



**Horndean Road,
Emsworth**

SuDS Operations & Maintenance Manual

Prepared by:

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ES1711/SUDS/A

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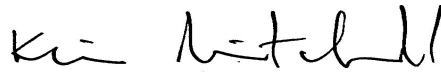
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Prepared by

Kevin Mitchell
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Signed:



Date: 31st March 2017

Reviewed by

Kazys Narbutas
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Date: 31st March 2017

Revision	Description	Date	Initials
O	Initial issue	March 2017	KAM
A	Amended in accordance with revised planning layout	July 2017	KAM
B	Maintenance of sluice gate added. Email confirming maintenance of sluice gate included.	Dec 2017	KAM
C	Additional maintenance regimes added.	January 2018	KAM

1.0 INTRODUCTION

- 1.1 Regular inspection and maintenance is important for the effective operation of the SuDS drainage features across the development.
- 1.2 The following SuDS features have been designed into the development to control the surface water run-off generated through the construction of impermeable areas such as roofs, drives and roads.
- Pervious Pavements (block paving);
 - Attenuation Tanks and Flow Control Devices;
- 1.3 Surface water sewers have been constructed to convey surface water from the plots and roads through the the SUDs drainage features where it is stored prior to discharge into the Flood Storage Pond
- 1.4 In order to ensure the continued effective operation of the SuDS features maintenance regimes have been provided for each of the above features.
- 1.5 This document has been prepared at the design stage and should be considered as part of an evolving process. Following construction as built information and drawings should be included. The post construction information should include drawings detailing the extent and location of SuDS features together with relevant manufacturer's details.
- 1.6 The following maintenance regimes should be amended/updated to suit specific manufacturer's requirements for the various components installed.
- 1.7 The following appendices have been included to allow for additional information and records to be included post construction.

- **Appendix A** As built Information
- **Appendix B** Manufacturer's Information
- **Appendix C** Inspection Records
- **Appendix D** Maintenance Regime Monitoring and Amendments
- **Appendix E** Bellway's confirmation the Sluice Gate Outfall System will be Maintained
- **Appendix F** Flood Storage Pond Maintenance Regime
- **Appendix G** Soft Landscape Management and Maintenance Plan

- 1.8 It should also be recognised that for a maintenance regime to continue to be appropriate and fit for purpose a constant monitoring ethos should be adopted and any corrective measures implemented to ensure that the correct maintenance regimes going forward are in place. Inspection records should be kept and used as a basis for the determining the suitability of the maintenance regimes and the areas of the development requiring attention.
- 1.9 A management company will be set up to carry out the ongoing maintenance as detailed in the maintenance regimes below.

2.0 PERVIOUS PAVEMENTS

- 2.1 Pervious pavements have been provided around the development to infiltrate water down through the sub base from the road/drive over and to act as a conduit for surface water run-off to be carried towards underground attenuation tanks prior to discharge off site.
- 2.2 Pervious pavements need to be regularly cleaned of silt and other sediments to preserve their infiltration capacity. Extensive experience suggests that sweeping once per year should be sufficient to maintain an acceptable infiltration rate on most sites.
- 2.3 A maintenance regime has been prepared for the development as indicated in Table 1 below.
- 2.4 Inspection reports should be kept and the maintenance regime for the pervious paving should be adjusted, if necessary, to suit ongoing site-specific circumstances as they arise.
- 2.5 A brush and suction cleaner (which can be a lorry-mounted device or a smaller precinct sweeper) should be used for regular sweeping. Care should be taken in adjusting vacuuming equipment to avoid removal of jointing material. Any lost material should be replaced. It is also possible to clean the surface using lightweight rotating brush cleaners combined with power spraying using hot water.
- 2.6 If the surface has clogged then a more specialist sweeper with water jetting and oscillating and rotating brushes may be required.
- 2.7 The pervious pavements have been designed to accept flows from the surface water drains serving the site which discharge into the sub base via silt traps. These silt traps are intended to catch sediment and silt.

Table 1: Operation and Maintenance Requirements - Pervious Pavements

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.
	Empty silt traps	Once a year at the same time as the pervious paving is being cleaned.
Occasional maintenance.	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, 48hours after large storms in the first six months.
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually.
	Monitor silt taps.	At same frequency of pervious paving inspections.

3.0 FLOW CONTROL DEVICES

- 3.1 Flow control devices have been provided to restrict outflow from porous paved tanked areas.

