



J N P G R O U P
CONSULTING ENGINEERS

SuDS Management Report

Project: Hogwood Farm
Parcels 4 & 5

Client: CALA Homes Thames Ltd

Reference: C86557-JNP-92-XX-RP-D-1012

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DOCUMENT CONTROL SHEET

Prepared by
Aadil Kapadia
Graduate Civil Engineer

Approved by
Karl Malik
Principal Civil Engineer

For and on behalf of CALA Homes Ltd
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1 INTRODUCTION

1.1 Terms of Reference

- 1.1.1 JNP Group were commissioned by CALA Homes Thames Ltd to create a SuDS Management Plan to accompany a Reserved Matters planning application pursuant to the Hybrid Planning Consent O/2014/2179, as varied by application 181194, for Hogwood Farm Parcels 4 and 5. This site has received approval of reserved matters, application reference number 241524.
- 1.1.2 Sustainable Urban Drainage Systems (SuDS) are a sequence of water management practices and facilities designed to drain surface water in a manner that will provide a more sustainable approach than what has been the conventional practice. SuDS are designed to mimic natural drainage flows and typically manage rainfall close to where it falls. Benefits include the effective management of runoff from hard standing surfaces, such as pavements and driveways, by reducing the volume, frequency and flow rate of surface water runoff during extreme storm events. They provide protection and/or enhancement of water quality (reducing pollution from runoff), are sympathetic to the environment and the needs of the local community.
- 1.1.3 The purpose of this management plan is to demonstrate how SuDS, which have been implemented at this development, will be maintained in compliance with various requirements and best practice guidance, including but not limited to, the National Planning Policy Framework (NPPF) and SuDS Manual (CIRIA 2015).
- 1.1.4 This management plan aims to:
- Summarise the various SuDS features used within the site;
 - Ensure that all those involved in the maintenance and operation of the SuDS understand their functionality and maintenance requirements in terms of supporting long-term performance.
- 1.1.5 Maintenance inspections should be recorded in Appendix A of this report to ensure that the document stays up to date.

1.2 Site Description

- 1.2.1 Hogwood Farm Parcels 4 & 5 comprises of 185 dwellings with 2 accesses into the site via Millet Road and Sheerlands Road. The site includes internal access roads, parking, landscaping, footpaths and sustainable urban drainage systems (SuDS). The location of Parcel 4 & 5 can be seen in Figure 1.1 below –

Figure 1.1: Site Location



1.3 Surface Water Drainage Strategy

- 1.3.1 Surface water is collected around the site by rainwater pipes, gullies, swales, permeable paving, geocellular storage tanks, and raingardens before freely discharging through existing approved sewers connecting to SANG Basin 1. SANG Basin 1 is outside of the Parcel 4 and 5 boundary and has already been constructed. The maintenance and management of this feature is not explored as part of this report.
- 1.3.2 Rain gardens and permeable paving are used across the site to treat surface water.
- 1.3.3 The permeable paving and geo-cellular tanks are to be maintained by an appointed management company.
- 1.3.4 The sewers serving the development are to be maintained by Icosa Water Limited under a Section 104 agreement and highway drains to be maintained by Wokingham Borough Council under a Section 38 agreement.
- 1.3.5 A plan showing the proposed drainage to be managed is shown in Appendix B.

1.4 Responsibility for Maintenance

- 1.4.1 Homeowners will be responsible for maintaining the private drainage serving their dwelling. They must fully understand their responsibilities outlined in this plan and be aware of any legally binding maintenance agreement.
- 1.4.2 Only trained personnel will be permitted to undertake maintenance of SuDS features where responsibility lies with an Appointed Management Company, Wokingham Borough Council, or Icosa Water Ltd. This work must be carried out in accordance with the Confined Space Regulations. To facilitate this maintenance, the features outlined within this report have been located where reasonably accessible, where practical to do so.
- 1.4.3 The SuDS features proposed within this site and discussed in this report are listed in table 1 below alongside who will be responsible for their management and maintenance.

Table 1: SuDS Management and Maintenance Holder

SuDS Feature	Management and Maintenance Holder
Permeable Paving	Appointed Management Company
Private Pipe Network	Homeowner
Rain Gardens	Wokingham Borough Council
Cellular Storage Tanks	Appointed Management Company
Swales	Wokingham Borough Council
Headwalls	Icosa Water / Appointed Management Company (Refer to Appendix B)

2 SUDS MANAGEMENT AND MAINTENANCE REGIME

2.1 Permeable Paving

- 2.1.1 Before permeable paving is handed over to the property owner, it should be inspected for clogging, litter, weeds and water ponding, these inspections will be the responsibility of the developer and all failures should be rectified by the developer. After the permeable paving is handed over to the property owner, the pavement should be inspected regularly, particularly after heavy rainfall.
- 2.1.2 It should be noted that weeds are to be removed by hand and not with a chemical weed killer. The chemical could enter the surface water run-off within the permeable paving and have determinantal impacts upon the environment/other aspects of the drainage system.
- 2.1.3 Materials removed from the voids or the layers below the surface may contain heavy metals and hydrocarbons and may need to be disposed of as controlled waste. Waste disposal will be carried out by a competent contractor, who must hold the relevant permits to transport and dispose of the waste. The property owner will be made aware of this requirement.
- 2.1.4 The recommended maintenance activities for permeable paving are outlined in Table 2 below.

