Land at Yarnton

Biodiversity Improvement and Management Plan

October 2020

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Contents

Text:

Appendices:

1 Introduction

1.1 Background and Proposals

1.1.1 Planning permission is sought for the construction of up to 540 new dwellings, elderly / extra care residential floorspace and a community homework hub, together with associated vehicle access, green infrastructure, meadowland and community woodland. The site is allocated for development within the Cherwell Local Plan 2011 - 2031 under Policy PR9.

1.1.2 Policy PR9 states: '*The application(s) shall be supported by a proposed Biodiversity Improvement and Management Plan (BIMP) informed by the findings of the BIA and habitat surveys and agreed before development commences. The BIMP shall include:*

a) *measures for securing net biodiversity gain within the site and within the residential area and for the protection of wildlife during construction*

b) *measures for retaining and conserving protected/notable species (identified within baseline surveys) within the development*

c) *demonstration that designated environmental assets will not be harmed, including no detrimental impacts to watercourses through hydrological, hydro-chemical or sedimentation impacts*

d) *measures for the protection and enhancement of existing wildlife corridors, including along Frogwelldown Lane District Wildlife Site and Dolton Lane, and the protection of existing hedgerows and trees*

e) *the creation of a new green infrastructure network with connected wildlife corridors, including within the developable area. The improvement of the existing network including hedgerows between the required Community Woodland and Begbroke Wood*

f) *Measures to minimise light spillage and noise levels on habitats especially along wildlife corridors*

g) *A scheme for the provision for in-built bird and bat boxes, for wildlife connectivity between gardens and for the viable provision of designated green walls and roofs*

h) *Farmland bird compensation*

i) *proposals for wildlife management in conjunction with conservation organisations including for the Local Nature Reserve and community woodland'.*

1.2 Site Description and Overview of Ecological Interest

1.2.1 The site is located in south Oxfordshire within a rural context. As set out within Aspect Ecology's Ecological Baseline, the site comprises a number of arable and grassland fields bisected by hedgerows. Dolton Lane historic bridleway is located within the north-east of the site and an area of deciduous woodland associated with Frogwelldown Lane District Wildlife Site (DWS) is located to the south of the site.

1.2.2 The hedgerows, woodland and veteran trees were deemed within the Ecological Baseline to constitute important ecological features and the scheme has therefore been designed to ensure retention of these important ecological features where practicable, with any minor losses compensated by new native tree and hedgerow planting as part of the landscaping proposals. The arable land, semi-improved grassland, improved grassland, young to mature trees, ponds, tall ruderal vegetation and recolonising ground over hardstanding are not considered to constitute important ecological features and their loss, where this occurs, under the proposals is of minor ecological significance. The adjacent Ancient Woodland (Begbroke Wood) is of elevated ecological value and is suitably buffered from the development footprint.

1.2.3 The site has been recorded to support moderate levels of bat activity, Badger, Hedgehog, individual Common Lizard and Grass Snake, and several species of breeding bird. Great Crested Newt have also been recorded within an off-site pond beyond the north-eastern site boundary.

1.3 Purpose of the Report

1.3.1 Aspect Ecology has been commissioned by Merton College, Oxford to prepare a Biodiversity Improvement and Management Plan (BIMP). This document sets out, on an indicative basis, details of the biodiversity enhancements to be provided as part of the development scheme and initial and long-term management requirements and maintenance guidelines. The BIMP has been informed by the findings of the Biodiversity Impact Assessment and ecological survey work.

2 Aims and Objectives

2.1 The development will provide a range of habitats to enhance opportunities for biodiversity, thereby making a positive contribution to the broad objects of national and local Biodiversity Action Plans. The primary aim from an ecological perspective is to provide net gains for biodiversity, through the retention of key ecological features, creation of new habitats and implementation of an appropriate management regime, to ensure the retained and newly created habitats deliver the desired ecological enhancements for the benefit of local flora and fauna. This will be achieved through the following key objectives:

Objective 1:

2.2 *Management of retained hedgerows, woodland and trees to promote vigour and structural integrity, thereby providing places of shelter, movement corridors, and foraging resources for wildlife.*

Objective 2:

2.3 *Establishment and subsequent management of new woodland, hedgerows, trees and shrubs in accordance with Objective 1.*

Objective 3:

2.4 *Establishment and subsequent management of new meadowland to promote floristic diversity and opportunities for wildlife.*

Objective 4:

2.5 *Enhancement of retained ponds and establishment of new attenuation features and subsequent management to benefit wildlife.*

Objective 5:

2.6 *Provision and maintenance of new faunal species-specific features (e.g. bat, bird and invertebrate boxes, hedgehog domes, hibernacula and log piles) to provide enduring places of shelter / nesting / roosting for wildlife.*

3 Retention and Enhancement of Existing Habitats

3.1 The design scheme provides a strategic approach to integrate the proposed development into the existing semi-rural surroundings. This will be achieved through the retention of features of relatively greatest ecological interest, namely the hedgerows, veteran trees, and woodland, and the creation of new habitats at the site (see Section 4 below).

3.2 This section details measures and management opportunities to be employed to enhance the condition, diversity and/or contribute to the longevity of the retained habitats. See Appendix 5436/9 for Management Schedule.

3.3 Veteran Trees

3.3.1 All veteran trees within the site will be retained, and accordingly a considered detailed management plan is required to secure the longevity of these irreplaceable features. The following therefore sets out a framework for the management of veteran trees, and it is proposed a separate detailed Veteran Tree Management Plan be provided prior to the commencement of works.

3.3.2 **Safeguards.** Appropriate measures will be required to safeguard veteran trees, and associated biologically active zones within the soil, during the construction and operational phases of development, further details for which can be secured by condition. These measures will include:

- Buffers around veteran trees will be provided of 15 times the diameter of the tree trunk or 5 metres beyond the canopy, whichever is the greater, exceeding standard buffer recommendations stated in BS5837:2012, unless advised otherwise by a suitably competent arboriculturalist.

- Appropriate tree protective fencing is to be erected at the margins of the veteran tree buffers to the standard specified in BS5837:2012. Works in proximity of the veteran trees will be subject to supervision and scrutiny by suitably competent arboriculturalist.

- If appropriate for the development, Veteran tree crown radius will be demarcated by knee rails, or similar, with defensive planting composed of native prickly species to be established within the buffer.

3.3.3 **Soil Biology.** Land within the root zone has been subject to agricultural processes in accordance with the function of the site as an arable land; involving ploughing and the application of fertilisers and pesticides potentially resulting in reduced microbiological activity within the soil. Accordingly, a microbiological soil biomass assay will be undertaken by a soil specialist and their expert advice sought to increase micro-biological biodiversity in proximity to the veteran trees. Measures are likely to include:

- Areas around tree trunks to be mulched with good quality, carbon rich compost up to the drip zone, or where possible, to help increase organic matter within the soil and encourage biological activity specifically in the formation of humus; and

- Existing trees to be subject to a root drench to increase diversity of saprophytes, and an inoculation of mycorrhizal spores, to increase biological diversity within the soil ecosystem, increase the health and resilience of the trees, and encourage the breakdown of organic matter within the mulch.

3.3.4 **Management.** The cohort of veteran trees by virtue of their age, size and condition confer attributes of biodiversity, cultural or heritage value. Maintaining these attributes is a key objective and will be achieved by undertaking the following measures:

- Review condition and maintenance requirements of veteran tree crown radius knee-rail, if necessary;
- Review condition and maintenance requirements of veteran tree deterrent planting, if necessary;
- Maintenance of land within veteran tree buffers;
- Arboricultural risk-facing inspection and preparation of works schedule for application to Cherwell District Council;
- Assessment of veteran attributes (i.e. structural and conditional features of ecological potential) including works advisable in the interests of optimising habitat/biodiversity interests;
- Assessment of works advisable in the interests of preservation, for example to prevent major mechanical failures and preserving the oldest parts of veteran trees; and
- Update soil microbiology study to determine whether levels of soil micro fauna and flora beneficial to the veteran trees are establishing following implementation of appropriate enhancement measures.

3.3.5 Cyclic tree inspections will be undertaken as part of the management plan, and will incorporate the following:

- The first inspection shall take place immediately prior to first occupancy;
- The period between inspections as described above shall be every two years;
- Inspections shall be undertaken by suitably qualified, trained and experienced arboriculturists (i.e. ideally qualified to level 6) with reference to suitable ecologists as appropriate. At each inspection a detailed works specification shall be prepared as required;
- Tree work shall be undertaken by qualified and experienced arboricultural contractors and they shall be briefed by the project arboriculturist prior to commencing works;
- Tree work shall be undertaken in accordance with BS3998:2010 Tree work - recommendations. Care shall be taken to ensure that nesting birds and bats are not disturbed, and that bat roosts are not damaged during tree work. Pre-work surveys for bats shall be undertaken in accordance with BS8596:2015 Surveying for bats in trees and woodland – Guide;
- Cycles of inspection provide an opportunity to review the management plan particularly in light of tree condition and emerging information relating to tree management.

3.4 Retained Hedgerows

3.4.1 **Safeguards and Enhancements.** Save for where access into the site or between fields is required, the existing hedgerows within the site will be retained under the proposed scheme and protected during construction in line with standard arboriculturalist best practice (BS5837:2012), or as otherwise directed by a suitably competent arboriculturalist. This will involve the use of protective fencing or other methods appropriate to safeguard the root protection areas of retained hedgerows and trees.

3.4.2 Retained hedgerows will be brought into favourable management, to improve condition and structure, and increase foraging production on fruiting species. Initial management will focus on laying the shrubs, if suitable, to reduce legginess and thickness of the upright stems, and promote dense growth. This work should be undertaken outside the bird nesting season (i.e. outside 1st March to 31st August inclusive). If laying is not appropriate, bolstering will be undertaken to fill any gaps using native species as listed at paragraph 4.6.1.

3.4.3 **Management.** The hedgerows will be brought under management based on ecological principles for the benefit of wildlife. The retained hedgerows will be cut every 3 years so as to achieve the desired dense hedgerow structure and also to maximise fruit production of fruit-bearing shrub species. Hedgerows will be managed rotationally in alternate years (i.e. meaning all hedgerows are not trimmed in the same year) to maintain fruit crops at the site throughout the management rotation. Hedgerow management will take place outside of the bird nesting season (i.e. outside 1st March to 31st August inclusive).

3.4.4 The existing retained hedgerow trees will not typically require any active management. Nonetheless, an annual visual monitoring inspection of retained trees within the site will be conducted as part of the on-going management operations. The visual inspection will identify the need for any proactive tree surgery measures and if necessary a professional arboriculturalist will be consulted. Management of retained trees will take place outside of the bird nesting season (i.e. outside 1st March to 31st August inclusive).

