Barratt Homes David Wilson Homes

Land to the West of White Post Road, Banbury Oxfordshire

ECOLOGICAL MANAGEMENT PLAN

August 2020

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1.0 INTRODUCTION

1.1 The following Ecological Management Plan (EMP) has been prepared by FPCR Environment & Design Ltd. on behalf of Barratt Homes David Wilson Homes. The EMP provides details of the habitat creation proposals and subsequent future management of areas of open space with specific regard to ecology associated with the proposed residential development at Land to the West of White Post Road, Banbury Oxfordshire. It also provides details of the measures to be employed to ensure protection of features of ecological value within the site during construction.

1.2 The EMP aims to satisfy the requirements of Condition 19 of the planning permission APP/C3105/W/17/3172731 approved by The Planning Inspectorate, which requires that;

'Prior to the first occupation of any dwelling as part of the development, a full Ecology Management Plan (EMP) shall be submitted to, and approved in writing by, the local planning authority. Thereafter, the EMP shall be carried out in accordance with the approved details. The EMP shall include:

- *Description and evaluation of the features to be managed;*
- *Ecological trends and constraints on site that may influence management;*
- *Aims and objectives of management;*
- *Appropriate management options for achieving aims and objectives;*
- *Prescriptions for management actions for a 20 year period and beyond;*
- *Preparation of a work schedule (including a 5 year project register, an annual work plan and the means by which a plan will be rolled forward annually);*
- *Personnel responsible for implementation of the plan; and,*
- *Monitoring.'*

1.3 The EMP report and plans should be read in conjunction with the Landscape Masterplan (2832-5-5 – David Jarvis Associates Dec 2019) The following report provides further guidance specifically with regards to ecology with appropriate cross-referencing to the Landscaping Plans where appropriate for clarity.

2.0 BASELINE AND SITE CONTEXT

2.1 The site is approximately 17.5ha and is located to the west of White Post Road and south of the Saltway and comprises mainly arable fields, with boundary hedgerows and an area of grassland with mature open grown trees. Some allotments border the site to the south-west, Banbury Cricket Club and Wykham Lane are located to the south of the site, the town of Banbury to the north and the village of Bodicote to the south east. Land to the west of the site is rural and primarily in agricultural use.

2.2 The site was initially visited on 23rd July 2013 and an Extended Phase 1 habitat survey conducted. Subsequently, the site was visited again on 20th May 2015, 26th January 2018 and 4th April 2019 to undertake update walkover surveys to check for any significant changes to habitats present and potential for protected and notable species given the time elapsed since the original surveys.

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2.3 The results of the previous assessments of the site identified that the site was of limited nature conservation value with the habitats in particular, of low conservation significance with the hedgerows and trees providing some limited value to the site. In relation to protected species historic use of the site by badgers was identified with the latest survey (2019) identifying a single active badger sett located within 30m of the north-eastern site boundary.

Development Proposals

2.4 Proposals for the site are for a residential development of up to 280 units. Boundary and internal hedgerows are to be retained, with gaps created for a spine road connecting to an adjacent future development site to the west. Development of the site will create open space and recreational areas as well as green links to connect to the north and south of the site.

3.0 OBJECTIVES

3.1 The over-arching objective of this management plan and subsequent regime is to enhance the nature conservation value of the site by the creation of new habitats for the benefit of biodiversity.

3.2 Where appropriate, specific objectives are provided within the prescriptions designed to ensure that these habitats within the site reach and maintain their maximum nature conservation value.

4.0 HABITAT RETENTION AND CREATION

4.1 Habitats to be retained as part of the development proposals include mature trees and boundary hedgerows. Full management prescriptions for these features are provided with specific ecological measures detailed below.

4.2 The habitat creation proposals, including planting specifications and seed mixes are detailed on the landscape plan. These have been designed to integrate into the existing landscape, provide linkages around the proposed residential development for wildlife, buffer the residential development and complement the existing habitats of ecological value on site.

4.3 The majority of habitat creation will comprise native species of local provenance. Appropriate measures deemed necessary to ensure ecologically-sensitive clearance of the site are proposed.

4.4 Emorsgate Seeds have been used as an example of seed mixes in this management plan, although other reputable suppliers can be used, this management plan does not endorse the use of any one supplier.

