





LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN

For the Proposed Development at Plot 1 Cardiff Peninsula

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Revision: P04







Revision History

Revision	Description	Ву	Date
P04	Issued for Planning	JB	29/05/24







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1.0 INTRODUCTION

This Outline Landscape and Ecological Management Plan (LEMP) has been prepared by Cameo and Partners Ltd (Landscape Architects) and Arup Ecology on behalf of the Orion Land and Leisure Ltd as part of the planning application for the proposed development at Plot 1 Cardiff Peninsula. The purpose of the LEMP is to identify and consider the landscape and ecological requirements for the long-term management and maintenance of the site.

The aim of this Outline LEMP is:

- To ensure the design intent and vision for the landscape estate of the site is realised and maintained;
- To ensure that clear objectives for the management and maintenance of the site are established;
- To set clear standards for the performance of landscape maintenance work following handover from the landscape contractor at the beginning of the operational phase or phases;
- To outline the work programmes and schedules for landscape maintenance staff;
- To help inform the allocation of financial resources for landscape maintenance;
- To provide an outline of management prescriptions for the habitat features, to ensure that the ecological interest of both species and habitat within the site (existing and proposed) is protected in the long term; and
- To help monitor success and progress against the objectives.

The LEMP covers all the externals ("the landscape") within the site boundary as defined on the application drawings.

The LEMP is draft only at this stage – consistent with the level of detail of the submitted scheme. The LEMP shall be updated as the designs progress to a level of detail whereby the LEMP shall be used to inform the day-to-day operations (management and maintenance) and monitoring of the site for the long term.

The LEMP covers the all the external areas within the estate boundary. The estate consists of both hard and soft areas:

- Hard roads, pedestrian pathways and communal areas.
- Soft existing vegetation retained, trees, shrubs, grass and wildflower areas.

The LEMP incorporates the landscape and biodiversity objectives set down in the Design and Access Statement and associated document as part of the planning application.







2.0 LANDSCAPE AND ECOLOGICAL AIMS

2.1 Management Principles

In order to fulfil the aims of the LEMP, the following principles will apply:

- Ensure the site is managed and maintained in a manner that ensures species diversity is increased and the new green links are available across the Site for flora and fauna.
- Introduce new areas of ecological habitat such as roof terrace and green link to the marina promenade.
- Manage specimen trees to ensure they remain healthy and undamaged.
- Manage all new planting to ensure they support a diverse structure;
- Manage pond to provide permanent aquatic resources with a varied vegetation structure of value to a range of wildlife.

2.2 Main Aims

The main aims for this landscape and ecological management plan are:

- To uphold the original design intent, vision and qualities for the spaces.
- To present an attractive and safe environment for residents, workers and visitors.
- To ensure that existing site features of value ie. waterside is incorporated into the design.
- To ensure that hard and soft landscape areas are fit for purpose and do not pose a health and safety hazard to workers and visitors.
- To ensure that newly planted areas become established.
- To keep the site clear of litter and rubbish.
- To provide an appropriate level of management intervention.
- To carry out maintenance work according to best practice, including British Standards, and ensuring legal compliance (in accordance with licensing if appropriate) using sustainable techniques and materials.
- To maintain and enhance biodiversity within the site through long term management (minimising impacts on biodiversity and providing biodiversity benefit where possible), aiming to contribute to local biodiversity targets.
- To ensure landscape features provide connectivity for wildlife within and between new and existing habitats.
- To ensure the protection and management of target species/groups, including bats, birds, reptiles, amphibians, invertebrates and local flora.
- To ensure long-term management of retained and created habitats to maintain quality and offer suitable habitat and foraging/ dispersal corridors where relevant.
- To ensure appropriate management for hedgerows and trees to strengthen and improve habitat connectivity.







- To monitor the success of management and undertake reactive management and modification of the operations of the LEMP, where required.
- To protect and enhance the nature conservation value of existing and new habitats, including biodiversity enhancement features (eg. nest boxes / log piles).
- To fulfil all the legal requirements in relation to the protection, management and enhancement of the ecological features, in particular those that relate to nature conservation.

The landscape proposals provide opportunities for creation and enhancement of habitat to provide ecological benefits within the site. The opportunities considered which are to be incorporated within the management prescriptions are as follows:

- Creation of SuDS with grassland species to be included to provide foraging habitat for locally notable species such as brown-banded carder bee.
- Green roofs to be incorporated using low nutrient substate, alongside the use of photovoltaic (PV) panels creating a range of microhabitats, with a mix of native wildflower species to provide benefit for birds, bats and invertebrates.
- Provision of linear vegetated features to improve connectivity across the site for a range of species including bats, bats and invertebrates.