3.5 Retained Woodland (Frogwelldown Lane) and Wooded Belt (Dolton Lane)

3.5.1 **Safeguards and Enhancements.** The Priority Habitat Deciduous Woodland associated with Frogwelldown Lane District Wildlife Site (DWS) will be suitably buffered from development through the retention of arable land and creation of new habitats which are discussed further in Section 4 below. The wooded belt along Dolton Lane will also be buffered from development, by the creation of a grassland margin with tree planting. During construction, these habitats will be safeguarded by the implementation of dust control and abatement measures, full details of which would be included within a Construction Environment Management Plan (CEMP) for the development.

3.5.2 **Management.** Management of the woodland and wooded belt will be undertaken in an ecological sensitive manner so as to avoid the use of herbicides/pesticides, and the use of heavy machinery which may cause soil compaction. Refraining from herbicide and pesticide use will prevent chemicals leaching into surface water systems.

3.5.3 The retained woodland will be subject to phased selective thinning to open up clearings and encourage natural regeneration. In other areas, new native shrub and tree planting will be undertaken to diversify the shrub and canopy by new planting of native tree and shrub species appropriate to the local area including Pedunculate Oak *Quercus robur*, Field Maple

Acer campestre, Hornbeam *Carpinus betulus*, Beech *Fagus sylvatica*, Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, Holly *Ilex aquifolium,* Dogwood *Cornus sanguinea*, and/or Hazel *Corylus avellana*.

3.5.4 Vegetation encroaching the footpaths within Frogwelldown Lane and Dolton Lane will also be cut back and controlled, with any arisings used to create discreet logpiles.

3.5.5 Litter, rubbish and non-organic debris will be removed as part of the ongoing general management operations, and dog-bins located at strategic locations to discourage dog fouling along the footpaths.

3.6 Retained Ponds

3.6.1 **Safeguards and Enhancements.** The existing ponds will be retained under the proposals and safeguarded against any potential run-off or pollution events during construction. Pollution prevention guidelines as previously issued by the Environment Agency, or such similar updated document, will be adhered to, full details of which would be set out within the CEMP.

3.6.2 The retained ponds will be enhanced under the proposals through the implementation of measures designed to improve the water quality, and establish a more diverse aquatic and marginal vegetation of benefit to a range of wildlife.

3.6.3 Any low-lying/fallen shrub vegetation will be cut back to maintain an open water habitat, and marginal vegetation selectively thinned. Pockets of plug planting will be undertaken around the banks of the ponds to increase biodiversity and could include native marginal species such as Yellow Flag-iris *Iris pseudacorus*, Marsh Marigold *Caltha palustris*, Watermint *Mentha citrata*, and Bogbean *Menyanthes trifoliate*.

3.6.4 **Management.** Longer term management will focus on the selective thinning of bankside Bramble *Rubus fruticosus* agg. and other shrubs, as required to prevent excessive over-shading. Selective thinning of the pond vegetation will also take place to ensure no species becomes dominant and begins to clog the open water habitat. This will encourage a greater diversity of aquatic species and aim to maintain macrophyte coverage of the water to a maximum of 75%. Dredging will be avoided, as this process can be detrimental to wildlife.

3.6.5 Litter, rubbish and non-organic debris located at the surface and around the margins of the ponds will be removed as part of the ongoing general management operations.

4 New Habitat Creation and Management Operations

4.1 Newly created habitats of benefit to ecology within the consented development will include woodland, meadowland, native hedgerows, shrub planting, and attenuation features. All plants are to be supplied in accordance with the Horticultural Trades Association's (HTA) 'National Plant Specification' and from an HTA certified nursery. All plants and trees are to be planted in accordance with BS 3936-1:1992 'Nursery stock specification for trees and shrubs'. Delivery and handling of all plant material to be in accordance with the Committee for Plant Supply and Establishment (CPSE) 'Handling and Establishment of Landscape Plants 1996'. The majority of planting will be stocked where possible from the seed zone of the planting site, with the inclusion of a proportion from other nearby seed zones. Use of stock sourced from adjacent seed zones will ensure some genetic variation.

4.2 The development will provide a range of habitats to provide additional enhanced opportunities for biodiversity. In order for the biodiversity benefits to be realised, an appropriate management strategy will be implemented. See Appendix 5436/9 for Management Schedule.

4.3 The proposals include the establishment of a new Local Nature Reserve (LNR), an area of green space deemed locally important on the basis of wildlife, geology, education, and/or enjoyment. It is not a formal requirement that the LNR be open to the public; nonetheless, the LNR will potentially be accessible by the public albeit with restricted access commensurate to the continued use of the land for agricultural use. The LNR is not specifically discussed within this document; the precise location has yet to be agreed and it has the potential to incorporate a range of habitats each with distinct management prescriptions.

4.4 Ecologically relevant management requirements for newly created habitats are detailed below.

4.5 Community Woodland

4.6 **Creation.** A community woodland will be established for local residents to work together to manage a semi-natural habitat through self-organised cooperative action, which as well as promoting community cohesion and nurturing appreciation for the natural environment secures long-term management for this valuable biodiversity asset. The community woodland will also achieve a substantial gain in woodland habitat at the site, providing additional opportunities for birds, Badgers, amphibians, small mammals and invertebrates, and contribute to local Green Infrastructure by expanding Begbroke Wood and increasing the functional of width of a wildlife corridor through the north of the site which is currently limited to arable field hedgerows.

4.6.1 New woodland planting will comprise native trees such as Pedunculate Oak *Quercus robur*, Field Maple *Acer campestre*, Silver Birch *Betula pendula*, Hornbeam *Carpinus betulus*, Beech *Fagus sylvatica*, White Willow *Salix alba*, Whitebeam *Sorbus aria*, Rowan *Sorbus aucuparia*, Small-leaved Lime *Tilia cordata*, Crab Apple *Malus sylvestris*, Bird Cherry *Prunus padus* and Wild Cherry *Prunus avium*, interspersed with pockets of native shrub planting including Dogwood *Cornus sanguinea*, Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, Holly *Ilex aquifolium,* Dogwood *Cornus sanguinea*, Hazel *Corylus avellana*, Dog-rose *Rosa canina* and Guelder Rose *Viburnum opulus*. The edge of the woodland will be scalloped where appropriate to provide microclimates attractive to invertebrates, birds, and bats.

4.6.2 Where appropriate, planting will be conducted at varying densities to create a varied structure and avoid formal regimented lines, and will incorporate small clearings and/or rides. Planting shall be carried out, where practicable, during the period of 1st November to 31st March inclusive, when the ground is not frozen or waterlogged. Prior to planting the ground is to be cleared to remove any weeds and debris and cultivated to create a fine tilth. Woodland understory planting will be planted at varying densities to improve the structure and diversity of the woodland shrub layer.

4.6.3 The woodland ground-flora will be created through the sowing of a suitable woodland mixture such as Emorsgate's EW1F – Wild Flowers for Woodland mixture, which comprises 16 native herb species which are tolerant of the moderately shady conditions which will be provided within the woodland (see Appendix 5436/BIMP1 for species list). This will create a diverse woodland ground flora which flowers in spring and early summer providing additional opportunities for invertebrates, which in-turn provide an additional prey resource for bats and birds. The seed mix should be surface sown and broadcast by hand so as to not damage the tree and shrub root systems, where adjacent to established woodland, trees and hedgerows. Seed is best sown in autumn or early spring and should be left uncovered. During establishment little management is required except for the selective thinning of ruderal species and Bramble in the areas within which seed has been sown. In the long-term ground flora will benefit from good tree management practices.

4.6.4 **Management.** New woodland planting will initially be managed so as to control weeds and promote the development of good specimens. Initially, new trees and shrubs will be managed through the application of mulch in spring (April) or, the use of mulch mats around the base. New planting growth will be monitored every six months during the first year following planting and annually thereafter, with weed control, watering, and replanting of failed specimens undertaken as required.

4.6.5 Newly planted areas in particular will not be subject to any substantial works in the short-term to allow establishment. Ongoing management will ensure the planting does not encroach into adjacent habitats. New woodland planting will generally only be subject to ongoing management on an 'as needed' basis, which may include pruning of tree and shrub species to enhance habitat structure, but will be guided by the community group managing the woodland. The exception to this will be the protective shrub planting at the boundary of the community woodland and Begbroke Wood, which will be subject to management on an annual basis to prevent gaps forming such that it continues, along with the discreet fencing if appropriate, to act as a deterrent to cats from the built development.

4.6.6 Initially the ground flora will be managed through an annual cut in August to manage growth of ruderal species and Bramble. Once established and shade cover increases, most likely after 10-15 years, longer term management will be reduced as woodland plants will have an opportunity to thrive. Additional sowing of woodland wildflower seed mix may be required after establishment to encourage floristic diversity.

4.6.7 Management of the woodland tree and shrub planting will be undertaken in an ecologically sensitive manner so as to avoid the use of herbicides/pesticides, and the use of heavy machinery. Once established, most likely after 5-6 years, longer term management will aim to maintain a varied woodland structure, with no specific management operations required in terms of ecological interest except for the thinning of Bramble and other shrubs and trees as required to prevent over-shading. Management of the protective shrub planting will continue on an annual basis. Once established, woodland management will take place outside of the bird nesting season (i.e. outside 1st March to 31st August inclusive).

4.7 Reinstatement of Historic Hedgerows and Creation of Meadowland

4.7.1 Historic hedgerows will be reinstated on the western edge of the development to redefine the boundary of the green belt, restoring field systems composed of meadowland, and which will provide a transition of semi-nature habitats between the proposed development, retained agricultural land and open countryside beyond.

Reinstatement of Historic Hedgerows

4.7.2 **Creation.** The existing hedgerow network will be expanded through the reinstatement of historic hedgerows within the eastern half of a large arable field. The hedgerows will have a high composition of fruit and nut bearing species such as Hazel *Corylus avellana*, Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, Holly *Ilex aquifolium*, Field Maple *Acer campestre*, Wayfaring Tree *Viburnum lantana*, and Dog-rose *Rosa canina*, with Honeysuckle *Lonicera pericylemenum* planted within the hedgerow at 20m intervals and Bramble planted beneath the hedgerow at 50m intervals.

4.7.3 Planting a variety of hedgerow species with varying flowering periods will provide year-round foraging opportunities for pollinating invertebrates, which in turn provide a prey resource for foraging bats and birds. The hedgerows themselves will also contribute to the site as a seasonal foraging resource for a range of wildlife, including badgers and birds including the Priority Species Starling *Sturnus vulgaris*, Song Thrush *Turdus philomelos* and Bullfinch *Pyrrhula pyrrhula* which are known to be present at the site, as well as provide additional nesting opportunities. Native hedgerow planting will provide corridors to facilitate the movement of wildlife, creating additional and stronger links between Frogwelldown Lane DWS, Dolton Lane and Begbroke Wood Local Wildlife Site.

