



**ECOLOGY**SOLUTIONS

Part of the ES Group

GREAT WILSEY PARK,  
HAVERHILL:  
RESIDENTIAL (PHASE 1 –  
PARCELS A1, A2, AND A8)  
RESERVED MATTERS  
APPLICATION

**Ecological Implementation  
Strategy**

Pursuant to Condition 42 of  
DC/15/2151/OUT

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## 1. INTRODUCTION

- 1.1. Ecology Solutions was commissioned by Redrow Homes in October 2018 to prepare materials to address the requirements of planning conditions for the development at Great Wilsey Park as shown on Plans ECO1 and ECO2 (reference: DC/15/2151/OUT).
- 1.2. Condition 42 requires that an Ecological Implementation Strategy be submitted and approved prior to commencement of development. The condition states:

**No development shall take place on any phase or reserved matters application (including demolition, archaeological investigation, ground works and vegetation clearance) until an ecological implementation strategy for that particular phase or reserved matters application addressing the mitigation measures set out in Volume 2 Section 9 of the Environmental Statement dated September 2015, relevant appendices and subsequent Addendum document May 2016 has been submitted to and approved in writing by the local planning authority. The implementation strategy shall include the following:**

- a. ES mitigation measures to be addressed
- b. Purpose and conservation objectives for the proposed works.
- c. Review of site potential and constraints informed by up to date survey.
- d. Detailed design(s) and / or working method(s) to achieve stated objectives.
- e. Extent and location / area of proposed works on appropriate scale maps and plans.
- f. Type and source of materials to be used where appropriate, e.g. native species of local provenance.
- g. Timetable for implementation demonstrating that works are aligned with the proposed phasing of development.
- h. Persons responsible for implementing the works.
- i. Details of initial aftercare and long-term maintenance.
- j. Requirement for monitoring and remedial measures.
- k. Details for disposal of any wastes arising from works.

**The implementation strategy shall be implemented in accordance with the approved details and all features shall be retained in that manner thereafter.**

**Reason: To ensure the satisfactory development of the site at the appropriate time to protect vulnerable ecological habitats and ensure the satisfactory development of the site.**

- 1.3. This report has been prepared to address the requirements of condition 42, providing details of the ecological implementation strategy to be adopted within the first residential phase of the Redrow development, with particular attention paid to the mitigation measures set out in Volume 2 Section 9 of the Environmental Statement, relevant appendices and subsequent Addendum. Due regard is had to the baseline information and long term objectives for the site where these are relevant. As necessary, mitigation strategies are proposed such that the development would be in line with all relevant legislative and planning policy requirements.
- 1.4. The focus of this document is on the mitigation strategies and protective measures that will be implemented during construction, i.e. the development of the site and establishment of the various habitats and features proposed. The long term of management and ecological enhancement of the site is focused on in the Landscape and Ecological Management Plan.

- 1.5. Both documents refer to the General Arrangement (GA) drawings and Planting Plans produced by Exterior Architecture in consultation with Ecology Solutions.
- 1.6. In general, the focus of the ecological mitigation, enhancements and management is on the land covered by the Infrastructure RMA, which is subject to separate consideration. The majority of the land within parcels A1, A2 and A8 consists of arable fields, which is of limited ecological interest and in general offers limited opportunities for protected and notable species. Some existing interest is present, including hedgerows and field margins. In addition to this, further opportunities are to be incorporated as part of the built form and new public green spaces and gardens.

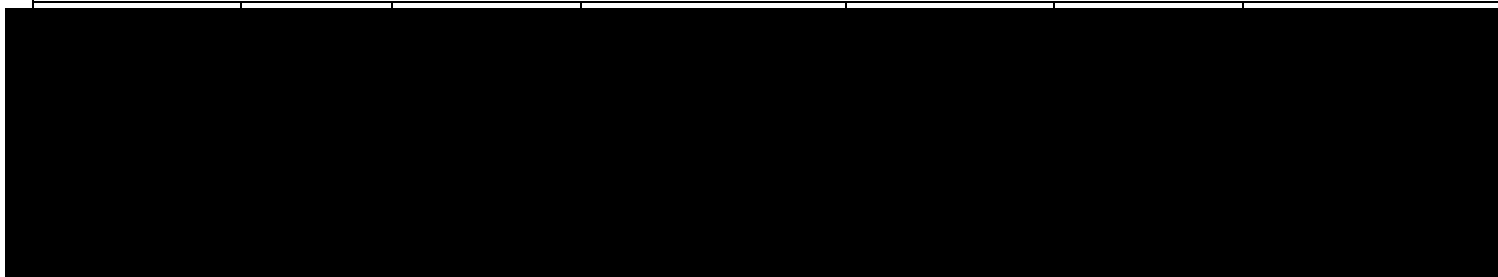
## 2. ES MITIGATION MEASURES TO BE ADDRESSED

### 2.1 ES Chapter

2.1.1 The mitigation measures described in the Ecology ES Chapter are summarised in Table 9.5 of that document. The effects concerned and the mitigation proposed are reproduced in the table below. A column has been added to the table to indicate where in this document and / or on the accompanying GA and Planting Plans the measures are detailed, or where the effects are not relevant to the first Residential RMA.

POTENTIAL EFFECT	NATURE OF EFFECT	SIGNIFICANCE	MITIGATION / ENHANCEMENT MEASURES	GEOGRAPHICAL FEATURES	RESIDUAL EFFECTS	DOCUMENT / PLAN REFERENCE OR COMMENT
<b>Construction</b>						
<b>Statutory &amp; Non-Statutory Sites</b>						
<b>Dust Particles Exposure on LNR &amp; CWS</b>	Temporary	Negligible	Work area sprayed with water during dry conditions	Local	Negligible	See section 6 of this document.
<b>Habitats</b>						
<b>Arable Field Loss</b>	Permanent	Negligible	Diverse range of habitats will be created within previously arable dominated areas	Negligible	Minor / Moderate Beneficial Long Term	Arable fields in the Residential RMA will be occupied by housing. New garden areas and public green spaces will offer opportunities for wildlife. See section 9 of this document and GA and Planting Plans.
<b>Improved Grassland – Loss of fields</b>	Permanent	Negligible	Some fields to be retained along the water course, these will be enhanced with additional planting. More species rich meadow grassland habitats are to be created within the GI	Negligible	Negligible	No improved grassland habitats are to be affected by the first Residential RMA.
<b>Field Margins – Partial loss</b>	Permanent/ Temporary	Negligible	Majority retained within hedgerows. New areas of grassland habitats created providing more coverage and diversity	Site	Minor Beneficial Long Term	For general protection of field margins, see GA and Planting Plans and section 9 of this document.  H19, H21, H23, H24 are not within the Redrow site.
<b>Field Margins – Partial loss of North/East 'Wildlife Conservation Areas' margins. (H19, H21 &amp; H23/H24)</b>	Permanent/ Temporary	Minor Adverse Short Term		Site		
<b>Woodland - Loss of 1ha of Woodland Compartment W1</b>	Permanent	Minor/ Moderate Adverse Long Term	Additional woodland planting through the Application Site	Local	Moderate Beneficial Long Term at Local Level.	W1 is not within the Redrow site.
<b>Woodland - Loss of 0.3ha Recently Planted Plantation (TN5)</b>	Permanent	Minor/ Moderate Adverse Long Term	Additional woodland planting to compensate for losses	Local		No woodland is to be lost as a result of the first Residential RMA.
<b>Woodland – Damage from encroachment by equipment or materials</b>	Temporary/ Permanent	Minor/ Moderate Adverse Short Term	Retained habitats fenced off and 'toolbox' talks given to contractors. No dig methods where roads and footpath required.	Site	Negligible	See section 8 of this document.
<b>Woodland – Foliage coverage with dust particles</b>	Temporary	Minor Adverse Short Term	During dry periods water will be sprayed over the ground, suppressing dust.	Site		See section 8 of this document.

POTENTIAL EFFECT	NATURE OF EFFECT	SIGNIFICANCE	MITIGATION / ENHANCEMENT MEASURES	GEOGRAPHICAL FEATURES	RESIDUAL EFFECTS	DOCUMENT / PLAN REFERENCE OR COMMENT
<b>Hedgerows - Partial losses of hedgerows H4, H9, H13 &amp; H14</b>	Permanent	Minor Adverse Long Term	Existing hedgerows strengthened with additional native species. Compensatory hedgerows planted.	Local		Hedgerows H4, H9, H13 and H14 are not to be affected by the first Residential RMA.
<b>Hedgerows - Partial losses of HEGS hedgerows H11, H12, H21 &amp; H23</b>				Local		A small section of H11 is to be removed to facilitate the first Residential RMA – see GA and Planting Plans and section 9 of this document. H12 is not to be affected by this RMA. H21, H23 not within Redrow site.
<b>Hedgerows - Partial loss of hedgerow H19 'important' under REGS</b>				Local		H19 not within Redrow site.
<b>Hedgerows - Damage to existing and newly planted hedgerows from machinery, equipment and materials</b>	Temporary/ Permanent	Minor Adverse Medium Term	Retained habitats fenced off and 'toolbox' talks given to contractors	Site		See GA and Planting Plans and section 8 of this document.
<b>Watercourses - Becoming clogged with rubbish/building material</b>	Temporary	Minor Adverse Short Term	'Toolbox' talks given to contractors about sensitively of habitats	Site		See GA and Planting Plans and section 10 of this document.
<b>Fauna</b>						



<b>Birds (Breeding) – Removal of arable habitats</b>	Permanent	Minor Adverse Long Term	No arable habitats will be created. Additional nests and foraging provided in GI.	Negligible	Negligible	See section 15 of this document.
<b>Birds (Breeding) – Removal of hedgerow &amp; part of woodland W1 removal during breeding season</b>	Permanent	Moderate Adverse in Short Term	Habitat removal to occur outside of breeding season or under supervision of an experienced ecologist. New hedgerows will be planted with fruiting bodies for foraging and dense structure for nesting.	Site	Negligible	See GA and Planting Plans and section 15 of this document.  W1 not in Redrow site.
<b>Breeding Birds- Habitat created benefit swift, starlings, song thrush, dunnock</b>	Permanent	Minor Beneficial Long Term	GI will create additional hedgerow, trees, areas of open greenspace and residential gardens.	Local	Minor Beneficial Long Term	See GA and Planting Plans and section 15 of this document.



POTENTIAL EFFECT	NATURE OF EFFECT	SIGNIFICANCE	MITIGATION / ENHANCEMENT MEASURES	GEOGRAPHICAL FEATURES	RESIDUAL EFFECTS	DOCUMENT / PLAN REFERENCE OR COMMENT
and house sparrow.						
Wintering Birds – Loss of arable habitats on skylarks	Permanent	Minor Adverse Long Term	Displaced to surrounding arable field	Local	Negligible	See section 15 of this document.
Dormice – Loss of habitats used by dormice – Isolation and injury/death	Permanent	Minor/ Moderate Adverse Long Term	Removal of habitats under Natural England licence at appropriate times of the year.	Local	Negligible	No evidence of Dormice in first Residential RMA area.
Dormice Loss of hedgerow H23/H24	Permanent	Negligible / Minor Adverse Long Term		Site	Negligible	H23, H24 not in Redrow site.
Dormice - Possible encroachment of construction machinery / materials into retained habitats used dormice	Temporary	Minor	Retained habitats fenced off and 'toolbox' talks given to contractors	Site	Negligible	See GA and Planting Plans and section 9 of this document for hedgerow protection measures.
Dormice – Deer grazing on new GI planting	Temporary	Moderate Adverse Long Term	Fencing off or planting more mature species.	Site	Negligible	See section 14 of this document for protective measures.
Reptiles - Loss of habitats used by reptile populations	Permanent	Moderate Adverse Medium Term	Passive displacement will be undertaken in areas when habitat losses occur.	Local	Minor Beneficial Long Term	See GA and Planting Plans and section 16 of this document.
Reptiles - Isolation of reptile populations from access roads/habitat loss	Temporary/ Permanent	Minor/ Moderate Long Term	Ensuring populations are not isolated by displacement measures and additional habitats created	Site		See section 16 of this document.
Reptiles - Possible encroachment of construction machinery / materials into retained habitats used by reptiles	Temporary	Minor Adverse Short Term	Retained habitats fenced off and 'toolbox' talks given to contractors	Site	Negligible	See GA and Planting Plans and section 16 of this document.
Bats -Losses of woodland W1 will alter navigational and foraging behaviours	Temporary	Minor Adverse Short Term	Linkages will be retained within other areas of woodland W1. Increased GI will provide alternative routes.	Site	Negligible	W1 not in Redrow site.
Bats - Fragmentation of navigational corridors due to linear losses	Temporary	Minor Adverse Short Term	Habitat 'Hop-overs' to be created near gaps and additional planting to ensure additional navigational routes	Local		No significant linear habitat losses due to first Residential RMA.
Bats - Disruption of navigational and foraging routes by artificial lighting from construction works – common species of bat	Temporary	Minor Adverse Short Term	Limit dusk working hours, where required direction lighting will be situated away from natural habitats.	Site	Negligible	See GA and Planting Plans and Lighting Strategy for Bats (Condition 44).
Bats - Disruption of navigational and foraging routes by	Temporary	Moderate Adverse Short Term		Local		See GA and Planting Plans and Lighting Strategy for Bats (Condition 44).

POTENTIAL EFFECT	NATURE OF EFFECT	SIGNIFICANCE	MITIGATION / ENHANCEMENT MEASURES	GEOGRAPHICAL FEATURES	RESIDUAL EFFECTS	DOCUMENT / PLAN REFERENCE OR COMMENT
artificial lighting from construction works – Barbastelle bats						
Bats - Disruption of tree roosts and access to them, by artificial lighting from construction works	Temporary	Minor Adverse Short Term		Site	Negligible	Known tree roosts and other mature trees not within or in close proximity to first Residential RMA.
Operational Effects						
<b>Statutory &amp; Non-Statutory Sites</b>						
Increase in recreational disturbance on CWS & LNR.	Temporary/ Permanent	Minor Adverse Long Term	Specific GI created for recreational activities i.e. off lead dog walking. Circular walks with semi natural features.	Local	Negligible	See GA and Planting Plans and section 6 of this document.
<b>Effects on Habitats</b>						
Woodland - Recreation disturbance on Great Field Plantation	Temporary/ Permanent	Minor Adverse Long Term	Perimeter planting and fencing to focus public access to designated paths. Interpretation boards installed.	Local	Minor Beneficial Long Term	Operational effects on Great Field Plantation considered as part of Infrastructure RMA.
Woodland - Increased disturbance of woodland W1, due to possible access to new amenities	Temporary/ Permanent	Minor Adverse Long Term		Local		W1 not in Redrow site.
Woodland - Increased disturbance and possible damage of woodland W4 from extended play and public interference	Temporary/ Permanent	Minor Adverse Long Term		Local		W4 not in Redrow site.
Woodland - Increase in litter levels within woodland affecting ground flora and fauna	Temporary	Minor Adverse Medium Term		Litter bins to be located at entry points to woodland and near public amenities		Local
Woodland - Disturbance through public short cuts through exiting and created hedgerow / margins	Temporary	Minor Adverse Medium Term	Post and wire fencing to allow time for hedgerows to establish.	Site	Negligible	Operational effects on woodland considered as part of Infrastructure RMA.
Watercourse - Increase in recreational pressure of watercourse, particularly the central feature	Temporary/ Permanent	Minor Adverse Long Term	Fencing and public interpretation boards to raise awareness of biological features.	Local		Operational effects on watercourse considered as part of Infrastructure RMA.
Residential Gardens	Permanent	Minor beneficial Long Term	N/A	Site	Minor beneficial Medium Term	See GA and Planting Plans and section 9 of this document.
New Woodland – Damage by the public	Temporary	Minor Adverse in Medium Term	New woodland planting will be fenced off and managed	Local	Negligible	Operational effects on woodland considered as

POTENTIAL EFFECT	NATURE OF EFFECT	SIGNIFICANCE	MITIGATION / ENHANCEMENT MEASURES	GEOGRAPHICAL FEATURES	RESIDUAL EFFECTS	DOCUMENT / PLAN REFERENCE OR COMMENT
						part of Infrastructure RMA.
<b>New Habitats – Grassland, waterbodies, woodland, and individual tree planting</b>	Permanent	Moderate/ Major Beneficial Long Term	New habitats created	Local	Moderate/ Major Beneficial Long Term	See GA and Planting Plans and sections 7 to 10 of this document.
<b>New Habitats – Inappropriate Management</b>	Temporary/ Permanent	Moderate Adverse Short/ Medium/ Long Term	A Green infrastructure & Biodiversity Management Plan will be written	Local	Moderate Beneficial Long Term	See GA and Planting Plans and Landscape and Ecological Management Plan (Condition 7).