Table 2: Operation and Maintenance Requirements - Flow Control Devices

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance.	Inspect and identify any areas that are not operating correctly, take remedial action.	Monthly for 3 months, then annually.
	Remove any sediment from flow control devices.	Annually (or as required).
Remedial actions.	Repair/rehabilitate inlets, outlet, overflows and vents.	As required.
Monitoring.	Inspect/check all inlets, outlet, and overflows to ensure that they are in good condition and operating as designed.	Annually
	Where fitted check operation of by-pass door.	Annually
	Check operation of sluice gate penstock valve and access walkway	Annually

4.0 SURFACE WATER SEWERS

- 4.1 Surface water sewers have been constructed to convey surface water drainage from properties and roads through storage areas and ultimately discharging into the Flood Storage Pond.
- 4.2 The discharge from the sewers is controlled at various locations by flow control devices and excessive flows stored in the road sub-base, underground tanks and an above ground pond
- 4.3 A maintenance regime has been prepared for the surface water sewers serving the development as indicated in Table 3 below.
- 4.4 Inspection reports should be kept and the maintenance regime for the surface water sewers should be adjusted, if necessary, to suit ongoing site-specific circumstances as they arise.

Table 3: Operation and Maintenance Requirements – Surface Water Sewers

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Jet sewers to remove silt	Annually after the winter
	Empty gullies	Annually after the winter.
Remedial Actions.	Jet sewers if operation appears impaired.	As required.
	Reset any gully/manhole covers which are loose	As required.
Monitoring.	Initial inspection.	Monthly for three months.
	Regular Inspection	After initial three month initial inspection annually.

5.0 SURFACE WATER SEWERS HEADWALLS

- 5.1 The surface water sewers discharge into the Flood Storage Pond via headwalls fitted with flap valves.
- 5.2 A maintenance regime has been prepared for the headwalls serving the development as indicated in Table 4 below.
- 5.3 Inspection reports should be kept and the maintenance regime for the headwalls should be adjusted, if necessary, to suit ongoing site-specific circumstances as they arise.

Table 4: Operation and Maintenance Requirements – Headwalls

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Ensure flap valves are operating correctly	Annually.
Remedial Actions.	Grease flap valve hinges.	Annually.
	Reset any misaligned flap valves	As required.
	Repair damaged headwalls.	As required.
Monitoring.	Initial inspection.	Monthly for three months.
	Regular Inspection.	After initial three month initial inspection annually.

6.0 FLOOD STORAGE POND AND ATTENUATION POND

- 6.1 The Flood Storage Pond has been designed to store surface water during heavy rainfall events.
- 6.2 A maintenance regime has been prepared for the ponds serving the development as indicated in Tables 5 below.
- 6.3 Inspection reports should be kept and the maintenance regime for the headwalls should be adjusted, if necessary, to suit ongoing site-specific circumstances as they arise.
- 6.4 The Flood Storage Pond has been designed with a low flow channel for normal operation. Gravel channels have also been provided to prevent scouring during high flow rates from the surface water sewers serving the development. Once the Pond has established the gravel channels will not require maintenance.

Table 5: Operation and Maintenance Requirements – Ponds

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	A maintenance regime has been prepared and is attached in Appendix F.	As indicated in maintenance regime.
Remedial Actions.	As indicated in maintenance regime attached in Appendix F	As indicated in maintenance regime.
	Remove debris affecting operation of headwalls/sluice gate/low flow channel.	Annually and following prolonged or intense rainfall
Monitoring.	As indicated in maintenance regime attached in Appendix F	As indicated in maintenance regime.

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

From: Paul Bathgate [<mailto:paul.bathgate@bellway.co.uk>]
Sent: 10 October 2017 08:20
To: David Nash; James Elms
Cc: kevin; Peter Whiting; Glen Mason
Subject: RE: Horndean Road - Drainage Condition

Dear Kevin,

Further to your e mail below, please accept this e mail as confirmation that the outfall structure on this development will be maintained by the appointed management company for the development. Should you require any further confirmation please contact me.

Regards

Paul

Paul Bathgate
Technical Director (Designate)

01425 477666

Bellway Homes Limited (Wessex)
Bellway House
Embankment Way
Castleman Business Centre
Ringwood
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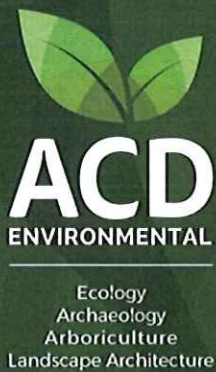
Bellway is proud to be supporting Cancer Research UK as their charity of the year.

