

# Bull Field - Warish Hall Farm, Takeley

## Ecology Documents Note

Prepared in support of the Full Planning Application  
Land at Bull Field, Warish Hall Farm, Takeley, Essex.



## Table of Contents

Document History ..... 2

1. Introduction ..... 3

2. Biodiversity Checklist ..... 4

3. Ecological Assessment ..... 5

4. Briefing Note – Ecological Appraisal ..... 6

5. Bat Report..... 7

6. Woodland Management Plan ..... 8

7. Bird Hazard Management Plan ..... 9v

8. Biodiversity Net Gain Report..... 10

## Document History

Date	Version	Author	Revision/ Notes
09.06.23	Draft	J.Spencer	



## 1. Introduction

1.1. This document and the attached documents have been prepared by Weston Homes Plc (The Applicant) in support of a full planning application relating to the land known as Bull Field, which is located to the north of the village of Takeley, Essex. The Site falls within the jurisdiction of Uttlesford District Council (UDC) and within the parish of Takeley.

1.2. The application is made under Section 62a of The Town and Country Planning Act 1990, for 96 no. new 2 to 5-bed dwellings. Accordingly, the proposed development description is as follows:

***“Access to/from Parsonage Road between Weston Group Business Centre and Innovation Centre buildings leading to: 96 dwellings on Bulls Field, south of Prior’s Wood, including associated parking, landscaping, public open space, land for the expansion of Roseacres Primary School, pedestrian and cycle routes to Smiths Green Lane together with associated infrastructure.”***

1.3. The following documents are appended to this document, in relation to Ecology Matters in support of a full planning application relating to the land known as Jacks:

- **Essex Biodiversity Validation Checklist – Version 1.3 – June 2015**
- **Ecological Assessment [dated: Oct 2021] by Ecology Solutions**
- **Briefing Note – Ecological Appraisal [April 2023] by Ecology Solutions**
- **Bat Survey Report [Nov 2021] by Ecology Solutions**
- **Woodland Management Plan [April 2023] by Ecology Solutions**
- **Bird Hazard Management Plan [June 2021] by Ecology Solutions**

## **2. Biodiversity Checklist**

- 2.1. The Biodiversity Checklist prepared by Place Services is a validation requirement for major developments submitted to Uttlesford District Council.
- 2.2. The Biodiversity Checklist can be found at Appendix A.

### **3. Ecological Assessment**

- 3.1. The Ecological Assessment was originally commissioned in October 2020 in relation to an Application (Ref. No. UTT/21/1987/FUL) which related to a wider land holding known as Warish Hall Farm.
- 3.2. The Land known as Jacks formed part of this Development Site and therefore the Ecological Assessment provides detail relating to this parcel.
- 3.3. This document has been submitted in support of this Section 62a Application as it is still relevant to the proposals.
- 3.4. The Ecological Assessment can be found at Appendix B.

#### **4. Briefing Note – Ecological Appraisal**

- 4.1. The Briefing Note was produced in June 2023 in support of the Ecological Assessment and provide an update on the ecological state of the site.
- 4.2. This should be read in conjunction with the Ecological Assessment.
- 4.3. The Ecology Update and Walkover Survey can be found at Appendix C.

## **5. Bat Report**

- 5.1. The Bat Survey was originally commissioned in November 2021 in relation to an Application (Ref. No. UTT/21/1987/FUL) which related to a wider land holding known as Warish Hall Farm.
- 5.2. The Land known as Jacks formed part of this Development Site and therefore the Ecological Assessment provides detail relating to this parcel.
- 5.3. This document has been submitted in support of this Section 62a Application as it is still relevant to the proposals.
- 5.4. The Bat Survey can be found at Appendix D.

## **6. Woodland Management Plan**

- 6.1. As set out in the Planning Statement, this Section 62a Application reflects an application which is currently pending determined by Uttlesford District Council (Ref. No. UTT/22/3126/FUL).
- 6.2. The Woodland Management Plan has also been submitted alongside the Application which currently sits with UDC.
- 6.3. The Woodland Management Plan can be found at Appendix E.

## **7. Bird Hazard Management Plan**

- 7.1. The Bird Hazard Management Plan was originally commissioned in November 2021 in relation to an Application (Ref. No. UTT/21/1987/FUL) which related to a wider land holding known as Warish Hall Farm.
- 7.2. The Land known as Jacks formed part of this Development Site and therefore the Bird Hazard Management Plan provides detail relating to this parcel.
- 7.3. This document has been submitted in support of this Section 62a Application as it is still relevant to the proposals.
- 7.4. The Bird Hazard Management Plan can be found at Appendix F.

## **8. Biodiversity Net Gain Report**

- 8.1. The Biodiversity Net Gain Report was produced in May 2023 in support of the Application before you.
- 8.2. This should be read in conjunction with all other Ecology related documents.
- 8.3. The Biodiversity Net Gain Report can be found at Appendix G.



**Appendix A - Essex Biodiversity Validation Checklist – Version 1.3 – June 2015**



# Essex Biodiversity Validation Checklist

Prepared by Place Services

Essex County Council  
Version 1.3 | June 2015

# Introduction

This checklist is a requirement for all planning applications considered a **major development** as defined by [Article 8\(7\) of The Town and Country Planning \(General Development Procedure\) Order 1995](#).

The assistance of a professional ecologist will be necessary to complete the checklist.

For other applications not defined as a major development, applicants are strongly encouraged to use the checklist where there may be adverse effects on the natural environment.

For some developments an Environmental Impact Assessment (EIA) maybe required. In these cases this checklist must still be completed and used to inform the content of the Ecology Chapter of the Environment Statement subject to any Scoping Opinion issued by the planning authority.

This checklist aims to provide a clear, transparent process for both applicant and Local Planning Authority (LPA) and ensure conformity with **British Standard 42020:2013 for Biodiversity (Code of practice for planning and development)**. Its correct application will help the applicant and LPA comply with national biodiversity policy and legislation; thereby reducing the likelihood of delays resulting from the submission of inadequate information.

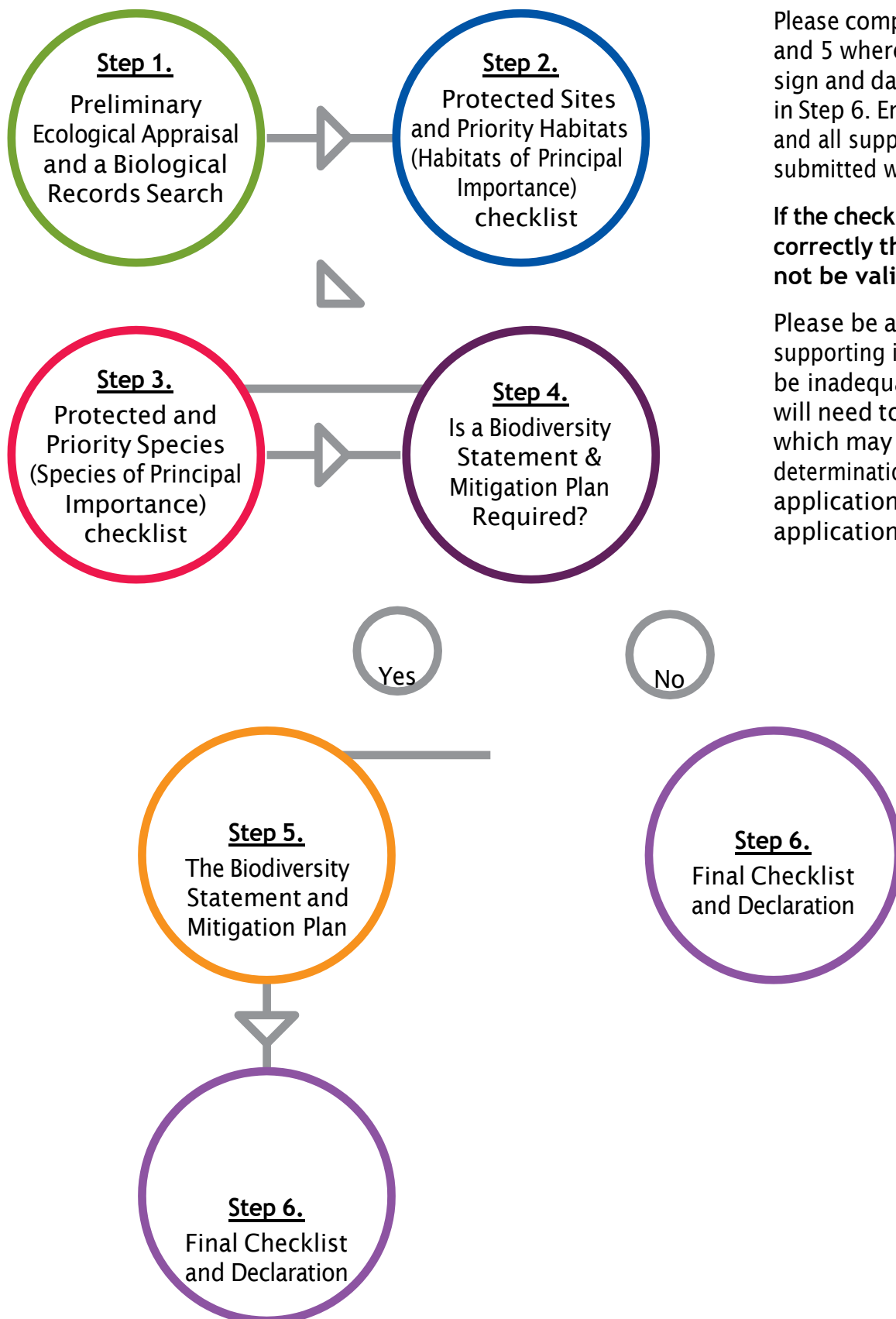
The checklist does not attempt to provide a detailed account of the legislation and policy that underpin biodiversity conservation in England. Further information can be obtained from [Natural England](#) and links have been provided in the text to external sources of information where appropriate. [A glossary](#) is also included at the end of the checklist.

The checklist is supported by Natural England's local Land Use Operations team and endorsed by the [Essex Biodiversity Project](#).

The checklist is a component of Essex County Council's Supplementary Guidance for the Submission of Planning Applications. It has been produced with funding provided by Natural England.

# The Six Steps

The checklist comprises 6 steps:



Please complete steps 1 to 4 - and 5 where necessary - then sign and date the declaration in Step 6. Ensure the checklist and all supporting information is submitted with your application.

**If the checklist is not completed correctly the application may not be valid.**

Please be aware that if the supporting information proves to be inadequate further evidence will need to be provided, which may potentially **delay** determination of the planning application or lead to the application being **refused**.



# Step 1. Preliminary Ecological Appraisal and Biological Records Search

A Preliminary Ecological Appraisal (PEA) of the application site must be completed in a format consistent with the '[Guidelines for Preliminary Ecological Appraisal](#)' published by the Chartered Institute of Ecology and Environmental Management (CIEEM).

The PEA and any subsequent Biodiversity Statement & Mitigation Plan should be prepared by a competent and qualified Ecologist. To find a suitable Ecological Consultant please contact [CIEEM](#) in the first instance.

The PEA must include a description of any recent works, such as vegetation clearance, that have been undertaken at the application site prior to the ecological appraisal that may affect its findings.

The PEA must include a biological records search of the application site and a 2 kilometre area extending from the sites boundary. It should encompass the following biodiversity features as a minimum:

## Protected Sites

- Special Areas of Conservation (SAC), Special Protection Areas (SPA) & Ramsar sites
- Sites of Special Scientific Interest (SSSI)
- Local Sites (i.e. Local Wildlife Sites – LoWS and Special Roadside Verges)

## European Protected Species

- Species protected under the Conservation of Habitats and Species Regulations 2010 (as amended)

## National Protected Species

- Species protected under the Wildlife & Countryside Act 1981 (as amended)
- Badgers (The Protection of Badgers Act 1992)

## Priority Habitats and Species

- Habitats of Principal Importance in England (Priority Habitats)
- Species of Principal Importance in England (Priority Species)

## Relevant data can be obtained from the following sources:

- Natural England [www.magic.gov.uk](http://www.magic.gov.uk)  
*Interactive map displaying information about SPA, SAC, Ramsar, SSSI and Ancient Woodland sites*
- Essex Field Club [REDACTED]  
*Main source of species records*
- Essex Wildlife Trust Biological Records Centre [REDACTED]  
*Holds site, habitat and species records including information about Local Wildlife Sites*
- Essex Biodiversity Project [REDACTED]  
*The Essex Biodiversity Action Plan can be viewed at this site*

Using the results of the Preliminary Ecological Appraisal and Biological Records Search please complete **Steps 2 - 5** which will determine whether further survey and assessment work is required.

# Step 2. Protected Sites and Priority Habitats (Habitats of Principal Importance) Checklist

Please complete Column 2 of Table 2.1 below. Links to more information have been provided for each site or habitat in column 1.

**Table 2.1 - Sites and Habitats Checklist**

1. Question	2. Please tick as appropriate
Is your development within 10km of a <a href="#">Special Area of Conservation</a> (SAC), <a href="#">Special Protection Area</a> (SPA) or <a href="#">Ramsar Site</a> ?	*Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Is your development within 2km of a <a href="#">Site of Special Scientific Interest</a> (SSSI)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Is your development within 250m of any <a href="#">Habitats of Principal Importance</a> ; <a href="#">Ancient Woodland</a> and/or <a href="#">Local Site</a> ?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

*\*If you answer yes to this question additional detail maybe required by the LPA and Natural England to enable the completion of a Habitat Regulations Assessment (HRA). It is strongly recommended that you seek advice from Natural England prior to submitting your application, and submit details of any relevant correspondence with your checklist and application.*

If you have answered ‘yes’ to any of the questions above please complete [Table 2.2 \(Sites and Habitat Evaluation\)](#) before proceeding to [Step 3](#).

If you have answered ‘no’ to all of the questions above please proceed directly to [Step 3](#).

Please complete Column 2 of Table 2.2 below, followed by Column 3 as appropriate.

**Table 2.2 - Sites and Habitats Evaluation**

1.	2.	3.
Site/habitat	Is there a 'reasonable likelihood' that the development will affect (either directly or indirectly) a site or habitat in column 1 prior to applying mitigation?  (Tick as appropriate)	Where you have answered 'yes' name the site(s) or habitat(s) and summarise any possible direct or indirect effects that may occur during construction or operation. For SPA's this includes 'qualifying species' occurring outside of the designated site boundary.  Where you have answered 'no' please provide a concise statement to support your answer.
SAC/SPA/Ramsar site*	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	The site does not fall within 10km / an impact risk zone associated with any SAC, SPA or Ramsar sites.

1.	2.	3.
SSSI*	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<p>The proposals include access to a provision of alternative open space which will not place any recreational pressure on Hatfield Forest SSSI. The SSSI is additionally far enough removed from the site to be affected by negative AQ and hydrological effects resulting from the development.</p>
Priority Habitats	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<p>Hedgerows - Prior to mitigation possible direct or indirect effects during construction and operation include potential pollution (dust, noise, surface runoff etc.), accidentally encroachment and elevated lux levels.</p> <p>See Ecology Update and Walkover Survey Note and Ecological Assessment for more information.</p>



*\*If you have answered 'yes' please seek advice from Natural England.*

[Return to contents](#)

1.	2.	3.
Ancient Woodland	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Prior's Wood LWS. See Priority Habitats (above) and Ecology Update and Walkover Survey Note and Ecological Assessment for more information.
Local Wildlife Sites	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Prior's Wood LWS. See Priority Habitats (above) and Ecology Update and Walkover Survey Note and Ecological Assessment for more information.

# Step 3. Protected and Priority Species (Species of Principal Importance) Checklist

Please complete Column 2 in Table 3.1 below. Where ‘Yes’ is answered a circle in the corresponding row indicates those species with a ‘reasonable likelihood’ of being present, and for which further surveys may be required. The table has been adapted from the [Natural England Standing Advice for Protected Species](#).

1.	2. (Yes/No)	European Protected Species				Nationally Protected Species (for species groups links to the relevant legislation are provided)							Priority Species ( <a href="#">Link</a> to national List)						
		Bats	Dormouse	Great Crested Newt	Otter	Badger	Barn Owl	Breeding Birds	Invertebrates	Native crayfish	Other Protected Birds	Plants (inc. fungi, ferns and bryophytes)	Reptiles	Water Vole	Birds	Fungi	Invertebrates	Mammals	Plants (inc. ferns and bryophytes)
<p>Does the application involve modification, conversion, demolition or removal of any of the following features or types of building:</p> <ul style="list-style-type: none"> <li>loft space</li> <li>any roof with gaps or cracks e.g. through uneven tiling</li> <li>weather boarding</li> <li>hanging tiles</li> <li>gable ends</li> <li>slate roof</li> <li>clay-tiled pitched roof</li> <li>wooden cladding</li> <li>dense climbing plants</li> <li>Underground structures including but not limited to cellars, tunnels, mines, kilns, ice-houses, air-raid shelters, all bridge structures, aqueducts and viaducts especially over water and wet ground</li> <li>Agricultural building particularly but not exclusively those of traditional brick, stone or timber construction?</li> <li>Buildings of pre-20th or early 20th Century construction</li> </ul>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	•					•	•			•			•					

1.	2. (Yes/No)	European Protected Species				Nationally Protected Species (for species groups links to the relevant legislation are provided)								Priority Species ( <a href="#">Link</a> to national List)					
		Bats	Dormouse	Great Crested Newt	Otter	Badger	Barn Owl	Breeding Birds	Invertebrates	Native crayfish	Other Protected Birds	Plants (inc. fungi, ferns and bryophytes)	Reptiles	Water Vole	Birds	Fungi	Invertebrates	Mammals	Plants (inc. ferns and bryophytes)
Does the application site contain or is it adjacent to: a lake; river; canal; stream; ditch; marsh; or reedbed?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	•		•	•				•	•				•		•			
Does the application involve new lighting of a building/ structure with features suitable for bats or barn owl (e.g. described in row 1 above); or lighting of green space within 50m of woodland, water, hedgerows or tree lines?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	•					•												
Does the application site contain or is it within 200m of: semi-natural woodland; scrub thicket; or is it bounded by or adjacent to hedgerows of predominantly native species that are greater than 1 m tall and 0.5m wide?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	•	•	•		•		•	•		•		•		•		•	•	
Does the application site contain or is it adjacent to a tree/woodland plantation, including of conifers?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	•	•	•		•		•			•		•		•			•	
Does the application site contain trees that are older than 100 years; trees with obvious holes, cracks, cavities, rot, loose bark, woodpecker holes; or trees with a girth greater than 1 m at chest height?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	•					•	•	•		•				•	•	•		

1.	2. (Yes/No)	European Protected Species				Nationally Protected Species (for species groups links to the relevant legislation are provided)								Priority Species ( <a href="#">Link</a> to national List)					
		Bats	Dormouse	Great Crested Newt	Otter	Badger	Barn Owl	Breeding Birds	Invertebrates	Native crayfish	Other Protected Birds	Plants (inc. fungi, ferns and bryophytes)	Reptiles	Water Vole	Birds	Fungi	Invertebrates	Mammals	Plants (inc. ferns and bryophytes)
Does the application site involve disturbance, modification, demolition or construction on/in: gravel pits; quarries; natural cliff faces; or rock outcrops?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	•		•		•		•	•		•	•	•		•		•	•	•
Does the application site contain or is it within 100m of a pond or other water-body (500m for major developments)? It can be permanent or ephemeral (sometimes dries out)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			•				•							•		•		•
Does the application site contain or is it adjacent to grassland such as meadows, parkland or pasture?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	•		•		•					•	•				•	•	•	•
Does the application site contain previously-developed, derelict or brownfield land; or railway land?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	•		•		•	•	•	•		•	•			•		•		
Does the application involve the modification, disturbance or removal of: mature or over-grown gardens; rough grassland; scrubland or allotments?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	•	•	•		•		•			•	•	•		•		•	•	•
Does the application involve disturbance or removal of a compost heap?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>											•							

1.	2. (Yes/No)	European Protected Species				Nationally Protected Species (for species groups links to the relevant legislation are provided)							Priority Species ( <a href="#">Link</a> to national List)						
		Bats	Dormouse	Great Crested Newt	Otter	Badger	Barn Owl	Breeding Birds	Invertebrates	Native crayfish	Other Protected Birds	Plants (inc. fungi, ferns and bryophytes)	Reptiles	Water Vole	Birds	Fungi	Invertebrates	Mammals	Plants (inc. ferns and bryophytes)
Does the application involve the modification, disturbance or removal of arable field(s) with hedgerow and/or grass margin?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>							•											•
Does the application site contain or is it within 50m of coastal habitats including estuary, rocky shore, sand dunes and saltmarsh, grazing marsh?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				•				•					•					•
Does the application site contain or is it adjacent to heathland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	•	•			•		•	•		•	•	•		•	•	•	•	•

If you have answered ‘yes’ to any of the questions above please complete [Table 3.2 \(Species Evaluation\)](#) on the following page.

If you have answered ‘no’ to all of the questions above please proceed to [Step 4](#).

Please complete column 2 of Table 3.2 below followed by column 3 as appropriate.

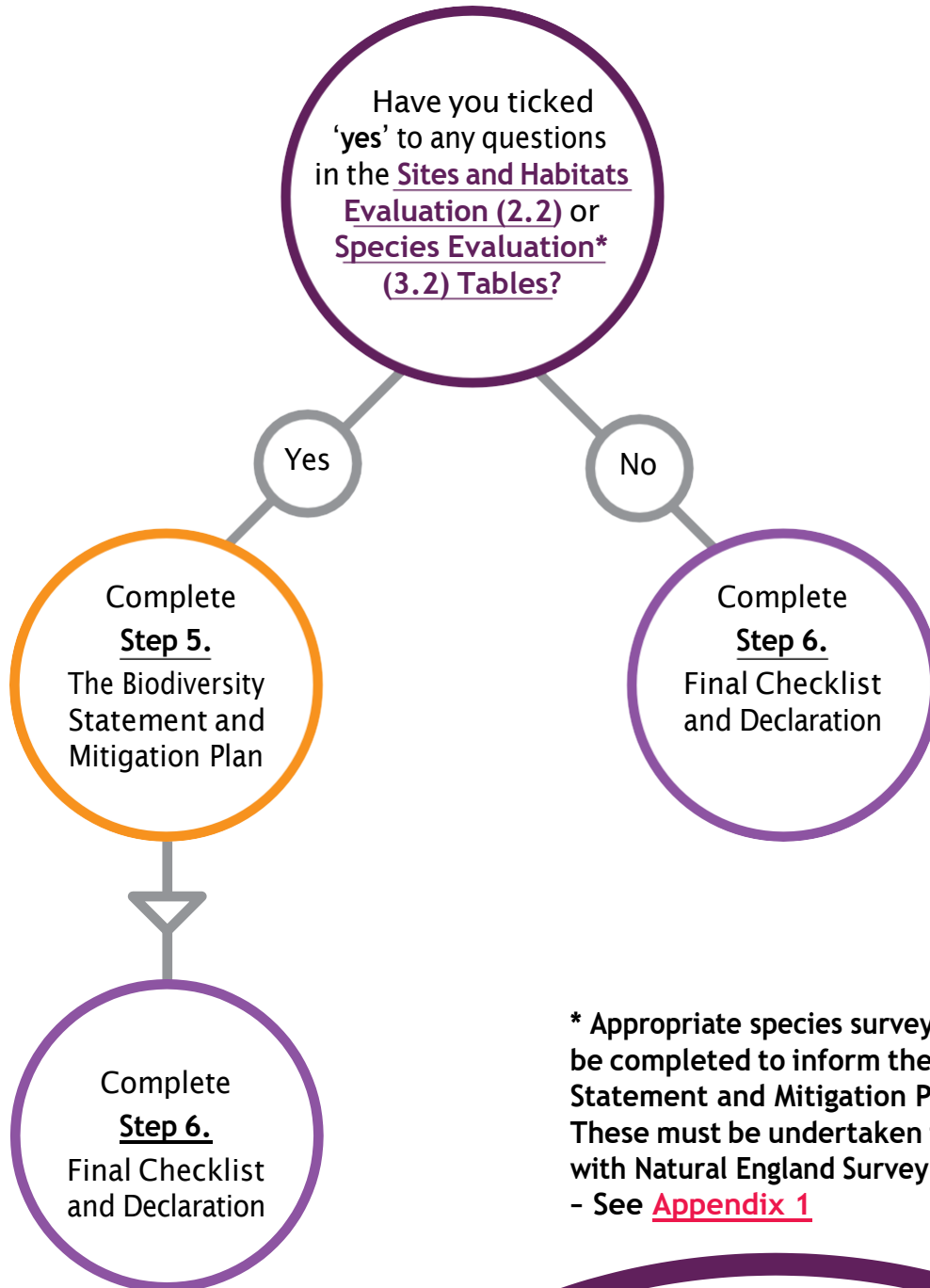
**Table 3.2 - Species Evaluation**

1.	2.	3.
<p><b>Species</b> (Identified following the completion of Table 3.1)</p>	<p>Is there a ‘reasonable likelihood’ that the development will affect a species in column 1 prior to applying mitigation? (Tick as appropriate)</p>	<p>Where you have answered ‘yes’ name the species and summarise any possible direct or indirect effects that may occur during construction or operation.</p> <p><b>Appropriate species surveys will need to be completed to inform the Biodiversity Statement and Mitigation Plan (Step 5). These must be undertaken in accordance with Natural England Survey Requirements - See <a href="#">Appendix 1</a></b></p> <p>Where you have answered ‘no’ please provide a concise statement to support your answer.</p>
<p>European Protected Species</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Bats. Prior to mitigation possible effects arising from construction and operation include loss of habitat and increased lux levels.</p> <p>Ecology Update and Walkover Survey Note and Ecological Assessment for more information.</p>

1.	2.	3.
Nationally Protected Species	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<p>Hedgehogs, birds and reptiles. Prior to mitigation possible effects arising from construction and operation include death / injury, loss of habitat and increased lux levels.</p> <p>Ecology Update and Walkover Survey Note and Ecological Assessment for more information.</p>
Priority Species	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<p>See Nationally Protected Species above, and Ecology Update and Walkover Survey Note and Ecological Assessment for more information.</p>



## Step 4. Is a Biodiversity Statement and Mitigation Plan Required?



\* Appropriate species surveys will need to be completed to inform the Biodiversity Statement and Mitigation Plan (Step 5). These must be undertaken in accordance with Natural England Survey Requirements - See [Appendix 1](#)



## Step 5. Biodiversity Statement and Mitigation Plan

If you have answered 'yes' to any questions in the [Sites and Habitats Evaluation \(2.2\)](#) or [Species Evaluation \(3.2\) Tables](#) you must submit a Biodiversity Statement and Mitigation Plan incorporating the findings of the Preliminary Ecological Appraisal.

The Biodiversity Statement and Mitigation Plan must include the following:

1. A map showing the location of protected sites on or within 2km of the application site boundary (see [Appendix 2](#)).
2. An Extended [Phase 1 Habitat Survey](#) which shows the location and extent of habitats that could be affected by the proposals; together with the features associated with Protected or Priority species.
3. Relevant Protected and/or Priority Species Surveys including results and methods\* in accordance with Natural England's Standing Advice for Protected Species Survey Requirements (See [Appendix 1](#)).
4. A qualitative evaluation of the value and likely impacts/effects upon each biodiversity feature (habitat, species or, where appropriate, species assemblage). This should adopt the same approach to the evaluation and identification of impacts as recommended by the Chartered Institute of Ecology and Environmental Management (CIEEM) in their [Ecological Impact Assessment \(EclA\) Guidelines](#).
5. If you have answered 'yes' to any questions in **Table 2.2 Sites and Habitats Evaluation** - a quantitative evaluation of the application site's habitats using Defra's [Biodiversity Offsetting Metric](#) i.e. a calculation showing the number of Biodiversity Units within the application site boundary before and after development. An [impact calculator](#) for developers is available on the Environment Bank [website](#).
6. For each biodiversity feature that will be adversely affected a Mitigation Plan detailing:
  - a. How adverse impacts will be avoided\*\*, reduced and/or mitigated\*\*\*.
  - b. How any residual impacts that cannot be avoided and/or mitigated will be compensated\*\*\* for off-site.
  - c. Where appropriate, how mitigation or compensation measures will be managed, resourced and monitored post-permission. Detailed guidance about the format of long-term mitigation and habitat management plans can be provided upon request.
7. Proposals for biodiversity enhancements. This is strongly encouraged for all developments, but especially for applications that occur within recognised local ecological networks such as a [Living Landscape Area](#) or the [Greater Thames Marshes Nature Improvement Area \(NIA\)](#).

All habitat creation or restoration measures should be focused upon local conservation priorities as defined by the [Essex Biodiversity Action Plan](#).

*\*This should clearly describe the survey work undertaken. Simply stating national survey guidelines were followed is not sufficient.*

*\*\*where the final location or design of the development is not necessarily the least harmful to biodiversity, the overriding technical reasons for this choice must be clearly evidenced.*

*\*\*\*Habitat mitigation and/or compensation measures must be expressed in Biodiversity Units (See Defra's Biodiversity Offsetting Metric).*

# Supporting Notes

## BS 42020 - a code of practice for biodiversity in planning and development

BS 42020 is a standard developed by the British Standards Institution (BSI) in association with biodiversity experts and stakeholders from across all sectors. The standard provides clear recommendations and guidance to ensure that actions and decisions taken at each stage of the planning process are informed by sufficient and appropriate ecological information. The BSI has produced a smart guide that provides an introduction to the benefits of BS 42020 [smart guide](#).

### European Protected Species

Please note that for European Protected Species a mitigation licence may be required – post planning permission - in order to carry out the development should permission be granted. It is important that you refer directly to Natural England the licensing body for further guidance, and submit any relevant correspondence with this checklist.

However, The Conservation of Habitats and Species Regulations 2010 requires the Local Planning Authority (LPA) to consider ‘Three Tests’ when determining a planning application that may affect a European Protected Species. These ‘tests’ can be summarised as follows:

- Is there a genuine need and ‘purpose’ for the proposed development?
- Are there any satisfactory alternatives to delivering and meeting the need in the way proposed?
- Will there be any adverse effect on the conservation status of the species concerned?

If there is a risk of European Protected Species being impacted by the development the applicant must submit sufficient evidence to enable these tests to be satisfactorily addressed by the LPA.

Further guidance is provided in the Natural England publication ‘[European Protected Species and the Planning Process](#)’.

European Protected Species are those animals listed under Schedule 2 or plants listed under Schedule 5 of the Conservation of Habitats and Species Regulations 2010. The term European Protected has not been used for ‘Nationally Protected Species’ with no protection under the Regulations, but which are listed under Schedule II and/or V of the European Habitats Directive. For example the native crayfish.

### Wild Birds

Reg 9A(8) of The Conservation of Habitats and Species Regulations 2010 states that “a competent authority in exercising any function in the UK must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds”. Applicants must demonstrate clearly how any such deterioration or pollution of wild bird habitat will be avoided by the proposed development.

### Environmental Impact Assessment (EIA)

Where a formal Environmental Impact Assessment (EIA) is required under the [EIA Regulations](#) the Biodiversity Statement & Mitigation Plan should be incorporated in to the Ecology chapter of the Environmental Statement subject to any Scoping Opinion issued by the Planning Authority.

### Biodiversity Offsetting

The Biodiversity Offsetting Metric provides a standardised and transparent approach to ensuring mitigation and compensation measures are sufficient to secure no-net-loss of biodiversity. The metric is a stand-alone tool – its use does not assume a need for off-site compensation. Indeed, it can be used to quantify the positive benefits of onsite mitigation or enhancement measures.

### Natural England Discretionary Advice Service.

Natural England has a Discretionary Advice Service (DAS) which operates to provide advice for applications prior to submission. This service includes a limited amount of free Initial Advice, followed by Charged Advice for more complex requests. It is strongly recommended that you contact them to discuss the advice you require prior to submitting your application.

Further details are available on their [website](#).

Please go to [Step 6](#).

# Step 6. Final Checklist and Declaration

This must be submitted along with every application to ECC, if the checklist is not completed correctly the application may not be valid.

Applicant Only			Office Only	
Step	Item	Tick if Included	Required	Included
Step 1	Preliminary Ecological Appraisal*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Biological Records Search *	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Step 2	Table 2.1 Sites & Habitats checklist	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Table 2.2 Sites & Habitats evaluation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Step 3	Table 3.1 Species checklist	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Table 3.2 Species evaluation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Step 5	Biodiversity Statement & Mitigation Plan **	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Correspondence from Natural England/Environment Agency/ Other Conservation Body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\*Should be incorporated in to the Biodiversity Statement & Mitigation Plan where one is required.

\*\*Must be incorporated in to the Ecology chapter of an ES if an EIA is required.

Signed:	<input type="text"/>	Date:	<input type="text"/>
	Applicant		
Name:	<input type="text"/>		
Address:	<input type="text"/>		

Please note that in all circumstances legislation pertaining to protected species still applies and it is the responsibility of the developer to ensure that protected species and sites are not adversely affected as a result of development.

Thank you for completing this checklist. Please submit it, along with all supporting information, with your application.

# Appendix 1 - Guidelines for Surveys

Links to Natural England's Standing Advice for Protected Species (Survey Requirements):

- [What should detailed survey reports for protected species include?](#)
- [Great Crested Newt](#)
- [Badger](#)
- [Bats](#)
- [Barn Owl](#)
- [Birds](#)
- [Dormouse](#)
- [Invertebrates](#)

Due to the recognised value of invertebrate assemblages associated with brownfield sites in Essex, Natural England have produced specific local Standard Advice which is available [here](#).

- [Native crayfish](#)
- [Otter](#)
- [Reptiles](#)
- [Water Vole](#)
- [Plants](#)

## Other Guidance:

Natural England has produced [Standing Advice for Ancient Woodland and Veteran Trees](#) and this should be referred to in the preparation of the Biodiversity Statement where Ancient Woodland and/or Veteran Trees are likely to be affected.

The Chartered Institute of Ecology and Environmental Management '[Sources of Survey Methods](#)' (SoSM) should be referred to for survey methodologies for Priority Species not covered by Natural England's Standing Advice.

## Appendix 2 - Biodiversity features that must be shown on an Ordnance Survey base map at an appropriate scale

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- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Ramsar Site
- Site of Special Scientific Interest (SSSI)
- National Nature Reserve (NNR)
- Ancient Woodland
- Local Wildlife Site (LoWS)
- Special Roadside Verge

# Glossary

**Ancient or veteran tree:** A tree which, because of its great age, size or condition is of exceptional value for wildlife, in the landscape, or culturally.

**Ancient woodland:** An area that has been wooded continuously since at least 1600 AD.

**Biodiversity Action Plan (BAP):** Biodiversity Action Plans (BAPs) arose from the signing of the Convention on Biological Diversity in 1992, an international treaty signed by 150 nations including the UK, pledging to conserve biodiversity. BAPS are broken down into Species Action Plans (SAPs) and Habitat Action Plans (HAPs) and cover species and habitats considered threatened. These are known as 'Priority' species and habitats. Each Plan contains a definition of the habitat or species, describes the threats they face and the objectives and targets need to be met to conserve them. BAPS currently cover 1149 Priority species and 65 Priority habitats.

**Ecological networks:** These link sites of biodiversity importance.

**Environmental Impact Assessment (EIA):** A procedure to be followed for certain types of project to ensure that decisions are made in full knowledge of any likely significant effects on the environment.

**European Protected Site:** This includes candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and potential Special Protection Areas, and is defined in regulation 8 of the Conservation of Habitats and Species Regulations 2010.

**International, national and locally designated sites of importance for biodiversity:** All international sites (Special Areas of Conservation, Special Protection Areas, and Ramsar sites), national sites (Sites of Special Scientific Interest) and locally designated sites including Local Wildlife Sites.

**Living Landscapes:** Living Landscapes are large landscape-scale areas of the countryside, such as river valleys, estuaries, forested ridges, and grass and heath mosaics, which form ecological networks. The networks allow wildlife to move through them and increase their resilience to threats such as climate change, floods, drought, sea-level rise and development pressure. There are 80 Living Landscapes within Essex.

**Local planning authority:** The public authority whose duty it is to carry out specific planning functions for a particular area. All references to local planning authority apply to the district council, borough council and county council to the extent appropriate to their responsibilities.

**Nature Improvement Area:** Inter-connected network of wildlife habitats intended to re-establish thriving wildlife populations and help species respond to the challenges of climate change.

**NPPF:** National Planning Policy Framework. This document sets out the government's planning policies for England and how they are expected to be applied. It provides guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications.



**Previously developed land:** Land which is or was occupied by a permanent structure, including the curtilage of the developed land (although it should not be assumed that the whole of the curtilage should be developed) and any associated fixed surface infrastructure. This excludes: land that is or has been occupied by agricultural or forestry buildings; land that has been developed for minerals extraction or waste disposal by landfill purposes where provision for restoration has been made through development control procedures; land in built-up areas such as private residential gardens, parks, recreation grounds and allotments; and land that was previously-developed but where the remains of the permanent structure or fixed surface structure have blended into the landscape in the process of time.

**Priority habitats and species:** Species and Habitats of Principal Importance included in the England Biodiversity List published by the Secretary of State under section 41 of the Natural Environment and Rural Communities Act 2006.

**Qualifying species:** Those plants or animals found on the legal list of qualifying species for which a Special Area of Conservation, Special Protection Area or Ramsar site has been selected and is managed.

**Ramsar sites:** Wetlands of international importance, designated under the 1971 Ramsar Convention.

**Special Areas of Conservation:** Areas given special protection under the European Union's Habitats Directive, which is transposed into UK law by the Habitats and Conservation of Species Regulations 2010.

**Special Protection Areas:** Areas which have been identified as being of international importance for the breeding, feeding, wintering or the migration of rare and vulnerable species of birds found within European Union countries. They are European designated sites, classified under the Birds Directive.

**Site of Special Scientific Interest:** Sites designated by Natural England under the Wildlife and Countryside Act 1981.

**Stepping stones:** Pockets of habitat that, while not necessarily connected, facilitate the movement of species across otherwise inhospitable landscapes.

**Wildlife corridor:** Areas of habitat connecting wildlife populations.

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**Appendix B - Ecological Assessment [dated: Oct 2021] by Ecology Solutions**



**ECOLOGY**SOLUTIONS

Part of the ES Group

WARISH HALL FARM,  
TAKELEY,  
ESSEX

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## CONTENTS

1	INTRODUCTION	1
2	SURVEY METHODOLOGY	2
3	ECOLOGICAL FEATURES	9
4	WILDLIFE USE OF THE SITE	11
5	ECOLOGICAL EVALUATION	24
6	PLANNING POLICY CONTEXT	34
7	SUMMARY AND CONCLUSIONS	37

## PLANS

PLAN ECO1	Site Location and Ecological Designations
PLAN ECO2	Ecological Features
PLAN ECO3a	Bat Activity Transect and Remote Detector Locations
PLAN ECO3b	Bat Activity Survey Results 20.05.21
PLAN ECO3c	Bat Activity Survey Results 22.06.21
PLAN ECO3d	Bat Activity Survey Results 15.07.21
PLAN ECO3e	Bat Activity Survey Results 12.08.21
PLAN ECO3f	Bat Activity Survey Results 08.09.21
PLAN ECO4	Dormouse Equipment Distribution
PLAN ECO5a	Wintering Bird Survey Results 22.01.21
PLAN ECO5b	Wintering Bird Survey Results 10.02.21
PLAN ECO5c	Wintering Bird Survey Results 23.02.21
PLAN ECO6a	Breeding Bird Survey Results 16.04.21
PLAN ECO6b	Breeding Bird Survey Results 25.05.21
PLAN ECO6c	Breeding Bird Survey Results 23.06.21
PLAN ECO7	Reptile Survey Results
PLAN ECO8	Pond Locations and Results of eDNA Testing

## **PHOTOGRAPHS**

PHOTOGRAPH 1	Arable Field
PHOTOGRAPH 2	Broadleaved Woodland
PHOTOGRAPH 3	Eastern Hedgerow
PHOTOGRAPH 4	Southern Hedgerow
PHOTOGRAPH 5	Pond 7
PHOTOGRAPH 6	Drainage Ditch

## **APPENDICES**

APPENDIX 1	Information downloaded from Multi-Agency Geographic Information for the Countryside (MAGIC)
APPENDIX 2	Wintering Bird Survey Results
APPENDIX 3	Breeding Bird Survey Results
APPENDIX 4	Great Crested Newt eDNA Survey Results

## **1. INTRODUCTION**

### **1.1. Background & Proposals**

- 1.1.1. Ecology Solutions was commissioned in October 2020 by Weston Homes PLC, following their acquisition of the site in September 2020, to undertake an ecological assessment of the proposed development at Warish Hall Farm, Takeley, Essex (see Plan ECO1).
- 1.1.2. The proposals for the site are for a mixed-use development including residential and employment areas, as well as local amenities.

### **1.2. Site Characteristics**

- 1.2.1. The site is approximately 22.5ha in size and comprises largely arable fields, made up of Bull Field in the south, 7 Acres in the northwest and Jacks Field in the far east, with associated field margins, hedgerows and ditches. Prior's Wood Local Wildlife Site (LWS), an area of ancient and semi-natural woodland dominates the north of the site.
- 1.2.2. The site is located to the north of Takeley, approximately 1.4km south of London Stansted Airport and approximately 1.6km northeast of Hatfield Forest Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR). It is bounded to the south and east by residential properties. Arable fields and the A120 are present to the north. Weston Homes PLC headquarters border the site to the west.

### **1.3. Ecological Assessment**

- 1.3.1. This document assesses the ecological interest of the site. The importance of the habitats within the site is evaluated with due consideration given to the guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM)<sup>1</sup>.
- 1.3.2. Where necessary, mitigation measures are recommended so as to safeguard any significant existing ecological interest within the site and, where appropriate, potential enhancement measures are put forward and reference made to both national and local biodiversity priorities.

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<sup>1</sup>CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.1 – Updated September 2019. Chartered Institute of Ecology and Environmental Management, Winchester.



## **2. SURVEY METHODOLOGY**

2.1. The methodology utilised for the survey work can be split into three areas, namely desk study, habitat survey and faunal survey. These are discussed in more detail below.

### **2.2. Desk Study**

2.2.1. In order to compile background information on the site and the surrounding area, Ecology Solutions contacted Essex Field Club and Essex Wildlife Trust.

2.2.2. Further information on designated sites from a wider search area was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC)<sup>2</sup> database. This information is reproduced in Appendix 1 and where appropriate on Plan ECO1.

### **2.3. Habitat Survey**

2.3.1. A habitat survey was carried out by Ecology Solutions in October 2020, with a subsequent walkover survey carried out in April 2021, in order to ascertain the general ecological value of the site and to identify the main habitats and associated plant species.

2.3.2. The site was surveyed based around extended Phase 1 survey methodology<sup>3</sup>, as recommended by Natural England, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail.

2.3.3. Using the above method, the site was classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified.

2.3.4. All the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent at different seasons. The initial surveys were undertaken outside the optimal period for Phase 1 surveys (which is April to September inclusive) as Weston Homes only acquired the site at the end of this period. Nonetheless, given the habitats present, it is considered an accurate and robust assessment has been made of the botanical interest and further visits have subsequently been made to the site.

### **2.4. Faunal Survey**

2.4.1. Obvious faunal activity, such as birds or mammals observed visually or by call during the course of the surveys, was recorded. Specific attention was

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<sup>2</sup><http://www.magic.gov.uk>

<sup>3</sup>Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*. England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

paid to any potential use of the site by protected species, priority species, or other notable species.

- 2.4.2. In addition to general observations of faunal activity, special attention was paid to the potential presence of bats, Badgers *Meles meles*, Dormice, wintering and breeding birds, reptiles and Great Crested Newts *Triturus cristatus*.

#### *Bats*

- 2.4.3. All trees within the site were assessed in October 2020 for their potential to support roosting bats. Features typically favoured by bats were searched for, including:

- Obvious holes, e.g. rot holes and old Woodpecker holes;
- Dark staining on the tree, below the hole;
- Tiny scratch marks around a hole from bat claws;
- Cavities, splits and or loose bark from broken or fallen branches, lightning strikes etc.; and
- Very dense covering of mature Ivy over trunk.

- 2.4.4. On account of the site possessing moderate to high suitability for foraging and commuting bats, bat activity transects were recommended with six transects having been completed monthly from April to September 2021. A further survey will be carried out in October 2021.

- 2.4.5. The survey was undertaken across set routes (transects) that covered the majority of the site with the aim of identifying any bats using the site for foraging or dispersal.

- 2.4.6. In order to maximise the encounter rate of bats (i.e. of both early- and late-emerging species), transects commenced around sunset and continued until 120 minutes after sunset.

- 2.4.7. Surveyors observed the behaviour of any bat recorded (i.e. foraging or commuting) together with noting the species and number of bats present at each location.

- 2.4.8. Surveys were conducted when the night-time temperature was at least 10°C. The insectivorous diet of bats means there is little or no food available when temperature falls below this level and consequently bat activity levels are low and may not accurately reflect the value of the site for bats. The weather conditions for the surveys were recorded and any limitations noted.

- 2.4.9. Experienced surveyors were equipped with iPads paired with Echo Meter Touch 2 PRO bat detectors, and all recorded data was subject to analysis via Kaleidoscope software.

- 2.4.10. Three static SM4BAT detectors were placed within the site for a minimum of five consecutive nights on a monthly basis from April to September 2021. The detectors were programmed to record from 30 minutes before sunset to 30 minutes after sunrise.

- 2.4.11. Field surveys were undertaken with regard to best practice guidelines issued by Natural England (2004<sup>4</sup>), the Joint Nature Conservation Committee (2004<sup>5</sup>) and the Bat Conservation Trust (2016<sup>6</sup>).
- 2.4.12. Weather conditions in April 2021, where temperatures dropped below 10°C, and technical failures of remote detectors deployed in May 2021, are constraints to the survey effort. However, these constraints do not affect the overall conclusions of the comprehensive series of bat surveys undertaken across the season.