**Effects on Fauna**



<b>Birds – Domestic Cats and Slow Development of Habitats</b>	Temporary	Minor Adverse Medium Term	Existing habitats retained to allow possible refuge. Where possible more mature hedgerow species planted. Nesting boxes will provide opportunities while habitats mature.	Site	Negligible	See GA and Planting Plans and section 15 of this document.
<b>Birds – New GI</b>	Permanent	Minor Beneficial Long Term	Retention of hedgerows and the GI created will provide more refuge and foraging opportunities	Local	Minor Beneficial Long Term	See GA and Planting Plans and section 15 of this document.
<b>Dormice – Inappropriate Management of Habitats</b>	Temporary/ Permanent	Minor / Moderate Adverse Long Term	A Green infrastructure & Biodiversity Management Plan will be written	Site	Minor Beneficial Long Term	New and retained Dormouse habitats are considered primarily as part of the Infrastructure RMA. No significant effect on Dormouse habitats as result of first Residential RMA.
<b>Dormice – Degradation of existing/created habitats by public</b>	Temporary/ Permanent	Minor / Moderate Adverse Long Term	Habitats will be fenced off while they develop and interpretation boards specifying the importance of such areas	Site		New and retained Dormouse habitats are considered primarily as part of the Infrastructure RMA. No significant effect on Dormouse habitats as result of first Residential RMA.
<b>Dormice – Predation by Cats</b>	Permanent	Minor Adverse Long Term	Dense hedgerow planting and nesting boxes installed for refuge opportunities while habitats develop.	Site		New and retained Dormouse habitats are considered primarily as part of the Infrastructure RMA. No significant effect on Dormouse habitats as result of first Residential RMA.
<b>Reptiles – Predation by Cats</b>	Permanent	Minor Adverse Long Term	New grassland habitats will be created through the site with specific reptile features such as hibernacula, log piles and hedgerows. These	Site	Minor Beneficial Long Term	See GA and Planting Plans and section 16 of this document.
<b>Reptiles – Habitat Creation</b>	Permanent	Minor Beneficial Long Term		Site		See GA and Planting Plans and section 16 of this document.

POTENTIAL EFFECT	NATURE OF EFFECT	SIGNIFICANCE	MITIGATION / ENHANCEMENT MEASURES	GEOGRAPHICAL FEATURES	RESIDUAL EFFECTS	DOCUMENT / PLAN REFERENCE OR COMMENT
			will act as refuge and hibernation structures.			
<b>Reptiles – Degradation of existing/created habitats by public</b>	Temporary/ Permanent	Minor/ Moderate	Habitats will be fenced off while they develop and interpretation boards specifying the importance of such areas	Site		See GA and Planting Plans and section 16 of this document.
<b>Bats – Street and Building Lighting</b>	Permanent	Moderate Adverse Short Term	Buffers will be created along habitats to limit the degree of light spill. Where lighting required, they will be directionally focused or shrouded. Lighting on buildings will only be placed where necessary. Additional GI will provide alternative foraging and commuting opportunities	Local	Negligible	See GA and Planting Plans and Lighting Strategy for Bats (Condition 44).
<b>Bats – Additional GI</b>	Permanent	Minor/ Moderate Beneficial Long Term	Additional GI created that will provide new commuting and foraging opportunities. GI will increase prey items as waterbodies and grassland habitats created.	Local	Minor/ Moderate Beneficial Long Term	Majority of new habitats for bats considered as part of Infrastructure RMA.
<b>Cumulative Effects – North West Haverhill Development</b>						
<b>Construction</b>						
<b>Dust Particles Effects on Statutory Sites</b>	Temporary	Minor Adverse Short Term	Suppress with spraying ground with water during dry periods	Borough	Negligible	See section 6 of this document.
<b>Loss of hedgerows</b>	Permanent	Minor Adverse Long Term	New hedgerow planting with GI	Site		Only small section of hedgerow to be lost as part of first Residential RMA.
<b>Operational</b>						
<b>Recreational pressures on Ann Sucklings Way &amp; Norney Plantation CWS</b>	Permanent	Minor Adverse Long Term		Borough	Negligible	See section 6 of this document.

## 2.2 ES Addendum

2.2.1 No additional measures relevant to the first Residential RMA are contained in the ES Addendum.

### **3. PURPOSE AND CONSERVATION OBJECTIVES**

#### **3.1 Purpose of the Strategy**

3.1.1 The purpose of this strategy is to address the mitigation measures set out in Volume 2 Section 9 of the Environmental Statement (ES) dated September 2015, relevant appendices and the subsequent Addendum document dated May 2016.

3.1.2 The scope of the ES relates to the wider site and the ecological receptors identified during work to inform the outline application. The current strategy relates solely to the Phase 1 Residential Reserved Matters Application (RMA) for the land in the ownership of Redrow Homes. As set out in the introduction, the effects of the first Residential RMA are relatively limited when considered in isolation.

#### **3.2 Conservation Objectives**

3.2.1 Specific objectives for the conservation of particular species or groups and particular habitats of nature conservation interest are set out in the relevant sections below. The nature of these objectives has been guided by the principles set out in UK and European wildlife legislation, notably the Wildlife & Countryside Act 1981 (as amended), the Conservation of Habitat and Species Regulations 2017 and the Natural Environment & Rural Communities Act 2006. Furthermore, the formulation of these objectives has also been influenced by national and local biodiversity and conservation targets, as set out in the UK Post-2010 Biodiversity Framework and the Sussex Biodiversity Action Plan (BAP).

3.2.2 The overarching objectives for nature conservation are as follows:

- To safeguard habitats and species that are important in the national and local context, and to maintain or enhance their conservation status as appropriate;
- To ensure that the site continues to support a similar complement of species to that already existing (with the exception of invasive non-native species); and
- To enhance the biodiversity of the site, where this is compatible with the above objectives.

3.2.3 Information on the existing situation at the site and its environs regarding habitats of ecological interest and the presence of protected species has been collated as part of the preparation of this document. This includes information gathered to inform the outline ES and the more recent 2018/19 surveys completed by Ecology Solutions. Together, this provides the baseline on which the mitigation strategies set out in this document are founded.

#### **3.3 Detailed Designs and Working Methods to achieve Objectives**

3.3.1 Information on the approaches to achieve the stated objectives is set out in the sections to follow. These are specifically designed to achieve the aims of the mitigation strategy set out in the ES and associated documents. They define the type and source of materials to be used where appropriate.

## 4. REVIEW OF SITE POTENTIAL AND CONSTRAINTS

4.1 This document has been informed by the background information accrued for the outline ES and by updated surveys undertaken by Ecology Solutions of the Redrow Homes site in 2018/19.

### 4.2 Constraints

4.2.1 The following main habitat / vegetation types were identified within the areas proposed for the first phase of residential development within the site:

- Arable;
- Woodland Strip;
- Hedgerow;
- Ditch; and
- Field Margins.

4.2.2 The location of these habitats is shown on Plan ECO2.

4.2.3 Habitats of value in the context of the site include hedgerows and trees (especially where these also offer suitable nesting opportunities for bird species), field margins and ditches. The arable land is of limited intrinsic nature conservation value.

4.2.4 None of the above habitats pose an overriding ecological constraint in themselves that would prevent the development proceeding, with the majority of the habitats of greater value being retained and enhanced as part of the green infrastructure for the site.

4.2.5 Other ecological constraints within the areas of infrastructure are attributed to the known or potential presence of [REDACTED] bats, Otters, Water Voles, Dormice, Hedgehogs, birds, common reptiles, amphibians and invertebrates. These constraints are addressed by mitigation measures detailed in later sections of this document.

4.2.6 The ecological constraints are illustrated on Plan ECO3.

4.2.7 In addition, Haverhill Railway Walks Local Nature Reserve (LNR) and Haverhill Disused Railway Line County Wildlife Site (CWS) are present some 492m south of the site according to the ES. This is beyond the existing built-up area of Haverhill, and though the ES highlights the potential for dust deposition as an adverse effect, in Ecology Solutions' view this is highly unlikely given the distance and prevailing wind direction, even if there were not a requirement for standard good construction practice to minimise dust on surrounding residential areas. Ann Sucklings Way CWS and Norney Plantation CWS are further removed, at 729m and 990m according to the ES. These are cited in the cumulative effects assessment in terms of recreational effects.

### 4.3 Potential

4.3.1 The majority of the Phase 1 Residential RMA consists of intensively managed arable fields. These are intrinsically of low ecological interest, offering relatively little for wildlife. The woodland strip is immature and generally even-

aged. The hedgerows, while a significant ecological asset, are gappy or missing in places. All ditches remain dry for most of the year.

- 4.3.2 The majority of the development associated with the Phase 1 Residential RMA will comprise residential properties and associated infrastructure built within the areas of arable field. The Phase 1 Residential RMA does however possess potential for wildlife gains, retaining and enhancing the best of the existing habitats, while promoting new opportunities through the strategies for green and blue infrastructure networks, in combination with the Infrastructure RMA. The establishment of new habitats and future management of the network as a whole will deliver significant benefits.
- 4.3.3 Surveys undertaken to inform the outline planning application and those completed in 2018/19 identified a complement of bat species using the site for foraging and dispersal; [REDACTED] an assemblage of breeding birds; the presence of two species of reptile, Common Lizard and Grass Snake; and the amphibians Common Toad and Smooth Newt. Some limited evidence of Dormice was recorded in the wider site subject to the outline application and a single Dormouse nest was recorded in an area outwith the first Residential RMA. Otters and Water Voles are known to be present in the wider locality. The site is expected to support a range of common invertebrates, but interest will be limited by the intensive arable management.
- 4.3.4 While the majority of the first Residential RMA will comprise built form, there is significant potential to enhance the site for wildlife in areas of public and private open space, i.e. parks and gardens.

#### 4.4 Survey Information

- 4.4.1 This Ecological Implementation Strategy is informed by the range of survey work completed as part of the outline planning application, which has been reviewed in full, and surveys carried out by Ecology Solutions on behalf of Redrow Homes in 2018 / 19. The ecological constraints are well understood. The mitigation and enhancement strategy for this reserved matters application has adopted in full the approved measures in the Environmental Statement and ES Addendum accompanying the outline planning application. The strategy is therefore comprehensive and robust.
- 4.4.2 Full details of the updated survey work are provided in the Protected Species Survey Report which accompanies the Residential RMA. The Protected Species Survey Report should be read in conjunction with this EIS for the full baseline information.

## **5. EXTENT AND LOCATION / AREA OF PROPOSED WORKS**

- 5.1 The extent and location of all proposed works are shown on the GA and Planting Plans produced by Exterior Architecture in consultation with Ecology Solutions.
- 5.2 These detailed plans, which are at an appropriate scale, clearly show the locations of all new and retained habitats, the degree of habitat loss and creation, and the protective measures to be employed throughout the period of construction.
- 5.3 This strategy make reference to the GA and Planting Plans throughout, and should be read alongside those plans.
- 5.4 Summary plans (Plans ECO4a to c) are included within this EIS for an overview and ease of reference, but for the full detail refer to the GA and Planting Plans.



## 6. DESIGNATED SITES

6.1 This section is concerned with addressing the effects on Haverhill Railway Walks Local Nature Reserve (LNR) and Haverhill Disused Railway Line County Wildlife Site (CWS) as identified in the ES, as well as Ann Sucklings Way CWS and Norney Plantation CWS cited in the cumulative effects assessment.

### 6.2 Conservation Objectives

To avoid dust effects arising from development.

To avoid increased recreational disturbance.

### 6.3 Designs and Working Methods

#### *Dust Suppression*

6.3.1 The preparation of the arable land for development is not considered likely to produce high levels of dust, but during periods of dry weather the work area will be sprayed with water.

6.3.2 A suitable vehicle and bowser will be kept on site, and the assessment of dust effects will be allocated to a suitable individual by the site manager, who will have ultimate responsibility for implementing the measure.

6.3.3 It should be noted that suppression of dust during construction is a routine measure adopted by Redrow Homes on all sites, particularly where existing residential properties and / or features of ecological importance are present. Hence this will be done in any event.

6.3.4 It is noted that the effects of dust on these designated sites were assessed as 'negligible' in the ES even before mitigation.

#### *Recreational Opportunities*

6.3.5 The Redrow scheme includes a significant expanse of new public open space, which will be delivered as part of the infrastructure phase of development, as set out in the Ecological Implementation Strategy, the Landscape and Ecological Management Plan and the GA and Planting Plans submitted to support the Infrastructure RMA. This new green infrastructure will be available for use by new residents, offering diverse opportunities for walking, dog-walking and general informal recreation. There will therefore be no adverse effects on the designated sites as a result.

## 7. WOODLAND STRIP

7.1 This section is concerned with the management of existing woodland strip in the south-east of parcel A8, and the mitigation of effects on woodland as identified in the ES.

### 7.2 Conservation Objectives

To avoid adverse effects on retained habitats through direct encroachment.

To avoid adverse effects on new establishing habitats through direct encroachment.

To establish high quality new habitats using appropriate native species mixes.

To promote greater habitat diversity in existing woodland.

### 7.3 Designs and Working Methods

#### *Construction Phase Mitigation*

- 7.3.1 All habitats to be retained as part of development will be appropriately protected using robust fencing, i.e. Heras fencing or similar, as shown on the GA and Planting Plans.
- 7.3.2 Tree root protection areas, as defined on the GA and Planting Plans, will be safeguarded through fencing complying with the British Standard.
- 7.3.3 Site personnel will be briefed as to the presence of these important retained areas.
- 7.3.4 No storage of materials will be permitted within 10m of retained habitats, and vehicle movements within this area will be for essential works only.
- 7.3.5 These measures will be the responsibility of the site manager.

#### *Dust Suppression*

- 7.3.6 The preparation of the arable land for development is not considered likely to produce high levels of dust, but during periods of dry weather the work area will be sprayed with water.
- 7.3.7 A suitable vehicle and bowser will be kept on site, and the assessment of dust effects will be allocated to a suitable individual by the site manager, who will have ultimate responsibility for implementing the measure.

#### *New Habitats*

- 7.3.8 All new habitats will be appropriately protected using robust fencing, i.e. Heras fencing or similar, as shown on the GA and Planting Plans, until such time as they are properly established.

- 7.3.9 The woodland strip in the south-east of parcel A8 comprises immature, even-aged native species. Long term management will encourage growth of native species and diversification of the habitat.

*New Woodland*

- 7.3.10 A significant area of new woodland is to be established adjacent to the woodland strip (see Table 7.1 below). This will be based around W8 / W10 NVC woodland as recommended in the ES. Long term management will encourage growth of native species and diversification of the habitat.
- 7.3.11 An appropriate coppicing regime will be introduced on a 15-year rotation to encourage a vigorous understorey.