Appendix F

Appendix G

HORNDEAN ROAD EMSWORTH

SOFT LANDSCAPE MANAGEMENT AND MAINTENANCE PLAN



Written by:	DKM
Checked by:	AE
Date:	01/09/2017
Ref:	BELL21129
Revision:	

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1.0 Objectives

- 1.1. To ensure the successful planting operations, establishment and continued healthy growth through to maturity of the trees, shrubs and grass.
- 1.2. To achieve a clean, tidy condition and appearance of all external areas.

2.0 Background Information

- 2.1. ACD Environmental were commissioned in 2017 to prepare the following documentation:

- Soft Landscape Proposals
- Soft Landscape Specification

- 2.2. The controlling authority are Havant Borough Council, who should be consulted on any matters relating to existing trees and the approved ACD detailed landscape proposals for the project.

Havant Borough Council,

Public Service Plaza,

Civic Centre Road,

Havant,

PO9 2AX

Tel: 023 9244 6019

3.0 Preliminaries

- 3.1. Failures of Plants (Pre-practical Completion): the Contractor entirely at his own cost shall replace any trees, shrubs or other plants other than those found to be missing or maliciously damaged.
- 3.2. Malicious Damage or Theft prior to Practical Completion: the Contractor at his own expense shall make all loss or damage arising from theft or malicious damage prior to practical completion of the entire project good.
- 3.3. Post Practical Completion: the Contractor will carry out the maintenance of trees, shrubs and grasslands after the date of practical completion until the responsibility is transferred to the new owners or by the appointed Management Company.
- 3.4. Replacement of plants shall take place as many times as is necessary in order to maintain a complete cover of plants and to maintain the scheme as designed by the Architect, and within the correct season for the type of plant, tree, shrub and grassland mix.

4.0 General Maintenance

4.1. Following installation and after transfer the landscape shall be the responsibility of and maintained in perpetuity by:

- Domestic Owners,
- Bellway Homes and their appointed Management Companies (should these be contracted out),
- Hampshire County Council Highways,
- Havant Borough Council,

The agreement for which shall be set up by the Developer, who shall confirm in writing to the Principal Planning Officer of Havant Borough Council when the maintenance agreement is completed and is operative.

4.2. The Developer shall ensure that any landscape contractor employed by the developer shall carry out the periodic maintenance of all planted areas, other than any areas for which the appointed Management Company becomes responsible during the said Maintenance Period. Inspection checks shall be carried out at monthly intervals and the appropriate work carried out.

4.3. The Developer shall ensure that any landscape contractor employed by the developer shall carry out in all areas any shrub, tree, grass and other plants replacements that may be necessary until transfer of responsibility to the Management Company.

- 4.4. The Management Company shall be responsible for all periodic maintenance and replacement thereafter for all planted areas to which its management agreement relates, and shall ensure that any landscape contractor employed by it carries out periodic maintenance of all such areas in accordance with the general horticultural schedules below. Either inspection checks shall be carried out by a competent person, a member of British Association of Landscape Industries (BALI) or the Landscape Institute (LI), acting for the Management Company, at minimum monthly intervals and the appropriate work carried out.
- 4.5. No existing trees, shrubs or grass shall be removed or cut without specific instructions from the Contract Administrator and written agreement of the Local Planning Authority Tree Officer. Existing trees are to be retained, protected and undisturbed throughout the contract.

5.0 Existing Trees and Vegetation

- 5.1. All works should be undertaken in accordance with the British Standard BS3998:2010 Tree Work Recommendations, by recognised tree contracting companies from the Arboricultural Association's list of registered contractors. Proof of experience and insurance provision will be required. All work shall be undertaken at the appropriate time and with the consent of the Management Company.
- 5.2. All operations shall be carefully carried out to avoid damage to the trees being treated, or neighbouring trees. No trees to be retained shall be used for anchorage or winching purposes.
- 5.3. The trees should be checked annually for signs of deterioration or distress and the appropriate actions taken, where a potential safety hazard is identified.
- 5.4. The under storey should remain undisturbed with little pro-active management required other than the severing of Ivy stems where crown infestation of the larger trees is evident. Where there is a need for surface treatment refer to ACD Landscape Proposal Plan for details.
- 5.5. All diseased wood, prunings and rubbish should be removed from site and the site left clean and tidy.
- 5.6. Heavy branches should be removed in sections and undercut to avoid tearing the bark, thereafter to be lowered by slings. No branch stumps should be left and no cuts should be sealed with fungicidal sealant. No cuts should be capable of holding water.
- 5.7. Heavy Ivy infestation is not recommended in development situations, where wind risk may be a concern. The form of the tree can also be affected and it is therefore proposed to remove any dense infestation of Ivy if evident on site or during the maintenance period.