Table 1: Summary of Intentions for The Key Features

Landscape/Ecological Feature	<u>Intent</u>	Special Measures*
Green roof	Create	Low nutrient substrate of varying
		depth to be used alongside PV
		panels to create a range of
		microhabitats.
Wildflower	Create	Tailored to provide foraging species
		for a range of native invertebrates
		and pollinators over a long season
		including the locally notable brown-
		banded carder bee.
Tree and shrub planting	Create	To include native fruiting species
		over a long season to provide food
		for birds, and habitat for native
		invertebrates
Bats	Protect and Enhance	Integrated bat boxes will be
		included for a variety of species.
Birds	Create	Install integrated bird boxes for
		range of species including swift,
		house martin and swallow ledges.
Amenity Grassland 'flowering	Create	To be species rich and managed to
lawn'		provide abundant forage for







		bumblebees. Margins of paths to be mown more regularly.
Insect Hotels	Create	To provide overwintering habitat for a range of invertebrates and bees
Pond (s)	Create	To contain water throughout the year and be managed for wildlife, in particular to encourage amphibians and invertebrates
Deadwood/dead hedging	Create	Created from vegetation removed during construction, to provide invertebrate habitat

^{*}Further detail included in the Ecological Impact Assessment (EcIA) and assessed through the Ecosystems Resilience Assessment







3.0 GENERAL MAINTENANCE DURING THE ESTABLISHMENT PERIOD

3.1 Planting and Maintenance Standards

Planting of new trees to have regard to Section 10 of BS 8545:2014 Trees: from nursery to independence in the landscape.

All plants to conform to BS 3936 and be in accordance with the National Plant Specification.

Maintenance operations are to be carried out with regard to BS 4428: Code of Practice for General Landscape Operations.

Maintenance of soft landscaping (other than amenity turf) to have regard to BS 7370-4: Grounds Maintenance. Recommendations for Maintenance of Soft Landscape.

3.2 Failure To Thrive

All new trees and shrubs shall be checked at each maintenance visit for damage, security, firmness, fixing and support. Any shrubs, hedges or trees which fail to thrive in the first five years shall be replaced with the same species and variety as the size specified on the original landscape planting plans. Trees and shrubs should be checked in September and marked with paint, or noted on a plan, as necessary.

Replacements will be planted during the following planting season. If a particular species fails to establish successfully then an alternative, comparable species should be considered as replacement, in agreement with the landscape consultant. Replacement planting of container plants to be undertaken as required, root-ball/bare root planting to be undertaken November to March.

3.3 Watering

Care should be taken not to over-water plants.

Until well established, all shrubs and trees are to be watered during the growing season.

Following any dry periods of 7-10 days, soil water content should be assessed and watering undertaken as necessary.

Planting areas are to be brought up to field capacity at each visit and each tree is to receive 40 litres or as required. If trees are showing signs of drought stress the watering regime should be reviewed and increase as required. Care should be taken to ensure applied water is absorbed into the root-zone and does not run off the surface.

3.4 Mulch and Fertilisers

Excluding wildflower, SuDS and green roofs - amenity bark mulch shall be topped up annually to a depth of 75mm where there is bare soil in planted areas.







To avoid accidentally damaging plants herbicides will not be used to control weeds once foliage covers 75% of the ground surface.

An 800mm diameter circle of bark mulch to a depth of 75mm will be retained around individual trees in grass in order to suppress grass and weed growth and minimise the risk of mower/strimmer damage.

3.5 Litter and Arisings

All arisings from landscape works will be removed from site and disposed of at a registered facility, recycling or composting of arisings should be prioritised unless arisings are used to create additional habitat piles (in suitable locations) at the periphery of the grass areas.

Any suitable logs derived from tree felling should be used to create the reptile Hibernaculas where possible within the scrub/woodland edge and woodland habitats.

Litter and debris shall be cleared by hand (and bagged) and removed from site on a monthly basis, and prior to mowing of grass areas.

3.6 Existing Tree Works and Tree Works

All tree surgery work is to be carried out to BS 3998:2010 Tree Work–Recommendations and should be undertaken by a suitably qualified operative. Any trees with bat potential to be inspected by a qualified bat specialist prior to any tree works commencing.

In the event that any vegetation removal works are required during the nesting season for birds, a pre-works check for any active nests should be undertaken by a suitably qualified ecologist.

Any significant pruning works to trees or hedgerows should be timed to avoid the periods March to August (inclusive) when birds are most likely to be nesting. Should birds be nesting at any time then this also applies. Lighter management works should also be aware of the presence of nesting birds during this time and delay any actions likely to cause disturbance. In the event of uncertainty the ecologist should be sought to advise.







4.0 OUTLINE MAINTENANCE OPERATIONS BY FEATURE

4.1 Retained Trees

Management Aims:

- To prolong the life and enhance the aesthetic and wildlife value of the existing trees;
- To enhance the functionality of the existing trees;
- To ensure the existing trees and areas of woodland add to the long-term enhancement of open space for ecological and recreational benefit.

Management Objectives:

- To maintain the health, safety and visual amenity of the retained trees;
- To enhance their ecological/ biodiversity value;
- To strengthen their connectivity as habitats for wildlife; and
- To maintain the varied age and structure of the trees.