4.7.4 The hedgerows will be planted in double staggered rows, with a minimum of 6 species occurring in any 30m length. Each species is to be planted in groups of 5-8, with 5 plants per metre , and 30-40cm gap left between the two rows. All hedgerow planting trenches are to be excavated to a depth of 600mm. Planting shall be carried out, where practicable, during the period of 1st November to 31st March inclusive, when the ground is not frozen or waterlogged. Individual plants within the new hedgerows shall be watered to field capacity immediately after planting and mulched with 50mm depth of medium grade crushed mulch.

4.7.5 Young native trees of Oak *Quercus robur*, Hornbeam *Carpinus betulus* and Field Maple *Acer campestre* are to be planted, in pairs or individually, at 20-25m intervals along the hedgerows. Where interruptions to the continuity of the hedgerows for access are necessary an Oak *Quercus robur* or Hornbeam *Carpinus betulus* tree will be planted on either side of the gap to provide a hop-over point for wildlife.

4.7.6 **Management.** In the first spring following planting, the new hedgerows will be pruned to a height of 45cm-60cm above ground level to encourage dense, bushy growth. The new hedgerows will then be pruned incrementally higher and wider on a yearly basis until they reach the desired size and shape, which will be at least 3m tall by 2m wide with an 'A'-shape or chamfered profile to provide a wide base beneficial as cover for wildlife.

4.7.7 Once established, most likely after 5-6 years, the hedgerows will be cut every 3 years so as to achieve the desired dense hedgerow structure and also to maximise fruit production of fruit-bearing shrub species. Hedgerows will be managed rotationally in alternate years (i.e. meaning all hedgerows are not trimmed in the same year) to maintain fruit crops at the ecology area throughout the management rotation. Once established, hedgerow

management will take place outside of the bird nesting season (i.e. outside 1st March to 31st August inclusive).

4.7.8 New tree planting along the hedgerows will initially be managed so as to control weeds and promote the development of good specimens. Prior to planting, tree pits are to be excavated to a depth of 1m. All plants shall be watered to field capacity immediately after planting and mulched with 50mm depth of medium grade crushed mulch in early summer (April) or, the use of mulch mats around the base. Tree guards or shelters will be used to protect new trees from potential grazing damage (e.g. Rabbits) and weed control and watering will be undertaken during the initial management phase to ensure rapid establishment. New planting growth will be monitored every six months during the years 1-3 following planting and annually thereafter, with weed control, watering, replacement of tree guards and replanting of failed specimens undertaken as required.

4.7.9 Once established, tree guards will be removed and stakes provided if required. New tree and shrub planting will generally only be subject to ongoing management on an 'as needed' basis. This may include pruning of tree species to enhance habitat structure. Once established, most likely after 5-6 years, longer term management will aim to maintain vitality and a varied dense structure for shrub specimens, with no specific management operations required. Once established, tree and shrub management will take place outside of the bird nesting season (i.e. outside 1st March to 31st August inclusive).

Restoration of Meadowland

4.7.10 Within the field systems reinstated to the west of development, meadowland will be established. Where arable land is being restored to grassland, seeding will be undertaken using Emorsgate's EM3 Special General Purpose Meadow mixture which contains a wide diversity of herbs (a total of 27 herb species), with Crested Dog's-tail *Cynosurus cristatus* and Red Fescue *Festuca rubra* providing the dominant grass species (see Appendix 5436/BIMP1 for full species list). Seeding will also be undertaken, if appropriate, to enhance currently species poor grassland that will become meadowland.

4.7.11 The wildflower grassland will be managed to create a varied sward structure, which will be attractive to a range of invertebrates, which in turn will provide a foraging resource for bats and breeding farmland birds such as Skylark *Alauda arvensis*, Yellowhammer *Emberiza citronella* and Linnet *Linaria cannabina*, which are known to be present in the local area. Taller areas of tussocky grassland will be allowed to form which will provide foraging and dispersal corridors for herptiles and small mammals, and replacement opportunities for ground nesting farmland birds.

4.7.12 The approach to seeding will be different for the arable land and existing grassland. In regard to the arable land, prior to sowing with Emorsgate EM3 Special General Purpose Meadow, the topsoil should be cultivated to produce, as far as possible, a fine, firm tilth and left to allow any weeds in the soil to germinate. Any weeds or re-growth should be sprayed with a broad-spectrum herbicide such as glyphosate. Two weeks after the first application of herbicide, the effectiveness of the application should be reviewed. A second herbicide application may be required if any re-growth occurs. This process should be repeated as necessary to produce a sterile seed bed free from injurious weeds. Prior to sowing, the seed mix should be combined with sawdust or barleymeal in the ratio of 1:3. This will aid with a more even sow, especially as the seed mix contains seed of varying sizes, and also allows the areas already sown to be easily identified.

4.7.13 Sowing is most effective for EM3 Special General Purpose Meadow seed mix at a density of 4g/m^2 (40 kg per hectare) onto cultivated soil. The wildflower seed should be broadcast by

hand or machine (e.g. fertiliser spreader) onto the soil surface. To achieve a good soil to seed contact, the seed can be lightly rolled or trodden immediately after sowing. The seed should not be buried as wild seed requires light to germinate. The seed should be sown in late summer / early autumn (between August and September), which is when the majority of the sown species would naturally germinate, and those species that require a winter cooling period (vernalisation) to trigger germination are also favoured. If necessary, the seed could be sown in the spring, although the new seedlings will face greater competition from weeds and the germination of species requiring vernalisation will be delayed until the following year.

4.7.14 Sward enhancement of species-poor grassland to become meadowland will be by oversowing. The grassland will be mown to a short sward height and thatch broken down to create gaps in the sward. The seed mix will be Emorsgate EM3 Special General Purpose Meadow will be utilised and approach to sowing as set out above in paras. 4.7.12 to 4.7.13.

4.7.15 **Management.** Management in the first year will be designed to encourage floristic diversity by regular cutting to control ranker grasses and weeds, whilst also controlling scrub encroachment (by pruning / removal) and reducing nutrient levels (as a result of regular cutting).

4.7.16 Once established an annual 'hay cut' will be undertaken in summer (August) to a height of 40-70mm, the arising will be left in place for 1-7 days before removal to allow seed to set. This will be accompanied by additional cuts in late autumn and spring, if required, to maintain a sward height of c.50mm. The areas of wildflower grassland could then be subject to grazing from early Autumn, which will help to control coarse grass species and aid with the dispersal of seeds through trampling and the creation of small bare patches of earth.

4.7.17 Alternatively, the meadowland could be subject to an all-year-round grazing regime subject to the preference of the landowner and the use of the fields as agricultural land. A rotational grazing programme would be employed moving the livestock between fields or sections of fields partitioned by electric fencing. Gates and appropriate signage at field entrances would assist restricting access to fields under grazing. Management by grazing would result in a varied structured sward and areas of bare ground providing a spectrum of micro-climates for invertebrates, and opportunities for the colonisation and expression of herbs often outcompeted by grasses, whilst restricted access will assist reduce disturbance to foraging farmland birds.

4.7.18 A strip of grassland measuring 2m in width adjacent to the new woodland planting and retained/new hedgerows will also be left uncut/ungrazed for longer periods (2-3 years at a time) to encourage tussock formation and therefore structural heterogeneity amongst the sward, allowing late flowering species to persist and continue to provide a foraging resource for insects later into the season.

4.8 Sustainable Urban Drainage Systems (SUDS)

4.8.1 **Creation.** Where practicable, attenuation ponds will be designed with features beneficial to wildlife including aquatic benches, deepened pools, and wide draw down zones, providing areas with varying water levels which will encourage floristic diversity and attract a range of invertebrates. Given most of the attenuation features will not be permanently wet, grassland will be created within the proposed attenuation features, providing ephemerally wet grassland habitat of value to a range of invertebrate and bird species as well as enhancing the overall diversity of plants supported on the site.

4.8.2 Prior to sowing with Emorsgate EG8 Meadow Mixture for Wet Grassland (see Appendix 5436/BIMP1 for species list), the topsoil in the areas within which new wetland grassland is to be created should be cultivated to produce, as far as possible, a fine, firm tilth and left to allow any weeds in the soil to germinate. Any weeds or re-growth should be removed by lopping and / or digging up by hand, as required. This process should be repeated as necessary to produce a sterile seed bed free from injurious weeds. Sowing is most effective in late summer / early autumn (especially between August and September) at a density of 5g/m^2 (50 kg per hectare) onto cultivated soil, followed by rolling.

4.8.3 **Management.** Management will be the same as for the grassland associated with the built development, and as described in paras 4.9.3 to 4.9.4 below. However, approximately 25% of the wet grassland areas will also be left uncut for longer periods (2-3 years at a time) to encourage tussock formation and therefore structural heterogeneity amongst the sward. No fertilizer shall be applied to areas of wet grassland.

4.9 Built Development (including woodland planting)

Grassland

4.9.1 Grassland in public open space within the development will be established using Emorsgate EL1 'Flowering Lawn' mixture (see Appendix 5436/BIMP1 for species list) which provides greater foraging opportunities to pollinating invertebrates than typical species-poor amenity lawns, whilst also being able to withstand regular mowing. However, adjacent to hedgerows and woodland planting Emorsgate EH1 `Hedgerow Mixture` (see Appendix 5436/BIMP1 for species list) will be used as it contains wildlife flowers and grasses that are tolerant of semi-shade.

4.9.2 Prior to seeding, the area to be will be cultivated to produce, as far as possible, a fine, firm tilth and left to allow any weeds in the soil to germinate. Any weeds or re-growth should be sprayed with a broad-spectrum herbicide such as glyphosate. This process should be repeated as necessary to produce a sterile seed bed free from injurious weeds. Prior to sowing, the seed mix should be combined with sawdust or barleymeal in the ratio of 1:3. This will aid with a more even sow, especially as the seed mix contains seed of varying sizes, and also allows the areas already sown to be easily identified. Sowing is most effective in late summer / early autumn at a density of 4 g/m^2 (40 kg per hectare) onto cultivated soil. The wildflower seed should be broadcast by hand or machine (e.g. fertiliser spreader) onto the soil surface.

4.9.3 **Management.** Management will be designed to allow the continued functionality of the grassland areas for recreation. The grassland areas will be managed by frequent mowing to the desired height throughout the growing season, although grassland within 2m of hedgerows and woodland planting will only be subject to a single annual cut in late autumn.