6.0 Amenity Grass (Turf)

6.1. Areas directly to the front and flat areas of rear gardens to the new properties will be laid to an amenity grade turf. This is due to the potential for heavy use by the new occupants.

6.2. Grass shall be cut during the growing season (generally April-October) using a sharp cutter to leave about 30-35mm of growth and remove arisings from site.

Grass will be cut at intervals of not more than 10-14 days depending on growing conditions. Arisings shall be collected and removed from site. A dressing of prepared fine fishmeal shall be applied at the rate of 60gms/m squared after the second mowing and the arisings of the cut following are to be allowed to fly.

6.3. The sward shall be maintained weed free by an annual application of a selective weed-killer or other equal and approved as necessary. This is to be used by an appropriately trained and qualified individual.

6.4. Grassed edges to planted areas to be trimmed to maintain a clear smooth edge to planted beds; strim edges elsewhere but not against trees; spike annually in October.

6.5. Should bare patches of grass develop, area is to be cultivated to 150mm and then seeded with amenity grass seed. To be cross-sown in two directions at right angles to each other,(half the seed being used in each direction) at the rate of 35 gm per square meter and the ground lightly raked over on a still dry day when the top 25mm of soil is dry. Use 'A22 Low maintenance' mix as supplied by Germinal Seeds Ltd, or similar and approved by Local Planning Authority. Germinal Seeds Ltd tel: 01522 868714.

General

- 6.6. Grassed areas beyond the boundaries of domestic ownership will be maintained in perpetuity by the Management Company/ies.
- 6.7. This management plan should be made available to the new owners to help outline the principles of the retained habitats and encourage the future management of these areas in perpetuity.

7.0 Wildflower Grassland

- 7.1. All wildflower grassed areas within the gardens shall be the responsibility of the domestic owners, the communal gardens shall be maintained by the appointed Management Company and the Local Planning Authority will be responsible for areas proposed for adoption.
- 7.2. Following the autumn sowing, the wildflower grassland is to be cut in March to 4-7cm if there is sufficient material. It is then to be cut to 4-7cm in early May and to 4cm in September (following flowering).
- 7.3. During the following years, the wildflower grassland is to be cut to 4-7cm in March/April (to remove excess grass) and to 4cm in September/October (following flowering).
- 7.4. All arisings are to be removed from site.
- 7.5. Any hollows which appear shall be filled in with topsoil and allowed to re-seed naturally.

8.0 Shrub and Tree Planting

- 8.1. The Management Company will maintain all shrubs and trees beyond the boundaries of domestic ownership in perpetuity.
- 8.2. All tree works are to be undertaken by an Arboricultural Association approved contractor to British Standard BS3998:2010 Tree Work Recommendations.
- 8.3. Formative tree pruning is to be undertaken until a permanent structurally sound scaffold system of branches typical of the species and appropriate to the site circumstances is produced.
- 8.4. Post-planting management and maintenance of trees shall be in accordance with BS8545:2014 section 11 Trees: from nursery to independence in the landscape-recommendations.
- 8.5. A formal assessment of young tree health and development shall be undertaken annually. This assessment shall include foliar appearance, leaf size and leaf canopy density, extension growth and incremental girth development. Trees shall also be assessed continually throughout the year on an ad hoc basis. Wherever practicable the performance of young trees shall be assessed by testing leaf fluorescence and leaf chlorophyll content.
- 8.6. The density of planting will require that all weeding is carried out by hand, using the appropriate tools. All resultant material should be removed from site.
- 8.7. The management company is responsible for litter picking in those areas that it manages.
- 8.8. All plants shall be inspected monthly for wind firmness and firmed as necessary at the same time. Stakes shall likewise be checked for firmness and all tree and plant ties inspected and made good if required.
- 8.9. All stakes and ties shall be removed as soon as the developing root system is strong enough to support the tree, this is usually after two full growing seasons.

