



Fort Estates.

Crabtree Farm, Barwell

LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN

April 2023

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1.0 INTRODUCTION

1.1 The following Landscape and Ecological Management Plan (LEMP) has been prepared by FPCR Environment and Design Ltd. on behalf of Fort Estates in response to Condition 10 of the Reserved Matters planning consent (21/00695/FUL), for development Crabtree Farm, Barwell, which states:

1.2 *Prior to the commencement of the development hereby approved. A landscape and ecological management plan (LEMP) for the development site shall be submitted to and approved in writing by, the local planning authority.*

The LEMP shall include the following.

a) Description and evaluation of features to be managed.

b) Ecological trends and constraints on site that might influence management.

c) Aims and objectives of management.

d) Appropriate management options for achieving aims and objectives.

e) Prescriptions for management actions.

f) Preparation of a work schedule (including an annual work plan capable of being rolled forward over a five-year period).

g) Details of the body or organisation responsible for implementation of the plan.

h) Ongoing monitoring and remedial measures.

The plan shall also set out (where results from monitoring show that conservation aims and objectives of the LEMP are not being met) how contingencies and/or remedial action will be identified, agreed and implemented so that the development still delivers the fully functioning biodiversity objectives of the originally approved scheme. Thereafter, the LEMP will be implemented in accordance with the approved details.

1.3 This document should be read in conjunction with the detailed Landscaping plans for the site (drawing numbers EML FE 1155 01, EML FE 1155 02 and EML FE 1155 03, East Midlands Landscaping Limited).

Site Location and Context

1.4 The site located to the southwest of Barwell, Leicestershire (Central Grid Ref: SP 43626 96214). Approximately 2 hectares in size, the site comprises two narrow improved grassland fields with hedgerows with mature trees. A pond lies to the west of the site. No significant ecological constraints were identified prior to determination of the application and the site was identified as being of low ecological importance.

Development Proposals

1.5 The proposals are for a residential development of 51 plots, associated landscaping, Public Open Space (POS) and SUDS/pond area.

Responsibility for Implementation

1.6 Responsibility for implementation of the LEMP will fall into two parts:

- Management required during the construction stage, which will be the responsibility of the developer Fort Estates; and
- Post-development, management will be the responsibility of an appointed management company.

Legislation & Policy

- 1.7 All relevant EU and UK nature conservation law will be adhered to in relation to the protection of ecological features and ecological enhancement/management. This includes the protection afforded to great crested newts (GCN) under the Conservation of Habitats and Species Regulations 2017 (as amended), and the protection afforded to reptiles and nesting birds under the Wildlife and Countryside Act 1981 (as amended).
- 1.8 The presence of Habitats of Principal Importance under Natural Environment and Rural Communities Act (NERC) 2006, Local Biodiversity Action Plan habitats, and non-statutory designated Local Wildlife Sites (LWS) should also be considered (including hedgerows, wet ditches and the adjacent woodland).

Health and Safety

- 1.9 Fort Estates and their appointed contractors will assume all responsibility with regards to health and safety when implementing the management plan.

2.0 DESIGN AND MANAGEMENT OBJECTIVES

Key Objective

- 2.1 The principal conservation objective for the development is to enhance the nature conservation value of the retained and newly created habitats.
- 2.2 To ensure this objective is achieved, monitoring will form an integral part of the LEMP, as detailed within Section 5.

Overall Aims

- 2.3 The landscape and ecological design/ management aims are as follows:
- To safeguard and enhance the biological and physical integrity of retained habitats along the field boundaries and the boundaries of the site;
 - To provide high quality habitats within the green infrastructure and open spaces of the site of visual, recreational and nature conservation value;
 - To provide habitats of value to a range of faunal species/groups, maintaining and enhancing populations of protected/notable species identified within the site and in the local area;
 - To enhance public awareness and appreciation of the habitats and associated flora and fauna of the site;
 - To comply with legal obligations and constraints.

- 2.4 The LEMP will provide a framework to balance the use of the site as a residential area with the wildlife interests within and adjacent the site; this will be crucial to prevent any conflict of interest between its conservation and its amenity value.

3.0 LANDSCAPE AND ECOLOGICAL SPECIFICATION

- 3.1 Existing habitats will be retained where feasible within the development and will be protected throughout the enabling and construction phases.
- 3.2 The Plan will create a matrix of new and existing habitats and corridors through the site to encourage the establishment and movement of wildlife.
- 3.3 The following section outlines the aims and objectives of the habitat creation proposed, with specifications and prescriptions to implement these, with **Section 4** outlining the management regime and works programme to achieve this.

