

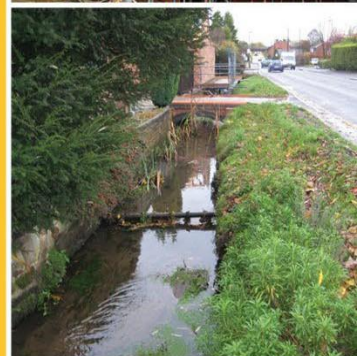
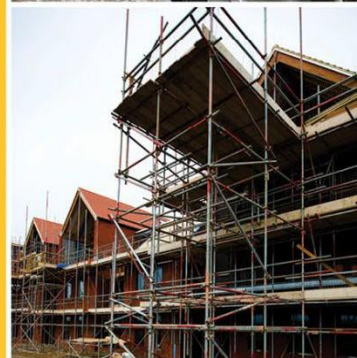


**PASTURE LANE, GADDESBY,  
LEICESTERSHIRE**

**SUDS MANAGEMENT STRATEGY**

**APRIL 2022**

**REPORT REF: 24438-02-SMM-01**



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**REGISTRATION OF AMENDMENTS**

<b>DATE</b>	<b>REV</b>	<b>CHANGE</b>	<b>PREPARED BY</b>	<b>APPROVED BY</b>
April 2022	-	First Issue	DH	EM

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## **DRAWINGS REFERENCED**

- 24438\_02\_020\_01.1 DRAINAGE ARRANGEMENT SHEET 1 OF 4
- 24438\_02\_020\_01.2 DRAINAGE ARRANGEMENT SHEET 2 OF 4
- 24438\_02\_020\_01.3 DRAINAGE ARRANGEMENT SHEET 3 OF 4
- 24438\_02\_020\_01.4 DRAINAGE ARRANGEMENT SHEET 4 OF 4

## **1.0 THE SUDS PROPOSAL**

- 1.1 The SUDS on the proposed development site is to consist of 1 no. attenuation pond. The pond attenuates the contributions of site wide surface water as discharged from the on-site piped sewer system as per drawings 24438\_02\_020\_01.2 to \_01.4, before a restricted flow runs off-site into an existing ditch.
- 1.2 Storm water generated in events up to and including the 1 in 100 year + 40% climate change will be stored within the attenuation pond shown on drawing 24438\_02\_020\_01.2.
- 1.3 This proposal has associated ecologically based landscaped approaches in line with the site related ecological mitigation strategy.

**2.0 DESIGN AND ADOPTION**

- 2.1 The SUDS feature shall not be adopted by the local authority with designs for these areas being assessed through the planning permission process and have been developed to be in line with the latest CIRIA guidance as per engineering good practice, and the yet to be adopted DeFRA SuDS design standards.
- 2.2 The associated inlet/outlet headwalls are to be owned and maintained by a management/maintenance company.
- 2.3 The proposed attenuation pond base is designed to fall at a gradient of 1:400 towards the proposed outlet and low flow channel within the pond to ensure there are no parts of the SuDS feature which become ‘dead zones’ and cause a build-up of silt.

**Water Quality**

- 2.4 The SuDS Manual CIRIA document C753, indicates the minimum treatment indices appropriate for contributing pollution hazards for different land use classifications. To deliver adequate treatment, the selected SuDS components should have a total pollution mitigation index (for each contaminant) that equals or exceeds the pollution hazard index (see Table 1).
- 2.5 Surface water runoff from residential roofs will have a very low pollution hazard level, while the residential parking areas will have a low pollution hazard level. The exact pollution hazard levels are shown in Table 1.

**Table 1: Pollution Hazard Indices (Extract from CIRIA 753 Table 26.2)**

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very Low	0.2	0.2	0.05
Individual property driveways, residential car parks, low traffic roads.	Low	0.5	0.4	0.4
Totals		0.7	0.6	0.45

- 2.6 To provide the correct level of treatment, an assessment needs to be made of the mitigation provided by each SuDS feature. This is shown in Table 2 below;

**Table 2: SuDS Mitigation Indices (Extract from CIRIA 753 Table 26.3)**

Type of SuDS component	Mitigation indices		
	Total Suspended Solids	Metals	Hydrocarbons
Attenuation Pond	0.7	0.7	0.5
Totals	0.7	0.7	0.5

- 2.7 For the very low and low pollution hazard levels generated at the site, the proposed attenuation pond will provide sufficient treatment in accordance with the Simple Index Method.

**3.0 MAINTENANCE**

3.1 A proposed maintenance plan is shown in table 3 breaking down the maintenance responsibility of the various proposed assets, which is based on good practice and general current procedures.

