Monthly
	Remove sediment and debris from vortex filter, silt trap chambers, channel drains and inlet chambers	6 monthly
	Visual inspection of Hydro-brake and permeable paving for defects and settlement	Annually
	Sweeping / brushing of permeable paving	Every 2 years
	Surface and foul water pipework – jetting / rodding	Every 2 years or as required
Corrective Maintenance	Remove debris / blockages to vortex filter / catchpits / silt traps / channel drains	As required
	Repairs to access chambers / manhole covers / storage	As required
	Replace any broken permeable blocks / surface, remedial works to any depressions or rutting	As required
	Inspect inlet, outlet from downpipes, Hydro-brake, vortex filter, channel drains, and gullies for blockages, standing water and clear	As required
	Reconstruct storage structures if performance deteriorates or failure occurs	As required
Monitoring	Inspect silt traps / catchpits and note the rate sediment has accumulated	Monthly in the first year and then 6 monthly

Indicative Schedule of Maintenance for the Proposed Drainage System

Component	Inspection Frequency				
	3 Months	6 Months	1 Year	After leaf fall in Autumn	2 Years
Gullies, Channels and Gutters	✓			✓	
Catchpits / Soakaways		✓		✓	
Hydro-brake and vortex filter		✓			
Surface and Foul Water Pipework					✓
Permeable Paving			✓		

Inspection Frequency Summary

4 Regular Maintenance Procedures

4.1 It is recommended the Management Company employ a suitably qualified company to undertake the maintenance works on site for all shared drainage. The following procedures provide a guide to the two most common maintenance items, jetting and silt removal, to be undertaken on site.

4.2 Jetting

4.2.1 Equipment Required:

- High-pressure water jetting equipment
- Personal protective equipment (PPE) for operators

4.2.2 Typical Procedure:

- Perform a pre-jetting inspection to assess the level of sedimentation
- Insert the jetting hose into the pipe, starting from the upstream end
- Gradually move the jetting hose downstream, ensuring the entire pipe length is cleaned
- Monitor the process to avoid any damage to the pipe structure.
- Collect dislodged silt and debris at the downstream end using a vacuum or manual removal

4.3 Silt Removal and Disposal

4.3.1 Equipment Required:

- Vacuum truck or manual removal tools
- Containers for temporary storage of silt and debris

4.3.2 Typical Procedure:

- Collect the dislodged silt and debris from the downstream end of the pipe
- Transfer the collected material to the containers

- Dispose of the collected silt and debris following local regulations and environmental guidelines

5 Financing

- 5.1 The regular and corrective maintenance of all shared elements of the drainage system will be managed and funded through the Management Company on behalf of the Residents.

6 Health and Safety

6.1 Designers Residual Risks

- 6.1.1 There are no significant residual risks associated with the construction of the proposed surface or foul water drainage network or permeable paving system beyond common site risks that would reasonably be anticipated by a competent Civil Engineering Contractor.

6.2 Construction Phase

- 6.2.1 The Principal Contractor will undertake a construction Phase Health and Safety Plan for the site.
- 6.2.2 Prior to handover the Principal Contractor will undertake a review of maintenance activities required and prepare suitable Health and Safety documentation as part of the site hand over documents.

7 Design Life

- 7.1 The design life of the development is likely to exceed the design life of the components within the SuDS network. During the routine drainage inspections it may be determined that some components have reached the end of their functional life cycle.
- 7.2 Where possible repairs should be the first option considered however if repairs are unviable it will be necessary for the property owner / Management Company to replace the faulty component.

8 Emergency Plan

8.1 Potential flood and maintenance indicators:

- Soakaways, manholes or inspections chambers overflowing
- Permeable paving overflowing or ponding
- Other visual indicators of the drainage system not performing as it should

8.2 Should any of the items above occur then immediate action as outlined below should be undertaken:

- Inspect for blockages in the problem area

- Should the problem not be identified via an initial inspection:
 - For unadopted onsite drainage the Management Company should appoint a suitable drainage engineer to inspect and survey the system and jet any blockages
 - Where it is suspected that there is a problem with the downstream drainage network the Owner or relevant statutory undertaker of that system should be alerted

8.3 Emergency Contact Information

8.3.1 Management Company	TBC
8.3.2 Maintenance Team	TBC

9 Appended Documents

Drainage Management Plan (to be submitted following detailed design)

Approved Drainage Drawings and Construction Details (to be added once approved)

Pre Handover Inspection Checklist (to provided by Principal Contractor)

Maintenance Checklist (to provided by Principal Contractor at handover)