General

- 3.4 Shrub, tree and hedgerow planting are to be delivered and planted in accordance with HTA Standard 'Handling and establishing landscape plants' (obtainable from the Horticultural Trades Association) Part III, paragraphs 6.2 to 6.6 and should also accord with the planting plans. All plants should be stored only when necessary in accordance with the HTA's 'Handling and establishing landscape plants' (obtainable from the Horticultural Trades Association) Part I, Part II and Part III, paragraphs 1.3.3 to 1.3.6, 3.0, and 4.0.
- 3.5 Planting is to remain materially undamaged, sturdy, healthy and vigorous, planted upright or well balanced with best side to front. Trees and shrubs are to be of good shape and without elongated shoots, grown in a suitable environment and hardened off before being delivered to the site. All planting is to be true to name, of UK provenance and free from pests, diseases, discoloration, weeds, fungus and physiological disorders.
- 3.6 All trees should take into consideration the recommended minimum distances to foundations as set out in Chapter 4.2 of the NHBC Standards. Planting should accord with these standards unless checked and verified by the project engineer. For further species calculations refer to Chapter 4.2 of the NHBC Standards, and for species not included use a mature height of 2/3 the specified height in A. Mitchell's 'Trees of Britain and Northern Europe'.
- 3.7 All works are to be undertaken with due diligence being sure to leave the works in a clean and tidy condition at completion and after any maintenance operations. Protect areas affected by planting operations using boards/ tarpaulins and do not place excavated or imported material directly on adjacent grassed areas.
- 3.8 Bare root deciduous planting shall be carried out from late October to late March; conifers and evergreens either September/October or April/May, herbaceous plants [including aquatic and marginal] September/October or March/April. Container grown plants at any time of year if ground and weather conditions are favourable. Bare root deciduous planting to be carried out only during suitable ground and weather conditions. Planting shall not be carried out in waterlogged or frozen ground.

Native Shrub and Hedgerow Planting

- 3.9 Hedgerows are identified as a Habitat of Principal Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.
- 3.10 All existing hedgerows onsite are to be retained. They will be assessed on site and if required, cut back, re-layed & gapped up, to improve the condition, in accordance with arboricultural & ecological report recommendations.
- 3.11 New hedgerows will be planted during the planting season (October to March inclusive) and will comprise mixed, native species, planted at 0.4m double staggered rows (DSR), as per the detailed Landscaping Plans.
- 3.12 Native shrub planting should also take place between October and March, with plants set in holes at the same depth at which they were previously growing. Planting holes should be excavated approximately 150mm larger than the root balls and backfilled with a mixture of topsoil. Plants to be a minimum of 300mm from any adjacent hard surface. All stock to be well watered when planted with 20L of water per m2.
- 3.13 Following planting and watering operations, all new hedgerow planting/ beds are to be mulched with 75mm of mulch (5-75mm particle size, British origin, FSC certified). Individual spiral guards and bamboo canes will be required to prevent damage to saplings by browsing rabbits.

Species	Height	Mix %	Number
<i>Acer campestre</i> field maple	60 - 80cm	5%	109
<i>Corylus avellana</i> Hazel	60 - 80cm	5%	109
<i>Crataegus monogyna</i> Hawthorn	60 - 80cm	60%	1304
<i>Ilex aquifolium</i> Common Holly	60 - 80cm	5%	109
<i>Lonicera periclymenum</i> Common Honeysuckle	60 - 80cm	4%	86
<i>Malus sylvestris</i>	60 - 80cm	4%	86
<i>Prunus spinosa</i> Blackthorn	60 - 80cm	5%	109
<i>Rosa canina</i> Dog Rose	60 - 80cm	5%	109
<i>Sambucus nigra</i> Elder	60 - 80cm	2%	44
<i>Sorbus aucuparia</i> Rowan	60 - 80cm	5%	109

Tree Planting

- 3.14 Specimen tree planting will be undertaken across the site in order to provide structural diversity and to enhance connectivity across the green infrastructure.
- 3.15 New trees should be planted between October and March, avoiding periods of inundation or prolonged ground frost. This will accord with BS 8545:2014. Trees are to be mulched using wood chippings or bark to establish a 1m diameter around the tree stem.
- 3.16 Ten species of specimen tree planting are proposed, as detailed within the following table:

Species	Height	Girth	Number
<i>Alnus glutinosa</i> Black alder	150 - 175cm		3
<i>Betula pendula</i> silver birch	150 - 175cm		4
<i>Betula pendula</i> silver birch	400 - 450cm	14 - 16cm	10
<i>Prunus</i> 'Sunset Boulevard'	400 - 450cm	14 - 16cm	5
<i>Prunus avium</i> Sweet Cherry	150 - 175cm		2
<i>Prunus avium</i> Sweet Cherry	400 - 450cm	14 - 16cm	3
<i>Pyrus calleryana</i> 'Chanticleer' Callery Pear	400 - 450cm	14 - 16cm	9
<i>Sorbus</i> 'Joseph Rock'	400 - 450cm	14 - 16cm	6
<i>Sorbus aucuparia</i> Rowan	150 - 175cm		2
<i>Tilia cordata</i> Small-leaved Lime	150-175cm		1