**Table 3**

<b>Drainage Asset</b>	<b>Responsible Organisation</b>	<b>Maintenance Work</b>	<b>Frequency</b>
<b>Pipework / Manholes</b>	Maintenance/ Management Company	Inspect pipework and clear blockages	Annually or after severe storms
		Inspect manholes and clear blockages	
		Repair any defects in the network	
<b>Headwalls / Inlet / Outlet</b>	Maintenance/ Management Company	Inspect structure and remove any debris/litter on structure of inlet or outlet	Monthly or after severe storms
<b>Flow Control Chamber</b>	Maintenance/ Management Company	Inspect structure and remove any debris/litter on structure	Annually or after severe storms.
<b>Attenuation Pond</b>	Management/ Maintenance company	Grass cutting – meadow grass in and around the pond.	Half-yearly (spring – before nesting season, and autumn)
		Grass cutting – public areas	Monthly (during the growing season)
		Litter and Debris removal from the open space around the inlets and outlets	Monthly (or as required)
		Inspect vegetation to pond and remove nuisance plants (for first three years)	Monthly (at the start, then as required)
		Hand-cut submerged and emergent aquatic plants (at min of 0.1 m above pond base. Include max 25% of pond surface)	Annually
		Remove 25% of bank vegetation from water's edge to a minimum of 1 m above water level	Annually
		Tidy all dead growth before the start of the growing season	Annually
		Prune and trim trees and remove cuttings	2 years, or as required
		Repair of erosion or other damage by re-seeding or re-turfing	As required
		Remove the sediment from the main body of pond when pool volume is reduced by 20%	3 – 10 years (or as required)
		Repair of erosion from natural events	As required
		Realignment of rip-rap or other damage	As required
		Inspect banksides, structures, pipework for evidence of poor operation or physical damage	After large storms and as required



<b>Drainage Asset</b>	<b>Responsible Organisation</b>	<b>Maintenance Work</b>	<b>Frequency</b>
		Inspect silt accumulation rates and establish appropriate removal, frequencies	Half-yearly
<b>Attenuation Pond</b>	Maintenance/ Management Company	Realignment of inlet/outlet protection	As required
		Repair/rehabilitation of inlets, outlets and overflows	As required
		Check flow control for mechanical operation	Half-yearly

#### **4.0 MAINTENANCE & INSPECTION PLAN**

- 4.1 The Management/Maintenance Company shall retain access rights to the attenuation pond, all sewerage located in the access roads and private dwelling curtilages. This shall ensure that all required inspections and remedial/maintenance works can be completed. Access shall also be available to the surface water outfall sewer between the attenuation pond and the headwall at the outfall to the ditch.

## 5.0 WASTE MANAGEMENT

5.1 SUDS are designed to intercept silt and allow the natural breakdown of organic pollutants. Undertaking the above maintenance regime of the SUDS features, including occasional removal of silt and vegetation that gathers in SUDS, is required to ensure long term performance.

5.2 Organic waste should be used around the SUDS components or scheme to form wildlife piles. If this is not practical it should be composted or, as a last resort, removed to a licensed landfill site. The environment agency has adopted a risk-based approach in relation to removal of silt from SUDS (Environment Agency 2011).

5.3 Green waste from SUDS components and schemes is much the same as waste from normal landscape maintenance and can be managed by:

- Shredded for surface spreading like a mulch
- The development of wildlife piles to provide habitat, refuges, shelter etc. When they biodegrade, they can compost
- On or off-site (Council Green Waste) composting which can provide useful mulching
- Disposal to landfill often as a last resort

6.0 **RELIABILITY**

- 6.1 The reliability of SUDS is critically dependant on the quality of the design and construction, in particular the management of silt.
- 6.2 The proposed development SUDS features have been designed to accommodate flows up to the 100yr +40% envelope within which they are intended to operate with additional freeboard (circa 323mm).
- 6.3 This design envelope mitigates future flooding risks to the development and also provides an abundant whole life cycle design life in line with modern planning requirements.

**7.0 HEALTH AND SAFETY**

- 7.1 These SUDS features have been designed to be as shallow as possible with as gentle as practical side slopes, which should minimise health and safety risks.
- 7.2 The design guide used for these features (CIRIA's SUDS Manual and DeFRA's Technical Standards for Sustainable Drainage Systems) incorporates health and safety implications of these SUDS components. Also, the proposals are incorporated within the Construction, Design and Management Regulations 2015, which requires hazards to be removed by good design wherever possible rather than providing mitigation to manage risk.
- 7.3 Those responsible for the maintenance and management of SUDS should take appropriate health and safety precautions for activities and risk assessments should be undertaken.