Management Prescription:

- A detailed condition survey of all trees will be carried out by a qualified arborist at least once every three years. Any necessary remedial works will be carried out as soon as possible.
- An assessment of the trees suitable to support bat roosts should be undertaken by an
 ecologist prior to any tree works.
- Where possible trees or features with suitability for roosting bats should be retained, if this
 is not possible, additional surveys should be undertaken and a licence gained for the tree
 works as appropriate.
- During works any rotten/deadwood should be left in-situ where possible to provide further resources for wildlife.
- The deadwood should be used to create wood piles as and when required following the completion of the open space areas. Piles are to be no more than 600mm in height. The wood at the bottom of the pile is to be set 1/3rd into the ground.
- Piles are not to be located in areas of green space with high public usage, suitable locations include the periphery of the open spaces, away from footpaths within the woodland edge spaces.
- Remove damaged/dead trees as specified, subject to investigation and measures to avoid subsequent failure/damage.
- Carry out light pruning, removal of deadwood and repair work as necessary. All work to be undertaken by an Arboricultural Association approved contractor.
- Any gaps that appear in existing tree belts/woodland along the boundary should be monitored and on instruction from the client, infilled during Oct-March with a similar species.

4.2 New Native Trees

Management Aims:







- To successfully establish new areas of native and wildlife attractive tree planting;
- To maintain tree planting to establish a diverse tree environment; and
- To present and maintain high quality visual appearance of new tree planting.

Management Objectives:

- To maintain newly planted trees to ensure good survival rate and development;
- To minimise competition from grass and weeds from around newly planted trees;
- To maintain the health, safety and visual amenity of the new trees;
- To maintain appropriate forms of trees for future growth; and
- To ensure trees do not present a hazard to site users.

Management Prescription:

- Tree stakes, ties and guards will be regularly checked during the establishment period and
 adjusted as necessary to ensure that the developing trees are not damaged. Stakes, ties and
 guards will be removed by the landscape maintenance contractor at the earliest opportunity
 (typically between year 3 and year 5) when it is considered that the trees are selfsupporting.
- There will be a minimal pruning policy for trees as pruning wounds can provide a source of infection.
- Formative pruning of new trees will only be carried out to remove dead and diseased wood and to create a well-balanced tree with a single leader.
- If trees die the reason for death shall be investigated and addressed before replanting a replacement. If death is due to the planting conditions these shall be ameliorated. If death is due to pests or disease and likely to be present in the future, a resistant species of an alternative similar tree shall be selected.
- Where trees have become moribund due to compaction or lack of nutrients soil aeration techniques and the use of inoculants shall be considered.
- Care should be taken not to overwater trees. Until well established, all trees are to be watered during the growing season.
- Following any dry periods of 7-10 days soil water content should be assessed and watering undertaken as necessary.
- Planting areas are to be brought up to field capacity at each visit and each tree is to receive 40 litres or as required.
- If trees are showing signs of drought stress the watering regime should be reviewed and increased as required.

4.3 Wildflower Areas

Management Aims:

• To establish and maintain a grassland habitat in such a way that benefits biodiversity.

Management Objectives:







- To ensure wildflower grassland areas successfully establish, in order to provide pollen and nectar sources for invertebrates including brown-banded carder bee between April and September;
- To create grassy areas at the edges of scrubby patches, to provide nesting opportunities for invertebrate including bees;
- To manage wildflower grassland to control weeds / scrub invasion/invasive species detrimental to biodiversity;

Management Prescription:

- If deemed necessary, cut once a year in late September/October depending on weather conditions so more plants get a chance to set seed or long-term management to support late foraging carder bees. This may need to be more frequent in initial years to manage vigorous grasses and allow wildflower growth.
- To maintain structural diversity mow in weaving pattern so as to leave a small-scale mosaic of cut and uncut patches; by adopting a different random pattern the each year then some areas will be cut more often than others.
- Grassy areas should be encouraged up against scrubby edges, such that these areas can
 provide nesting opportunities for bees, these nesting areas should only be cut at the most
 bi-annually, to allow the important grass swards and litter and moss layers to develop. Some
 areas with a longer cutting rotation may also be of benefit.
- If there are problems with aggressive vegetation (ie. buddleia then cut)
- Remove the cuttings to prevent nutrient build up within the wildflower grassland.
- No fertilizer to be added.

4.5 Ornamental Shrub Planting

Management Aims:

- To successfully establish areas of new ornamental planting;
- To present and maintain high quality visual appearance of planting.
- To ensure the design concept envisaged for each area is achieved.

Management Objectives:

- To ensure satisfactory establishment and development of new planting material.
- To maintain newly planted climbers, shrubs and herbaceous plants to ensure a good survival rate and development;
- To minimise competition from grass and weeds.
- To maintain planting in a healthy and attractive condition.
- To maximise particularly intended overall effects, plant relationships and individual plant effects.

Management Prescription:

To ensure satisfactory establishment and development of new planting material.