Ornamental Hedgerow Planting

- 3.17 Plants must be set in the holes at the same depth at which they have previously been growing with planting holes excavated approximately 150mm larger than the root balls and backfilled with a mixture of topsoil.
- 3.18 Plants to be a minimum of 300mm from any adjacent hard surface. All stock to be well watered when planted with 20L of water per m². Following planting and watering operations, all beds are to be mulched with 75mm of mulch (5-75mm particle size, British origin, FSC certified)
- 3.19 Ornamental hedgerow will comprise the following species:

Hedge	Species	Density	Height	Pot size	Number
Hedge 1	<i>Buxus sempervirens</i>	3/m	40 - 60cm	5L	101
Hedge 2	<i>Photinia fraseri</i> 'Little Red Robin'	3/m	40 - 60cm	5L	176

Shrub Planting

- 3.20 Ornamental and specimen shrub planting will include small to medium sized evergreen and deciduous plants, with the specimen shrubs adding height and structure. Species will be selected to maximise food and nectar opportunities for birds, small mammals and invertebrates.
- 3.21 Plants must be set in the holes at the same depth at which they have previously been growing with planting holes excavated approximately 150mm larger than the root balls and backfilled with a mixture of topsoil.
- 3.22 Plants to be a minimum of 300mm from any adjacent hard surface. All stock to be well watered when planted with 20L of water per m². Following planting and watering operations, all beds are to be mulched with 75mm of mulch (5-75mm particle size, British origin, FSC certified).

Species	Density	Height	Pot Size	Number
<i>Abelia grandiflora</i> 'Compacta'	3/m ²	30 - 40cm	3L	2
<i>Aucuba japonica</i> 'Crotonifolia'	3/m ²	30 - 40cm	3L	4
<i>Berberis buxifolia</i> 'Nana'	4/m ²	20 - 30cm	2L	40

Species	Density	Height	Pot Size	Number
<i>Berberis darwinii</i>	3/m ²	40 - 60cm	3L	45
<i>Brachyglottis</i> 'Sunshine'	3/m ²	30 - 40cm	3L	267
<i>Choisya ternata</i> 'Sundance'	3/m ²	30 - 40cm	3L	32
<i>Convolvulus cneorum</i>	3/m ²	20 - 30cm	3L	78
<i>Eleagnus ebbingei</i> 'Gilt Edge'	3/m ²	40 - 60cm	3L	67
<i>Euonymus fortunei</i> 'Emerald 'n' Gold'	4/m ²	20 - 30cm	3L	195
<i>Euonymus fortunei</i> 'Emerald Gaiety'	4/m ²	20 - 30cm	3L	76
<i>Fuschia</i> 'Mrs Popple'	3/m ²	30 - 40cm	3L	49
<i>Hebe</i> 'Green Globe'	3/m ²	20 - 30cm	3L	186
<i>Hebe</i> 'Mrs Winder'	3/m ²	20 - 30cm	3L	28
<i>Hebe rakaiensis</i>	3/m ²	20 - 30cm	3L	74
<i>Lavandula angustifolia</i> 'Hidcote'	3/m ²	30 - 40cm	5L	72
<i>Lavandula angustifolia</i> 'Munstead'	3/m ²	30 - 40cm	5L	32
<i>Mahonia</i> 'Soft Caress'	3/m ²	30 - 40cm	3L	44
<i>Olearia haastii</i>	3/m ²	40 - 60cm	3L	67
<i>Pieris japonica</i> 'Little Heath'	4/m ²	20 - 30cm	3L	135
<i>Rosmarinus officinalis</i> 'Miss Jessopp's Upright'	3/m ²	30 - 40cm	3L	21
<i>Santolina rosmarinifolia</i>	4/m ²	20 - 30cm	3L	95
<i>Sarcococca hookerana humilis</i>	3/m ²	30 - 40cm	3L	117
<i>Skimmia japonica</i> 'Rubella'	3/m ²	30 - 40cm	3L	117

Native shrub planting:

