

MANAGEMENT AND MAINTENANCE PLAN

Maintenance of the SuDS features on the site is the responsibility of the owner. The following list constitutes a management and maintenance plan that should be followed on the site. Maintenance operations will need to take the protection of habitats and associated ecology into account. The page references below refer to *Ciria SuDS Manual C753*.

RWH TANK

The RWH tank is accessible via a steel inspection cover leading to a shaft above the tank (see Rainwater drainage layout.pdf). Although the pump may need little attention, its design life is likely to be around 10 years (p. 229). The filter should be checked periodically and the interior of the tank may be inspected annually using an inexpensive borescope with a camera mounted on a long flexible cable. Cleaning of the tank by pressure washing the interior walls and then removing the water with a dirty water pump is recommended every 10 years. See Table a. for general guidance.

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspection of the tank for debris and sediment build-up, inlets/outlets/withdrawal devices, overflow areas, pumps, filters	Annually (and following poor performance)
	Cleaning of tank, inlets, outlets, gutters, withdrawal devices and roof drain filters of silts and other debris	Annually (and following poor performance)
Occasional maintenance	Cleaning and/or replacement of any filters	Three monthly (or as required)
Remedial actions	Repair of overflow erosion damage or damage to tank	As required
	Pump repairs	As required

Table a. Operation and maintenance requirements for RWH systems (from *Ciria SuDS Manual C753*, Table 11.6).

SOAKAWAY

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect for sediment and debris in pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	Annually
	Cleaning of gutters and any filters on downpipes	Annually (or as required based on inspections)
	Trimming any roots that may be causing blockages	Annually (or as required)
Occasional maintenance	Remove sediment and debris from pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	As required, based on inspections
Remedial actions	Reconstruct soakaway and/or replace or clean void fill, if performance deteriorates or failure occurs	As required
	Replacement of clogged geotextile (will require reconstruction of soakaway)	As required
Monitoring	Inspect silt traps and note rate of sediment accumulation	Monthly in the first year and then annually
	Check soakaway to ensure emptying is occurring	Annually

Table b. Operation and maintenance requirements for soakaways (from *Ciria SuDS Manual C753*, Table 13.1).

The problem of sediment being introduced into the soakaway is largely mitigated by the fact that the majority of the water entering the soakaway is via the overflow of the RWH tank, in which water has already been filtered. Therefore the risk of the geotextile membrane becoming clogged is reduced. Inspection. Table b. provides further guidance.

VEGETATED AREAS

Inspection should identify areas of poor vegetation growth. It is also important to be alert to signs of invasive species, especially Japanese knotweed which is known to occur nearby. Meadow grass can be allowed to grow to enhance water quality and retention (p. 697), and mowing can take place twice annually, in July and September, with all cuttings raked off and removed to compost (p. 704). Table 6c provides guidance on the type of operational and maintenance requirements for trees that may be appropriate. The list of actions is not exhaustive and some actions may not be required.

Maintenance schedule	Required action	Typical 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	Inspect monthly
Occasional maintenance	Check tree health and manage tree appropriately	Annually
	Remove silt build-up from inlets and surface and replace mulch as necessary	Annually, or as required
	Water	As required (in periods of drought)
Monitoring	Inspect silt accumulation rates and establish appropriate removal frequencies	Half yearly

Table c. Operation and maintenance requirements for trees (from *Ciria SuDS Manual C753*, Table 19.3).

PERMEABLE PAVEMENTS

The permeable asphalt and paved areas need to be regularly cleaned of silt and other sediments to preserve infiltration capacity. Inspection should look for signs of standing water indicating that the surface is becoming clogged (p. 429). Table d. provides further guidance.

DRAINS AND PIPEWORK

The surface water drainage system on the site is readily accessible via five inspection chambers. These should be opened annually or as required, especially following leaf fall in the autumn.

GUTTERS ETC.

Gutters, downpipes, gully pots and linear drains should be checked annually or as required, and cleared of debris, leaves, etc., especially following leaf fall in the autumn.

FOUL AND GREY WATER DRAINAGE SYSTEM

The subsurface pipework is readily accessible via three inspection chambers. These should be opened periodically to ensure waste and effluent are flowing freely. The WTE Vortex Maintenance Manual and WTE Vortex Operation Manual describe various maintenance operations. The latter document includes a list of dos and don'ts and specifies several checks which should be carried out regularly:

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 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
	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

Table d. Operation and maintenance requirements for permeable pavements (from *Ciria SuDS Manual C753*, Table 20.15).

- Check the air blower is running.
- Check that the effluent in the outlet trough / sample chamber is clear and does not present an unpleasant odour.
- Check that there are no non-degradable items (baby wipes, sanitary towels etc.) in the tank and remove them if they are present.
- Check that there isn't a high build up of floating sludge in the Clarification Chamber. If sludge is present, turn on the timer in the blower housing to return the floating sludge back to the Aeration Chamber.

The Vortex 4 sewage treatment plant requires periodic servicing by trained personnel. The system will also need to be desludged (emptied) periodically, again by trained personnel.