- To maintain newly planted climbers, shrubs and herbaceous plants to ensure a good survival rate and development;
- Planting beds will be checked regularly throughout the growing season for pests and
 diseases and treated as necessary. The use of any chemical pesticides must be avoided, with
 natural methods prioritised and tried prior. If these fail then an ecologist should be
 consulted in advance and the treatment must be targeted to the specific plant'
- Prune to remove dead, dying or diseased plant material.
- Plant losses should be monitored and recorded. Replace poorly established or dead plants.
 If a particular plant becomes subject to a fatal pest or disease it shall be replaced by an alternative resistant plant with a similar form and habit.
- Water plants thoroughly during dry periods to ensure establishment.
- Keep beds free of weeds through hoeing and hand weeding.
- Apply slow release fertiliser each March /April.
- Apply mulch in spring to ensure water retention.
- Carry out dead heading as appropriate.
- Climbers to be tied in on an annual base to cover new growth. Climbers to be controlled away from shrubs and other planting.

4.6 Hard Landscape Areas (Excluding Roads)

Management Aims:

- To present the visible indication of high quality, regular site maintenance.
- To ensure hard landscape is appropriate for specific uses.

Management Objectives:

- To keep hard landscaped areas free of debris, litter, graffiti & dog faeces;
- To keep weed colonisation at a minimum and acceptable level;
- To maintain hard landscaped areas in safe condition;
- To ensure surfaces are comfortable to use and appropriate for specific uses.
- To prevent long term deterioration of surfaces due to wear and differential settlement
- To maintain an appropriate appearance relative to context.
- To prevent the physical deterioration of components
- Ensure longevity of street furniture
- To maintain street furniture, including litter bins, signage (including ecological interpretation boards), seating and bollards and replace if necessary;
- To maintain railings, fences and walls in good condition;

Management Prescription:

 Hard areas and elements will be regularly checked for subsidence and damage, and will be repaired at the earliest opportunity using the original specified material. Areas where damage poses a hazard to pedestrians shall be cordoned off with bollards and high visibility tape until repair can be organised.







- A "no tolerance" policy will apply to graffiti, which shall be removed as soon as it appears, and where necessary specialist contractors shall be employed to carry out this work.
- Regular cleaning of hard surfaces will reduce weed, moss and algae control needs.
- Where necessary weed control, using herbicide free method such as foamstream or weed brushing as necessary.
- All hard surfaces will probably need some form of weed control in places, e.g: Paving –
 gaps, cracks and other damaged areas only Self-binding and loose materials the entire
 surface
- From an environmental perspective the method of weed control will be herbicide free, therefore hand removal or other approved method such as foamstream or weed brushing.
 The need to use spot on sprays of contact or translocated herbicide shall be only used for invasive non-native species as listed under Part 2 of Schedule 9 under the Wildlife and Countryside Act 1981 (as amended).
- Maintenance of edge support and base layer drainage
- Routine inspections for health and safety resurfacing, surface treatment, painting as appropriate.
- Routine surface treatments repair of surfaces resurfacing.
- Painted and stained surfaces shall be checked at five yearly intervals. Where necessary surfaces shall be prepared and repainted/stained using the same product to maintain the integrity of the original design.
- Routine inspections for defective parts or components. The range of work will vary in relation to materials used and the intensity of use. Manufacturer's instructions are to be followed to ensure appropriate methodology.
- Report on necessary repairs and action appropriately.







5.0 POST-ESTABLISHMENT MAINTENANCE AND MONITORING OPERATIONS

5.1 Once the development proposal including landscape and ecological features have been successfully constructed and established (growing healthily and fulfilling the intended objectives) the areas shall enter the maintenance period that is subject to this LEMP.



APPENDIX A – OUTLINE ANNUAL MAINTENANCE SCHEDULE

NO	TASK	J	F	M	Α	M	J	J	Α	S	0	N	D	NOTES
		1	2	3	4	5	6	7	8	9	10	11	12	
1.0	General Tasks for all landscape areas													
1.1	Litter collection and removal from site	?	?	?	?	?	?	?	?	?	?	?	?	Keep litter free at all times
1.2	Weed control	Х	Х	?	Х	?	?	?	?	?	Х	?	Х	As specified
1.4	Watering				Х	Х	Х	X	Х	Х				Daily if required in summer
1.5	Top up mulch, firm plants, Check ties, supports etc			?							?			To 50mm as required
1.6	Pest and disease control			Х	Х	Х	Х	Х	Х	Х	Х			As required
1.7	Bird and Bat Boxes:			?										Check bird and bat boxes remain securely fixed to trees and buildings
2.0	TREE and MIXED PLANTING									,		I		
2.1	Pruning to shrubs and hedges		X	?	Х	X	Х	Х	Х	Х	?	Х		As required for species
2.2	Dead head shrubs/ herbaceous			?		?	?	?	?	?				Weekly as required
2.3	Thin out planting, Lift / divide herbaceous										?			As required
2.4	Cut back herbaceous			?										Evergreen grasses only removal of unsightly leaves
2.5	Replacement planting (all plant types)	Х	Х	Х								Х	Х	By agreement as schedule
2.6	Works to trees		Х								Х			As required to maintain form
3.0	HARD LANDSCAPED AREAS													
3.1	Sweep mulch and litter from all hard areas, Remove all stains, debris, vegetation and litter from all hard areas, furniture, drains and gullies		?		?		?		?		?		?	
3.2	Herbicide free removal of any weeds in paving or edge of paving				Х		?		Х		Х			