4.5 Habitats to be created and managed appropriately are as follows:

Grassland Areas

4.6 Zoned management of hedgerow margins and associated grassland habitats will provide a more diverse habitat structure. A 2m strip located adjacent to hedgerows should be subjected to a less-intensive management regime to produce a more tussocky structure and provide additional refuge areas on the site's peripheries.

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4.7 Informal areas of POS located around footpaths and cycle paths will be planted with a robust amenity mix such as DLF PM 27 Ecosward plus (and where required be reinforced) which is suitable for a management regime of higher intensity mowing and footfall.

4.8 Larger areas of grassland with lower anticipated footfall will be planted with a species rich meadow grassland such as Emorsgate EM4 Meadow Mixture for Clay Soils. These areas of meadow grassland will be managed to encourage floristic diversity and provide a foraging resource for wildlife with a mixed structural sward suitable for a range of taxa.

Hedgerows

4.9 New native species-rich hedgerows will be planted to infill existing hedgerows along the eastern, western and southern boundaries and will further strengthen the existing boundary habitats providing a valuable connective corridor around the site for wildlife.

4.10 Areas of POS immediately adjacent to the retained and newly-planted boundary hedgerows will be managed to provide a more diverse habitat around the site.

SUDS and Swales

4.11 Various SUDs basins will be created within areas of public open space towards the southern site boundary. These will facilitate surface water drainage from the road and built environment and aid with collection and storage of water. One basin on the south western boundary will be designed to hold an area of permanent standing water, providing additional aquatic habitat and damp grassland.

4.12 Several swales will be created within the core and northern portion of the built development site and will provide drainage from the main site access road and areas dominated by hardstanding. The swales will be placed under a sympathetic management regime in order to provide shelter, foraging opportunities and habitat linkage within the site. A 2m strip will be managed to maintain its structural diversity and prevent the encroachment and succession of scrub from over shading the ditch and bankside.

This EMP report does not cover the maintenance of the engineered drainage structures and only gives advice on management measures to maximise the ecological value of these areas.

Shrub and Tree Planting

4.13 Shrub and tree planting will consist of native-species planted throughout areas of POS. Additional tree planting in association with residential gardens and comprise of mixture of native and ornamental species.

5.0 HABITAT MANAGEMENT AND MANAGEMENT PRESCRIPTIONS

Grassland Areas

Amenity Grassland Areas

5.1 Amenity grassland and turf will be located within areas of green space around proposed footpath and cycle routes which will receive the heaviest of footfall. Amenity and turf grassland will be under

an intensive management regime to promote a uniform sward. The amenity grassland will be sown with a mix such as DLF PM27 Ecosward plus.

Table 1: Proposed Amenity Grassland (sown DLF PM 27 Ecosward plus).

Grasses (%) = 100%		
Lolium perenne	Perennial ryegrass	(50%)
Festuca rubra	Strong creeping red fescue	(35%)
Festuca rubra commutate	Chewings fescue	(10%)
Trifolium repens	Microclover®	(5%)

Ground Preparation & Sowing

5.2 To prepare the ground remove all weeds, stones, grass sods and other debris exceeding 20mm in any dimension. Perennial weeds can be spot treated with herbicide where required. Areas should then be raked (or harrowed) to produce a fine tilth for the seed bed.

5.3 Sowing should be undertaken in early autumn (late August/September) or spring (April/early May) at a rate of 25g/m^2 or to manufacturers specification.

Management

5.4 The condition of the grassland areas will be reviewed within six months of seeding and any areas which have failed to establish will be re-seeded. Any injurious weeds should be spot treated with herbicide or pulled by hand.

5.5 To control any flush of annual weeds, the grassland will be cut 2-3 times to a minimum height of *c.*40mm within the first year of its development. All cuttings will be removed within a 48-hour period.

5.6 To provide the formal appearance desired, following the initial year of its creation, the amenity and turf grassland will be cut regularly (up to 21 cuts a year) to minimum height of *c.*25mm. All cuttings will be removed within a 48-hour period and deposited in a designated composting area on site.

Meadow Grassland

5.7 Informal areas of POS across the site will be planted with species rich meadow grassland (Emorsgate EM4 Meadow Mix for Clay Soils). Areas of meadow grassland will be managed to encourage floristic diversity and provide a foraging resource for wildlife.