<b>Species</b>
Field Maple <i>Acer campestre</i>
Hornbeam <i>Carpinus betulus</i>
Dogwood <i>Cornus sanguinea</i>
Hazel <i>Corylus avellana</i>
Hawthorn <i>Crataegus monogyna</i>
Spindle <i>Euonymus europaeus</i>
Beech <i>Fagus sylvatica</i>
Holly <i>Ilex aquifolium</i>
Wild Privet <i>Ligustrum vulgare</i>
Honeysuckle <i>Lonicera periclymenum</i>
Crab Apple <i>Malus sylvestris</i>
Wild Cherry <i>Prunus Avium</i>
Blackthorn <i>Prunus spinosa</i>
Oak <i>Quercus robur</i>
Buckthorn <i>Rhamnus cathartica</i>
Bramble <i>Rubus fruticosus</i>
Elder <i>Sambucus nigra</i>
Rowan <i>Sorbus aucuparia</i>
Yew <i>Taxus baccata</i>
Wayfaring-tree <i>Viburnum lantana</i>

**Table 7.1.** New woodland planting species list.

- 7.3.12 Additionally, areas of lowland Ash woodland will be planted throughout the Phase 1 Residential RMA (see Table 7.2 below).

<b>Species</b>
Field Maple <i>Acer campestre</i>
Hornbeam <i>Carpinus betulus</i>
Dogwood <i>Cornus sanguinea</i>
Hazel <i>Corylus avellana</i>
Spindle <i>Euonymus europaeus</i>
Beech <i>Fagus sylvatica</i>
Holly <i>Ilex aquifolium</i>
Wild Privet <i>Ligustrum vulgare</i>
Crab Apple <i>Malus sylvestris</i>
Wild Cherry <i>Prunus Avium</i>
Blackthorn <i>Prunus spinosa</i>
Buckthorn <i>Rhamnus cathartica</i>
Elder <i>Sambucus nigra</i>
Rowan <i>Sorbus aucuparia</i>
Yew <i>Taxus baccata</i>

Wayfaring-tree <i>Viburnum lantana</i>
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**Table 7.2.** New lowland Ash woodland planting species list.

#### 7.4 Initial Aftercare and Long-term Management and Maintenance

##### *Trees*

- 7.4.1 Watering will be required during periods of drought for no less than the first three years after planting to ensure satisfactory establishment.
- 7.4.2 Trees will be inspected every six months for the first two years to ensure that they are healthy, not diseased or damaged, or dead. After the first two years, trees can be inspected annually if found to be establishing well.
- 7.4.3 Any failed trees within the first five years will be replaced and maintained for a subsequent five years. Tree replacement will occur in early spring or late autumn.
- 7.4.4 Annual pruning will be completed between January and March. Emergency pruning will be undertaken immediately after a critical fault is identified.

##### *Woodland Management*

- 7.4.5 Woodland compartments in A8 will be thinned to allow understory shrub development, which are of more value to Dormice than the current tree canopy. Understorey species will be planted, including Oak, Honeysuckle *Lonicera periclymenum*, Hawthorn, Wayfaring-tree *Viburnum lantana*, Bramble *Rubus fruticosus*, Crab Apple *Malus sylvestris*, Cherry and Hazel.
- 7.4.6 Management will include coppicing, rotational cutting of sections of hedgerows at three to five year intervals and / or hedgerow laying; such measures will ensure increased fruiting bodies and understory renewal of growth which will benefit invertebrates.

## 8. HEDGEROWS AND TREES

8.1 This section is concerned with the establishment and management of new hedgerows and trees, and the mitigation of effects on hedgerows as identified in the ES.

### 8.2 Conservation Objectives

To avoid adverse effects on retained habitats through direct encroachment.

To avoid adverse effects on new establishing habitats through direct encroachment.

To establish high quality new habitats using appropriate native species mixes.

### 8.3 Designs and Working Methods

#### *Construction Phase Mitigation*

- 8.3.1 All habitats to be retained as part of development will be appropriately protected using robust fencing, i.e. Heras fencing or similar, as shown on the GA and Planting Plans.
- 8.3.2 Tree root protection areas, as defined on the GA and Planting Plans, will be safeguarded through fencing complying with the British Standard.
- 8.3.3 Site personnel will be briefed as to the presence of these important retained areas.
- 8.3.4 No storage of materials will be permitted within 10m of retained habitats, and vehicle movements within this area will be for essential works only.
- 8.3.5 These measures will be the responsibility of the site manager.

#### *Dust Suppression*

- 8.3.6 The preparation of the arable land for development is not considered likely to produce high levels of dust, but during periods of dry weather the work area will be sprayed with water.
- 8.3.7 A suitable vehicle and bowser will be kept on site, and the assessment of dust effects will be allocated to a suitable individual by the site manager, who will have ultimate responsibility for implementing the measure.

#### *New Habitats*

- 8.3.8 All new habitats will be appropriately protected using robust fencing, i.e. Heras fencing or similar, as shown on the GA and Planting Plans, until such time as they are properly established.

### New Hedgerows

- 8.3.9 The existing hedgerow network is a key green infrastructure asset and is to be retained and enhanced wherever possible. Gaps in existing hedgerows will be reinforced with native species. New hedgerow and shrub planting will comprise native species as shown on the GA and Planting Plans and Planting Schedule and listed in Table 8.1 below.

Native Hedgerow and Shrub Species	
Field Maple	<i>Acer campestre</i>
Dogwood	<i>Cornus sanguinea</i>
Hazel	<i>Corylus avellana</i>
Hawthorn	<i>Crataegus monogyna</i>
Spindle	<i>Euonymus europaeus</i>
Crab Apple	<i>Malus sylvestris</i>
Wild Cherry	<i>Prunus avium</i>
Blackthorn	<i>Prunus spinosa</i>
Dog Rose	<i>Rosa canina</i>
Elder	<i>Sambucus nigra</i>
Gelder Rose	<i>Viburnum opulus</i>

**Table 8.1.** Native Hedgerow and Shrub species list.

- 8.3.10 Hedgerows will continue to be managed. Management will aim to ensure continued good structure. Hedgerows will be cut on rotation, so that not all are cut in any one year. This will encourage greater availability of winter forage for birds.
- 8.3.11 Hedgerows will be laid on rotation to encourage greater structural diversity.
- 8.3.12 Tree species planted in each of the parcels A1, A2 and A8 are set out in Tables 8.2 to 8.4 below.

No	Species
18	Field Maple <i>Acer campestre</i>
7	Field Maple <i>Acer campestre</i> 'Streetwise'
2	Norway Maple <i>Acer platanoides</i> 'Crimson King'
3	Sycamore <i>Acer pseudoplatanus</i>
4	Silver Birch <i>Betula pendula</i>
4	Hornbeam <i>Carpinus betulus</i>
4	Hornbeam <i>Carpinus betulus</i> 'Frans Fountaine'
4	Hawthorn <i>Crataegus laevigata</i> 'Paul's Scarlet'
7	Hawthorn <i>Crataegus laevigata</i> 'Plena'
6	Beech <i>Fagus sylvatica</i>
4	Apple <i>Malus domestica</i> 'Red Falstaff'
3	Crab Apple <i>Malus sylvestris</i>
4	Lebanese Wild Apple <i>Malus trilobata</i>
7	White Poplar <i>Populus alba</i>
8	Cherry <i>Prunus</i> 'Accolade'
4	Wild Cherry <i>Prunus Avium</i> 'Penny'
5	Wild Cherry <i>Prunus Avium</i> 'Plena'
3	Plum <i>Prunus domestica</i> 'Avalon'
2	Plum <i>Prunus domestica</i> 'Cambridge Gage'
6	Bird Cherry <i>Prunus padus</i>
7	Whitebeam <i>Sorbus aria</i> 'Majestica'
10	Swedish Whitebeam <i>Sorbus intermedia</i> 'Brouwers'
3	Small-leaved Lime <i>Tilia cordata</i> 'Streetwise'

7	Common Lime <i>Tilia x europaea</i>
2	Elm <i>Ulmus procera</i>

**Table 8.2.** Tree planting species list, Parcel A1.

No	Species
19	Field Maple <i>Acer campestre</i>
1	Field Maple <i>Acer campestre</i> 'Elsrijk'
6	Field Maple <i>Acer campestre</i> 'Streetwise'
1	Norway Maple <i>Acer platanoides</i> 'Crimson King'
3	Sycamore <i>Acer pseudoplatanus</i>
9	Silver Birch <i>Betula pendula</i>
8	Hornbeam <i>Carpinus betulus</i>
12	Hornbeam <i>Carpinus betulus</i> 'Frans Fontaine'
2	Hawthorn <i>Crataegus laevigata</i> 'Paul's Scarlet'
8	Hawthorn <i>Crataegus laevigata</i> 'Plena'
12	Beech <i>Fagus sylvatica</i>
2	Apple <i>Malus domestica</i> 'Red Falstaff'
5	Crab Apple <i>Malus sylvestris</i>
8	Lebanese Wild Apple <i>Malus trilobata</i>
9	White Poplar <i>Populus alba</i>
8	Cherry <i>Prunus</i> 'Accolade'
4	Wild Cherry <i>Prunus Avium</i> 'Plena'
2	Plum <i>Prunus domestica</i> 'Avalon'
2	Plum <i>Prunus domestica</i> 'Cambridge Gage'
5	Bird Cherry <i>Prunus padus</i>
10	Whitebeam <i>Sorbus aria</i> 'Majestica'
7	Swedish Whitebeam <i>Sorbus intermedia</i> 'Brouwers'
2	Small-leaved Lime <i>Tilia cordata</i> 'Streetwise'
2	Common Lime <i>Tilia x europaea</i>
3	Elm <i>Ulmus procera</i>

**Table 8.3.** Tree planting species list, Parcel A2.

No	Species
23	Field Maple <i>Acer campestre</i>
3	Field Maple <i>Acer campestre</i> 'Elsrijk'
7	Field Maple <i>Acer campestre</i> 'Streetwise'
6	Sycamore <i>Acer pseudoplatanus</i>
11	Alder <i>Alnus glutinosa</i>
11	Snowy Mespilus <i>Amelanchier x grandiflora</i> 'Robin Hill'
2	Silver Birch <i>Betula pendula</i>
14	Hornbeam <i>Carpinus betulus</i>
2	Hornbeam <i>Carpinus betulus</i> 'Frans Fontaine'
8	Midland Hawthorn <i>Crataegus laevigata</i> 'Paul's Scarlet'
7	Beech <i>Fagus sylvatica</i>
11	Apple <i>Malus domestica</i> 'Red Falstaff'
4	Lebanese Wild Apple <i>Malus trilobata</i>
5	White Poplar <i>Populus alba</i>
1	Cherry <i>Prunus</i> 'Accolade'
8	Wild Cherry <i>Prunus Avium</i> 'Knight's Early Black'
8	Wild Cherry <i>Prunus Avium</i> 'Penny'
13	Plum <i>Prunus domestica</i> 'Avalon'
4	Whitebeam <i>Sorbus aria</i> 'Majestica'
5	Swedish Whitebeam <i>Sorbus intermedia</i> 'Brouwers'
6	Small-leaved Lime <i>Tilia cordata</i> 'Streetwise'
9	Common Lime <i>Tilia x europaea</i>

11	Elm <i>Ulmus procera</i>
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**Table 8.4.** Tree planting species list, Parcel A8.

#### 8.4 Initial Aftercare and Long-term Management and Maintenance

##### *Trees*

- 8.4.1 Watering will be required during periods of drought for no less than the first three years after planting to ensure satisfactory establishment.
- 8.4.2 Trees will be inspected every six months for the first two years to ensure that they are healthy, not diseased or damaged, or dead. After the first two years, trees can be inspected annually if found to be establishing well.
- 8.4.3 Any failed trees within the first five years will be replaced and maintained for a subsequent five years. Tree replacement will occur in early spring or late autumn.
- 8.4.4 Annual pruning will be completed between January and March. Emergency pruning will be undertaken immediately after a critical fault is identified.

##### *Shrubs and Hedgerows*

- 8.4.5 Shrub and hedgerow planting will be inspected every three months to ensure that they are healthy, not diseased or damaged, or dead. Any failed species will be removed and replaced with the same species and size.
- 8.4.6 Pruning and dead-heading will be completed at the end of the plant flowering seasons (spring to autumn) as required.



## 9. GRASSLAND AND PARKS

9.1 This section is concerned with the establishment of the grassland, as shown on the GA and Planting Plans, and the mitigation of effects on grassland as identified in the ES.

### 9.2 Conservation Objectives

To avoid adverse effects on retained habitats through direct encroachment.

To avoid adverse effects on new establishing habitats through direct encroachment.

To establish high quality new habitats using appropriate native species mixes.

### 9.3 Designs and Working Methods

#### *Construction Phase Mitigation*

9.3.1 All habitats to be retained as part of development will be appropriately protected using robust fencing, i.e. Heras fencing or similar, as shown on the GA and Planting Plans.

9.3.2 Site personnel will be briefed as to the presence of these important retained areas.

9.3.3 No storage of materials will be permitted within 10m of retained habitats, and vehicle movements within this area will be for essential works only.

9.3.4 These measures will be the responsibility of the site manager.

#### *Dust Suppression*

9.3.5 The preparation of the arable land for development is not considered likely to produce high levels of dust, but during periods of dry weather the work area will be sprayed with water.

9.3.6 A suitable vehicle and bowser will be kept on site, and the assessment of dust effects will be allocated to a suitable individual by the site manager, who will have ultimate responsibility for implementing the measure.

#### *New Habitats*

9.3.7 All new habitats will be appropriately protected using robust fencing, i.e. Heras fencing or similar, as shown on the GA and Planting Plans, until such time as they are properly established.

#### *New Grassland*

9.3.8 New planting undertaken as part of the landscaping of the Phase 1 Residential RMA will include new areas of wildflower grassland and new swales as part of the drainage strategy (see below).

- 9.3.9 New areas of extensive tree planting will be under-sown with Emorsgate Seeds woodland mix (see GA and Planting Plans, Planting Schedule and Table 9.1 below).

<b>EW1 Woodland Mixture Species</b>	<b>% per Mix</b>
<b>Wild Flowers</b>	
Garlic Mustard <i>Alliaria petiolata</i>	3%
Ramsons <i>Allium ursinum</i>	0.8%
Betony <i>Stachys officinalis</i>	1.6%
Rough Chervil <i>Chaerophyllum temulum</i>	1%
Foxglove <i>Digitalis purpurea</i>	0.2%
Meadowsweet <i>Filipendula ulmaria</i>	2%
Hedge Bedstraw <i>Galium album</i>	1%
Water Avens <i>Geum rivale</i>	1%
Wood Avens <i>Geum urbanum</i>	0.2%
Bluebell <i>Hyacinthoides non-scripta</i>	2.8%
Hairy St John's-wort <i>Hypericum hirsutum</i>	0.8%
Primrose <i>Primula vulgaris</i>	0.2%
Selfheal <i>Prunella vulgaris</i>	1.5%
Red Campion <i>Silene dioica</i>	2.7%
Ragged Robin <i>Lychnis flos-cuculi</i>	0.2%
Wood Sage <i>Teucrium scorodonia</i>	1%
	<b>20%</b>
<b>Grasses</b>	
Common Bent <i>Agrostis capillaris</i>	10%
Sweet Vernal Grass <i>Anthoxanthum odoratum</i>	2%
False Brome <i>Brachypodium sylvaticum</i>	7%
Crested Dog's-tail <i>Cynosurus cristatus</i>	28%
Tufted Hair-Grass <i>Deschampsia cespitosa</i>	1%
Slender Creeping Red Fescue <i>Festuca rubra ssp. litoralis</i>	20%
Wood Meadow-grass <i>Poa nemoralis</i>	12%
	<b>80%</b>

**Table 9.1.** Emorsgate Seeds EW1 Woodland Mixture species list.

- 9.3.10 The planting schedule includes the provision of wet and dry grassland habitat, designed to encourage greater wildflower diversity, and the provision of swales as habitats containing taller vegetation. This habitat diversification will favour invertebrates and will in turn provide net gains for local wildlife.
- 9.3.11 Areas of amenity grassland within parcels A1, A2 and A8 will be seeded with a flowering lawn mix (see GA and Planting Plans, Planting Schedule and Table 9.2 below).