3.3 All other repairs to hard paving and furniture, including clearing snow and ice





NO	TASK	J	F	M	A	M	J	J	A 8	S	O 10	N 11	D 12	NOTES
		1	_		-						10	"	12	
4.0	BIO-DIVERSE MIXED PLANTING											•		
4.1	Cut back planting, leaving attractive grasses and seed heads over winter			?								?		Cut in late winter leaving grasses and seed heads – to be cut in late spring
4.2	Selectively prune shrubs, ferns, matt forming species				x	x	х	х	х	x				To avoid encroaching on other plants and to keep plants tidy and healthy
4.3	Remove leaf litter if built up									Х	Х	Х		As required
4.4	Hand weed with particular attention to shrub and tree seedlings and annuals					?			?					
4.5	Watering	X	Х	X	Х	X	x	X	x	Х	Х	Х	х	Regularly inspect plants and water if weather has been dry for over 2 weeks or very windy to avoid plants drying out.
5.0	AMENITY AND WILDFLOWER SEEDING													
5.1	Amenity Grass Mowing (flowering lawn)				?	?	?	?	?	?	?			10-12 cuts per season. Cut every three weeks or so in the growing season allowing plants to flower at about 5cm high.
5.2	Amenity Grass Trim/neaten edges				?	?	?	?	?	?	?			Edges can be mown more regularly to maintain a well-kept appearance
5.3	Amenity Grass spot weeding					?								no additions of artificial fertilisers or chemicals. Management of plants like docks and nettles may be required
5.4	Wildflower Mowing			Х						Х				2 cuts per season (after first year). If pollen and nectar sources are abundant, cutting should preferably occur September to March and cuttings should be removed.



									If pollen and nectar sources are limited, cutting areas of grassland during April to September should occur on a small scale and in sections or on rotation, this type of
									cutting will ensure that suitable plants are always available for bumblebees.
									Create grassy areas at the edges of scrubby patches: As these provide potential bee
									nesting sites. Nesting areas should only be cut at the most, bi-annually to allow the important grass swards and litter and moss layers to develop.
5.5	Wildflower weeding			?					Hard remove weed or use non- herbicide removal method such as foamstream.
5.6	Ponds	x	x		X	x	x	x	Year 1- to 5. During the first year of establishment pond to be monitored on a bi-monthly basis to check water levels (ensuring pond retains water) and monitor establishment of aquatic planting. management would involve remedial actions to ensure that the pond retains water, such as any necessary repairs to pond lining or assistance in filling the pond. Planting would occur as necessary where natural colonisation is deemed unsatisfactory to achieve a viable community.



APPENDIX B – MAINTENANCE PRESCRIPTIONS

Establishment Years 0-5			
Ref	Management Categories	Timing	Maintenance task and Method
	All planting areas	Every visit	Ensure continued health of all landscaping - water as required to ensure that the planting continues to establish successfully. Fertilise as required to ensure that the planting continues to establish successfully (except areas of acid grassland/wetland grassland/orchard meadow/sedum strips/wildflower meadows and flowering lawns which must not be fertilised as it will negatively affect the species diversity) Investigate any failed growth and take remedial action as necessary.
		Monthly	Removal of rubbish and debris - clear litter and fly-tipped rubbish by hand and remove from site responsibly. Remove rubbish and debris from grass areas before mowing. Inspect for vandalism - visual inspection of all landscaping for vandalism, report to client. On instruction from client replace any landscaping damaged by vandalism. Control pests and diseases.
		Annually	Monitor and record any plant losses and report to client - on instruction from client remove dead plant and replace as per original approved specification, unless otherwise agreed (with the landscape architect) to plant alternative species. Maintain to ensure survival. Re-planting to be undertaken in November/December or next planting season. Remove exotic/non desired/invasive plant species that do not belong in each type of habitat/the general environment - check all landscaped areas for exotic species, clear by hand and remove from site Control vigorous plant species that are out competing less vigorous species - check all landscaped areas for invasive species e.g. self-seeded sycamore, brambles, ground ivy and nettles. Reduce/clear by hand and remove from site responsibly.
		Year 1 in winter Year 2-5 during November	Clear scrub to maintain access routes.



