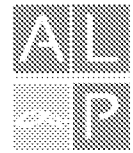


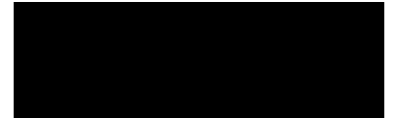
DAPPERS LANE, ANGMERING
SUDS MAINTENANCE MANUAL

FRONTIER

13 SEPTEMBER 2021



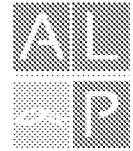
Abley Letchford Partnership Limited
3 Tealgate
Charnham Park
Hungerford
RG17 0YT



Quality Management:

Prepared by:	Jonathan Shuttleworth
Authorised by:	Shaun Letchford
Date:	13 September 2021
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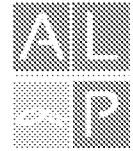
Contents

1.0	Maintenance Manual	1
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Appendices

Appendix 1 – Drawings

Appendix 2 – Schedules



1.0 Maintenance Manual

Context

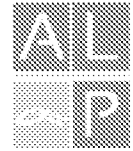
- 1.1. Abley Letchford Partnership has produced this SuDS Maintenance Manual with regards to Frontier interests in respect of the development of Dappers Lane, Angmering.
- 1.2. Development will accommodate Demolition & erection of 70 bed care home within Use Class C2, access, parking, landscaping and other associated works (Arun District Council (ADC) planning application reference: A/114/18/PL). This permission was granted in May 2019.
- 1.3. This Manual provides written evidence to support the overall site discharge of planning conditions and should be read in conjunction with drawings associated with those packages.

Adoption and Ownership

- 1.4. The drainage system is designed to the appropriate standards including Sewers for Adoption, the Building Regulations, the requirement of the National Planning Policy Framework and also Arun District Council, and West Sussex County Council, as LLFA, Policies and standards
- 1.5. The intention of adoption and ownership of drainage and SuDS is as follows:
 - All Surface water drains to be maintained by a management company associated with the Care Home owners.
 - Foul sewers within development parcels to be offered for adoption to Southern Water under the Section 104 process of the Water Industry Act.
 - Above and below ground attenuation within development parcels (i.e. swales, porous paving and cellular storage) to be maintained by a private maintenance company associated with the Care Home owners.
- 1.6. Until such time as the drainage is approved and the construction has begun a management company will not be procured. Therefore, exact details of the management company cannot be provided at this time.
- 1.7. The site will be constructed on a one phase basis with all SuDS becoming live once the building is constructed.

SuDS Maintenance Strategy

- 1.8. For the water treatment effects of SuDS features to remain effective, a comprehensive maintenance strategy will be implemented.
- 1.9. During construction, maintenance of SuDS features will be undertaken by the Contractor. Upon completion, the assets will be passed over to the Management Company to maintain the features in perpetuity.

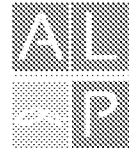


- 1.10. A regular maintenance regime will be created, which consists of several primary measures required to ensure the longevity of the system. These should be undertaken on a regular basis to ensure consistent performance. Typical maintenance activities consist of:
- Inspecting and reporting; relatively regular review of the condition identifying issues and providing resolutions. Periodic review from the maintenance contractor;
 - Litter and debris removal;
 - Grass trimming, overall cutting and localised strimming preventing blockages;
 - Weed and evasive plant control;
 - Shrub management;
 - Aquatic and shoreline vegetation management;
 - Sweeping pervious surfaces; and
 - Oil removal from proprietary systems.
- 1.11. A remedial maintenance schedule will be recommended as part of the handover of the SuDS features. Remedial maintenance is required to provide repairs to the system and monitor long term damage ensuring the system remains consistently productive. The schedule would consist of;
- Structure rehabilitation and repair;
 - Infiltration surface rehabilitation;
 - Scarifying to remove “Thatch”;
 - Spiking or Tining the soil;
 - Air pressure treatment.
- 1.12. The maintenance schedule contents and timing will depend upon multiple factors including usage, contents of water utilising the system, location and biology. To this end, comprehensive maintenance schedules for each SuDS feature is provided in the appendix.

SuDS Description and Design Lifetimes

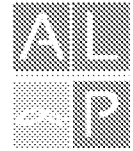
Southern Network

- 1.13. The southern network is a cellular attenuation storage with positive discharge to a swale, controlled by a Hydro-brake, before final discharge from the swale to a watercourse on the southern border of the site.
- 1.14. Within the Appendix there are maintenance schedules for cellular storage and a swale.
- 1.15. The Hydro-brake can be procured with a maintenance regime for the lifetime of the development.
- 1.16. The Attenuation Storage Tanks have a 60 year lifecycle. However, as these items are relatively new to the market it is thought their lifetime is much longer than this.
- 1.17. As the tanks and Hydro-brake will be managed by the Management Company they will be responsible for the maintenance and operation of this item through the lifetime of the development.