#### *Badgers*

- 2.4.13. The surveys comprised two main elements: firstly, searching thoroughly for evidence of Badger setts. If any setts were encountered each sett entrance was noted and plotted, even if the entrance appeared disused. The following information was recorded:
- i) The number and location of well used or very active entrances; these are clear of any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently.
  - ii) The number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance or have plants growing in or around the edge of the entrance.
  - iii) The number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be together with the remains of the spoil heap.
- 2.4.14. Secondly, evidence of Badger activity such as well-worn paths, run-throughs, snagged hair, footprints, latrines and foraging signs was recorded so as to build up a picture of the use of the site by Badgers.

#### *Dormice*

- 2.4.15. A nest tube and nest box survey for Dormouse was undertaken in suitable areas of hedgerow and woodland within the site. Surveys were completed monthly between May and September 2021.
- 2.4.16. Features of importance to Dormice include diverse well-structured hedgerows and woodland offering a range of food sources throughout the year. Good arboreal links through the canopy layer of hedgerows / woodlands are required along with suitably dense cover for nest sites and good hibernation sites. Typical indicator tree / plant species include Hazel *Corylus avellana*, Honeysuckle *Lonicera periclymenum* and Bramble

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<sup>4</sup>Mitchell-Jones, A. J. (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough.

<sup>5</sup>Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). *Bat Workers' Manual*. 3<sup>rd</sup> edition. Joint Nature Conservation Committee, Peterborough.

<sup>6</sup> Collins, J. (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3rd Edition. The Bat Conservation Trust, London.

*Rubus fruticosus* agg.; but a mix of other species (such as Oak *Quercus* sp., Ash *Fraxinus excelsior*, Sycamore *Acer pseudoplatanus*, Blackthorn *Prunus spinosa* and Hawthorn *Crataegus monogyna*) can prove equally important and the presence of food sources throughout the active period for Dormice, coupled with the presence of suitable hibernation sites, is of more importance than the presence / absence of any one key indicator species.

- 2.4.17. The survey technique involves the installation and checking of nest tubes and nest boxes within all habitats considered to be species-rich or of potential value to Dormice.
- 2.4.18. The Dormouse nest tubes / boxes utilised were those approved as standard by the Mammal Society. In total, 175 nest tubes and three nest boxes were installed.
- 2.4.19. Nest tubes / boxes were placed in accordance with the guidance provided by the Mammal Society and Natural England<sup>7</sup>. Typically, tubes are placed within scrub, hedgerows and woodland approximately every 20m where suitable locations can be identified. Nest boxes are placed at lower densities but in similarly selected locations as for nest tubes. The nest tubes were attached with wire ties underneath suitably sturdy horizontal branches and positioned approximately 1.5m above ground level on average.
- 2.4.20. The survey has been scored for effort according to the method developed from the South West Dormouse Project and carried through in the second edition of The Dormouse Conservation Handbook (English Nature, 2006)<sup>8</sup>. The system used provides an overall score that reflects the chances of Dormice being discovered if present, and thus provides an indicator of the 'thoroughness' of a survey. This score is based on the number of tubes used and the number of months the tubes were in place.
- 2.4.21. The months of the year are weighted according to the likelihood of recording Dormice, as set out in Table 2.1 below.

Month	Weighting
April	1
May	4
June	2
July	2
August	5
September	7
October	2
November	2

**Table 2.1.** Monthly Score Weighting for Dormouse surveys (Chanin & Woods 2003).

<sup>7</sup> Chanin, P. & Woods, M. (2003). *Surveying Dormice Using Nest Tubes – Results & Experiences from the South West Dormouse Project*. Research Report 524. English Nature, Peterborough.

<sup>8</sup> English Nature (2006). *The Dormouse Conservation Handbook*. English Nature, Peterborough.

- 2.4.22. Generally speaking, the index of effort is calculated based on the use of 50 nest tubes as a standard minimum. The total number of nest tubes deployed was 175, with a further three nest boxes. Tubes were deployed in suitable habitats at the recommended frequency of approximately every 20m, and therefore this is considered to be reasonable survey effort.
- 2.4.23. A score of 20 (or above) is deemed a thorough survey and a score of 15 to 19 may be regarded as adequate where circumstances do not permit more time or more tubes (particularly if other survey methods have also given negative results).
- 2.4.24. A score of 20 has been achieved, meeting the necessary threshold in the survey index.
- 2.4.25. The site does not contain areas dominated by Hazel and therefore hazelnut searches were not employed as part of the Dormouse survey effort.
- 2.4.26. In addition to traditional nest tube and box surveys, footprint tunnel surveys were undertaken within the site, following the recommendations of the Suffolk Wildlife Trust<sup>9</sup>. Footprint tunnel surveys were carried out in concert with the nest tube surveys.
- 2.4.27. Footprint tunnels comprise 65mm square drainpipe tubing containing a plywood insert lined with a sheet of high-quality white card. A non-toxic ink, made from a mix of olive oil and pharmaceutical grade charcoal powder, is applied to ink pads at both entrances, which when passed over will transfer ink from the mammal's feet to the white card. A total of 75 tunnels were deployed along a transect within areas of suitable habitat at approximately 15 to 20m apart, and at a height of approximately 1 to 1.5m off the ground, depending on the habitat present. Tunnels should be checked every two weeks to re-ink the pads and change the white card if required.
- 2.4.28. Dormice have a distinctive footprint compared to those of other small mammals that may use the tunnels, with Dormice displaying three obvious triangles when a good print is captured.
- 2.4.29. Currently, footprint tunnel surveys are only used as a presence / likely absence technique and must be used in combination with at least one other verified survey method. Despite this, footprint tunnels have been shown to have a higher detection rate for areas of scrub and hedgerow than nest tube and box surveys alone.
- 2.4.30. Footprint tunnel surveys should be completed for at least three months, typically between May and October, though the tunnels can be installed as early as late March. As April has a low detection rate, if there are no results recorded for this period then this month should be excluded from the three-month survey period. For areas that are primarily considered to be dispersal corridors, as opposed to permanently occupied by Dormice, the months of September and October should be included.

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<sup>9</sup> Bullion, S., Looser, A. and Langton, S. (2018). An Evaluation of the Effectiveness of Footprint Tracking Tunnels for Detecting Hazel Dormice. *In Practice*, (101), pp.36-41.

### *Wintering Birds*

- 2.4.31. The wintering bird surveys were based on the Common Bird Census (CBC) technique. The CBC involves walking a transect route through the area being studied and recording and plotting all bird species observed or heard and their behaviour.
- 2.4.32. The transect route is chosen so that the entire site is covered and all features likely to support wintering birds are surveyed. Routes and directions were varied between visits so that there was no tendency to visit a particular part of the site later or earlier in the day.
- 2.4.33. The surveys were carried out in the earlier mornings from sunrise and lasted for approximately three hours. Three winter visits were carried out, one in each of January, early February and late February 2021.

### *Breeding Birds*

- 2.4.34. The breeding bird surveys were based on the Common Bird Census (CBC) technique. The CBC involves walking a transect route through the area being studied and recording and plotting all bird species observed or heard and their behaviour.
- 2.4.35. The transect route is chosen so that the entire site is covered and all features likely to support wintering birds are surveyed. Routes and directions were varied between visits so that there was no tendency to visit a particular part of the site later or earlier in the day.
- 2.4.36. The surveys were carried out in the early mornings from sunrise and lasted for approximately three hours. Three surveys were carried out in April, May and June 2021.

### *Reptiles*

- 2.4.37. Specific surveys for reptiles are being carried out across suitable habitat within the site. The methodology utilised principally derived from guidance given in Froglife Advice Sheet 10<sup>10</sup>, the Herpetofauna Workers' Manual<sup>11</sup>, the Herpetofauna Groups of Britain and Ireland's (HGBI) advisory note<sup>12</sup> and Natural England's Standing Advice for Reptiles<sup>13</sup>.
- 2.4.38. Areas of suitable habitat were surveyed for the presence of reptiles using artificial refugia ("tins"). A total of 190 0.5m x 0.5m roofing felt tins were placed within areas of suitable reptile habitat within the site.
- 2.4.39. The tins provide shelter and heat up more quickly than the surroundings in the morning and can remain warmer than the surroundings in the late afternoon. Being ectothermic (cold blooded), reptiles use them to bask

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<sup>10</sup> Froglife (1999) *Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth.

<sup>11</sup> Gent, T and Gibson, S. (2003). *Herpetofauna Workers' Manual*. JNCC, Peterborough.

<sup>12</sup> Herpetofauna Groups of Britain and Ireland (HGBI). (1998). *Evaluating Local Mitigation / Translocation Programmes: Maintaining Best Practice and Lawful Standards*.

<sup>13</sup> Natural England (2011). Standing Advice for Reptiles.  
[http://www.naturalengland.org.uk/Images/Reptile%20feb11\\_tcm6-21712.pdf](http://www.naturalengland.org.uk/Images/Reptile%20feb11_tcm6-21712.pdf).

under and raise their body temperature which allows them to forage earlier and later in the day.

- 2.4.40. To determine presence / absence the tins are checked for reptile activity over seven visits at appropriate times of the day (avoiding the middle of the day when the ambient air temperature is at its highest) in accordance with Natural England guidance. Optimum weather conditions for reptile surveying are temperatures between 10°C and 17°C, intermittent or hazy sunshine and little or no wind.

*Great Crested Newts*

- 2.4.41. To determine the absence / presence of Great Crested Newts within on-site ponds and ponds within 500m of the site, eDNA testing was undertaken. Water samples were taken in accordance with recognised guidelines.
- 2.4.42. Testing for eDNA is a relatively new method to establish absence or presence of Great Crested Newts approved by Natural England. While residing within a waterbody, Great Crested Newts deposit traces of DNA which can be detected through sampling the pond water and undergoing analysis within the laboratory. Water samples can be collected between 15 April and 30 June inclusive.
- 2.4.43. Water samples of any given waterbody are taken in 20 separate locations, with a focus towards areas of high suitability for Great Crested Newts. The samples are then pooled together into a self-supporting Whirl-pak Bag. Once the pooled samples have been mixed thoroughly 15ml of water is removed and transferred into an ethanol filled test tube. This is repeated a further five times leaving six test tubes that contain a mix of the sampled water and ethanol. These are then sent to a laboratory to undergo analysis.
- 2.4.44. Within the laboratory the samples are pooled together and tested via real time PCR (or q-PCR) in order to amplify select parts of the DNA allowing it to be detected and measured. A result of presence or absence is returned by the laboratory. However, if found to be present, no measure of the population size is obtained through this survey method.
- 2.4.45. If presence is confirmed a more detailed survey may be required, to inform the Natural England licensing process. This would typically take the form of bottle trapping, torching and egg searches. These surveys are undertaken between mid-March to mid-June.

### 3. ECOLOGICAL FEATURES

3.1. A habitat survey was undertaken of the site by Ecology Solutions in October 2020, with a subsequent walkover survey completed in April 2021. The following main habitat / vegetation types were identified within the site:

- Arable;
- Field Margin;
- Woodland;
- Hedgerow;
- Pond; and
- Ditch.

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

#### 3.3. Arable

3.3.1. The majority of the site is dominated by an arable field which was ploughed at the time of the initial habitat survey (see Photograph 1).

3.3.2. Jack's Field in the east of the site had been left fallow at the time of the initial habitat survey completed in October 2020 and comprised a range of recolonising species, with frequently occurring Creeping Buttercup *Ranunculus repens*, Creeping Thistle *Cirsium arvense*, Spear Thistle *Cirsium vulgare*, Broad-leaved Dock *Rumex obtusifolius*, Common Ragwort *Senecio jacobaea*, Yorkshire Fog *Holcus lanatus*, False Oat-grass *Arrhenatherum elatius* and Cocksfoot *Dactylis glomerata*. The grassland was waterlogged in places, with species such as Tufted Hair-Grass *Deschampsia cespitosa*, Common Fleabane *Pulicaria dysenterica* and Pendulous Sedge *Carex pendula* taking greater prevalence in such areas. The field had subsequently been ploughed at the time of the walkover survey completed in April 2021.

#### 3.4. Field Margin

3.4.1. Field margins are present around the arable fields. The majority of the field margins are narrow and subject to heavy footfall. A wider field margin is present to the north of Prior's Wood. All field margins comprise a rough semi-improved grassland sward. Species present include Perennial Rye Grass *Lolium perenne*, Cocksfoot, False Oat-grass, False Brome *Brachypodium sylvaticum*, Cow Parsley *Anthriscus sylvestris*, Cleavers *Galium aparine*, Dandelion *Taraxacum officinale*, Groundsel *Senecio vulgaris*, White Dead-Nettle *Lamium album*, Couch *Elytrigia repens*, Ribwort Plantain *Plantago lanceolata*, Creeping Thistle, Common Field Speedwell *Veronica persica*, Greater Plantain *Plantago major*, Annual Meadow-grass *Poa annua*, Shepherd's-purse *Capsella bursa-pastoris*, Common Nettle *Urtica dioica*, Wood Avens *Geum urbanum*, Bristly Ox-tongue *Helminthotheca echioides*, Oxeye Daisy *Leucanthemum vulgare*, Common Ragwort, Creeping Buttercup, Yarrow *Achillea millefolium*, Dove's-foot Crane's-bill *Geranium molle* and Spear Thistle.



### 3.5. Woodland

- 3.5.1. Prior's Wood is an area of ancient and semi-natural woodland that lies in the centre of the site (see Photograph 2). The woodland contains no ancient or veteran specimens and primarily consists of Hornbeam *Carpinus betulus*, with significant components of Oak *Quercus robur*, Ash *Fraxinus excelsior*, Hawthorn *Crataegus monogyna* and Hazel *Corylus avellana*, with Field Maple *Acer campestre*, Elm *Ulmus* sp., Willow *Salix* sp., European Larch *Larix decidua* and Scots Pine *Pinus sylvestris* found in small numbers. The understorey of the woodland is virtually absent and the canopy closed throughout. The field layer lacks variety and is dominated by Bramble *Rubus fruticosus* in most areas with some Dog's Mercury *Mercurialis perennis*, Ivy *Hedera helix*, Wood-sedge *Carex sylvatica*, Pendulous Sedge, Wood Avens, False Brome and Oxlip *Primula elatior* also present. It is clear that the woodland has been unmanaged for many years and suffers from significant browsing by deer.

### 3.6. Hedgerow

- 3.6.1. Hedgerows are present at the boundaries of the arable fields (see Photographs 3 and 4). Species present include Hawthorn, Blackthorn *Prunus spinosa*, Hazel, Field Maple, Bramble, Dog Rose *Rosa canina*, Ivy, Elder *Sambucus nigra*, and Oak.
- 3.6.2. The hedgerow in the east of the site that runs parallel to Smiths Green had been cut following routine maintenance back between the initial survey completed in October 2020 and the walkover completed in April 2021.

### 3.7. Pond

- 3.7.1. Three ponds are present within Prior's Wood, with a further pond present on the eastern boundary of the site. All ponds were wet at the time of the survey in both October and April and lacked aquatic vegetation (see Photograph 5).

### 3.8. Ditch

- 3.8.1. A mix of wet and dry ditches are present across the site, typically associated with hedgerows that bound the arable fields and the woodland edge (see Photograph 6). Pendulous Sedge is dominant where ditches are wet, but otherwise all ditches lack aquatic vegetation.

### 3.9. Background Records

- 3.9.1. The desk study returned one record of Bluebell *Hyacinthoides non-scripta* from a location approximately 2.2km west of the site boundary dating from 2018. This species is listed under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended).

#### 4. WILDLIFE USE OF THE SITE

4.1. General observations were made during the surveys of any faunal use of the site, with specific attention paid to the potential presence of protected species.

#### 4.2. Bats

4.2.1. Some of the more mature trees are considered to provide bat roosting potential. The woodland and hedgerows at the boundaries of the site, combined with the network of hedgerows and parcels of woodland immediately off-site, are considered to provide good opportunities for foraging and commuting bats.

##### *Activity Transect Surveys*

4.2.2. Transect surveys were completed on 29 April, 20 May, 22 June, 15 July, 12 August and 8 September 2021.

4.2.3. The surveys were undertaken in favourable weather conditions. Conditions and timings of the surveys are summarised in Table 4.1 below.

Date	29.04.21	20.05.21	22.06.21	15.07.21	12.08.21	08.09.21
Survey Type	Activity	Activity	Activity	Activity	Activity	Activity
Sunset	20:15	20:53	21:21	21:11	20:28	19:30
Survey Start	20:15	20:53	21:21	21:11	20:28	21:30
Survey End	22:15	22:53	23:21	23:11	22:28	21:30
Cloud Cover (%)	0%	50%	40%	20%	30%	0%
Temperature (°C)	10-6	11-12	9-11	16-14	16-18	20-23
Weather & Wind	Light breeze	Moderate breeze with light shower	Light breeze	Light air	Calm and dry	Light breeze

**Table 4.1.** Bat survey conditions and timings.

##### Transect Survey 29.04.21

4.2.4. The activity surveys were carried out across a single route covering the whole of the site. The transect route is illustrated on Plan ECO3a.

4.2.5. No bats were recorded during the activity transect survey.

##### Transect Survey 20.05.21

4.2.6. The activity surveys were carried out across a single route walked in opposite directions by two surveyors covering the whole of the site. The results of the transect are summarised in Table 4.2 below and illustrated on Plan ECO3b.

4.2.7. The survey recorded a low level of foraging activity from Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus*, with activity levels highest to the north of Prior's Wood and the southern boundary of the site. A single Barbastelle *Barbastella barbastellus* was also recorded 47 minutes after sunset.

Survey Night	Species	Number of Registrations	First Registration after sunset
20.05.21	Ppip	73	26 mins
	Ppyg	50	29 mins
	Bb	1	47 mins
20.05.21	Ppip	56	54 mins
	Ppyg	52	54 mins
<b>Total</b>	<b>3</b>	<b>232</b>	

**Table 4.2.** Summary of transect surveys undertaken on 20.05.21<sup>14</sup>.

#### Transect Survey 22.06.21

- 4.2.8. The activity surveys were carried out across a single route walked in opposite directions by two surveyors covering the whole of the site. The results of the transect are summarised in Table 4.3 below and illustrated on Plan ECO3c.
- 4.2.9. The survey again recorded a low level of foraging activity from Common Pipistrelle and Soprano Pipistrelle, with activity levels highest in and around Prior's Wood. Early registrations for both species suggest that roosts may be present on, or within the vicinity of the site.

Survey Night	Species	Number of Registrations	First Registration after sunset
22.06.21	Ppip	40	14 mins
	Ppyg	10	14 mins
22.06.21	Ppip	201	19 mins
	Ppyg	80	18 mins
	Myo	2	1h 25 mins
<b>Total</b>	<b>3</b>	<b>333</b>	

**Table 4.3.** Summary of transect surveys undertaken on 22.06.21.

#### Transect Survey 15.07.21

- 4.2.10. The activity surveys were carried out across a single route walked in opposite directions by two surveyors covering the whole of the site. The results of the transect are summarised in Table 4.4 below and illustrated on Plan ECO3d.
- 4.2.11. As with previous surveys, low levels of foraging activity from Common Pipistrelle and Soprano Pipistrelle were recorded, with activity levels highest in and around Prior's Wood and the west of the site.

<sup>14</sup>In all cases the following abbreviations are used: Bb/Barbastelle *Barbastella barbastellus*; Es/Serotine *Eptesicus serotinus*; Myo/*Myotis* species; Nn/Noctule *Nyctalus noctula*; Nl/Leisler's Bat *Nyctalus leisleri*; Pa/Brown Long-eared Bat *Plecotus auritus*; Psp/Pipistrelle species; Pnat/Nathusius' Pipistrelle *Pipistrellus nathusii*; Ppip/Common Pipistrelle *Pipistrellus pipistrellus*; and Ppyg/Soprano Pipistrelle *Pipistrellus pygmaeus*.

Survey Night	Species	Number of Registrations	First Registration after sunset
15.07.21	Ppip	95	31 mins
	Ppyg	20	35 mins
	Psp	1	1h 40 mins
<b>Total</b>	<b>3</b>	<b>116</b>	

**Table 4.4.** Summary of transect survey undertaken on 15.07.21.

#### Transect Survey 12.08.21

- 4.2.12. The activity surveys were carried out across a single route covering the whole of the site. The results of the transect are summarised in Table 4.5 below and illustrated on Plan ECO3e.
- 4.2.13. A greater assemblage of bats was recorded during the August activity survey, with Noctule *Nyctalus noctula*, Leisler's Bat *Nyctalus leisleri* and Barbastelle recorded in addition to Common and Soprano Pipistrelle. Again, activity levels were highest in and around Prior's Wood and the east of the site.

Survey Night	Species	Number of Registrations	First Registration after sunset
12.08.21	Ppip	71	19 mins
	Ppyg	7	41 mins
	Nn	6	35 mins
	NI	7	37 mins
	Bb	2	1h 5 mins
<b>Total</b>	<b>5</b>	<b>93</b>	

**Table 4.5.** Summary of transect survey undertaken on 12.08.21.

#### Transect Survey 08.09.21

- 4.2.14. The activity surveys were carried out across a single route covering the whole of the site. The results of the transect are summarised in Table 4.6 below and illustrated on Plan ECO3f.
- 4.2.15. Again, low numbers of Common and Soprano Pipistrelle were recorded across the site, with very low numbers of Noctule and Brown Long-eared Bat *Plecotus auritus*. Early registrations for Common and Soprano Pipistrelle again suggest there may be roosts for both species either on or within the vicinity of the site.

Survey Night	Species	Number of Registrations	First Registration after sunset
08.09.21	Ppip	46	18 mins
	Ppyg	38	8 mins
	Nn	5	1h 3 mins
	Pa	2	54 mins
<b>Total</b>	<b>4</b>	<b>91</b>	

**Table 4.6.** Summary of transect survey undertaken on 08.09.21.

#### Remote Surveys

- 4.2.16. SM4BAT detectors were deployed in three locations (as shown on Plan ECO3a) on six occasions to monitor activity across consecutive nights. The results of this work are summarised in Tables 4.7 to 4.12 below.
- 4.2.17. Common Pipistrelle, Soprano Pipistrelle, Noctule, Leisler's Bat and Brown Long-eared Bat were all recorded across the nine nights from 26 April to 4 May.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
26.04.21 – 04.05.21 (9 nights)	Location 1 (E18)	Ppip	87	1 min	
		Ppyg	48	13 mins	
		NI	1	2h 37 mins	
	<b>Total</b>	<b>3</b>	<b>136</b>		
	Location 2 (E24)	Ppip	15	15 mins	4h 49 mins
		Ppyg	1	1h 27 mins	
		NI	3	33 mins	
		Nn	1	30 mins	
		Pa	1	1 hr 29 mins	
	<b>Total</b>	<b>5</b>	<b>21</b>		
	Location 3 (E13)	Ppip	75	18 mins	
		Ppyg	3	36 mins	
		NI	3	24 mins	
	<b>Total</b>	<b>3</b>	<b>81</b>		
	<b>Grand Total</b>	<b>5</b>	<b>238</b>		

**Table 4.7.** Summary of static detector results for 26.04.21 to 04.05.21.

- 4.2.18. A higher level of activity was recorded in May compared to April, though species composition was similar. Owing to technical failures only one static detector (location 2) recorded data.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
20.05.21 – 25.05.21 (5 nights)	Location 2 (E18)	Ppip	507	35 mins	39 mins
		Ppyg	4		20 mins
		Nn	92	6 mins	7 mins
		Myo	2		3h 57 mins
		Pa	1	1h 29 mins	
	Es	1		4h 52 mins	
	Total	6	607		
<b>Grand Total</b>	<b>6</b>	<b>607</b>			

**Table 4.8.** Summary of static detector results for 20.05.21 to 25.05.21.

4.2.19. A high level of activity was recorded in all three locations in June, with most of the registrations attributed to Common Pipistrelle.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
22.06.21 – 29.06.21 (7 nights)	Location 1 (E21)	Ppip	2619	1 min	20 mins
		Ppyg	1342	9 mins	28 mins
		Nn	5	1h 54 mins	1h 7 mins
		NI	38	54 mins	44 mins
		Myo	7	1h 42 mins	1h 33 mins
		Bb	2	57 mins	
	Total	6	4013		
	Location 2 (E20)	Ppip	1689	22 mins	23 mins
		Ppyg	305	22 mins	27 mins
		Nn	14	59 mins	4h 11 mins
		NI	49	1h	32 mins
		Bb	8	27 mins	37 mins
	Total	5	2065		
	Location 3 (E2)	Ppip	271	1 min	22 mins
		Ppyg	73	20 mins	11 mins
		Nn	6	1h 17 mins	37 mins
		NI	23	35 mins	39 mins
		Es	6	58 mins	3h 24 mins
Total	5	379			
<b>Grand Total</b>	<b>7</b>	<b>6457</b>			

**Table 4.9.** Summary of static detector results for 22.06.21 to 29.02.21.

4.2.20. A similar diversity of bats was again recorded across five nights in July, with the majority of the registrations attributed to Common Pipistrelle.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
15.07.21 – 20.07.21 (5 nights)	Location 1 (E6)	Ppip	1961	6 mins	25 mins
		Ppyg	340	21 mins	21 mins
		Pnat	242	2 mins	31 mins
		Nn	3	2h 3 mins	1h 47 mins
		NI	26	1h 16 mins	1h 48 mins
		Es	2		3h 27 mins
		Myo	2	2h 20 mins	3h 27 mins
		Pa	1		3h 34 mins
		Bb	7	37 mins	1h 44 mins
	Total	9	2584		
	Location 2 (E10)	Ppip	526	12 mins	30 mins
		Ppyg	271	14 mins	27 mins
		Nn	6	1h 31 mins	1h 47 mins
		NI	2		1h 8 mins
		Myo	1		2h 11 mins
		Bb	1		2h 8 mins
	Total	6	807		
	Location 3 (E2)	Ppip	161	13 mins	34mins
		Ppyg	96	10 mins	40mins
		Pnat	7	25 mins	
		Nn	2	40 mins	
		Es	1		3h 56 mins
		Pa	5	1h 16 mins	4h 4 mins
	Total	6	272		
<b>Grand Total</b>	<b>9</b>	<b>3663</b>			

**Table 4.10.** Summary of static detector results for 15.07.21 to 20.07.21.

4.2.21. The highest level of activity was recorded across seven nights in August, with a total of 8728 registrations. Again, the majority of these registrations were from Common Pipistrelle.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
05.08.21 – 12.08.21 (7 nights)	Location 1 (E21)	Ppip	1800	3 mins	9 mins
		Ppyg	101	18 mins	24 mins
		Nn	75	11 mins	13 mins
		NI	86	1h 27 mins	57 mins
		Myo	2		5h 38 mins
		Bb	5	2h 17 mins	54 mins
	Total	6	2069		

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
	Location 2 (E18)	Ppip	389	2 mins	18 mins
		Ppyg	980	9 mins	33 mins
		Nn	16	14 mins	30 mins
		NI	20	15 mins	5h 17 mins
	Total	4	1405		
	Location 3 (E5)	Ppip	4668	4 mins	
		Ppyg	581	20 mins	
		Nn	1		2h 54 mins
		NI	4	1h 34 mins	48 mins
	Total	4	5254		
	<b>Grand Total</b>	<b>7</b>	<b>8728</b>		

**Table 4.11.** Summary of static detector results for 05.08.21 to 12.08.21.

4.2.22. Species diversity and number of registrations were lower in September compared with August, with a total of 3363 registrations recorded across five nights.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
08.09.21 – 13.09.21 (5 nights)	Location 1 (E24)	Ppip	2317	12mins	19mins
		Ppyg	144	9mins	15mins
		Nn	3	1h 4mins	
		Myo	1	35mins	
	Total	4	2465		
	Location 2 (E12)	Ppip	49	26mins	2h 33mins
		Ppyg	370	6mins	1h 12mins
		Nn	33	1h 18mins	1h 49mins
		Myo	1	57mins	
	Total	4	453		
	Location 3 (E14)	Ppip	102	2mins	28mins
		Ppyg	335	1min	2mins
		Nn	5	29mins	3h 46mins
		Myo	3	1h 25mins	3h 16mins
	Total	4	445		
	<b>Grand Total</b>	<b>4</b>	<b>3363</b>		

**Table 4.12.** Summary of static detector results for 08.09.21 to 13.09.21.

4.2.23. Registrations close to sunset and sunrise for both Common and Soprano Pipistrelle suggest that there are roosts for these species either within or close to the site. Additionally, Nathusius' Pipistrelle *Pipistrellus nathusii* was recorded at two minutes past sunset and 31 minutes before sunrise



in the west of the site (static detector location 1) in July. This again would suggest that there is a roost for this species in close proximity to this location.

- 4.2.24. The earliest registration for Barbastelle was 27 minutes after sunset on the western edge of Prior's Wood (static detector location 2). Barbastelle are a later emerging species and an emergence at this time could indicate that a roost is present within Prior's Wood.

#### *Background Records*

- 4.2.25. A total 114 records were returned from eight species of bat within the past 10 years. Species of bat include Barbastelle, Daubenton's Bat *Myotis daubentonii*, Natterer's Bat *Myotis nattereri*, Leisler's Bat, Noctule, Common Pipistrelle, Soprano Pipistrelle and Brown Long-eared Bat.
- 4.2.26. Six records of Barbastelle were returned from the data search. The closest record relates to a location approximately 2.1km southwest of the site boundary dating from 2009. The most recent record relates to a location approximately 3.8km northeast of the site boundary dating from 2017.
- 4.2.27. Fourteen records of Daubenton's Bat were returned from Essex Field Club. The closest record relates to a location approximately 0.5km west of the site boundary dating from 2013. The most recent record relates to a location approximately 3.8km northeast of the site boundary dating from 2017.
- 4.2.28. Fourteen records of Natterer's Bat were returned from the data search. The closest and most recent record relates to a location approximately 1.1km southeast of the site dating from 2018.
- 4.2.29. Two records of Leisler's Bat were returned from the desk study. The closest and most recent record relate to a location approximately 2.3km southwest of the site dating from 2015.
- 4.2.30. Five records of Noctule Bat were returned from the data search. The closest record relates to a location approximately 1.8km west of the site dating from 2014. The most recent record relates to a location approximately 2.5km southwest of the site boundary dating from 2018.
- 4.2.31. Thirty-seven records were returned for Common Pipistrelle from the desk study. The closest record relates to a location approximately 0.2km south of the site boundary dating from 2017. The most recent record relates to a location approximately 1km south of the site boundary dating from 2019.
- 4.2.32. Nineteen records of Soprano Pipistrelle were returned from the data search. The closest and most recent record relates to a location approximately 0.9km northeast of the site boundary dating from 2018.
- 4.2.33. Seventeen records of Brown Long-eared Bat were returned from the data search. The closest record relates to a location approximately 0.3km northeast of the site boundary dating from 2013. The most recent record relates to a location approximately 1km southeast of the site boundary dating from 2019.

#### 4.3. **Badgers**

- 4.3.1. No signs of Badger were recorded during the survey. Prior's Wood offers suitable habitat for foraging and sett building, whilst the network of hedgerows offer further foraging and commuting opportunities.
- 4.3.2. Several records of Badger were returned from the desk study within the past 10 years. The closest record relates to a location 0.2km north of the site boundary dating from 2017. The most recent record relates to a location approximately 0.8km east of the site boundary dating from 2019.

#### 4.4. **Dormice**

- 4.4.1. The woodland and extensive network of hedgerows with good structure provide opportunities for Dormouse dispersal and foraging.

##### *Nest Tube and Box Surveys*

- 4.4.2. Nest tube and box surveys for Dormice were undertaken monthly from May to September 2021. No evidence of their presence was recorded. The distribution of the Dormouse tubes is shown on Plan ECO4.

##### *Footprint Tracking Tunnel Surveys*

- 4.4.3. A footprint tunnel survey was undertaken monthly from May to July 2021 with no evidence of Dormouse presence recorded. The distribution of the footprint tracking tunnels is shown on Plan ECO4.
- 4.4.4. No records for Dormice were returned by the data search.

#### 4.5. **Hedgehogs**

- 4.5.1. Owing to the varied habitats present it is considered that the site would support a range of common mammal species. While no evidence was recorded while undertaking surveys, it is considered that the woodland and boundary habitats are suitable for Hedgehog *Erinaceus europaeus* and use by this species cannot be eliminated.
- 4.5.2. Eighteen records of Hedgehog were returned from the data search. The closest record relates to a location approximately 0.2km south of the site boundary dating from 2015. The most recent record relates to a location 0.3km southwest of the site boundary dating from 2016.

#### 4.6. **Other Mammals**

- 4.6.1. A group of seven Fallow Deer *Dama dama* were observed in Jack's Field during the survey. Given the habitats present on site it is thought likely that a range of large and small mammals that are not protected under wildlife legislation, including other species of Deer, will be present.
- 4.6.2. At the request of Place Services (in a letter dated 8 July 2021), consideration has been given to species of principal importance for the conservation of biodiversity under Section 41 (England) of the Natural Environment & Rural Communities (NERC) Act 2006.

- 4.6.3. The site supports suitable habitat for Brown Hare *Lepus europaeus*, though none were observed on site during surveys completed April to September 2021.
- 4.6.4. For the most part, the field margins are narrow and well-trodden and lack the structure necessary for Harvest Mouse *Micromys minutus*; however, Jack's Field, which receives less footfall, does support some limited opportunities at the boundaries.
- 4.6.5. Seventeen records were returned for mammal species including Stoat *Mustela erminea*, Weasel *Mustela nivalis*, Common Shrew *Sorex Araneus*, Pygmy Shrew *Sorex minutus* and Brown Hare. The closest of these records relates to a Stoat approximately 1.9km south west of the site boundary dating from 2018. The most recent record relates to Brown Hare approximately 2.5km east of the site boundary dating from 2019.

#### 4.7. Birds

##### *Wintering Bird Surveys*

- 4.7.1. Wintering bird surveys were conducted in January and February 2021. The prevalent weather conditions and the timings of these surveys are shown below in Table 4.13.

Date	Time	Cloud (%)	Precipitation	Temp (°C)	Wind
22.01.21	08:00 – 11:30	0	Dry	0 - 4	Light breeze
10.02.21	07:30 – 10:20	30	Dry	-2 - -1	Light air
23.02.21	07:10 – 10:05	50	Dry	6 - 9	Light breeze

**Table 4.13.** Wintering bird survey conditions and timings.

- 4.7.2. The results of the wintering bird surveys are detailed below and at Appendix 2 as well as Plans ECO5a to ECO5c.
- 4.7.3. Fifty-two bird species were observed on, flying over or immediately adjacent to the site during the wintering bird surveys. A number of species protected under Section 41 of the NERC Act 2006 and / or listed on the Red List were recorded on site. These include Fieldfare *Turdus pilaris*, House Sparrow *Passer domesticus*, Linnet *Carduelis cannabina*, Mistle Thrush *Turdus viscivorus*, Redwing *Turdus iliacus*, Reed Bunting *Emberiza schoeniclus*, Skylark *Alauda arvensis*, Starling *Sturnus vulgaris*, Song Thrush *Turdus philomelos*, Woodcock *Scolopax rusticola* and Yellowhammer *Emberiza citrinella*.

##### *Breeding Bird Surveys*

- 4.7.4. Three breeding bird surveys were carried out in April, May and June 2021. The prevalent weather conditions and the timings of these surveys are shown in Table 4.14. Weather conditions were considered suitable for observing bird activity.

Date	Time	Cloud (%)	Precipitation	Temp (°C)	Wind
16.04.21	07:30 – 10:15	40	Dry	-1 - 4	Light breeze
25.05.21	06:00 – 08:00	50	Occasional light showers	9	Light breeze
23.06.21	05:00 – 07:00	10	Dry	8 - 10	

**Table 4.14.** Breeding Bird Survey Conditions and Timings.

- 4.7.5. The results of the breeding bird surveys are detailed below and at Appendix 3 as well as Plans ECO6a to ECO6c.
- 4.7.6. Twenty-six bird species were observed on, flying over or immediately adjacent to the site, during the breeding bird surveys. A number of species protected under Section 41 of the NERC Act 2006 and / or listed on the Red List were recorded on site. These include Dunnock *Prunella modularis*, House Sparrow, Mistle Thrush, Starling, Song Thrush and Yellowhammer.
- 4.7.7. The woodland and hedgerows at the boundaries of the site are considered suitable for foraging and nesting birds, and the majority of sightings were recorded within these areas where suitability is favourable, with many notable species present.
- 4.7.8. Recently ploughed and arable fields generally offer negligible ground nesting opportunities for common species.
- 4.7.9. Two pairs of Great Spotted Woodpecker *Dendrocopos major* were confirmed nesting in Prior's Wood. Blue Tit *Cyanistes caeruleus* pairs were recorded as possible breeders nesting adjacent to south woodland boundary. House Sparrow was noted carrying nesting material along southwest field margins.

#### *Background Records*

- 4.7.10. Several notable bird records from within 5km of the site were returned by the data search including 233 records of 19 species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Protected species include Kingfisher *Alcedo atthis*, Pintail *Anas acuta*, Garganey *Anas querquedula*, Greylag Goose *Anser anser*, Goldeneye *Bucephala clangula*, Little Ringed Plover *Charadrius dubius*, Black Tern *Chlidonias niger*, Peregrine *Falco peregrinus*, Hobby *Falco Subbuteo*, Brambling *Fringilla montifringilla*, Mediterranean Gull *Larus melanocephalus*, Black-tailed Godwit *Limosa limosa*, Red Kite *Milvus milvus*, Black-necked Grebe *Podiceps nigricollis*, Greenshank *Tringa nebularia*, Green Sandpiper *Tringa ochropus*, Redwing *Turdus iliacus*, Fieldfare, Whimbrel *Numenius phaeopus* and Barn Owl *Tyto alba*.
- 4.7.11. Kingfisher, Little Ringed Plover, Peregrine, Red Kite, Black-necked Grebe and Green Sandpiper are also designated under Annex 1 of the Birds Directive (as amended).
- 4.7.12. Four of the species listed above were recorded in the southwest corner of site including Red Kite, Fieldfare, Barn Owl and Redwing all dating from 2018. All other records were recorded at distances greater than 0.6km from the site boundary.

- 4.7.13. Owing to the lack of large waterbodies within the site, the site is not considered suitable for many of the species listed above.

#### 4.8. Reptiles

- 4.8.1. The field margins on site are considered to provide suitable opportunities for reptiles.

- 4.8.2. A presence / absence survey for reptiles was completed in May and June 2021. The results of the surveys show that low populations of Grass Snake *Natrix helvetica* and Common Lizard *Zootoca vivipara* are present, with the main areas of interest being the boundaries of Jack's Field and the southern and northern boundaries of Prior's Wood. The results of the surveys undertaken are summarised in Table 4.15 below. The distribution of the reptile tins as well as the location of the reptiles found are shown on Plan ECO7.

Date	Survey	Temp. (°C)	Cloud Cover (%)	Reptiles Recorded
22.05.21	1	18	90	0
25.05.21	2	10 - 12	60	3 aCL
04.06.21	3	17	95	3 jGS, 4 aCL
10.06.21	4	17 - 22	100	4 jGS, 2 aCL
22.06.21	5	15	100	1 jGS, 1 aCL
24.06.21	6	19	5	2 jGS
30.06.21	7	16	100	1 jGS, 3 aCL

**Table 4.15.** Reptile survey results. GS: Grass Snake; CL: Common Lizard; a: adult; m: male; f: female; j: juvenile; u: unsexed.

- 4.8.3. Two records of Common Lizard were returned from the data search approximately 1.6km west of the site boundary dating from 2016.

- 4.8.4. Twenty records for Slow Worm *Anguis fragilis* were returned from the data search. The closest and most recent record relates to a location approximately 0.3km south of the site boundary dating from 2020.

#### 4.9. Amphibians

- 4.9.1. Four ponds are located within the site boundary, with several other ponds falling within 500m of the site boundary. Additionally, the field boundaries provide opportunities for amphibians during their terrestrial phase.

- 4.9.2. The on-site ponds and ponds within 500m of the site were subject to eDNA testing for Great Crested Newt where permission was granted. Due to the current company policy pertaining to Covid-19, ponds that fell within the curtilage of private residences were not tested (see Plan ECO8). The results of the eDNA testing were returned as negative (see Appendix 4), indicating the likely absence of this species.

- 4.9.3. Two records of Great Crested Newt were returned from the data search. The closest and most recent record relates to a location approximately 0.7km north of the site boundary dating from 2018.

- 4.9.4. Four records of Common Toad *Bufo bufo* were returned from the data search. The closest and most recent record relates to a location approximately 1.1km east of the site boundary dating from 2016.

#### 4.10. Invertebrates

- 4.10.1. Given the habitats present it is likely a varied assemblage of common invertebrate species would be present within the site.
- 4.10.2. The desk study returned 54 records of protected species listed under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). Species included Purple Emperor *Apatura iris* and White-letter Hairstreak *Satyrrium w-album*.
- 4.10.3. Forty-eight records for Purple Emperor were returned from the data search. The closest record relates to a location approximately 1.8km south of the site boundary dating from 2015. The most recent record relates to a location approximately 2.6km west of the site boundary dating from 2019.
- 4.10.4. Six records for White-letter Hairstreak were returned from the data search. The closest record relates to a location approximately 2.3km west of the site boundary dating from 2011. The most recent record relates to a location approximately 2.8km west of the site boundary dating from 2019.
- 4.10.5. A large dataset of 1506 records were returned for species listed under Schedule 41 of the NERC Act 2006. Species include Knotgrass *Polygonum aviculare*, Brown-spot Pinion *Agrochola litura*, Beaded Chestnut *Agrochola lychnidis*, Green-brindled Crescent *Allophyes oxyacanthae*, Ear Moth *Amphipoea oculatea*, Mouse Moth *Amphipyra tragopoginis*, Large Nutmeg *Apamea anceps*, Dusky Brocade *Apamea remissa*, Deep-brown Dart *Aporophyla lutulenta*, Sprawler *Asteroscopus sphinx*, Centre-barred Sallow *Atethmia centrigo*, Mottled Rustic *Caradrina Morpheus*, Streak *Chesias legatella*, Latticed Heath *Chiasmia clathrate*, Small Heath *Coenonympha pamphilus*, Small Square-spot *Diarsia rubi*, Figure of Eight *Diloba caeruleocephala*, Small Phoenix *Ecliptopera silaceata*, Dusky Thorn *Ennomos fuscantaria*, Spinach *Eulithis mellinata*, Garden Dart *Euxoa nigricans*, Small Emerald *Hemistola chrysoprasaria*, Ghost Moth *Hepialus humuli*, Rustic *Hoplodrina blanda*, Rosy Rustic *Hydraecia micacea*, White Admiral *Limenitis Camilla*, Brindled Beauty *Lycia hirtaria*, Dot Moth *Melanchra persicariae*, Pretty Chalk Carpet *Melanthia procellata*, Powdered Quaker *Orthosia gracilis*, Dark Spinach *Pelurga comitata*, Large Wainscot *Rhizedra lutosa*, White-letter Hairstreak, Shaded Broad-bar *Scotopteryx chenopodiata*, White Ermine *Spilosoma lubricipeda*, Hedge Rustic *Tholera cespitis*, Feathered Gothic *Tholera decimalis*, Blood-Vein *Timandra comae*, Pale Eggar *Trichiura crataegi*, Cinnabar *Tyria jacobaeae* and Oak Hook-tip *Watsonalla binaria*.
- 4.10.6. The closest of these records relates to Small Heath from a location approximately 0.9km southeast of the site boundary dating from 2015. The most recent of these records also relates to Small Heath from a location approximately 1.6km southwest of the site boundary dating from 2019.

## 5. ECOLOGICAL EVALUATION

### 5.1. The Principles of Ecological Evaluation

- 5.1.1. The guidelines for ecological evaluation produced by CIEEM propose an approach that involves professional judgement, but makes use of available guidance and information, such as the distribution and status of the species or features within the locality of the project.
- 5.1.2. The methods and standards for site evaluation within the British Isles have remained those defined by Ratcliffe<sup>15</sup>. These are broadly used across the United Kingdom to rank sites so priorities for nature conservation can be attained. For example, current Sites of Special Scientific Interest (SSSI) designation maintains a system of data analysis that is roughly tested against Ratcliffe's criteria.
- 5.1.3. In general terms, these criteria are size, diversity, naturalness, rarity and fragility, while additional secondary criteria of typicalness, potential value, intrinsic appeal, recorded history and the position within the ecological / geographical units are also incorporated into the ranking procedure.
- 5.1.4. Any assessment should not judge sites in isolation from others, since several habitats may combine to make it worthy of importance to nature conservation.
- 5.1.5. Further, relying on the national criteria would undoubtedly distort the local variation in assessment and therefore additional factors need to be taken into account, e.g. a woodland type with a comparatively poor species diversity, common in the south of England, may be of importance at its northern limits, say, in the border country.
- 5.1.6. In addition, habitats of local importance are often highlighted within a local Biodiversity Action Plan (BAP). The Essex BAP has been considered as part of this assessment and is referenced where relevant.
- 5.1.7. Levels of importance can be determined within a defined geographical context from the immediate site or locality through to the international level.
- 5.1.8. The legislative and planning policy context are also important considerations and have been given due regard throughout this assessment.

### 5.2. Habitat Evaluation

#### *Designated Sites*

- 5.2.1. **Statutory Sites:** There are no statutory designations of nature conservation value within the site or immediately adjacent to it. The closest statutory designated site is Hatfield Forest SSSI, which lies approximately 1.6km southwest of the site and also incorporates Hatfield Forest NNR.

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<sup>15</sup> Ratcliffe, D A (1977). *A Nature Conservation Review: The Selection of Biological Sites of National Importance to Nature Conservation in Britain*. Two Volumes. Cambridge University Press, Cambridge.