<b>EL1 Flowering Lawn Mixture Species</b>	<b>% per Mix</b>
<b>Wild Flowers</b>	
Lady's Bedstraw <i>Galium verum</i>	4%
Rough Hawkbit <i>Leontodon hispidus</i>	0.5%
Oxeye Daisy <i>Leucanthemum vulgare</i>	1%
Birdsfoot Trefoil <i>Lotus corniculatus</i>	3.7%
Cowslip <i>Primula veris</i>	3.0%
Selfheal <i>Prunella vulgaris</i>	4.0%
Meadow Buttercup <i>Ranunculus acris</i>	3.5%
Red Clover <i>Trifolium pratense</i>	0.1%
	<b>20%</b>

<b>Grasses</b>	
Common Bent <i>Agrostis capillaris</i>	8.0%
Crested Dog's-tail <i>Cynosurus cristatus</i>	40.0%
Slender Creeping Red Fescue <i>Festuca rubra ssp. litoralis</i>	28.0%
Smaller Cat's-tail <i>Phleum bertolonii</i>	4.0%
	<b>80%</b>

**Table 9.2.** Emorsgate Seeds EL1 Flowering Lawn Mixture species list.

- 9.3.12 The existing field margins are recognised to be of relatively higher botanical interest. These will be retained and subject to ongoing management to maximise their botanical interest. There will be no storage of materials or tracking over of these areas, and no new tree planting.
- 9.3.13 New areas of wildflower grassland are to be established to the boundaries of parcels A1, A2 and A8. These areas are principally intensive arable and field margins respectively. In conjunction with the drainage strategy, areas of dry and wet grassland will be established (see GA and Planting Plans, Planting Schedule and Tables 9.3 and 9.4 below).
- 9.3.14 Newly established meadows will be cut on an annual basis as required, with the arisings removed. These would be retained as 'habitat piles' in suitable locations to encourage reptiles.

<b>EM6 Meadow Mixture for Chalk &amp; Limestone Soils Species</b>	<b>% per Mix</b>
<b>Wild Flowers</b>	
Yarrow <i>Achillea millefolium</i>	0.5%
Kidney Vetch <i>Anthyllis vulneraria</i>	0.5%
Common Knapweed <i>Centaurea nigra</i>	1.5%
Greater Knapweed <i>Centaurea scabiosa</i>	2%
Wild Basil <i>Clinopodium vulgare</i>	0.4%
Wild Carrot <i>Daucus carota</i>	1%
Lady's Bedstraw <i>Galium verum</i>	2%
Field Scabious <i>Knautia arvensis</i>	1.5%
Rough Hawkbit <i>Leontodon hispidus</i>	0.4%
Oxeye Daisy <i>Leucanthemum vulgare</i>	0.5%
Bird's-foot Trefoil <i>Lotus corniculatus</i>	0.6%
Sainfoin <i>Onobrychis viciifolia</i>	1.5%
Wild Marjoram <i>Origanum vulgare</i>	0.2%
Hoary Plantain <i>Plantago media</i>	0.7%
Salad Burnet <i>Sanguisorba minor</i>	2%
Cowslip <i>Primula veris</i>	1%
Selfheal <i>Prunella vulgaris</i>	1%
Meadow Buttercup <i>Ranunculus acris</i>	1%
Bulbous Buttercup <i>Ranunculus bulbosus</i>	1.5%
Small Scabious <i>Scabiosa columbaria</i>	0.2%
	<b>20%</b>
<b>Grasses</b>	
Quaking-grass <i>Briza media</i>	4%
Glaucous Sedge <i>Carex flacca</i>	0.2%
Crested Dog's-tail <i>Cynosurus cristatus</i>	32%
Sheep's-fescue <i>Festuca ovina</i>	24%
Slender Creeping Red Fescue <i>Festuca rubra ssp. litoralis</i>	12.6%
Crested Hair-grass <i>Koeleria macrantha</i>	2%
Smaller Cat's-tail <i>Phleum bertolonii</i>	4%
Yellow Oat-grass <i>Trisetum flavescens</i>	1.2%

	<b>80%</b>
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**Table 9.3.** Emorsgate Seeds EM6 Meadow Mixture for Chalk and Limestone Soils species list.

<b>EM6F Wild Flowers for Chalk &amp; Limestone Soils Species</b>	<b>% per Mix</b>
<b>Wild Flowers</b>	
Yarrow <i>Achillea millefolium</i>	2.5%
Kidney Vetch <i>Anthyllis vulneraria</i>	2.5%
Common Knapweed <i>Centaurea nigra</i>	7.5%
Greater Knapweed <i>Centaurea scabiosa</i>	10%
Wild Basil <i>Clinopodium vulgare</i>	2%
Wild Carrot <i>Daucus carota</i>	5%
Lady's Bedstraw <i>Galium verum</i>	10%
Field Scabious <i>Knautia arvensis</i>	7.5%
Rough Hawkbit <i>Leontodon hispidus</i>	2%
Oxeye Daisy <i>Leucanthemum vulgare</i>	2.5%
Bird's-foot Trefoil <i>Lotus corniculatus</i>	3%
Sainfoin <i>Onobrychis viciifolia</i>	7.5%
Wild Marjoram <i>Origanum vulgare</i>	1%
Hoary Plantain <i>Plantago media</i>	3.5%
Salad Burnet <i>Sanguisorba minor</i>	10%
Cowslip <i>Primula veris</i>	5%
Selfheal <i>Prunella vulgaris</i>	5%
Meadow Buttercup <i>Ranunculus acris</i>	5%
Bulbous Buttercup <i>Ranunculus bulbosus</i>	7.5%
Small Scabious <i>Scabiosa columbaria</i>	1%
	<b>100%</b>

**Table 9.4.** Emorsgate Seeds EM6F Wild Flowers for Chalk and Limestone Soils species list.

9.3.15 Areas of wet grassland will be seeded with EM8 meadow mixture and EM8F wild flowers, as set out in Tables 9.5 and 9.6 below:

<b>EM8 Meadow Mixture for Wetlands Species</b>	<b>% per Mix</b>
<b>Wild Flowers</b>	
Yarrow <i>Achillea millefolium</i>	0.2%
Sneezewort <i>Achillea ptarmica</i>	0.2%
Betony <i>Stachys officinalis</i>	1%
Common Knapweed <i>Centaurea nigra</i>	2.5%
Meadowsweet <i>Filipendula ulmaria</i>	2%
Lady's Bedstraw <i>Galium verum</i>	2%
Rough Hawkbit <i>Leontodon hispidus</i>	0.5%
Oxeye Daisy <i>Leucanthemum vulgare</i>	0.5%
Bird's-foot Trefoil <i>Lotus corniculatus</i>	0.7%
Greater Bird's-foot-trefoil <i>Lotus pedunculatus</i>	0.5%
Ribwort Plantain <i>Plantago lanceolata</i>	1%
Cowslip <i>Primula veris</i>	1%
Selfheal <i>Prunella vulgaris</i>	1.5%
Meadow Buttercup <i>Ranunculus acris</i>	2%
Yellow Rattle <i>Rhinanthus minor</i>	1.5%
Great Burnet <i>Sanguisorba officinalis</i>	1.5%
Pepper-saxifrage <i>Silaum silaus</i>	0.5%
Ragged Robin <i>Lychnis flos-cuculi</i>	0.4%
Devil's-bit Scabious <i>Succisa pratensis</i>	0.5%
	<b>20%</b>

<b>Grasses</b>	
Common Bent <i>Agrostis capillaris</i>	10%
Meadow Foxtail <i>Alopecurus pratensis</i>	1%
Sweet Vernal Grass <i>Anthoxanthum odoratum</i>	3%
Quaking-grass <i>Briza media</i>	2%
Crested Dog's-tail <i>Cynosurus cristatus</i>	32%
Tufted Hair-Grass <i>Deschampsia cespitosa</i>	1%
Slender Creeping Red Fescue <i>Festuca rubra ssp. litoralis</i>	24%
Meadow Barley <i>Hordeum brachyantherum</i>	1%
Meadow Fescue <i>Festuca pratensis</i>	6%
	<b>80%</b>

**Table 9.5.** Emorsgate Seeds EM8 Meadow Mixture for Wetlands species list.

<b>EM8F Wild Flowers for Wetlands Species</b>	<b>% per Mix</b>
Yarrow <i>Achillea millefolium</i>	1%
Sneezewort <i>Achillea ptarmica</i>	1%
Betony <i>Stachys officinalis</i>	5%
Common Knapweed <i>Centaurea nigra</i>	12.5%
Meadowsweet <i>Filipendula ulmaria</i>	10%
Lady's Bedstraw <i>Galium verum</i>	10%
Rough Hawkbit <i>Leontodon hispidus</i>	2.5%
Oxeye Daisy <i>Leucanthemum vulgare</i>	2.5%
Bird's-foot Trefoil <i>Lotus corniculatus</i>	3.5%
Greater Bird's-foot-trefoil <i>Lotus pedunculatus</i>	2.5%
Ribwort Plantain <i>Plantago lanceolata</i>	5%
Cowslip <i>Primula veris</i>	5%
Selfheal <i>Prunella vulgaris</i>	7.5%
Meadow Buttercup <i>Ranunculus acris</i>	10%
Yellow Rattle <i>Rhinanthus minor</i>	7.5%
Great Burnet <i>Sanguisorba officinalis</i>	7.5%
Pepper-saxifrage <i>Silaum silaus</i>	2.5%
Ragged Robin <i>Lychnis flos-cuculi</i>	2%
Devil's-bit Scabious <i>Succisa pratensis</i>	2.5%
	<b>100%</b>

**Table 9.6.** Emorsgate Seeds EM8F Wild Flowers for Wetlands species list.

## 9.4 Initial Aftercare and Long-term Management and Maintenance

### *Grassland*

- 9.4.1 Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture.
- 9.4.2 **EL1 Flowering Lawn Mixture.** Newly sown flowering lawns should be mown every 7-10 days during the growing season of the first year to a height of 40-60mm. Residual perennial weeds will be carefully dug out or spot treated.
- 9.4.3 After the first year the grass will be mown regularly to a height of 25-40mm. Management can be relaxed from late June for 4-8 weeks to allow for flowering (mowing may be suspended earlier to allow for Cowslip to flower). Heavy quantities of cuttings should be collected and removed from site.

- 9.4.4 **EW1 Woodland Mixture.** In established woodland the woodland mix requires very little management.
- 9.4.5 In young or open woodland with higher light levels, the mix should be cut annually in mid-summer until the tree cover has established.
- 9.4.6 **EM6 Meadow Mixture for Chalk and Limestone Soils, EM6F Wild Flowers for Chalk and Limestone Soils, EM8 Meadow Mixture for Wetlands and EM8F Wild Flowers for Wetlands.** Newly sown meadows will be mown regularly throughout the first year of establishment to a height of 40-60mm. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wild flowers. Cuttings will be removed if dense. Residual perennial weeds will be carefully dug out or spot treated.
- 9.4.7 In subsequent years, on poor shallow soils the grass will be cut once or twice at the end of the summer.
- 9.4.8 On deeper soils best results are usually obtained by traditional meadow management. This will include a cut to 50mm after flowering in July or August. The cuttings will be left to dry and shed seed for 1-7 days before being removed from the site. The grass can then be maintained at a height of 50mm through to spring.
- 9.4.9 Areas of new and retained and enhanced planting, as well as ponds and swales, will be monitored annually for the first five years to ensure that the species diversity and composition is developing in such a way as to enhance the site for wildlife.
- 9.4.10 Watering will be required during periods of drought to ensure satisfactory establishment. Watering will be undertaken as required to maintain healthy plant growth.
- 9.4.11 Dead or diseased plants will be removed and replaced with the same species immediately after identification.

## 10. ATTENUATION FEATURES

10.1 This section is concerned with the enhancement and management of the existing ditch present within parcel A1.

### 10.2 Conservation Objectives

To avoid adverse effects on retained habitats through direct encroachment.

To avoid adverse effects on new establishing habitats through direct encroachment.

To establish high quality new habitats using appropriate native species mixes.

### 10.3 Designs and Working Methods

#### *Construction Phase Mitigation*

- 10.3.1 All habitats to be retained as part of development will be appropriately protected using robust fencing, i.e. Heras fencing or similar, as shown on the GA and Planting Plans.
- 10.3.2 Site personnel will be briefed as to the presence of these important retained areas.
- 10.3.3 No storage of materials will be permitted within 10m of retained habitats, and vehicle movements within this area will be for essential works only.
- 10.3.4 Particular regard will be had to the management of on-site waste disposal, with regular checks of watercourses being undertaken for signs of litter.
- 10.3.5 These measures will be the responsibility of the site manager.

#### *Dust Suppression*

- 10.3.6 The preparation of the arable land for development is not considered likely to produce high levels of dust, but during periods of dry weather the work area will be sprayed with water.
- 10.3.7 A suitable vehicle and bowser will be kept on site, and the assessment of dust effects will be allocated to a suitable individual by the site manager, who will have ultimate responsibility for implementing the measure.

#### *New Habitats*

- 10.3.8 All new habitats will be appropriately protected using robust fencing, i.e. Heras fencing or similar, as shown on the GA and Planting Plans, until such time as they are properly established.

#### *New Attenuation Features*

- 10.3.9 The existing ditch within parcel A1 remains dry for most of the time but has the potential to retain water. The ditch will be seeded with an appropriate mix

of native species, diversifying the habitats already present (see GA and Planting Plans, Planting Schedule and Tables 10.1 below).