Table 2: Permeable Paving Maintenance

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required based on site-specific observations of clogging. Particular attention should be paid to areas where water runs onto pervious surface from adjacent impermeable areas.
Occasional Maintenance	Stabilise and mow contributing and adjacent areas.	As required.
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying.	As required once per year on frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required.
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material.	As required.
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth if required, take remedial action	Three-monthly, 48 h after large storms in first 6 months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

2.2 Private Pipe Networks

2.2.1 Whilst the drainage system has been designed to operate with as little maintenance as possible, there are key operations that must regularly be undertaken to ensure that the pipe networks remain in optimal condition. The majority of these actions are standard routine and should be carried out upon all drainage systems.

2.2.2 The recommended maintenance requirements are outlined below in Table 3.

Table 3: Pipe Network Maintenance

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Check the drains for blockages and damage. Clean and repair if required	Monthly for the first 3 months of installation. Then every 6 months.
Occasional Maintenance	Desilting gullies.	As required.
	Grating on gullies to be kept clear of debris.	As required or after large storm events.
Remedial Actions	Jetting of pipework to clear blockages.	As required.
Monitoring	Inspect for evidence of poor operation and/or damage at manholes, gullies etc.	Monthly for the first 3 months and then annually.
	Inspect inlets and outlets for the blockages, and clear as required.	Annually.

2.3 Rain Gardens

- 2.3.1 Rain gardens will typically require approximately 2.5 times more maintenance than typical landscape designs. The most intensive maintenance is required during the establishment period. Herbicides and pesticides (such as Roundup) and fertilisers should not be used on rain gardens. This is because these pollutants will wash through the system quite easily.
- 2.3.2 The main cause of failure of rain gardens is clogging of the surface, which is easily visible. Underdrains and drainage layers are beneath the ground, and malfunctioning is not so easy to detect and therefore could potentially be ignored. During the first few months after installation, the system should be visually inspected after rainfall events, and the amount of deposition measured, to give the operator an idea of the expected rate of sediment deposition. After this initial period, systems should be inspected each quarter, to verify the appropriate level of maintenance.
- 2.3.3 The recommended maintenance requirements are outlined below in table 4.

Table 4: Rain Garden Maintenance

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	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 blockage	Quarterly
Remedial Actions	Remove litter and surface debris and weeds.	Quarterly (or more frequently for tidiness or 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
	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years
Monitoring	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

2.4 Cellular Storage Systems

- 2.4.1 Cellular storage tanks are to be below private parking spaced/ landscaping and to act as additional storage for the storm events up to and including the 1 in 100 year plus a 40% allowance for climate change. The cellular storage units will be under the responsibility of the appointed Management Company
- 2.4.2 The tanks are to act as an offline system, with a catchpit being location to the outlet. A rodding/jetting access point is to be located at the opposite end to the catchpit to allow access for maintenance.
- 2.4.3 Cellular storage systems may require specific maintenance as advised by the manufacturer. Maintenance contracts are commonly available from the manufacturers of SuDS products.
- 2.4.4 Details of the maintenance regime for cellular storage systems are provided in Table 5 below.

Table 5: Maintenance Regime – Cellular Storage Systems

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Inspect and identify any areas which are not operating properly, take remedial action if required	Monthly for 3 months, then annually
	Remove debris from the catchment surface where it might cause risk to performance	Monthly
	Remove sediment from pre-treatment structures	Annually or as required
Remedial Actions	Repair/rehabilitate inlets, outlets, overflows, vents etc.	As required
Monitoring	Inspect inlets, outlets, overflows, vents etc. to ensure correct operation in accordance with design and in good condition	Annually
	Survey inside for sediment build-up and remove if necessary	Every 5 years or as required

2.5 Swales

- 2.5.1 Regular maintenance of swales is essential to maintain their functionality and ensure they continue to perform as designed.
- 2.5.2 Swale maintenance is generally straightforward for landscape contractors and usually involves minimal additional effort beyond the routine upkeep required for standard public open spaces.
- 2.5.3 All swale areas must be easily accessible to facilitate inspection and maintenance activities, including the use of suitable equipment and vehicles. Routine landscape maintenance should include the removal of litter and debris, which must be carried out prior to any other SuDS-related tasks. All collected waste should be fully cleared from the site.
- 2.5.4 Details of the maintenance regime for Swales are provided in Table 6 below.