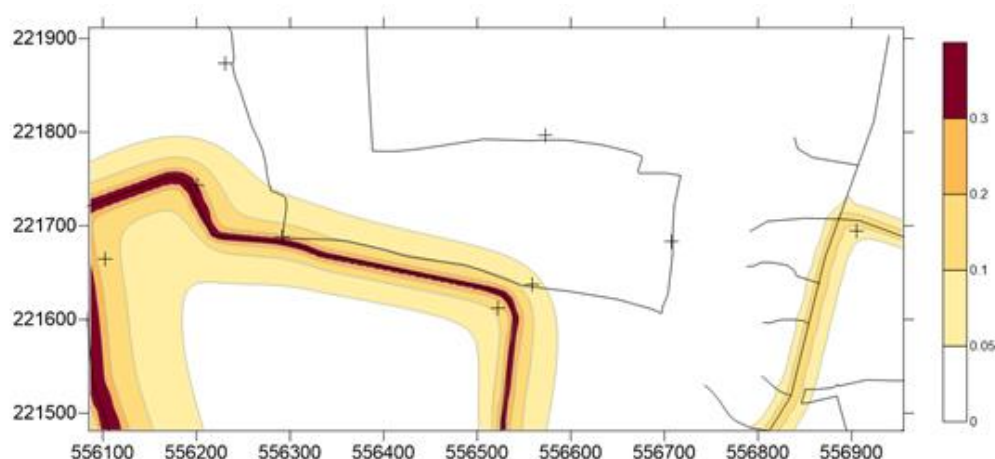
- 5.2.2. Hatfield Forest is the only Royal Hunting Forest to remain virtually intact in character and composition. Approximately 403.2ha in size, Hatfield Forest contains mixed ancient coppice woodland, scrub, unimproved grassland chases and plains with ancient pollards, and herb-rich marshland bordering a large lake. The woodland is predominantly wet Ash-Maple and the Ash-Maple variant of Oak-Hornbeam. Over four hundred species of higher plants have been recorded, including thirty trees and shrubs, and many county rarities with Stinking Hellebore *Helleborus foetidus* and Oxlip *Primula elatior* of national importance. It is comparatively rich in bryophytes and lichens and has locally important insect populations and breeding bird communities, including Nightingale *Luscinia megarhynchos*, Grasshopper Warbler *Locustella naevia*, Water Rail *Rallus aquaticus* and Snipe *Gallinago gallinago*.
- 5.2.3. Uttlesford District Council have published interim advice relating to the emerging strategic approach to Hatfield Forest SSSI and NNR, pending the examination of emerging Local Plans. The interim advice considers recreational impacts and the zone of influence of the designation.
- 5.2.4. The National Trust is in the process of formulating Strategic Access Management Measures (SAMM) which new housing projects can contribute towards. Once this package of measures has been finalised and costed, it will enable a tariff-based system to be worked up, towards calculating proportionate financial contributions to be secured (e.g., within s106 agreements). At the current time, packages are being negotiated on a case-by-case basis, and only the largest schemes (projects of 50 or more units) within the zone of influence of 10.4km are required to contribute in this way.
- 5.2.5. For larger strategic housing sites (100+ units), Natural England further advises that recreational pressure impacts to Hatfield Forest SSSI and NNR are additionally mitigated via the provision of Accessible Natural Greenspace (ANG) to be provided within the red line boundary of the proposed development. The greenspace should be designed to absorb significant proportions of the day-to-day recreational needs of new residents, such as walking, dog walking, jogging / exercise, children's play facilities, and other informal recreation. It should also aim to provide a semi-natural character, with significant proportion of tree / woodland cover.
- 5.2.6. The landscape strategy being provided by the proposed development includes a large area of open space in the east of the site, as well as enhancements and an extension of the woodland. The landscape proposals offer significant and easily accessible recreational resources for new and existing residents, with walking routes that will connect to the existing footpath network.
- 5.2.7. **Non-statutory Sites:** Prior's Wood LWS falls within the site boundary. Prior's Wood LWS is designated for its ancient and semi-natural woodland habitat.
- 5.2.8. Owing to the location of Prior's Wood LWS within the site boundary it is recommended that best practice methods are employed during the construction phase of development to limit potential pollution (dust, noise, surface runoff etc.). Potential effects on the woodland are discussed in more detail in the habitats section below.



- 5.2.9. A number of other non-statutory sites are located in the vicinity and are shown in Plan ECO1.

#### *Habitats*

- 5.2.10. The site is dominated by arable fields of negligible intrinsic nature conservation interest. The hedgerows and ancient woodland are of elevated ecological interest within the context of the site.
- 5.2.11. An Air Quality Assessment for the site has been completed by Aether and includes an assessment of the proposed critical levels upon the ancient woodland.
- 5.2.12. The results of the Air Quality Assessment show that the levels in the southwestern corner of the woodland where the access road will be located are below a Process Contribution (PC) of  $0.3 \mu\text{g}/\text{m}^3$ .
- 5.2.13. The latest Institute of Air Quality Management (IAQM) guidance suggests that the long-term PC should be less than 1% of the long-term environmental standard to be considered to have an insignificant impact on ecological receptors.
- 5.2.14. The impact of the development on the adjacent woodland is considered to fall just below the level of significance (1%), with  $\text{NO}_x$  concentrations increases of 0.8% of the critical level, as shown in Figure 5.1 below. The development is therefore not considered to have a significant impact on Prior's Wood.



**Figure 5.1.** Estimated  $\text{NO}_x$  concentrations due to the development (process contribution) in 2024 ( $\mu\text{g}/\text{m}^3$ ); reproduced from the Aether Air Quality Assessment.

- 5.2.15. An exclusion zone would be marked out with road pins and hazard tape / Heras fencing around the retained woodland, which would be enforced so that the woodland is not damaged during the construction of the road. Safeguarding of retained trees and vegetation would be fully compliant with BS5837:2012 guidance. Contractors would be made aware of which vegetation is to be retained and of their responsibilities. Such detail is able

to be secured through the imposition of a suitable planning condition imposed on the grant of any permission.

- 5.2.16. In the medium to long term proposal is for the woodland to be enhanced through selective thinning of the canopy to create glades and rides, promoting natural regeneration of the understorey and field layer. Selected areas will also include fencing to prevent deer browsing. New planting will extend the woodland into the east of the site, and a management strategy for the woodland as a whole will be provided. The boundary features of the site will be retained and enhanced as part of the proposals.
- 5.2.17. The landscape strategy for the proposed development includes significant enhancements to the site including a large area of new open space comprising native wildflower meadow grassland and wetland habitats, new native hedgerow, scrub and tree planting and a woodland extension on the eastern side of Prior's Wood.

### 5.3. Faunal Evaluation

#### *Bats*

- 5.3.1. **Legislation.** All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 ("the Habitats Regulations"). These include provisions making it an offence:
- Deliberately to kill, injure or take (capture) bats;
  - Deliberately to disturb bats in such a way as to:-
    - (i) be likely to impair their ability to survive, to breed or rear or nurture their young; or to hibernate or migrate; or
    - (ii) affect significantly the local distribution or abundance of the species to which they belong;
  - To damage or destroy any breeding or resting place used by bats;
  - Intentionally or recklessly to obstruct access to any place used by bats for shelter or protection (even if bats are not in residence).
- 5.3.2. The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.
- 5.3.3. The offence of damaging (making worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.
- 5.3.4. **Site Usage.** Some of the more mature trees are considered to provide bat roosting potential. The woodland and hedgerows at the boundaries of the site are considered to provide good opportunities for foraging and commuting bats.
- 5.3.5. The results of the activity transect surveys and remote detectors deployed between April and September 2021 show that Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, Myotis, Noctule, Leisler's Bat, Serotine, Brown Long-eared Bat and Barbastelle Bat are using the boundary habitats and Prior's Wood for foraging and commuting.

- 5.3.6. Additionally, early registrations for Common, Soprano and Nathusius' Pipistrelle and Barbastelle would indicate that roosts for these species are present within or in close proximity to the site.
- 5.3.7. **Mitigation and Enhancements.** In line with current guidelines and best practice, a final survey would further inform the level of interest. However, specific mitigation is able to be delivered based on the findings to date. A Natural England licence is not required to implement the proposed development.
- 5.3.8. The site is considered to have moderate to high suitability for bats and a final transect has been undertaken in early October 2021. The survey was again bolstered by the deployment of three static detectors deployed in suitable locations for five consecutive nights. This information will be supplied in an addendum report.
- 5.3.9. The woodland and mature vegetation at the boundaries of the site will be retained to allow continued dispersal and foraging opportunities post-development. Additionally, the woodland will be extended in the east of the site and new native hedgerow and trees will be planted throughout the development. New tree and hedgerow planting across the site will supplement and enhance the current boundary habitats and provide new foraging habitat for locally present bat species. New landscaping will use native species to provide new foraging opportunities for bats.
- 5.3.10. The central open space will provide grassland and wetland habitats that will encourage greater use of the site by invertebrates and increase the foraging opportunities for the local bat population.
- 5.3.11. Lighting during the construction phase of the development will adhere to the Institute of Lighting Professionals (ILP) *Guidance Note 8 Bats and Artificial Lighting* to limit light spill onto areas considered of most interest to bats. Lighting outside of construction timeframes will be reduced to solely core areas to limit the duration of lighting magnitude across the site. The final lighting strategy will be reviewed by the project ecologist and subject to amendment if necessary, to avoid adverse effects on any ecological receptors. This can be secured by a suitable planning condition.
- 5.3.12. To offer further enhancements for the site, bat boxes on retained trees or integrated into new buildings could be provided as part of the redevelopment.

#### *Badgers*

- 5.3.13. **Legislation.** The Protection of Badgers Act 1992 consolidates the previous Badgers Acts of 1973 and 1991. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is, in fact, common over most of Britain, with particularly high populations in the southwest.
- 5.3.14. As well as protecting the animal itself, the 1992 Act also makes the intentional or reckless destruction, damage or obstruction of Badger setts an offence. A sett is defined as, *"any structure or place which displays*

*signs indicating current use by a Badger*", by current Natural England guidance.

- 5.3.15. In addition, the intentional elimination of sufficient foraging area used to support a known social group of Badgers may, in certain circumstances, be construed as an offence by constituting 'cruel ill treatment' of a Badger.
- 5.3.16. **Site Usage.** No evidence of Badger was recorded on site during the survey, but the habitats on site provide suitable sett building, foraging and dispersal opportunities and they are known to be in the vicinity.
- 5.3.17. **Mitigation.** Further work for Badgers will involve continued checks of the site to ensure no setts have been excavated prior to the proposed development. Proposed landscape planting will provide new foraging opportunities for Badgers.
- 5.3.18. The potential exists for Badgers to roam into areas where construction is underway and become trapped in trenches and / or excavate new setts in piles of subsoil or disturb chemicals that may be being used for development. The following measures will be followed throughout the construction phase of the proposed development:
- All site personnel will be made aware of the potential presence of this species and the appropriate steps required to ensure the safety of Badgers while on site;
  - Inclines and mounds of loose soil present ideal habitats for Badgers seeking to establish setts; therefore, during the construction process, all dug ground and loose soil will be levelled and compacted wherever possible. This will prevent Badgers from attempting to excavate setts prior to completion of the works and causing potential disruption;
  - Any mounds of material will be regularly checked for signs of Badgers, especially before disturbance or movement;
  - Planks will be left in any uncovered trenches to provide any Badger that may stray onto the site with an escape route;
  - Any open trenches will be checked at the beginning of each day, to ensure that Badgers are not present, and at the end of each day, to ensure that the means of escape remain in place;
  - Tools and loose materials will be stored in an appropriate container in order to reduce the risk of Badgers coming onto site and injuring themselves;
  - No fires or chemicals should be left unsupervised anywhere on the site;
  - Any open pipework greater than 150mm outside diameter will be blanked off at the end of each working day to prevent Badgers from entering the pipework.
- 5.3.19. In the event that any suspected Badger activity is observed during construction, work in the area would cease and Ecology Solutions would be contacted for advice.

### *Dormice*

- 5.3.20. **Legislation.** Dormice are subject to the same level of legislative protection as bats (see above).
- 5.3.21. **Site Usage.** No evidence of Dormouse was recorded during the surveys completed between May and September 2021; however, the woodland and hedgerows provide opportunities for Dormouse dispersal and foraging.
- 5.3.22. **Mitigation and Enhancements.** Dormouse are not present on site and no mitigation is required for this species.
- 5.3.23. The landscape proposals include enhancements to the woodland that will significantly improve the understorey, providing better opportunities for Dormice if they colonise the site in the future. Additionally, the woodland will be extended, and new native hedgerow planting provided to elevate the on-site opportunities for this species.

### *Hedgehogs*

- 5.3.24. **Legislation.** Hedgehog is a species of principal importance for the conservation of biodiversity under Section 41 (England) of the NERC Act 2006.
- 5.3.25. The NERC Act 2006 requires the Secretary of State to:  
  
**... take such steps as appear... to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section, or... promote the taking by others of such steps.**
- 5.3.26. **Site Usage.** No evidence of Hedgehogs was recorded during the survey work undertaken. Hedgehogs are known to be in the locality and the site contains suitable habitats for Hedgehog foraging, dispersal and hibernation, including woodland and hedgerows.
- 5.3.27. **Mitigation and Enhancements.** Any clearance of log piles or other Hedgehog shelter features will be subject to inspection 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. Any vegetation clearance should be carried out in a systematic and controlled manner to allow Hedgehogs to disperse.
- 5.3.28. 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.
- 5.3.29. New native hedgerow, woodland and grassland habitats will provide enhanced opportunities for commuting and foraging Hedgehogs.

- 5.3.30. A log pile could be installed in a discreet location within the woodland to offer shelter and hibernation opportunities post development.
- 5.3.31. New residential gardens will offer new potential habitat for Hedgehogs and other small mammals. Across the site garden fences can be provided with a 'Hedgehog Gateway', a 13cm x 13cm section of fence cut out at the base, to facilitate dispersal for Hedgehogs and other small animals. This will enhance the permeability of the new development for wildlife.

#### *Birds*

- 5.3.32. **Legislation.** Section 1 of the Wildlife and Countryside Act 1981 (as amended) is concerned with the protection of wild birds, whilst Schedule 1 lists species that are protected by special penalties. All species of birds receive general protection whilst nesting.
- 5.3.33. **Site Usage.** The woodland and hedgerows are considered suitable for foraging and nesting birds. A number of species protected under Section 41 of the NERC Act 2006 and / or listed on the Red List, as well as more common species have been recorded across these areas during wintering and breeding bird surveys. No ground nesting birds were recorded nesting on site during the surveys. Based on the survey results obtained, due to the low numbers of these species and recommended landscaping, the proposed development of the site is not expected to significantly affect these species.
- 5.3.34. **Mitigation and Enhancements.** It is recommended that any clearance of trees, shrub and hedgerow takes place outside the nesting season (which is typically March to July inclusive) to avoid a potential offence under the legislation. Where this cannot be achieved a check survey for nesting birds should be undertaken by an ecologist, with any confirmed nests left in place until the young have fledged.
- 5.3.35. New landscaping will include native species with known value for wildlife, such as fruit bearing trees. Areas of dense vegetation will be avoided to prevent a significant additional attraction of the site to flocking species such as Starling, which may pose a birdstrike hazard to aircraft using Stansted Airport.
- 5.3.36. As an additional enhancement, a variety of bird boxes could be provided on retained trees and / or incorporated into the new dwellings on the site. Such measures could be designed to provide new on-site opportunities for Swift *Apus apus* and House Sparrow *Passer domesticus* together with other species of conservation concern.

#### *Reptiles*

- 5.3.37. **Legislation.** All reptile species receive protection under legislation in the UK. Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis* receive full legal protection in England due to their status as scarce, rather local species. Owing to the specific habitat requirements of these species they are not likely to be present in the local area.
- 5.3.38. The other reptile species, namely Slow Worm *Anguis fragilis*, Common Lizard, Grass Snake and Adder *Vipera berus*, are common and

widespread across the country. As such, these species receive only partial protection under the Wildlife and Countryside Act 1981 (as amended) being protected from deliberate killing or injury, their habitat receiving no statutory protection.

- 5.3.39. **Site Usage.** The semi-improved grassland margins provide suitable opportunities for reptiles. A presence / absence survey completed in May and June 2021 identified low populations of Grass Snake and Common Lizard.
- 5.3.40. **Mitigation and Enhancements.** Where habitats used by reptiles exist, mitigation measures will be put into place to ensure that no offence is caused. This will include passive displacement during favourable weather condition and during the reptile active season and dispersal fencing of sensitive areas, where considered necessary.
- 5.3.41. 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.
- 5.3.42. The vegetation at the boundaries of the site will be retained and enhanced as part of the landscape proposals. The central open space proposed for the site includes areas of open wildflower meadow grassland and wetland habitats that will significantly enhance the site for reptiles above what is currently present.

#### *Amphibians*

- 5.3.43. **Legislation.** Great Crested Newts are subject to the same level of legislative protection as bats and Dormice (see above).
- 5.3.44. Common Toads are listed as a species of principal importance under Section 41 of the NERC Act 2006 and are afforded the same level of protection as Hedgehogs.
- 5.3.45. **Site Usage.** Four ponds are located within the site boundary, with several other ponds falling within 500m of the site boundary. Additionally, the field boundaries provide opportunities for amphibians during their terrestrial phase.
- 5.3.46. The on-site ponds and ponds within 500m of the site were subject to eDNA testing for Great Crested Newt where permission was granted. The results of the eDNA testing were returned as negative, indicating the likely absence of this species.

- 5.3.47. **Mitigation and Enhancements.** Measures to passively displace common reptiles from suitable habitat on site will also benefit amphibians utilising the site during their terrestrial phase.
- 5.3.48. The woodland ponds and vegetation at the boundaries of the site will be retained and enhanced as part of the landscape proposals. The central open space proposed for the site includes areas of open wildflower meadow grassland and wetland habitats that will significantly enhance the site for amphibians above what is currently present.

*Invertebrates*

- 5.3.49. **Site Usage.** Given the habitats present it is likely a varied assemblage of common invertebrate species would be present within the site.
- 5.3.50. **Mitigation and Enhancements.** The landscape proposals include the retention, enhancement and extension of the woodland, as well the retention and enhancement of boundary features. The central open space will include grassland and wetland habitats providing new habitats for a range of invertebrates. The new grassland will be subject to a beneficial management scheme to benefit a range of invertebrate species.



## 6. PLANNING POLICY CONTEXT

6.1. Planning policy for development at the site is administrated at two levels, nationally through the National Planning Policy Framework (NPPF) and locally through the planning policies of Uttlesford District Council.

### 6.2. National Policy

#### *National Planning Policy Framework (July 2021)*

- 6.2.1. Guidance on national policy for biodiversity and geological conservation is provided by the National Planning Policy Framework (NPPF), published in March 2012, revised on 24 July 2018, 19 February 2019 and again on 20 July 2021. It is noted that the NPPF continues to refer to further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system provided by Circular 06/05 (DEFRA / ODPM, 2005) accompanying the now-defunct Planning Policy Statement 9 (PPS9).
- 6.2.2. The key element of the NPPF is that there should be *“a presumption in favour of sustainable development”* (paragraphs 10 to 11). It is important to note that this presumption *“does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site”* (paragraph 182). ‘Habitats site’ has the same meaning as the term ‘European site’ as used in the Habitats Regulations 2017.
- 6.2.3. Hence, the direction of Government policy is clear. That is, the presumption in favour of sustainable development is to apply in circumstances where there is potential for an effect on a European site, if it has been shown that there will be no adverse effect on that designated site as a result of the development in prospect.
- 6.2.4. A number of policies in the NPPF are comparable to those in PPS9, including reference to minimisation of impacts to biodiversity and provision of net gains to biodiversity where possible (paragraph 174).
- 6.2.5. The NPPF also considers the strategic approach that Local Authorities should adopt with regard to the protection, maintenance and enhancement of green infrastructure, priority habitats and ecological networks, and the recovery of priority species.
- 6.2.6. Paragraphs 179 to 181 of the NPPF comprise a number of principles that Local Authorities should apply, including encouraging opportunities to incorporate biodiversity in and around developments; provision for refusal of planning applications if significant harm cannot be avoided, mitigated or compensated for; applying the protection given to European sites to potential Special Protected Areas (SPA), possible Special Areas of Conservation (SAC), listed or proposed Ramsar sites and sites identified (or required) as compensatory measures for adverse effects on European sites; and the provision for the refusal for developments resulting in the loss or deterioration of ‘irreplaceable’ habitats – unless there are ‘wholly exceptional reasons’ (for instance, infrastructure projects where the public

benefit would clearly outweigh the loss or deterioration of habitat) and a suitable compensation strategy exists.

- 6.2.7. National policy therefore implicitly recognises the importance of biodiversity and that with sensitive planning and design, development and conservation of the natural heritage can co-exist and benefits can, in certain circumstances, be obtained.

### 6.3. Local Policy

#### *Uttlesford Local Plan 2005 (Adopted 2005)*

- 6.3.1. The Uttlesford Local Plan was adopted on 20 January 2005 and is the principal development plan document guiding development in Uttlesford. It updates and replaces the “Uttlesford Futures” Community Plan which was adopted in 2003 and covered the period up to 2007. Policies relevant to nature conservation are set out below.

- 6.3.2. **Policy GEN7: Nature Conservation** states that developments will not be permitted which have a harmful effect on wildlife, unless the need for the development outweighs the importance of the feature to nature conservation. In addition, a nature conservation survey is required where the site includes protected species or habitats suitable for protected species. Mitigation will be required, and habitat creation as an enhancement will be required.

- 6.3.3. **Policy ENV7: The Protection of the Natural Environment – Designated Sites** is concerned with the adverse effects upon areas of nationally important nature conservation concern or local areas of nature conservation significance, as development proposals will not be permitted unless the need for the development outweighs the particular importance of the nature conservation value of the site or reserve or the local significance of the site to the biodiversity of the District.

- 6.3.4. **Policy ENV8: Other Landscape Elements of Importance for Nature Conservation** is concerned with developments which may have an adverse impact on hedgerows, linear tree belts, semi-natural grasslands, orchards, ponds, reservoirs, river corridors, larger semi-natural or ancient woodlands or other landscape elements. Developments which do affect these elements will only be permitted where the need outweighs the need to retain the elements for their importance to wild fauna and flora or mitigation measures are provided.

#### *Emerging New Local Plan*

- 6.3.5. Uttlesford District Council withdrew the draft Local Plan early in 2020 following significant concerns raised by the Inspector during an examination of the documents. To adhere to the Government's requirement to have up-to-date Local Plans in place by December 2023, Uttlesford District Council are now focused on providing a new Local Plan. A programme of works and timetable setting out the steps to deliver this is underway by the Council although at an early stage.

## 6.4. Discussion

- 6.4.1. The development proposals for the site should be judged against the policies summarised above. The collection of baseline ecological data for bats, Dormice, birds, reptiles and amphibians has informed the wider design proposals, incorporating necessary mitigation and compensation measures. Taking these measures into account, it is considered that the proposed development has the capacity to accord fully with national and local policy and avoid any significant impacts on nearby designated sites for nature conservation.

## 7. SUMMARY AND CONCLUSIONS

- 7.1. Ecology Solutions was commissioned in October 2020 by Weston Homes PLC to undertake an ecological assessment of the proposed development at Warish Hall Farm, Takeley.
- 7.2. The proposals for the site are for a mixed-use development including residential and employment areas, as well as local amenities.
- 7.3. The site comprises arable fields with associated field margins, hedgerows and ditches. Prior's Wood LWS, an area of ancient and semi-natural woodland dominates the north of the site.
- 7.4. The site is located to the north of Takeley, approximately 1.4km south of London Stansted Airport and approximately 1.6km northeast of Hatfield Forest SSSI and NNR. It is bounded to the south and east by residential properties. Arable fields and the A120 are present to the north. Weston Homes PLC headquarters border the site to the west.
- 7.5. A habitat survey was initially carried out by Ecology Solutions in October 2020, with a further walkover survey carried out in April 2021, in order to ascertain the general ecological value of the site and to identify the main habitats and associated plant species. Bat and bird surveys have also been undertaken, with further species surveys being undertaken in the intervening period.
- 7.6. **Statutory Sites.** There are no statutory designations of nature conservation value within the site or immediately adjacent to the site. The nearest statutory site is Hatfield Forest SSSI, which lies approximately 1.6km southwest of the site and also incorporates Hatfield Forest NNR.
- 7.7. The proposed scheme will be expected to contribute towards mitigating towards the potential increase in recreational pressure on Hatfield Forest SSSI. This will be achieved through a financial contribution towards the SAMM and the provision of on-site ANG.
- 7.8. The landscape strategy being provided by the proposed development includes a large area of open space (circa 2.4ha) in the east of the site, as well as enhancements and an extension of the woodland by approximately 10%. The landscape proposals therefore offer significant and easily accessible recreational resources for new and existing residents, with walking routes that will connect to the existing footpath network.
- 7.9. **Non-statutory Sites.** Prior's Wood LWS, which is designated for its ancient and semi-natural woodland habitat, lies within the site boundary. Owing to the location of Prior's Wood LWS it is recommended that best practice methods are employed during the construction phase of development to limit potential pollution (dust, noise, surface runoff etc.) in close proximity.
- 7.10. **Habitats.** The site is dominated by arable fields of negligible intrinsic nature conservation interest. The ancient woodland and hedgerows are of elevated ecological interest within the context of the site and will be retained and enhanced as part of the proposed development. This will be beneficial in ecology terms.

- 7.11. The impact of the development on the adjacent woodland is considered to fall just below the level of significance (1%), with NO<sub>x</sub> concentrations increases of 0.8% of the critical level.
- 7.12. An exclusion zone would be marked out around the retained woodland, which would be enforced so that the woodland is not damaged during the construction of the road. Safeguarding of retained trees and vegetation would be fully compliant with BS5837:2012 guidance. Such detail is able to be secured through the imposition of a suitable planning condition imposed on the grant of any permission.
- 7.13. The detailed landscape strategy for the proposed development includes significant enhancements to the site including new open space comprising grassland and wetland habitats, new native hedgerow and tree planting and a woodland extension.
- 7.14. **Bats.** Some of the more mature trees are considered to provide bat roosting potential. The woodland and hedgerows at the boundaries of the site are considered to provide good opportunities for foraging and commuting bats.
- 7.15. The results of the activity transect surveys and remote detectors deployed between April and September 2021 show that Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, Myotis, Noctule, Leisler's Bat, Serotine, Brown Long-eared Bat and Barbastelle are using the boundary habitats and Prior's Wood for foraging and commuting. Additionally, roosts for Common, Soprano and Nathusius' Pipistrelle and Barbastelle may be present within or in close proximity to the site.
- 7.16. As the site is considered to have moderate to high suitability for bats, a final activity transect survey has been undertaken in October 2021. This information will be supplied in an addendum report, but it is considered that the site has been appropriately characterised to date and that the mitigation strategy is appropriate.
- 7.17. In order to safeguard local bat populations, the woodland and mature vegetation at the boundaries of the site will be retained to allow continued dispersal and foraging opportunities post-development. Additionally, new woodland, native hedgerows, trees, grassland and wetland habitats will be provided throughout the development.
- 7.18. A sensitive final lighting scheme should be designed to ensure that no adverse increase in light spill occurs as a result of the development. The landscape proposals have allowed for these recommendations to be considered and a sensitive lighting scheme has been worked up in principle with detail set out as part of the application proposals. Further enhancements will include the provision of new bat boxes to offer new roosting opportunities.
- 7.19. **Badgers.** No evidence of Badger was recorded on site during the survey, but the habitats on site provide suitable sett building, foraging and dispersal opportunities and they are known to be in the vicinity. Continued checks of the site will be undertaken to ensure no new setts have been excavated prior to the proposed development. Best practice measures would be adopted during construction (in terms of site management, storage of materials, etc.) to avoid any harm to Badgers.

- 7.20. **Dormice.** No evidence of Dormouse was recorded during the surveys undertaken between May and September 2021; however, the woodland and hedgerows provide opportunities for Dormouse dispersal and foraging, and these will be retained and enhanced.
- 7.21. The landscape proposals include significant beneficial and long-term enhancements to the woodland that will improve the understorey and provide better opportunities for Dormice should they colonise the site. Additionally, the woodland will be extended, and new native hedgerow planting provided to elevate the on-site opportunities for this species.
- 7.22. **Hedgehogs.** No evidence of Hedgehogs was recorded during the survey work undertaken. Hedgehogs are known to be in the locality and the site contains suitable habitats for Hedgehog foraging, dispersal and hibernation, including woodland and hedgerows. Any clearance of log piles or other Hedgehog shelter features will be subject to inspection 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. Any vegetation clearance should be carried out in a systematic and controlled manner to allow Hedgehogs to disperse.
- 7.23. Additionally, 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.
- 7.24. New native hedgerows, woodland and grassland habitats will provide enhanced opportunities for commuting and foraging Hedgehogs, whilst 'Hedgehog Gateways' provided in garden fences will facilitate dispersal for Hedgehogs and other small animals and enhance the permeability of the new development. A log pile could be installed in a discreet location to offer shelter and hibernation opportunities post development.
- 7.25. **Birds.** The woodland and hedgerows are considered suitable for foraging and nesting birds. A number of species protected under Section 41 of the NERC Act 2006 and / or listed on the Red List, as well as more common species have been recorded across these areas during wintering and breeding bird surveys. No ground nesting birds were recorded nesting on site during the surveys. Any clearance of suitable bird nesting habitats will take place outside the nesting season or only during this period following checks to confirm absence to avoid a potential offence under the legislation. New landscaping will include native species with known value for wildlife, such as fruit bearing trees but mindful for airport safeguarding limitations so as not to encourage flocking birds in close proximity to the airport.
- 7.26. As an additional enhancement, a variety of bird boxes could be provided on retained trees including within the woodland.
- 7.27. **Reptiles.** The semi-improved grassland margins provide suitable opportunities for reptiles and low populations of Grass Snake and Common Lizard were recorded during presence / absence surveys.
- 7.28. Where necessary, vegetation removal and a full destructive search will be undertaken to passively displace reptiles from areas where they have been recorded on site to suitable retained on-site and off-site habitats. Displacement

will occur ahead of development, when reptiles are active (between mid-March and October) and during favourable weather conditions. All works will be undertaken under the supervision of a suitably qualified ecologist.

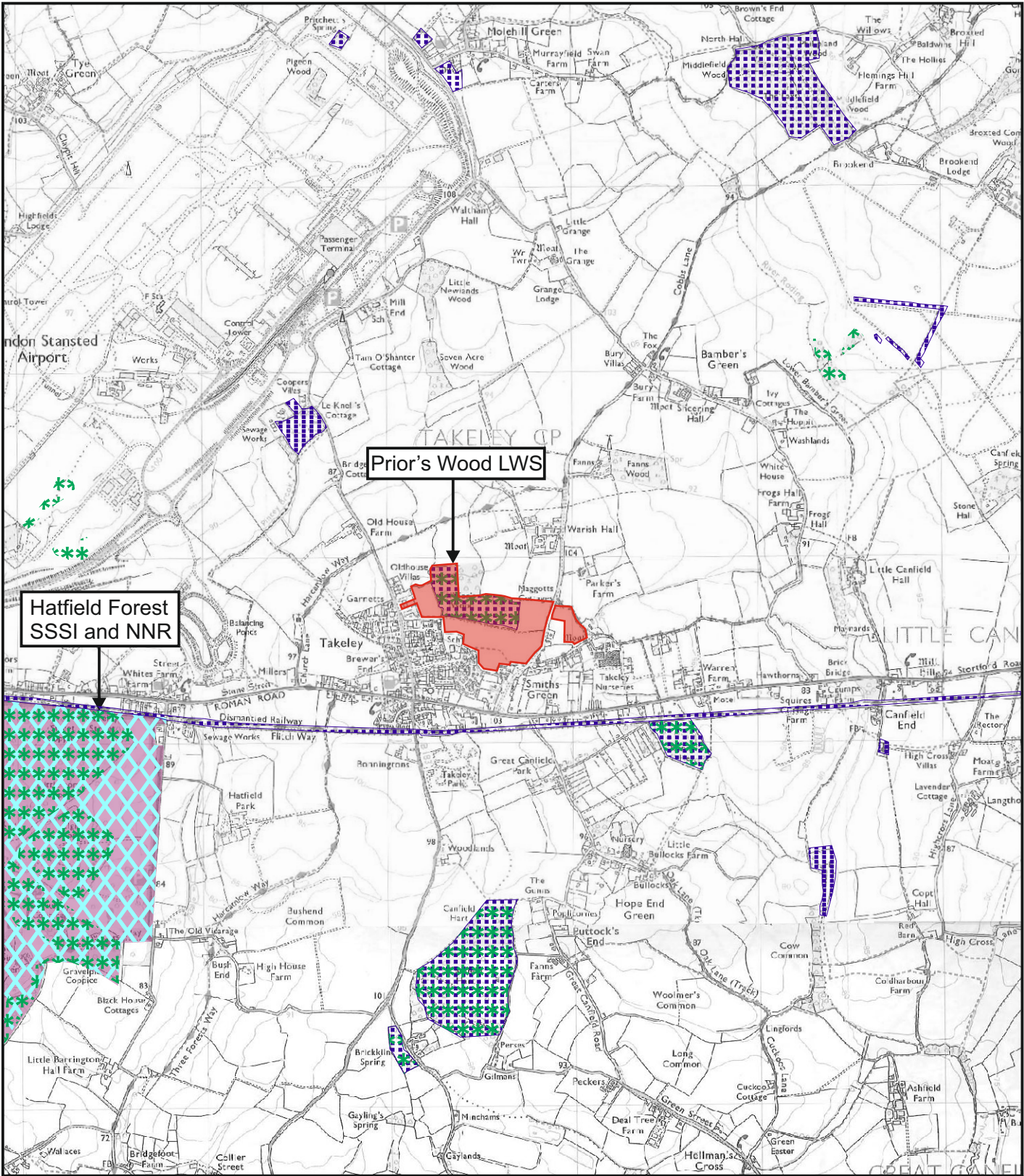
- 7.29. The vegetation at the boundaries of the site will be retained and enhanced as part of the landscape proposals. The central open space proposed for the site includes areas of open grassland and wetland habitats that will significantly enhance the site for reptiles above what is currently present.
- 7.30. **Amphibians.** Four ponds are located within the site boundary, with several other ponds falling within 500m of the site boundary. Additionally, the field boundaries provide opportunities for amphibians during their terrestrial phase.
- 7.31. The on-site ponds and ponds within 500 metres of the site were subject to eDNA testing for Great Crested Newt where permission was granted. The results of the eDNA testing were returned as negative, indicating the likely absence of this species.
- 7.32. The mitigation measures recommended for common reptiles will also benefit amphibians utilising the site during their terrestrial phase. The woodland ponds and vegetation at the boundaries of the site will be retained and enhanced as part of the landscape proposals. The central open space proposed for the site includes areas of open grassland and wetland habitats that will significantly enhance the site for amphibians above what is currently present.
- 7.33. **Invertebrates.** Given the habitats present it is likely a varied assemblage of common invertebrate species would be present within the site. The landscape proposals include the retention, enhancement and extension of the woodland, as well the retention and enhancement of boundary features. The central open space will include grassland and wetland habitats providing new habitats for a range of invertebrates. The new grassland will be subject to a management scheme to benefit a range of invertebrate species.
- 7.34. In conclusion, the comprehensive series of surveys completed has identified that the site provides good opportunities for local wildlife. These results have informed the design of the scheme, which takes full account of Prior's Wood LWS. Through the adoption of appropriate safeguards and enhancements, effects on protected and priority species and habitats will be avoided or adequately mitigated. The proposed development will facilitate significant habitat enhancement and future management, with consequent benefits for wildlife. A separate biodiversity net gain assessment has been undertaken. Overall, the scheme is considered to be in line with relevant planning policy and legislation.

## PLANS








## **PLAN ECO1**

Site Location and Ecological Designations



**KEY:**

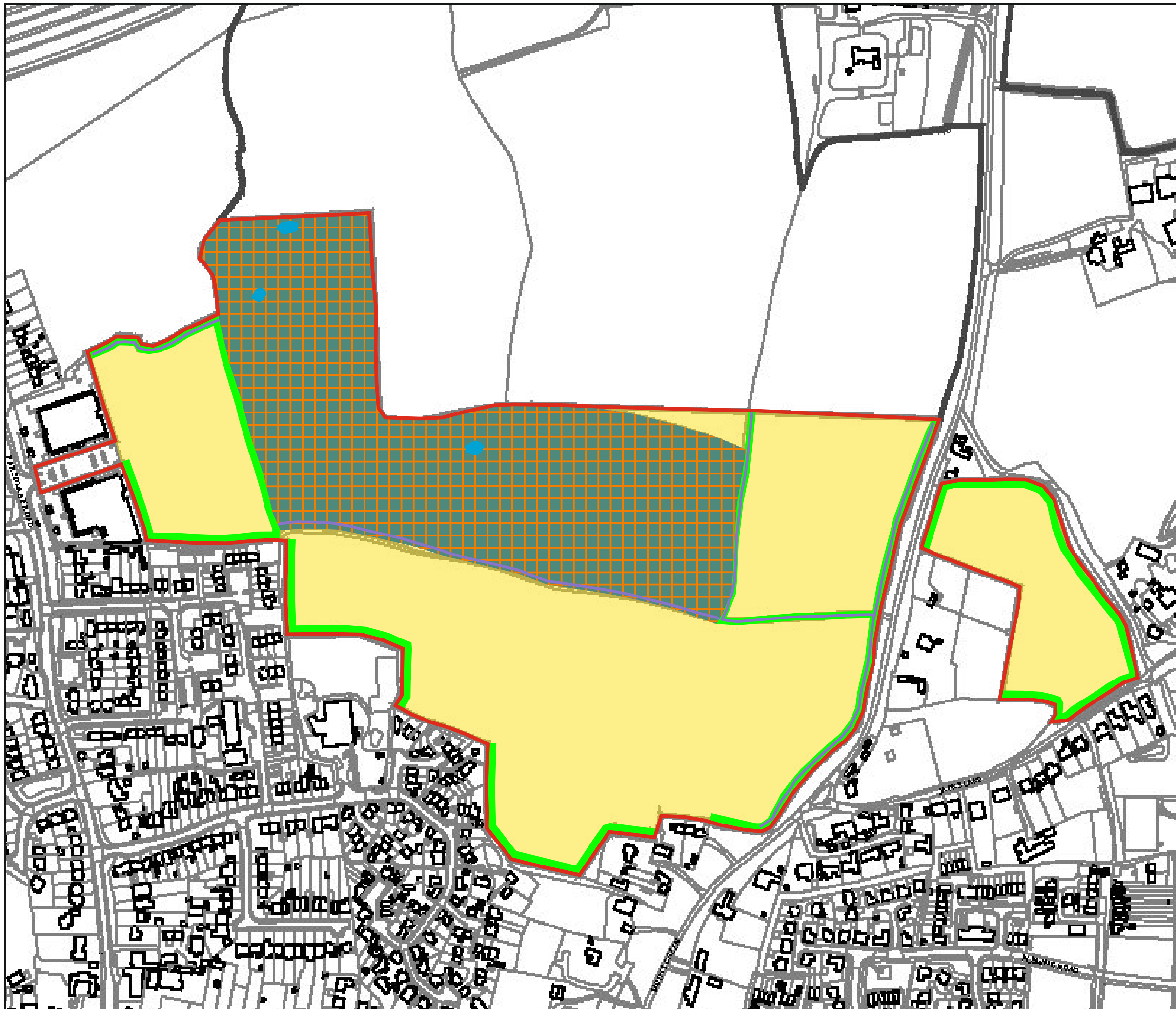
-  SITE LOCATION
-  SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
-  NATIONAL NATURE RESERVE (NNR)
-  LOCAL WILDLIFE SITE (LWS)
-  ANCIENT WOODLAND










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<p><b>9261: WARISH HALL FARM,          TAKELEY, ESSEX</b></p>	
<p><b>PLAN ECO1: SITE LOCATION AND          ECOLOGICAL DESIGNATIONS</b></p>	<p>Rev: A          Mar 2021</p>

## **PLAN ECO2**

Ecological Features



**KEY:**

-  SITE BOUNDARY
-  LOCAL WILDLIFE SITE
-  ANCIENT AND SEMI-NATURAL WOODLAND
-  ARABLE
-  HEDGEROW
-  DITCH
-  POND



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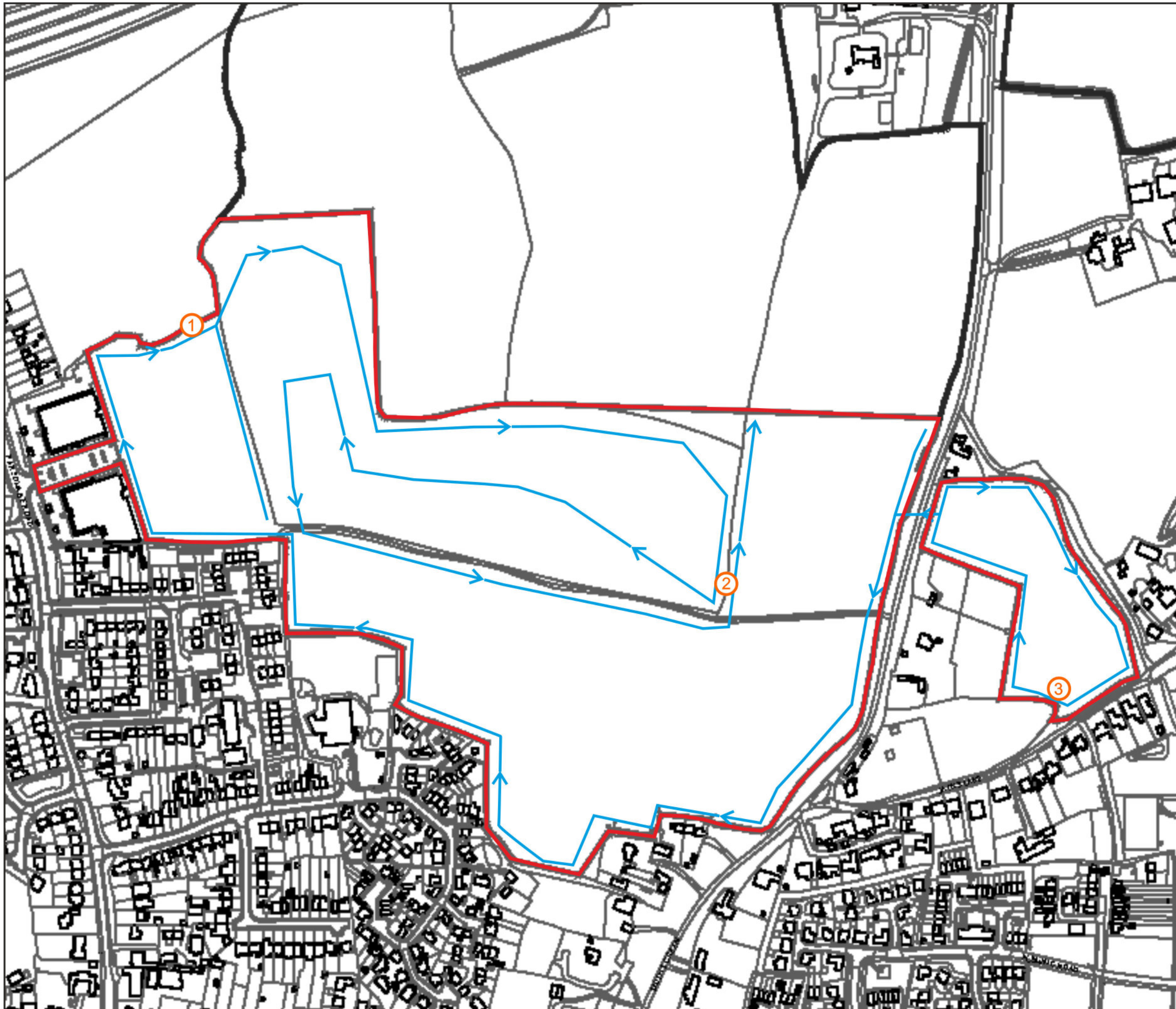
PLAN ECO2: ECOLOGICAL  
 FEATURES

Rev: A  
 May 2021




## **PLAN ECO3a**

Bat Activity Transect and Remote Detector Locations





KEY:

-  SITE BOUNDARY
-  TRANSECT ROUTE
-  REMOTE STATIC DETECTOR LOCATION



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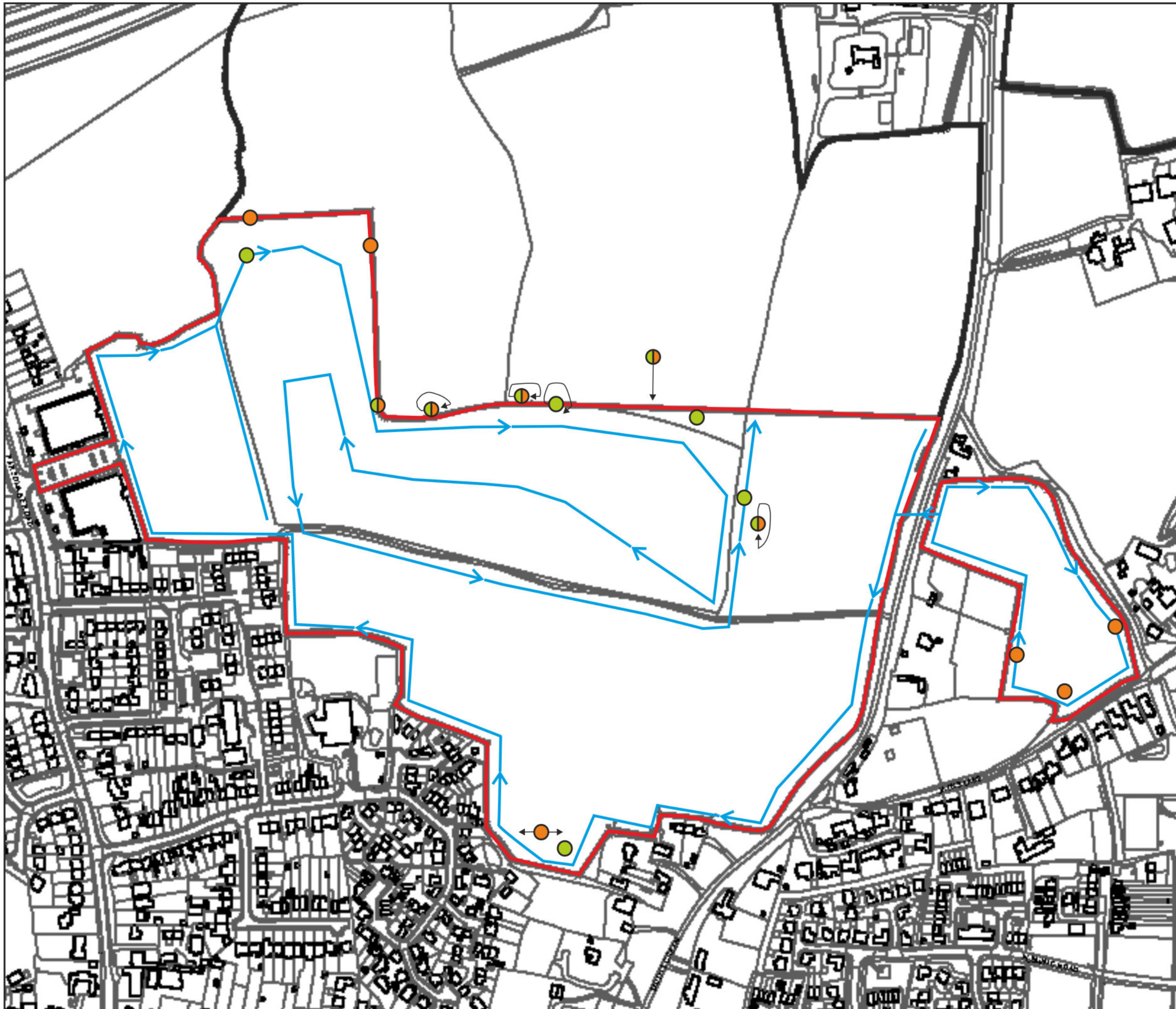
PLAN ECO3a: BAT ACTIVITY  
 TRANSECT AND REMOTE  
 DETECTOR LOCATIONS