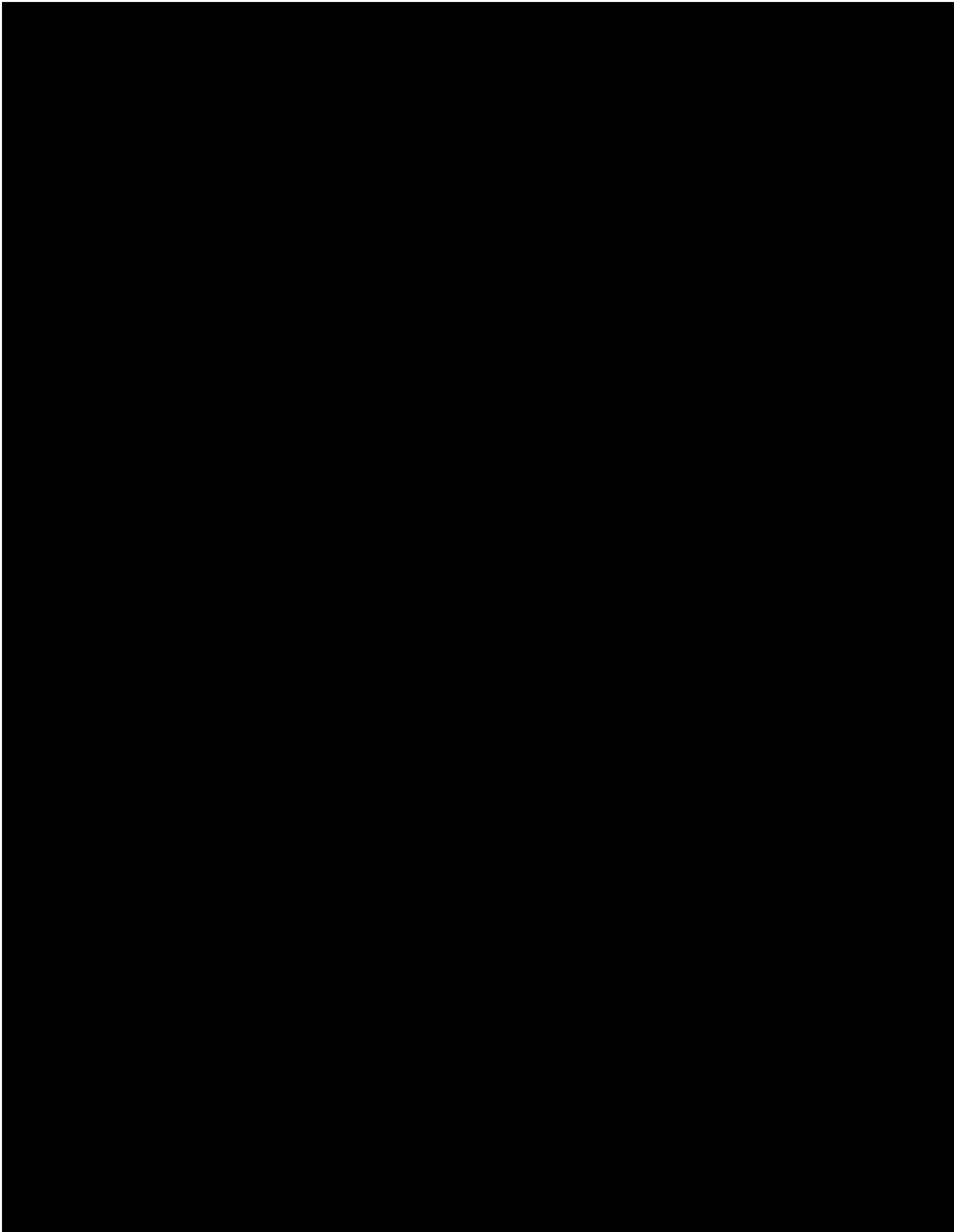
<b>EM8F Wild Flowers for Wetlands Species</b>	<b>% per Mix</b>
Yarrow <i>Achillea millefolium</i>	1%
Sneezewort <i>Achillea ptarmica</i>	1%
Betony <i>Stachys officinalis</i>	5%
Common Knapweed <i>Centaurea nigra</i>	12.5%
Meadowsweet <i>Filipendula ulmaria</i>	10%
Lady's Bedstraw <i>Galium verum</i>	10%
Rough Hawkbit <i>Leontodon hispidus</i>	2.5%
Oxeye Daisy <i>Leucanthemum vulgare</i>	2.5%
Bird's-foot Trefoil <i>Lotus corniculatus</i>	3.5%
Greater Bird's-foot-trefoil <i>Lotus pedunculatus</i>	2.5%
Ribwort Plantain <i>Plantago lanceolata</i>	5%
Cowslip <i>Primula veris</i>	5%
Selfheal <i>Prunella vulgaris</i>	7.5%
Meadow Buttercup <i>Ranunculus acris</i>	10%
Yellow Rattle <i>Rhinanthus minor</i>	7.5%
Great Burnet <i>Sanguisorba officinalis</i>	7.5%
Pepper-saxifrage <i>Silaum silaus</i>	2.5%
Ragged Robin <i>Lychnis flos-cuculi</i>	2%
Devil's-bit Scabious <i>Succisa pratensis</i>	2.5%
	<b>100%</b>

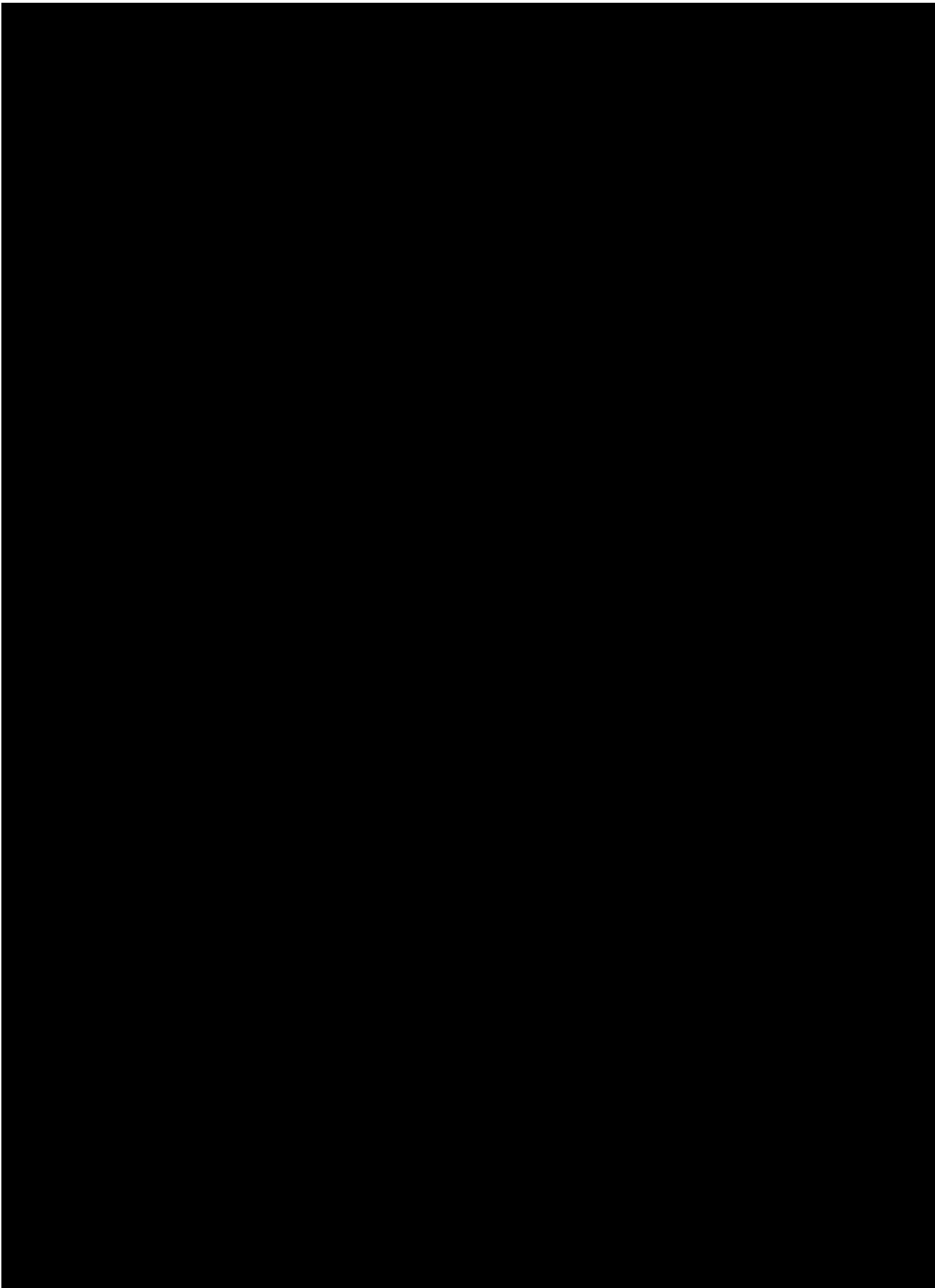
**Table 10.1.** Emorsgate Seeds EM8F Wild Flowers for Wetlands species list.

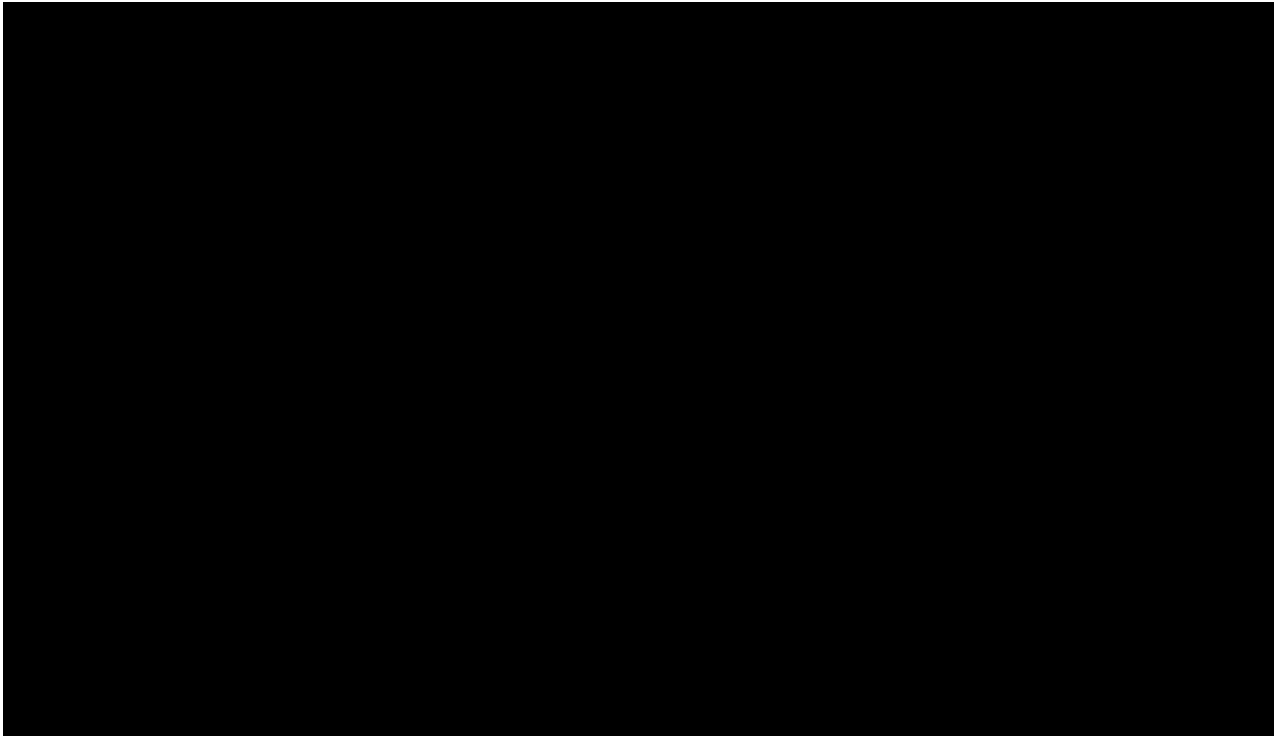
#### 10.4 Initial Aftercare and Long-term Management and Maintenance

- 10.4.1 **EP1F Wild Flowers for Pond Edges.** In the first year, annual weed growth should be cut back to encourage the development of a good perennial ground cover.
- 10.4.2 Once established, vegetation should be managed on a rotational basis, removing short sections every 2-3 years to provide a variation in structure. Dense stands of single species may also benefit from selective thinning. Vegetation removal should be undertaken between September and November to cause the least disruption to wildlife.









## 12. BATS

### 12.1 Baseline Conditions

- 12.1.1 Parcels A1, A2 and A8 offer very limited opportunities for foraging and commuting bats and no opportunities for roosting bats, with the majority of the first Residential RMA comprising arable fields. What opportunities are present are limited to hedgerows H10 and H11 and the off-site woodland W6 present to the northern and eastern boundaries of parcel A1, hedgerow H11 on the northern boundary of parcel A2, and the woodland strip in the south-east of parcel A8. Hedgerows H10 and H11, as well as the woodland strip, are to be retained and enhanced as part of the proposals.
- 12.1.2 Bat activity recorded within parcels A1, A2 and A8 was restricted to Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus* and Barbastelle *Barbastella barbastellus* foraging along the aforementioned boundary features. The residential properties as well as the majority of the infrastructure will be developed within the arable fields and will have a negligible effect on bats.
- 12.1.3 The Redrow site as a whole offers good opportunities for bats, with Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle *Pipistrellus nathusii*, Noctule Bat *Nyctalus noctula*, Leisler's Bat *Nyctalus leisleri*, Serotine Bat *Eptesicus serotinus*, Brown Long-eared Bat *Plecotus auritus* *Myotis* sp. and Barbastelle all being recorded. The results of the activity surveys completed to inform the ES in 2014 and 2015 across the wider site recorded a similar assemblage.
- 12.1.4 Areas shown to be of greater interest for bats are Great Field Plantation and Hedgerow H4, crossing the south of the site. These areas are to be retained and enhanced as part of the Infrastructure RMA.
- 12.1.5 Activity surveys involving transects and static detector deployments are to continue for the remainder of the 2019 survey season.
- 12.1.6 The 2018/19 dataset, combined with the information from the outline ES, provides a robust baseline from which to assess the effectiveness of mitigation and enhancement measures. As far as possible, future monitoring surveys will replicate the approach taken for the 2018/19 work.

### 12.2 Conservation Objectives

<p>To avoid disturbance to bat foraging during construction.</p> <p>To avoid effects on bat foraging during operation.</p>
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### 12.3 Designs and Working Methods

#### *Construction Phase Mitigation*

- 12.3.1 During the construction period no lighting will be present at night on identified bat foraging routes, as shown in the *Lighting Strategy for Bats* produced for Condition 44. This will be the responsibility of the site manager. The

Ecological Clerk of Works will be able to advise on the location of these features.

#### *New Habitat Planting*

- 12.3.2 New native species planting will be provided within the landscaping associated with parcels A1, A2 and A8 as shown on the GA and Planting Plans. The retained hedgerows will be included within the green linkages and will be 'gapped up' with native species; this will increase species diversity, strengthen the hedgerows and improve the corridor for foraging bats.
- 12.3.3 Management of the hedgerows will be undertaken in an ecologically sensitive manner to enhance the nature conservation value. Such management will include allowing the hedgerow to reach at least a height of 3m. Once reached the hedgerow can be 'topped out' to maintain the height or to suit circumstances, with a width of at least 1-2m; a proportion of trees within the hedgerow such as Oak and Field Maple will be allowed to mature into standard trees to provide nesting and foraging opportunities for local wildlife and a varied habitat structure; and grassland along the hedgerow base will be allowed to grow to provide a graduated sward height and habitat.
- 12.3.4 The attenuation features to be established will offer new foraging resources for bats once established. Seeding with dry and damp grassland mixes will encourage use by invertebrates and increase the foraging opportunities for the local bat population.

#### *Dark Corridors*

- 12.3.5 Dark corridors for bats are to be maintained across the site, as set out in the *Lighting Strategy for Bats* submitted with the Infrastructure RMA. These corridors are not, for the most part, within or adjacent to the first Residential RMA. The exception is in the northwest of the site adjacent to parcel A1 and the woodland off-site to the northwest.
- 12.3.6 New houses will be a minimum of 10m from the woodland edge. Street lighting will be a minimum of 15m from the woodland edge. Cowls will be used to direct light away from the woodland edge. All upward lighting will be avoided.
- 12.3.7 Security lighting on properties backing on to sensitive hedgerows and woodland will be low wattage LED which will be provided on the properties at construction to forestall a future homeowner installing unsuitable lighting which could impact on bats.

#### *Bat Boxes*

- 12.3.8 New roosting sites for bats will be included as part of the Residential RMA. There are no suitable existing trees within the Phase 1 Residential RMA, and therefore the focus will be on provision of new opportunities as part of new buildings.
- 12.3.9 New garages associated with each property will each include a bat access tile as part of their roof. Breathable Roofing Membranes will not be used.

- 12.3.10 Each block of apartments will have three Schwegler 1FR integrated bat boxes installed. Apartment blocks will also each have three bat access tiles; again; Breathable Roofing Membranes will not be used in these locations.

#### **12.4 Type and Source of Materials**

- 12.4.1 Schwegler 1FR integrated bat boxes and bat access tiles to be included in garages associated with each property and each apartment block (see Appendix 2).

#### **12.5 Initial Aftercare and Long-term Management and Maintenance**

- 12.5.1 Once installed, bat boxes will require no ongoing maintenance.

## 13. OTTERS AND WATER VOLES

### 13.1 Baseline Conditions

- 13.1.1 The existing ditch within parcel A1 remains dry most of the time and no evidence of Otters or Water Voles has been recorded.
- 13.1.2 These species are known to be present in the River Stour and the Stour Brook south of the site, and there is the potential for the existing ditch to support them in the future.

### 13.2 Conservation Objectives

To avoid impacts on potential Otter and Water Vole habitat during construction.

To establish and enhance suitable habitat for Otters and Water Voles within parcel A1, to encourage natural colonisation in future.