4.9.4 Any weeds within amenity areas can be sprayed with a broad-spectrum herbicide such as glyphosate, and this process should be repeated as necessary to keep the grassland free from injurious weeds, but this will be avoided in grassland within 2m of hedgerows and woodland planting.

Amenity/Ornamental Shrubs

4.9.5 **Creation.** Planting a variety of shrub species with varying flowering periods will provide year-round foraging opportunities for pollinating invertebrates, which in turn provide a prey resource for foraging bats and birds. New shrub planting will include a proportion of species

which are included on the Royal Horticultural Societies' Plants for Pollinators database and are of known value to pollinating insects.

4.9.6 Where appropriate, new shrubs are to be planted in a random fashion avoiding formal regimented lines. Irregular, widely spaced planting gives a more natural appearance and encourages natural infill and diverse stand structure. Individual species are to be planted in groups of 7-15 within the bed or 3-7 individuals within mixed species. Planting shall be carried out, where practicable, during the period of 1st November to 31st March inclusive, when the ground is not frozen or water logged.

4.9.7 **Management.** Initially, new shrubs will be managed through the application of mulch in spring (April) or, the use of mulch mats around the base, so as to control weeds and promote the development of good specimens. New planting growth will be monitored every six months during the first year following planting and annually thereafter, with weed control, watering, and replanting of failed specimens undertaken as required.

4.9.8 Newly planted areas in particular will not be subject to any substantial works in the short-term to allow establishment. Ongoing management will ensure the planting does not encroach into adjacent habitats. New shrub planting will generally only be subject to ongoing management on an 'as needed' basis. This may include pruning of shrub species to enhance habitat structure.

4.9.9 Once established, most likely after 5-6 years, longer term management will aim to maintain vitality and a varied dense structure for shrub specimens, with no specific management operations required in terms of ecological interest except for the thinning of shrubs to prevent over dominance. Once established, shrub management will take place outside of the bird nesting season (i.e. outside 1st March to 31st August inclusive).

Trees

4.9.10 **Creation.** New tree planting within green open space within and around the built development, and around SUDS, will provide opportunities for a range of wildlife, including invertebrates, birds, bats and small mammals.

4.9.11 Tree planting around SUDs features will incorporate wet ground loving/tolerating species such as Alder *Alnus glutinosa*, Grey Willow *Salix cinerea subsp. cinerea*, and Downy Birch *Betula pubescens* will be planted as appropriate, whilst tree planting in green open spaces will incorporate Hornbeam *Carprinus betulus,* Wayfaring Tree *Viburnum lantana,* Rowan *Sorbus aucuparia*, Cherry *Prunus avium*, and infrequent clusters of group trees composed of Crab Apple *Malus sylvestris*, Damson and Walnut. The variety of fruit and nut bearing species will provide a seasonal foraging resource for a range of fauna, including birds, Badgers, and small mammals. When mature, the trees will also provide additional nesting opportunities for birds.

4.9.12 Planting shall be carried out, where practicable, during the period of 1st November to 31st March inclusive, when the ground is not frozen or water logged. Should this not be practicable then all bare root trees will be replaced by a containerised equivalent to be approved by the project landscape architect.

4.9.13 **Management.** New tree planting will initially be managed so as to control weeds and promote the development of good specimens. Initially, new trees will be managed through the application of mulch in spring (April) or the use of mulch mats around the base. Tree guards or shelters will be used to protect new trees from potential grazing damage (e.g. Rabbits) and weed control and watering will be undertaken during the initial management

phase to ensure rapid establishment. New planting growth will be monitored every six months during the first year following planting and annually thereafter, with weed control, watering, replacement of tree guards and replanting of failed specimens undertaken as required.

4.9.14 Newly planted trees will not be subject to any substantial works in the short-term to allow establishment. Once established, tree guards will be removed and stakes provided if required. New tree planting will generally only be subject to ongoing management on an 'as needed' basis. This may include pruning of tree species to enhance habitat structure.

4.9.15 Once established, most likely after 5-6 years, longer term management will aim to maintain good specimens, with no specific management operations required in terms of ecological interest except for the thinning of Bramble and other shrubs and trees as required to prevent over-shading. Once established, tree management will take place outside of the bird nesting season (i.e. outside 1st March to 31st August inclusive).

Woodland Planting

4.9.16 **Creation.** Woodland planting will be undertaken alongside retained hedgerows around the periphery of development areas, increasing the functional width of the hedgerows as wildlife corridors, and improving connectivity between the linear habitats, as well as creating additional areas for shelter and increasing foraging opportunities; the latter will be achieved by the incorporation of further fruit and nut yielding species, as well as species known to provide abundant flowers in Spring and early Summer contributing to a year round foraging resource.

4.9.17 The woodland planting will be composed of native species, such as Field Maple, Silver Birch *Betula pendula*, Hornbeam, Beech *Fagus sylvatica*, Goat Willow *Salix caprea*, Wayfaring Tree *Viburnum lantana,* Rowan *Sorbus aucuparia*, Small-leaved Lime *Tilia cordata*, Cherry *Prunus padus* and Wild Cherry *Prunus avium*, interspersed with pockets of native shrub planting including Dogwood *Cornus sanguinea*, Spindle *Euonymus europaeus*, Holly *Ilex aquifolium,* Hazel *Corylus avellana*, Dog-rose *Rosa canina* and Guelder Rose *Viburnum opulus*. The shrubs will be planted in groups of 3 - 5. The variety of fruit and nut bearing species in particular will provide a seasonal foraging resource for a range of fauna, including birds (including Priority Species such as Starling), Badgers and other small mammals. When mature, the trees will also provide additional nesting opportunities for birds. The edge of the woodland planting will be scalloped where possible to provide microclimates attractive to invertebrates, birds, and bats. Where appropriate, planting will be conducted at varying densities to create a varied structure and avoid formal regimented lines.

4.9.18 A copse will be planted on the western edge of the built development, comprising a small group of native trees: either Beech, Hornbeam or Silver Birch. Other than a sparse planting of Hazel and native Hops *Humulus lupulus* the understorey will be left to establish naturally, although groundflora will be encouraged through seeding with an appropriate wildflower seed mixture.

4.9.19 Planting shall be carried out, where practicable, during the period of 1st November to 31st March inclusive, when the ground is not frozen or water logged. Prior to planting the ground is to be cleared to remove any weeds and debris and cultivated to create a fine tilth.

4.9.20 The woodland ground-flora will also be enhanced through the sowing of a suitable woodland mixture such as Emorsgate's EW1F – Wild Flowers for Woodland mixture, which comprises 16 native herb species which are tolerant of the moderately shady conditions which will be provided within the woodland (see Appendix 5436/BIMP1 for species list).

This will create a diverse woodland ground flora which flowers in spring and early summer providing additional opportunities for invertebrates, which in-turn provide an additional prey resource for bats and birds. During establishment little management is required except for the selective thinning of ruderal species and Bramble in the areas within which seed has been sown. In the long-term ground flora will benefit from good tree management practices.

4.9.21 **Management.** New woodland planting will initially be managed so as to control weeds and promote the development of good specimens. Initially, new trees and shrubs will be managed through the application of mulch in spring (April) or, the use of mulch mats around the base. New planting growth will be monitored every six months during the first year following planting and annually thereafter, with weed control, watering, and replanting of failed specimens undertaken as required.

4.9.22 Newly planted areas in particular will not be subject to any substantial works in the short-term to allow establishment. Ongoing management will ensure the planting does not encroach into adjacent habitats. New woodland planting will generally only be subject to ongoing management on an 'as needed' basis, and may include pruning of tree and shrub species to enhance habitat structure, although Hazel will be coppiced on a 7-10 year rotation.

4.9.23 Initially the ground flora will be managed through an annual cut in August to manage growth of ruderal species and Bramble. Once established and shade cover increases, most likely after 10-15 years, longer term management will be reduced as woodland plants will have an opportunity to thrive. Additional sowing of woodland wildflower seed mix may be required after establishment to encourage floristic diversity.

4.9.24 Management of the woodland tree and shrub planting will be undertaken in an ecologically sensitive manner so as to avoid the use of herbicides/pesticides, and the use of heavy machinery. Once established, most likely after 5-6 years, longer term management will aim to maintain a varied woodland structure, with no specific management operations required in terms of ecological interest except for the thinning of Bramble and other shrubs and trees as required to prevent over-shading, and coppicing of Hazel. Once established, woodland management will take place outside of the bird nesting season (i.e. outside 1st March to 31st August inclusive).

5 Faunal Enhancements and Management Operations

5.1 In addition to the proposed habitat creation which will provide opportunities for a variety of different faunal species, a number of faunal specific features will be created to provide additional opportunities for bats, birds, Hedgehog, herptiles and invertebrates at the site.

5.2 Bats

5.2.1 **Enhancement.** Commuting and foraging opportunities for bats will be enhanced under the proposals through the creation of new hedgerows, woodland, meadowland and attenuation features. Bats will benefit from the increased diversity of habitats which will attract a greater diversity and biomass of invertebrate prey and increase connectivity across the site.

5.2.2 Light-spill onto retained and newly created habitat, in particular the retained hedgerows, trees and woodland will be minimised in accordance with good practice guidance[1] to reduce potential impacts on light-sensitive bats and other nocturnal fauna. Full details are anticipated to be set out with detailed lighting scheme for the site.

5.2.3 A total of thirty bat boxes will be incorporated within the scheme, a proportion of which will be incorporated within the new buildings where architectural design allows, to provide new roosting opportunities for bats. Suitable boxes for installation within buildings include a combination of types Schwegler 2FR Bat Tubes and Weinberger Integrated Bat Boxes, or equivalent, (see Appendix 5436/BIMP2 for specifications). The new bat boxes will enhance roosting opportunities for bats at the site including for Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus* (Priority species) which are known to be present on-site. Bat boxes will be positioned away from any lighting fixtures so as to not disrupt the potential use of the boxes and should not be located directly above any windows and/or doorways.

5.2.4 A proportion of new bat boxes will also be installed on suitable trees within the retained hedgerows and woodland to provide additional opportunities for roosting bats including Noctule *Nyctalus noctula* (Priority Species) which is known to be present on-site. Suitable boxes for inclusion within the scheme include Schwegler type 1FF, Schwegler 2F, and Schwegler type 2FN, or equivalent (see Appendix 5436/BIMP2 for specifications).

5.2.5 To maximise their potential use, the bat boxes will be installed between 3m-5m in height. The bat boxes will be sited in sheltered, wind-free areas that are exposed to sun for part of the day, facing either a south-easterly or south-westerly direction and in close proximity to suitable foraging and commuting habitat.

5.2.6 **Management.** Bat boxes are rot proof, extremely long lasting and require no specific maintenance or monitoring.