Rev: A  
 May 2021







## **PLAN ECO3b**

Bat Activity Survey Results 20.05.21





KEY:

-  SITE BOUNDARY
-  TRANSECT ROUTE - WALKED BY TWO SURVEYORS IN OPPOSITE DIRECTIONS
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  COMMON PIPISTRELLE & SOPRANO PIPISTRELLE
-  FLIGHT PATH



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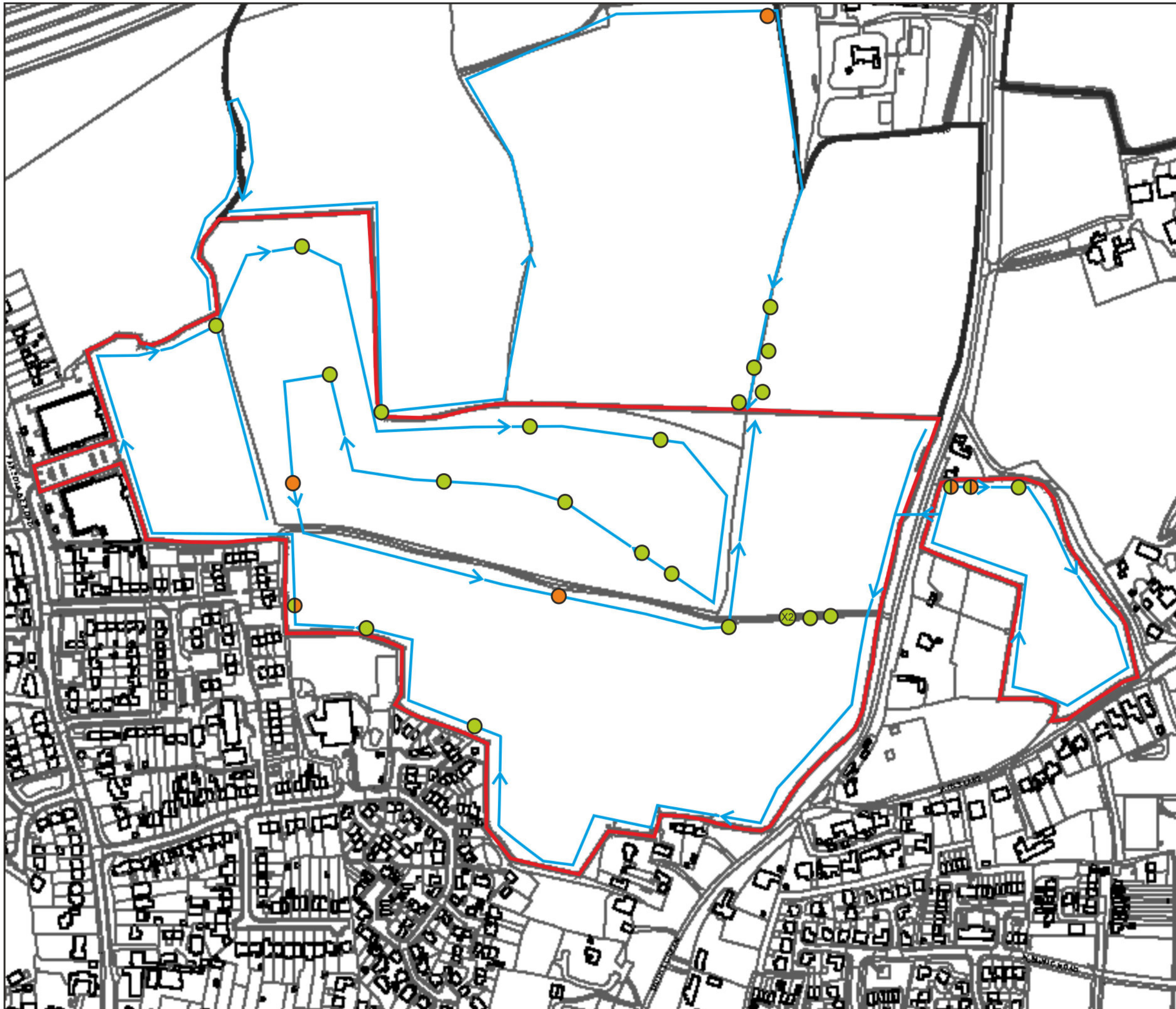
PLAN ECO3b:  
 BAT ACTIVITY SURVEY  
 RESULTS 20.05.21

Rev: A  
 Jun 2021








**PLAN ECO3c**

Bat Activity Survey Results 22.06.21



KEY:

-  SITE BOUNDARY
-  TRANSECT ROUTE - WALKED BY TWO SURVEYORS IN OPPOSITE DIRECTIONS
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  COMMON PIPISTRELLE & SOPRANO PIPISTRELLE



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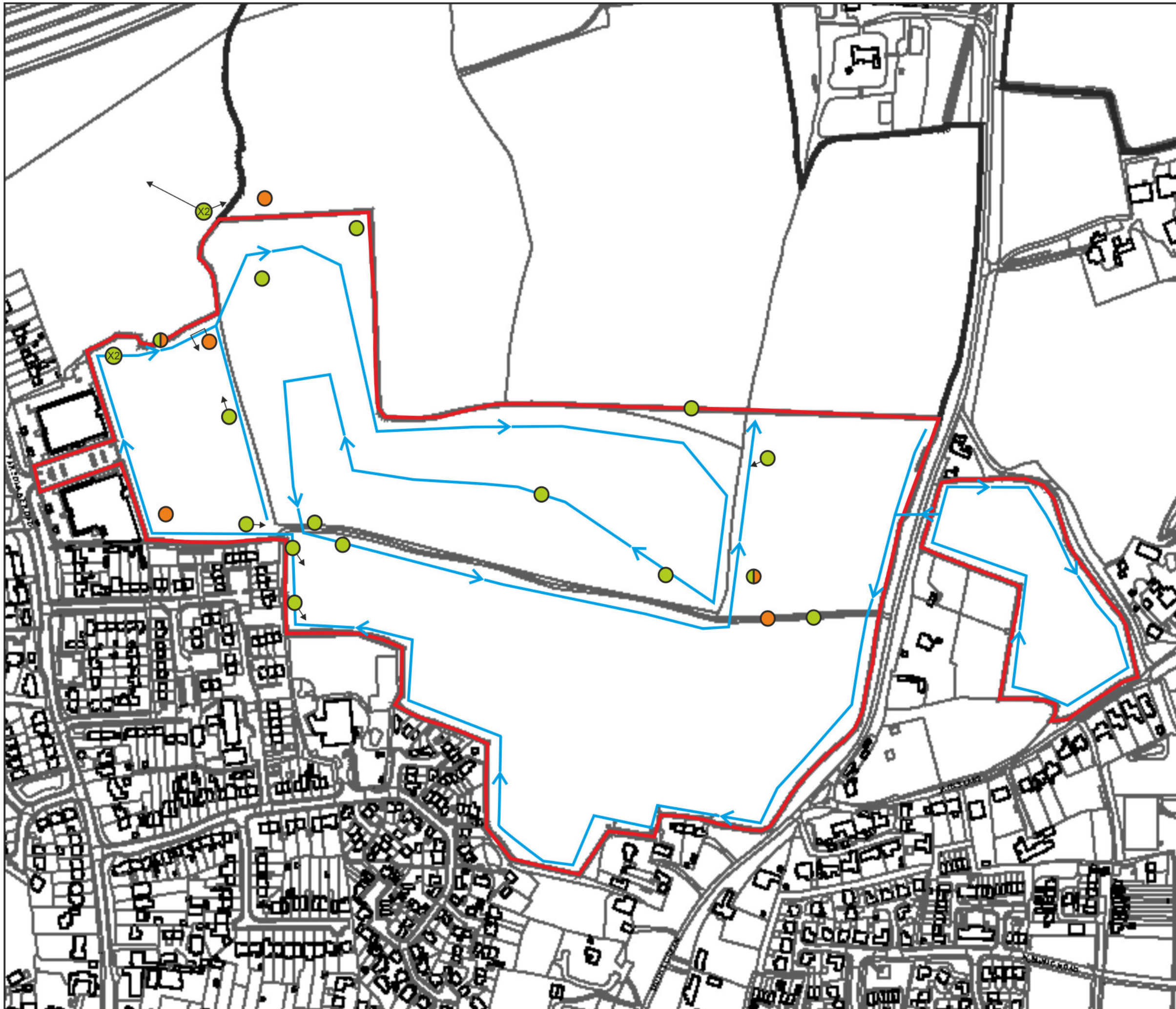
PLAN ECO3c:  
 BAT ACTIVITY SURVEY  
 RESULTS 22.06.21

Rev: A  
 Sep 2021







**PLAN ECO3d**

Bat Activity Survey Results 15.07.21





KEY:

-  SITE BOUNDARY
-  TRANSECT ROUTE
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  COMMON PIPISTRELLE & SOPRANO PIPISTRELLE
-  FLIGHT PATH



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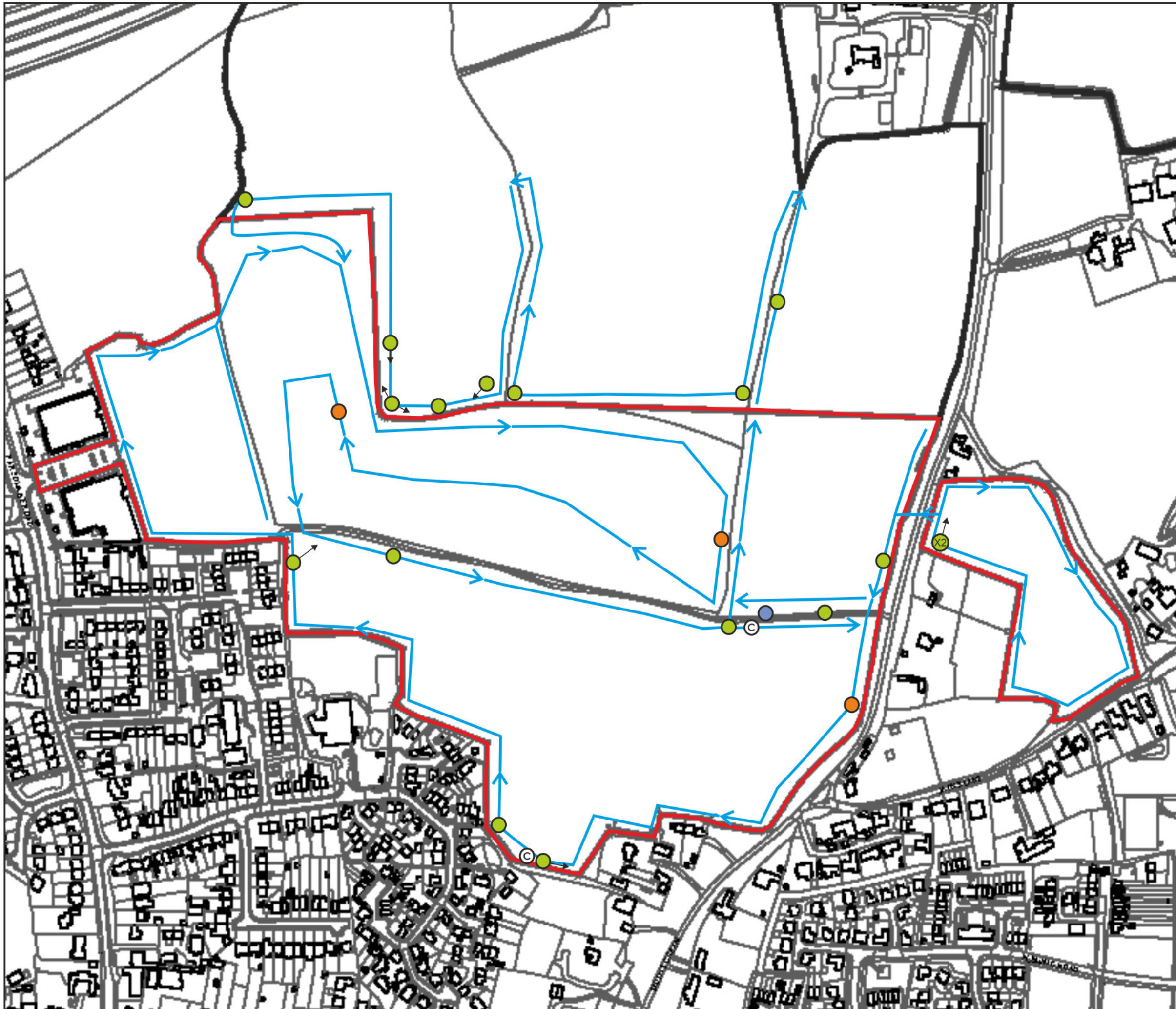
PLAN ECO3d:  
 BAT ACTIVITY SURVEY  
 RESULTS 15.07.21

Rev: A  
 Sep 2021








**PLAN ECO3e**

Bat Activity Survey Results 12.08.21





KEY:

-  SITE BOUNDARY
-  TRANSECT ROUTE
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  NOCTULE BAT REGISTRATION
-  FLIGHT PATH
-  CHECKPOINT



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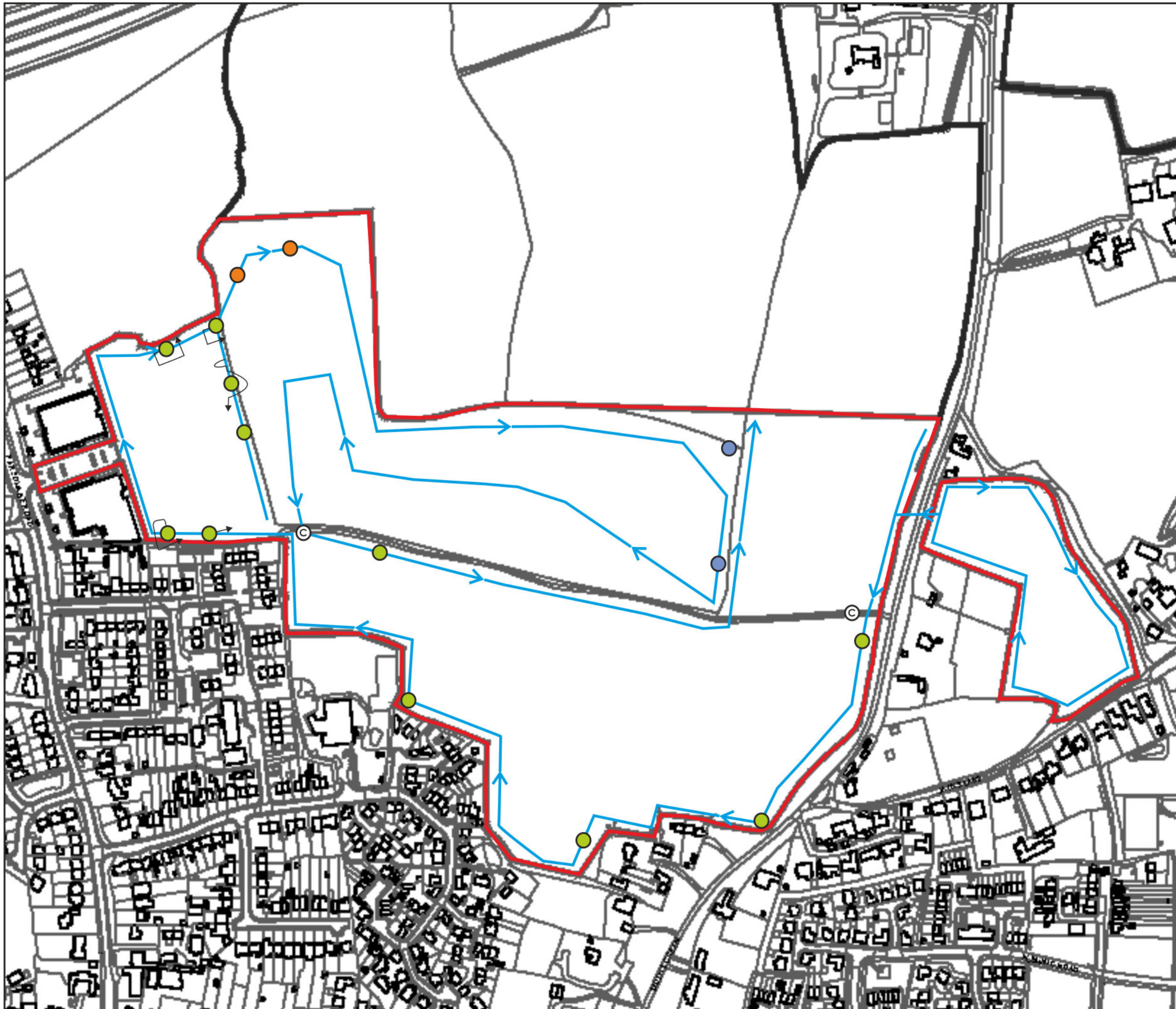
PLAN ECO3e:  
 BAT ACTIVITY SURVEY  
 RESULTS 12.08.21

Rev: A  
 Sep 2021








**PLAN ECO3f**

Bat Activity Survey Results 08.09.21





KEY:

-  SITE BOUNDARY
-  TRANSECT ROUTE
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  NOCTULE BAT REGISTRATION
-  FLIGHT PATH
-  CHECKPOINT



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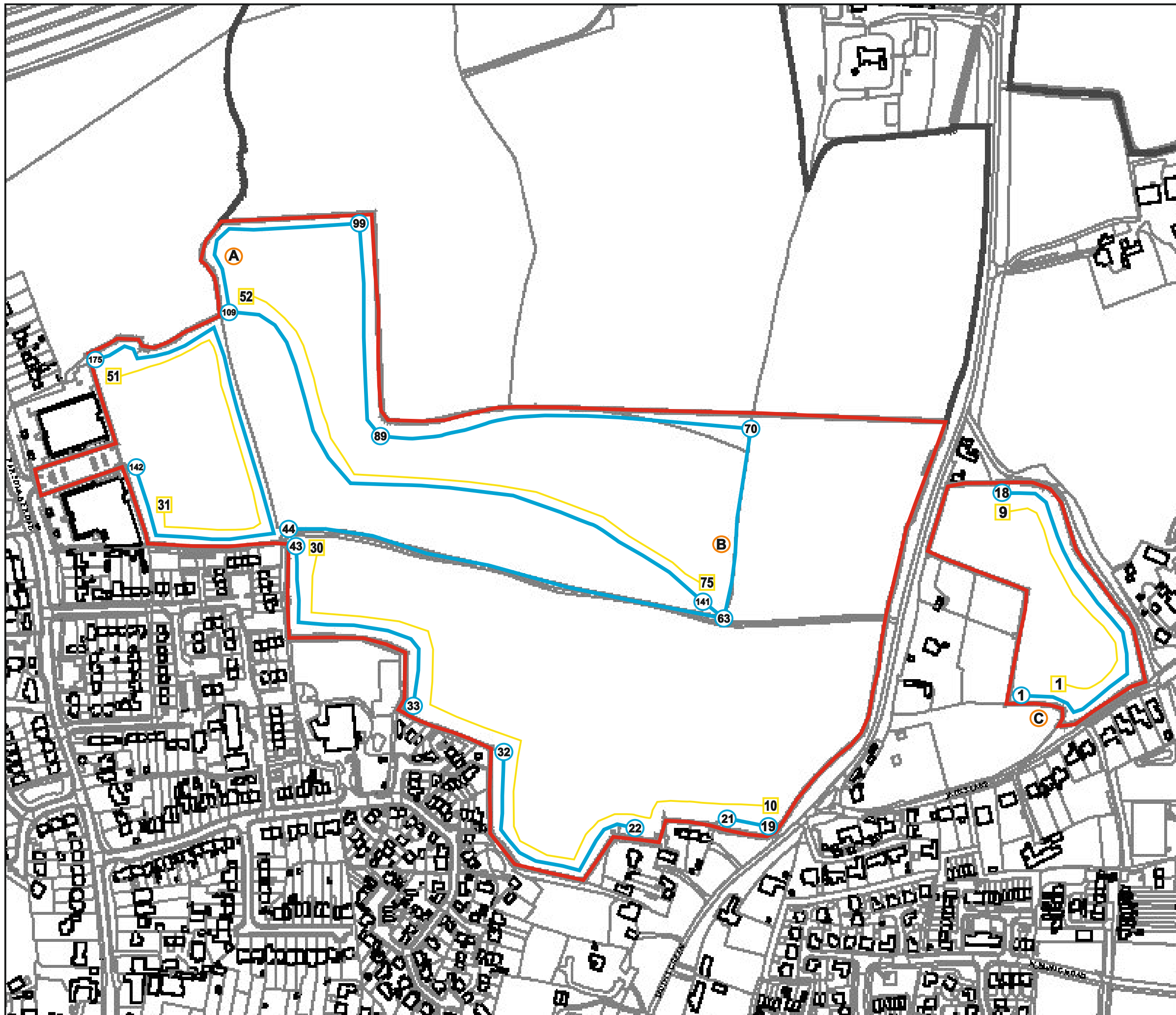
PLAN ECO3f:  
 BAT ACTIVITY SURVEY  
 RESULTS 08.09.21

Rev: A  
 Sep 2021







## **PLAN ECO4**

Dormouse Equipment Distribution



**KEY:**

-  SITE BOUNDARY
-  DORMOUSE TUBE LOCATION
-  DORMOUSE FOOTPRINT TRACKING TUNNEL LOCATION
-  NEST BOX LOCATION



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PLAN ECO4: DORMOUSE  
EQUIPMENT DISTRIBUTION

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Jun 2021

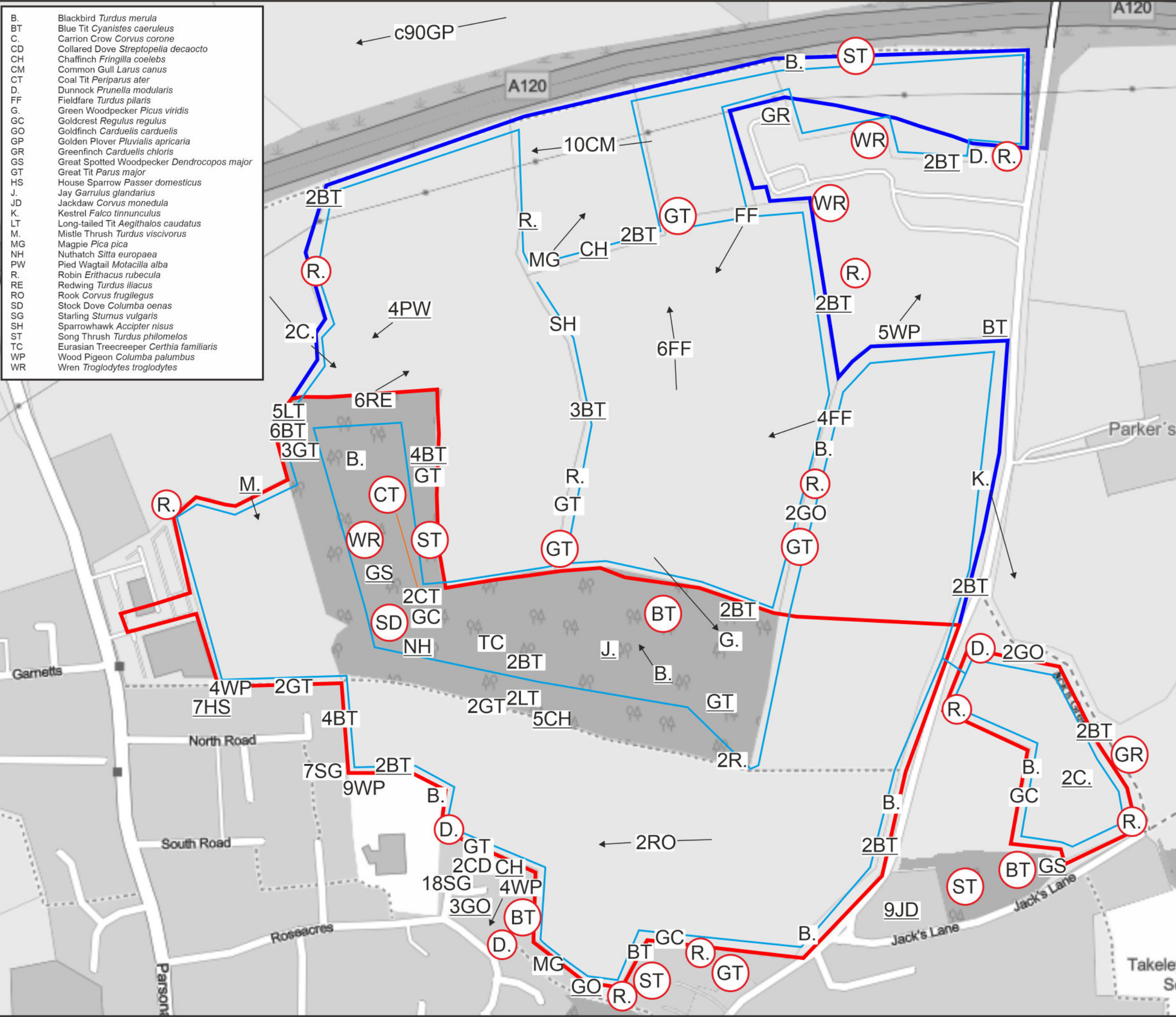
## **PLAN ECO5a**

Wintering Bird Survey Results 22.01.21

B.	Blackbird <i>Turdus merula</i>
BT	Blue Tit <i>Cyanistes caeruleus</i>
C.	Carrion Crow <i>Corvus corone</i>
CD	Collared Dove <i>Streptopelia decaocto</i>
CH	Chaffinch <i>Fringilla coelebs</i>
CM	Common Gull <i>Larus canus</i>
CT	Coal Tit <i>Parus ater</i>
D.	Dunnock <i>Prunella modularis</i>
FF	Fieldfare <i>Turdus pilaris</i>
G.	Green Woodpecker <i>Picus viridis</i>
GC	Goldcrest <i>Regulus regulus</i>
GO	Goldfinch <i>Carduelis carduelis</i>
GP	Golden Plover <i>Pluvialis apricaria</i>
GR	Greenfinch <i>Carduelis chloris</i>
GS	Great Spotted Woodpecker <i>Dendrocopos major</i>
GT	Great Tit <i>Parus major</i>
HS	House Sparrow <i>Passer domesticus</i>
J.	Jay <i>Garrulus glandarius</i>
JD	Jackdaw <i>Corvus monedula</i>
K.	Kestrel <i>Falco tinnunculus</i>
LT	Long-tailed Tit <i>Aegithalos caudatus</i>
M.	Mistle Thrush <i>Turdus viscivorus</i>
MG	Magpie <i>Pica pica</i>
NH	Nuthatch <i>Sitta europaea</i>
PW	Pied Wagtail <i>Motacilla alba</i>
R.	Robin <i>Erithacus rubecula</i>
RE	Redwing <i>Turdus iliacus</i>
RO	Rook <i>Corvus frugilegus</i>
SD	Stock Dove <i>Columba oenas</i>
SG	Starling <i>Sturnus vulgaris</i>
SH	Sparrowhawk <i>Accipiter nisus</i>
ST	Song Thrush <i>Turdus philomelos</i>
TC	Eurasian Treecreeper <i>Certhia familiaris</i>
WP	Wood Pigeon <i>Columba palumbus</i>
WR	Wren <i>Troglodytes troglodytes</i>

**KEY:**

	SITE BOUNDARY
	STUDY AREA
	TRANSECT ROUTE
	BIRD SPECIES
	BIRD CALLING
	BIRD SINGING
	NUMBER OF BIRDS
	APPROXIMATE NUMBER OF BIRDS
	BIRD FLYING OVER
	BIRD PERCHED, THEN FLYING AWAY
	BIRD FLYING, THEN LANDING
	SAME BIRD / BIRDS



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<p>PLAN ECO5a: WINTERING BIRD SURVEY RESULTS 22.01.21</p>	<p>Rev: A May 2021</p>

**PLAN ECO5b**

Wintering Bird Survey Results 10.02.21

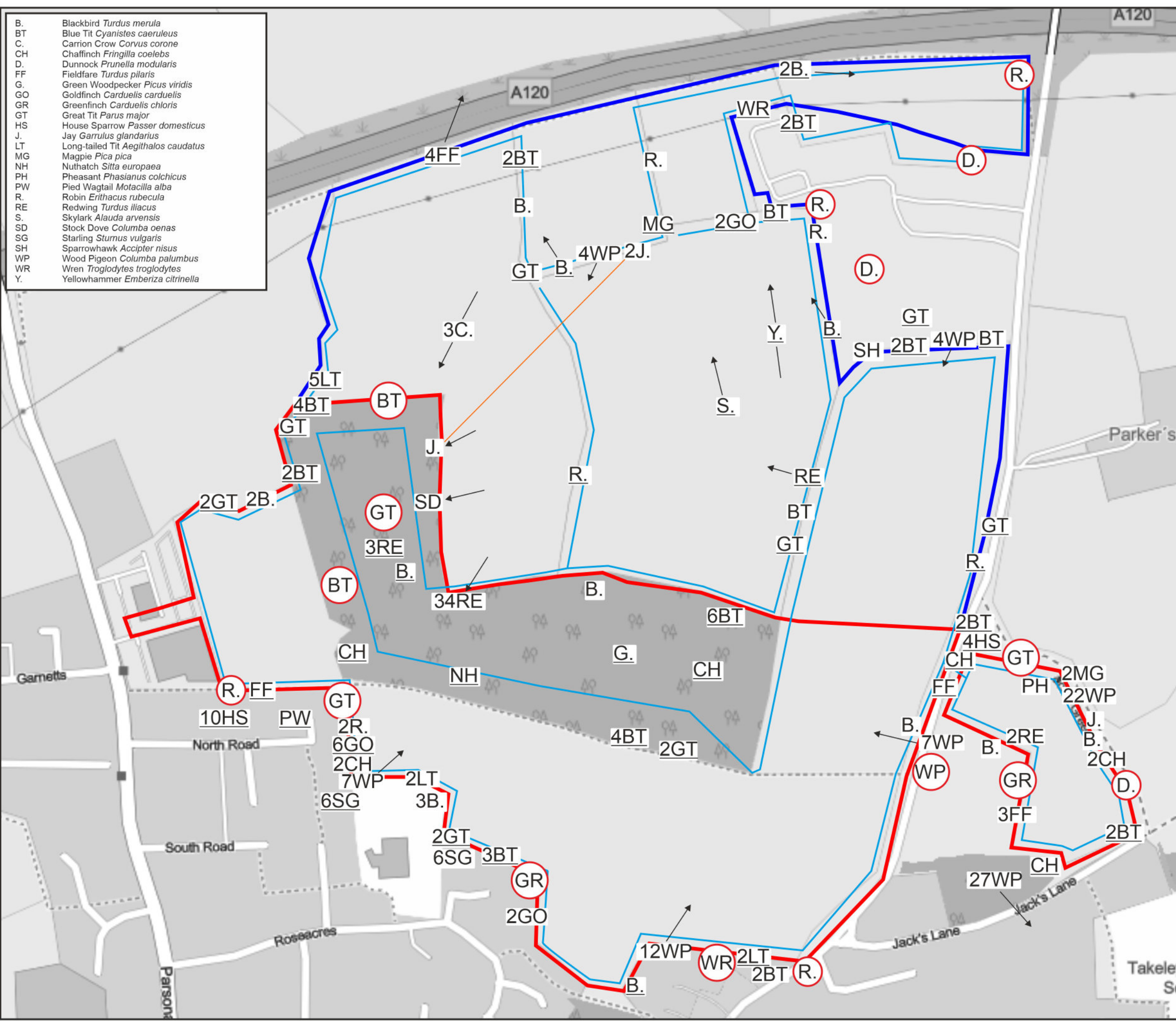


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C.	Carrion Crow <i>Corvus corone</i>
CH	Chaffinch <i>Fringilla coelebs</i>
D.	Duncock <i>Prunella modularis</i>
FF	Fieldfare <i>Turdus pilaris</i>
G.	Green Woodpecker <i>Picus viridis</i>
GO	Goldfinch <i>Carduelis carduelis</i>
GR	Greenfinch <i>Carduelis chloris</i>
GT	Great Tit <i>Parus major</i>
HS	House Sparrow <i>Passer domesticus</i>
J.	Jay <i>Garrulus glandarius</i>
LT	Long-tailed Tit <i>Aegithalos caudatus</i>
MG	Maggie <i>Pica pica</i>
NH	Nuthatch <i>Sitta europaea</i>
PH	Pheasant <i>Phasianus colchicus</i>
PW	Pied Wagtail <i>Motacilla alba</i>
R.	Robin <i>Erithacus rubecula</i>
RE	Redwing <i>Turdus iliacus</i>
S.	Skylark <i>Alauda arvensis</i>
SD	Stock Dove <i>Columba oenas</i>
SG	Starling <i>Stumus vulgaris</i>
SH	Sparrowhawk <i>Accipiter nisus</i>
WP	Wood Pigeon <i>Columba palumbus</i>
WR	Wren <i>Troglodytes troglodytes</i>
Y.	Yellowhammer <i>Emberiza citrinella</i>

**KEY:**

	SITE BOUNDARY
	STUDY AREA
	TRANSECT ROUTE
	BIRD SPECIES
	BIRD CALLING
	BIRD SINGING
	NUMBER OF BIRDS
	APPROXIMATE NUMBER OF BIRDS
	BIRD FLYING OVER
	BIRD PERCHED, THEN FLYING AWAY
	BIRD FLYING, THEN LANDING
	SAME BIRD / BIRDS



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<p>PLAN ECO5b: WINTERING BIRD SURVEY RESULTS 10.02.21</p>	<p>Rev: A May 2021</p>
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**PLAN ECO5c**













Wintering Bird Survey Results 23.02.21

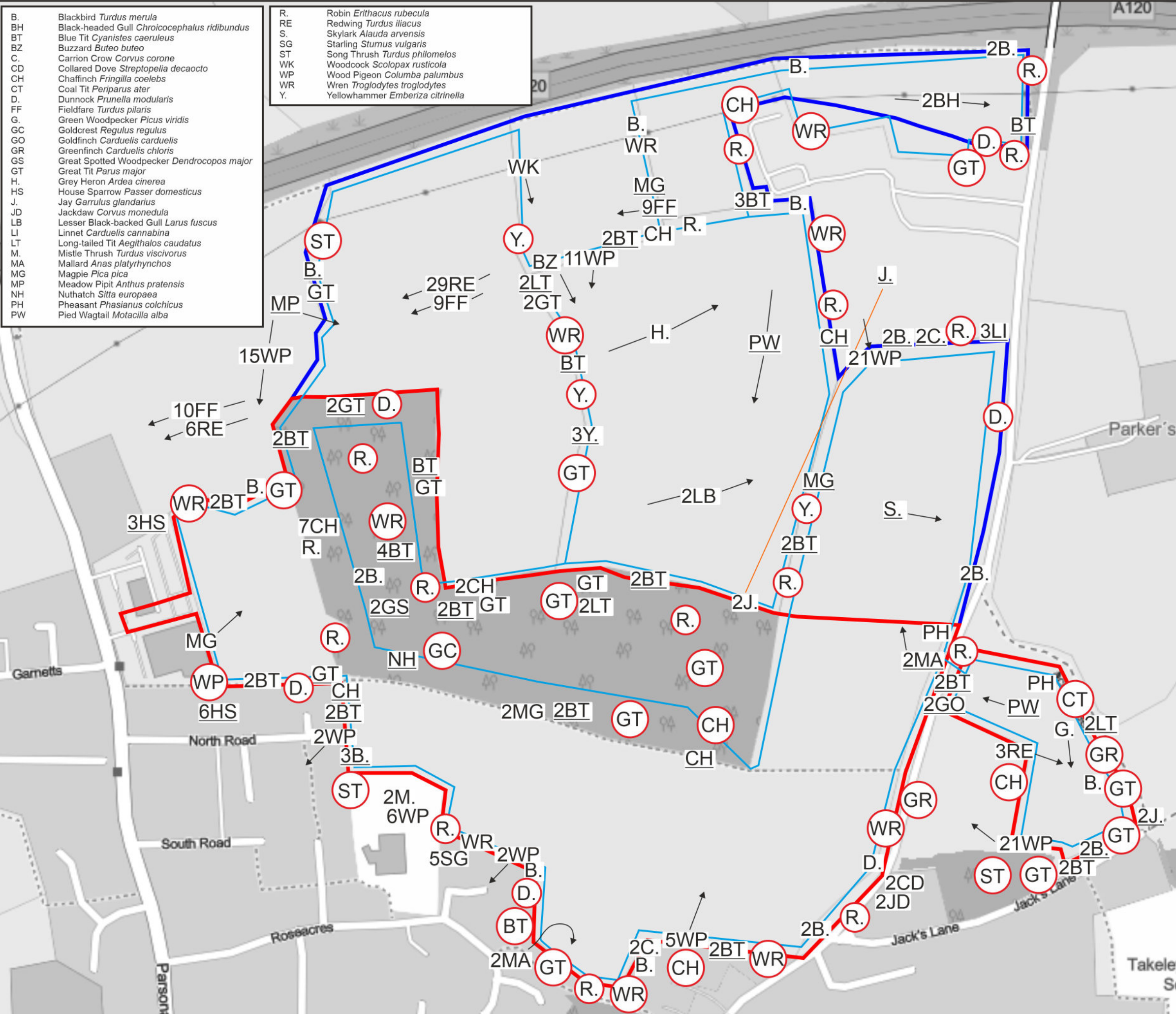


B.	Blackbird <i>Turdus merula</i>
BH	Black-headed Gull <i>Chroicocephalus ridibundus</i>
BT	Blue Tit <i>Cyanistes caeruleus</i>
BZ	Buzzard <i>Buteo buteo</i>
C.	Carrion Crow <i>Corvus corone</i>
CD	Collared Dove <i>Streptopelia decaocto</i>
CH	Chaffinch <i>Fringilla coelebs</i>
CT	Coal Tit <i>Periparus ater</i>
D.	Dunnock <i>Prunella modularis</i>
FF	Fieldfare <i>Turdus pilaris</i>
G.	Green Woodpecker <i>Picus viridis</i>
GC	Goldcrest <i>Regulus regulus</i>
GO	Goldfinch <i>Carduelis carduelis</i>
GR	Greenfinch <i>Carduelis chloris</i>
GS	Great Spotted Woodpecker <i>Dendrocopos major</i>
GT	Great Tit <i>Parus major</i>
H.	Grey Heron <i>Ardea cinerea</i>
HS	House Sparrow <i>Passer domesticus</i>
J.	Jay <i>Garrulus glandarius</i>
JD	Jackdaw <i>Corvus monedula</i>
LB	Lesser Black-backed Gull <i>Larus fuscus</i>
LI	Linnet <i>Carduelis cannabina</i>
LT	Long-tailed Tit <i>Aegithalos caudatus</i>
M.	Mistle Thrush <i>Turdus viscivorus</i>
MA	Mallard <i>Anas platyrhynchos</i>
MG	Magpie <i>Pica pica</i>
MP	Meadow Pipit <i>Anthus pratensis</i>
NH	Nuthatch <i>Sitta europaea</i>
PH	Pheasant <i>Phasianus colchicus</i>
PW	Pied Wagtail <i>Motacilla alba</i>

R.	Robin <i>Erithacus rubecula</i>
RE	Redwing <i>Turdus iliacus</i>
S.	Skylark <i>Alauda arvensis</i>
SG	Starling <i>Sturnus vulgaris</i>
ST	Song Thrush <i>Turdus philomelos</i>
WK	Woodcock <i>Scolopax rusticola</i>
WP	Wood Pigeon <i>Columba palumbus</i>
WR	Wren <i>Troglodytes troglodytes</i>
Y.	Yellowhammer <i>Emberiza citrinella</i>

**KEY:**

-  SITE BOUNDARY
-  STUDY AREA
-  TRANSECT ROUTE
-  BIRD SPECIES
-  BIRD CALLING
-  BIRD SINGING
-  NUMBER OF BIRDS
-  APPROXIMATE NUMBER OF BIRDS
-  BIRD FLYING OVER
-  BIRD PERCHED, THEN FLYING AWAY
-  BIRD FLYING, THEN LANDING
-  SAME BIRD / BIRDS





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9261: WARISH HALL FARM,  
TAKELEY, ESSEX

PLAN ECO5c: WINTERING BIRD  
SURVEY RESULTS 23.02.21

Rev: A  
May 2021



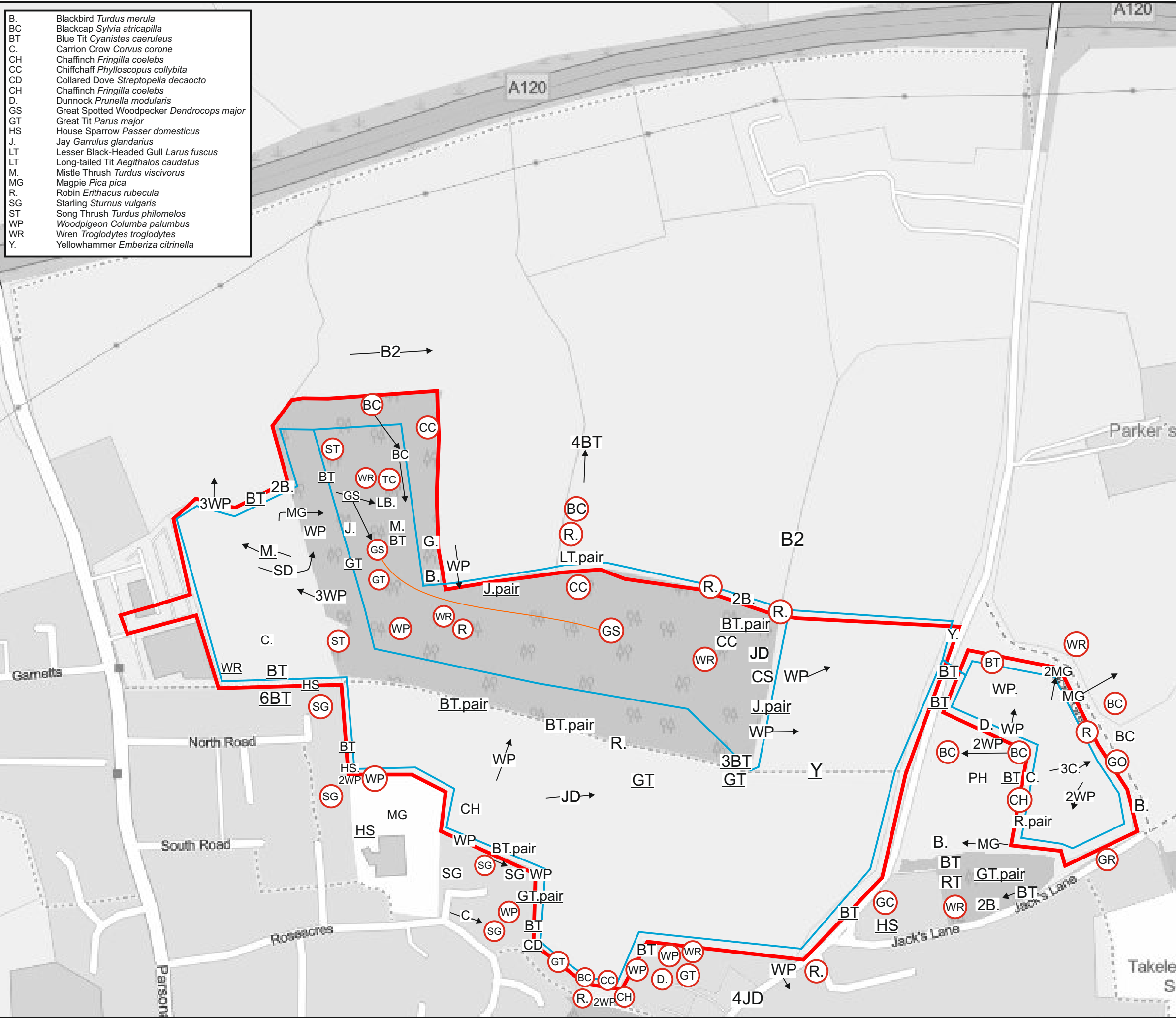
**PLAN ECO6a**

Breeding Bird Survey Results 16.04.21

B.	Blackbird <i>Turdus merula</i>
BC	Blackcap <i>Sylvia atricapilla</i>
BT	Blue Tit <i>Cyanistes caeruleus</i>
C.	Carrion Crow <i>Corvus corone</i>
CH	Chaffinch <i>Fringilla coelebs</i>
CC	Chiffchaff <i>Phylloscopus collybita</i>
CD	Collared Dove <i>Streptopelia decaocto</i>
CH	Chaffinch <i>Fringilla coelebs</i>
D.	Dunnock <i>Prunella modularis</i>
GS	Great Spotted Woodpecker <i>Dendrocops major</i>
GT	Great Tit <i>Parus major</i>
HS	House Sparrow <i>Passer domesticus</i>
J.	Jay <i>Garrulus glandarius</i>
LT	Lesser Black-Headed Gull <i>Larus fuscus</i>
LT	Long-tailed Tit <i>Aegithalos caudatus</i>
M.	Mistle Thrush <i>Turdus viscivorus</i>
MG	Magpie <i>Pica pica</i>
R.	Robin <i>Erithacus rubecula</i>
SG	Starling <i>Sturnus vulgaris</i>
ST	Song Thrush <i>Turdus philomelos</i>
WP	Woodpigeon <i>Columba palumbus</i>
WR	Wren <i>Troglodytes troglodytes</i>
Y.	Yellowhammer <i>Emberiza citrinella</i>