5.8 A 2m buffer at the base of new/retained hedgerows will be subject to a separate management regime (detailed below).

Table 2: Proposed Meadow Grassland (Emorsgate EM4 Meadow Mix for Clay Soils).

Wildflower (%) = 20%			**Grasses (%) = 80%**		
Achillea millefolium	Yarrow	(0.5%)	*Agrostis capillaris*	Common Bent	(10%)
Betonica officinalis (Stachys officinalis)	Betony	(0.5%)	*Alopecurus pratensis*	Meadow Foxtail	(1%)
Centaurea nigra	Common Knapweed	(3%)	*Anthoxanthum odoratum*	Sweet Vernal-grass	(3%)
Filipendula ulmaria	Meadowsweet	(0.1%)	*Briza media*	Quaking Grass	(1%)

Galium album (Galium mollugo)	Hedge Bedstraw	(0.5%)	*Cynosurus cristatus*	Crested Dog's-tail	(16%)
Galium verum	Lady's Bedstraw	(4%)	*Festuca rubra*	Slender-creeping Red-fescue	(24%)
Leontodon hispidus	Rough Hawkbit	(1%)	*Hordeum secalinum*	Meadow Barley	(1%)
Leucanthemum vulgare	Oxeye Daisy	(2%)	*Phleum bertolonii*	Smaller Cat's-tail	(4%)
Plantago lanceolata	Ribwort Plantain	(1%)	*Poa pratensis*	Smooth-stalked Meadow-grass	(20%)
Primula veris	Cowslip	(1.5%)			
Prunella vulgaris	Selfheal	(0.4%)			
Ranunculus acris	Meadow Buttercup	(0.7%)			
Rhinanthus minor	Yellow Rattle	(1%)			

Ground Preparation and Sowing

5.9 To discourage more robust plant species and maintain low nutrient grassland (typically of greatest biodiversity value) it is recommended that no top-soil or fertiliser be used in the creation of the semi-improved grassland, where feasible.

5.10 Following ground modelling works the areas to be sown will be raked or harrowed to produce a medium fine tilth and any large debris removed. Seed should be surface sown at 4g/m^2 during spring (April/early May) or autumn (late August to September) at a time when the soil is moist and can be worked.

Management

5.11 The condition of the grassland areas will be reviewed for the first two years post establishment. Six months after original seeding and any areas which have failed to establish will be re-seeded.

5.12 To maintain a balance between fast growing grasses and slower wild flowers, regular mowing to a height of *c.*50mm will take place during the first year of establishment, this will also aid the control of annual weeds. All arisings will be removed within a 48-hour period and deposited in a designated composting area on site.

5.13 Any areas of pernicious weeds (i.e. docks *Rumex spp.,* thistles *Cirsium spp.* or ragwort *Senecio spp.*) will be dug out or spot-treated with herbicides.

5.14 In the second year and subsequent years, management to maintain the floristic diversity would entail an annual cut to a height of *c.*50mm, between mid-July and early September, followed by two autumn cuts undertaken up until the end of November to a height of *c*.50mm. Following each mechanical cut of the grassland during its establishment or longer-term management, arisings will be left for 7 days, then raked of and deposited in a designated composting area on site.

Hedgerow Buffer Grassland Margin Management

5.15 A 2m strip located adjacent to hedgerows will be managed through a less-intensive regime to allow a rough grassland margin to form. A more tussocky structure at the base of these hedgerows will provide additional refuge areas for wildlife on the margins of the site.

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5.16 Management of the 2m buffer hedgerow margin will include the provision that one third of the grassland will be cut on a three-year cycle between October and February. This will produce a structurally diverse habitat of rough grassland.

Hedgerows

Retained Hedgerows

5.17 The existing hedgerows are generally of good quality and are of moderate conservation value with a number of mature trees present. The development proposals have been designed to ensure that where hedgerows are to be retained, they are located outside of residential garden boundaries to maintain connectively for wildlife.

5.18 All retained hedgerows will be protected during construction by high visibility fencing erected at an appropriate distance from the outside edge of the hedgerow. Where trees are to be retained, they will be protected by fencing erected according to their calculated root protection areas (RPA).