### 13.3 Designs and Working Methods

- 13.3.1 Prior to any works in the vicinity of suitable habitats within parcel A1, a check survey for Otters and Water Voles will be undertaken by an ecologist. In the event that evidence of these species is recorded, consideration will be given for the need for a Natural England licence, dependent on the nature of the works proposed.

#### *Fencing of Retained Habitats*

- 13.3.2 All retained ditches will be fenced using Heras fencing or similar (as shown on the GA and Planting Plans) to avoid possible encroachment. All site personnel will be briefed as to the importance of these areas for wildlife as part of the site induction.

#### *Enhancements*

- 13.3.3 Though there is no evidence of their presence within the Phase 1 Residential RMA or the wider site at the time of writing, Otters and Water Voles are known to be present within the locality and the development represents an opportunity to provide greater opportunities for the species.
- 13.3.4 The network of attenuation features, including the existing ditch within parcel A1, that is to be established across the Redrow site as part of the drainage strategy will be a valuable new area of potential habitat for Otters and Water Voles, should they colonise the site.
- 13.3.5 The provision of wet grassland associated with the drainage strategy will provide suitable overland habitat for dispersal.

## 14. DORMICE

### 14.1 Baseline Conditions

- 14.1.1 No evidence of Dormice has been recorded by Ecology Solutions within parcels A1, A2 and A8 with the majority of the Phase 1 Residential RMA comprising arable fields. Suitable habitats are limited to Hedgerows H10 and H11 to the north of parcels A1 and A2, as well as the adjacent off-site woodland W6, to the east of parcel A1.
- 14.1.2 A Dormouse nest was recorded in a survey tube along Hedgerow H13, west of Great Field Plantation during a survey undertaken in April 2019. No other evidence of Dormice has been recorded within the Redrow site. A partial Dormouse nest was recorded in the south-east of the wider site in 2015 during surveys to inform the outline ES.

### 14.2 Conservation Objectives

<p>To avoid potential killing or injury of any Dormice that may be present.</p> <p>To establish and enhance suitable habitat for Dormice within the site.</p>
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### 14.3 Designs and Working Methods

#### *Construction Phase Mitigation*

- 14.3.1 The highly precautionary approach advocated by the ES Addendum has been adopted in full. The Residential RMA will not have an effect on Dormouse habitat and there is no requirement for a Natural England licence.
- 14.3.2 During the construction period all contractors will be briefed about the importance of the habitats within the site for the range of species that have been identified, and that care should be taken when conducting any works near existing natural features. No suitable Dormouse habitat is to be removed to facilitate the development of parcels A1, A2 and A8.
- 14.3.3 Where site offices, material and vehicle storage are proposed, and where the phased development commences all natural habitats will be fenced off with an appropriate buffer using Heras fencing or similar (the location of which is shown on the GA and Planting Plans). This will ensure that habitats are not degraded through soil compaction and interference by contractors and machinery.

#### *Habitat Enhancements and Management*

- 14.3.4 All existing and retained habitats will be enhanced with additional planting to ensure that poor structure and gaps are filled with native species that will benefit foraging, commuting and nest building. These will have a positive effect on Dormice but also other species.
- 14.3.5 Woodland compartments within parcel A8 will be thinned to allow understorey shrub development, which are of more value to Dormice than the current tree canopy. Understorey species will be planted, including Oak, Honeysuckle



*Lonicera periclymenum*, Hawthorn, Wayfaring-tree *Viburnum lantana*, Bramble *Rubus fruticosus*, Crab Apple *Malus sylvestris*, Cherry and Hazel.

- 14.3.6 Management will include coppicing, rotational cutting of sections of hedgerows at three to five year intervals and / or hedgerow laying; such measures will ensure increased fruiting bodies and understorey renewal of growth which will benefit invertebrates.

#### *Nest Boxes*

- 14.3.7 A number of Dormice nesting boxes will be installed within suitable Dormouse habitat, these will increase the nesting opportunities within the Phase 1 Residential RMA and thus increase the carrying capacity in the long term. These will be monitored to ensure they remain viable as nesting features, and will also be used for future assessment of the population.

### 14.4 **Type and Source of Materials**

- 14.4.1 All Dormouse boxes erected to inform surveys will be re-positioned. An additional three boxes will be installed within suitable and retained habitat within parcel A8. Locations for Dormouse boxes will be determined by the Ecological Clerk of Works.

### 14.5 **Initial Aftercare and Long-term Management and Maintenance**

- 14.5.1 Nesting boxes will be checked periodically (at least once a year in March) for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ and are not damaged. Boxes will be replaced if found to be damaged.

## 15. HEDGEHOGS

### 15.1 Baseline Conditions

- 15.1.1 The Phase 1 Residential RMA contains suitable habitats for Hedgehog foraging and dispersal, including woodland and hedgerows.

### 15.2 Conservation Objectives

<p>To avoid killing or injury of Hedgehogs during construction.</p> <p>To provide greater opportunities for Hedgehogs within the site.</p>
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### 15.3 Designs and Working Methods

#### *Construction Phase Mitigation and Vegetation Clearance*

- 15.3.1 Ground cover will be cleared outside of the winter hibernation period wherever possible. Where this is not possible, a check for hibernation nests will be completed by the Ecological Clerk of Works prior to clearance.
- 15.3.2 Scrub and tree removal will be carried out in a sensitive manner, using hand tools to clear the base of trees to be removed prior to any large machinery pulling out roots.
- 15.3.3 Any clearance of log piles or other Hedgehog shelter features will be subject to inspection by the Ecological Clerk of Works to ensure that Hedgehogs are absent. In the event that an individual is encountered, it will be carefully placed in an appropriate lidded box and immediately removed to an area of suitable habitat at the margins of the site away from working areas.
- 15.3.4 Any trenches or deep pits associated with construction that are to be left open overnight will be provided with a means of escape in case a Hedgehog enters. This is particularly important if the trench fills with water, and will take the form of a roughened plank of wood placed in the trench as a ramp to the surface.

#### *New Habitat Planting*

- 15.3.5 The retention of hedgerows along with additional buffer planting and grassland will provide continued opportunities for commuting and foraging Hedgehogs. Landscaping associated with parcels A1, A2 and A8 will maintain dispersal into the Green Spine and Linear Park being created as part of the Infrastructure RMA New planting including native species and species of known wildlife value will offer new foraging resources for Hedgehogs.

#### *Hedgehog Gateways and Highways*

- 15.3.6 Access to new housing areas within parcels A1, A2 and A8 will be a benefit for Hedgehogs and through being connected new residential gardens will offer new potential habitat for Hedgehogs and other small mammals. Garden fences will be provided with a 'Hedgehog Gateway', a 13cm x13cm section of fence cut out at the base, to facilitate dispersal for Hedgehogs and other small animals (see Appendix 3). This will enhance the permeability of the new

development for wildlife. In this way, where the residential areas intersect with the green infrastructure, Hedgehog Highways will become established.

#### *Hibernation Boxes*

- 15.3.7 Hedgehog hibernation boxes and log piles will be installed in discreet locations throughout the development under the direction of the Ecological Clerk of Works (see Appendix 4).

#### **15.4 Type and Source of Materials**

- 15.4.1 A single Schwegler Hedgehog Dome or Ecoplate Hedgehog house (see Appendix 4) will be positioned in discreet locations within the site.

#### **15.5 Initial Aftercare and Long-term Management and Maintenance**

- 15.5.1 An initial assessment will be made to ensure that Hedgehog Gateways have been established. No long-term management or maintenance is required.
- 15.5.2 Hibernation boxes will be checked periodically (at least once a year) for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ and are not damaged. Boxes will be replaced if found to be damaged.

## 16. BIRDS

### 16.1 Baseline Conditions

- 16.1.1 Four wintering bird surveys were completed by Ecology Solutions in November and December 2018, and in January and February 2019. A total of 47 species were recorded, including 17 species that are listed as NERC species of principal importance, Suffolk LBAP and / or on the UK Birds of Conservation Concern Red and Amber list, as set out below:

Song Thrush <i>Turdus philomelos</i>	Dunnock <i>Prunella modularis</i>
Skylark <i>Alauda arvensis</i>	Mistle Thrush <i>Turdus viscivorus</i>
Yellowhammer <i>Emberiza citrinella</i>	Starling <i>Sturnus vulgaris</i>
Kestrel <i>Falco tinnunculus</i>	House Sparrow <i>Passer domesticus</i>
Linnet <i>Carduelis cannabina</i>	Reed Bunting <i>Emberiza schoeniclus</i>
Redwing <i>Turdus iliacus</i>	Fieldfare <i>Turdus pilaris</i>
Stock Dove <i>Columba oenas</i>	Mallard <i>Anas platyrhynchos</i>
Black-headed Gull	Lesser Black-backed Gull
<i>Chroicocephalus ridibundus</i>	<i>Larus fuscus</i>
Bullfinch <i>Pyrrhula pyrrhula</i>	

- 16.1.2 Of these species, Black-headed Gull, Dunnock, Fieldfare, House Sparrow, Kestrel, Linnet, Skylark, Stock Dove, Starling and Yellowhammer were all recorded within the Phase 1 Residential RMA.

- 16.1.3 Four wintering bird surveys were undertaken between November 2014 and February 2015 to inform the outline ES, recording a similar complement of species.

- 16.1.4 Three breeding bird surveys were undertaken by Ecology Solutions in April, May and June 2019.

- 16.1.5 Fifty species were recorded within or immediately adjacent to the site, including 18 species that are listed as NERC species of principal importance and / or on the UK Birds of Conservation Concern Red and Amber list, as follows:

Song Thrush <i>Turdus philomelos</i>	Dunnock <i>Prunella modularis</i>
Skylark <i>Alauda arvensis</i>	Mistle Thrush <i>Turdus viscivorus</i>
Yellowhammer <i>Emberiza citrinella</i>	Starling <i>Sturnus vulgaris</i>
Kestrel <i>Falco tinnunculus</i>	House Sparrow <i>Passer domesticus</i>
Linnet <i>Carduelis cannabina</i>	Reed Bunting <i>Emberiza schoeniclus</i>
Herring Gull <i>Larus argentatus</i>	Fieldfare <i>Turdus pilaris</i>
Stock Dove <i>Columba oenas</i>	Willow Warbler <i>Phylloscopus trochilus</i>
Black-headed Gull	Lesser Black-backed Gull
<i>Chroicocephalus ridibundus</i>	<i>Larus fuscus</i>
Bullfinch <i>Pyrrhula pyrrhula</i>	Tawny Owl <i>Strix aluco</i>

- 16.1.6 Of these species, singing males of Dunnock, Yellowhammer and Skylark were all recorded within the Phase 1 Residential RMA and are therefore categorised as possible breeders.

- 16.1.7 Confirmed breeders immediately adjacent to parcels A1, A2 and A8 include Rooks *Corvus frugilegus*, Blue Tits, Common Moorhen *Gallinula chloropus* and Starlings. There is a large Rookery of approximately 33 nests within the off-site woodland W6.

- 16.1.8 Information from the breeding bird surveys is that a maximum of three Skylarks were recorded singing during any one survey. It is therefore taken that three territories are being held during the breeding season. Two territories fall within parcels A2 and A8.

## 16.2 Conservation Objectives

To safeguard bird nesting and foraging habitats during construction.

To avoid damage or destruction of birds' nests during construction.

To provide greater opportunities for birds within the Phase 1 Residential RMA.

## 16.3 Designs and Working Methods

### *Nesting Bird Checks*

- 16.3.1 In order avoid impacts on nesting birds, and to avoid a potential offence under the Wildlife & Countryside Act 1981, all necessary clearance of vegetation would be undertaken outside of the bird breeding season (March to July inclusive) wherever possible. Where this is not possible, a check survey of vegetation by an experienced ecologist would be undertaken immediately prior to clearance. In the event that a nest was found to be present, the vegetation would be left uncleared with a 5m exclusion zone around it until the young had fledged.
- 16.3.2 The Ecological Clerk of Works would liaise closely with the site manager on all clearance of suitable nesting habitat.

### *Fencing of Retained Habitats*

- 16.3.3 All retained woodland, trees, hedgerows and field margins will be fenced using Heras fencing or similar (as shown on the GA and Planting Plans) to avoid possible encroachment. All site personnel will be briefed as to the importance of these areas for nesting birds as part of the site induction.

### *New Habitat Planting*

- 16.3.4 The scheme includes habitat enhancements through the planting of native and ornamental trees and shrubs. New areas of woody species planting throughout parcels A1, A2 and A8 will in time mature into habitats suitable for use by foraging and nesting birds.
- 16.3.5 There will be no suitable Skylark breeding habitat within the Phase 1 Residential RMA post-development. Areas of new tussocky wildflower grassland will be created as part of the Infrastructure RMA to provide further nesting and foraging opportunities for farmland birds such as Skylark.
- 16.3.6 The locations of these new habitats are shown on the GA and Planting Plans.

### *Bird Boxes*

- 16.3.7 Each new apartment block will have three integrated EcoSurv Swift Nest Bricks and three mounted Schwegler 1SP Sparrow terraces.

#### **16.4 Type and Source of Materials**

- 16.4.1 EcoSurv Swift Nest Bricks and Schwegler 1SP bird boxes are to be included in each apartment block (see Appendix 5).

#### **16.5 Initial Aftercare and Long-term Management and Maintenance**

- 16.5.1 Bird boxes will be checked periodically (at least once a year in March) for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ and are not damaged. Boxes will be replaced if found to be damaged.
- 16.5.2 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.

## 17. REPTILES

### 17.1 Baseline Conditions

- 17.1.1 Habitats suitable for reptiles within the Phase 1 Residential RMA are limited to the field margins and woodland strip, with the majority of parcels A1, A2 and A8 comprising arable fields. No evidence of reptiles was recorded within the Phase 1 Residential RMA during presence / absence surveys undertaken from April to June 2019. Grass Snake *Natrix helvetica* and Common Lizard *Zootoca vivipara* were previously recorded during surveys undertaken in 2014.
- 17.1.2 Populations of Grass Snake and Common Lizard have been recorded across the Redrow site as a whole during surveys undertaken in 2019.

### 17.2 Conservation Objectives

<p>To safeguard reptile habitats during construction.</p> <p>To provide greater opportunities for reptiles within plots A1, A2 and A8.</p>
--

### 17.3 Designs and Working Methods

#### *Passive Displacement*

- 17.3.1 Where habitats used by reptiles exist within parcels A1, A2 and A8 mitigation measures will be put into place to ensure that no offence is caused under the Wildlife & Countryside Act. This will include passive displacement and fencing of sensitive areas.
- 17.3.2 The locations of existing field margins to be removed are shown on the GA and Planting Plans.
- 17.3.3 Passive displacement will involve the intensive management of the existing habitats favourable to reptiles, through a cutting regime which will encourage reptiles to move away from such areas. Cuts will be undertaken using a hand strimmer with an initial cut of 200mm followed by a cut of 100mm 24 hours later and then cut as short as possible. Displacement will occur ahead of development, when reptiles are active (between mid-March and October) and during favourable weather conditions. All cuttings and other debris will be removed to avoid creating places of refuge. Following the passive displacement exercise, topsoil will be stripped to remove any suitability for reptiles. All works will be undertaken under the supervision of a suitably qualified ecologist.
- 17.3.4 At the time of writing it is expected that all reptile mitigation measures would be undertaken by means of passive displacement, as specified in the ES and supported by the most recent survey findings. However, it is possible that passive displacement may not prove to be the most appropriate method in all circumstances, for example if the direction of displacement would not encourage reptiles to move into areas of larger suitable habitat, or where fragmentation is an issue. At the discretion of the Ecological Clerk of Works, in consultation with the site manager, a more formal capture and translocation

exercise will be undertaken, involving the deployment of 'tins' and daily visits to the site during suitable conditions. Captured reptiles would be placed in a cloth bag and removed to receptor sites identified for the purpose; the locations of these sites are shown on the GA and Planting Plans accompanying the Infrastructure RMA.