**KEY:**

	SITE BOUNDARY
	TRANSECT ROUTE
	BIRD SPECIES
	BIRD CALLING
	BIRD SINGING
	NUMBER OF BIRDS
	APPROXIMATE NUMBER OF BIRDS
	BIRD FLYING OVER
	BIRD PERCHED, THEN FLYING AWAY
	BIRD FLYING, THEN LANDING
	SAME BIRD / BIRDS
	PAIR OF BIRDS

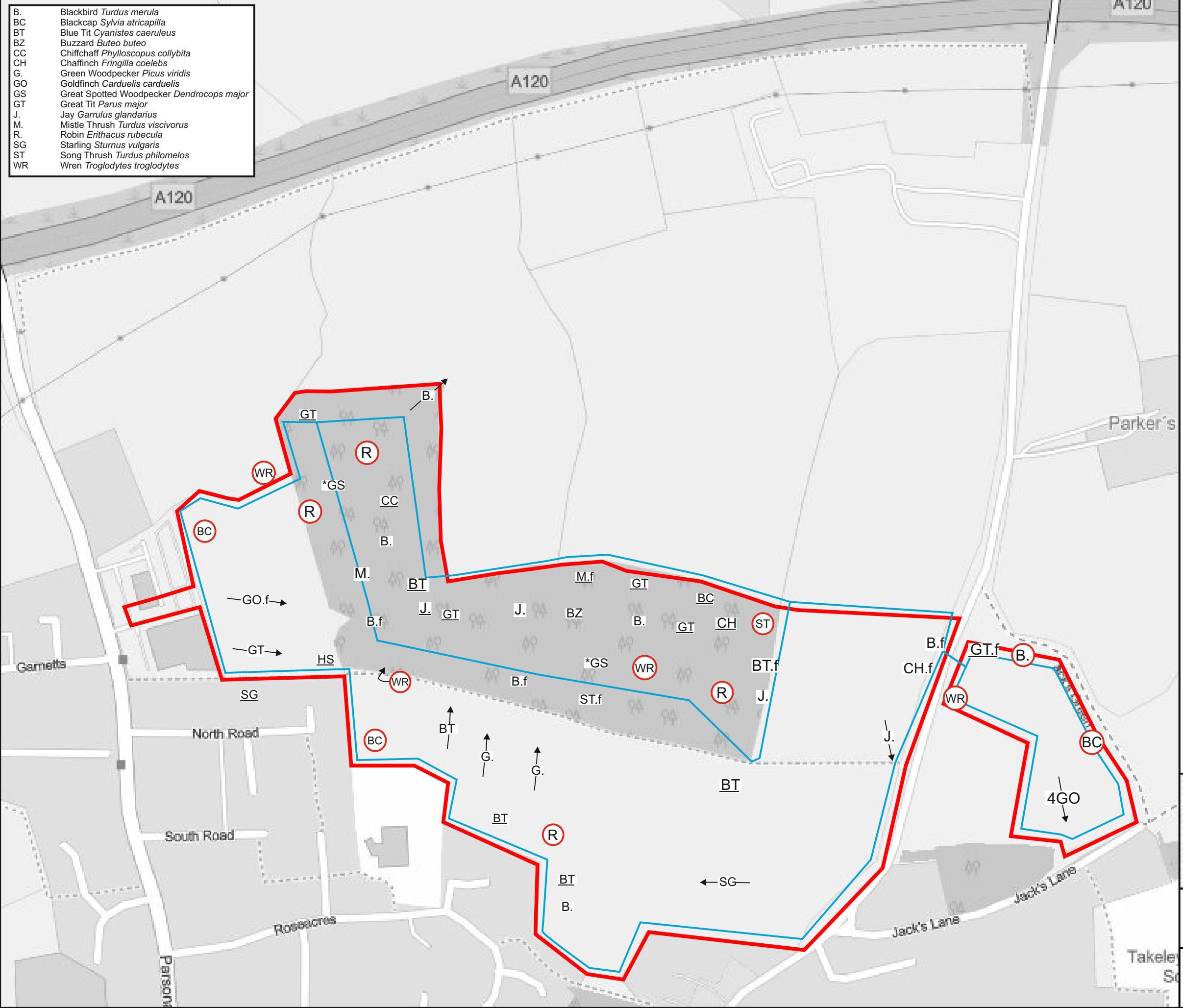


<p><b>ECOLOGY SOLUTIONS</b> Part of the ES Group</p>	<p>Cokenach Estate Barkway   Royston Hertfordshire   SG8 8DL</p> <p>+44(0)1763 848084 east@ecologysolutions.co.uk ecologysolutions.co.uk</p>
	<p>9261: WARISH HALL FARM, TAKELEY, ESSEX</p>
<p>PLAN ECO6a: BREEDING BIRD SURVEY RESULTS 16.04.21</p>	<p>Rev: A May 2021</p>

## **PLAN ECO6b**

Breeding Bird Survey Results 25.05.21

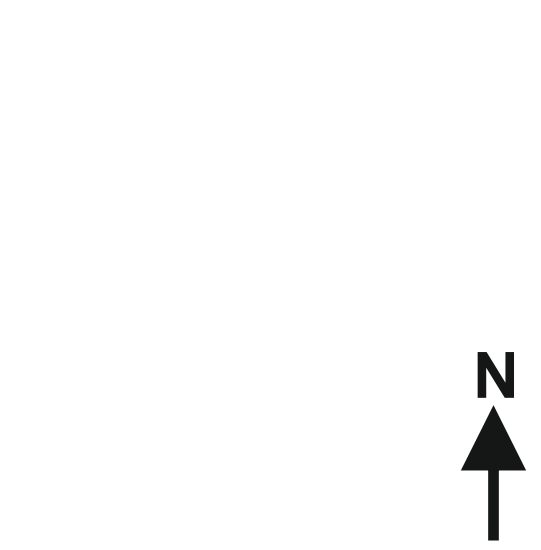
Based upon the Ordnance Survey map with permission of the Controller of Her Majesty's Stationery Office, © Crown Copyright. Ecology Solutions Ltd, Cokenach Estate, Barkway, Royston, Hertfordshire, SG8 8DL. CEM20130000228



B.	Blackbird <i>Turdus merula</i>
BC	Blackcap <i>Sylvia atricapilla</i>
BT	Blue Tit <i>Cyanistes caeruleus</i>
BZ	Buzzard <i>Buteo buteo</i>
CC	Chiffchaff <i>Phylloscopus collybita</i>
CH	Chaffinch <i>Fringilla coelebs</i>
G.	Green Woodpecker <i>Picus viridis</i>
GO	Goldfinch <i>Carduelis carduelis</i>
GS	Great Spotted Woodpecker <i>Dendrocopos major</i>
GT	Great Tit <i>Parus major</i>
J.	Jay <i>Garrulus glandarius</i>
M.	Mistle Thrush <i>Turdus viscivorus</i>
R.	Robin <i>Erithacus rubecula</i>
SG	Starling <i>Sturnus vulgaris</i>
ST	Song Thrush <i>Turdus philomelos</i>
WR	Wren <i>Troglodytes troglodytes</i>

**KEY:**

	SITE BOUNDARY
	TRANSECT ROUTE
	BIRD SPECIES
	BIRD CALLING
	BIRD SINGING
	NUMBER OF BIRDS
	APPROXIMATE NUMBER OF BIRDS
	BIRD FLYING OVER
	BIRD PERCHED, THEN FLYING AWAY
	BIRD FLYING, THEN LANDING
	PAIR OF BIRDS
	FEMALE BIRD SPECIES
	BIRD NEST



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<p>PLAN ECO6b: BREEDING BIRD SURVEY RESULTS 25.05.21</p>	<p>Rev: A Jun 2021</p>
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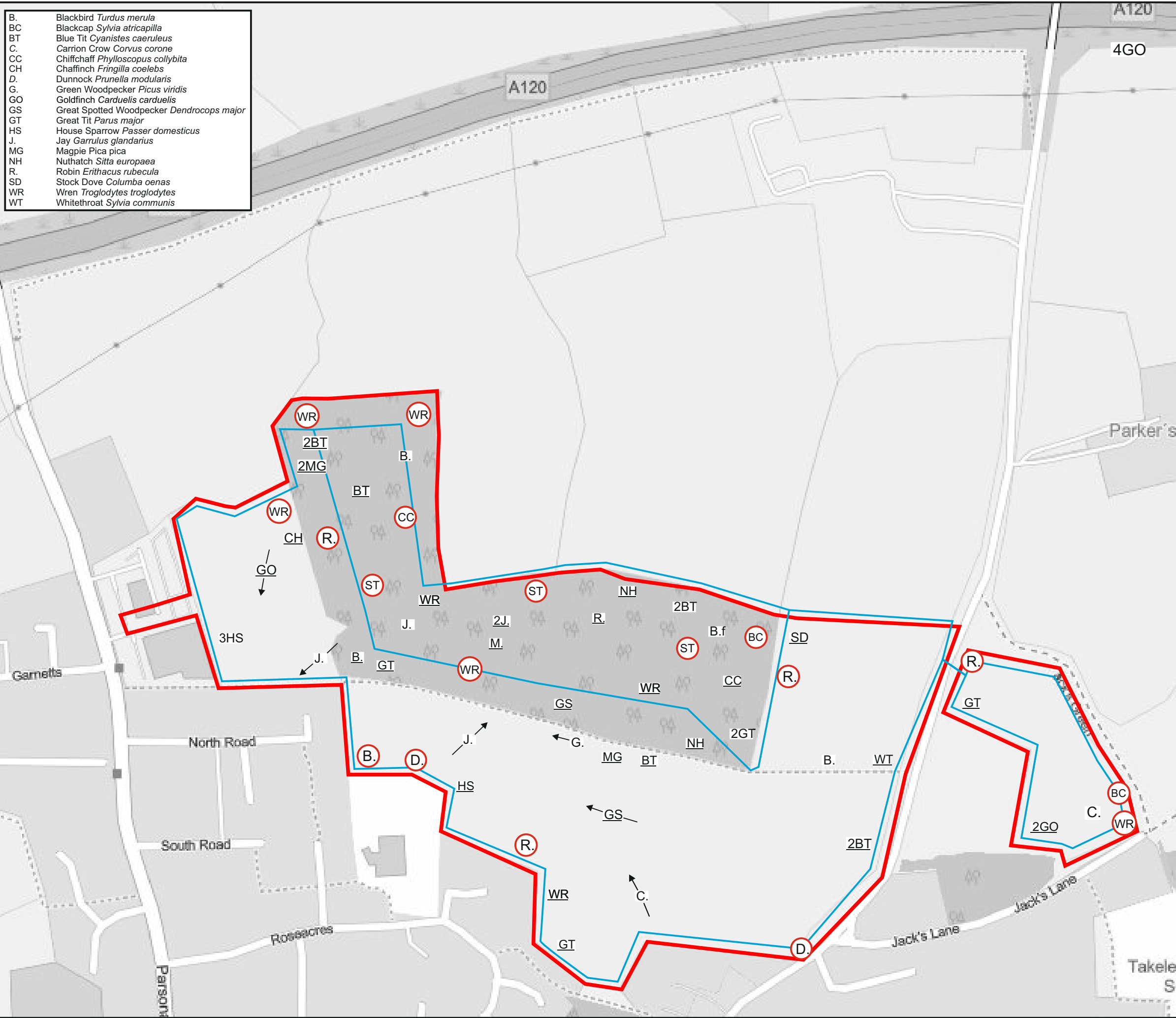
**PLAN ECO6c**

Breeding Bird Survey Results 23.06.21

B.	Blackbird <i>Turdus merula</i>
BC	Blackcap <i>Sylvia atricapilla</i>
BT	Blue Tit <i>Cyanistes caeruleus</i>
C.	Carrion Crow <i>Corvus corone</i>
CC	Chiffchaff <i>Phylloscopus collybita</i>
CH	Chaffinch <i>Fringilla coelebs</i>
D.	Dunnock <i>Prunella modularis</i>
G.	Green Woodpecker <i>Picus viridis</i>
GO	Goldfinch <i>Carduelis carduelis</i>
GS	Great Spotted Woodpecker <i>Dendrocops major</i>
GT	Great Tit <i>Parus major</i>
HS	House Sparrow <i>Passer domesticus</i>
J.	Jay <i>Garrulus glandarius</i>
MG	Magpie <i>Pica pica</i>
NH	Nuthatch <i>Sitta europaea</i>
R.	Robin <i>Erithacus rubecula</i>
SD	Stock Dove <i>Columba oenas</i>
WR	Wren <i>Troglodytes troglodytes</i>
WT	Whitethroat <i>Sylvia communis</i>

**KEY:**

	SITE BOUNDARY
	TRANSECT ROUTE
	BIRD SPECIES
	BIRD CALLING
	BIRD SINGING
	NUMBER OF BIRDS
	BIRD FLYING OVER
	BIRD PERCHED, THEN FLYING AWAY
	FEMALE BIRD SPECIES

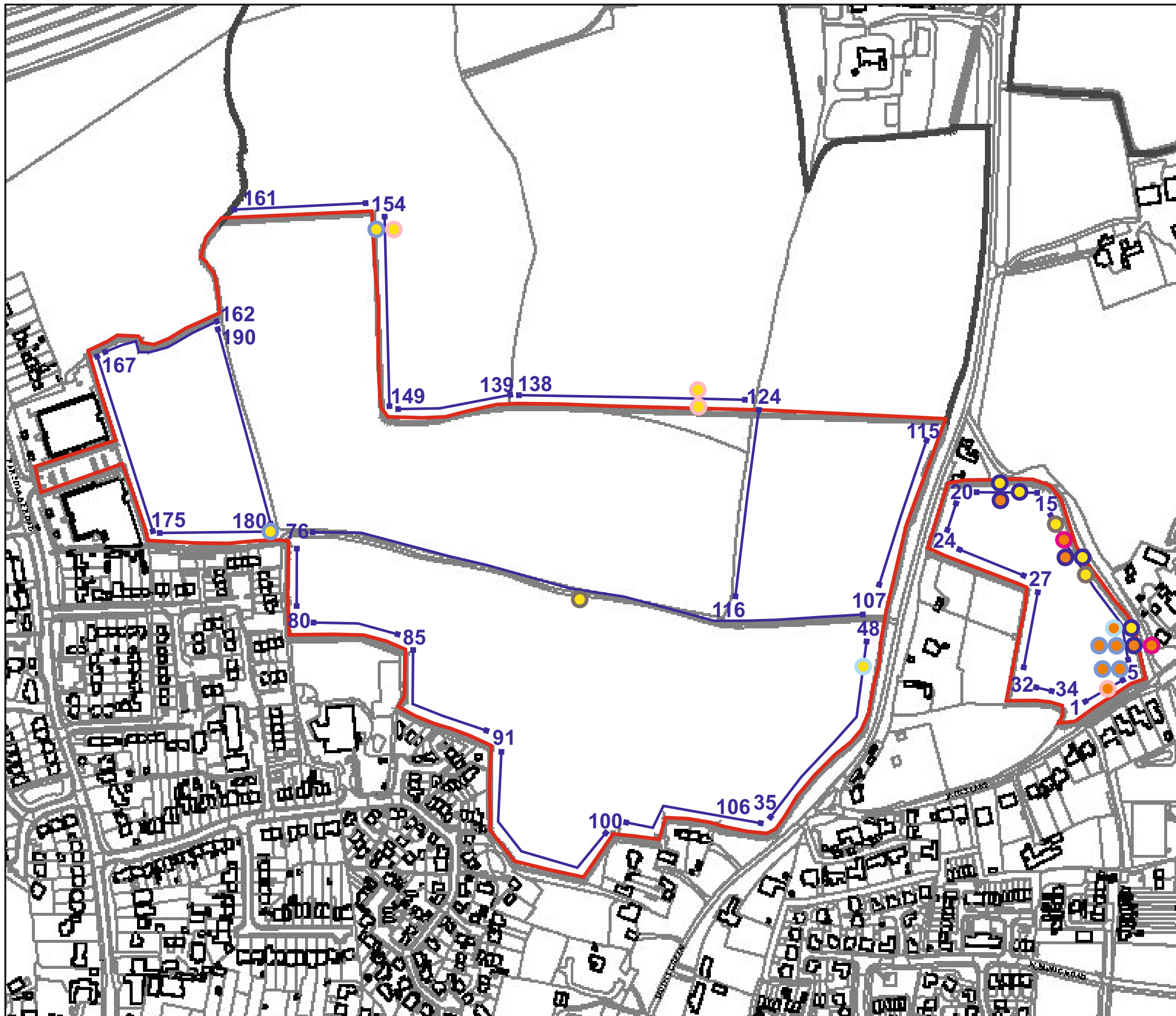


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<p>PLAN ECO6c: BREEDING BIRD SURVEY RESULTS 23.06.21</p>	<p>Rev: A Oct 2021</p>
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**PLAN ECO7**








Reptile Survey Results





**KEY:**

-  SITE BOUNDARY
-  ARTIFICIAL REFUGIA LOCATION

**DATE OF REPTILE SURVEY**

-  22.05.21
-  25.05.21
-  04.06.21
-  10.06.21
-  22.06.21
-  24.06.21
-  30.06.21

**REPTILE SPECIES**

-  JUVENILE GRASS SNAKE
-  ADULT COMMON LIZARD



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TAKELEY, ESSEX

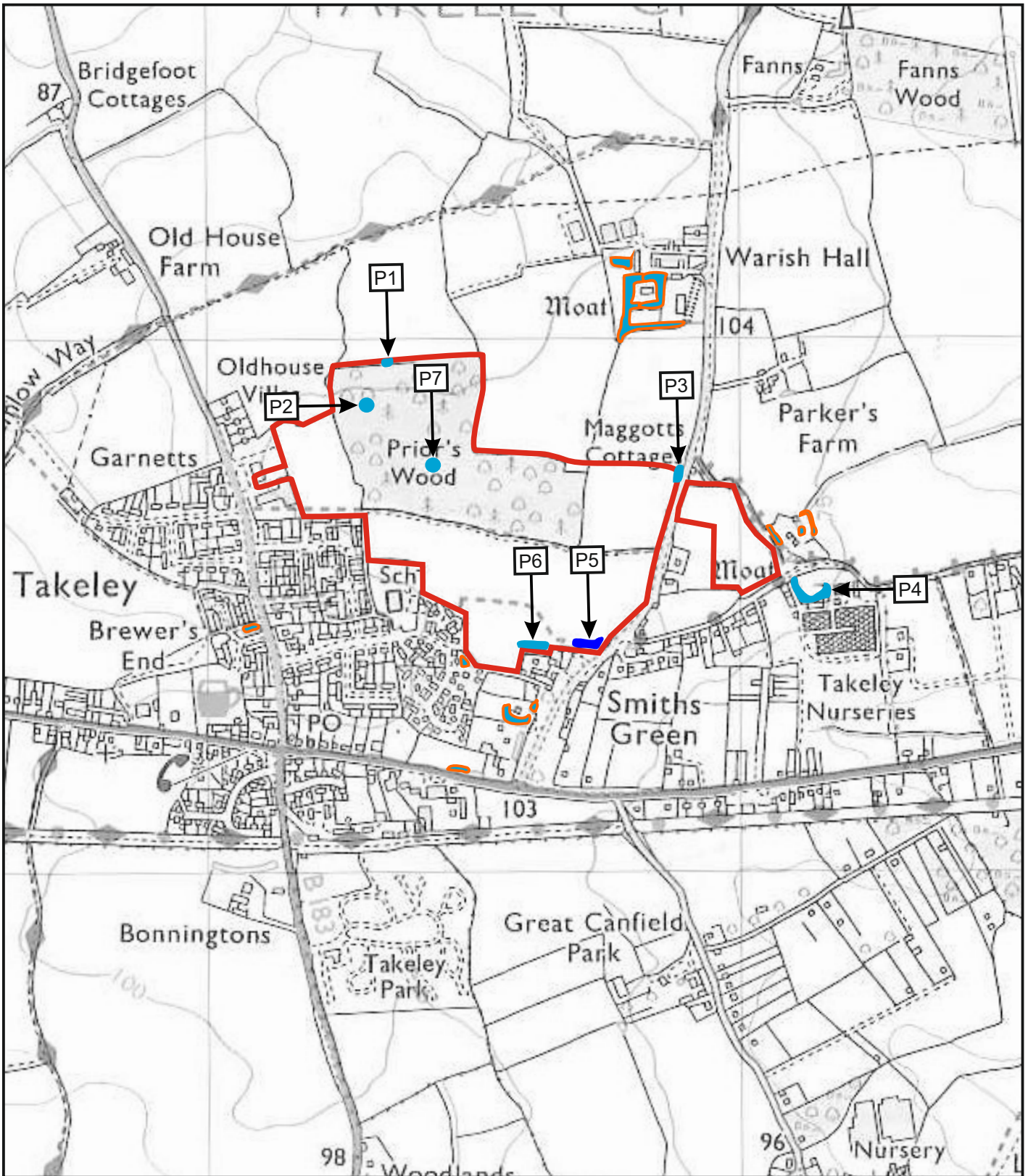
PLAN ECO7: REPTILE SURVEY  
RESULTS

Rev: B  
Oct 2021







## **PLAN ECO8**

Pond Locations and Results of eDNA Testing



**KEY:**

-  SITE BOUNDARY
-  PONDS WITH NEGATIVE GREAT CRESTED NEWT eDNA TEST RESULT
-  POND DRY AT TIME OF SURVEY
-  PONDS WITH ACCESS NOT PERMITTED



**ECOLOGY SOLUTIONS**  
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**9261: WARISH HALL FARM,  
TAKELEY, ESSEX**

**PLAN ECO8: POND LOCATIONS  
AND RESULTS OF eDNA TESTING**

Rev: A  
May 2021

## **PHOTOGRAPHS**



PHOTOGRAPH 1: Arable Field



PHOTOGRAPH 2: Broadleaved Woodland





PHOTOGRAPH 3: Eastern Hedgerow



PHOTOGRAPH 4: Southern Hedgerow





PHOTOGRAPH 5: Pond 7



PHOTOGRAPH 6: Drainage Ditch

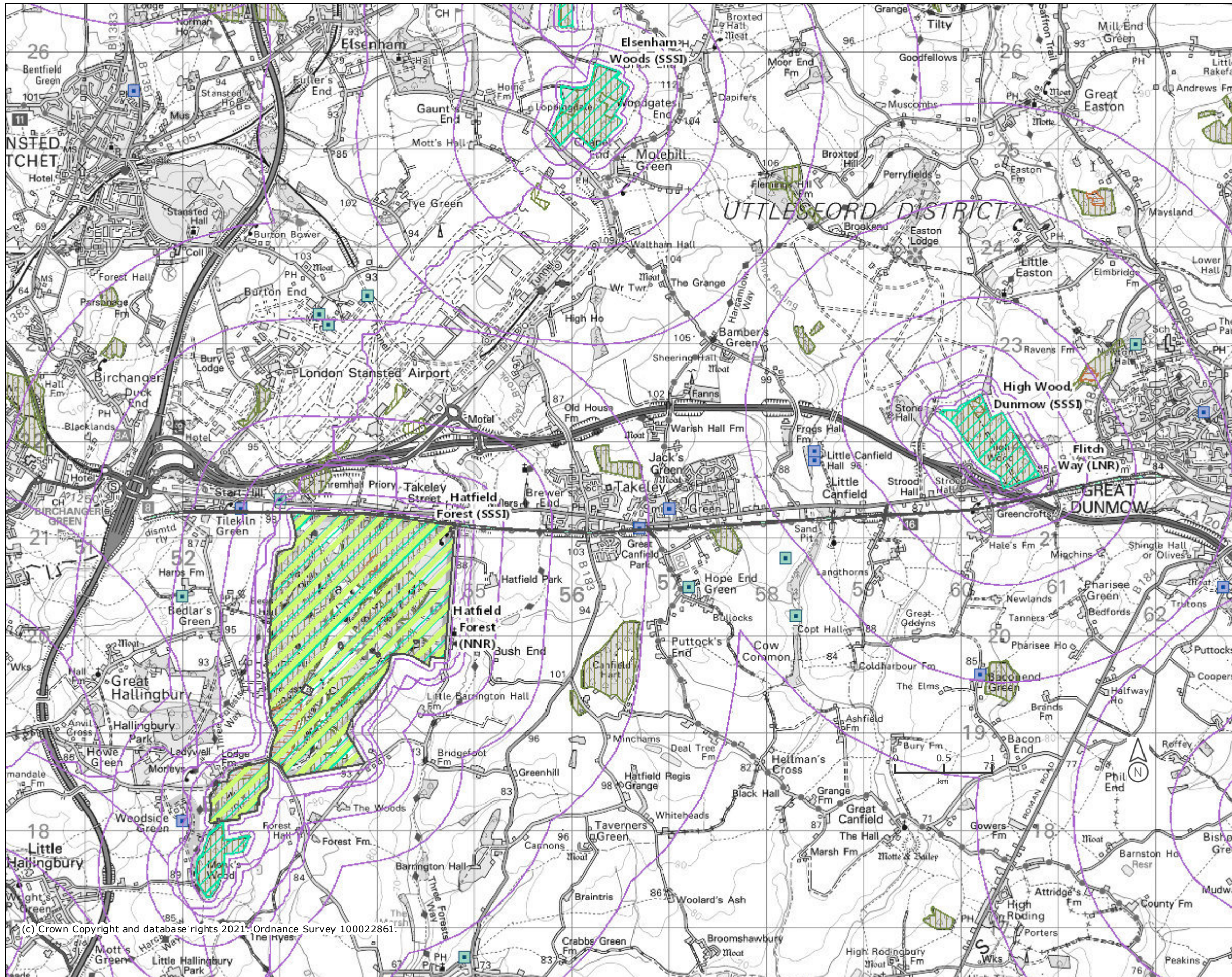


## **APPENDICES**













## **APPENDIX 1**

Information downloaded from Multi-Agency  
Geographic Information for the Countryside (MAGIC)






**Legend**

-  Local Nature Reserves (England)
-  National Nature Reserves (England)
-  Ramsar Sites (England)
-  Sites of Special Scientific Interest (England)
-  SSSI Impact Risk Zones - to assess planning applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites (England)
-  Special Areas of Conservation (England)
-  Special Protection Areas (England)
-  Biosphere Reserves (England)
- Ancient Woodland (England)**
-  Ancient and Semi-Natural Woodland
-  Ancient Replanted Woodland
- Granted European Protected Species Applications (England)**
-  Amphibian
-  Bat
-  Cetacean
-  Invertebrate
-  Other Mammal
-  Plant
-  Reptile

Projection = OSGB36  
 xmin = 546500  
 ymin = 216400  
 xmax = 566600  
 ymax = 226600



Map produced by MAGIC on 19 May, 2021.  
 Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.



## **APPENDIX 2**

### Wintering Bird Survey Results

## APPENDIX 2: WINTERING BIRD SURVEY RESULTS 2021

Summary of 2021 wintering bird surveys. Legislation and designation. National: R = Red List of Birds of Conservation Concern; A = Amber List of Birds of Conservation Concern; UKBAP = UK BAP Priority List of Species; S1 = Schedule 1 of the Wildlife and Countryside Act 1981; S41 = Section 41 of the NERC Act 2006.

BTO Code	Species	Date			National Legislation and Designation
		22.01.21	10.02.21	23.02.21	
B.	Blackbird <i>Turdus merula</i>	11	20	30	
BH	Black-headed Gull <i>Chroicocephalus ridibundus</i>			18	A
BT	Blue Tit <i>Cyanistes caeruleus</i>	59	46	45	
BZ	Buzzard <i>Buteo buteo</i>			1	
C.	Carrion Crow <i>Corvus corone</i>	4	3	5	
CA	Cormorant <i>Phalacrocorax carbo</i>	2			
CD	Collared Dove <i>Streptopelia decaocto</i>	2		2	
CH	Chaffinch <i>Fringilla coelebs</i>	14	11	18	
CM	Common Gull <i>Larus canus</i>	10		1	A
CT	Coal Tit <i>Periparus ater</i>	2		1	
D.	Dunnock <i>Prunella modularis</i>	4	4	8	A, UKBAP, S41
FF	Fieldfare <i>Turdus pilaris</i>	11	11	28	R, S1

BTO Code	Species	Date			National Legislation and Designation
		22.01.21	10.02.21	23.02.21	
FP	Feral Pigeon <i>Columba livia</i>			2	
G.	Green Woodpecker <i>Picus viridis</i>	1	1	1	
GC	Goldcrest <i>Regulus regulus</i>	3		1	
GO	Goldfinch <i>Carduelis carduelis</i>	9	11	3	
GP	Golden Plover <i>Pluvialis apricaria</i>	c90			
GR	Greenfinch <i>Carduelis chloris</i>	2	2	3	
GS	Great Spotted Woodpecker <i>Dendrocopos major</i>	2		2	
GT	Great Tit <i>Parus major</i>	19	14	20	
H.	Grey Heron <i>Ardea cinerea</i>			1	
HS	House Sparrow <i>Passer domesticus</i>	7	19	14	R, UKBAP, S41
J.	Jay <i>Garrulus glandarius</i>	1	3	5	
JD	Jackdaw <i>Corvus monedula</i>	9		5	
K.	Kestrel <i>Falco tinnunculus</i>	1	1		
KT	Red Kite <i>Milvus milvus</i>	1			S1
LB	Lesser Black-backed Gull <i>Larus fuscus</i>			2	
LI	Linnet <i>Carduelis cannabina</i>			3	R, UKBAP, S41

BTO Code	Species	Date			National Legislation and Designation
		22.01.21	10.02.21	23.02.21	
LT	Long-tailed Tit <i>Aegithalos caudatus</i>	7	9	9	
M.	Mistle Thrush <i>Turdus viscivorus</i>	1		2	R
MA	Mallard <i>Anas platyrhynchos</i>			4	A
MG	Magpie <i>Pica pica</i>	7	5	6	
MH	Moorhen <i>Gallinula chloropus</i>	1			
MP	Meadow Pipit <i>Anthus pratensis</i>	2		2	A
NH	Nuthatch <i>Sitta europaea</i>	1	1	1	
PH	Pheasant <i>Phasianus colchicus</i>	1	1	4	
PW	Pied Wagtail <i>Motacilla alba</i>	5	1	2	
R.	Robin <i>Erithacus rubecula</i>	17	11	18	
RB	Reed Bunting <i>Emberiza schoeniclus</i>	1	3	3	A, UKBAP, S41
RE	Redwing <i>Turdus iliacus</i>	6	41	38	R, S1
RO	Rook <i>Corvus frugilegus</i>	2			
S.	Skylark <i>Alauda arvensis</i>	10	1	6	R, UKBAP, S41
SD	Stock Dove <i>Columba oenas</i>	1	1	1	A
SG	Starling <i>Sturnus vulgaris</i>	25	12	5	R, UKBAP, S41

BTO Code	Species	Date			National Legislation and Designation
		22.01.21	10.02.21	23.02.21	
SH	Sparrowhawk <i>Accipiter nisus</i>	1	1	1	
SN	Snipe <i>Gallinago gallinago</i>	2	2	2	A
ST	Song Thrush <i>Turdus philomelos</i>	4		20	R, UKBAP, S41
TC	Eurasian Treecreeper <i>Certhia familiaris</i>	1			
WK	Woodcock <i>Scolopax rusticola</i>			1	R
WP	Wood Pigeon <i>Columba palumbus</i>	24	94	77	
WR	Wren <i>Troglodytes troglodytes</i>	3	4	10	
Y.	Yellowhammer <i>Emberiza citrinella</i>		1	10	R, UKBAP, S41

## **APPENDIX 3**

### Breeding Bird Survey Results

### APPENDIX 3: BREEDING BIRD SURVEY RESULTS 2021

Summary of 2021 Breeding bird surveys. Legislation and designation. National: R = Red List of Birds of Conservation Concern; A = Amber List of Birds of Conservation Concern; UKBAP = UK BAP Priority List of Species; S1 = Schedule 1 of the Wildlife and Countryside Act 1981; S41 = Section 41 of the NERC Act 2006.

BTO Code	Species	Date			National Legislation and Designation
		16.04.21	25.05.21	23.06.21	
B.	Blackbird <i>Turdus merula</i>	15	5	6	
BC	Blackcap <i>Sylvia atricapilla</i>	5	4	2	S1
BT	Blue Tit <i>Cyanistes caeruleus</i>	31	6	8	
C.	Carrion Crow <i>Corvus corone</i>	6		2	
CH	Chaffinch <i>Fringilla coelebs</i>	2	2	1	
CC	Chiffchaff <i>Phylloscopus collybita</i>	3	1	2	S1
D.	Dunnock <i>Prunella modularis</i>	2		2	A, UKBAP, S41
G.	Green Woodpecker <i>Picus viridis</i>		2	1	
GO	Goldfinch <i>Carduelis carduelis</i>		5	3	
GS	Great Spotted Woodpecker <i>Dendrocopos major</i>	3	2	1	
GT	Great Tit <i>Parus major</i>	9	6	5	
HS	House Sparrow <i>Passer domesticus</i>	4		4	R, UKBAP, S41



BTO Code	Species	Date			National Legislation and Designation
		16.04.21	25.05.21	23.06.21	
J.	Jay <i>Garrulus glandarius</i>	5	4	4	
LB	Lesser Black-backed Gull <i>Larus fuscus</i>	1			
LT	Long-tailed Tit <i>Aegithalos caudatus</i>	2			
M.	Mistle Thrush <i>Turdus viscivorus</i>	1	2	1	R
MG	Magpie <i>Pica pica</i>	5		3	
NH	Nuthatch <i>Sitta europaea</i>			2	
R.	Robin <i>Erithacus rubecula</i>	9	4	5	
SD	Stock Dove <i>Columba oenas</i>			1	A
SG	Starling <i>Sturnus vulgaris</i>	5	2		R, UKBAP, S41
ST	Song Thrush <i>Turdus philomelos</i>	2	1		R, UKBAP, S41
WH	Whitethroat <i>Sylvia communis</i>			1	
WP	Wood Pigeon <i>Columba palumbus</i>	25			
WR	Wren <i>Troglodytes troglodytes</i>	7	4	7	
Y.	Yellowhammer <i>Emberiza citrinella</i>	2			R, UKBAP, S41

## **APPENDIX 4**

### Great Crested Newt eDNA Survey Results

Folio No: E9299  
Report No: 1  
Purchase Order: 926IE/NW  
Client: ECOLOGY SOLUTIONS LTD  
Contact: Nicole Watts

## TECHNICAL REPORT

### ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (*TRITURUS CRISTATUS*)

#### SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

#### RESULTS

**Date sample received at Laboratory:** 19/04/2021  
**Date Reported:** 28/04/2021  
**Matters Affecting Results:** None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
1347	POND P2	TL 562 218	Pass	Pass	Pass	Negative	0
1348	POND P3	TL 568 217	Pass	Pass	Pass	Negative	0
1349	POND P6	TL 566 214	Pass	Pass	Pass	Negative	0
1353	POND P1	TL 562 219	Pass	Pass	Pass	Negative	0
1354	POND P4	TL 571215	Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: [ForensicEcology@surescreen.com](mailto:ForensicEcology@surescreen.com)

**Reported by:** Chris Troth

**Approved by:** Chris Troth



## **METHODOLOGY**

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

## **INTERPRETATION OF RESULTS**

- SIC:**           **Sample Integrity Check** [Pass/Fail]  
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.
- DC:**           **Degradation Check** [Pass/Fail]  
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.
- IC:**           **Inhibition Check** [Pass/Fail]  
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.
- Result:**       **Presence of GCN eDNA** [Positive/Negative/Inconclusive]  
**Positive:** GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.  
**Positive Replicates:** Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.  
**Negative:** GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.



Folio No: E10793  
Report No: 1  
Purchase Order: 9261E  
Client: ECOLOGY SOLUTIONS LTD  
Contact: Nicole Watts

## TECHNICAL REPORT

### ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (*TRITURUS CRISTATUS*)

#### SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

#### RESULTS

**Date sample received at Laboratory:** 07/06/2021  
**Date Reported:** 08/06/2021  
**Matters Affecting Results:** None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
1358	Warish Hall Farm P6	TL564217	Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: [ForensicEcology@surescreen.com](mailto:ForensicEcology@surescreen.com)

**Reported by:** Gabriela Danickova

**Approved by:** Gabriela Danickova



## **METHODOLOGY**

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

## **INTERPRETATION OF RESULTS**

- SIC:**            **Sample Integrity Check** [Pass/Fail]  
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.
- DC:**            **Degradation Check** [Pass/Fail]  
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.
- IC:**            **Inhibition Check** [Pass/Fail]  
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.
- Result:**        **Presence of GCN eDNA** [Positive/Negative/Inconclusive]  
**Positive:** GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.  
**Positive Replicates:** Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.  
**Negative:** GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.







# **ECOLOGY**SOLUTIONS

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**Appendix C – Briefing Note – Ecological Appraisal [June 2023] by Ecology Solutions**

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9282: BULL FIELD, WARISH HALL FARM, TAKELEY

## UPDATED ECOLOGICAL APPRAISAL

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### Introduction

1. A planning application was submitted for the wider Land at Warish Hall Farm (Planning Ref: UTT/21/1987/FUL), for which Ecology Solutions produced various documents including an Ecological Assessment (October 2021), Bat Survey Report (November 2021), Biodiversity Net Gain Assessment (October 2021), Bird Hazard Management Plan (June 2021) and Woodland Management Plan (October 2021).
2. The application for Bull Field is a smaller parcel of land that falls within the original red line boundary for the wider Land at Warish Hall Farm application. The proposal for Bull Field is for a residential development of 96 units with associated access, infrastructure and public open space.
3. The site consists primarily of a large field of approximately 8.6ha, which is intensively managed for arable agriculture. Within the northern section of the site is Prior's Wood, an area of Ancient and Semi-Natural Woodland, along with another small area of arable field. Another arable field known as Maggots Field bounds the site to the northeast. A shallow ditch runs along the entire northern boundary with a hedgerow also present along the eastern part of the boundary. Smiths Green Road runs adjacent to the eastern site boundary, separated by a shallow ditch with an associated hedgerow. Outside of this section of the site boundary is a wide roadside grass verge. Beyond the road is a line of residential properties.
4. The majority of the southern and western boundaries back onto the gardens of residential properties, with the playground of Roseacres Primary School bordering the site to the southwest. Much of the site boundary is made up of self-seeded scrub, treelines and hedgerows with a wet ditch also present in the southeast of the site. Bull Field is connected to another field known as 7 Acres which is located immediately to the northwest of the site and is currently fenced off because of ongoing archaeological works relating to planning permission (Ref. No. UTT/22/2744/FUL) for 4no. commercial units (with a resolution to grant at the time of writing).
5. The site is located to the north of Takeley, approximately 1.3km southeast of London Stansted Airport and approximately 1.5km northeast of Hatfield Forest Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR). The wider area is characterised by residential properties to the south, east and west,

with semi-natural ancient woodland and arable fields to the north. The site location and local ecological designations are shown on Plan ECO1.

6. The ecological information set out in the aforementioned reports largely remains valid for the current application. This document reviews the survey details in terms of the current application and sets out the results of the ecological walkover surveys undertaken in February and June 2023. The results of the Biodiversity Net Gain Assessment are also discussed.
7. Comments dated 23 March 2023 were received from Ella Gibbs, Senior Ecological Consultant with Place Services, in relation to a pre-application submission. This document responds to the points made.
8. A summary of the main points received is set out below.
  - Provision of ecological assessment to address survey findings and assessment of priority habitats and species;
  - Provision of biodiversity checklist;
  - Information on financial contributions to Strategic Access Management and Monitoring Strategy (SAMM);
  - Provision of landscape and ecological management plan to discuss protection of woodland and management and maintenance of Suitable Accessible Natural Greenspace (SANG);
  - Bat surveys and bat sensitive lighting scheme;
  - Great Crested Newt *Triturus cristatus* surveys;
  - Dormouse *Muscardinus avellanarius* surveys;
  - Surveys for UK protected species including Badger *Meles meles*, breeding birds and reptiles;
  - Consideration of Non-native invasive species (NNIS); and
  - Biodiversity enhancement and Net Gain.
9. Additionally, Table 1 below summarises the key decisions relating to biodiversity resulting from the Appeal (Ref. No. APP/C1570/W/22/32911524). Comments relate solely to Prior's Wood and the 15 metre buffer zone required around ancient woodland. The comments were positive, with it being agreed that there will be no deleterious effect on Prior's Wood as a result of the development.

Para No.	Text from Inspector's Decision	Response	Relevant Report
70	Concerns were raised that the proposal would fail to provide a sufficient buffer between the proposal, including the access road, cycleway and dwellings, and the ancient woodland of Prior's Wood. This arises from the Standing Advice issued by Natural England and The Forestry Commission which recommends that a buffer zone of at least 15 metres from the boundary of the woodland should be provided in all cases.	The Inspector sets out at Paragraph 77 that he is content with the proposals for this perspective and this situation has not changed from the Appeal Scheme, therefore it is deemed to be acceptable.	Arboricultural Impact Assessment  Landscape Strategy
72	Whilst paragraph 180(c) of the NPPF makes clear that development resulting in the loss or deterioration of irreplaceable	The situation here has not changed, and there is no further impact on the woodland being proposed.	Arboricultural Impact Assessment

	habitats (such as ancient woodland) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy, the Council's ecology advice from Place Services raised no issues as regards impacts on Prior's Wood in respect of any resulting loss or deterioration.	The impact is being reduced as set out above. As such, the proposals would not result in loss or deterioration of Prior's Wood.	Landscape Strategy
73	Indeed, it is common ground between the Council and the appellant that there is no objection to the technical design of the proposal as a result of any impact on trees, and no trees within Prior's Wood are to be removed, or would be impacted directly, as a result of the proposed route through the buffer. Moreover, mitigation of the impact on Prior's Wood includes the Woodland Management Plan (which is part of the S106 Agreement).	The proposals before you do not result in any impact on trees, and no tree within Prior's Wood is proposed to be removed. No trees will be impacted directly as a result of the proposed route through the buffer. A Woodland Management Plan has also been submitted and the application also proposes an extension to the woodland. Accordingly, the position set out in the Inspector's report does not change.	Arboricultural Impact Assessment  Landscape Strategy
74	The parties disputed where the buffer zone should be measured from, with the appellant preferring the trunks of the trees on the outer edge of the woodland and the Council, the outer edge of the ditch. Either way, it is agreed that the 15m buffer would be breached by the cycle way along the southern edge of Prior's Wood and a 35m stretch of the access road connecting 7 Acres and Bull Field (referred to at the Inquiry as the "pinch point"). I heard, as agreed in the SoCG, that no trees within Prior's Wood would be removed or would be impacted on directly as a result of the proposed access road and cycle way route within the buffer, including the road layout at the pinch point.	As set out above, no trees are directly impacted by the proposed route through the buffer. As such this position does not change.	Arboricultural Impact Assessment  Landscape Strategy
75	In this regard, I agree with the Inspector in a previous appeal concerning an issue with strong similarities to this case where that Inspector noted that "some development is proposed within the buffer, through a mixture of road or car parking and re-grading and other landscaping works". In considering the Standing Advice and the recommendation for a 15m buffer, that Inspector found that there was compliance with what is now	As set out above, no trees are directly impacted by the proposed route through the buffer. As such, this position does not change	Arboricultural Impact Assessment  Landscape Strategy

	para 180(c) of the NPPF. This was on the basis that “no above ground built form is proposed in that area, such as housing” and “the level of incursion is relatively minor”. I consider that the circumstances of this case are very similar.		
76	That Inspector also accepted that the development that would take place would be contrary to the Standing Advice, as is the situation in the appeal before me, but went on to note that it had “been demonstrated that there would be no incursions into the root protection area”. From my assessment of this proposal, I consider that there would be no incursion into the root protection area and no harm to trees would result, as set out in the SoCG.	As with the Appeal Scheme, this application would not result in incursions into the root protection areas. As such there would be no harm to any trees in this instance.	Arboricultural Impact Assessment  Landscape Strategy
77	In addition, I am content from the submitted written evidence and what I heard at the Inquiry, that neither the proposed road or cycleway within the buffer or proposed housing in the vicinity, would lead to indirect effects on the ancient woodland as identified in the Standing Advice, given the proposed measures set out in the Prior’s Wood Management Plan.	Likewise, this situation remains akin to that proposed under the Appeal Scheme. Therefore, the proposed housing, road and cycleway would not lead to any indirect effects on the ancient woodland.	Arboricultural Impact Assessment  Landscape Strategy

**Table 1.** Extract from Summary of Responses to Appeal Decision Ref. No. APP/C1570/W/22/32911524.

### **Review of 2021 Surveys and 2023 Walkover Surveys**

#### *Habitats*

10. Ecological walkover surveys were undertaken in February and June 2023. The broad habitats found on site and within the wider study area are shown on Plan ECO2.
11. The habitats present within the site, along with their condition and species composition, were recorded and compared against the previous surveys documented in the 2021 Ecological Assessment to highlight any changes that may have occurred during the intervening period.
12. At the time of 2023 surveys, as in previous years, the fields either contained an arable crop or were ploughed in preparation of the growth of arable crops (see Photograph 1).
13. The footpath around Bull Field is very narrow on all sides apart from where it runs adjacent to the woodland. Here it is approximately 3m wide and consists of the same rough semi-improved grassland as described in previous surveys (see Photograph 2). The field margins to the north of Prior’s Wood also comprise rough



semi-improved grassland, approximately 10m wide, with no heavy footfall. The species composition of the grassland closely matches that previously described, as would be expected.