Species	Density	Height	Mix %	Number
<i>Acer campestre</i>	2/m ²	60 - 80cm	2%	19
<i>Cornus sanguinea</i>	2/m ²	60 - 80cm	10%	94
<i>Corylus avellana</i>	2/m ²	60 - 80cm	2%	19
<i>Crataegus monogyna</i>	2/m ²	60 - 80cm	65%	609
<i>Malus sylvestris</i>	2/m ²	60 - 80cm	2%	19
<i>Prunus spinosa</i>	2/m ²	60 - 80cm	10%	94
<i>Rosa canina</i>	2/m ²	60 - 80cm	7%	66
<i>Sambucus nigra</i>	2/m ²	60 - 80cm	2%	19

Amenity grassland

- 3.23 Formal areas of public open space will incorporate turf, supplied in accordance with BS 3969:1998+A1:2013 and all turfing operations in accordance with BS 4428:1989.
- 3.24 Turf should be inspected and laid on the day of delivery. Areas should be watered thoroughly immediately after and for the following 7-days after laying until the roots have established.

Attenuation Feature & Surrounding Meadow Grassland

Attenuation Feature

- 3.25 The attenuation feature has been designed to provide habitat for amphibians, as per the detailed on EMLFE 1155 01.
- 3.26 The attenuation feature will incorporate gently sloping sides, maximising the drawdown zone and focusing on edge habitats. This will create differing conditions of light and temperature and will thus maximise and encourage a diversification in the flora and associated fauna. The shallowest areas could grade into an expanse of seasonally wet mud that may attract a further variety of invertebrates and plants, which will, in turn, attract other fauna including birds and other mammals. The drawdown zone should be contoured and gently undulated to increase diversity within the wetland zones. Margins should be shallow to maximise productivity and the potential for wildlife, and have shelves of low gradients, gently shelving to the detention basin base.

Seeding

- 3.27 The attenuation feature and the surrounding grassland will be seeded with **EM8 Meadow Mixture for Wetland**, with species able to accommodate periodically wet conditions.
- 3.28 Wet grassland seed will be sown at 4g/m² as per the general manufacturer's recommendation to allow space for each species to establish, and to produce good ground cover. Areas to be sown will be first rotovated and raked or harrowed to produce a medium fine, firm tilth. Fertiliser will not be applied at any point as this will lead to dominance of nutrient loving species such as broadleaved grasses, nettles and docks. The Contractor will protect newly seeded areas to prevent seedling destruction by pedestrians.
- 3.29 Seed will be sown at a time when the soil is moist and can be worked, in the autumn (October) or early spring (March), and not during the summer months. Seeding will be sown by hand broadcasting, seed fiddle, spinner or grass seed drill on the surface and will not be raked or harrowed in. A Cambridge (ribbed) roll is recommended to be used for one or two passes to firm and level the surface and create good seed soil contact. During initial establishment the grassland should be mown when it reaches 100mm in length for the first year.

EM8 – Meadow Mixture for Wetlands

Species		% Composition
<i>Achillea millefolium</i>	Yarrow	2.0
<i>Betonica officinalis</i>	Betony	0.1
<i>Galium verum</i>	Lady's Bedstraw	2.4
<i>Leucanthemum vulgare</i>	Oxeye Daisy	0.6
<i>Plantago lanceolata</i>	Ribwort Plantain	4.0
<i>Rumex acetosa</i>	Common Sorrel	0.1
<i>Silaum silaus</i>	Pepper Saxifrage	0.1
<i>Primula veris</i>	Cowslip	0.2
<i>Silene flos-cuculi</i>	Ragged Robin	1.0

Species		% Composition
<i>Ranunculus acris</i>	Meadow Buttercup	1.4
<i>Lotus pedunculatus</i>	Greater Birdsfoot Trefoil	0.8
<i>Lathyrus pratensis</i>	Meadow Vetchling	0.4
<i>Succisa pratensis</i>	Devil's-bit Scabious	0.1
<i>Sanguisorba officinalis</i>	Great Burnet	1.0
<i>Vicia cracca</i>	Tufted Vetch	0.1
<i>Angelica sylvestris</i>	Wild Angelica	0.1
<i>Centaurea nigra</i>	Common Knapweed	4.0
<i>Filipendula ularia</i>	Meadowsweet	1.0
<i>Leontodon hispidus</i>	Rough Hawkbit	0.6
<i>Agrostis capillaris</i>	Common Bent	2.0
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	2.0
<i>Briza media</i>	Quaking Grass	4.0
<i>Cynosurus cristatus</i>	Crested Dogstail	48.0
<i>Deschampsia cespitosa</i>	Tufted Hair-grass	2.0
<i>Festuca rubra</i>	Red Fescue	22.0

Marginal planting

- 3.30 While new ponds often show a rapid rate of natural colonisation, planting the SUDs with marginal vegetation will speed up this process and help to provide immediate habitat for wildlife.
- 3.31 Marginal vegetation should not exceed 20% of the open water. Plugs will be planted out in April or May when frosts have passed. Plants should be planted at a density of 9 plants per m², firmly heeled in to prevent plants being dislodged/floating away.