Table 6: Maintenance Regime – Swales

Maintenance Regime	Required Action	Recommended Frequency
Regular Maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	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 vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required 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 reseeded	As required
	Relevel uneven surfaces and reinstate design levels	As required
	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

2.6 Headwalls

- 2.6.1 Adequate access should be provided for all headwalls for inspection and maintenance, including for the appropriate equipment.
- 2.6.2 The main cause of headwall failure is clogging of the surface, which is easily visible. Litter picking should be frequent, as rubbish is detrimental to the visual appearance and performance of the headwall.
- 2.6.3 Details of the maintenance regime for the headwalls serving the culverts, inlet/outlets, outfalls, to the existing ditch provided in Table 7 below.

Table 7: Maintenance Regime – Headwall

Maintenance Regime	Required Action	Recommended Frequency
Regular Maintenance	Remove litter and debris.	Monthly, or as required
	Manage other vegetation and remove nuisance plants.	Monthly (at start, then as required)
	Inspect inlets and outlets for blockages, and clear if required.	Monthly.
	Inspect banksides, structures, pipework etc. for evidence of physical damage	Monthly.
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets and outlets – maximum deposit depth 25mm	Annually (or as required)
Occasional Maintenance	Reseed areas of poor vegetation growth.	As required.
	Prune and trim any trees and remove cuttings.	Every 2 years, or as required.
	Remove sediment from inlets and outlets – maximum deposit depth 25mm	Every 5 years, or as required
Remedial Actions	Repair erosion or other damage by reseedling or re-turfing.	As required.
	Repair / rehabilitation of inlets and outlets.	As required.
	Relevel uneven surfaces and reinstate design levels.	As required.

3 RECORD OF MAINTENANCE

3.1 Record of Maintenance and Photographic evidence

3.2 Contact Details of Individual/Individuals Responsible for This Plan

3.2.1 In the event of concern over any matter related to SuDS, please contact:

Name:.....

Address:.....

.....

.....

Phone:.....

Email:.....

3.3 Record of Maintenance and Photographic Evidence

3.3.1 Please provide a record of all inspections (including all photographic evidence) in Appendix A.

APPENDIX A: RECORD OF INSPECTIONS

APPENDIX B: SUDS MANAGEMENT PLAN

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Health & Safety Note

The details on this drawing have been prepared on the assumption that a competent contractor will be carrying out the works. If the contractor(s) considers that there is insufficient Health and Safety information on this drawing, this should immediately be brought to the attention of the designer.

Legend

- Site Boundary
- S104 surface water sewers and headwall to be managed and maintained by ICOSA Water
- S104 foul water sewers to be managed and maintained by ICOSA Water
- S38 highway drains to be managed and maintained by Wokingham Borough Council
- S38 highway gully and lateral to be managed and maintained by Wokingham Borough Council
- Swales to be managed and maintained by Wokingham Borough Council
- Drainage blanket outfall headwall and pipe to be managed and maintained by Wokingham Borough Council
- Culvert and associated headwall to be managed and maintained by Wokingham Borough Council
- Rain gardens to be managed and maintained by Wokingham Borough Council
- Cellular storage tanks to be managed and maintained by Appointed Management Company
- Permeable Paving to be managed and maintained by Appointed Management Company

Drainage Note:

- All demarcation chambers and the associated laterals to be maintained by the Appointed Management Company.
- All pipework upstream of the lateral demarcation chamber is to be maintained by the homeowners.

CALA Phase 2

Vistry Homes Parcel 6

SANG Basin 1

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Rev.	Date	Description		Dim / CHK'd / App'd
Suitability				
S2 - Suitable for Information				
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Client				
CALA Homes Ltd				
Job				
Finchwood Park - Parcel 4 & 5				
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JNP GROUP

CONSULTING ENGINEERS

Brighouse

Woodvale House
Woodvale Road
Brighouse
West Yorkshire
HD6 4AB

telephone

01484 400691

email

brighouse@jnpgroup.co.uk

Hartlepool

The Innovation Centre
Venture Court
Queens Meadow Business Park
Hartlepool
TS25 5TG

telephone

01429 239539

email

hartlepool@jnpgroup.co.uk

Chesham (HQ)

Link House
St Mary's Way
Chesham
Buckinghamshire
HP5 1HR

telephone

01494 771221

email

chesham@jnpgroup.co.uk

Leamington Spa

Portobello House
Portobello Way
Warwick
Warwickshire
CV34 5GJ

telephone

01926 889955

email

leamingtonspa@jnpgroup.co.uk

Glasgow

Orient Building
16 McPhater Street
Glasgow
G4 0HW

telephone

0141 378 0808

email

glasgow@jnpgroup.co.uk

Sheffield

MBP2 Meadowhall Business Park
Carbrook Hall Road
Sheffield
South Yorkshire
S9 2EQ

telephone

0114 244 3500

email

sheffield@jnpgroup.co.uk