- 8.10. All grilles, grids, guards and other protective furniture shall be inspected annually and removed as soon as it is no longer needed to protect the tree or where it is causing damage to the tree.
- 8.11. The soil around newly planted trees shall be regularly inspected for soil capping or compaction and remedial action taken if needed.
- 8.12. All trees shall be checked regularly for mammal, human or other external damage and remedial action taken where necessary.
- 8.13. Minor pruning of dead or damaged wood shall be carried out annually. All wounds must not be treated with a sealant as per BS3998:2010 Tree Works Recommendations. On substantial trees, the Local Planning Authorities Tree Officer must be consulted for any necessary approvals.
- 8.14. All plants shall be watered as may be required to maintain healthy growth following planting, during the maintenance period and subsequently in cases of extreme drought. The Management Company are to provide a bowser for watering.

Trees – 5Ltr's per tree,

Shrubs 1Ltr each,

Grass 5Ltr's/m².

Watering to commence following 10 consecutive days of no rainfall, during the months of June to August. Following Bowser watering a weekly visit should be carried out until the onset of natural rainfall.

Any failures due to drought shall be replaced by the Management Company/ies at their own cost.

- 8.15. All planted areas shall be given an application of an approved top dressing at the rate of 40g/m² in May. This should be in slow release form e.g. Enmag or similar. This should be worked lightly into the soil, without disturbing the roots, before the bark mulch is re-spread. Unless specific nutritional deficiencies are identified, no fertiliser shall be applied to newly planted trees in the first season. If visual inspection points to nutrient deficiency further investigation of causes will be necessary. Remedial action may include addition fertiliser application, pH testing, assessment of organic content and levels of compaction.
- 8.16. Shrubs shall be maintained in a balanced shape and shall be annually pruned to allow for this. Any growth which will obscure windows, signs or sight-lines shall be removed. Once established, any support canes shall be removed from the shrubs. Trailing and climbing material shall be assisted in its growth by securing growing leaders where necessary.
- 8.17. Groundcover planting species have been specified so as not to exceed 600mm in height. However, should planting exceed expectations, this should be carefully cut down to below 600mm in height to avoid interference with visibility.
- 8.18. The bark mulch should be maintained at an even spread, 75mm deep, of consistent thickness, to ensure that it is effective as a weed suppressant and moisture conserver. Following any maintenance operations and on a bi-annual basis, the mulch shall be supplemented to allow for any material which may have been lost.
- 8.19. No plant substitutions to be made without the prior written agreement of the Local Authority Landscape Section.

9.0 Hedgerows

- 9.1. Hedge maintenance operations are to be carried out in line with general principles as outlined in the previous section, including clauses detailing litter removal, weeding, trimming, removal of dead plants and reinstatement of plant materials.
- 9.2. Around free standing hedges a 3 strand galvanised wire and tanalised softwood timber post fence, to BS1722 Part 3:1986 Fences, specification for strained wire fences, is to be erected to run through the centre of the proposed hedgerow. This is to prevent access through the site by pedestrians until the hedges are fully established. After five years, the hedges have fully established. The temporary fences are to be removed from site.
- 9.3. Trimming of hedges: Hedges are to have lateral branches moderately trimmed with the hedge allowed to reach planned height as rapidly as possible. Once at the desired height then the tops of the hedge can be trimmed as necessary to maintain a dense formal hedge.
- 9.4. Trimming of field hedges: Hedges are to be trimmed to specified height and profile using suitable mechanical cutters.
- 9.5. Hedge Heights: Hedges to be maintained in a neat clipped form to a maximum height as shown on original landscape proposals.

10.0 Wetland Meadow

- 10.1 Following the autumn or spring sowing, the wildflower meadow/ grassland areas to be mowed to a height of 40-70mm, if there is sufficient material. It is then to be mowed to a height of 40-70mm every two months, throughout the first year of establishment to help maintain balance between faster growing grasses and slower developing wild flowers.
- 10.2 Management of established grassland
- During the following years, the wildflower grassland is to be cut in March/April and to in September/October (following flowering).
- 10.3 The cut grass should be dried on site and the dried 'hay' should be removed within 7 days of cutting.
- 10.4 Perennial weeds in grassland may be kept in check if they are cut at the right time, and if the grassland is well managed. Most grassland weeds such as docks and thistles are suppressed by the hay cut and will gradually decline with good management. Low level weed populations to pulled out at flowering, followed by digging any recovering re-growth. Selective herbicides are to be used as a last resort for serious infestations as they will result in the loss of many wild flower species.