5.3 Birds

5.3.1 **Enhancement.** The creation of meadowland will provide an important foraging resource for farmland birds such as Skylark. New woodland, hedgerow and tree planting will provide additional nesting opportunities for birds once mature and the inclusion of a proportion of

[1] Bat Conservation Trust and Institute of Lighting Professionals (2018) '*Guidance Note 08/18: Bats and artificial lighting in the UK*'; Stone, E.L. (2013) '*Bats and lighting: Overview of current evidence and mitigation guidance*.'; ILP (2011) '*Guidance notes for the reduction of obtrusive light*' Institution of Lighting Professionals, GN01:2011.

fruit and nut bearing species will provide an additional seasonal foraging resource. The garden habitats created under the proposals are anticipated to provide some new foraging and nesting opportunities.

5.3.2 A total of thirty bird boxes will be included as part of the scheme to provide additional nesting opportunities for birds at the site, including the Priority Species House Sparrow *Passer domesticus* which has previously been recorded on-site, as well as Swift *Apus apus*, Swallows *Hirundo rustica* and House Martin *Delichon Urbicum*. New bird boxes incorporating types Habibat Integrated Sparrow Terrace Box, Schwegler No.17 Triple Cavity Swift Boxes and Schwegler Type 24 and 26 integrated bird boxes, or equivalent, will be installed within a proportion of the new buildings, where architectural design allows (see Appendix 5436/BIMP3 for specifications). To maximise their potential use, the bird boxes will be installed as high as practicable (minimum 3m height), such that they are not subject to predation by opportunistic cats or liable to vandalism. The bird boxes will be sited in sheltered, wind-free areas, facing in a northerly direction. Where affixed to new buildings bird boxes should not be located directly above any windows and/or doorways.

5.3.3 A proportion of the new bird boxes will be installed on suitable trees within the woodland along Frogwelldown Lane and Dolton Lane to provide additional opportunities for nesting woodland birds, such as Starling (Priority Species), Nuthatch *Sitta Europaea* and Treecreeper *Certhia familiaris*, which are all known to be present in the local area. Suitable specifications for inclusion comprise Schwegler Type 3S, Schwegler 3SV and Schwegler 2BN, or equivalent (see Appendix 5436/BIMP3 for specifications).

5.3.4 In addition, a single Tawny Owl *Strix aluco* box and two Barn Owl *Tyto alba* boxes will be installed on a suitable retained tree or pole on the edge of established woodland at the site or within the wider study area to provide additional nesting opportunities for these species which are known to be present on-site. The box entrances will be directed towards open habitat.

5.3.5 **Management.** The bird boxes are rot proof and extremely long-lasting and should not require ongoing maintenance.

5.4 Hedgehog

5.4.1 **Enhancement.** A total of six Hedgehog nesting domes (see Appendix 5436/BIMP4 for specifications) will be installed within the site to provide new opportunities for nesting and hibernating Hedgehog (a Priority Species). Hedgehog domes should be positioned in discreet locations in areas of dense vegetation, such as beneath hedgerows or within newly created areas of woodland, outside of direct sunlight and away from any major roads. In addition, to maintain connectivity throughout the development for Hedgehog and to allow access to suitable foraging habitat contained within residential gardens, small holes (13cmx13cm) will be created within garden fences or under gates.

5.4.2 The creation of new hedgerows, woodland planting and meadowland will also be of benefit to this Priority Species, by providing new opportunities for shelter, new corridors to facilitate movement around the site and increased foraging resources.

5.4.3 **Management.** Hedgehog domes are extremely long lasting and require no specific maintenance. An annual monitoring inspection will be undertaken however to identify the need to repair or replace any Hedgehog nest domes, as necessary.

5.5 Herptiles

5.5.1 **Enhancement.** Foraging and commuting/dispersal opportunities will be enhanced for reptiles and amphibians, such that herptiles are expected to benefit from the development of the site. Refuge opportunities would be afforded by the new woodland and hedgerow planting, and foraging opportunities increased at the site by the creation of meadowland and the management of grassland based on ecological principles.

5.5.2 Hibernacula will be installed within the areas of new woodland, in the north and west of the site (see Appendix 5436/BIMP5 for specifications). The hibernacula will provide new hibernation and refuge opportunities for reptiles and amphibians. The hibernacula will also provide additional opportunities for invertebrates which in turn will provide a prey resource for reptiles and amphibians.

5.5.3 **Management.** No long-term maintenance of the hibernacula is required, although additional brash created as part of the ongoing management operations on-site could be used to bolster the hibernacula.

5.6 Invertebrates

5.6.1 **Enhancement.** Invertebrate interest at the site is expected to increase under the proposals, as a result of the establishment of new woodland and meadowland, hedgerow planting, creation of attenuation features, and diverse ecotones between these new and established habitats. Nonetheless, to further increase sheltering opportunities at the site, particularly within the built development, invertebrate boxes, bee bricks and log piles will be incorporated.

5.6.2 A total of eight bee bricks will be incorporated within the proposed development thereby increasing nesting opportunities for declining populations of non-swarming solitary bee populations (see Appendix 5436/BIMP6 for specifications). Ideally, bee bricks should be located within suitable south-facing walls (where architectural design allows), located at least 1m off the ground. The bricks should be unobstructed by vegetation, though within close vicinity of nectar and pollen sources.

5.6.3 A total of ten invertebrate boxes will be erected onto suitable new fences or retained trees within or close to built development. Invertebrate boxes will provide additional opportunities for nesting and hibernating insects, including solitary bees and ladybirds (see Appendix 5436/BIMP7 for example specifications). So as to maximise their potential use invertebrate boxes should be positioned in sheltered, wind free areas, where they are exposed to the sun for part of the day, facing either a southerly, south-easterly or south-westerly direction. The invertebrate boxes should be unobstructed by vegetation, though within close vicinity of nectar and pollen sources.

5.6.4 In addition, a number of above ground log piles will be created within new areas of woodland from cut material arising from any vegetation clearance conducted on-site (see Appendix 5436/BIMP8 for specifications). The provision of deadwood habitat will provide additional suitable habitat for saproxylic invertebrates.

5.6.5 **Management.** Bee bricks and invertebrate boxes are extremely long lasting and require no specific maintenance.

5.6.6 No long term maintenance of the log piles is required, although additional brash created as part of the ongoing management operations on-site can be used to bolster the log piles.

Appendix 5436/BIMP1:

Species Lists for Emorsgate Seed Mixtures

Emorsgate EW1F Wild Flowers for Woodland - Species Mix

Species	Common Name	Percentage of Mixture
Herbs		**100**
Alliaria petiolata	Garlic Mustard	10
Allium ursinum	Ramsons	7.5
Cruciata laevipes	Crosswort	2.5
Digitalis purpurea	Foxglove	10
Filipendula ulmaria	Meadowsweet	12.5
Galium album	Hedge Bedstraw	10
Geum urbanum	Wood Avens	5
Hyacinthoides non-scripta	Bluebell	12.5
Primula vulgaris	Primrose	2.5
Prunella vulgaris	Selfheal	12.5
Silene dioica	Red Campion	12.5
Teucrium scorodonia	Wood Sage	2.5

Emorsgate EM3 Special General Purpose Meadow Mix - Species List

Species	Common Name	Percentage of Mixture
Grasses		**80**
Agrostis capillaris	Common Bent	8
Cynosurus cristatus	Crested Dogstail	28
Festuca rubra	Slender-creeping Red-fescue	24
Phleum bertolonii	Smaller Cat's-tail	4
Poa pratensis	Smooth-stalked Meadow-grass	16
Herbs		**20**
Achillea millefolium	Yarrow	0.4
Agrimonia eupatoria	Agrimony	0.3
Betonica officinalis	Betony	0.5
Centaurea nigra	Common Knapweed	1.3
Centaurea scabiosa	Greater Knapweed	0.8
Daucus carota	Wild Carrot	1.8
Galium album	Hedge Bedstraw	0.8
Galium verum	Lady's Bedstraw	2
Geranium pratense	Meadow Crane's-bill	0.1
Knautia arvensis	Field Scabious	0.3
Leontodon hispidus	Rough Hawkbit	0.5
Leucanthemum vulgare	Oxeye Daisy	1.2
Malva moschata	Musk Mallow	1.7
Origanum vulgare	Wild Marjoram	0.3
Plantago media	Hoary Plantain	0.8
Poterium sanguisorba	Salad Burnet	1.6
Primula veris	Cowslip	0.8
Prunella vulgaris	Selfheal	0.3
Ranunculus acris	Meadow Buttercup	0.5
Ranunculus bulbosus	Bulbous Buttercup	0.2
Rhinanthus minor	Yellow Rattle	0.5
Rumex acetosa	Common Sorrel	1
Silene dioica	Red Campion	1.5
Silene flos-cuculi	Ragged Robin	0.4
Silene latifolia	White Campion	0.2
Taraxacum officinale	Dandelion	0.1
Vicia sativa ssp. segetalis	Common Vetch	0.1

Emorsgate EG8 Meadow Mixture for Wetlands - Species List

Species	Common Name	Percentage of Mixture
Grasses		**100**
Agrostis capillaris	Common Bent	12.5
Alopecurus pratensis	Meadow Foxtail	3.75
Anthoxanthum odoratum	Sweet Vernal-grass	3.75
Briza media	Quaking Grass	3.75
Cynosurus cristatus	Crested Dogstail	30
Deschampsia cespitosa	Tufted Hair-grass	2.5
Festuca rubra	Slender-creeping Red-fescue	40
Hordeum secalinum	Meadow Barley	3.75

Emorsgate EL1 Flowering Lawn - Species Mix

Species	Common Name	Percentage of Mixture
Grasses		**80**
Agrostis capillaris	Common Bent	8
Cynosurus cristatus	Crested Dogstail	40
Festuca rubra	Slender-creeping Red-fescue	28
Phleum bertolonii	Smaller Cat's-tail	4
Herbs		**20**
Galium verum	Lady's Bedstraw	3.4
Leontodon hispidus	Rough Hawkbit	0.5
Leucanthemum vulgare	Oxeye Daisy	1
Lotus corniculatus	Birdsfoot Trefoil	3.3
Primula veris	Cowslip	2.5
Prunella vulgaris	Selfheal	4
Ranunculus acris	Meadow Buttercup	3
Rumex acetosa	Common Sorrel	2
Trifolium pratense	Wild Red Clover	0.3