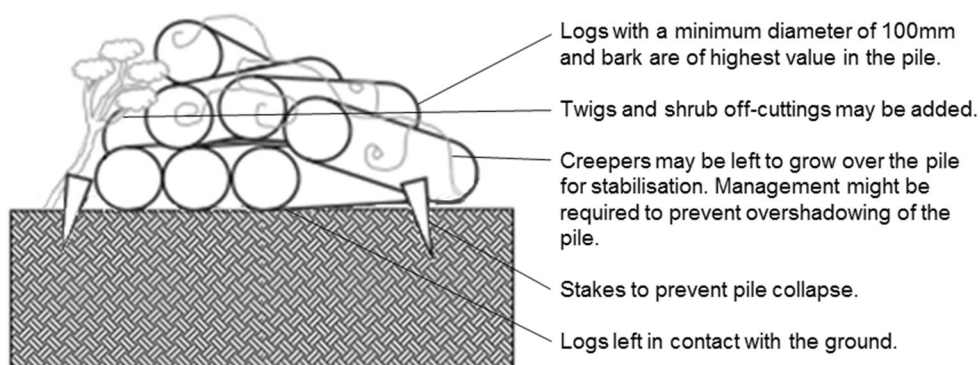
Species		Depth
Taller Aquatics Plants		
<i>Sagittaria sagittifolia</i>	Arrowhead	0-30cm
<i>Stachys palustris</i>	Marsh woundwort	0-20cm
<i>Ceratophyllum demersum</i>	Hornwort	45-90cm
<i>Lythrum salicaria</i>	Purple-loosestrife	0-10cm
<i>Lychnis flos-cuculi</i>	White Robin	0-20cm
<i>Iris pseudacorus</i>	Yellow flag iris	0-30cm
<i>Caltha palustris</i>	Marsh-marigold	0-60cm
Low Growing Aquatic Plants		
<i>Veronica beccabunga</i>	Brooklime	0-10cm
<i>Myriophyllum spicatum</i>	Spiked water milfoil	30-20cm

Species		Depth
<i>Hydrocharis morsus-ranae</i>	Frogbit	20-60cm
<i>Myosotis scorpioides</i>	Water Forget-me-not	0-10cm
<i>Mentha aquatica</i>	Water mint	0-60cm
<i>Hottonia palustris</i>	Water violet	10-60cm
<i>Ranunculus aquatilis</i>	Water crowfoot	10-60cm
<i>Geum rivale</i>	Water avens	10cm

Log Piles

- 3.32 Log piles will ideally be created from tree work arisings from site and placed as per the detailed landscape plans, avoiding north facing areas. The logs should be left in contact with the ground in dappled shade and built into a compact pile to maintain humidity. Stakes should be driven into the ground either side of the log pile to prevent the pile from collapsing.
- 3.33 Larger diameter logs (at least 100mm thick) with bark are of most value, particularly hard wood like ash, oak and beech, whereas freshly cut willow and poplar may re-sprout. Twigs, stems and shrub off-cuttings may also be added. Climbers may be allowed to grow thinly over the dead wood pile for stabilisation and moisture. Full sun will dry and heat the wood, supporting little life, whereas dense shade will promote the growth of fungi but may be too cool for insects.

Figure 1: Log Pile Detail



Bat and Bird Boxes

- 3.34 Bat and bird boxes will be installed across the development to provide additional roosting and nesting sites. Proposed locations for the bat and bird boxes are shown on the submitted landscape plans.
- 3.35 Bat boxes should either be incorporated into the building fabric; built into the houses or garages, or installed as high as possible, at a minimum of 4m above ground i.e. at the buildings gable end. Boxes should be positioned so that the entrances are facing south-west to south-east, free of obstacles (such that there is a clean and clear flight path into them) and situated away from artificial light sources.
- 3.36 The following will be installed across the site:
- 3 x Ibstock Bat Box C, suitable for a variety of crevice-dwelling bat species;