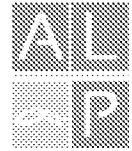


Northern Network

- 1.18. The northern network drains solely by infiltration from Permeable Paving.
- 1.19. Within the Appendix there are maintenance schedules for Pervious Pavements.
- 1.20. Permeable Paving has a typical design life of 25 years although again with robust maintenance regimes this can be extended. As the tanks and Permeable Paving will be managed by the Management Company they will be responsible for the maintenance and operation of this item through the lifetime of the development.

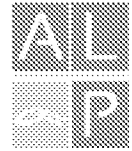


Appendices



Appendix 1 – Drawings

Drainage Plan



Appendix 2 – Schedules

SuDS Maintenance Schedules

SUDS MAINTENANCE SCHEDULE

Drainage Feature	Maintenance Schedule	Maintenance Requirement	Frequency Details
Below Ground Drainage System	Regular Maintenance	Remove litter and debris from external hard landscaped areas and adjacent landscaping, which may pose a risk to the performance of the system	Monthly.
		Remove build-up of sediment / silt in catch-pits and dispose of oils / petrol residues using safe standard practices.	As Required
		Stabilise and mow adjacent landscaped areas and remove weeds	
	Remedial Actions	Repair or rehabilitate inlet and outlets to ensure they are in good condition and operating as designed.	
		Remediate any landscaping which has raised to within 50mm of adjacent hard landscaping.	
	Monitoring	Check of all inlets / outlets for blockages or evidence of physical damage with any necessary remedial action or clearance carried out if required.	On a monthly basis for the first 3 months of operation, thereafter every 6 months & following severe rainfall events
		Inspect all surfaces for ponding, or silt accumulation. Record areas where water is ponding for more than 48 hours and carry out any remedial work deemed necessary.	After severe storms.

[Comments]

13 September 2021

SUDS MAINTENANCE SCHEDULE

Drainage Feature	Maintenance Schedule	Maintenance Requirement	Frequency Details
Hydrobrake Flow Control	Regular Maintenance	Remove litter and debris from manhole	Monthly.
		Remove build-up of sediment / silt in catch-pit and dispose of oils / petrol residues using safe standard practices.	As Required
		Stabilise and mow adjacent landscaped areas and remove weeds	
	Remedial Actions	Repair or rehabilitate inlet and outlets to ensure they are in good condition and operating as designed.	
		Remediate any landscaping which has raised to within 50mm of adjacent hard landscaping.	
	Monitoring	Check of all inlets / outlets for blockages or evidence of physical damage with any necessary remedial action or clearance carried out if required.	On a monthly basis for the first 3 months of operation, thereafter every 6 months & following severe rainfall events
		Inspect condition of rubber gasket for signs of deterioration and damage and repair and replace as necessary.	Annually
		Check operation of penstock for damage, wear and freedom of movement and repair and replace as necessary	

[Comments]

13 September 2021

SUDS MAINTENANCE SCHEDULE

Suds Feature	Maintenance Schedule	Maintenance Requirement	Frequency Details
Pervious Pavements	Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumnal leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturers recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
	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 less 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
		Replace at end of lifecycle	As required (likely to be >25 years)
		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 six months
		Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
		Monitor inspection chambers	Annually

[Comments]

13 September 2021

SUDS MAINTENANCE SCHEDULE

Suds Feature	Maintenance Schedule	Maintenance Requirement	Frequency Details
Swales	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 infiltration surfaces for ponding, compaction, 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 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 reseeding	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

[Comments]

13 September 2021

SUDS MAINTENANCE SCHEDULE

Suds Feature	Maintenance Schedule	Maintenance Requirement	Frequency Details
Attenuation Storage Tanks	Regular Maintenance	Inspect and identify any areas that are not operating correctly if required take remedial action	Monthly for 3 months, then annually
		Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
		For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter, remove and replace surface infiltration medium as necessary	Annually
		Remove sediment from pre-treatment structures and/or internal forebays	Annually, or as required
	Remedial Actions	Repair/habilitate inlets, outlet, overflows and vents	As required
		Replace any geotechnical liners at end of lifecycle	As required (likely to be >20 years)
		Replace at end of lifecycle	As required (likely to be >60 years)
	Monitoring	Inspect/check all inlet, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
		Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required
		Check any geotechnical liners for wear and tear	Every 3-5 years or as required

[Comments]

13 September 2021