14. The ditches along the eastern and northeastern boundaries were both dry at the time of survey. The ditch between the northern field margin and the southern edge of Prior's Wood is becoming overgrown with self-seeded scrub, which in places is becoming quite dense but is not encroaching onto the field margin. The ditch located along the southeastern site boundary was largely dry at the time of the most recent survey; however, contained standing water with no obvious flow during the February survey. No aquatic or emergent vegetation was recorded along this ditch during the survey.
15. There is a small Ivy *Hedera helix* covered tree in the southeastern corner of the field which has blown over and obstructs the footpath.
16. The hedgerows present along the site boundaries consist of Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, Hazel *Corylus avellana*, Field Maple *Acer campestre*, Bramble *Rubus fruticosus*, Dog Rose *Rosa canina*, Ivy, Elder *Sambucus nigra*, and Oak *Quercus robur* (see Photographs 3 and 4). Patches of dense Bramble scrub are also present along the southern boundary.

#### *Bats*

17. All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended; "the Habitats Regulations"). These include provisions making it an offence to:
  - Deliberately to kill, injure or take (capture) bats;
  - Deliberately to disturb bats in such a way as to:-
    - (i) be likely to impair their ability to survive, to breed or rear or nurture their young; or to hibernate or migrate; or
    - (ii) affect significantly the local distribution or abundance of the species to which they belong;
  - Damage or destroy any breeding or resting place used by bats;
  - Intentionally or recklessly to obstruct access to any place used by bats for shelter or protection (even if bats are not in residence).
18. The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.
19. The offence of damaging (making worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.
20. In accordance with the Habitats Regulations the licensing authority (Natural England) must apply the three derogation tests as part of the process of considering a licence application. These tests are that:
  1. the activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
  2. there must be no satisfactory alternative; and
  3. the favourable conservation status of the species concerned must be maintained.

21. Licences can usually only be granted if the development is in receipt of full planning permission.
22. Surveys of the trees located around the site boundary found a total of 23 trees with potential opportunities for roosting bats. The suitability of these trees ranges from low to high, with the majority being located along the woodland edge to the north of the site.
23. Features typically favoured by bats were searched for, including:
  - Obvious holes, e.g. rot holes and old Woodpecker holes;
  - Dark staining on the tree, below the hole;
  - Tiny scratch marks around a hole from bat claws;
  - Cavities, splits and or loose bark from broken or fallen branches, lightning strikes etc.; and
  - Very dense covering of mature Ivy over trunk.
24. The woodland and hedgerows at the boundaries of the site are also considered to provide good opportunities for foraging and commuting bats.

#### Activity Transect Surveys

25. Seven transect surveys were completed between April and October 2021. The site was included in surveys of the wider site area, the full results of which can be found in the Ecological Assessment (2021) and the Bat Survey Report (2021). These surveys recorded five species of bat utilising the Bull Field site including Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle Bat *Pipistrellus pygmaeus*, Noctule Bat *Nyctalus noctula*, Leisler's Bat *Nyctalus leisleri* and Brown Long-eared Bat *Plecotus auritus*, with Barbastelle *Barbastella barbastellus* also recorded just to the north of the site next to Prior's Wood. Nathusius' Pipistrelle *Pipistrellus nathusii*, *Myotis* sp. and Serotine *Eptesicus serotinus* were also recorded in the wider site area.
26. The majority of bat activity recorded during these surveys was focused along the northern boundary of the site, however, the surveys also found that bats were utilising the hedgerows along the other boundaries, although to a lesser extent.

#### Remote Surveys

27. SM4BAT detectors were deployed within the wider site area on seven occasions in 2021 to monitor bat activity across consecutive nights. One of the detectors was located on the eastern edge of Prior's Wood, just to the north of the Bull Field site boundary.
28. Early registrations of Common Pipistrelle and Soprano Pipistrelle recorded during these surveys indicate that roosts for these species are present within or in close proximity to the site.

#### Badgers

29. Badgers are protected by the Protection of Badgers Act 1992, for reasons of animal welfare rather than on account of their intrinsic rarity or nature conservation significance.
30. Surveys for signs of Badger were undertaken on Bull Field, along with the adjacent habitats in 2021 and 2023, but no evidence was recorded. Prior's Wood offers

suitable habitat for foraging and sett building, whilst the network of hedgerows offers further foraging and commuting opportunities.

#### *Dormice*

31. Dormice are subject to the same level of legislative protection as bats (see above).
32. The woodland and extensive network of hedgerows with good structure, which make up the majority of the site boundary, provide opportunities for Dormouse dispersal and foraging.
33. All of the areas of suitable habitat around Bull Field were subject to nest tube surveys for Dormice, which were undertaken monthly from May to September 2021. Footprint tracking tunnel surveys were also undertaken in these areas from May to July 2021. No evidence of Dormouse presence was recorded during these surveys. Surveys of the wider site area also found no evidence to suggest that Dormouse are present in the area.

#### *Birds*

34. Section 1 of the Wildlife & Countryside Act 1981 (as amended) is concerned with the protection of wild birds. With certain exceptions all wild birds and their eggs are protected from intentional killing, injuring and taking, and their nests, whilst being built or in use, cannot be taken, damaged or destroyed.
35. Schedule 1 part 1 of the Wildlife & Countryside Act 1981 is a list of the nationally rarer and uncommon breeding birds for which all offences carry special (i.e. greater) penalties. These species also enjoy additional protection whilst breeding, as it is also an offence to disturb adults or their dependant young when at the nest.

#### Wintering Bird Surveys

36. Three wintering bird surveys were conducted across January and February 2021. The surveys included the Bull Field site as part of a wider survey area.
37. Twenty-one bird species were observed on, flying over or immediately adjacent to the Bull Field site during the wintering bird surveys. Four of these species are protected under Section 41 of the NERC Act 2006 and / or listed on the Red List. These are Mistle Thrush *Turdus viscivorus*, Song Thrush *Turdus philomelos*, Dunnock *Prunella modularis* and Starling *Sturnus vulgaris*. No large flocks of wintering birds were recorded within the site.

#### Breeding Bird Surveys

38. Three breeding bird surveys were carried out in April, May and June 2021. The surveys included the Bull Field site as part of a wider survey area.
39. Twenty-one bird species were observed on, flying over or immediately adjacent to the Bull Field site during the breeding bird surveys. Four of these species protected under Section 41 of the NERC Act 2006 and / or listed on the Red List were recorded on site. These include Dunnock, House Sparrow *Passer domesticus*, Starling and Yellowhammer *Emberiza citronella*.
40. The woodland and hedgerows at the boundaries of the site are considered suitable for foraging and nesting birds and the majority of sightings were recorded within these areas where suitability is favourable, with many notable species present.

41. The arable field which makes up the vast majority of the Bull Field site had been recently ploughed at the time of survey and generally offered negligible ground nesting opportunities for common species. No ground nesting birds were recorded nesting on site during the surveys.
42. Blue Tit *Cyanistes caeruleus* pairs were recorded as possible breeders nesting in the southern edge of Prior's Wood, near the northern site boundary. House Sparrow was also noted carrying nesting material along the southwest boundary of the site. Two pairs of Great Spotted Woodpecker *Dendrocopos major* were confirmed nesting in Prior's Wood.

### *Reptiles*

43. Rare, endangered or declining species receive full protection under the Wildlife & Countryside Act 1981 (as amended) as well as protection under the Conservation of Habitats and Species Regulations 2017. Species that are fully protected are Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis*. It is illegal to:
- Deliberately kill, injure or take (capture) these reptiles;
  - Deliberately disturb these reptiles in such a way as to be likely:–
    - (i) to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or to hibernate; or
    - (ii) to affect significantly their local distribution or abundance;
  - Damage or destroy any breeding or resting place used by these reptiles;
  - Intentionally or recklessly obstruct access to any place used by these reptiles for shelter or protection (even if the reptiles are not present at the time);
  - Sell, offer for sale, possess or transport for purposes of sale these reptiles (live or dead animal, part or derivative).
44. Given their limited geographical distribution and the nature of the habitats present, neither of these species would be present within the site.
45. Owing to their abundance in Britain, Common Lizard *Zootoca vivipara*, Slow Worm *Anguis fragilis*, Grass Snake *Natrix helvetica* and Adder *Vipera berus* are 'partially protected' under the Wildlife & Countryside Act 1981 (as amended) and as such only receive protection from:
- Intentional killing and injuring; and
  - Being sold or other forms of trading.
46. The habitat of common reptiles is therefore not directly protected. However, because of their partial protection, disturbing or destroying their habitat while they are present may lead to an offence.
47. All reptile species are listed as Species of Principal Importance under Section 41 of the NERC Act 2006. The NERC Act places responsibility upon public bodies to have regard for the conservation of biodiversity in England.
48. The semi-improved grassland margins along the site boundaries, and in particular along the northern boundary, provide suitable opportunities for reptiles.

49. A presence / absence survey completed in May and June 2021 identified low populations of Grass Snake and Common Lizard within the field margins around the boundary of the site.

*Amphibians (Great Crested Newts)*

50. Great Crested Newts are subject to the same level of legislative protection as bats and Dormice (see above).
51. There are three ponds located within the site, with several other ponds located within 500m of the site boundary. The ditches around the southern and eastern site boundaries are occasionally wet but do not contain marginal or aquatic vegetation.
52. The field boundaries within the site provide opportunities for amphibians during their terrestrial phase, with further suitable habitat adjacent to the site in the form of hedgerows and woodland.
53. The on site ponds and ponds within 500m of the site that did not fall within the curtilage of private residences were subject to eDNA testing for Great Crested Newt in 2021. The results of the eDNA testing were returned as negative, indicating the likely absence of this species. Updated surveys of the on site ponds and publicly accessible off site ponds have been undertaken in 2023, with laboratory results pending. Permission has been sought to test ponds that fall within private residences that were not previously tested in 2021.

*Summary*

54. Given the habitats on site have remained the same in the short intervening time since surveys were undertaken in 2021, it is considered likely that use of the site by the species surveyed will have also remained unchanged.

**Biodiversity Net Gain Assessment**

55. A Biodiversity Net Gain Assessment was undertaken in 2021 to support the planning application for the wider Warish Hall Farm site.
56. The application for Bull Field is supported by a site-specific and detailed Biodiversity Net Gain Assessment. As shown in Table 2 below, the proposals would deliver a net gain of 17.93% in habitat units, 62.53% in hedgerow units and 11.60% in river units.
57. The applicant's desire to exceed the 10% threshold for net gain in biodiversity on site (as set out in the Environment Act, though noting that these provisions are not yet mandatory) has resulted in a high-quality landscape scheme, designed to maximise gains to biodiversity and provide opportunities in the form of new habitats, while also promoting green infrastructure. New habitats include native species-rich hedgerows to be reinstated on former field boundaries, a large area of wildflower meadow in the east of the site that will be safeguarded from recreational pressure and farmed commercially, smaller areas of species-rich wet and wildflower grassland, as well as an extension to Prior's Wood, with new native woodland buffer planting.
58. Prior's Wood will be enhanced through selective thinning and supplementary planting, where necessary. Areas within the woodland will also be fenced off to prevent browsing and to allow for a strong understorey to develop. The woodland

ponds will also be enhanced through light excavation to reprofile the banks and supplementary planting of aquatic species where necessary. A separate Woodland Management Plan has been prepared.

59. These measures will offer a significant increase in opportunities for wildlife, primarily for bats, birds, reptiles and invertebrates, while additional enhancements such as bat and bird boxes will be incorporated across the proposed scheme.

	Total Net Unit Change	Total Net Percentage Change
Habitat units	26.17	17.93%
Hedgerow units	3.18	62.53%
Watercourse units	0.40	11.60%

**Table 2.** Summary of Biodiversity Net Gain.

### **Review of Place Services Comments**

60. This section of the note addresses in turn each of the pre-application comments received from Place Services on 23 March 2023.

**As for any proposal, a planning application will need to be supported by adequate ecological surveys and assessments to enable the LPA to determine any application submitted in line with national and local policy and its statutory duties. This will include likely impacts on designated sites (international, national and local), protected species and Priority habitats and species - not just significant ones.**

**Ecological assessments should take data search records & survey information and use professional judgement to come to reasoned conclusions as to the likelihood of species being present and affected by the proposed development. The ecological data search from Essex Field Club should inform the scope of surveys needed for protected and Priority species and any designated sites with Zones of Influence which may be greater than 10km. All surveys must be undertaken by suitably qualified ecologists at the appropriate time of year using standard methodologies.**

**Effective and robust measures, in line with the mitigation hierarchy, must be also proposed which have a high degree of certainty for their deliverability in the long term. If there are residual impacts, these will need to be compensated for on site or offsite with long term management secured, and appropriate enhancements included to ensure Biodiversity Net Gain from development.**

**Any reporting accompanying a planning application should follow CIEEM guidelines (these also comply with BS42020). Guidelines include Preliminary Ecological Appraisal Report, Guidelines for Ecological Impact Assessment, Ecological Report Writing and Lifespan of Ecological Surveys and Reports.**

61. As detailed above, an Ecological Assessment and Bat Survey Report were submitted to support the planning application of the wider Warish Hall Farm site including Bull Field. The Ecological Assessment contains information from a full suite of surveys (Extended Phase 1, bats, Badgers, Dormice, birds, reptiles and Great Crested Newts) that were undertaken in 2021. The Bat Survey Report (November 2021) provides further survey information in relation to bats. In addition to the survey information, these documents, along with the Woodland Management Plan and Bird Hazard Management Plan, contain ecological data search information, an assessment on likely impacts on designated sites in the area, and proposed mitigation and enhancement measures for protected and



priority species that have either been recorded on site, or that are considered likely to be affected by the proposals.

62. The aforementioned documents accompany this report to support the planning application for Bull Field, with the survey information and assessments remaining valid. The Woodland Management Plan has been updated to address changes in the proposals.

#### **Essex Biodiversity Validation Checklist**

**If the development is classed as a major development the Essex Biodiversity Validation Checklist should be submitted with the application.**

63. A site-specific Biodiversity Validation Checklist has been submitted as part of the planning application.

#### **Designated sites**

**There is one statutory designated site present within 1km radius of the proposed development.**

**However, we note that the development site is situated within the 10.4km evidenced Zone of Influence for recreational impacts at Hatfield Forest Site of Special Scientific Interest (SSSI)/National Nature Reserve (NNR) as shown on MAGIC map ([www.magic.gov.uk](http://www.magic.gov.uk)). Therefore, Natural England's letter to Uttlesford DC relating to Strategic Access Management and Monitoring Strategy (SAMM) – Hatfield Forest Mitigation Strategy (28 June 2021) should be followed to ensure that impacts are minimised to this site from new residential development.**

**As a first step towards a comprehensive mitigation package, the visitor management measures required within Hatfield Forest SSSI / NNR have been finalised in a Hatfield Forest Mitigation Strategy. Natural England are now working with the LPA to consider what level of developer contribution towards a package of funded Strategic Access Management Measures (SAMMs) at Hatfield Forest is appropriate for all residential development within the evidenced Zone of Influence. Natural England's advice is that during this interim period before a co-ordinated strategic solution has been established by all authorities, housing projects of 50 units or greater should provide a proportionate mitigation contribution to be agreed with the National Trust.**

**For the largest, strategic housing sites (100+ units), Natural England advises that recreational pressure impacts on this designated site are additionally mitigated via the provision of Suitable Accessible Natural Greenspace (SANG), a specific form of Green Infrastructure, to be provided within the red-line boundary of the proposed development. Natural England advise on using a distance of 2.7km for a daily walking route within attractive greenspace on the site and/or with links to surrounding public rights of way (PRoW). ANG 'standard' accepted by Natural England is 8ha greenspace per 1000 population as per Thames Basin Heaths and this requires a commitment to its long-term maintenance and management to be secured by a Landscape and Ecological Management Plan to be secured by a condition of any consent. Such green infrastructure should be designed to absorb significant proportions of the day-to-day recreational needs of new residents, such as walking, dog walking, jogging / exercise, children's play facilities, and other informal recreation. It should also aim to provide a semi-natural character, with significant proportion of tree / woodland cover, and as may be appropriate, café / basic refreshment facilities.**

64. The existing Ecological Assessment produced by Ecology Solutions and Landscape Strategy produced by LDA Design for the wider Warish Hall Farm site, as well as the Woodland Management Plan produced specifically for the Bull Field

application, provide details on the client's commitment to the provision of a financial contribution for the SAMMs and the delivery of on site SANG within the areas of open space.

**There are three Local Wildlife Sites present within a 1km radius of the proposed site including Prior's Wood adjacent to the northern boundary of the development. This is also Ancient Woodland, an irreplaceable habitat, and a Priority habitat. An appropriate buffer of at least 15m should be put in place around this woodland to protect its root system. A statement as to how impacts upon the Ancient Woodland will be avoided during construction will need to be provided and monitoring included within a Landscape and Ecological Management Plan to ensure any impacts are noted and remedial actions taken. The LPA may be interested in the practical guidance document Planning for Ancient Woodland (Woodland Trust, July 2019) and the applicant should refer to Government's Standing advice on Ancient Woodland, ancient trees and veteran trees: protecting them from development.**

65. The Ecological Assessment produced by Ecology Solutions and the Landscape Strategy produced by LDA Design, along with the Woodland Management Plan produced specifically for the Bull Field application, contain information on the protection of Prior's Wood, the area of Ancient and Semi-Natural Woodland in the north of the site.
66. A Landscape and Ecological Management Plan has been submitted to provide further information on how the woodland will be protected throughout construction, along with a monitoring strategy to ensure impacts and noted and remedial actions taken.

#### **European Protected Species**

**Any trees (and buildings) to be lost as part of the proposed development, including those within Prior's Wood LoWS, should be surveyed by a suitably qualified ecologist as part of a Preliminary Roost Assessment (PRA) for bats following best practice guidance (Collins, 2016). If potential for bats to roost is found in these structures, then further surveys such as aerial inspections of trees and/or emergence/re-entry surveys of structures will need to be undertaken at a suitable time of year following best practice guidance (Collins, 2016). The results and details of any mitigation measures will need to be provided to the LPA prior to determination. If any roosts are found, then a licence from Natural England will be required to fell any trees or remove any structure with bat roosts present.**

**A bat-sensitive lighting scheme will be expected with this application, especially along important bat commuting corridors, retained and adjacent vegetation and this is likely to be needed to avoid impacts on bats.**

67. Trees within the site have been assessed for their bat roosting potential, with details provided within the 2021 Ecological Assessment. A sensitive lighting strategy will be produced by a lighting consultant in consultation with the project ecologist, to avoid adverse effects on any ecological receptors.
68. Any trees to be felled within Prior's Wood as part of the prescribed woodland management will be assessed from the ground prior to their removal. Any trees that have roosting potential will be avoided where possible, but where it is necessary to fell then subsequent aerial inspections of trees and / or emergence / re-entry surveys will be undertaken. The results of these surveys would be provided to the LPA. If any roosts are found, then a licence from Natural England would be sought.

**From OS mapping, 16 ponds look to be present within 500m of the site which is the distance stated in Government Standing Advice on Great crested newts that these**

European Protected Species are likely to travel from suitable aquatic bodies. We note that the site also contains suitable terrestrial habitat for Great Crested Newts (GCN) (hedgerows). Given the site lies within an Amber Risk Zone for the GCN District Level Licensing (GCN Risk Zones (Essex) | Natural England Open Data Geoportal (arcgis.com)) and suitable habitats are present in close proximity to the site, it is considered possible that GCN will be present. GCN should therefore be considered as part of this planning application.

The applicant may be interested to know that Natural England's District Level Licensing for GCN is now available in Essex – see <https://www.gov.uk/government/publications/great-crested-newts-district-level-licensing-schemes> - where sites can be registered to be covered by this strategic mitigation scheme. Guidance for developers and registration forms to join the scheme are available and the LPA will need an Impact Assessment and Conservation Payment Certificate (IACPC) document countersigned by Natural England as evidence of site registration prior to determination where this European Protected Species is likely to be present and affected by development.

69. The on site ponds and ponds within 500m of the site were subject to eDNA testing for Great Crested Newt in 2021, where permission for access was granted. Due to company policy pertaining to Covid-19, ponds that fell within the curtilage of private residencies were not tested. The results of the eDNA testing were returned as negative, indicating the likely absence of this species as detailed within the Ecological Assessment.
70. Given changes to both company policy and Government advice relating to Covid-19, permission has been sought to test ponds that fall within private residencies that were not tested in 2021. Additionally, on site ponds and publicly accessible off site ponds have been retested, with laboratory results pending. This will provide a more robust position on the likely absence of this species and better inform on site mitigation.

**Hatfield Forest SSSI/LNR, approximately 1.6km south-west of site, has recent records of Hazel Dormice. The hedgerows on site and adjacent Prior's Wood LoWS could provide suitable habitat for Hazel Dormice and as such should be considered as part of the assessment for the proposed development.**

71. Dormouse surveys undertaken in 2021 confirmed the absence of this species from the site, as summarised above and detailed within the Ecological Assessment. Given little change has occurred to the suitable habitats on and adjacent to the site, it is reasonable to assume that this species has not colonised the site in the intervening period.

#### **UK Protected species**

**An assessment for protected species such as Badger, breeding birds and reptiles should be undertaken.**

**An assessment for Badger should include a survey for Badger setts on site and up to 30m from the boundary of the site where possible. Signs of Badger on site such as foraging, footprints and latrines should also be noted.**

72. As previously stated, surveys for Badgers were undertaken in 2021 and 2023, with no Badger setts or other signs of activity recorded on or adjacent to the site. The Ecological Assessment contains precautionary mitigation and enhancement measures in relation to this species.

**A breeding bird survey report should also be undertaken to determine the breeding status of the species and distribution of key species of interest, particularly**

farmland birds. This survey should also provide an assessment of the likelihood of farmland birds being present and affected by the proposed development and should identify offsite mitigation measures for loss or displacement of any nesting or foraging habitat. We recommend that the surveys for actively held territories and nesting attempts at different times during the breeding season and any flocks using the site over winter.

**Any territories that are unable to be mitigated for on site should be compensated for offsite e.g. by the use of spring-sown regimes, retention of winter stubble, provision of set-aside or provision of Skylark plots in nearby arable crops (the amount of land which could accommodate the required number of displaced Skylark territories can be calculated using Harry Fox's example, as provided in the CIEEM's InPractice Magazine, 117 47-51 (September 2022)).**

73. Wintering and breeding bird surveys were undertaken in 2021. Results of these surveys, along with mitigation and enhancement measures, have been summarised above and further detailed within the Ecological Assessment for the wider site. No ground nesting birds, including Skylark *Alauda arvensis*, were recorded during the breeding bird surveys and, therefore, no specific mitigation relating to this species has been recommended. Given the habitats and management of the site remain unchanged, no significant changes in bird species assemblage or distribution are expected.

**If habitats on site are considered suitable for reptiles, then a reptile presence/likely absence survey will be required and should follow best practice guidelines (Froglife, 1999). This should be undertaken to determine the likelihood of reptiles being present on site and what appropriate mitigation measures are necessary for the proposed works.**

74. Presence / absence survey for reptiles were undertaken in 2021. The results of the surveys show that low populations of Grass Snake and Common Lizard are present, as summarised above and detailed within the Ecological Assessment. The Ecological Assessment also provides details of the mitigation and enhancement measures that relate to this species group. Given no significant changes have occurred to the suitable habitat on site, low populations of these species are still considered to be present.

#### **Priority Habitats and Species (s41 NERC Act)**

**An assessment for the presence of Priority species on site such as Brown Hare, Harvest Mouse, Hedgehog and Common Toad should be undertaken. Recent records of Hedgehog are present on site through NBN Atlas (NBN Atlas - UK's largest collection of biodiversity information). An assessment of the habitats on site should also be undertaken with any Priority habitats noted to support Biodiversity Metric calculations for the development.**

75. An assessment of priority habitats and potential use of the site by priority species was undertaken as part of the Ecological Assessment for the wider site, with observations or evidence of priority species such as Brown Hare *Lepus europaeus*, Harvest Mouse *Micromys minutus*, Hedgehog *Erinaceus europaeus* and Common Toad *Bufo bufo* sought during habitat and protected species surveys undertaken throughout 2021. The Ecological Assessment contains survey results, along with mitigation and enhancement measures in relation to Hedgehog. The 2023 walkover survey confirmed no significant change in on site habitats and the priority species assessment remains valid.

### **Schedule 9 – Non-native invasive species (NNIS)**

**Considerations should also be made to any non-native invasive species or risks posed by the development to native species present in the locality.**

76. The site has been surveyed, and local data records assessed, for the presence of non-native invasive species within and adjacent to the site. No non-native invasive species have been identified and, therefore, no specific mitigation has been recommended.

### **Biodiversity enhancements and Net Gain**

**Biodiversity Net Gain is development that leaves biodiversity in a better state than before (CIEEM, 2016). It is also an approach where developers work with local governments, wildlife groups, landowners and other stakeholders in order to support their priorities for nature conservation. The ten principles set out in CIEEM's paper Biodiversity Net Gain - Good practice principles for development, 2016 should be used together to demonstrate net-gain in this development.**

**We recommend reasonable biodiversity enhancements to secure net gains for biodiversity, as outlined under Paragraphs 174d and 180d of the National Planning Policy Framework 2021. The reasonable biodiversity enhancement measures should be outlined within a Biodiversity Enhancement Strategy and should be secured as a condition of any consent.**

**For Major and Strategic applications, we recommend that a Biodiversity Net Gain report is provided to demonstrate a baseline assessment and details of losses and compensatory habitat as well as biodiversity enhancements to demonstrate net gain of habitats. We also expect this report to include details of enhancements for relevant species on the site and any need for off-site habitat provision and its long-term management and monitoring.**

**We recommend that the applicant thoroughly explores all reasonable options to deliver additionality for the measurable BNG to restore biodiversity networks & their ecological functionality and also provide enhancements for Priority species affected by the development. We look forward to the BNG report to be submitted which shows how these species will benefit from these new habitats created and enhanced.**

77. A Biodiversity Net Gain Assessment was undertaken for the wider Warish Hall Farm application. As part of this assessment, significant measures were taken to ensure that the proposals would result in a net gain in biodiversity and that the site was enhanced for priority species recorded within the site.
78. An updated site-specific Biodiversity Net Gain Assessment has been undertaken, with all efforts made to ensure that the site delivers a net gain in biodiversity with on site habitats being either enhanced, or their loss compensated for, through the addition of new high-quality planting.
79. The application for Bull Field will deliver a net gain of 17.93% in habitat units, 62.53% in hedgerow units, and 11.60% in river units.
80. New habitats include native species-rich hedgerows to be reinstated on former field boundaries, a large area of wildflower meadow in the east of the site, as well as smaller areas of wet and wildflower grassland. Prior's Wood will be extended to the north, with new native tree planting and native woodland buffer planting.

81. These measures will offer a significant increase in opportunities for wildlife, primarily for bats, birds, reptiles and invertebrates, while additional enhancements such as bat and bird boxes will be incorporated across the proposed scheme.

### **Conclusions**

82. Overall, there has been no material change in the ecological condition of the site from when it was previously described in the Ecological Assessment in October 2021.
83. Permission has been sought to eDNA test ponds in private residences not surveyed in 2021, to better inform on site mitigation. Additionally, on site and publicly accessible off site ponds have been retested in 2023, with laboratory results pending.
84. The proposed development will result in a net gain in biodiversity, with the landscape proposals delivering high-quality native planting. Prior's Wood, and the woodland ponds within, will be enhanced, with measures detailed in the Woodland Management Plan and Biodiversity Net Gain Assessment. New planting includes the extension of Prior's Wood to the north, the reintroduction of species-rich hedgerows along former field boundaries, and large wildflower meadow. Additional areas of wildflower grassland are included in the green infrastructure to provide both amenity and wildlife benefits, along with native woodland and boundary buffer planting. Additional measures including bat and bird boxes will also be incorporated into the scheme.

### **Plans**

- Plan ECO1: Site Location and Ecological Designations
- Plan ECO2: Ecological Features

### **Photographs**

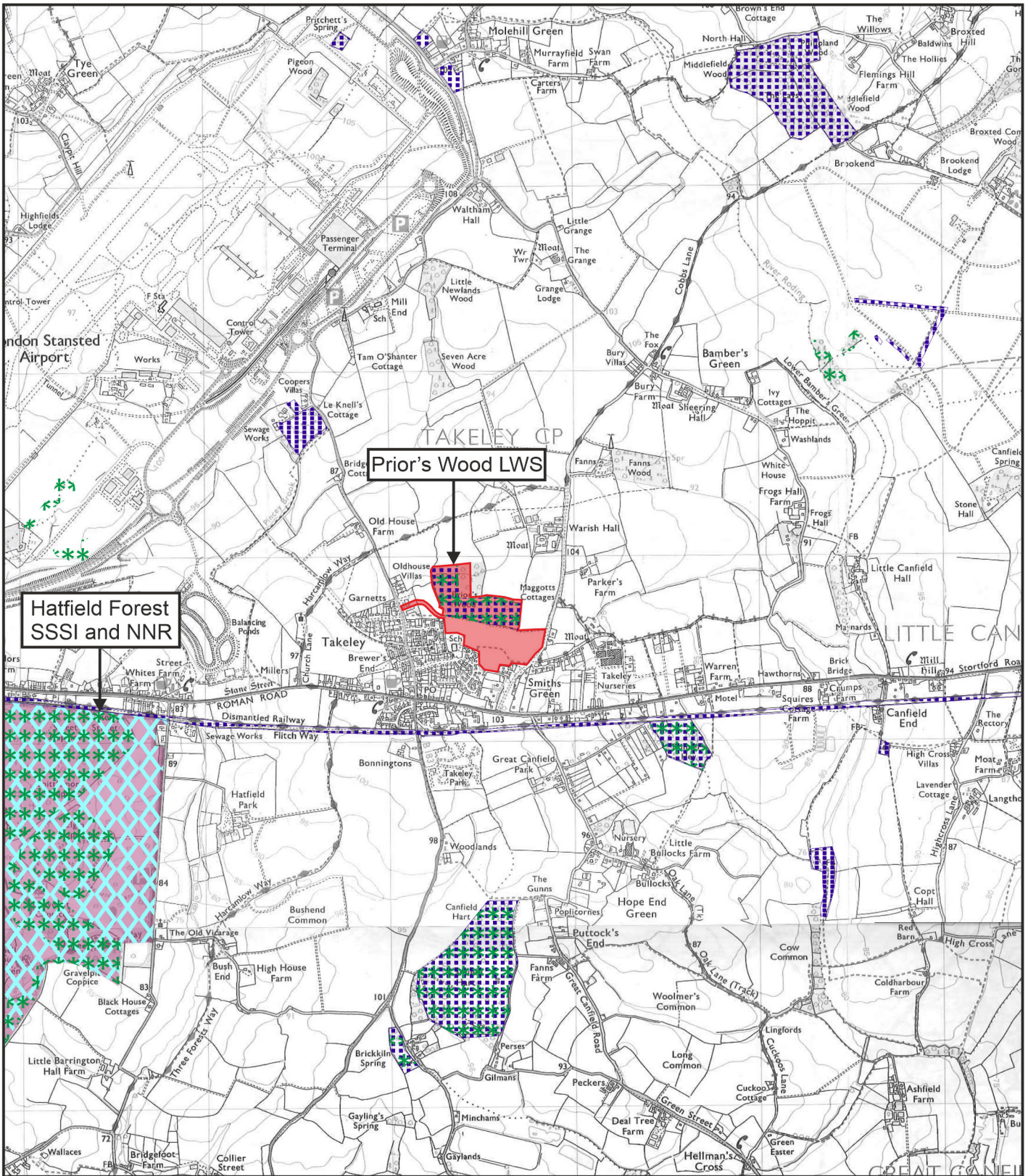
- Photograph 1: Arable field
- Photograph 2: Field margin south of Prior's Wood
- Photograph 3: Eastern boundary hedgerow and field margin
- Photograph 4: Southern boundary hedgerow and field margin

## **PLANS**








## **PLAN ECO1**

Site Location and Ecological Designations



**KEY:**

-  SITE LOCATION
-  SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
-  NATIONAL NATURE RESERVE (NNR)
-  LOCAL WILDLIFE SITE (LWS)
-  ANCIENT WOODLAND



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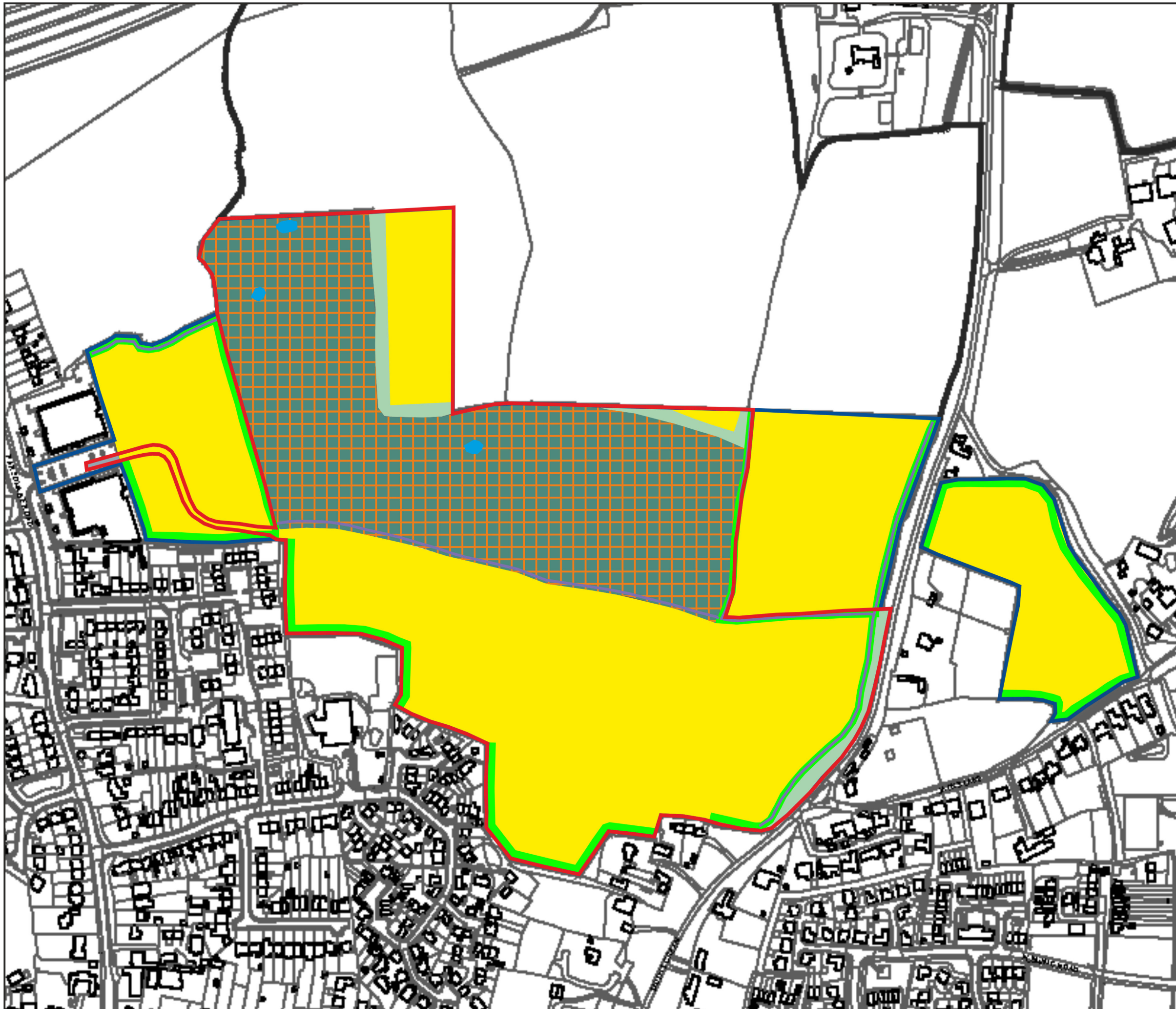
PLAN ECO1: SITE LOCATION AND  
 ECOLOGICAL DESIGNATIONS

Rev: A  
 Jun 2023











## **PLAN ECO2**

Ecological Features





KEY:

-  SITE BOUNDARY
-  WIDER SURVEY AREA
-  LOCAL WILDLIFE SITE
-  ANCIENT AND SEMI-NATURAL WOODLAND
-  ARABLE
-  SEMI-IMPROVED GRASSLAND
-  HARDSTANDING
-  HEDGEROW
-  DITCH
-  POND



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PLAN ECO2:  
 ECOLOGICAL FEATURES

Rev: A  
 Jun 2023

## **PHOTOGRAPHS**



PHOTOGRAPH 1: Arable field



PHOTOGRAPH 2: Field margin south of Prior's Wood





PHOTOGRAPH 3: Eastern boundary hedgerow and field margin



PHOTOGRAPH 4: Southern boundary hedgerow and field margin







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**Appendix D - Bat Survey Report [Nov 2021] by Ecology Solutions**

WESTON HOMES PLC



**ECOLOGY**SOLUTIONS

Part of the ES Group

WARISH HALL FARM,  
TAKELEY,  
ESSEX

## Bat Survey Report

November 2021  
9261.BatReport.vf

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## CONTENTS

1. INTRODUCTION.....	1
1.1. Background.....	1
1.2. Site Characteristics .....	1
1.3. Purpose of this Report .....	1
2. LEGISLATION AND ECOLOGY.....	2
2.1. Legislation and Licensing .....	2
2.2. Ecology .....	2
3. SURVEY METHODOLOGY .....	4
3.1. Desk Study.....	4
3.2. Field Survey .....	4
3.3. Constraints.....	5
4. SITE DESCRIPTION.....	6
4.1. The Site .....	6
4.2. Prior's Wood .....	6
4.3. Hedgerows.....	6
5. SURVEY RESULTS .....	7
5.1. Desk Study.....	7
5.2. Activity Transect Surveys .....	8
5.3. Remote Surveys .....	11
5.4. Tree Inspection .....	17
6. DISCUSSION AND RECOMMENDATIONS.....	18
6.1. Use of Site .....	18
6.2. Proposals and Effect .....	18
6.3. Mitigation and Enhancement.....	18
7. SUMMARY AND CONCLUSIONS .....	20

## **PLANS**

PLAN ECO1	Site Location
PLAN ECO2	Ecological Features
PLAN ECO3a	Bat Activity Transect and Remote Static Locations
PLAN ECO3b	Bat Activity Survey Results 20.05.21
PLAN ECO3c	Bat Activity Survey Results 22.06.21
PLAN ECO3d	Bat Activity Survey Results 15.07.21
PLAN ECO3e	Bat Activity Survey Results 12.08.21
PLAN ECO3f	Bat Activity Survey Results 08.09.21
PLAN ECO3g	Bat Activity Survey Results 11.10.21
PLAN ECO4	Tree Assessment

## **APPENDICES**

Appendix 1	Bat Boxes
Appendix 2	Bat Access Tiles



## 1. INTRODUCTION

### 1.1. Background

- 1.1.1. Ecology Solutions was commissioned in October 2020 by Weston Homes PLC, following their acquisition of the site in September 2020, to undertake an ecological assessment of the proposed development at Warish Hall Farm, Takeley, Essex (see Plan ECO1).
- 1.1.2. An ecological assessment of the site was undertaken by Ecology Solutions in October 2020 including an extended Phase 1 habitat survey, with a further walkover survey carried out in April 2021. Subsequent surveys for Badger *Meles meles*, bats, Dormice *Muscardinus avellanarius*, birds, reptiles and Great Crested Newts *Triturus cristatus* were completed between January and September 2021. A report of the findings has been submitted to Uttlesford District Council<sup>1</sup>.
- 1.1.3. The proposals for the site are for a mixed-use development including residential and employment areas, as well as local amenities.

### 1.2. Site Characteristics

- 1.2.1. The site is approximately 22.5ha in size and comprises largely arable fields, made up of Bull Field in the south, 7 Acres in the northwest and Jacks Field in the far east, with associated field margins, hedgerows and ditches. Prior's Wood Local Wildlife Site (LWS), an area of ancient and semi-natural woodland dominates the north of the site.
- 1.2.2. The site is located to the north of Takeley, approximately 1.4km south of London Stansted Airport and approximately 1.6km northeast of Hatfield Forest Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR). It is bounded to the south and east by residential properties. Arable fields and the A120 are present to the north. Weston Homes PLC headquarters border the site to the west.

### 1.3. Purpose of this Report

- 1.3.1. This report sets out the results of the bat survey work undertaken by Ecology Solutions from April to October 2021, collating the results of the work previously set out in the ecological assessment and the work undertaken in October 2021. Reference is made to mitigation and enhancements measures based on the full set of bat surveys completed in 2021.

---

<sup>1</sup> Ecology Solutions (2021). *Warish Hall Farm, Takeley, Essex – Ecological Assessment*.

## 2. LEGISLATION AND ECOLOGY

### 2.1. Legislation and Licensing

2.1.1. All bats are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (“the Habitats Regulations”). These include provisions making it an offence:

- Deliberately to kill, injure or take (capture) bats;
- Deliberately to disturb bats in such a way as to:-
  - (i) be likely to impair their ability to survive, to breed or rear or nurture their young; or to hibernate or migrate; or
  - (ii) affect significantly the local distribution or abundance of the species to which they belong;
- To damage or destroy any breeding or resting place used by bats;
- Intentionally or recklessly to obstruct access to any place used by bats for shelter or protection (even if bats are not in residence).

2.1.2. The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.

2.1.3. The offence of damaging (making it worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.

2.1.4. In accordance with the Habitats Regulations, the licensing authority (Natural England) must apply the three derogation tests as part of the process of considering a licence application. These tests are that:

1. the activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
2. there must be no satisfactory alternative; and
3. the favourable conservation status of the species concerned must be maintained.

2.1.5. Licences can usually only be granted if the development is in receipt of full planning permission.

### 2.2. Ecology

2.2.1. There are seventeen breeding bat species in Britain. Many of them are considered threatened due to a variety of factors including habitat loss and disturbance / damage to roosts. Of these seventeen species, a number regularly use buildings as roost sites.

2.2.2. Bats are highly mobile flying mammals, which, in Britain, feed entirely on insects. They are able to fly and feed in the dark by using a system of echolocation that gives them a ‘sound picture’ of their surroundings.

2.2.3. In winter when prey is scarce, British bats hibernate in humid parts of buildings, caves or hollow trees where temperatures are typically stable.

They may wake occasionally but only become fully active again in the spring.

- 2.2.4. Female bats gather together in maternity roosts in summer to give birth and rear their single offspring. Like other mammals, bats have fur and give birth to live young. Infant bats suckle on their mother's milk for several weeks until they can fly and hunt insects for themselves. Bats are long-lived mammals and some British species are known to live to over twenty-five years of age.

### 3. SURVEY METHODOLOGY

#### 3.1. Desk Study

- 3.1.1. In order to compile background information on the site and the surrounding area, Ecology Solutions contacted Essex Field Club and Essex Wildlife Trust.

#### 3.2. Field Survey

- 3.2.1. Field surveys were undertaken with regard to best practice guidelines issued by Natural England (2004<sup>2</sup>), the Joint Nature Conservation Committee (2004<sup>3</sup>) and the Bat Conservation Trust (2016<sup>4</sup>).
- 3.2.2. Trees within the site were assessed for their potential to support roosting bats in October 2020 and 2021. Features typically favoured by bats or evidence of past use by bats were searched for including:
- Obvious holes, e.g. rot holes and old Woodpecker holes;
  - Dark staining on the tree, below the hole;
  - Tiny scratch marks around a hole from bat claws
  - Cavities, splits and or loose bark from broken or fallen branches, lightning strikes etc.; and
  - Very dense covering of mature Ivy *Hedera helix* over trunk
- 3.2.3. On account of the site possessing moderate to high suitability for foraging and commuting bats, bat activity transects were recommended with seven transects having been completed monthly from April to October 2021.
- 3.2.4. The survey was undertaken across set routes (transects) that covered the majority of the site with the aim of identifying any bats using the site for foraging or dispersal.
- 3.2.5. In order to maximise the encounter rate of bats (i.e. of both early- and late-emerging species), transects commenced around sunset and continued until 120 minutes after sunset.
- 3.2.6. Surveyors observed the behaviour of any bat recorded (i.e. foraging or commuting) together with noting the species and number of bats present at each location.
- 3.2.7. Surveys were conducted when the night-time temperature was at least 10°C. The insectivorous diet of bats means there is little or no food available when temperature falls below this level and consequently bat activity levels are low and may not accurately reflect the value of the site for bats. The weather conditions for the surveys were recorded and any limitations noted.

---

<sup>2</sup> Mitchell-Jones, A. J. (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough.

<sup>3</sup> Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). *Bat Workers' Manual*. 3<sup>rd</sup> edition. Joint Nature Conservation Committee, Peterborough.

<sup>4</sup> Collins, J. (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3<sup>rd</sup> Edition. The Bat Conservation Trust, London.

- 3.2.8. Experienced surveyors were equipped with iPads paired with Echo Meter Touch 2 PRO bat detectors, and all recorded data was subject to analysis via Kaleidoscope software.
- 3.2.9. Three static SM4BAT detectors were placed within the site for a minimum of five consecutive nights on a monthly basis from April to October 2021. The detectors were programmed to record from 30 minutes before sunset to 30 minutes after sunrise.
- 3.2.10. Following completion of the surveys all of the recorded data was analysed using the Kaleidoscope computer program.

### 3.3. **Constraints**

- 3.3.1. Weather conditions in April 2021, where temperatures dropped below 10°C, and technical failures of remote detectors deployed in May 2021, are constraints to the survey effort. However, these constraints do not affect the overall conclusions of the comprehensive series of bat surveys undertaken across the season.

## 4. SITE DESCRIPTION

### 4.1. The Site

- 4.1.1. The site is approximately 22.5ha in size and comprises largely arable fields, made up of Bull Field in the south, 7 Acres in the northwest and Jacks Field in the far east, with associated field margins, hedgerows and ditches. Prior's Wood LWS, an area of ancient and semi-natural woodland dominates the north of the site.