Emorsgate EH1 Hedgerow Mixture - Species List

Species	Common Name	Percentage of Mixture
Grasses		**80**
Agrostis capillaris	Common Bent	10
Anthoxanthum odoratum	Sweet Vernal-grass	2
Brachypodium sylvaticum	False Brome	7
Cynosurus cristatus	Crested Dogstail	20
Deschampsia cespitosa	Tufted Hair-grass	1
Festuca rubra	Slender-creeping Red-fescue	28
Poa nemoralis	Wood Meadow-grass	12
Herbs		**20**
Achillea millefolium	Yarrow	0.5
Agrimonia eupatoria	Agrimony	1.2
Alliaria petiolata	Garlic Mustard	1.5
Arctium minus	Lesser Burdock	0.4
Betonica officinalis	Betony	0.5
Centaurea nigra	Common Knapweed	1.5
Chaerophyllum temulum	Rough Chervil	0.4
Galium album	Hedge Bedstraw	2
Galium verum	Lady's Bedstraw	1
Geranium pyrenaicum	Hedgerow Crane's-bill	0.3
Hypericum perforatum	Perforate St John's Wort	0.6
Lathyrus sylvestris	Narrow-leaved Everlasting-pea	0.3
Leucanthemum vulgare	Oxeye Daisy - (Moon Daisy)	0.8
Origanum vulgare	Wild Marjoram	0.5
Plantago lanceolata	Ribwort Plantain	0.7
Primula veris	Cowslip	1
Silene dioica	Red Campion	2.5
Silene latifolia	White Campion	0.5
Torilis japonica	Upright Hedge-parsley	2
Verbascum thapsus	Great Mullein	0.5
Vicia cracca	Tufted Vetch	0.5
Vicia sativa ssp. segetalis	Common Vetch	0.8

Appendix 5436/BIMP2:

Bat Box Specifications

Bat Tubes

This bat brick is designed for buildings, or underneath bridges, arches or tunnels, where conditions are relatively humid. It is particularly useful for siting in new buildings or bridges to attract bats, or to provide new roost sites where existing buildings with bats are being renovated.

Schwegler 2FR Bat Tube

The same design as the 1FR but with holes in the sides. This allows multiple tubes to be placed next to each other to form a much larger bat roost.

Bat Boxes

Habibat/Weinerberger Integrated Bat Box

The Habibat/Weinerberger Bat Box has been specifically designed to be incorporated into the fabric of buildings and to encourage the use by species such as Pipistrelles, Natterer's, Whiskered and Brandt's bats which are most commonly found roosting in buildings.

They are larger in size than other similar boxes and can accommodate more bats. The internal structure is not split into chambers and with the unique arrow head internal fixings allows bats to congregate in different areas. The box is available in either Staffordshire Smooth Red or Smooth Blue but can also be manufactured to suit any other brick type.

Dimensions:
102mm (d) x 215mm (w) x 440mm (h).

Bat Boxes

Schwegler bat boxes are made from 'woodcrete' and have the highest rates of occupation of all types of box.

The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.

Boxes can be hung from a branch near the tree trunk or fixed using 'tree-friendly' aluminum nails.

Schwegler 2F Bat Box

The 2F from Schwegler is the most popular general purpose bat box. It is particularly attractive to the smaller British bats. A simple design made from strong, natural WoodcretePLUS material, with a narrow entrance slit on the front. Hang from a tree branch near the trunk, or fix to a trunk with the supplied 'tree-friendly' aluminium nail.

Woodcrete construction, 16cm diameter, 33cm height, 4kg weight.

2FN Bat Box

A large bat box featuring a wide access slit at the base as well as an access hole on the underside. Particularly successful in attracting Noctule and Bechstein's bats.

Woodcrete construction, 16cm diameter, height 36cm.

1FF Bat Box

The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Width: 27cm
Height: 43cm
Weight: 7.3kg

Appendix 5436/BIMP3:

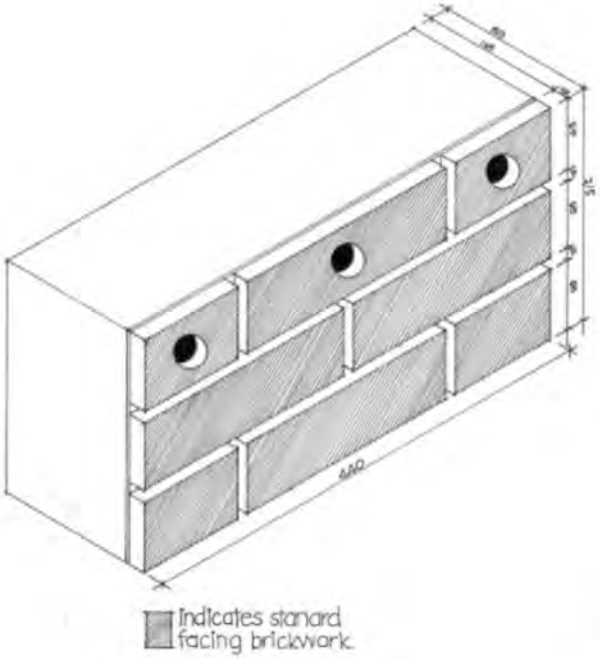
Bird Box Specifications

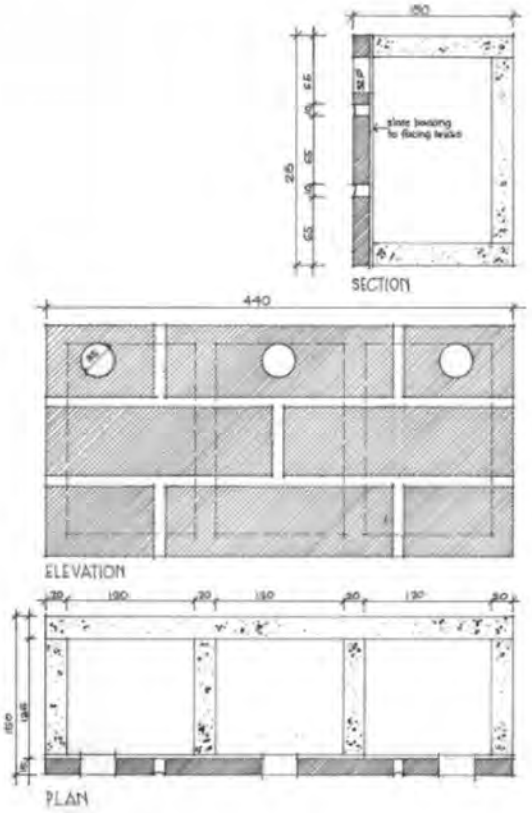
Bird Boxes

Habibat Terraced Sparrow Nest Box

A terraced bird box with three chambers designed specifically for Sparrows which can be integrated into a building.

Dimensions: 215H x 440L x 150D mm.
Weight 2.8kg





Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting. Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.

Schwegler No 17 Triple Cavity Swift Box

This box is constructed from plant-fibre based material. It can accommodate 3 pairs of swifts assisting the rapid formation of colonies. It should be sited 6-7m above the ground, near the roof of a building, ensuring unobstructed access for birds.

Dimensions: 150H x 900W x 150D mm. Weight 7kg

Bird Brick Box

Schwegler bird bricks are made from a similar material to Woodcrete. The interior of these Brick Boxes is similar to that of a woodpecker hole, with a shallow oval depression at the base. The brick dimensions correspond to those of standard commercially available bricks used in modern house construction. The dimensions allow for a 1cm layer of mortar, enabling the nesting blocks to be inserted in any wall without the need to cut adjoining bricks. The brick boxes can be inserted flush with the outside wall and can be rendered so that only the entrance hole is visible.

Schwegler Brick Box Type 24

Dimensions: Height 23.5cm, width 18cm, depth 18cm.
Entrance hole diameter 32mm.

Schwegler Brick Box Type 26

Dimensions: Height 19cm, width 18cm, depth 18cm.
Entrance hole diameter 110mm x 80mm.

Nest Boxes for Starling

Schwegler bird boxes have the highest rates of occupation of all types of box.

They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting.

Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.

Starling Box 3S

The large 45mm diameter entrance hole allows access for larger birds, such as Starling. This box can be hung on buildings or on trees, either from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

Nest Box 3SV

This box has a protruding entrance hole which provides protection against predators such as cats. The box can be affixed to buildings or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

Available in three entrance hole sizes. 45mm for Starling, 34mm for smaller birds such as tits, sparrows and nuthatch and oval, for use in deep forests to allow more light into the box.

Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting. Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.

Tree Creeper Box 2BN

Tree Creepers prefer a nest box that allows contact inside with a tree trunk that has a coarse type of bark, such as oak, alder, poplar, pine, pear or apple trees. For this reason the Tree Creeper boxes are open at the rear (the tree side). With their pointed beaks the birds can search among the cracks in the bark for spiders and insects such as beetles. The entrances, on both sides, provide excellent protection against cats and martens.

This type of box has a brood chamber and can be lifted completely away from the tree trunk for inspection and cleaning. The box rests on one aluminium nail, which is hammered halfway in, and is fastened to the tree with a coated wire. A foam seal pressing into the bark to prevent water entering the box.

Tawny Owl Box

The Nestbox Company Tawny Owl Nest Box

Tawny owls are content to nest in smaller cavities and the design of this nest box reflects this. Made of FSC timber, this nest box comes with a cleaning hatch and a long removable perch.

Dimensions:
Height: 77 cm
Width: 22 cm
Depth: 41.5 cm

Barn Owl Box

The Nestbox Company Barn Owl Nest Box

The nesting box is suitable for use inside a building such as a barn, or externally on a tree, wall or post providing the ideal homefor Barn Owls.

A lightweight but robust construction made from exterior quality resin bonded plywood, with drainage holes in the floor. This nesting box is manufactured with surface sunk coated staples to resist rusting, finished with a non-toxic water repellent finish.

A double inspection hatch allows full access to the whole floor area and facilitates cleaning or inspection from either side of the bird box. Both hatches are designed to avoid rain coming in, and are securely held in position with simple fastenings.

Dimensions:
Height: 74 cm
Width: 59 cm
Depth: 50 cm
Weight: 6 kg

Appendix 5436/BIMP4:

Hedgehog Dome Specifications

Hedgehog Dome

Hedgehog Dome

Schwegler Hedgehog Domes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture which is breathable and very durable makes this dome extremely long lasting and durable.

Hedgehogs usually construct nesting places in hollow tree stumps, piles of wood, dense vegetation and piles of leaves, all of which are becoming more and more scarce within the Hedgehogs natural range. The Schwegler Hedgehog Dome will provide ideal year round and hibernation accommodation for this species, which is listed as a UK BAP priority species, especially when filled with suitable bedding material such as dry leaves, newspaper or wood shavings.

Placement: Ideally the dome should be placed somewhere protected from wind and rain.