5.19 Hedgerows will be managed in rotation, cutting only half of the hedgerow stock within the site annually to ensure that there is a continuous supply of fruit during the winter months for birds and small mammal species. Hedgerows will be managed to a minimum height of 2m and a minimum width of 1.5m and cutting will take place outside of the breeding bird season (March to August inclusive) avoiding any periods of heavy frost. An herbaceous strip measuring 2m either side of each hedgerow will be maintained through an appropriate mowing regime.

New Hedgerows

5.20 New native species-rich hedgerows will be planted primarily within the development proposals to infill gaps within retained hedgerows located along the site boundaries. The hedgerows will be formed using double-staggered rows to provide a dense and well-structured hedgerow of value to wildlife.

5.21 Planting should be undertaken between the months of November to March, and preferably prior to January. Trees guards would be used to protect plant from rabbit grazing. Species composition will include:

- Blackthorn *Prunus spinosa*
- Dog-rose *Rosa canina*
- Field Maple *Acer campestre*
- Hawthorn *Crataegus monogyna*
- Holly *Ilex aquifolium*

5.22 To prepare the ground the planting strip will require strimming and spraying off with a suitable herbicide at least 3 weeks prior to planting.

5.23 All dead, dying and diseased plants will be replaced in the following planting season on a one-for-one basis for the first 5 years following initial planting. Replacement of protective guards or fencing will also be undertaken during this time.

5.24 In order to reduce competition and aid establishment of the created hedgerows, weeds at the bases of the plants will be subject to spot treatment of a non-residual herbicide for the first three years.

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5.25 In years one to three, newly-planted hedgerows will be lightly trimmed to encourage dense growth. After three years the newly established hedgerows can be integrated into the retained hedgerow management scheme.

SUDs and Swales

5.26 Several SUDs basins will be created in POS toward the southern portion of the site and will primarily be used to provide drainage residential development but will also be managed to provide a range of wetland habitats on site. Swales will also be created throughout the centre of site and to the north of the development.

5.27 The SUDs feature and swale habitats will be seeded with a wet grassland mixture (EM8 Meadow Mixture for Wetlands).

Table 3: Proposed Meadow Mixture for Wetlands (Emorsgate EM8 Meadow Mixture for Wetlands).

Wildflower (%) = 20%			**Grasses (%) = 80%**		
Achillea millefolium	Yarrow	(0.5%)	*Agrostis capillaris*	Common Bent	(10%)
Achillea ptarmica	Sneezewort	(0.2%)	*Alopecurus pratensis*	Meadow Foxtail	(2%)
Stachys officinalis	Betony	(1%)	*Anthoxanthum odoratum*	Sweet Vernal-grass	(2%)
Centaurea nigra	Common Knapweed	(2.5%)	*Briza media*	Quaking Grass	(2%)
Filipendula ulmaria	Meadowsweet	(2%)	*Cynosurus cristatus*	Crested Dog's-tail	(32%)
Galium verum	Lady's Bedstraw	(1.5%)	*Deschampsia cespitosa*	Tufted Hair-grass	(1%)
Geum rivale	Water Avens	(0.4%)	*Festuca rubra*	Slender-creeping Red-fescue	(24%)
Leucanthemum vulgare	Oxeye Daisy	(0.5%)	*Hordeum secalinum*	Meadow Barley	(1%)
Lotus pedunculatus	Greater Bird's-foot-Trefoil	(0.6%)	*Festuca pratensis*	Meadow Fescue	(6%)
Plantago lanceolate	Ribwort Plantain	(1%)			
Primula veris	Cowslip	(0.3%)			
Prunella vulgaris	Selfheal	(1%)			
Ranunculus acris	Meadow Buttercup	(2%)			
Rhinanthus minor	Yellow Rattle	(1.5%)			
Rumex acetosa	Common Sorrel	(1%)			
Sanguisorba officinalis	Great Burnet	(2%)			
Silaum silaus	Pepper Saxifrage	(0.5%)			
Lychnis flos-cuculi	Ragged Robin	(0.2%)			
Succisa pratensis	Devil's-bit Scabious	(0.6%)			

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Ground Preparation and Sowing

5.28 To discourage more robust plant species and maintain low nutrient grassland (typically of greatest biodiversity value) it is recommended that no top-soil or fertiliser be used in the creation of the grassland.