Trees/tree groups/ woodland buffer/structural shrubs - retained and newly planted	Prior to any tree works	An assessment of the trees suitable to support bat roosts should be undertaken by an ecologist prior to any tree works. Where possible trees or features with suitability for roosting bats should be retained, if this is not possible, additional surveys should be undertaken and a licence gained for the tree works as appropriate.
	Monthly	 Ensure trees/shrubs are stable - visually inspect tree/shrub guards/shelters to check for signs of bark damage or damage. Check that stakes, ties and guards are not too loose, too tight or broken. Check underground anchors. On instruction from client, replace or upgrade guards/shelters as necessary. Visual inspection for fungal activity (for trees this is to be performed by a qualified arboriculturist) – remove diseased wood or treat as appropriate. Keep use of pesticides to a minimum. Inspection to be undertaken March to October when trees/shrubs are still in leaf.
	3 times per annum	 Visually inspect bark mulch areas around trees and top up to 75mm depth, if required. Remove any weeds within the mulch by hand, do not use strimmers in these areas - April/June/August. Visually inspect structural shrub surrounds for grass/weeds - remove by hand. Do not use strimmers - April/June/August. No herbicides to be used.
	Annually	 Undertake an establishment survey for new trees - to be undertaken by a qualified arboriculturist, any recommendations to assist with establishment must be undertaken as soon as possible. Keep paths/highway/parking clear from branches/vegetation - pruning/cut back any tree branches/vegetation encroaching. Trees shall be pruned to a height of 5m if overhanging highways and 3m if over paths. Remove dead, damaged or dying branches as appropriate except for Orchard trees where dead/damaged branches will be left unless deemed unsafe.



	Biennial (or as recommended)	 Existing trees/woodland only subject to light pruning/removal of deadwood/repair work as necessary. Deadwood should be used to create log piles. Gaps in tree belts should be monitored and trees replaced on instruction from client with similar species or an alternative species when recommended by arboriculturist/ landscape architect. Formative pruning of new non-orchard trees - to create a well-balanced tree with a single leader and, by rubbing off any shoots, creating a clear stem of 2m. Orchard trees will also need formative pruning to establish strong balanced branch network. Apples, Pears and Cobnuts to be pruned during Winter. Stone fruits to be pruned over summer. Application of chemicals to control pests/diseases should only be used as last resort. Monitor for Ash die-back and remove/replace trees if required. Check tree safety - identify hazards and carry out necessary maintenance works. A detailed visual tree condition assessment is to be undertaken by a qualified arboriculturist of all new and existing tree planting, with instrumental back up where necessary. Any resulting remedial tree works are to be carried out to BS
		3998:2010. Keep records up to date.
	3-5 years after planting	Confirm root growth is well established and remove stakes, guards and ties from trees.
Native Shrub/Thicket	Twice – 3 times per	Maintain weed-free base surrounding shrub base for 1st year
Planting	annum	
	As/when required	Water newly established plants thoroughly during dry periods
	Annual	Annual checks to monitor scrub planting, remove undesired species/replace dead
		and dying plants, control pests and diseases.
		Pruning of woodland edge scrub should be done in rotation, 1/15th every year to
		allow for a varied age structure. Hand tools to be used. (Cut Sept-Feb)
		Scrub should be kept at a maximum of 5ms high.
		Along the woodland/tree edge scrub planting should be allowed to grow up to 6ms
		wide in a scalloped form to increase biodiversity.



		Coups should be pruned to be small with sinuous edges to increase structural
		diversity.
		Rotational coppicing (Every 7-15yrs depending on species) of thickets/coups, with
		several coups cut each year.
		Timing of pruning/coppicing Sept-Jan
	3-5 years after planting	Thinning/selective removal of individual stems and shrubs should be carried out,
		reduce scrub stands by cutting (hand tools) and then remove stumps. Use enviro-
		plug to prevent regrowth only with approval from an ecologist or landscape
		architect. Sept-Jan
Proposed Hedgerows	As required	Regularly water the hedgerow planting to ensure the soil is brought up to field
		capacity - quantity of water required should be as per suppliers' recommendation
		and following an assessment of the soil water retention capacity. Daily
		observations shall ensure the hedges are not suffering from over
		watering/drought.
	Monthly	Check hedgerows for gaps, record and infill during late October to March. Plant
		replacements, of a species mix to match the hedgerow, in a suitably prepared soil
		bed.
		using a temporary fence/guards.
		Keep hedgerow planting free from weeds - visually inspect bark mulch areas
		around planting and top up mulch to 75mm depth, if required. Remove any weeds
		within the mulch by hand, hoe or fork. Take care not to disturb shrub roots and
		excessive treading of bed surface.
		Do not use strimmers or herbicides in these areas - March to October.
	Annually	Prune hedgerows on alternate sides to ensure a good shape and healthy growth.
		Management to be undertaken in January. The native hedgerow will be
		maintained at 1.5m in height and approximately 1m in width.
		• Identified suitable plants in hedgerows to develop into frequent standard trees,
		maintain as per tree maintenance and management.
		• If plants suffer from wind rock re-plant in an upright position and re-firm plants -
		January/February.
	3-5 years after planting	Confirm root growth is well established and remove shelters, stakes, guards and
		ties from hedgerow plants.