- 4 x Habitat Bat 003 Boxes, suitable for species which commonly nest in buildings, such as *Pipistrelle Pygmaeus sp.* and *Myotis* species.
- 3.37 Thirteen bird boxes will be installed in accordance with best practice, situated 1-5m above the ground, with care taken to avoid siting boxes above windows or on southern aspects. Entrances to the boxes should be free of obstacles such that there is a clean and clear flight path to the new potential nesting sites. Using a variety of nest box types will provide new suitable nesting opportunities for a range of birds and potentially encourage new bird species into the site.
- 3.38 The following boxes will be installed across the site on the sides of houses/garages or on mature retained trees:
- 6 x Woodstone® Sparrow Nest Boxes;
 - 3 x WoodStone® House Martin Nests – Double;
 - 2x WoodStone® Starling Nest Box.
 - 2 x Vivara Pro Seville 32mm WoodStone® Nest Box suitable for species such blue tits, tree sparrows, great tits, crested tits, coal tits and pied flycatchers;
 - 1 x Vivara Pro Seville 32mm WoodStone® Nest Box suitable for species such as tit species, tree sparrows, nuthatches and pied flycatchers;
- 3.39 Where boxes are installed on private dwellings, information will be provided within the sales literature to purchasers, explaining the importance of maintaining and increasing potential roosting and nesting sites for bats and birds. This should include information on the maintenance of boxes and state that any works required to bat boxes should be conducted by a licenced bat worker.

Hedgehog holes

- 3.40 Hedgehog holes will be installed throughout the development, this provides connectivity through site therefore avoiding habitat fragmentation. The holes should be approximately 13cm by 13cm.

Figure 2: Example of a hedgehog hole (Photo from British Hedgehog Preservation Society website)



4.0 LANDSCAPE & ECOLOGICAL MANAGEMENT

- 4.1 The following section outlines the works programme and management regime for retained and newly created habitats present on site.

Table 1: Ten Year Management Works Programme

Prescriptions	Years									
	1	2	3	4	5	6	7	8	9	10+
Existing Retained Trees and Hedgerows										
Trees will be assessed by an experienced arboriculturalist or tree surgeon prior to works including tree removal necessary to permit creation of access paths and structures. Tree works will follow best practice procedures as set out in BS 3998:2010. No removal of woody vegetation will take place during the bird nesting season unless checked by a qualified Ecologist. Existing retained trees will be left unmanaged unless otherwise dictated for reasons of public safety.	✓									
Retained trees will be protected from damage and from soil compaction during construction using fenced Root Protection Areas (RPAs) where construction works are to be undertaken in the vicinity, in accordance with guidance in British Standard 5837:2012 – Trees in Relation to Design, Demolition and Construction – Recommendations.	✓									
Arisings from any woodland management activity will, where possible will be used to provide opportunities for invertebrates and bryophytes by forming micro-habitats from piles of dead wood or recumbent dead logs away from publicly accessible areas. Woodpiles will be created at the woodland edge and within the woodland interior. Where practical, piles will be situated in partial sunlight with some shade.	As required									
Side trimming of hedgerows in an 'A' profile to promote healthy hedgerow base. Hedgerows will be cut along one side annually, alternating between the two sides of the hedgerow each year.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
In the long term, hedgerows will be taken through a Hedgerow Management Cycle (HMC) ¹ . The ten steps of the HMC are shown below. The cycle shows a healthy green core and two unhealthy red offshoots. The aim should be to keep the hedge in the green part (steps 3 to 8), periodically laying or coppicing it, with trimming at appropriate intervals in between. If the hedge is not permitted to go through this cycle, it will either, if cut too often, become short and gappy (steps 1 – 3) or, if neglected, develop into a line of trees (steps 8 to 10).	As required									

¹ The Hedge Management Cycle (HMC). Art work by Will Field. Management Cycle concept developed by Nigel Adams. Hedgelink UK

Prescriptions	Years									
	1	2	3	4	5	6	7	8	9	10+
The diagram illustrates a cycle of 10 stages for hedge health, arranged in a circle. Stage 10 (Line of Trees) leads to Stage 1 (Short & Gappy), which leads to Stage 2 (Short & Mop-headed), Stage 3 (Cut Too Often), Stage 4 (Just Layed / Coppiced or Planted), Stage 5 (1-3m High), Stage 6 (3-4m High), Stage 7 (4-6m High Ready to Lay), Stage 8 (6-7m High), Stage 9 (7m+ High), and back to Stage 10. A central green circle represents the 'HEALTHY HEDGE' state. A red box in the center indicates 'COPPICE, GAP-UP & RESTORE BANK'. Arrows show the progression between stages, with some stages having multiple paths (e.g., from 1 to 2 and 3, from 2 to 3 and 4, from 3 to 4 and 5, from 4 to 5 and 6, from 5 to 6 and 7, from 6 to 7 and 8, from 7 to 8 and 9, from 8 to 9 and 10, from 9 to 10 and 1, from 10 to 1 and 2).										
Tree Planting										
A weed-free mulched 1m diameter circle around the tree stem to a minimum depth of 75mm. When trees have reached independence, the sward can be allowed to grow up to the trunk, although tall weeds, bramble and ivy will be removed from around the trees. Care will be taken when using strimmers or mowers to avoid damaging trees. Weeds and grass within 100mm of the trunks will be removed by hand.	✓	✓	✓	✓	✓					
Examine all tree stakes and ties, replace or adjust as appropriate. If the tree has yet to establish, replace or adjust ties, spacers and tree tubes as appropriate. If the tree has established well, then remove all stakes, ties, spacers, tubes etc. and make good surfaces disturbed – filling any holes with suitable topsoil.	✓	✓	✓	✓	✓					
Replace failed specimens on a like-for-like basis. Top up mulch to a depth of 75mm where necessary.	✓	✓	✓	✓	✓					
Where periods of extreme drought occur, trees that have not yet established (not healthy, not in full leaf, suppressed growth) need to be watered where their tolerance to drought is deemed to be insufficient.	✓	✓	✓	✓	✓					