5.29 To prepare the ground, areas to be sown will be raked or harrowed to produce a medium tilth and any large debris removed the areas will then be rolled, or tread, to produce a firm surface. Seed should be surface sown at 4g/m^2 during spring (April/early May) or autumn (late August to September), selecting a time when the land has drained.

Grassland Management

5.30 The condition of the grassland areas will be reviewed for the first two years post establishment. Six months after original seeding and any areas which have failed to establish will be re-seeded.

5.31 To maintain a balance between fast growing grasses and slower wild flowers, regular mowing to a height of *c.*50mm will take place during the first year of establishment, this will also aid the control of annual weeds. All arisings will be removed within a 48-hour period and deposited in a designated composting area on site. Any areas of pernicious weeds (i.e. docks *Rumex spp.,* thistles *Cirsium spp.* or ragwort *Senecio spp.*) will be dug out or spot-treated with herbicides.

5.32 In the second year and subsequent years, management to maintain the floristic diversity would entail an annual cut to a height of *c.*50mm, between mid-July and early September, followed by two autumn cuts undertaken up until the end of November to a height of *c.*50mm. Following each mechanical cut of the grassland during its establishment or longer-term management, arisings will be left for 7 days, then raked of and deposited in a designated composting area on site. Mowing should be combined with the mowing of the meadow grassland areas, although strimming and raking may be preferable methods for cutting back grassland within swales.

5.33 Where possible and the roughness of the grassland will not decrease performance in conveying water from the swale and pond, it should be allowed to develop a rough tussocky sward, only being cut every third year to prevent scrub encroachment.

Marginal and Aquatic Vegetation

5.34 Marginal planting is most suitable for the SUDs basin which will hold an area of permanent standing water. Care should be taken to avoid planting overly competitive and non-native species, including all species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), as well as native species such as bulrush *Typha latifolia*, which can soon take over a pond, causing it to dry out and reduce the habitat quality and subsequent value for wildlife. Particularly rare or localised species should also be avoided, favouring those appropriate to the local area and that naturally occur in eutrophic waters. Proposed species are detailed in Table 4 below.

Table 4: Proposed aquatic and marginal vegetation planting

Aquatic Planting	
Caltha palustris	Marsh Marigold
Iris pseudacorus	Yellow Iris
Mentha aquatica	Water Mint
Potamogeton natans	Broad-leaved pondweed
Veronica beccabunga	European speedwell

Management

5.35 Aquatic vegetation will be monitored and managed to provide approximately 60% of open water, 40% marginal vegetation. Should marginal vegetation exceed 40% of the pond surface, it should be removed by hand, washed in the open water to dislodge any invertebrates, larvae or amphibians and be placed on the bankside for 48 hours to allow any remaining invertebrates back into the waterbody, prior to removal.

5.36 No more than one third of vegetation should be removed annually. Management should take place during autumn (September to November) when the waterbody is least likely to be utilised by amphibians or other fauna.

Submerged/Floating Vegetation

5.37 If submerged vegetation starts to dominate the waterbody, this should also be removed by hand and be allowed drain off prior to removal to allow any invertebrates or fauna back into the waterbody.

SUDs Management

5.38 The banks of the attenuation pond will have a shallow gradient to facilitate access for maintenance and for safe egress for people and wildlife that may enter the area.

5.39 The planting of native trees surrounding the pond will add to the structural diversity of the habitats allowing wildlife to colonise. Planting of extensive trees around the perimeter should be avoided to prevent excessive over-shading. Some over-shading will occur but this will provide a range of climatic conditions within the waterbody which will be beneficial to aquatic flora and fauna.

5.40 Ongoing maintenance of the SUDs feature should be kept to a minimum once established. Where management is required, this should be done on a rotational basis. Accumulations of slit and debris will be cleared as necessary, with no more than half of SUDs being cleared within a year. Measures that are likely to minimise any potential damage to marginal vegetation will include using a machine with a long reach arm. Clearing of SUDs will only be carried out if essential to maintain their drainage function.

5.41 Management will take account of the following prescriptions:

- All working areas will be inspected for protected, notable and invasive species prior to any works.
- Management will be timed to avoid disturbance to sensitive species including breeding birds.
- Cut plants and spoil will be left near the bank to drain to allow invertebrates and amphibians to return to the water and will then be deposited away from the water in the designated composting area on site.
- Remove any litter and other inorganic material from these areas as required. Any large organic material that may affect the drainage function of these features should be removed, and deposit into designated areas for use as habitat piles.