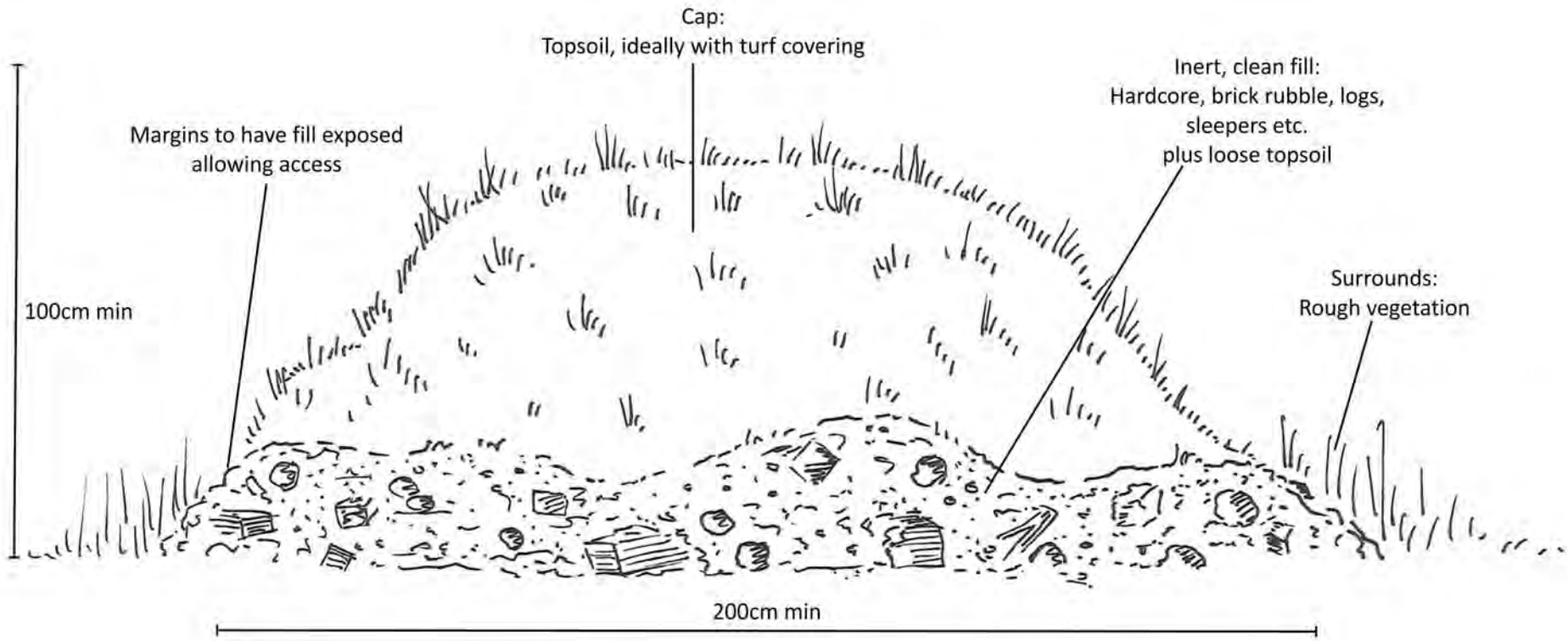
Specification: Interior circumference 44cm height, Exterior circumference 50cm, 28cm height. Entrance 11x12 cm, Weight 17kg

Hedgehog Dome

Hedgehog Dome - Occupied

Appendix 5436/BIMP5:

Hibernacula Specifications



The design mimics artificial and natural conditions in which reptiles and amphibians have frequently been found over-wintering. Dimensions should not be below 2m length x 1m height. The illustration design would be suitable for locating on an impermeable substrate. On free-draining substrates, the design is largely similar but the bulk of the fill is sited in an excavated depression in the ground.

Appendix 5436/BIMP6:

Bee Brick Specifications

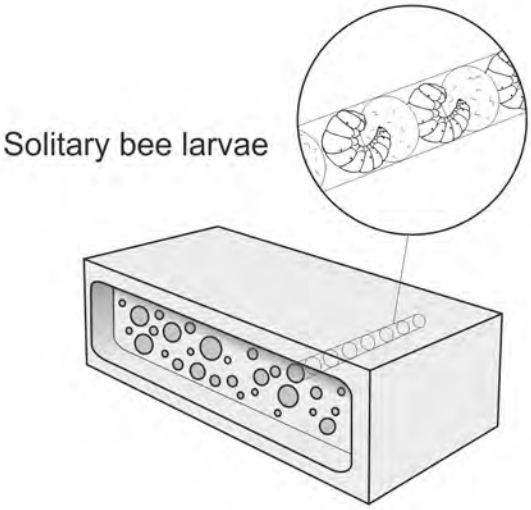
Bee Brick

Bee Brick

The bee brick has been designed to create a safe, all year round, nesting site for solitary bees, who face massive decline due to loss of habitat. The bee Brick can be built into a wall or structure but can also be placed as a standalone feature in your garden.

Solitary Bees are non-aggressive, child and pet friendly. They are a vital part of our biodiversity.

Dimensions:
Small block - 6.5cm x 7cm x 10.5cm
Large block - 10.5cm x 10.5cm x 10.5cm
Brick - 21.5cm x 10.5cm x 6.5cm



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Appendix 5436/BIMP7:

Invertebrate Box Specifications

Insect Boxes

Bug Box

A dual insect habitat which can be hung from trees or man made structures near ponds or scented plants, to provide an overwintering habitat for ladybirds and a nesting site for solitary bees.

Dimensions: 14 x 20 x 9cm

Wooden Insect House

A good general insect habitat for beneficial insects in summer and, later in the year, overwintering ladybirds and lacewings. Site in a sheltered place near pollen / nectar plants or by pond.

Durable and strong construction in Acacia / Oak / Larch with no maintenance necessary.

Dimensions: 22 x 13.5 x 13.5cm

Appendix 5436/BIMP8:

Log Pile Specifications

Buried "Loggery"

Dead and decaying wood is an important wildlife habitat, used by many species of beetle and other invertebrates

Image taken from the London Wildlife Trust publication: Stag Beetle: an advice note for its conservation in London, 2000.

Create a "loggery", by simply partially burying hardwood logs (with bark still attached) c.60cm into the ground, packing logs as closely together as possible. Position in partially shaded areas to prevent dessication. Avoid making log piles too high, or the timber will dry out. The logs should be at least the thickness of an adult's arm (10-50cm diameter).

Wood from any broadleaved tree can be used, but oak, beech or fruit trees (such as apple/pear) are best, as these support the richest insect communities.

A buffer zone should be created around the logs so that the soils and vegetation are protected as much as possible from disturbance, and ideally the surrounding vegetation should not be cut between May-September. Allowing plants to grow over the log pyramid both retains moisture and provides shade for invertebrate species.

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Appendix 5436/BIMP9:

Management Schedule

LANDSCAPE MANAGEMENT SCHEDULE – YEARS 1-5

(Schedule to be reviewed every five years between the client and the management firm to review management scheme)

	Area	Management Objective	Operation	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Retained Habitats	Existing Trees and Woodland	To promote healthy future growth	Check all trees. Removal of dead, dying or diseased trees & pruning as required.												
	Existing Hedges	To promote healthy future growth and keep all footpaths and driveways clear from obstructions	Check all hedgerows, including trees. Removal of dead, dying or diseased individuals & pruning as required.												
	Existing Ponds	To provide planting with the greatest opportunity for success.	If damaged, replacement as necessary. Replacement planting if required should be with same or an approved substitution if unavailable.												
		To prevent over dominance and encourage greater plant diversity	Selective thinning of marginal pond vegetation to ensure no species becomes dominant and maintain macrophyte coverage at a maximum of 75% (subject to inspection for nesting birds during the period March – August inclusive).												
Created / Restored Habitats	Community Woodland	To provide planting with the greatest opportunity for success and to promote healthy future growth.	Check all trees. Removal of dead, dying or diseased trees & pruning as required. Replacement planting if required should be with same or an approved substitution if unavailable.												
		To provide planting with the greatest opportunity for success.	Repair/replace/reinstate all stakes, guards and ties as required.												
		To minimise competition from surrounding weed/grass growth.	Pulling of ruderal vegetation around the base of each tree/shrub. Addition of mulch or mulch mats at base of trees and shrubs in spring to help manage weed growth.												
		To promote a diverse ground flora	Annual cut of ground vegetation in August to a height of between 40cm – 75cm. Cuttings to be removed 1-7 days following cut.												
	Restored Meadowland	To maintain high standard of appearance and ensure the restored meadowland offers floral and structural diversity and do not become encroached by scrub.	Grass cutting/strimming to height of between 40-70 mm in August. Cuttings to be removed 1-7 days following cut. Removal of colonising scrub by lopping or digging up by hand as required. Strip of grassland ~2m in width adjacent to woodland and hedgerows to be left uncut for longer period (2-3 years) to encourage tussock formation.			If Required							If Required		
			Implementation of an ecologically sensitive grazing regime *(If appropriate)*												
	New Hedges	To ensure success of scheme and to promote healthy future growth and robust hedgerow is created.	Check all shrubs. Removal of dead, dying or diseased shrubs & pruning as required. Replacement with same or an approved substitution if unavailable.												
		To provide planting with the greatest opportunity for success.	Repair/replace/reinstate all stakes, guards and ties as required.												
		To minimise competition from surrounding weed/grass growth.	Pulling of ruderal vegetation around the base of each tree/shrub. Addition of mulch or mulch mats at base of trees and shrubs in spring to help manage weed growth.												