Prescriptions	Years									
	1	2	3	4	5	6	7	8	9	10+
Native Shrub/ Hedgerow Planting										
Following planting, water hedgerows in periods of extreme drought (2 or more weeks without substantial rainfall)	✓	✓	✓	✓	✓					
Replace failed specimens on a like-for-like basis.	✓	✓	✓	✓	✓					
Examine all guards and replace or adjust as appropriate. Remove guards once hedgerows established	✓	✓	✓	✓	✓					
Spraying or strimming of weeds to reduce competition and aid establishment. Not required if weed suppression matting used.	✓	✓	✓	✓	✓					
Side trimming of hedgerows in an 'A' profile to promote healthy hedgerow base. Starting in year 4 after planting new hedgerows will be cut along one side annually, alternating between the two sides of the hedgerow each year. Top up mulch as required.				✓	✓	✓	✓	✓	✓	✓
Prune any diseased or rotten wood back to sound wood. Remove all cut material from site.				As required						
In the long term, hedgerows will be taken through a Hedgerow Management Cycle (HMC) ² . As above.				As required						
Ornamental Shrub Planting										
Following planting, water shrubs in periods of extreme drought (2 or more weeks without substantial rainfall).	✓	✓	✓	✓	✓					
Replace failed specimens on a like-for-like basis.	✓	✓	✓	✓	✓					
Remove weed growth by hand and top up mulch levels as necessary. Dead-head after flowering.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Neatly prune back shrubs (no more than one third of woody growth) during October to March. Trim shrubs back from paths.			✓	✓	✓	✓	✓	✓	✓	✓
Neatly prune back and remove the spent stems and dead leaves of grasses during March - April. Care should be taken not damage the crown or emerging new growth.			✓	✓	✓	✓	✓	✓	✓	✓
Meadow Grassland										
Following establishment grassland will be mown on a rotational basis with areas either being mown once during early spring (March) and autumn (October). A later cut will benefit moth species by providing a food source for longer, and subsequently provide increases foraging opportunities for bats in their active season of April to October.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Grassland adjacent to hedgerows and woodland habitat will be cut once on alternate years with some ruderal species being allowed to colonise for further species and habitat diversity. Arisings will be left for 48 hours to allow dispersal of seeds and invertebrates prior to removal, to	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

² The Hedge Management Cycle (HMC). Art work by Will Field. Management Cycle concept developed by Nigel Adams. Hedgelink UK

Prescriptions	Years									
	1	2	3	4	5	6	7	8	9	10+
encourage grassland establishment and prevent soil enrichment and thatching.										
Spot treat persistent pernicious weeds using herbicide following the first season's growth and/or manual hand strimming of target areas either in late summer when adjacent grassland is mown or in early spring. Care will be taken when using herbicide adjacent to riparian and aquatic habitats to prevent pollution of such habitats.	As required									
Amenity Grassland										
During initial establishment of new grassland, it will be mown to a height of 50mm 6-8 weeks after germination and subsequently to a height of 35-40mm as required, but not more regularly than once every 4 weeks until such a time as a knitted turf is established. Once established, amenity grassland will be cut 16 times per year between March and October. Strimming should not occur within 100mm of tree stems.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mowing will be reduced during prolonged dry periods and the mowing height increased to 50mm at such times. Similarly in very wet conditions all grass cutting operations will cease until conditions allow for grass cutting to take place.	As required									
Spot treat persistent pernicious weeds using herbicide following the first season's growth and/or manual hand strimming of target areas either in late summer when adjacent grassland is mown or in early spring. Care will be taken when using herbicide adjacent to riparian and aquatic habitats to prevent pollution of such habitats.	As required									
Attenuation Feature										
Following establishment, the Wet Grassland in the basins will be cut on a rotational basis with no more than one third cut in any one year. The Wet Grassland will be cut during March or August/September, to create a varied structure of grassland habitat that will be of benefit to invertebrates, amphibians, reptiles and other species. Strimming should not occur within 100mm of tree stems.		✓	✓	✓	✓	✓	✓	✓	✓	✓
Excessive growth of unwanted plants can be removed by hand. Where large emergent species, such as reeds are present these may need regular management to maintain areas of open water and diversity of marginal habitats within the ponds. Management should ensure one or two species do not dominate the new site. Heavy equipment should not be used to avoid damage to soil and vegetation.			✓	✓	✓	✓	✓	✓	✓	✓