### 4.2. Prior's Wood

- 4.2.1. Prior's Wood is an area of ancient and semi-natural woodland that lies in the centre of the site. The woodland contains no ancient or veteran specimens and primarily consists of Hornbeam *Carpinus betulus*, with significant components of Oak *Quercus robur*, Ash *Fraxinus excelsior*, Hawthorn *Crataegus monogyna* and Hazel *Corylus avellana*, with Field Maple *Acer campestre*, Elm *Ulmus* sp., Willow *Salix* sp., European Larch *Larix decidua* and Scots Pine *Pinus sylvestris* found in small numbers. The understorey of the woodland is virtually absent and the canopy closed throughout. The field layer lacks variety and is dominated by Bramble *Rubus fruticosus* in most areas with some Dog's Mercury *Mercurialis perennis*, Ivy, Wood-sedge *Carex sylvatica*, Pendulous Sedge *Carex pendula*, Wood Avens *Geum urbanum*, False Brome *Brachypodium sylvaticum* and Oxlip *Primula elatior* also present. It is clear that the woodland has been unmanaged for many years and suffers from significant browsing by deer.

### 4.3. Hedgerows

- 4.3.1. Hedgerows are present at the boundaries of the arable fields. Species present include Hawthorn, Blackthorn *Prunus spinosa*, Hazel, Field Maple, Bramble, Dog Rose *Rosa canina*, Ivy, Elder *Sambucus nigra* and Oak.



## 5. SURVEY RESULTS

### 5.1. Desk Study

- 5.1.1. A total 114 records were returned from eight species of bat within the past 10 years. Species of bat include Barbastelle *Barbastella barbastellus*, Daubenton's Bat *Myotis daubentonii*, Natterer's Bat *Myotis nattereri*, Leisler's Bat *Nyctalus leisleri*, Noctule *Nyctalus noctula*, Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus* and Brown Long-eared Bat *Plecotus auritus*.
- 5.1.2. Six records of Barbastelle were returned from the data search. The closest record relates to a location approximately 2.1km southwest of the site boundary dating from 2009. The most recent record relates to a location approximately 3.8km northeast of the site boundary dating from 2017.
- 5.1.3. Fourteen records of Daubenton's Bat were returned from Essex Field Club. The closest record relates to a location approximately 0.5km west of the site boundary dating from 2013. The most recent record relates to a location approximately 3.8km northeast of the site boundary dating from 2017.
- 5.1.4. Fourteen records of Natterer's Bat were returned from the data search. The closest and most recent record relates to a location approximately 1.1km southeast of the site dating from 2018.
- 5.1.5. Two records of Leisler's Bat were returned from the desk study. The closest and most recent record relate to a location approximately 2.3km southwest of the site dating from 2015.
- 5.1.6. Five records of Noctule Bat were returned from the data search. The closest record relates to a location approximately 1.8km west of the site dating from 2014. The most recent record relates to a location approximately 2.5km southwest of the site boundary dating from 2018.
- 5.1.7. Thirty-seven records were returned for Common Pipistrelle from the desk study. The closest record relates to a location approximately 0.2km south of the site boundary dating from 2017. The most recent record relates to a location approximately 1km south of the site boundary dating from 2019.
- 5.1.8. Nineteen records of Soprano Pipistrelle were returned from the data search. The closest and most recent record relates to a location approximately 0.9km northeast of the site boundary dating from 2018.
- 5.1.9. Seventeen records of Brown Long-eared Bat were returned from the data search. The closest record relates to a location approximately 0.3km northeast of the site boundary dating from 2013. The most recent record relates to a location approximately 1km southeast of the site boundary dating from 2019.

## 5.2. Activity Transect Surveys

- 5.2.1. Seven activity surveys were completed on 29 April, 20 May, 22 June, 15 July, 12 August, 8 September and 11 October 2021. The timings and weather conditions are shown in Table 5.1 below.

Date	29.04.21	20.05.21	22.06.21	15.07.21	12.08.21	08.09.21	11.10.21
Survey Type	Activity	Activity	Activity	Activity	Activity	Activity	Activity
Sunset	20:15	20:53	21:21	21:11	20:28	19:30	18:14
Survey Start	20:15	20:53	21:21	21:11	20:28	21:30	18:14
Survey End	22:15	22:53	23:21	23:11	22:28	21:30	20:14
Cloud Cover (%)	0%	50%	40%	20%	30%	0%	20%
Temperature (°C)	10-6	11-12	9-11	16-14	16-18	20-23	12-13
Weather & Wind	Light breeze	Moderate breeze with light shower	Light breeze	Light air	Calm and dry	Light breeze	Light air

**Table 5.1.** Activity survey conditions and timings.

- 5.2.2. The findings of the activity surveys are illustrated on Plans ECO3a to ECO3g. Note that the full set of plans has been reviewed and updated to correct some clerical errors apparent on earlier versions included with the October 2021 Ecological Assessment. The results of each survey are detailed below.

### *Activity Survey 29.04.21*

- 5.2.3. The activity survey was carried out across a single route covering the whole of the site. The transect route is illustrated on Plan ECO3a.
- 5.2.4. No bats were recorded during the activity transect survey.

### *Activity Survey 20.05.21*

- 5.2.5. The activity survey was carried out across a single route walked in opposite directions by two surveyors covering the whole of the site. The results of the transect are summarised in Table 5.2 below and illustrated on Plan ECO3b.
- 5.2.6. The survey recorded a low level of foraging activity from Common Pipistrelle and Soprano Pipistrelle, with activity levels highest to the north of Prior's Wood and the southern boundary of the site. A single Barbastelle was also recorded 47 minutes after sunset along the western boundary of Prior's Wood.

Survey Night	Species	Number of Registrations	First Registration after sunset
20.05.21	Ppip	73	26 mins
	Ppyg	50	29 mins
	Bb	1	47 mins
20.05.21	Ppip	56	54 mins
	Ppyg	52	54 mins
<b>Total</b>	<b>3</b>	<b>232</b>	

**Table 5.2.** Activity survey results 20.05.21<sup>5</sup>.

*Activity Survey 22.06.21*

- 5.2.7. The activity survey was carried out across a single route walked in opposite directions by two surveyors covering the whole of the site. The results of the transect are summarised in Table 5.3 below and illustrated on Plan ECO3c.
- 5.2.8. The survey again recorded a low level of foraging activity from Common Pipistrelle and Soprano Pipistrelle, with activity levels highest in and around Prior's Wood. Early registrations for both species suggest that roosts may be present on, or within the vicinity of the site. *Myotis* sp. was also recorded one hour 25 minutes after sunset in Prior's Wood.

Survey Night	Species	Number of Registrations	First Registration after sunset
22.06.21	Ppip	40	14 mins
	Ppyg	10	14 mins
22.06.21	Ppip	201	19 mins
	Ppyg	80	18 mins
	Myo	2	1h 25 mins
<b>Total</b>	<b>3</b>	<b>333</b>	

**Table 5.3.** Activity survey results 22.06.21.

*Activity Survey 15.07.21*

- 5.2.9. The activity survey was carried out across a single route walked in opposite directions by two surveyors covering the whole of the site. The results of the transect are summarised in Table 5.4 below and illustrated on Plan ECO3d.
- 5.2.10. As with previous surveys, low levels of foraging activity from Common Pipistrelle and Soprano Pipistrelle were recorded, with activity levels highest in and around Prior's Wood.

<sup>5</sup> In all cases the following abbreviations are used: Bb/Barbastelle *Barbastella barbastellus*; Es/Serotine *Eptesicus serotinus*; Myo/*Myotis* species; Nn/Noctule *Nyctalus noctula*; Ni/Leisler's Bat *Nyctalus leisleri*; Pa/Brown Long-eared Bat *Plecotus auritus*; Psp/Pipistrelle species; Pnat/Nathusius' Pipistrelle *Pipistrellus nathusii*; Ppip/Common Pipistrelle *Pipistrellus pipistrellus*; and Ppyg/Soprano Pipistrelle *Pipistrellus pygmaeus*.

Survey Night	Species	Number of Registrations	First Registration after sunset
15.07.21	Ppip	95	31 mins
	Ppyg	20	35 mins
	Psp	1	1h 40 mins
<b>Total</b>	<b>3</b>	<b>116</b>	

**Table 5.4.** Activity survey results 15.07.21.

*Activity Survey 12.08.21*

- 5.2.11. The activity survey was carried out across a single route covering the whole of the site. The results of the transect are summarised in Table 5.5 below and illustrated on Plan ECO3e.
- 5.2.12. A greater assemblage of bats was recorded during the August activity survey, with Noctule, Leisler's Bat and Barbastelle recorded in addition to Common and Soprano Pipistrelle. Again, activity levels were highest in and around Prior's Wood. Barbastelle registrations were concentrated along the western boundary of Prior's Wood, with additional Leisler's Bat registrations along the southern boundary of the site.

Survey Night	Species	Number of Registrations	First Registration after sunset
12.08.21	Ppip	71	19 mins
	Ppyg	7	41 mins
	Nn	6	35 mins
	NI	7	37 mins
	Bb	2	1h 5 mins
<b>Total</b>	<b>5</b>	<b>93</b>	

**Table 5.5.** Activity survey results 12.08.21.

*Activity Survey 08.09.21*

- 5.2.13. The activity survey was carried out across a single route covering the whole of the site. The results of the transect are summarised in Table 5.6 below and illustrated on Plan ECO3f.
- 5.2.14. Again, low numbers of Common and Soprano Pipistrelle were recorded across the site, with very low numbers of Noctule and Brown Long-eared Bat. Early registrations for Common and Soprano Pipistrelle again suggest there may be roosts for both species either on or in the vicinity of the site. Brown Long-eared Bat registrations were recorded along the southern boundary of the site.

Survey Night	Species	Number of Registrations	First Registration after sunset
08.09.21	Ppip	46	18 mins
	Ppyg	38	8 mins
	Nn	5	1h 3 mins
	Pa	2	54 mins
<b>Total</b>	<b>4</b>	<b>91</b>	

**Table 5.6.** Activity survey results 08.09.21.

*Activity Survey 11.10.21*

- 5.2.15. The activity survey was carried out across a single route covering the whole of the site. The results of the transect are summarised in Table 5.7 below and illustrated on Plan ECO3g.
- 5.2.16. Again, low numbers of Common and Soprano Pipistrelle were recorded across the site, with early registrations for Common and Soprano Pipistrelle suggesting there may be roosts for both species either on or in the vicinity of the site.

Survey Night	Species	Number of Registrations	First Registration after sunset
11.10.21	Ppip	20	35 mins
	Ppyg	14	35 mins
<b>Total</b>	<b>2</b>	<b>34</b>	

**Table 5.7.** Activity survey results 11.10.21.

### 5.3. Remote Surveys

- 5.3.1. SM4BAT detectors were deployed in three locations (as shown on Plan ECO3a) on seven occasions to monitor activity across consecutive nights. The results of this work are summarised in Tables 5.8 to 5.14 below.

*April 2021*

- 5.3.2. Common Pipistrelle, Soprano Pipistrelle, Noctule, Leisler's Bat and Brown Long-eared Bat were all recorded across the nine nights from 26 April to 4 May.
- 5.3.3. The first registration was attributed to Common Pipistrelle recorded one minute after sunset at location 1 in the northwest of the site.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
26.04.21 – 04.05.21 (9 nights)	Location 1 (E18)	Ppip	87	1 min	
		Ppyg	48	13 mins	
		NI	1	2h 37 mins	
	Total	3	136		

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
	Location 2 (E24)	Ppip	15	15 mins	4h 49 mins
		Ppyg	1	1h 27 mins	
		NI	3	33 mins	
		Nn	1	30 mins	
		Pa	1	1 hr 29 mins	
	Total	5	21		
	Location 3 (E13)	Ppip	75	18 mins	
		Ppyg	3	36 mins	
		NI	3	24 mins	
	Total	3	81		
	<b>Grand Total</b>	<b>5</b>	<b>238</b>		

**Table 5.8.** Static SM4BAT detector results 26.04.21 – 04.05.21.

*May 2021*

5.3.4. A higher level of activity was recorded in May compared to April, though species composition was similar. Owing to technical failures, only one static detector (location 2) recorded data.

5.3.5. The detector deployed adjacent to Prior's Wood recorded a total of 507 Common Pipistrelle with consistent social calls recorded, suggesting constant foraging within vicinity of woodland boundary. The first registration was attributed to Noctule six minutes after sunset with the last registration associated with Noctule seven minutes before sunrise. Serotine *Eptesicus serotinus* and Brown Long-eared Bat were also recorded at location 2. Given the low number and timing of registrations these are most likely from bats commuting across the site.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
20.05.21 – 25.05.21 (5 nights)	Location 2 (E18)	Ppip	507	35 mins	39 mins
		Ppyg	4		20 mins
		Nn	92	6 mins	7 mins
		Myo	2		3h 57 mins
		Pa	1	1h 29 mins	
		Es	1		4h 52 mins
	Total	6	607		
<b>Grand Total</b>	<b>6</b>	<b>607</b>			

**Table 5.9.** Static SM4BAT detector results 20.05.21 – 25.05.21.



*June 2021*

5.3.6. A high level of activity was recorded in all three locations in June, with most of the registrations attributed to Common Pipistrelle.

5.3.7. The detector deployed in location 1 recorded the highest total of registrations in June. Common Pipistrelle were the most recorded species with 4579 registrations. Low numbers of *Myotis* sp. and Barbastelle were recorded near Prior's Wood, with the earliest registration attributed to Barbastelle 27 minutes after sunset.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
22.06.21 – 29.06.21 (7 nights)	Location 1 (E21)	Ppip	2619	1 min	20 mins
		Ppyg	1342	9 mins	28 mins
		Nn	5	1h 54 mins	1h 7 mins
		NI	38	54 mins	44 mins
		Myo	7	1h 42 mins	1h 33 mins
		Bb	2	57 mins	
	Total	6	4013		
	Location 2 (E20)	Ppip	1689	22 mins	23 mins
		Ppyg	305	22 mins	27 mins
		Nn	14	59 mins	4h 11 mins
		NI	49	1h	32 mins
		Bb	8	27 mins	37 mins
	Total	5	2065		
	Location 3 (E2)	Ppip	271	1 min	22 mins
		Ppyg	73	20 mins	11 mins
		Nn	6	1h 17 mins	37 mins
		NI	23	35 mins	39 mins
		Es	6	58 mins	3h 24 mins
	Total	5	379		
	<b>Grand Total</b>	<b>7</b>	<b>6457</b>		

**Table 5.10.** Static SM4BAT detector results 22.06.21 – 29.06.21.

*July 2021*

5.3.8. A similar diversity of bats was again recorded across five nights in July, with the majority of the registrations attributed to Common Pipistrelle.

5.3.9. Nathusius' Pipistrelle *Pipistrellus nathusii* was the earliest recorded species within the site, with the earliest registration two minutes after sunset.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
15.07.21 – 20.07.21 (5 nights)	Location 1 (E6)	Ppip	1961	6 mins	25 mins
		Ppyg	340	21 mins	21 mins
		Pnat	242	2 mins	31 mins
		Nn	3	2h 3 mins	1h 47 mins
		NI	26	1h 16 mins	1h 48 mins
		Es	2		3h 27 mins
		Myo	2	2h 20 mins	3h 27 mins
		Pa	1		3h 34 mins
		Bb	7	37 mins	1h 44 mins
	Total	9	2584		
	Location 2 (E10)	Ppip	526	12 mins	30 mins
		Ppyg	271	14 mins	27 mins
		Nn	6	1h 31 mins	1h 47 mins
		NI	2		1h 8 mins
		Myo	1		2h 11 mins
		Bb	1		2h 8 mins
	Total	6	807		
	Location 3 (E2)	Ppip	161	13 mins	34mins
		Ppyg	96	10 mins	40mins
		Pnat	7	25 mins	
		Nn	2	40 mins	
		Es	1		3h 56 mins
		Pa	5	1h 16 mins	4h 4 mins
	Total	6	272		
<b>Grand Total</b>	<b>9</b>	<b>3663</b>			

**Table 5.11.** Static SM4BAT detector results 15.07.21 – 20.07.21.

*August 2021*

5.3.10. The highest level of activity was recorded across seven nights in August, with a total of 8728 registrations. Again, the majority of these registrations were from Common Pipistrelle.

5.3.11. *Myotis* sp. and Barbastelle were recorded at location 1, adjacent to Prior's Wood. Noctule and Leisler's Bats were common throughout the site, with early registrations recorded near location 2.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
05.08.21 – 12.08.21 (7 nights)	Location 1 (E21)	Ppip	1800	3 mins	9 mins
		Ppyg	101	18 mins	24 mins
		Nn	75	11 mins	13 mins

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
		NI	86	1h 27 mins	57 mins
		Myo	2		5h 38 mins
		Bb	5	2h 17 mins	54 mins
	Total	6	2069		
	Location 2 (E18)	Ppip	389	2 mins	18 mins
		Ppyg	980	9 mins	33 mins
		Nn	16	14 mins	30 mins
		NI	20	15 mins	5h 17 mins
	Total	4	1405		
	Location 3 (E5)	Ppip	4668	4 mins	
		Ppyg	581	20 mins	
		Nn	1		2h 54 mins
		NI	4	1h 34 mins	48 mins
	Total	4	5254		
	<b>Grand Total</b>	<b>7</b>	<b>8728</b>		

**Table 5.12.** Static SM4BAT detector results 05.08.21 – 12.08.21.

*September 2021*

- 5.3.12. Species diversity and number of registrations were lower in September compared with August, with a total of 3363 registrations recorded across five nights.
- 5.3.13. Common Pipistrelle was the most abundant species recorded in September with 2468 registrations recorded across the site. Low numbers of *Myotis* sp. were recorded with five registrations recorded across the site. The earliest registration was attributed to Soprano Pipistrelle recorded one minute after sunset near location 3.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
08.09.21 – 13.09.21 (5 nights)	Location 1 (E24)	Ppip	2317	12mins	19mins
		Ppyg	144	9mins	15mins
		Nn	3	1h 4mins	
		Myo	1	35mins	
	Total	4	2465		
	Location 2 (E12)	Ppip	49	26mins	2h 33mins
		Ppyg	370	6mins	1h 12mins
		Nn	33	1h 18mins	1h 49mins
		Myo	1	57mins	
	Total	4	453		
	Location 3	Ppip	102	2mins	28mins

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
	(E14)	Ppyg	335	1min	2mins
		Nn	5	29mins	3h 46mins
		Myo	3	1h 25mins	3h 16mins
	Total	4	445		
	<b>Grand Total</b>	<b>4</b>	<b>3363</b>		

**Table 5.13.** Static SM4BAT detector results 08.09.21 – 13.09.21.

October 2021

- 5.3.14. A total of 4562 registrations were attributed to Common Pipistrelle and Soprano Pipistrelle. The earliest registration was for Common Pipistrelle one minute after sunset and two minutes before sunrise in the vicinity of location 3. Barbastelle and *Myotis* sp. were again recorded at location 1, near Prior's Wood.

Survey Nights	Location	Species	No. Registrations	First Registration after sunset	Last Registration before sunrise
11.10.21 – 18.10.21 (7 nights)	Location 1 (E17)	Ppip	404	9mins	2h 58mins
		Ppyg	413	1mins	3mins
		Nn	1	28mins	
		NI	4	18mins	
		Myo	1	37mins	
		Bb	1	3h 36mins	
		Es	1	1h 10mins	
	Total	7	825		
	Location 2 (E18)	Ppip	1330	17mins	1h 4mins
		Ppyg	1108	25mins	1h 8mins
		Nn	13	26mins	
		NI	13	27mins	1h 43mins
	Total	4	2464		
	Location 3 (E5)	Ppip	1116	1mins	2mins
		Ppyg	191	7mins	13mins
	Total	2	1307		
	<b>Grand Total</b>	<b>7</b>	<b>4596</b>		

**Table 5.14.** Static SM4BAT detector results 11.10.21 – 18.10.21.

- 5.3.15. Registrations close to sunset and sunrise for both Common and Soprano Pipistrelle suggest that there are roosts for these species either within or close to the site. Additionally, Nathusius' Pipistrelle was recorded at two minutes past sunset and 31 minutes before sunrise in the west of the site (static detector location 1) in July. This again would suggest that there is a roost for this species in close proximity to this location.

- 5.3.16. The earliest registration for Barbastelle was 27 minutes after sunset on the western edge of Prior's Wood (static detector location 2). Barbastelle is a later emerging species and an emergence at this time could indicate that a roost is present within Prior's Wood.

#### 5.4. Tree Inspection

- 5.4.1. Trees within the site that could have been impacted by the development, namely those along hedgerows and the edge of Prior's Wood, were subject to a ground-based assessment to check for Potential Roosting Features (PRFs).
- 5.4.2. Several trees within the site have features suitable for roosting bats. Most of these are located along the southern woodland boundary of the site, and adjacent to the woodland edge in the northwest of the site. Some of these, notably two mature Oaks (T1 and T2), are considered to have high potential for roosting bats, with several other trees classed as having moderate and low potential. All trees are being retained as part of the development. A summary of the trees with high and moderate bat potential is set out in Table 5.15 below, with the trees illustrated on Plan ECO4.

Tree Ref	Species	Potential Roost Features	Evidence of Bats	Notes
T1	Oak	Large cavity running down trunk	No	High bat potential
T2	Oak	Overgrown Ivy and large split	No	High bat potential
T3	Oak	Overgrown Ivy and knotholes	No	Moderate bat potential
T4	Ash	Multiple woodpecker holes	No	Moderate bat potential
T5	Oak	Knotholes	No	Moderate bat potential
T6	Maple	Exposed stump and overgrown Ivy	No	Moderate bat potential
T7	Hornbeam	Multiple holes and overgrown Ivy	No	Moderate bat potential
T8	Oak	Knotholes and loose bark	No	Moderate bat potential
T9	Oak (dead)	Split in branches	No	Moderate bat potential
T10	Oak	Splits along branches and overgrown Ivy	No	Moderate bat potential
T11	Maple	Overgrown Ivy and loose branches	No	Moderate bat potential

**Table 5.15.** Tree Inspection Summary.

## 6. DISCUSSION AND RECOMMENDATIONS

### 6.1. Use of Site

- 6.1.1. Prior's Wood and hedgerows across the site offer suitable opportunities for foraging and commuting bats, whilst some of the more mature trees are considered to provide bat roosting potential.
- 6.1.2. The results of the activity transect surveys and remote detectors deployed between April and October 2021 show that Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, *Myotis* sp., Noctule, Leisler's Bat, Serotine, Brown Long-eared Bat and Barbastelle Bat are using Prior's Wood, hedgerows and the boundary habitats for foraging and commuting.
- 6.1.3. Additionally, early registrations for Common, Soprano and Nathusius' Pipistrelle and Barbastelle would indicate that roosts for these species are present within or in close proximity to the site.
- 6.1.4. The site supports a number of trees with features suitable for roosting bats. Overall, there are 24 with considered low potential, nine with moderate potential, and two with high potential.

### 6.2. Proposals and Effect

- 6.2.1. Prior's Wood and suitable habitat at the boundaries of the site, including all trees with roosting potential, will be retained and enhanced as part of the development. Additionally, all hedgerows throughout the site, including those utilised by Barbastelle, and therefore considered important under the Hedgerows Regulations 1997, will be retained and enhanced. A sensitive final lighting scheme will be designed to ensure that no adverse increase in light spill occurs on Prior's Wood, hedgerows and boundary vegetation as a result of the development.

### 6.3. Mitigation and Enhancement

- 6.3.1. Trees listed in Table 5.15 noted for their potential roosting features will be retained as part of the proposed development, and a Natural England licence is not required.
- 6.3.2. The woodland, hedgerows and mature vegetation at the boundaries of the site will be retained and enhanced to allow continued dispersal and foraging opportunities post-development.
- 6.3.3. Prior's Wood will be extended in the east of the site and new native hedgerow and trees will be planted throughout the development. New tree and hedgerow planting across the site will supplement and enhance the current boundary habitats and provide new foraging habitat for locally present bat species. New landscaping will use native species to provide new foraging opportunities for bats.
- 6.3.4. The central open space will provide grassland and wetland habitats that will encourage greater use of the site by invertebrates and increase the foraging opportunities for the local bat population.

- 6.3.5. As a further enhancement, provision of bat boxes such as Schwegler 2F Universal Bat Boxes, Schwegler 1FF and Multi chambered 1FQ boxes (see Appendix 1) should be provided on retained trees across the site. This would represent a biodiversity gain over the current conditions. Boxes will be located in sheltered spots and placed at a height of at least three metres from the ground. Boxes will also be arranged around the site so that a number of different aspects are covered. In addition, Habibat access tiles could be installed on new dwellings providing further roosting opportunities across the site (See Appendix 2).
- 6.3.6. Lighting during the construction phase of the development will adhere to the Institute of Lighting Professionals (ILP) *Guidance Note 8 Bats and Artificial Lighting* to limit light spill onto areas considered of most interest to bats. Lighting outside of construction timeframes will be reduced to solely core areas to limit the duration of lighting magnitude across the site. The final lighting strategy will be reviewed by the project ecologist and subject to amendment, if necessary, to avoid adverse effects on any ecological receptors. This can be secured by a suitable planning condition.
- 6.3.7. Security lighting on properties backing on to sensitive habitat could be low wattage LED provided on the properties at construction to forestall a future homeowner installing unsuitable lighting which could impact on bats.



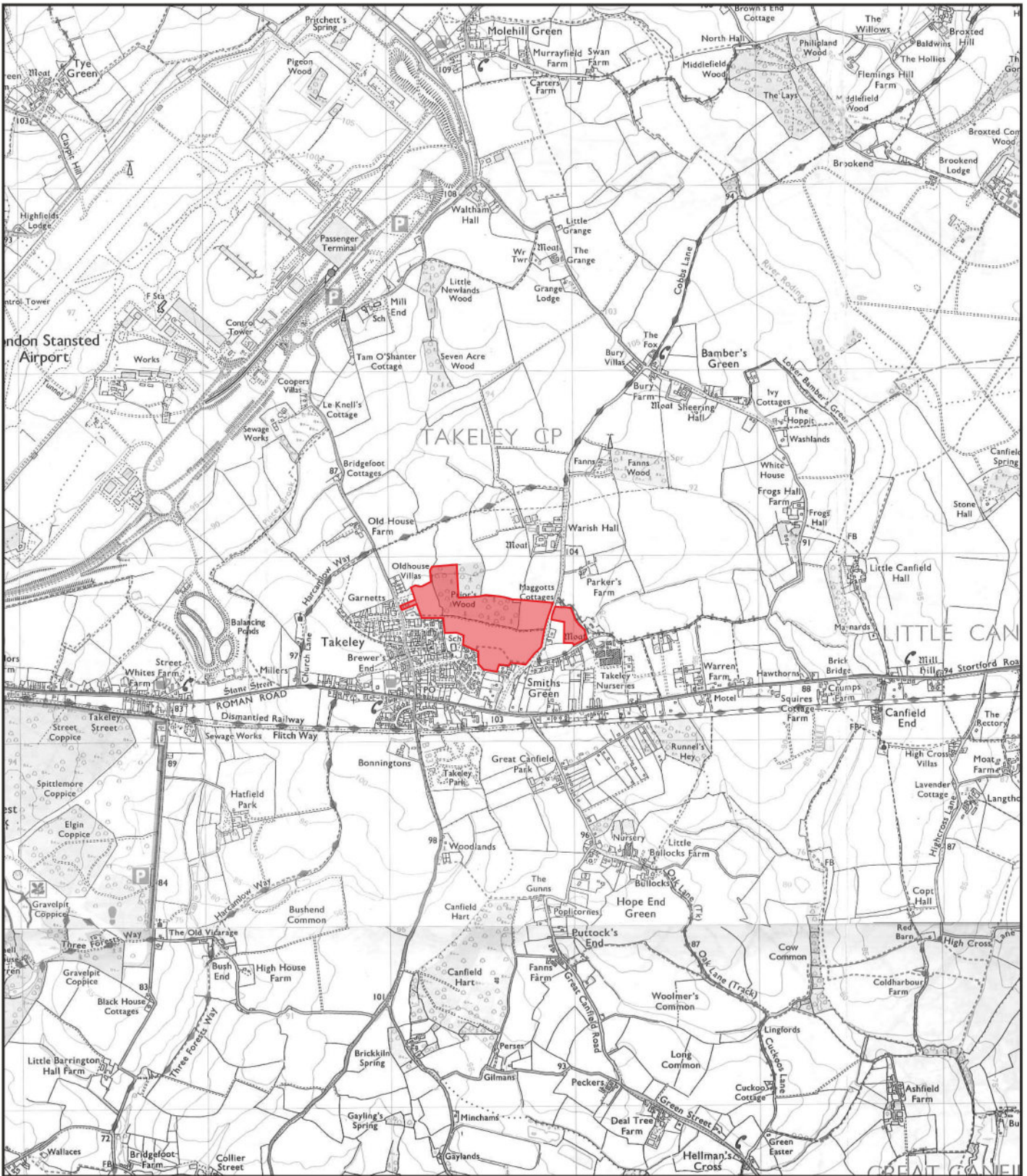
## 7. SUMMARY AND CONCLUSIONS

- 7.1. Ecology Solutions was commissioned in October 2020 by Weston Homes PLC to undertake an ecological assessment of the proposed development at Warish Hall Farm, Takeley.
- 7.2. An Ecological Assessment of the site was undertaken by Ecology Solutions in May 2021 including an extended Phase 1 habitat survey and a ground-based appraisal of the trees for bats. A report of the findings, dated October 2021, has been submitted to Uttlesford District Council.
- 7.3. The proposals for the site are for a mixed-use development including residential and employment areas, as well as local amenities.
- 7.4. The results of the activity transect surveys and remote detectors deployed between April and October 2021 show that Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, *Myotis* sp., Noctule, Leisler's Bat, Serotine, Brown Long-eared Bat and Barbastelle are using the boundary habitats and Prior's Wood for foraging and commuting. Additionally, roosts for Common, Soprano and Nathusius' Pipistrelle and Barbastelle may be present within or in close proximity to the site.
- 7.5. Trees present on the site were subject to a ground-based assessment, with a total of 35 trees classed as offering roosting potential for bats. The development plans require no tree removal, and a Natural England licence is not required.
- 7.6. In order to safeguard local bat populations, the woodland, hedgerows and mature vegetation at the boundaries of the site will be retained to allow continued dispersal and foraging opportunities post-development. Additionally, the woodland will be extended in the east of the site and new native hedgerow and trees will be planted throughout the development. New tree and hedgerow planting across the site will supplement and enhance the current boundary habitats and provide new foraging habitat for locally present bat species. New landscaping will use native species to provide new foraging opportunities for bats.
- 7.7. A sensitive final lighting scheme should be designed to ensure that no adverse increase in light spill occurs as a result of the development. The landscape proposals have allowed for these recommendations to be considered and a sensitive lighting scheme has been worked up in principle with detail set out as part of the application proposals. Further enhancements will include the provision of new bat boxes to offer new roosting opportunities.
- 7.8. In conclusion, the latest survey results do not alter the recommendations of the Ecological Assessment, with no further survey work required on the site. A suitable mitigation strategy has been set out and will ensure that the favourable conservation status of species concerned is maintained in the locality.

## PLANS

**PLAN ECO1**

Site Location



**KEY:**



**SITE LOCATION**



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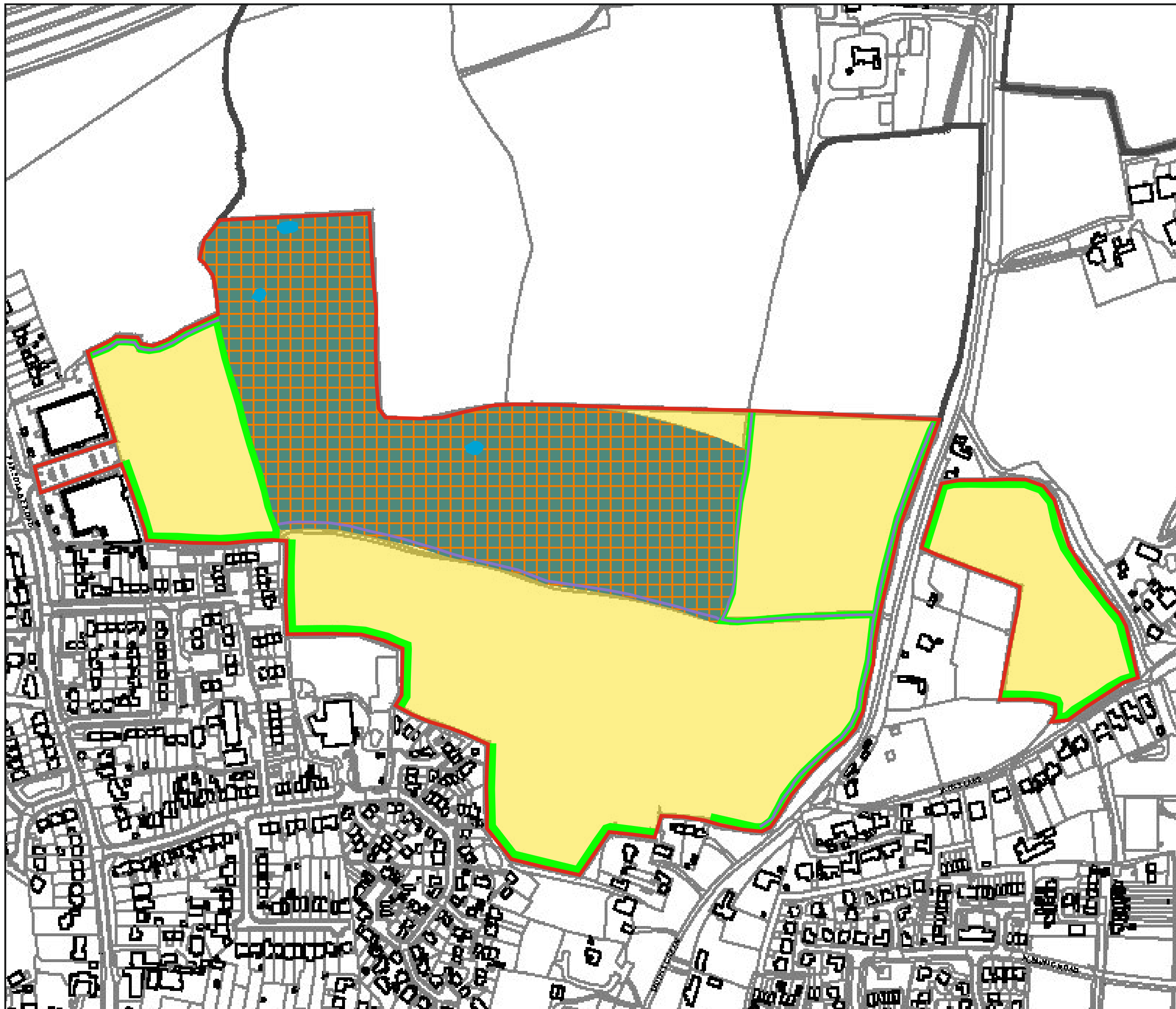
**9261: WARISH HALL FARM,  
TAKELEY, ESSEX**





**PLAN ECO1: SITE LOCATION**

Rev: B  
Oct 2021

## **PLAN ECO2**

Ecological Features



- KEY:**
-  SITE BOUNDARY
  -  LOCAL WILDLIFE SITE
  -  ANCIENT AND SEMI-NATURAL WOODLAND
  -  ARABLE
  -  HEDGEROW
  -  DITCH
  -  POND



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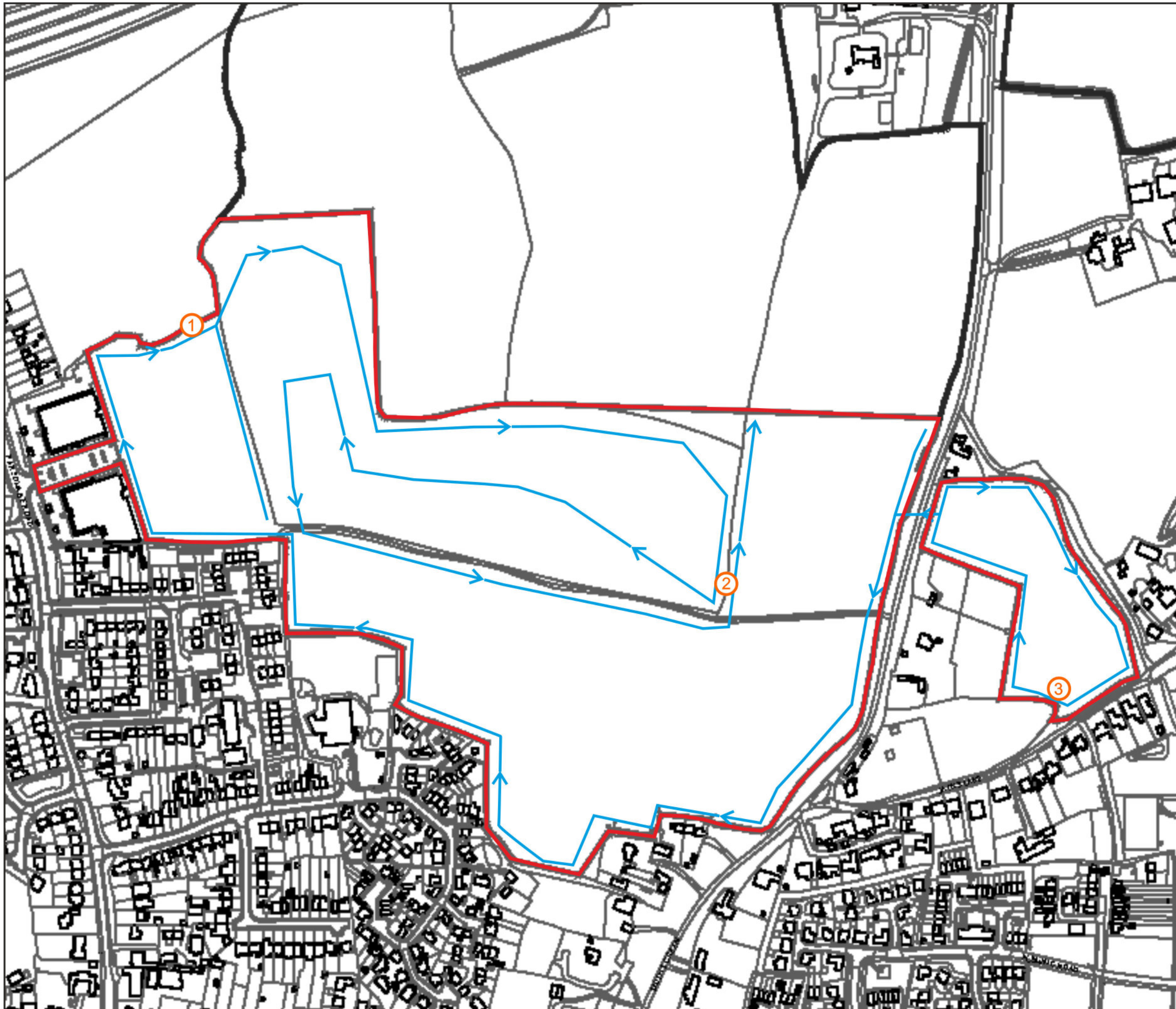
PLAN ECO2: ECOLOGICAL  
 FEATURES

Rev: A  
 May 2021




## **PLAN ECO3a**

Bat Activity Transect and Remote Detector Locations





KEY:

-  SITE BOUNDARY
-  TRANSECT ROUTE
-  REMOTE STATIC DETECTOR LOCATION



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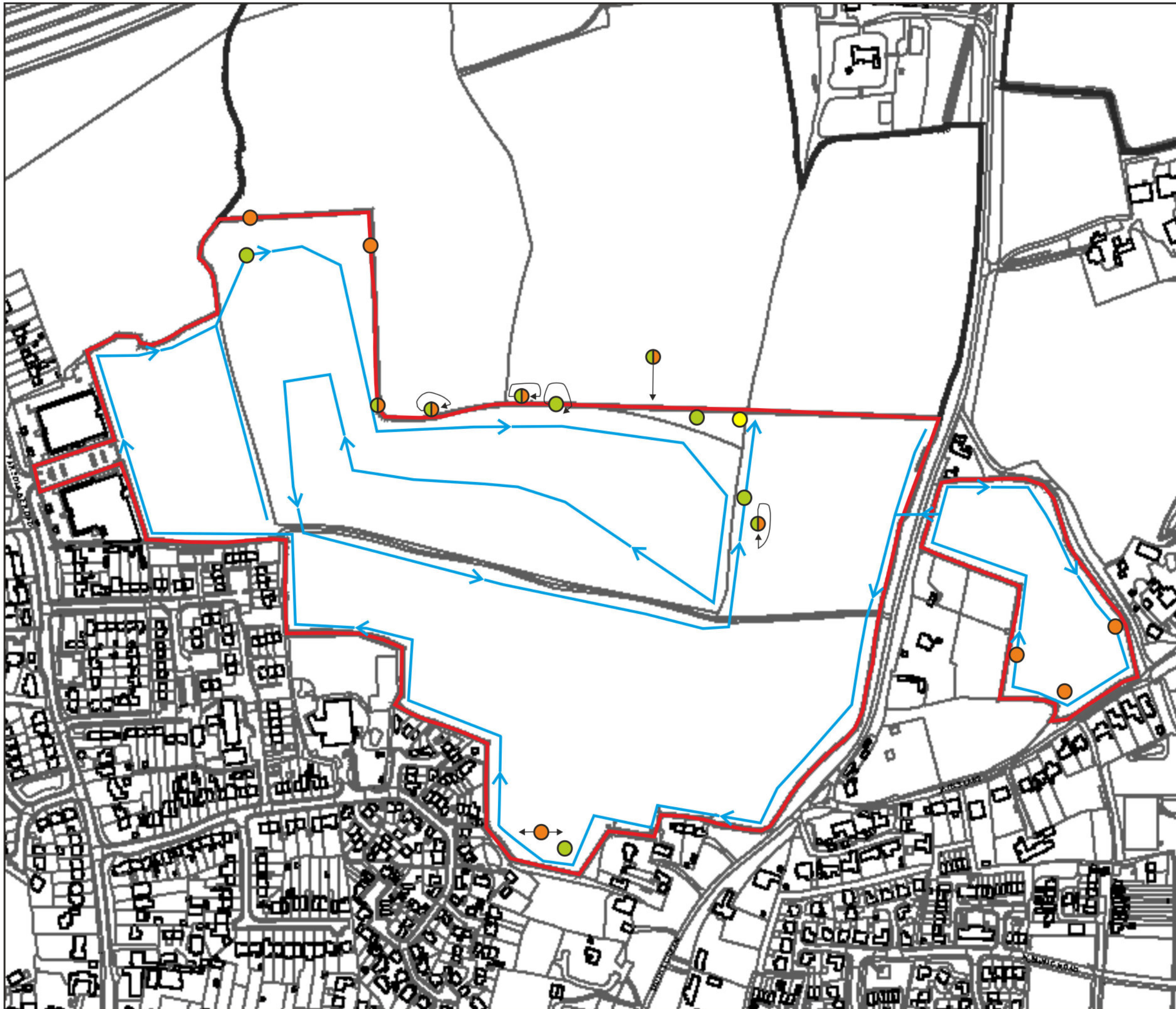
PLAN ECO3a: BAT ACTIVITY  
 TRANSECT AND REMOTE  
 DETECTOR LOCATIONS

Rev: A  
 May 2021








## **PLAN ECO3b**

Bat Activity Survey Results 20.05.21





KEY:

-  SITE BOUNDARY
-  TRANSECT ROUTE - WALKED BY TWO SURVEYORS IN OPPOSITE DIRECTIONS
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  COMMON PIPISTRELLE & SOPRANO PIPISTRELLE
-  BARBASTELLE REGISTRATION
-  FLIGHT PATH



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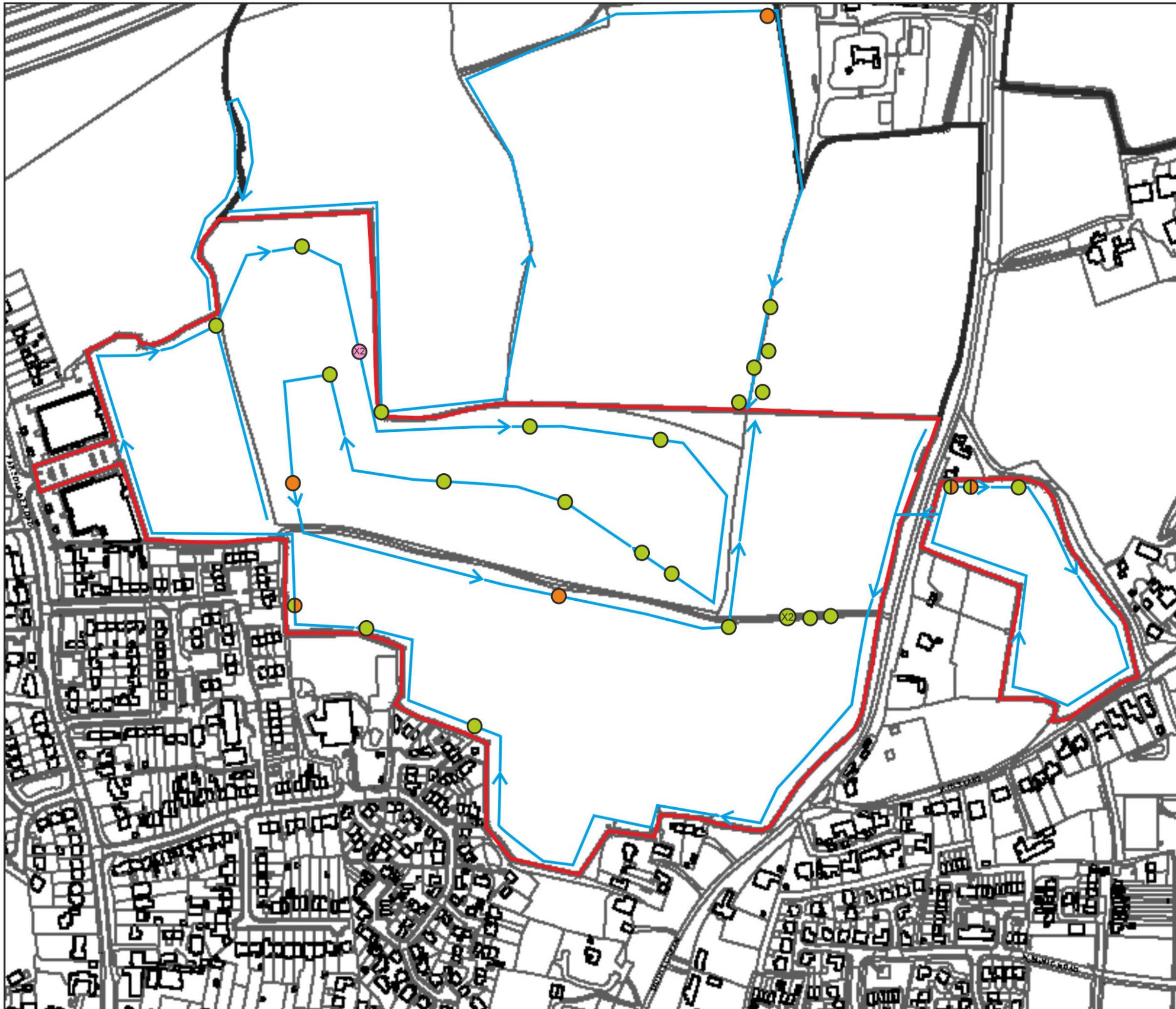
PLAN ECO3b:  
 BAT ACTIVITY SURVEY  
 RESULTS 20.05.21