Ornamental Planting	Monthly	 Keep planting beds free from weeds. Visually inspect bark mulch areas around planting and top up to 75mm depth, if required. Remove any weeds within the mulch by hand, hoe or fork. Take care not to disturb shrub roots and excessive treading of bed surface. Do not use strimmers or herbicides in these areas - March to October. Keep paths and parking bays clear from vegetation - prune back ornamental planting which has encroached. As required from March to October. Keep ornamental planting in prime condition and appearance - qualified horticultural staff to inspect and check on condition of ornamental planting. Prune dead foliage, flowers and extension growth as necessary. Divide perennials as necessary. Formative and seasonal pruning to shrubs to create a natural shape - do not routinely clip shrub. Apply organic fertiliser if required. Re-plant in an upright position and re-firm plants that suffer from windrock. Management to be undertaken as required depending on species. Check on health of ornamental planting - qualified horticultural staff to inspect planting and deal with individual problems as they arise. Keep pesticide use to a minimum - March to October.
	2 times per annum	Removal of excessive leaf litter and fallen twigs and branches - use leaf blower and leaf litter collection equipment - November to December
Grasslands - Wildflower grasslands, long grass and wetland meadow	Establishment Cutting Regime - Year 1 - long meadow margins/wetland meadow	Long meadow margins/wetland meadow grass/wildflower grasslands: For first year management only, newly created and enhanced grassland will be cut to 5-10 cm in March/April to deter vigorous grasses. Cutting will then occur every 2 months or when the sward height reaches 15 cm, until June / August, if (through monitoring by an experienced ecologist or landscape architect) this is determined to be required, to encourage a range of later-flowering species for foraging carder bee. If the target assemblage/forage species for carder bee and other bumblebee species are attained during the first year this cutting frequency will be reduced with a later



	Cutting Regime - Year 2 onwards — Biannually long meadow margins /wetland meadow	cut in late-September/October in line with long-term management for this habitat. Arisings are to be removed from the site to maintain species richness. If sown in autumn, allow to grow during spring and early summer. Mow regularly from mid-summer throughout the growing season to maintain the height. Do not cut grass in drought conditions. Mow with suitable machinery - no mower or strimmer will be allowed within 400mm of a tree trunk. Edge and trim junctions between grassland / wildflower and hard surfaces to maintain a neat and tidy appearance. Remove arisings from site and dispose of responsibly. Clean adjoining path areas after mowing. • Wetland meadow grassland: cut twice annually - cut to 50mm (cut in late Spring and Autumn). • Long grass margins: (areas adjacent to scrub) a width of approximately 3m will be cut annually on rotation with one third of long meadow margins being cut on alternate years. These areas will be regularly reviewed to ensure they are suitable. • Do not cut grass in drought conditions. Mow with suitable machinery - no mower or strimmer will be allowed within 400mm of a tree trunk. Edge and trim junctions between grassland and hard surfaces to maintain a neat and tidy appearance. Clean adjoining path areas after mowing. If possible, arisings should be left on the ground for 3-7 days to dry and shed seeds prior to their removal, and then used to create habitat piles.
	Annually	Scrub removal from long meadow margins and wetland meadow to be undertaken outside of the bird nesting season.
	Biennial (Every 2 yrs)	Monitor floristic diversity of new grassland/meadow areas in areas where species richness is promoted - June. To be undertaken by qualified Ecologist.
Amenity Grassland	Fortnightly – Amenity grassland	Control height of amenity grass to between 25-50mm (approx. 12 times during growing season e.g. fortnightly April-September). Do not cut grass in drought conditions. Mow with appropriate machinery. Remove arisings from site and dispose of responsibly. Clean adjoining path areas after mowing. • Allow bulbs to flower and build up energy - do not cut grass in bulb areas until 6 weeks after flowering.



		Keep grass areas free from weeds - remove weeds and encroaching scrub by hand, hoe or fork, or mowing, as appropriate. Undertake monthly from March to October, or as required.
	Annually	Keep grassland areas in good condition - check and report to client on damaged areas. On instruction from client repair damaged/failed areas and re-sow seed. Apply feed treatment to amenity grass only, do not apply feed to long grass, wetland meadow grass. Undertake aeration and thatch removal if required. April or September
Sedum	First 2 months or until establishment	Water sedum every day until establishment. Then only in drought conditions.
	Annual	Monitor annually and hand weed as per necessary.
Orchard Mea	ndow Monthly	Following establishment, cut delineated paths monthly to retain access for management (April – Sept)
	Annual	Annual cut in the autumn for main area. Rotational cutting around edges allowing for approximately a third of the edge grassland being cut on alternating years. No mower or strimmer will be allowed within 400mm of a tree trunk. Remove cuttings from site responsibly or compost. Herbicides and fertilisers/grass growth regulator not permitted. Rolling and harrowing not permitted Any encroaching scrub vegetation shall be removed by hand picking/ weeding, this should be undertaken in the winter months, to avoid the bird nesting season. The application of chemicals to control pests and diseases should only be used as last resort.
	Year 2, Year 5	Monitoring surveys to assess the success of the establishment (7 no. visits, April - June) during suitable weather.
Attenuation Marginal Pla		Long meadow margins/wetland meadow grass: control height - cut to between 50-100mm (regularly mow throughout the growing season, April - September, or as required to maintain the height). If sown in autumn, allow to grow during spring and early summer. Mow regularly from mid-summer throughout the growing season to maintain the height.