Prescriptions	Years									
	1	2	3	4	5	6	7	8	9	10+
Material removed will be left adjacent to the pond for 1-2 days to allow fauna to escape back to the pond before being removed and piled up elsewhere within the site as a habitat feature. Use of herbicide will be avoided except where invasive non-native species occur, in which case an eradication strategy will need to be determined, taking account of the relevant permissions and guidelines relating to the use of herbicides in and around waterbodies										
Silt will be removed from the basin as and when required. Removal should take place in autumn/ winter when most wildlife will have left the water for winter on land. Any invertebrates or amphibians accidentally removed with the silt will be returned to the water.	As required									
Marginal Planting										
The vegetation in the water bodies will be cleared on a rotational basis, starting at year 3. The basin will be cleared, between September and November, to create a varied structure of habitat that will be of benefit to invertebrates, amphibians and other species. The vegetation will be removed by hand. Machines and heavy equipment should not be used to avoid damage to soil and vegetation.			✓	✓	✓	✓	✓	✓	✓	✓
Dense stands of single species may benefit from selective thinning as required. Vegetation removal causes the least disruption to wildlife when carried out between September and November.	As Required									
Spot treat persistent pernicious weeds using herbicide following the first season's growth and/or manual hand strimming of target areas either in late summer when adjacent grassland is mown or in early spring. Care will be taken when using herbicide adjacent to riparian and aquatic habitats to prevent pollution of such habitats.	As Required									
Bird and Bat Boxes										
Bat boxes installed on trees/within communal areas of the site will be regularly inspected to ensure the fittings are secure and replaced where necessary. Any works required to bat boxes will be conducted by a licenced bat worker.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Information on bird boxes sited on houses/garages will be provided within the sales literature, advising homeowners how to best maintain the boxes.	✓	✓								
Information on bat boxes sited on houses/garages will be provided within the sales literature, advising homeowners on maintenance. The literature should specify that any	✓	✓								

Prescriptions	Years									
	1	2	3	4	5	6	7	8	9	10+
work required to the bat boxes should be carried out by a licenced bat worker.										
Fences and Gates										
Fencing and gates shall have a twice annual inspection in spring and autumn.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Footpaths										
Ensure access paths are free from weeds, trip hazards or other obstructions. This includes a once annual spray of weeds and any depressions / pits to be filled.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Street Furniture										
Maintain all furniture in good condition. Should any part be damaged then prohibit use, obtain guidance and/ or repair or replace as required. Repaint as required.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Once annual spray and weed around footings.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
General										
Litter will be removed from the site as part of the general management and maintenance visits. All litter, stones or other debris will be collected and removed by the Contractor immediately prior to grass cutting operations. Alternatively, signs will be installed/maintained to encourage members of the public to take litter home.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ecological visual inspection by a qualified ecologist to provide baseline data for future surveys to be monitored against.	✓				✓					✓
Arboricultural visual inspection, as part of the tree safety risk assessment for the development.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Work programme review by those members of staff involved in site management.					✓					✓

5.0 MONITORING AND REVIEW

5.1 In order to ensure that the habitats created within the site reach and maintain their maximum value to nature conservation, all habitats will be monitored. Monitoring is an essential part of any management plan to:

- ensure that the proposed management is being implemented;
- respond to unexpected outcomes from management; and
- determine if objectives are being achieved.

- 5.2 Visual inspection of trees by an arboriculturist will be conducted annually and following major storms, as part of the tree safety risk assessment for the development.
- 5.3 Ecological inspection by an experienced ecologist will take place in years 1, 5 and 10 to ensure the ecological specification has been fulfilled and to provide baseline data for future surveys to be monitored against.
- 5.4 Monitoring results will be used to inform changes to the management plan and ten- year work programme. The prescriptions provided here will not be set in stone and will be altered if required in agreement with the Local Planning Authority (LPA). Should monitoring indicate conservation aims are not being met, appropriate remedial measures will be taken. The management plan will run for a period of ten years, with the work programme fully reviewed at the end of the initial five-year period by those members of staff involved in site management, and the LEMP updated accordingly.