	Area	Management Objective	Operation	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Created / Restored Habitats	Attenuation Basins (SuDS)	To maintain high standard of appearance and ensure the pond offers floral and structural diversity.	Grass cutting/strimming to height of between 40-70 mm in August. Further cuts in October and March as necessary to maintain a height of c.50 mm between August and March. Leave c.25% of grassland uncut each year. Cuttings to be removed 1-7 days following cut. Removal of colonising scrub by lopping or digging up by hand as required.												
	Amenity Grassland	To maintain high standard of appearance and ensure all amenity grassed areas are not overgrown and are suitable for use at all times whilst maintaining some value to wildlife.	Throughout the first year grass cutting is to be conducted every 7–10 days to a height of between 40-60 mm and arisings removed. After the first year to permit flowering, mowing can be relaxed from late June with cutting conducted every 4-8 weeks as required. 2m strip of grassland adjacent to hedgerows and woodland to be left unmown for an extended period of time and subject to an annual cut in in late autumn.												
	Ornamental / Amenity Shrub Planting	To ensure success of scheme and to promote healthy future growth and keep all footpaths and routes clear from obstructions.	Check all plants. Removal of dead, dying or diseased plants & pruning as required. Replacement with same or an approved substitution if unavailable (subject to inspection for nesting birds during the period March – August inclusive).												
		To provide planting with the greatest opportunity for success.	Repair/replace/reinstate all stakes, guards and ties as required.												
		To minimise competition from surrounding weed/grass growth.	Pulling of ruderal vegetation around the base of each tree/shrub. Addition of mulch or mulch mats at base of trees and shrubs in spring to help manage weed growth.												
	New Tree and Woodland Planting	To ensure success of scheme and to promote healthy future growth and keep all footpaths and routes clear from obstructions.	Check all trees. Removal of dead, dying or diseased trees/shrubs & pruning as required. Replacement with same or an approved substitution if unavailable.												
		To provide planting with the greatest opportunity for success.	Repair/replace/reinstate all stakes, guards and ties as required.												
		To minimise competition from surrounding weed/grass growth.	Pulling of ruderal vegetation around the base of each tree/shrub. Addition of mulch or mulch mats at base of trees and shrubs in spring to help manage weed growth.												
		To ensure success of scheme, promote healthy future growth and create a structurally diverse copse.	Management of 25% of woodland copse planting on rotation every 7 – 10 years.												
	Bird, Bat and Insect Boxes and Hedgehog Domes	To ensure bird, bat and insect boxes and hedgehog domes remain in good condition, and as such do not pose a health and safety risk.	Annual visual inspections of bird, bat and insect boxes and hedgehog domes. If any items dislodged or unsafe to be re-secured.												
	Hibernacula and Log Piles	To ensure hibernacula and log piles remain in good condition	Additional brash arising from site clearance works to be added as necessary												

Key:

Management required

Management not required

LANDSCAPE MANAGEMENT SCHEDULE – YEARS 6-10

(Schedule to be reviewed every five years between the client and the management firm to review management scheme)

Area	Management Objective	Operation	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Existing Trees and Woodland	To promote healthy future growth	Check all trees. Removal of dead, dying or diseased trees & pruning as required.												
Existing Hedges	To promote healthy future growth and keep all footpaths and driveways clear from obstructions	Check all hedgerows. Removal of dead, dying or diseased individuals & pruning as required.												
Existing Ponds	To provide planting with the greatest opportunity for success.	If damaged, replacement as necessary. Replacement planting if required should be with same or an approved substitution if unavailable.												
	To prevent over dominance and encourage greater plant diversity	Selective thinning of marginal pond vegetation to ensure no species becomes dominant and maintain macrophyte coverage at a maximum of 75% (subject to inspection for nesting birds during the period March – August inclusive).												
Community Woodland	To provide planting with the greatest opportunity for success and to promote healthy future growth.	Check all trees. Removal of dead, dying or diseased trees & pruning as required. Replacement planting if required should be with same or an approved substitution if unavailable.												
	To provide planting with the greatest opportunity for success.	Repair/replace/reinstate all stakes, guards and ties as required.												
	To minimise competition from surrounding weed/grass growth.	Pulling of ruderal vegetation around the base of each tree/shrub.												
	To promote a diverse ground flora	Annual cut of ground vegetation in August to a height of between 40cm – 75cm. Cuttings to be removed 1-7 days following cut.												
Restored Meadowland	To maintain high standard of appearance and ensure the restored meadowland offers floral and structural diversity and do not become encroached by scrub.	Grass cutting/strimming to height of between 40-70 mm in August. Cuttings to be removed 1-7 days following cut. Removal of colonising scrub by lopping or digging up by hand as required. Strip of grassland ~2m in width adjacent to woodland and hedgerows to be left uncut for longer period (2-3 years) to encourage tussock formation.			If Required							If Required		
		Ecologically sensitive grazing regime. *(If appropriate)*												
New Hedges	To ensure success of scheme and to promote healthy future growth and robust hedgerow is created.	Check all shrubs. Removal of dead, dying or diseased shrubs & pruning as required. Replacement with same or an approved substitution if unavailable.												
	To provide planting with the greatest opportunity for success.	Repair/replace/reinstate all stakes, guards and ties as required.												
	To minimise competition from surrounding weed/grass growth.	Pulling of ruderal vegetation around the base of each tree/shrub.												

Area	Management Objective	Operation	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Attenuation Basins (SuDS)	To maintain high standard of appearance and ensure the pond offers floral and structural diversity.	Grass cutting/strimming to height of between 40-70 mm in August. Further cuts in October and March as necessary to maintain a height of c.50 mm between August and March. Leave c.25% of grassland uncut each year. Cuttings to be removed 1-7 days following cut. Removal of colonising scrub by lopping or digging up by hand as required.												
Amenity Grassland	To maintain high standard of appearance and ensure all amenity grassed areas are not overgrown and are suitable for use at all times whilst maintaining some value to wildlife.	Grass cutting is to be conducted to a height of between 40-60 mm as required in Spring and early Summer, and arisings removed. Mowing can be relaxed from late June with cutting conducted every 4-8 weeks as required. 2m strip of grassland adjacent to hedgerows and woodland to be left unmown for an extended period of time and subject to an annual cut in in late autumn.												
Ornamental / Amenity Shrub Planting	To ensure success of scheme and to promote healthy future growth and keep all footpaths and routes clear from obstructions.	Check all plants. Removal of dead, dying or diseased plants & pruning as required. Replacement with same or an approved substitution if unavailable (subject to inspection for nesting birds during the period March – August inclusive).												
	To provide planting with the greatest opportunity for success.	Repair/replace/reinstate all stakes, guards and ties as required.												
New Tree and Woodland Planting	To ensure success of scheme and to promote healthy future growth and keep all footpaths and routes clear from obstructions.	Check all trees. Removal of dead, dying or diseased trees/shrubs & pruning as required. Replacement with same or an approved substitution if unavailable.												
	To provide planting with the greatest opportunity for success.	Repair/replace/reinstate all stakes, guards and ties as required.												
	To minimise competition from surrounding weed/grass growth.	Pulling of ruderal vegetation around the base of each tree/shrub.												
	To ensure success of scheme, promote healthy future growth and create a structurally diverse copse.	Management of 25% of woodland copse planting on rotation every 7 – 10 years.												
Bird, Bat and Insect Boxes and Hedgehog Domes	To ensure bird, bat and insect boxes and hedgehog domes remain in good condition, and as such do not pose a health and safety risk.	Annual visual inspections of bird, bat and insect boxes and hedgehog domes. If any items dislodged or unsafe to be re-secured.												
Hibernacula and Log Piles	To ensure hibernacula and log piles remain in good condition	Additional brash arising from site clearance works to be added as necessary												

LANDSCAPE MANAGEMENT SCHEDULE – YEARS 11- 20

(Schedule to be reviewed ten years between the client and the management firm to review management scheme)

Area	Management Objective	Operation	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Existing Trees and Woodland	To promote healthy future growth	Check all trees. Removal of dead, dying or diseased trees & pruning as required.												
Existing Hedges	To promote healthy future growth and keep all footpaths and driveways clear from obstructions	Check all hedgerows. Removal of dead, dying or diseased individuals & pruning as required.												
Existing Ponds	To provide planting with the greatest opportunity for success.	If damaged, replacement as necessary. Replacement planting if required should be with same or an approved substitution if unavailable.												
	To prevent over dominance and encourage greater plant diversity	Selective thinning of marginal pond vegetation to ensure no species becomes dominant and maintain macrophyte coverage at a maximum of 75% (subject to inspection for nesting birds during the period March – August inclusive).												
Community Woodland	To promote healthy future growth	Check all trees. Removal of dead, dying or diseased trees & pruning as required.												
	To provide planting with the greatest opportunity for success.	Repair/replace/reinstate all stakes, guards and ties as required.												
Restored Meadowland	To maintain high standard of appearance and ensure the restored meadowland offers floral and structural diversity and do not become encroached by scrub.	Grass cutting/strimming to height of between 40-70 mm in August. Cuttings to be removed 1-7 days following cut. Removal of colonising scrub by lopping or digging up by hand as required. Strip of grassland ~2m in width adjacent to woodland and hedgerows to be left uncut for longer period (2-3 years) to encourage tussock formation.			If Required							If Required		
		Ecologically sensitive grazing regime. *(If appropriate)*												
New Hedges	To ensure success of scheme and to promote healthy future growth and robust hedgerow is created.	Check all plants. Removal of dead, dying or diseased plants & pruning as required. Replacement with same or an approved substitution if unavailable.												
	To provide planting with the greatest opportunity for success.	Repair/replace/reinstate all stakes, guards and ties as required.												
Attenuation Basins (SuDS)	To maintain high standard of appearance and ensure the pond offers floral and structural diversity.	Grass cutting/strimming to height of between 40-70 mm in August. Further cuts in October and March as necessary to maintain a height of c.50 mm between August and March. Leave c.25% of grassland uncut each year. Cuttings to be removed 1-7 days following cut. Removal of colonising scrub by lopping or digging up by hand as required.												

Area	Management Objective	Operation	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Amenity Grassland	To maintain high standard of appearance and ensure all amenity grassed areas are not overgrown and are suitable for use at all times whilst maintaining some value to wildlife.	Grass cutting is to be conducted to a height of between 40-60 mm as required in Spring and early Summer, and arisings removed. Mowing can be relaxed from late June with cutting conducted every 4-8 weeks as required. 2m strip of grassland adjacent to hedgerows and woodland to be left unmown for an extended period of time and subject to an annual cut in in late autumn.												
Ornamental / Amenity Shrub Planting	To ensure success of scheme and to promote healthy future growth and keep all footpaths and routes clear from obstructions.	Check all plants. Removal of dead, dying or diseased plants & pruning as required. Replacement with same or an approved substitution if unavailable (subject to inspection for nesting birds during the period March – August inclusive).												
	To provide planting with the greatest opportunity for success.	Repair/replace/reinstate all stakes, guards and ties as required.												
New Tree and Woodland Planting	To ensure success of scheme and to promote healthy future growth and keep all footpaths and routes clear from obstructions.	Check all trees. Removal of dead, dying or diseased trees/shrubs & pruning as required. Replacement with same or an approved substitution if unavailable.												
	To provide planting with the greatest opportunity for success.	Repair/replace/reinstate all stakes, guards and ties as required.												
	To ensure success of scheme, promote healthy future growth and create a structurally diverse copse.	Management of 25% of woodland copse planting on rotation every 7 – 10 years.												
Bird, Bat and Insect Boxes and Hedgehog Domes	To ensure bird, bat and insect boxes and hedgehog domes remain in good condition, and as such do not pose a health and safety risk.	Annual visual inspections of bird, bat and insect boxes and hedgehog domes. If any items dislodged or unsafe to be re-secured.												
Hibernacula and Log Piles	To ensure hibernacula and log piles remain in good condition	Additional brash arising from site clearance works to be added as necessary												

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