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		Do not cut grass in drought conditions. Mow with suitable machinery - no mower or strimmer will be allowed within 400mm of a tree trunk. Scythe to be used in ditches if gradient is too steep. Edge and trim junctions between grassland / wildflower and hard surfaces to maintain a neat and tidy appearance. Remove arisings from site and dispose of responsibly.
		Clean adjoining path areas after mowing.
	Cutting Regime - Year 2 onwards — Biannually long meadow margins /wetland meadow	 Wetland meadow grassland: cut twice annually - cut to 50mm (cut in late Spring and Autumn). Long grass margins: (areas adjacent to scrub) a width of approximately 3m will be cut annually on rotation with one third of long meadow margins being cut on alternate years. These areas will be regularly reviewed to ensure they are suitable. Do not cut grass in drought conditions. Mow with suitable machinery - no mower or strimmer will be allowed within 400mm of a tree trunk. Edge and trim junctions between grassland and hard surfaces to maintain a neat and tidy appearance. Clean adjoining path areas after mowing. If possible, arisings should be left on the ground for 3-7 days to dry and shed seeds prior to their removal, and then used to create habitat piles.
	Annual (or as required)	Control encroaching scrub/structural planting to maintain integrity of the basin – Between Oct –Jan inclusive. Monitor condition of wetland features associated with attenuation basins/ existing ditches, photographic record with obtained by qualified Ecologist. If aquatic/emergent/marginal planting takes over 50% of the surface of the attenuation basin it will be hand pulled. If marginal/emergent planting spreads to the southern slopes of the pond it will be removed via hand.
Dry Swales/Terraced Dam ditches and planting	Annually	Management to be undertaken in autumn (November) to minimise potential impacts to reptiles and amphibians; any removal of silt/vegetation is to be done with care and left on the banks for 24hrs before removal to allow any wildlife to disperse.



Prune as necessary to promote healthy growth. Winter - visually i	nspect
pests/diseases and replace poor established /dead plants.	
Keep planting free from weeds by hand/hoe.	
Remove any litter caught in ditches	
Hard Surfacing and As necessary Remove graffiti - as soon as it appears, where necessary specialist	contractors shall
Landscaping be employed to carry out this work.	
Twice weekly April-Sept; Empty bins - remove and replace bags form bins and deposit in leg	gal tip.
Weekly October – March Keep hard landscape areas clean - remove litter, debris and faeces	3. Use pressure
(or as required) washer to remove chewing gum and staining. Fortnightly March to	o October and as
required during the winter months.	
Monthly Maintain all hard landscape areas/elements, including footpaths,	signage, seating
and other street furniture, in a safe and clean condition - monitor	and report to
client on damaged areas/items and repair as instructed by the client	nt. Repair using
the original material/product to maintain the integrity of the designation of the designa	gn. Areas where
damage poses a hazard to pedestrians shall be cordoned off with	bollards and high
visibility tape until repair can be organised.	
2 or 3 times per annum Removal of excessive leaf litter and fallen twigs and branches - us	e leaf blower and
leaf litter collection equipment - November to December.	
Keep hard landscaped areas clear of weeds - kill weeds using a no	n-herbicide
method- April, June and August.	
Every 5 yrs Check painted and stained surfaces for fading/damage - where ne	cessary prepare
and re-paint/stain using the same product to maintain the integrit	y of the design.
Bat Boxes Annual Cleaning not required of bat boxes integrated into buildings. Visua	ally inspect for
any damage and replace if necessary. Any replacement or invasive	e checks to be
carried out by a bat licence holder.	
Bird Boxes Annual Annual cleaning is best carried out from late September to Februa	ıry.
Visually inspect for any damage and replace if necessary	
Biennial (Year 2,5 after 3 no. Visits May - June - Check bird boxes to monitor their uptake	and therefore
development) success of enhancement. Checks to be undertaken/supervised by	suitably qualified
Ecologist. If after Year 2, less than 50% of the bird boxes are in use	e, then remedial
action such as relocation of bird boxes should be undertaken.	



Log piles and	Annual	Visual inspection of log piles and hibernacula etc. to maintain wildlife value
Hibernacula including		Minimal intervention after creation to maintain habitat.
Bee/Bug boxes		
Wildlife Ponds	Sept-Nov	Year 5 to 30. Ponds would be monitored to identify and remove any INNS. As
		floating vegetation blocks out sunlight by shading, monitoring would also review
		cover of species such as duckweed (Lemna spp.) or filamentous algae. Where
		identified each INNS or undesirable species would be appropriately controlled and
		removed, under advice from a specialist INNS contractor as required. Methods to
		achieve this include removing aquatic vegetation by hand, and leaving it on the
		side for a few days to allow any species within the vegetation to return to the
		pond. This work should be timed to minimise disturbance to pond life, between
		September to November.

• - Critical months for operations.

X - Operations to take place subject to site requirements

• - Critical months for operations.

X - Operations to take place subject to site requirements