

Sustainable underground Drainage system & Adjoining Culvert and ditch

Crete Nursery

Dappers Lane, Angmering,

West Sussex, BN16 4EN

Reserved Matters Application
in respect of A/178/17/OUT

Conditions No 11 & 13

Maintenance Manual



Sustainable underground drainage system and adjacent ditch & culvert maintenance manual

This manual has been prepared to address planning conditions No 11 & 13. It will be further adapted, as necessary, on completion of the drainage system in accordance with condition 12.

Planning Condition 11

Development shall not commence until full details of the maintenance and management of the SuDS system is set out in a site-specific maintenance manual and submitted to, and approved in writing, by the Local Planning Authority. The manual is to include (a) details of financial management of the site including arrangements made in the event that the management company (or any subsequent management company) is no longer able to fulfil its duties; and (b) arrangements for the replacement of major components at the end of the manufacturers recommended design life.

Planning Condition 13

The development layout shall not be agreed until such time that arrangements for the future access and maintenance of any watercourse or culvert (piped watercourse) crossing or abutting the site has been submitted and approved in writing by the Local Planning Authority.

No construction is permitted, which will restrict current and future land owners from undertaking their riparian maintenance responsibilities of any watercourse on or adjacent to the site.

Surface Water Drainage Maintenance

Regularly inspecting the surface water drainage network for blockages and clearing unwanted debris / silt from the system should improve the performance of the surface water network and decrease the need for future repairs. In the event that road gullies become blocked, high pressure water jets can be used to clear the gully and ensure they are functioning correctly, this should be undertaken by certified trained professionals.

The level and frequency of maintenance required on site is dependent on the type of facility. The type of maintenance will fall into one of three categories “regular maintenance”, “occasional maintenance” and “remedial maintenance”. Regular maintenance of the drainage and SuDS features will include, inspections, removal of litter / debris and sweeping of the surfaces. Occasional maintenance will include removal of sediment etc. and remedial maintenance may include structural repairs and infiltration reconditioning if required.

The drainage and SuDS elements, after an initial inspection following construction, should be inspected on a monthly basis for the first 12 months and after large storms, thereafter the following maintenance regime should be applied and adjusted if the 12 month monitoring process has identified any issues. For specialist pieces of equipment such as the treatment plant, maintenance brochures will be provided by the manufacturers. These will set out the frequency of inspections and correct methods of cleaning etc. that should be followed. It is recommended that once installed the facility should be inspected monthly for the first three months and thereafter at six monthly intervals or as advised in the maintenance brochure.

The foul and surface water drainage, including the treatment plant and SuDS will remain private under the ownership of a management company, who will also be responsible for all communal areas of the site including the access road. It will be their responsibility to maintain the foul and surface water drainage in accordance with these recommendations.

For Permeable Paving Areas, the following maintenance is recommended:

Permeable Paving Maintenance Schedule		
	Required Action	Typical 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 or manufacturer’s recommendations – pay particular attention to areas where water runs onto pervious surfaces 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
	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	Inspect for evidence of poor operation and/or weed growth - if required, take remedial action.	Three-monthly, 48 hours after large storms in the first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

5.5.1 For the filter drain, the following maintenance is recommended:

Filter Drain Maintenance Schedule		
	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris from filter drain surface, access chambers and pre-treatment devices.	Monthly
	Inspect filter drain surface, inlet/outlet pipework and control systems for blockages, clogging, standing water and structural damage.	Monthly
	Inspect pre-treatment systems, inlets and perforated pipework for silt accumulation, and establish appropriate silt removal frequencies.	Six Monthly
	Remove Sediment from pre-treatment devices	As required
Occasional maintenance	Remove or control tree roots where they are encroaching the sides of the filter drain, using recommended methods.	As required
	At locations with high pollution loads, remove surface geotextile and replace, and wash or replace overlying filter medium.	Five yearly, or as required
	Clear perforated pipework of blockages.	

Maintenance of Ditch and Culvert

There is an existing watercourse passing along the boundary between the site and Dappers Lane which has been culverted under the existing access into the site. The ditch and the culvert will be in the ownership and responsibility of the maintenance company. The following maintenance regime is recommended for the ditch.

Ditch Maintenance Schedule		
	Required Action	Typical 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 infiltration surface for ponding, compaction, silt accumulation, records 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	Re-seed areas of poor vegetation growth, alter plant types to better suit conditions if required	As required

A CCTV survey of the culvert is required prior to construction to confirm the exact route and depth of the pipe. Following construction another survey should be completed to ensure the pipe is clear of any debris that might have entered during the construction phase.

Following completion, it is recommended that a visual inspection of the pipe and the area around it is undertaken annually, or as required. In addition, every 10 years a detailed inspection of the pipe via CCTV camera to determine if any remedial works are required.

Replacement at end of Design Life

Both the permeable paving and the filter drain use a gravel material to store the runoff water while allowing it to drain into the ground below. For the driveways and part of the filter drain this is then covered by the road construction. As part of the ongoing maintenance this material will be inspected to determine if it is still functioning as intended. At the end of the manufacturer's recommended design life the material will be assessed to determine if it needs replacing.

When it does need replacing, for the driveways this will mean the full reconstruction of the pavement. Given that the design life of the pavement is expected to be beyond 25 years it is likely that the surfacing will also require replacement in this timescale. Therefore, the remedial works will provide a completely new pavement structure restoring the permeability and the aesthetics of the driveway.

For the filter drain that is adjacent to the turning head, the gravel material can simply be excavated and replaced. Care will need to be taken not to damage the access manholes or surrounding structures, and the permeable pipe should be relayed at the same level.

For the filter drain under the access road this will require a trench slot to be excavated through the pavement construction which will need to be reinstated following the renewal of the gravel material as per the above.

Maintenance responsibilities and arrangements

Proposal

It is proposed that the responsibility of the on-going sustainable underground drainage system maintenance is the responsibility of the formal management company.

Prior to the management company taking responsibility for the SuDs maintenance, it will be the responsibility of Countyoak Homes Ltd (the developer), to ensure the system is properly maintained in accordance with guidelines set out in this manual.

The management company will be legally put in place by the developer, with a legal responsibility to ensure the on-going and future maintenance of the system. On completion of the development, the communal land will be transferred to the management company, at no cost, to the management company. The maintenance responsibility will include both the communal land and the areas of land requiring maintenance owned individually by the property owners.

It will be a condition of sale that the owners of the individual property owners become shareholders and directors of the management company. Accordingly, there will be a legal responsibility to ensure the maintenance of the system. It will also be the responsibility of the management company to ensure that sufficient funds are set aside in a sinking to cover the cost of any future replacement or upgrading of the system.

Until such time as the management company is formalised and handed over, it will remain the responsibility of the developer to maintain the system.

Prior to the handover of the management company, the developer will appoint a contractor to carryout regular maintenance of the system, in accordance with the regime set out in the maintenance manual. The maintenance contract will include the on-going maintenance of the culvert and ditch abutting the site. It will be the responsibility of the management company to maintain this contract or to ensure an alternative suitable arrangement is put in place.

The costs associated with the management company undertaking these works, will be an obligation of the property owners, who will be required to pay a monthly contribution towards this and other communal costs. The level of each contribution will be set by the developer, forming part of the individual contract of sale. Should the management company be set-up and handed over by the developer prior to the last property sale, the developer will be responsible for the share of the unsold properties.

Whilst the shareholders and directors will be able to formally instruct a third-party management company to fulfil their management responsibilities, should this company become unable to fulfil the duties, the obligation will automatically revert back to the property owners/management company.