5.42 Fish will predate amphibian larvae and eggs and will therefore reduce the overall ecological value to the waterbody to wildlife and as such should not be introduced to the SUDs feature.

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Build-up of Filamentous algae

5.43 If filamentous algae becomes a problem within the SUDs feature (which can take place when sediments are disturbed during de-silting operations), barley straw can be used to control it. Loose bales are added to the water in a net or cage and allowed to decompose in the water releasing a chemical that naturally inhibits the growth of algae. Centre for Ecology and Hydrology Information Sheet 1: Control of Algae with Barley Straw provides full details of how to use barley straw to control algae and can be found here: http://nora.nerc.ac.uk/19957/1/BarleyStrawtocontrolalgae.pdf

Swales

5.44 A two-metre wide strip of sympathetically managed vegetation will be retained at the top of the banks of each ditch to provide shelter, foraging opportunities and habitat linkage throughout the site. Sympathetic management will aim to maintain structural diversity and prevent scrub encroachment dominating the ditch and bankside habitats.

5.45 The two-metre strip will be managed with one third cut on a three-year cycle between October and February to a minimum height of 50mm. All arisings are to be removed within 48 hours and deposited within the designated composting area.

Swale Management

5.46 Where swale management is required, this will be done on a rotational basis. Accumulations of slit and debris in narrow ditches will be cleared only as necessary, with no more than half of the ditches being cleared in any year. Clearing of ditches will only be carried out if essential to maintain their drainage function.

5.47 Swale management will take account of the following prescriptions:

- All working areas will be inspected for protected, notable and invasive species prior to any works.
- All work will be undertaken in an upstream direction.
- Management will be timed to avoid disturbance to sensitive species including breeding birds.
- Cut weed and spoil will be left near the bank to drain to allow invertebrates and amphibians to return to the water and will then be deposited away from the water in an area of low wildlife value.
- Remove any litter and other inorganic material from swales as required and remove any large organic material that may block ditches, and deposit into designated areas for use as habitat piles.

Shrubs and Trees

5.48 A range of native and specimen trees and shrubs will be planted as part of landscaping across the site, including within residential plots.

New trees will comprise of the following species;

- Field Maple - Acer campestre
- Crab Apple - Malus sylvestris

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- Wild cherry - *Prunus avium*
- English oak - *Quercus robur*
- Mountain ash - Sorbus aucuparia

Ground Preparation and Planting

5.49 To prepare the ground the area will require strimming and spraying off with a suitable herbicide at least 3 weeks prior to planting. Before planting topsoil should be moist and friable, not waterlogged.

5.50 New trees should be planted between October and March, avoiding periods of inundation or prolonged ground frost. Following British standard BS 8545:2014 *Trees: from nursery to independence in the landscape. Recommendations*.

5.51 Trees are to be mulched using wood chippings or bark to establish a 1m diameter around the tree stem. Suitable protection such as tree guards are to be used where required.

5.52 All plants must be undamaged, sturdy, healthy and vigorous and be free from pests, diseases, discoloration and physiological disorders. When planted care will be taken to ensure all plants are upright or well balanced with best side to front.

Management

5.53 All dead, dying and diseased plants will be replaced in the following planting season on a one-for-one basis for the first 5 years following initial planting.

5.54 In drier weather, plants should be watered regularly. To protect establishing plants weeds at the bases of trees will be subject to spot treatment of a non-residual herbicide for the first three years.

5.55 Inspection and adjustment of steaks, ties and protective guards will be undertaken quarterly. This may also be required after severe storms. Any that have become damaged or that are missing will be replaced.

5.56 Maintenance of trees should be undertaken only where essential to of the health of the tree or where there is a risk to the public.

6.0 ECOLOGICAL CONSIDERATIONS DURING THE CONSTRUCTION PHASE

Fauna

6.1 The suite of surveys undertaken in support of the planning application have established that badgers are the only protected species identified within the site however, potential for roosting bats remains within some of the retained trees. The following recommendations are made with regards to commuting and foraging bats, badgers and nesting birds. In order to ensure the appropriate ecologically-sensitive clearance of the site and subsequent protection measures are implemented during the construction phase.