11.0 Maintenance of pond

- 11.1 The pond will be checked three times a year to monitor water levels following establishment of the new vegetation and drainage systems. If required, litter removal and de-silting will be carried out.
- 11.2 The management of these ponds will be carried out so as to maximise their ecological value for insects, invertebrates and amphibians and for wider biodiversity in the local area. Management will seek to achieve the following conditions within the ponds: Areas of deeper open water in the middle of the ponds; between 40% and 60% cover of aquatic vegetation in deeper water; abundant, diverse marginal vegetation growth around the margins of the ponds; marginal and bankside vegetation grading naturally into surrounding terrestrial planting; and an overall healthy, balanced pond environment.
- 11.3 Removal of vegetation from the ponds and their margins should be carried out between mid-November and mid-February. Removal of vegetation should be carried out as sensitively as possible, with all operations carried out by hand or with the use of hand tools. Due care and attention should be given to avoid removing more than 50% of vegetation present in the pond in any given management year, and to avoiding carrying out vegetation removal in such a way that it might damage the pond or the nearby hibernacula.
- 11.4 It is recognised that ponds are dynamic functioning ecosystems, and that not all species planted are likely to perform equally well. As such it is to be expected that some species will die out between management intervals. This should not be seen as a cause for concern, provided that an overall diversity of plant species is maintained, providing suitable habitats for the associated fauna.
- 11.5 All vegetation removed from the ponds should be piled up and composted on-site, at least 2m from the margins of the pond. This would provide a further feature of ecological interest, and remove the need for the removal of material off-site.

- 11.6 Over time it is likely that some silt and leaf-fall will accumulate in the ponds. De-silting and leaf removal operations will be required on a regular basis, but that these should be carried out infrequently, as required.
- 11.7 Ensure Inlet & outlet pipes are cleared of significant blockages to water flow.
- 11.8 All litter is to be removed.

12.0 Maintenance Schedules

Weekly

- All plants shall be watered following 10 days without rain. Then weekly until natural rainfall during June – August.

Fortnightly

- Amenity Grass to be cut every 10-14 days
- There should be a minimum fortnightly litter pick over the entire site within areas covered by the Management Company/ies.

Monthly

- Weed control shall be allowed for at monthly intervals. All areas to be weeded by hand.
- All plants shall be inspected monthly for wind firmness and firmed as necessary at the same time. Stakes shall likewise be checked for firmness and tree ties checked.

Bi-Annual/ Annual

- The bark mulch should be topped up bi-annually
- Grass cutting to Wildflower areas – cut in line with guidance given in section 7.0 and 10.0
- Hedges to be managed – cut in line with guidance given in section 9.0
- After two years tree stakes and ties are usually ready to be removed.

Annual

- Replacement of any failed trees or shrubs will be allowed for annually to ensure that the planting areas are fully stocked at all times.
- Any hollows which appear due to settlement shall be top dressed annually, early in the growing season.
- An application of a residual weed killer shall be allowed for on shrub areas.
- Minor pruning of dead or damaged wood shall be allowed for annually.
- All planted areas and trees shall be given an application of an approved top dressing in May. Not in Wildflower areas.
- Shrubs shall be maintained in a balanced shape and prevented from obscuring signs, windows and encroaching on paths.
- Check for invasive species as mentioned earlier and remove from site.
- Undertake a formal assessment of young tree health and development.
- Tree grilles, grids and guards shall be inspected and if necessary removed.

Every 5 Years

- A suitably qualified person employed by the Management Company to undertake a review of the condition, success and long-term maintenance of the planting.

Any amendments to the landscape management plan required to ensure a good planting scheme should be submitted to the LPA for approval. The LPA may draw the managing company's attention to defects in the maintenance or failure to comply with the landscape management plan and require that the Management Company rectify these defects or apply for a variation to the landscape management plan.

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ECOLOGICAL SURVEYS * PROTECTED SPECIES LICENSING * MITIGATION * IMPACT ASSESSMENT
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EXPERT WITNESS* LANDSCAPE DESIGN & PLANNING LANDSCAPE MANAGEMENT

Monitoring and Review Table

Revision	Revision Description	Date	Initials