#### *Fencing of Retained Habitats*

- 17.3.5 All retained field margins will be fenced using Heras fencing or similar (as shown on the GA and Planting Plans) to avoid possible encroachment. All site personnel will be briefed as to the importance of these areas for reptiles as part of the site induction.

#### *New Habitat Planting and Hibernation Features*

- 17.3.6 Reptiles were not recorded within parcels A1, A2 and A8 during the most recent surveys undertaken. New wildflower grassland planting will enhance the suitable habitat already present and encourage reptiles to move into these areas.
- 17.3.7 The landscaping within parcels A1, A2 and A8 will link to larger areas of green infrastructure to be created as part of the Infrastructure RMA. Habitats will be established with a tussocky grassland structure with wildflower mixes; this will provide the nectar sources for invertebrate / prey items, basking areas and safe passages through undergrowth. Where tree removal is required the trunks will be kept and cut up and arranged within retained habitats; these will create basking opportunities, refuge and as they rot provide a foraging resource. The locations of these new habitats are shown on the GA and Planting Plans.
- 17.3.8 Management of grassland will be important for the longevity of suitable habitats. Cutting regimes will be rotated whereby only small parcels of a compartment are cut in one year.

#### **17.4 Type and Source of Materials**

- 17.4.1 No specific materials are required.

#### **17.5 Initial Aftercare and Long-term Management and Maintenance**

- 17.5.1 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.



## 18. AMPHIBIANS

### 18.1 Baseline Conditions

- 18.1.1 Parcels A1, A2 and A8 offer very little terrestrial habitat for Great Crested Newts *Triturus cristatus* and other amphibians, the majority of the Phase 1 Residential RMA comprising arable fields. There are no suitable aquatic habitats within these parcels.
- 18.1.2 No Great Crested Newts have been recorded within the Redrow site and there are no records for Great Crested Newts in the local area. Ponds within the site and those within 500m were subject to eDNA testing in 2019 where permission was granted. The results of the eDNA testing were returned as negative.
- 18.1.3 Common Toads *Bufo bufo* and Smooth Newts *Lissotriton vulgaris* were recorded during Great Crested Newt surveys completed in 2014 and 2015.

### 18.2 Conservation Objectives

<p>To safeguard amphibian habitats during construction.</p> <p>To provide greater opportunities for amphibians within plots A1, A2 and A8.</p>
--

### 18.3 Designs and Working Methods

#### *Precautionary Working Methods*

- 18.3.1 To ensure there are no potential negative effects to water quality all operations will be undertaken in accordance with standard guidance provided in the Environmental Agency Guidelines PPG5 Pollution Prevention Guidelines. In addition, the drainage strategy will be designed to ensure that surface water run-off is suitably treated prior to discharge.
- 18.3.2 Works to enhance ditches will be undertaken outside of the amphibian breeding period from March to June inclusive. The Ecological Clerk of Works will be consulted before this work is undertaken, and if necessary a check survey will be carried out.
- 18.3.3 No Great Crested Newts have been recorded within the RMA parcels and a Natural England licence is not necessary to undertake the work.

#### *Retained and New Habitats*

- 18.3.4 Work to enhance and manage ditches, and to establish new wildlife-friendly attenuation features, will provide new aquatic habitats for amphibian species. New grassland habitats to be established within parcels A1, A2 and A8 will offer new opportunities during the terrestrial phase (see GA and Planting Plans).
- 18.3.5 The landscaping associated with parcels A1, A2 and A8 will link to the Green Spine and Linear Park, the main green infrastructure being created as part of the Infrastructure RMA. Within the green infrastructure additional attenuation

features will be provided. Permanently wet areas will include marginal native species planting. These areas will offer new breeding habitats, while the grassland and woodland to be established will provide terrestrial opportunities.

#### **18.4 Type and Source of Materials**

18.4.1 No specific materials are required.

#### **18.5 Initial Aftercare and Long-term Management and Maintenance**

18.5.1 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.

## **19. INVERTEBRATES**

### **19.1 Baseline Conditions**

- 19.1.1 Given the habitats present, it is likely an assemblage of common invertebrate species utilises parcels A1, A2 and A8, though the intensive arable management of the majority of the land within the Phase 1 Residential RMA will limit variety. There is no evidence to suggest that any rare or notable species would currently be present.

### **19.2 Conservation Objectives**

To provide greater opportunities for invertebrates within the Phase 1 Residential RMA.

### **19.3 Designs and Working Methods**

#### *New Habitat Planting*

- 19.3.1 The provision of new habitats of ecological interest including trees, wildflower grassland and wetland habitats, will offer new and enhanced resources for invertebrates.

### **19.4 Type and Source of Materials**

- 19.4.1 No specific materials are required.

### **19.5 Initial Aftercare and Long-term Management and Maintenance**

- 19.5.1 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.

## 20. TIMETABLE OF WORKS

20.1 The timetable of works as set out in the previous sections is summarised below. The phasing of the development and particular actions that must occur before each phase is brought forward is summarised on Plan ECO5.

Receptor	Action	Timing
Habitats	Habitat creation and enhancement	In concert with construction
Bats	Bat box installation	In concert with the development of new apartment blocks and garages, from February 2020 onwards
Otters	Pre-construction checks of suitable habitat	Prior to commencement of works
Water Voles	Pre-construction checks of suitable habitat	Prior to commencement of works
Dormice	Dormouse nest box installation	On retained trees autumn / winter 2019
Hedgehogs	Clearance of log piles and other hibernation features	Under full supervision by ECoW between October and April; certified by ECoW between May and September
	Hedgehog hibernation box installation	In suitable habitat, from autumn 2019 onwards
Birds	Nesting bird checks of vegetation to be removed	March to July inclusive, as required
	Bird box installation	In concert with development of new apartment blocks, from February 2020 onwards
Reptiles	Passive displacement	Under full supervision by ECoW when reptiles are active (between mid-March and October) and during favourable weather conditions

**Table 20.1.** Timetable for ecological mitigation and enhancement measures.

## **21. PERSONS RESPONSIBLE FOR IMPLEMENTING THE WORKS**

- 21.1 Redrow Homes has ultimate responsibility for implementation of this strategy. The individual currently leading for Redrow Homes is Richard Franks, Senior Engineering Manager, and the responsibility for implementation will be his or that of his appointed successor.
- 21.2 It is the responsibility of the appointed individual at Redrow Homes to instruct appropriate experienced contractors to establish the various features and protective measures proposed, and also the responsibility of the appointed individual at Redrow Homes to instruct appropriate experienced ecologists and / or landscape contractors to check the work.
- 21.3 A suitably experienced Ecological Clerk of Works (ECoW) will be appointed by Redrow Homes to liaise with the site manager during construction. The ECoW will attend site at least once per month for a meeting with the site manager, and at any other times where an immediate presence is required.
- 21.4 It will be the responsibility of the site manager or his appointed representatives to deliver a site induction that includes reference to all wildlife issues identified in this document. The ECoW will liaise with the site manager on the content of the induction.
- 21.5 Clear channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.
- 21.6 Redrow and the landowner will establish a joint management company to manage and maintain the public landscape areas of Great Wilsey Park. The management company will be responsible for the ongoing maintenance of areas of soft landscaping within public open spaces, attenuation basins and Great Field Plantation.

## **22. MONITORING AND REMEDIAL MEASURES**

- 22.1 Site visits by the Ecological Clerk of Works will be undertaken on a monthly basis throughout the programme of works to establish the Phase 1 Residential RMA. The ecologist will meet with the site manager and discuss progress of establishment, along with any problems that may have arisen. The Ecological Clerk of Works will also be available to attend site at short notice to discuss particular issues or observe specific works.
- 22.2 Effects on ecological receptors will be monitored, and conclusions drawn as to the significance of any effects, and any measures that may need to be implemented to mitigate for any effects identified. Following completion of the work, the effects will be analysed and any significant changes will be reported.
- 22.3 A separate comprehensive Biodiversity Monitoring Strategy for the Phase 1 Residential RMA has been prepared to address the requirements of Condition 45. That document should be referred to for full details of monitoring of newly established habitats and features.

## **23. DISPOSAL OF WASTES**

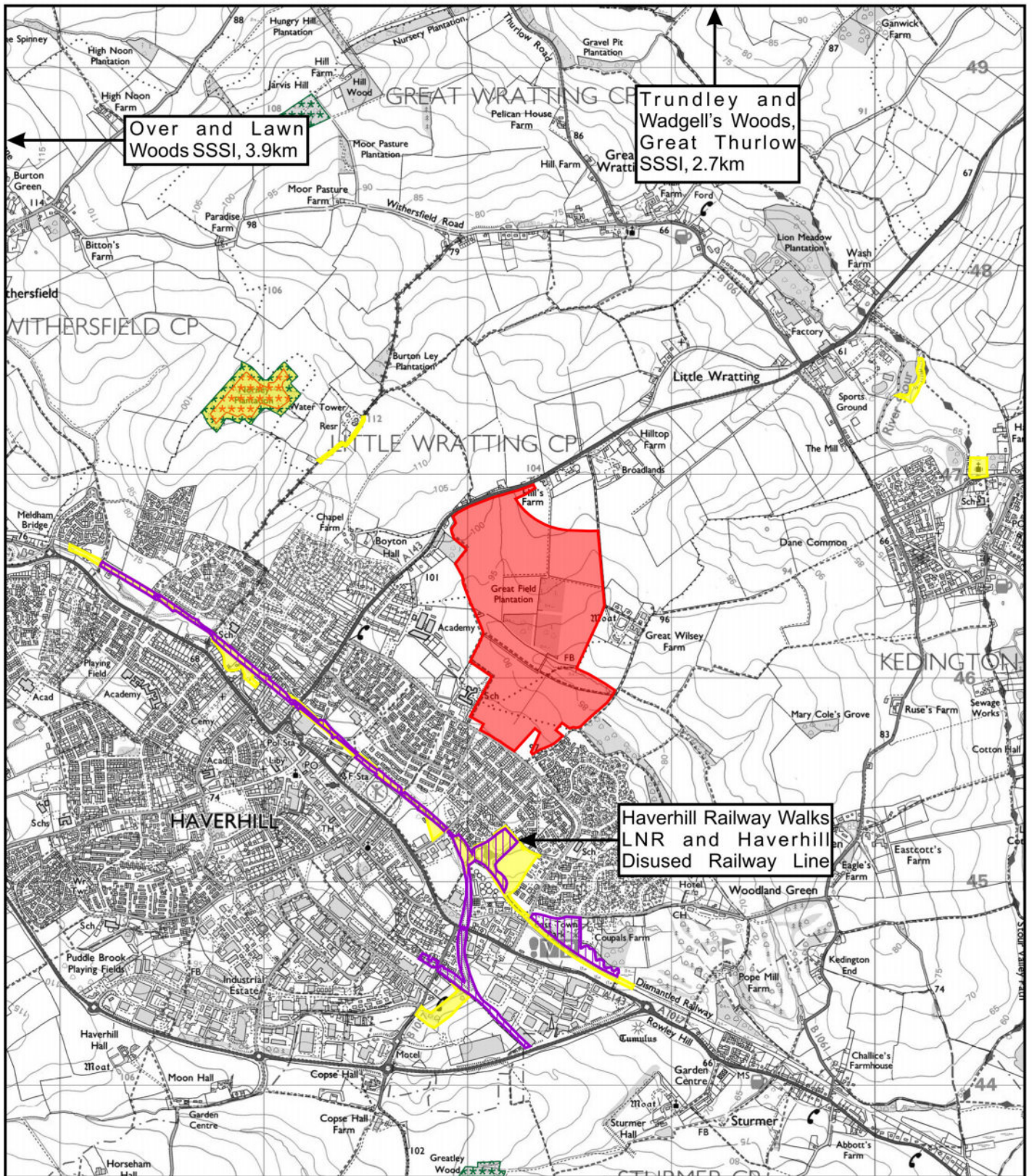
- 23.1 Waste arising from the proposed works will be disposed of as per standard construction practice. A clear system so waste storage and disposal will be put in place as part of good site management. All waste arising will be stored in approved and secure locations and separated for disposal as appropriate.
- 23.2 During the operational phase of the development, the appointed management contractor will allow for the off-site disposal of all litter and landscape maintenance waste. The contractor will be responsible for all waste disposal costs and approvals.
- 23.3 There are no known non-native invasive species within the Redrow site and therefore disposal of material of at an approved facility is not required.

## PLANS



## **PLAN ECO1**

Site Location and Ecological Designations



**KEY:**

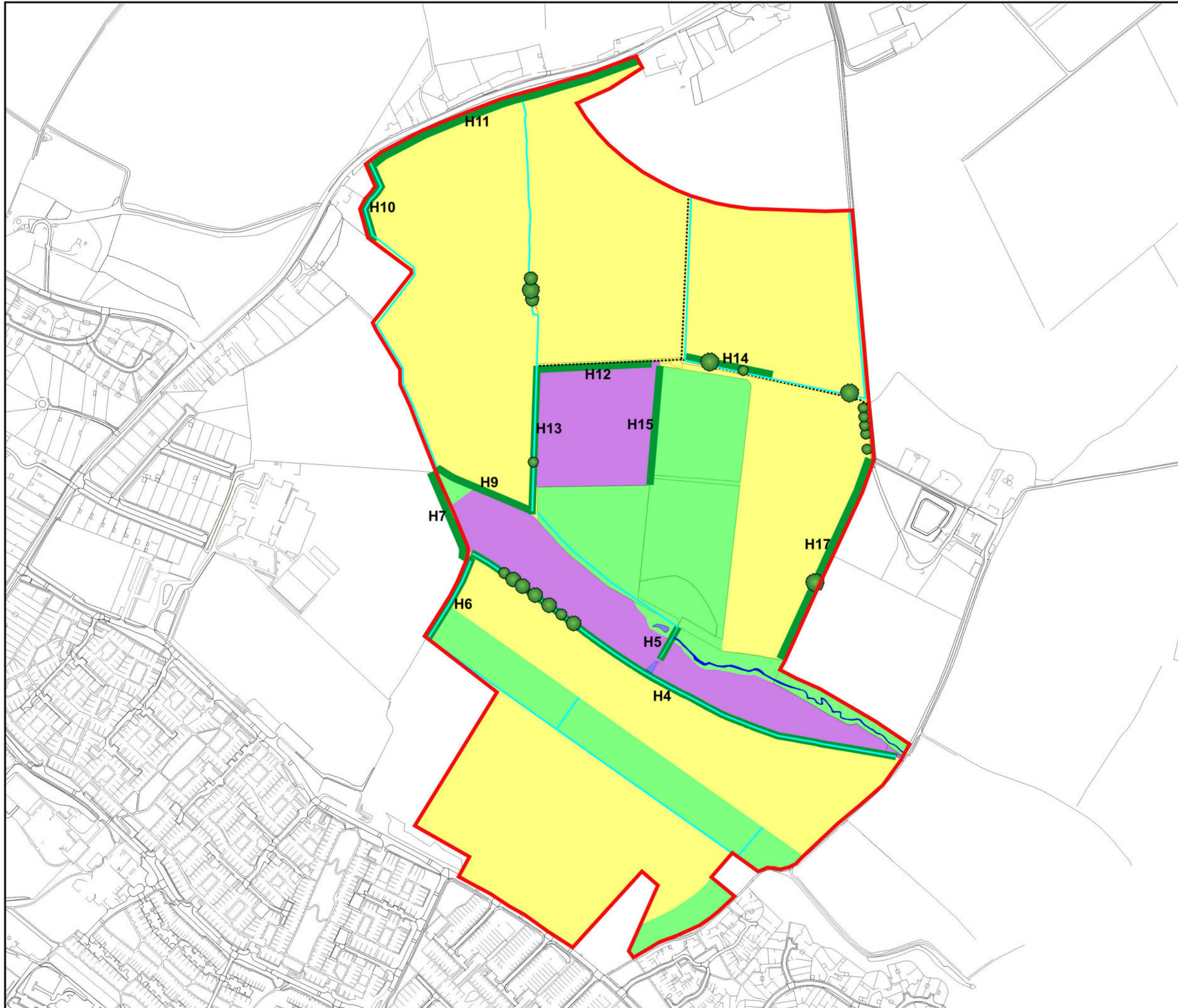
-  SITE LOCATION
-  LOCAL NATURE RESERVE (LNR)
-  COUNTY WILDLIFE SITE (CWS)
-  ANCIENT WOODLAND
-  ANCIENT REPLANTED WOODLAND