Badger

6.2 Badgers and their setts are protected under UK law by the Protection of Badgers Act 1992, which protects the animals from harm and injury and from disturbance, including whilst using a sett.

6.3 Given the presence of badgers within the local area as evidenced by an off-site sett within 30m of the north-east site boundary, it is recommended that any groundworks / maintenance works in this area are undertaken in accordance with good practice. This will include:

- During construction any pipes greater than 250mm in diameter will be capped if they are left open overnight, thereby preventing badgers (or other fauna) from becoming trapped;
- Any pits or trenches will be similarly covered overnight, or left with a suitable means of escape e.g. wooden plank or graded sides;
- During groundworks / maintenance, use of plant or machinery should be avoided within 30m of the sett, with hand tools only in this area;
- Any soil piles must be covered over or compacted down to minimise the risk of badgers digging in to create setts.

6.4 In the unlikely event that an active badger sett is identified before or during construction works then the relevant legislation should be taken into consideration, with appropriate mitigation to protect the area of badger interest. This may entail the use of buffer zones, badger fencing or undertaking works under the appropriate Natural England badger Licence to ensure this species is not directly impacted by the proposals. Works under a badger Licence that directly affect a sett or disturb badgers occupying a sett may only be undertaken between July and November, inclusive.

Nesting Birds

6.5 Vegetation such as scattered scrub and any sections of hedgerow should be removed outside of the bird breeding season (March – August inclusive) as all birds are protected whilst on the nest under the Wildlife and Countryside Act 1981 (as amended). Where this is not possible, vegetation to be removed should be checked for the presence of nesting birds by a suitably experienced ecologist prior to removal. Where nesting birds are present an exclusion zone should be set around the nest (suitable for the species nesting) within which no works can occur until the birds have fully fledged.

Bats

6.6 All existing boundary habitats are to be retained within the current development proposals with additional planting of new hedgerows on site. These will provide more potential foraging / commuting opportunities for any local bat species.

Habitats

6.7 All mature trees where retained within the development proposals will be buffered / protected through the provision of root protection areas, secured through Heras fencing during the construction phase.

6.8 Similarly, hedgerows will be buffered from the development through the use of fencing to prevent encroachment of the construction zone. Furthermore, no groundworks or storage of materials should take place within these protection zones.

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7.0 MONITORING

7.1 In order to ensure that the habitats created within the site reach and maintain their maximum value to nature conservation, all habitats should be monitored every two years to check effective establishment. Results of this monitoring should be used to inform annual updates to this management plan, and at the end of the five-year rolling work programme.

7.2 The prescriptions provided here are for overall guidance and should not be set in stone, if monitoring indicates that a different management method or timing may be more effective and would facilitate development of habitats of greater ecological value then the necessary adjustments should be made.

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8.0 OUTLINE ESTABLISHMENT AND ONGOING MANAGEMENT PRESCRIPTIONS

Table 5: Management prescriptions

Habitat/ Feature	Operations/ Works	Year	Anticipated Timing of Visits/ Operations (months)												Frequency, notes
			J	F	M	A	M	J	J	A	S	O	N	D	
Amenity Grassland	Ground preparation	1			■	■	■	■	■	■	■				Spray off of any perennial weeds and dig over (or ploughing where extensive) of the areas to bury the remaining surface vegetation, then rake (or harrow) to produce a medium tilth.
	Sow grassland	1				■	■			■	■				Sow April/early May or late August/September at rate as per seed providers guidelines, firm with roller.
	Review condition & re-seed as required	1-2				■	■			■	■				Re-seed within next appropriate seeding period.
	Review & treat areas of ruderal/weed species	2-3					■	■							Review after 6 months of seeding. Spot treatment with non-residual herbicide, undertake early summer prior to flowering.
	Cut grassland	1+			■			■			■	■			Cut to c.40mm 2-3 times a within first year and as needed ongoing, suspending cuts during April, May and June and August. Remove arisings within 2 days of cutting.
Meadow Grassland	Ground preparation	1			■	■	■	■	■	■	■				Following earthworks, weeds to be removed by hand pulling or use of a suitable herbicide. Cultivate to bury surface vegetation or rake and remove. *No top-soil or fertiliser be used*
	Sow grassland	1				■	■			■	■				Sow April/early May or late August/September at rate as per seed providers guidelines, firm with roller.
	Review condition & re-seed as required	1-2				■	■			■	■				Re-seed within next appropriate seeding period.
	Review & treat areas of ruderal/weed species	2-3					■	■							Review after 6 months of seeding. Spot treatment with non-residual herbicide, undertake early summer prior to flowering.
	Cut grassland	2 +								■	■	■	■		Cut to *c.*100mm in first year and c.50mm in subsequent years, once mid-August to September, twice up until November. Remove arisings within - day period.
Existing Hedgerows	Annual cut	4+	■	■								■	■	■	One half of all the hedgerows on-site to be cut on a two or three-year rotation avoiding heavy frosts

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Habitat/ Feature	Operations/ Works	Year	Anticipated Timing of Visits/ Operations (months)												Frequency, notes
			J	F	M	A	M	J	J	A	S	O	N	D	
New Hedgerows	Ground preparation	1										■			Following earthworks, strim and spray planting strip with herbicide at least 3 weeks prior to planting.
	Planting	1	■	■	■								■	■	Plant in double staggered rows along the prepared strip in a random species mix.
	Vegetation clearance	1-3			■	■	■	■	■	■	■				Targeted application of a non-residual herbicide at the base of each tree.
	Monitoring	1-5	■	■	■							■	■	■	Mark and remove dead/diseased plants replace in the following growing season.
	Annual trim	1-3	■	■											Light trimming to encourage dense growth.
	Annual cut	4+	■	■											One half of all the hedgerows on-site to be cut on a two or three-year rotation avoiding heavy frosts
Tree Planting	Planting	1	■	■	■	■	■				■	■	■	■	Plant September-May avoiding periods of harsh frost and fit with a strimmer/vole guard or mesh rabbit guard
	Irrigation	1					■	■	■	■	■				Water during drier weather at the base of the tree.
	Vegetation clearance	1			■	■	■	■	■	■	■				Targeted application of a non-residual herbicide at the base of the tree.
	Inspection of stakes and ties	1-2	■			■			■			■			Quarterly inspection of stakes and ties, inspection to take place after severe storms also. Replace where damaged.
	Monitoring	1+										■	■	■	Stakes and ties adjusted/removed accordingly to growth. Replace any dead/diseased trees.
	Cutting	1-5	■	■								■	■	■	Prune dead or diseased material.
SUDs Pond	Sow grassland	1				■	■			■	■				Sowing late summer or in spring once the land has drained. The seed should not be incorporate or covered and no top-soil or fertiliser should be used.
	Control annuals	2+			■	■	■	■	■	■	■				Annual weed growth cut back.
	Review & treat areas of ruderal/weed species	2-3					■	■							Review after 6 months of seeding. Spot treatment with non-residual herbicide, undertake early summer prior to flowering.
	Cut grassland	2 +								■	■	■	■		Cut 2-3 times upon reaching a height of c. 40-60mm within the first year of its development. In subsequent years cut to c.50mm once mid-August to September, twice up until November. Where possible cut only every third year. Remove arisings within 7-day period.
	Vegetation clearance and	2+	■	■								■	■	■	Vegetation is cut back and removal of short wedge-like sections of vegetation on rotation, 1/3 per year.

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Habitat/ Feature	Operations/ Works	Year	Anticipated Timing of Visits/ Operations (months)												Frequency, notes
			J	F	M	A	M	J	J	A	S	O	N	D	
	thinning of dense stands		■	■								■	■	■	
	Monitoring	2+	■	■								■	■	■	Ensure 60% of pond is maintained as open water, clear vegetation where necessary, outside of the amphibian breeding period.
	Marginal vegetation cutting	2+	■	■								■	■	■	Arisings should be left next to the pond for 2 days, before taking to a designated composting area, to allow amphibians/ invertebrates to return to the pond.
Swales	Sow grassland	1				■	■			■	■				Sowing late summer or in spring once the land has drained. The seed should not be incorporate or covered and no top-soil or fertiliser should be used
	Control annuals	2+			■	■	■	■	■	■	■				Annual weed growth cut back
	Review & treat areas of ruderal/weed species	2-3					■	■							Review after 6 months of seeding. Spot treatment with non-residual herbicide, undertake early summer prior to flowering.
	Cut grassland	2 +	■	■								■	■	■	One third cut on a three-year cycle between October and February to a minimum height of 50mm

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