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<b>PLAN ECO1: SITE LOCATION AND ECOLOGICAL DESIGNATIONS</b>	Rev: A Jul 2019

## **PLAN ECO2**

Ecological Features



- KEY:**
- SITE BOUNDARY
  - ARABLE LAND
  - WOODLAND
  - IMPROVED GRASSLAND
  - DITCH
  - STOUR BROOK TRIBUTARY
  - POND
  - HEDGEROW
  - TREE
  - TRACK

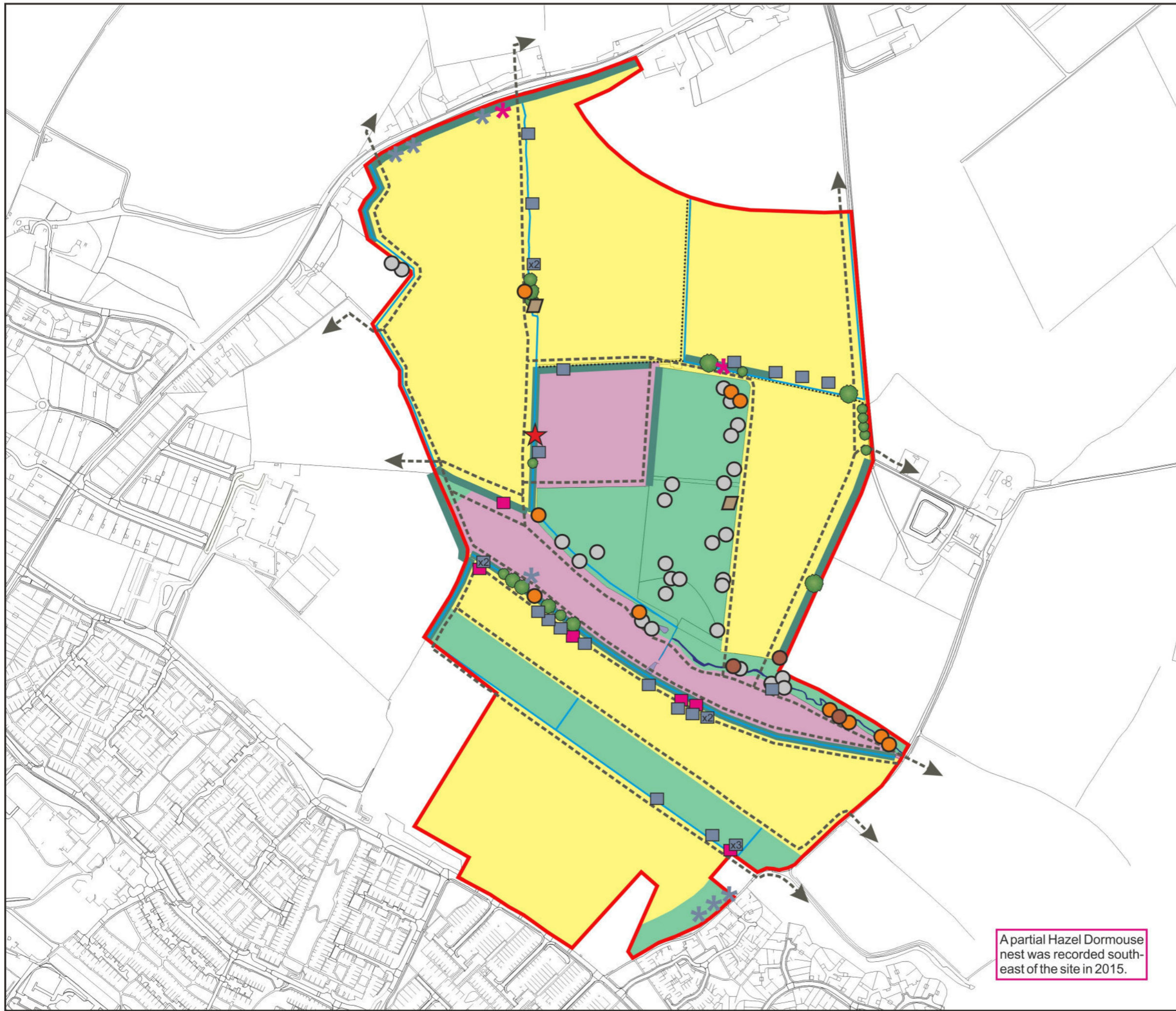
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PLAN ECO2: ECOLOGICAL FEATURES	Rev: A Jul 2019
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## **PLAN ECO3**

Ecological Constraints



A partial Hazel Dormouse nest was recorded south-east of the site in 2015.

- KEY:**
- SITE BOUNDARY
  - ARABLE LAND
  - WOODLAND
  - IMPROVED GRASSLAND
  - DITCH
  - STOUR BROOK TRIBUTARY
  - POND
  - HEDGEROW
  - TREE
  - TRACK
  - GRASS SNAKE RECORD IN 2014
  - COMMON LIZARD RECORD IN 2014
  - GRASS SNAKE RECORDED IN 2019
  - COMMON LIZARD RECORDED IN 2019
  - NUMBER OF REPTILES
  - CONFIRMED BAT ROOST
  - HIGH / MODERATE BAT ROOSTING POTENTIAL TREE
  - LOW BAT ROOSTING POTENTIAL TREE
  - BAT FORAGING ROUTES
  - DORMOUSE NEST RECORDED IN 2019

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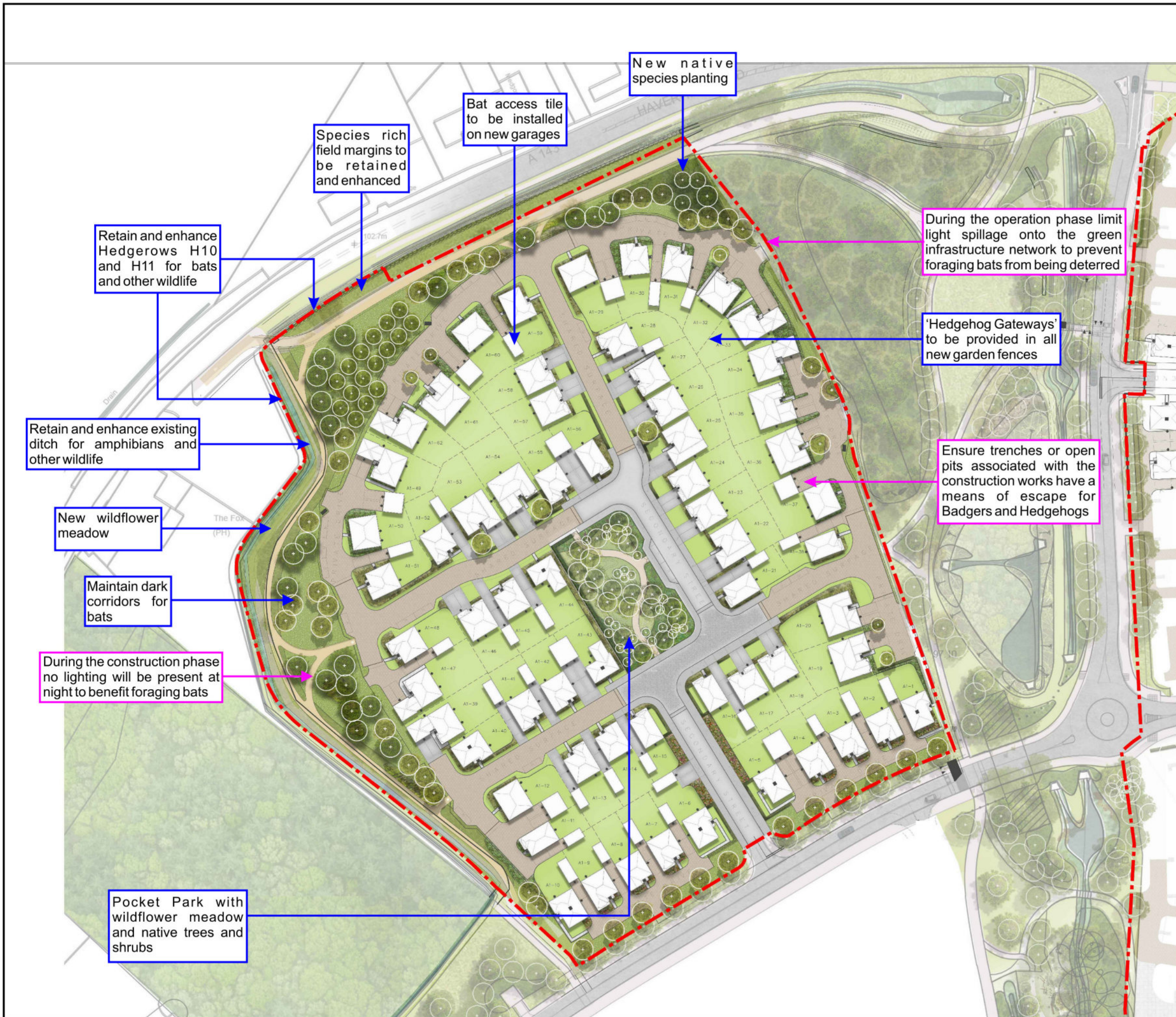
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HAVERHILL

PLAN ECO3:  
ECOLOGICAL CONSTRAINTS

Rev: B  
Sep 2019

## **PLAN ECO4a**

Ecological Implementation Strategy 1



**KEY:**

- [Pink box] MITIGATION MEASURE
- [Blue box] ENHANCEMENT MEASURE



Based on Exterior Architecture Drawing No. ExA\_1868\_150



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PLAN ECO4a: ECOLOGICAL  
IMPLEMENTATION STRATEGY 1

Rev: A  
Sep 2019



## **PLAN ECO4b**

Ecological Implementation Strategy 2

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Bat access tile to be installed on new garages

Create new dark corridor for bats

New native species planting

'Hedgehog Gateways' to be provided in all new garden fences

Pocket Park with wildflower meadow and native trees and shrubs

Ensure trenches or open pits associated with the construction works have a means of escape for Badgers and Hedgehogs

During the operation phase limit light spillage onto the green infrastructure network to prevent foraging bats from being deterred

During the construction phase no lighting will be present at night to benefit foraging bats

Bat and bird boxes to be installed on new apartment blocks

- KEY:**
- MITIGATION MEASURE
  - ENHANCEMENT MEASURE



Based on Exterior Architecture Drawing No. ExA\_1868\_151



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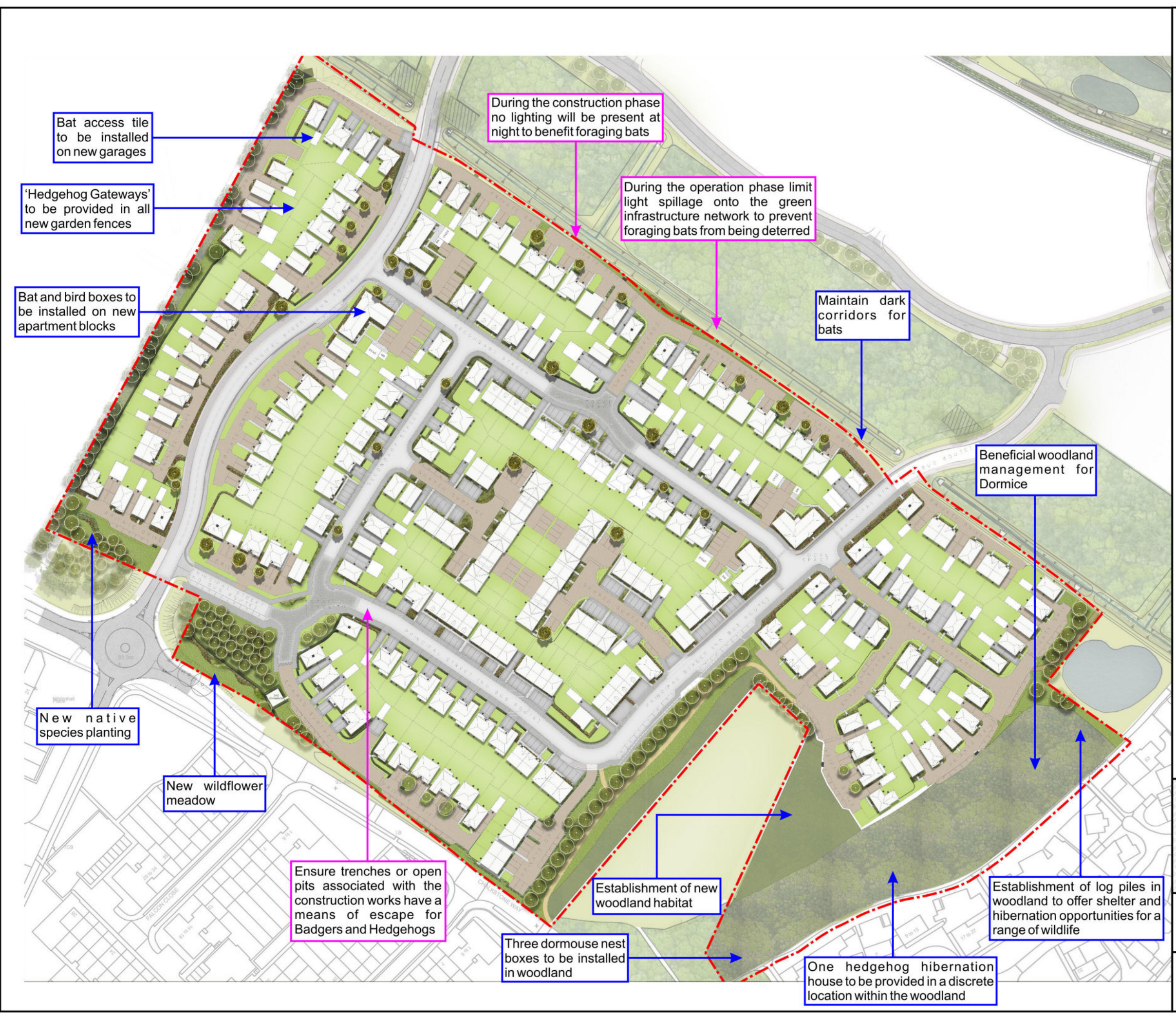
PLAN ECO4b: ECOLOGICAL  
IMPLEMENTATION STRATEGY 2



Rev: B  
Sep 2019

## **PLAN ECO4c**

Ecological Implementation Strategy 3

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**KEY:**  
 MITIGATION MEASURE  
 ENHANCEMENT MEASURE

Bat access tile to be installed on new garages

'Hedgehog Gateways' to be provided in all new garden fences

Bat and bird boxes to be installed on new apartment blocks

During the construction phase no lighting will be present at night to benefit foraging bats

During the operation phase limit light spillage onto the green infrastructure network to prevent foraging bats from being deterred

Maintain dark corridors for bats

Beneficial woodland management for Dormice

New native species planting

New wildflower meadow

Ensure trenches or open pits associated with the construction works have a means of escape for Badgers and Hedgehogs

Establishment of new woodland habitat

Three dormouse nest boxes to be installed in woodland

One hedgehog hibernation house to be provided in a discrete location within the woodland

Establishment of log piles in woodland to offer shelter and hibernation opportunities for a range of wildlife



Based on Exterior Architecture Drawing No. ExA\_1868\_152



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Rev: A  
Sep 2019