Rev: B  
 Oct 2021







**PLAN ECO3c**

Bat Activity Survey Results 22.06.21





KEY:

-  SITE BOUNDARY
-  TRANSECT ROUTE - WALKED BY TWO SURVEYORS IN OPPOSITE DIRECTIONS
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  COMMON PIPISTRELLE & SOPRANO PIPISTRELLE
-  MYOTIS REGISTRATION



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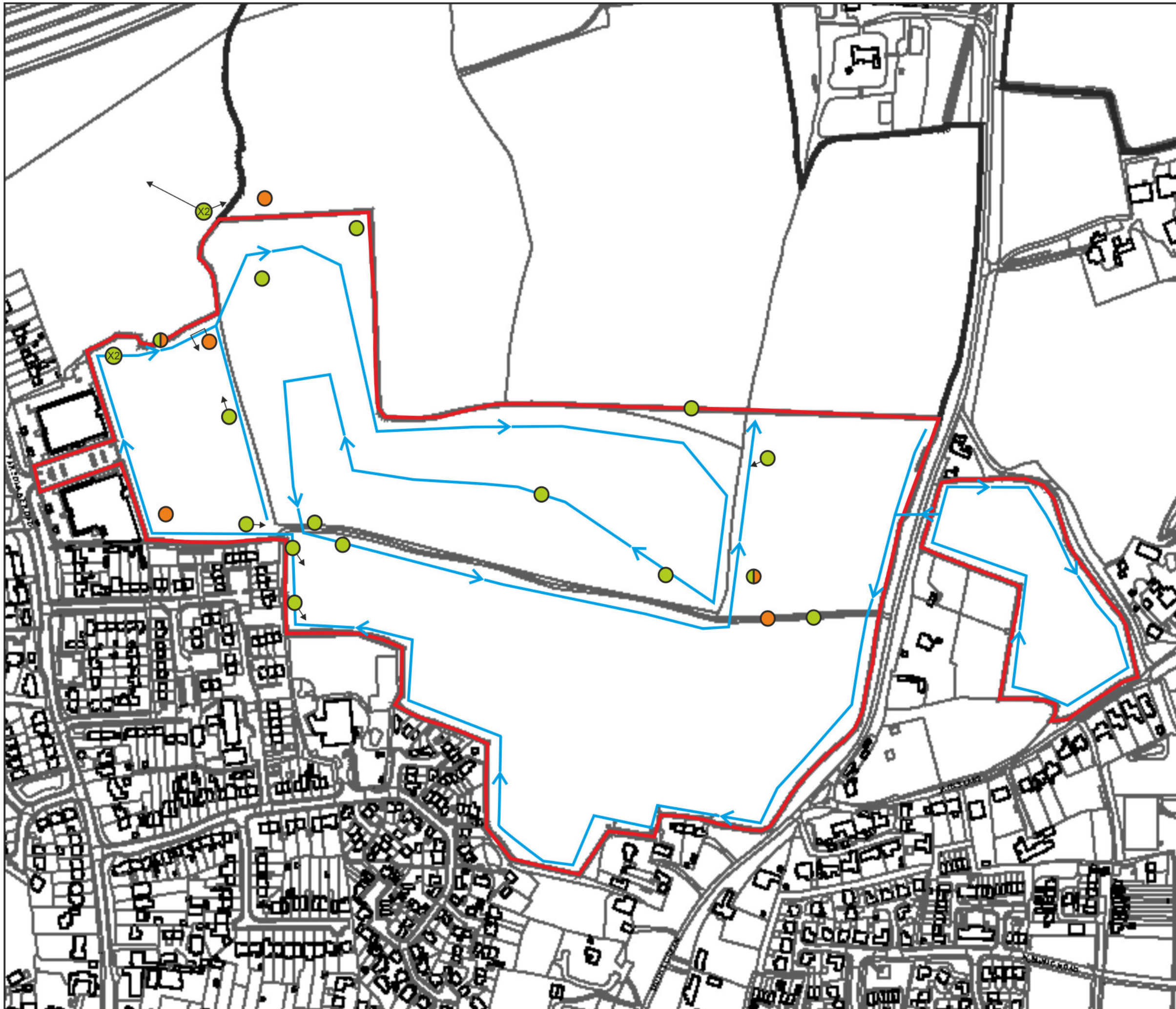
PLAN ECO3c:  
 BAT ACTIVITY SURVEY  
 RESULTS 22.06.21

Rev: B  
 Oct 2021







**PLAN ECO3d**

Bat Activity Survey Results 15.07.21





KEY:

-  SITE BOUNDARY
-  TRANSECT ROUTE
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  COMMON PIPISTRELLE & SOPRANO PIPISTRELLE
-  FLIGHT PATH



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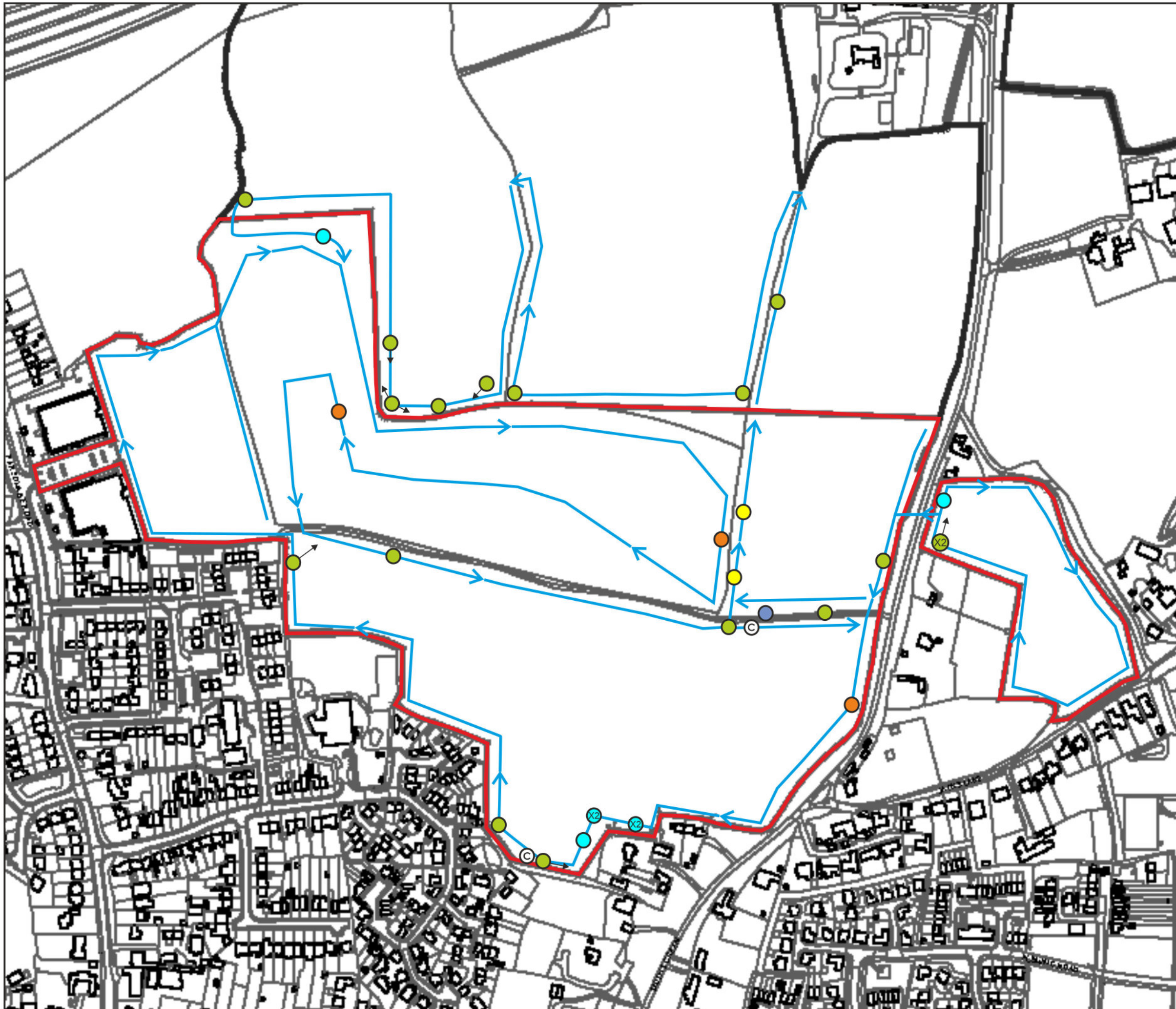
PLAN ECO3d:  
 BAT ACTIVITY SURVEY  
 RESULTS 15.07.21

Rev: A  
 Sep 2021












**PLAN ECO3e**

Bat Activity Survey Results 12.08.21



KEY:

-  SITE BOUNDARY
-  TRANSECT ROUTE
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  NOCTULE BAT REGISTRATION
-  LEISLER'S BAT REGISTRATION
-  BARBASTELLE REGISTRATION
-  FLIGHT PATH
-  CHECKPOINT



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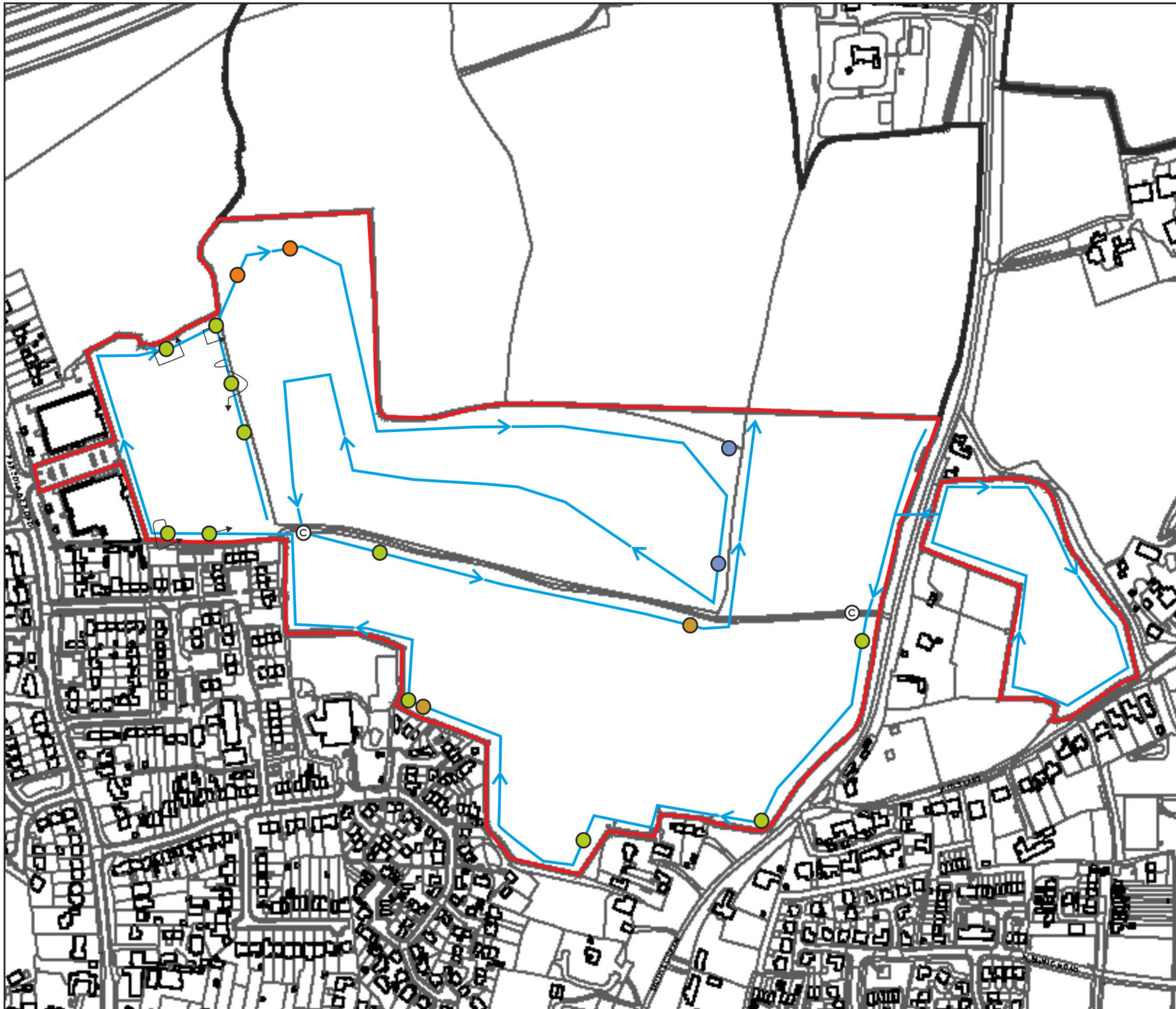
PLAN ECO3e:  
 BAT ACTIVITY SURVEY  
 RESULTS 12.08.21

Rev: B  
 Oct 2021









**PLAN ECO3f**

Bat Activity Survey Results 08.09.21





**KEY:**

-  SITE BOUNDARY
-  TRANSECT ROUTE
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  NOCTULE BAT REGISTRATION
-  BROWN LONG-EARED BAT REGISTRATION
-  FLIGHT PATH
-  CHECKPOINT



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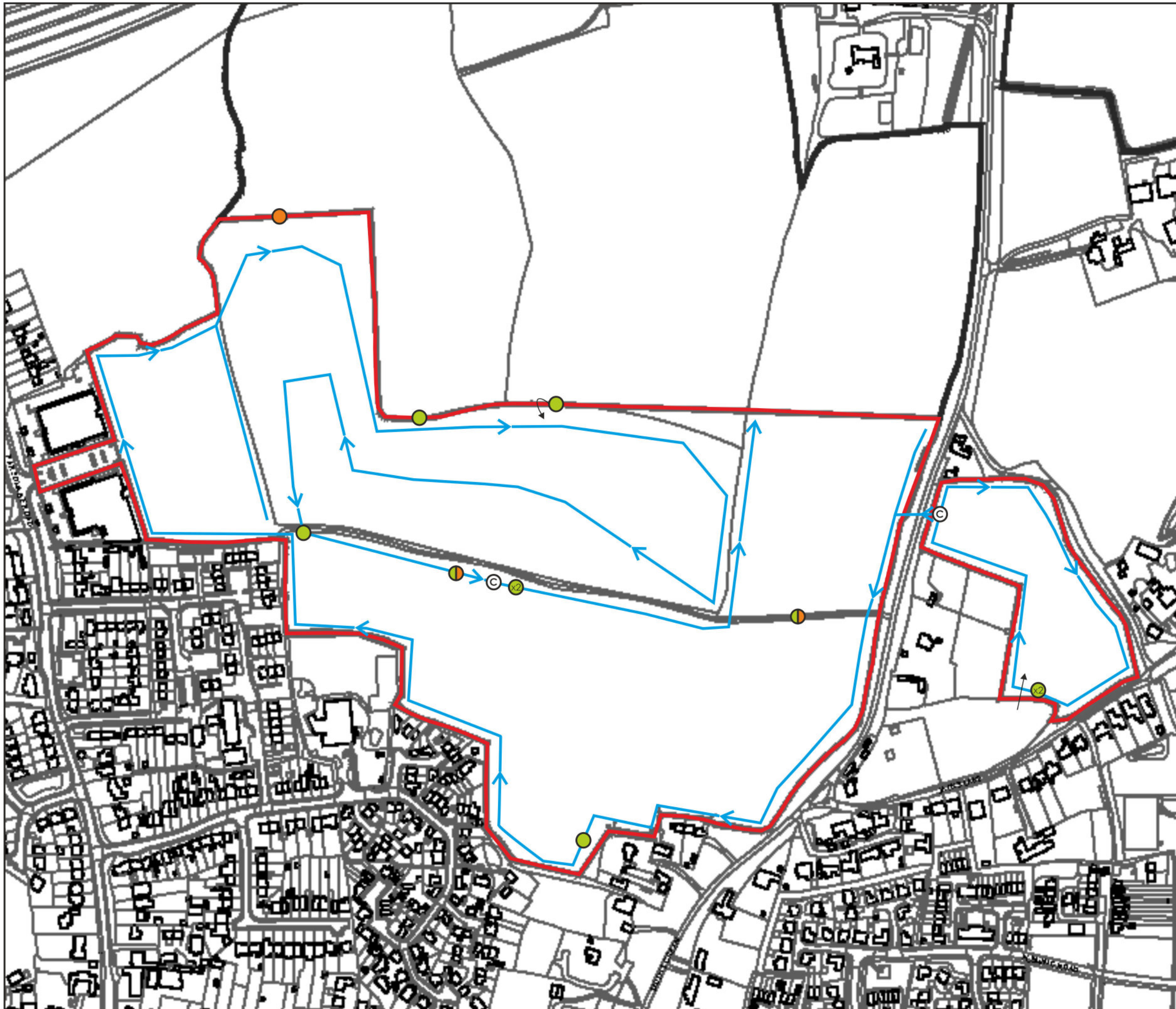
PLAN ECO3f:  
 BAT ACTIVITY SURVEY  
 RESULTS 08.09.21

Rev: B  
 Oct 2021








## **PLAN ECO3g**

Bat Activity Survey Results 11.10.21





KEY:

-  SITE BOUNDARY
-  TRANSECT ROUTE
-  COMMON PIPISTRELLE REGISTRATION
-  SOPRANO PIPISTRELLE REGISTRATION
-  COMMON PIPISTRELLE & SOPRANO PIPISTRELLE
-  FLIGHT PATH
-  CHECKPOINT



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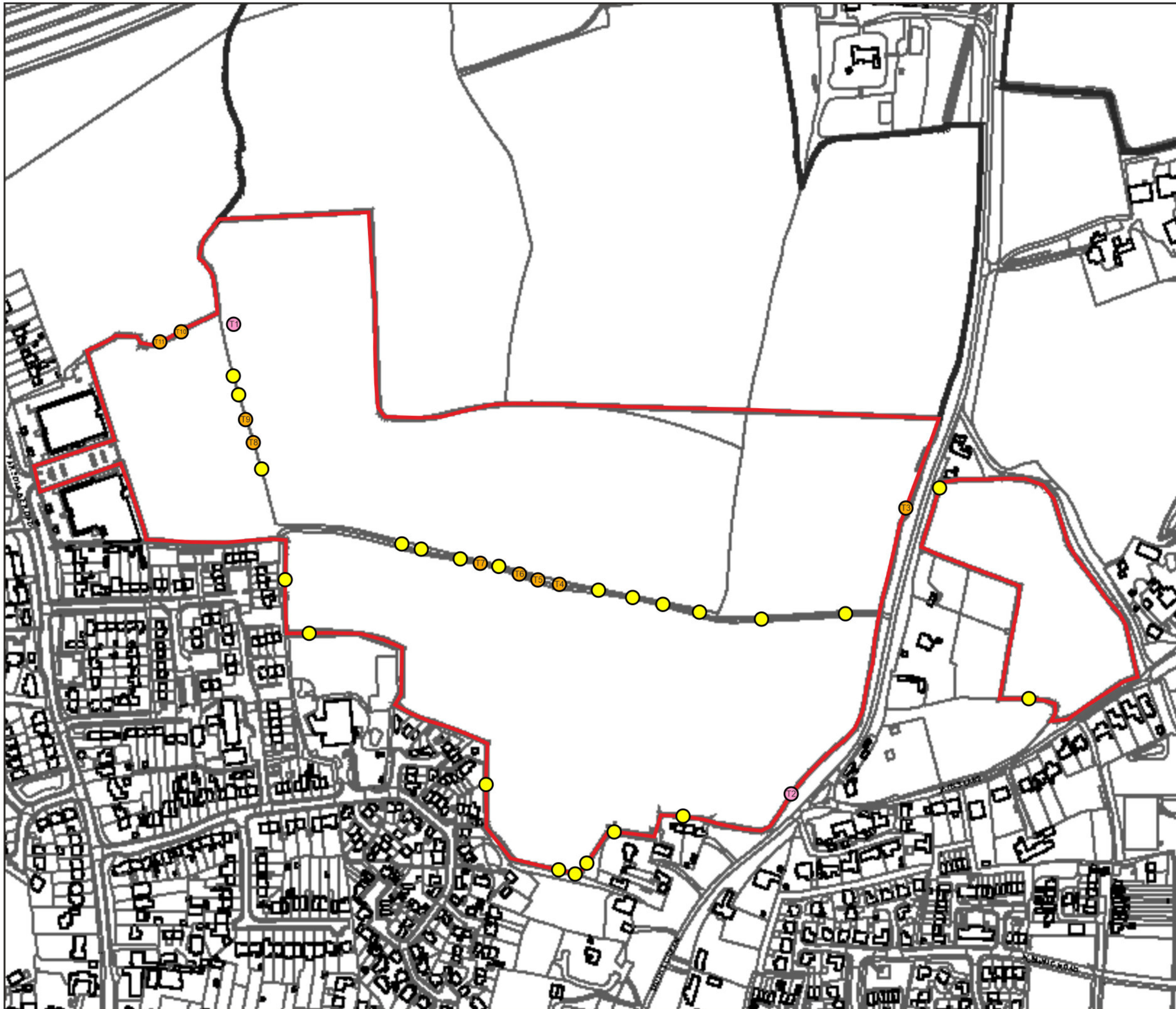
PLAN ECO3g:  
 BAT ACTIVITY SURVEY  
 RESULTS 11.10.21

Rev: A  
 Oct 2021







## **PLAN ECO4**

### Tree Assessment



KEY:

-  SITE BOUNDARY
-  TREE WITH LOW SUITABILITY FOR ROOSTING BATS
-  TREE WITH MODERATE SUITABILITY FOR ROOSTING BATS
-  TREE WITH HIGH SUITABILITY FOR ROOSTING BATS



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PLAN ECO4:  
 TREE ASSESSMENT

Rev: A  
 Nov 2021

## **APPENDICES**

## **APPENDIX 1**

### Bat Boxes

# Bat Boxes

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

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



## 1FF Bat Box

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

*Woodcrete construction.*

*Width: 27cm*

*Height: 43cm*

*Weight: 8.3kg*



## 2F Bat Box

A standard bat box, attractive to the smaller British bat species. Simple design with a narrow entrance slit on the front.

*Woodcrete construction.*

*Diameter: 16cm*

*Height: 33cm*

*Weight: 4kg*

# Bat Boxes

Woodstone bat boxes are constructed using Woodstone which is a mix of concrete and wood shavings. The material has excellent thermal properties that ensure the inside of the box will maintain a consistent temperature.

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



This multi-chambered bat box has a large internal space that can accommodate a large colony of bats. It can be used as a summer roost, maternity roost or hibernation box during mild winters.

The box can be mounted onto trees and is best positioned at a height of 3 to 6 metres and be orientated to a south to southeast elevation.

Specifications:

External dimensions: 15cm x 27.5cm x 16cm  
weight: 4kg



## **APPENDIX 2**

### Bat Access Tiles

# Bat Access Tile



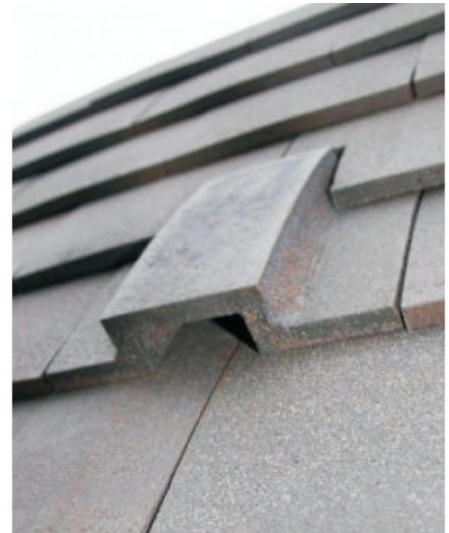
## Habibat Slate Access Tile

The Habibat Bat Access Standard Slate has been carefully designed to provide much needed access to roof space for our protected bat species. The Bat Access Slate consists of a standard sized slate, with a capped vent which allows access to roof felt or roof space.

*Width: 37.5cm*  
*Height: 41.8cm*  
*Depth: 0.8cm*  
*Weight: 8.3kg*

## Habibat Access Clay Tile

As with the slate access tile, the Habibat Bat Access clay tile has been carefully designed to provide much needed access to roof space for our protected bat species. The Bat Access clay tile package includes a set of five tiles that fits seamlessly on any roof with plain clay tiles to provide access for bats either behind the tiles or into the roof space.





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**Appendix E - Woodland Management Plan [June 2023] by Ecology Solutions**



**ECOLOGY SOLUTIONS**

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PRIOR'S WOOD,  
WARISH HALL FARM,  
TAKELEY,  
ESSEX

**Woodland Management Plan**  
in respect of the  
Proposed Development  
at Bull Field

June 2023  
9282.WMP.vf1

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## CONTENTS

1	INTRODUCTION	1
2	BASELINE CONDITIONS	2
3	WOODLAND MANAGEMENT STRATEGY	6
4	WOODLAND EXTENSION STRATEGY	8
5	VISITOR MANAGEMENT STRATEGY	9
6	BATS	11
7	HEDGEHOGS	13
8	BIRDS	14
9	AMPHIBIANS	15
10	INVERTEBRATES	16
11	RESPONSIBILITY FOR IMPLEMENTATION AND DELIVERY	17
12	FIFTEEN-YEAR WORK PROGRAMME	18
13	MONITORING, REPORTING AND REVIEW PROCESS	19

## **PLANS**

PLAN ECO1	Site Location and Ecological Designations
PLAN ECO2	Woodland Management Strategy

## **APPENDICES**

APPENDIX 1	Bat Boxes
APPENDIX 2	Hedgehogs
APPENDIX 3	Bird Boxes
APPENDIX 4	Loggery Design

## 1. INTRODUCTION

- 1.1. Ecology Solutions was commissioned by Weston Homes Plc to prepare a management plan for Prior's Wood in relation to the development of Bull Field, Warish Hall Farm, Takeley, Essex (see Plan ECO1). Prior's Wood lies to the north of Bull Field and is owned by Weston Homes.
- 1.2. This report sets out the management prescriptions of features of ecological interest and describes the wildlife enhancements to be implemented. In particular, it considers the potential for increase in visitor numbers, in terms of both new and existing residents.
- 1.3. A separate woodland management plan has been produced to support the application of Jack's Field, which lies approximately 180m to the east of Prior's Wood. Plan ECO2 of this document depicts the enhancement measures associated with both the Bull Field and Jack's Field application.
- 1.4. It is envisaged that positive management strategy outlined in this report will provide the basis for an improvement in the condition of the habitat that will lead to beneficial changes over time while managing access to the woodland. In this context the proposals set out within this report are intended to form the basis of suitable control that can be secured through the provision of a planning condition.
- 1.5. This document should be read in conjunction with the Ecological Assessment for Warish Hall Farm (dated October 2021) and the Ecological Appraisal (dated June 2023) produced by Ecology Solutions, and materials on arboricultural matters produced by Barton Hyett Associates.

## 2. BASELINE CONDITIONS

### 2.1. Designations

- 2.1.1. The locations of statutory and non-statutory designations in the locality are shown on Plan ECO1.

#### *Statutory Sites*

- 2.1.2. There are no statutory designations of nature conservation value within the site or immediately adjacent to it. The closest statutory designated site is Hatfield Forest Site of Special Scientific Interest (SSSI), which lies approximately 1.6km southwest of the site and also incorporates Hatfield Forest National Nature Reserve (NNR).
- 2.1.3. Uttlesford District Council have published interim advice relating to the emerging strategic approach to Hatfield Forest SSSI and NNR, pending the examination of emerging Local Plans. The interim advice considers recreational impacts and the zone of influence of the designation.
- 2.1.4. As detailed within the Developer Contributions Supplementary Planning Document (March 2023) – Hatfield Forest Mitigation Strategy, Uttlesford District Council is in the process of formulating Strategic Access Management Measures (SAMM) which new housing projects can contribute towards. Once this package of measures has been finalised and costed, it will enable a tariff-based system to be worked up, towards calculating proportionate financial contributions to be secured (e.g. within s106 agreements). At the current time, packages are being negotiated on a case-by-case basis, and only the largest schemes (projects of 50 or more units) within the zone of influence of 10.4km are required to contribute in this way.
- 2.1.5. The Hatfield Forest Mitigation Strategy additionally emphasises the need for new housing developments to include adequate and well-designed on-site green infrastructure. The areas of semi-natural greenspace should be designed to absorb significant proportions of the day-to-day recreational needs of new residents, such as walking, dog walking, jogging / exercise, children's play facilities, and other informal recreation.

#### *Non-statutory Sites*

- 2.1.6. Prior's Wood is designated as a Local Wildlife Site (LWS), on account of its ancient and semi-natural woodland habitat.

#### *Priority Habitat*

- 2.1.7. The woodland is shown as Priority Habitat on the MAGIC website. Priority Habitats are also defined as Habitats of Principal Importance for the Conservation of Biodiversity in England under Section 41 of the Natural Environment & Rural Communities Act 2006. The Act requires that decision-makers such as public bodies, including local authorities, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

- 2.1.8. The NERC Act 2006 requires the Secretary of State to:

**...take such steps as appear... to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any published under this section, or...promote the taking by others of such steps.**

- 2.1.9. It is noted that the term Priority Habitat is simply descriptive and does not give any indication of quality. Virtually all deciduous woodland will be designated Priority Habitat.

*Essex Biodiversity Action Plan*

- 2.1.10. The Essex Biodiversity Action Plan (EBAP) lists a number of species that are associated with woodland or woodland edge, namely Oxlip *Primula elatior*, Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Dormouse *Muscardinus avellanarius*, Song Thrush *Turdus philomelos* and Stag Beetle *Lucanus cervus*.

- 2.1.11. Ancient Woodland is listed as a priority habitat within the EBAP.

## 2.2. Habitats

- 2.2.1. Prior's Wood is an area of broadleaved woodland some 8.22ha in size. It is included on the Ancient Woodland Inventory as an area of ancient and semi-natural woodland and designated as a non-statutory LWS.

- 2.2.2. The woodland has a historical link with the moated remains of Takeley Priory (a scheduled monument), approximately 300m to the northeast. The woodland has been reduced in size from the 10.3ha shown on Ordnance Survey six-inch map of 1956, with a portion in the north of the woodland (well away from the currently proposed development areas) having been changed to an arable field at some point in the past.

- 2.2.3. The woodland contains no ancient or veteran trees and primarily consists of Hornbeam *Carpinus betulus*, with significant components of Oak *Quercus robur*, Ash *Fraxinus excelsior*, Hawthorn *Crataegus monogyna* and Hazel *Corylus avellana*, with Field Maple *Acer campestre*, Elm *Ulmus* spp., Willow *Salix* spp., European Larch *Larix decidua* and Scots Pine *Pinus sylvestris* found in small numbers. The understorey of the woodland is virtually absent and the canopy closed throughout (below the optimum 30% open canopy). The field layer lacks variety and is dominated by Bramble *Rubus fruticosus* in most areas, with some Dog's Mercury *Mercurialis perennis*, Ivy *Hedera helix*, Wood-sedge *Carex sylvatica*, Pendulous Sedge *Carex pendula*, Wood Avens *Geum urbanum*, False Brome *Brachypodium sylvaticum* and Oxlip also present.

- 2.2.4. At the eastern end of the woodland is a small area (approximately 20m by 30m) that has a high proportion of young to semi mature Elm spp. and Willow spp. The northern end of the woodland has a much lower density of Hornbeam and a more established understorey of Field Maple, Hazel and Ash. The centre of the woodland, around the 'elbow' where north/south and east/west sections meet, has an area dominated by smaller Ash of up to 250mm diameter, and Hazel coppice.

- 2.2.5. Many of the Hornbeams and Field Maples appear to have been coppiced in the past, but it is clear that the woodland has been unmanaged for many years and suffers from significant browsing by deer. There is limited dead wood habitat present, particularly standing deadwood. There are no rides or open glades, but desire-line footpaths are present throughout. The woodland is framed by agricultural ditches.
- 2.2.6. Three ponds are present within Prior's Wood. All ponds were wet at the time of the survey in both October 2020 and April 2021 and lacked aquatic vegetation.

### 2.3. Protected and Notable Species

#### *Bats*

- 2.3.1. The results of the activity transect surveys and remote detectors deployed between April and September 2021 show that Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle *Pipistrellus nathusii*, *Myotis* sp., Noctule *Nyctalus noctula*, Leisler's Bat *Nyctalus leisleri*, Serotine *Eptesicus serotinus*, Brown Long-eared Bat *Plecotus auritus* and Barbastelle *Barbastellus barbastellus* are using the boundary habitats in the wider area and Prior's Wood for foraging and commuting.
- 2.3.2. Additionally, early registrations for Common, Soprano and Nathusius' Pipistrelle and Barbastelle would indicate that roosts for these species are present in the immediate area.
- 2.3.3. Overall, Prior's Wood is considered to offer good foraging and dispersal habitat, as well as potentially some roost sites.

#### *Badgers*

- 2.3.4. No signs of Badgers *Meles meles* were recorded during survey work. Prior's Wood offers suitable habitat for foraging and sett building, whilst the network of hedgerows offer further foraging and commuting opportunities.

#### *Dormice*

- 2.3.5. Survey work completed found no signs of Dormice.

#### *Other Mammals*

- 2.3.6. Owing to the varied habitats present it is considered that the site would support a range of common mammal species. While no evidence was recorded while undertaking surveys, it is considered that the woodland and boundary habitats are suitable for Hedgehog *Erinaceus europaeus*.

#### *Birds*

- 2.3.7. The woodland presents foraging and nesting opportunities for a range of species. The following species were recorded within the woodland during the breeding bird surveys: Song Thrush, Blackcap *Sylvia atricapilla*, Chiffchaff *Phylloscopus collybita*, Wren *Troglodytes troglodytes*, Jay *Garrulus glandarius*, Wood Pigeon *Columba palumbus*, Robin *Erithacus rubecula*, Blue Tit *Cyanistes caeruleus*, Great Tit *Parus major*, Blackbird



*Turdus merula*, Green Woodpecker *Picus viridis*, Great Spotted Woodpecker *Dendrocopos major*, Mistle Thrush *Turdus viscivorus*, Buzzard *Buteo buteo*, Magpie *Pica pica*, Nuthatch *Sitta europaea*, Treecreeper *Certhia familiaris* and Chaffinch *Fringilla coelebs*. The following further species were recorded during the wintering bird surveys: Long-tailed Tit *Aegithalos caudatus*, Redwing *Turdus iliacus* and Dunnock *Prunella modularis*.

#### *Reptiles*

- 2.3.8. Small numbers of Common Lizard *Zootoca vivipara* are present on the southern and northern boundaries of Prior's Wood.

#### *Amphibians*

- 2.3.9. No amphibians were recorded within the woodland during the survey work. Testing of waterbodies did not record presence of Great Crested Newt *Triturus cristatus*.

#### *Invertebrates*

- 2.3.10. It is likely an assemblage of common invertebrate species would be present.

### 3. WOODLAND MANAGEMENT STRATEGY

#### 3.1. Conservation Objectives

<p>To establish greater structural diversity within the woodland</p> <p>To promote new growth in the herbaceous layer</p> <p>To promote greater deadwood resources</p>
--

#### 3.2. Enhancement and Management

3.2.1. Woodland management often requires the felling of trees and this work can be quite invasive and the often negative perception by the public needs to be managed. Felling provides the opportunity to increase biodiversity by bringing light to the woodland floor for greater biodiversity and habitat. It also allows the existing tree stock to re-seed and regenerate the woodland with existing seedbank.

3.2.2. Indicative locations for enhancement and management works are shown on Plan ECO2.

##### *Coppicing*

3.2.3. The recommended coppicing method is to make cuts using a chainsaw at knee height on the stem. Once the tree has been felled, a further cut should be made at an angle: this will allow water to run off the exposed stump and prevent decay. A selection system should be used to target younger specimens. Whole areas will not be coppiced, since the aim is not to create open areas of even age, which would not be appropriate for a site of this size, rather, it is to create structural diversity.

##### *Deadwood Habitats*

3.2.4. An increase in standing and fallen deadwood resources will be encouraged, since this has significant benefits for woodland biodiversity, including invertebrates and fungi, and, by extension, mammals and birds. The woodland will not in any sense be 'tidied', but newly cut wood and brash arising from management works will be used to establish log piles and dead hedges along existing path edges. Away from the paths, selected trees will be ringbarked (under the direction of an arboriculturalist / ecologist) to produce standing deadwood. Specific regard would be had to the safety of the visiting public when selecting specimens for this purpose.

##### *Canopy Thinning and Light Penetration*

3.2.5. Steps will be taken to selectively thin the canopy, under the direction of an arboriculturalist, to allow greater light to penetrate to the woodland floor. This will be done over several years, to minimise disruption to visitors, and to encourage a diverse vertical structure. Up to 30% of the canopy will be opened in time in this way. This will include 'halo thinning' around mature Oaks to establish a glade and encourage lateral growth from the mature trees. Material derived from these works will be used to create log and

habitat piles, and to establish the dead hedge system along woodland paths.

### *Layering*

- 3.2.6. Layering, or plashing, is achieved by cutting about three-quarters of the way through a stem (leaving the bark and outer layer attached) and pegging it along the ground, sometimes in a shallow trench. The stem can be detached from its original stool when it has rooted and begun to put up new shoots. Figure 3.1 below illustrates the principle. This will be applied to Hazel and Hornbeam where appropriate, to encourage regeneration of the understorey.



**Figure 3.1.** Layering of coppice poles to establish new stools. Reproduced from Blakesley & Buckley (2010)<sup>1</sup>.

### *Bramble Control*

- 3.2.7. Though an important part of the woodland ecosystem, Bramble can be invasive and come to dominate the woodland field layer, at the expense of species diversity. The extent of Bramble cover will be checked on an annual basis, particularly in areas where the canopy is opened up and, if the species is coming to predominate, stems will be strategically cut to limit growth. Cut vegetation will be left in situ to continue to provide resources for small mammals, birds and invertebrates.

### *Ponds*

- 3.2.8. The seasonal pools within the woodland will be lightly excavated, using a mini-digger outside the amphibian breeding season (i.e. during the winter), the banks re-profiled and the canopy opened up around them. The aim will be to encourage retention of water for a greater part of the year, to provide habitat for breeding amphibians and invertebrates, and to provide resources for birds and mammals.

<sup>1</sup> Blakesley, D & Buckley, P (2010b). *Managing Your Woodland For Wildlife*. Pisces Publications, Newbury.

## 4. WOODLAND EXTENSION STRATEGY

### 4.1. Conservation Objectives

To increase the area of broadleaved woodland  
To integrate new planting with the existing woodland

### 4.2. Establishment and Management

- 4.2.1. An approximately 1.1ha extension to the woodland is proposed to the north. This will be planted with complementary native trees to create an Oak climax wood, with Hornbeam, Hazel, Hawthorn, Holly *Ilex aquifolium*, Spindle *Euonymus europaeus*, Dog Rose *Rosa canina* understorey and woodland edge species along with hedgerow groundcover mixes. The woodland will include paths with verges and edge planting, wood piles and dead wood to encourage early adoption by wildlife.
- 4.2.2. Locations for establishment and management are shown on Plan ECO2.
- Tree and Shrub Establishment*
- 4.2.3. Trees and shrubs will be established to ensure rapid growth and rapid development of a canopy to create shade on the newly planted woodland floor.
- 4.2.4. Tree and shrub mixes are designed to establish a rapid canopy development over much of the area to create the right conditions for the plants of the field layer to develop. The canopy density will be managed to create the right light conditions and also to achieve natural control of Bramble on the woodland floor, as it can be too dense to allow the development of shade tolerant species.
- 4.2.5. The woodland mix for all the new woodland areas is planned as a balanced composition of trees, shrubs, and climbers to achieve the correct light conditions as it develops. The mix consists of locally native species which naturally occur in the various stages of woodland development.
- 4.2.6. The density of the shrubs will help to draw up the trees in the early years, ensuring that they develop single trunks and grow on to become standard woodland trees.
- 4.2.7. Planting will be undertaken or supervised by suitable personnel experienced in forestry and amenity tree planting. The planting patterns will include groups of different species to maximise light gradients across the site.

## 5. VISITOR MANAGEMENT STRATEGY

### 5.1. Conservation Objectives

To manage use and encourage sense of ownership of Prior's Wood by new and existing residents

To manage expectations and perceptions of woodland visitors and the wider community

To educate and inform visitors about woodland biodiversity

To avoid and minimise potential adverse effects of use on the woodland ecosystem

To anticipate and manage potential conflicts between different user groups

### 5.2. Approach

5.2.1. The woodland is to form part of the recreation strategy for the development, with new and existing residents encouraged to use the woodland for walking and dog walking as part of short and longer walks through the site and the wider countryside. It is acknowledged that there is already a good level of existing use by local residents for these purposes, albeit this is on an informal basis since there are no Public Rights of Way through the woodland. Unless properly managed, the expected increase in use could have a detrimental effect on the woodland ecosystem.

5.2.2. A public footpath (PRoW 48\_40) runs along the southern edge of the woodland and will be retained in its current alignment and integrated within the proposed landscape. Notwithstanding the lack of formal public access, a loose network of informal paths is present within the woodland, linked to the PRoW. This existing informal network is to be retained, but with discreet and sympathetic measures taken to mitigate ongoing use.

5.2.3. Locations for establishment and management are shown on Plan ECO2.

#### *Entry Points and Information Resources*

5.2.4. The existing entrances will be announced by distinct gateway landscapes. These will include a widened, circular or curvilinear area of self-bound gravel space including a woodland name totem in routed timber, a wayfinding map on a timber tabernacle and timber bench. Simple timber bridges will cross the ditch.

5.2.5. Entry points will include suitable boards setting out key information on the history and ecology of the woodland, including its ancient status and the species of wildlife that may be found there. Subtle references to remaining paths to protect the ground flora will be included.

#### *Woodland Paths and Dead Hedges*

5.2.6. The paths will remain as earth paths (rather than be subject to any formal surfacing) but will be edged in fallen or cut timber and/or brash in key

locations to discourage deviation from the path. The 'dead hedge' formed by the timber/brush will have intrinsic wildlife benefit, being a resource for invertebrates as well as a shelter for birds and small mammals but, importantly, it will aim to keep visitors on the path where there is already a disturbance effect, rather than wandering from the path and trampling ground flora. This will help to allow the woodland field layer to regenerate.

- 5.2.7. These dead hedges will be replenished, as necessary, with materials arising from woodland management. Advice will be given by the ecologist, in conjunction with the land manager.

#### *Communication Strategy*

- 5.2.8. It is expected that existing residents may be initially cautious or sceptical about proposals for the woodland. It will be important to reassure the local community that the woodland is not being fenced off and they are not to be excluded from it; on the contrary this access is to be encouraged in the future on the basis that positive management will provide benefit for both the habitat and existing and prospective residents.

- 5.2.9. Where woodland management, including tree works, vegetation clearance, etc., is to be undertaken, a suitable notice will be displayed at entrances to the woodland. Where it is necessary to temporarily close or divert paths this will be advertised in advance and works undertaken to minimise disruption.

#### *Friends of Prior's Wood*

- 5.2.10. A local volunteer group will be encouraged. Where appropriate this group would be asked to be involved in woodland management. This would encourage a sense of ownership and promote physical and mental health benefits.

#### *Managing Conflicts*

- 5.2.11. Litter will be removed, initially by the management company, on a monthly basis.
- 5.2.12. Dog waste bins will be provided elsewhere on the SANG walking route (not within the woodland) and visitors encouraged to use them.



## 6. BATS

### 6.1. Conservation Objectives

To provide enhanced roosting opportunities.  
To enhance opportunities for foraging and dispersal.  
To reduce disturbance effects, where possible.

### 6.2. Enhancement and Management

#### *Habitats*

- 6.2.1. Enhancement and ongoing management of the woodland as described in previous sections will promote new foraging and dispersal opportunities for bats.

#### *Dark Corridors*

- 6.2.2. The woodland is currently relatively dark. No lighting is proposed for the woodland and the network of hedgerows throughout the wider development will be maintained as dark corridors for bat foraging and dispersal. The detailed lighting design, to be provided by condition, will ensure that new path / cycleway to the south of the woodland will be lit with appropriate luminaires to avoid upward and backwards spill, and comply with best practice guidelines issued by the Bat Conservation Trust and Institute of Lighting Professionals (ILP)<sup>2</sup>.

#### *Bat Boxes*

- 6.2.3. The inclusion of a variety of bat boxes around the site on suitable trees will provide new potential roosting sites for bats within the local area. Boxes will be located in sheltered spots and placed at a height of at least three metres from the ground. Boxes will also be arranged around the site so that a number of different aspects are covered.
- 6.2.4. The locations of the boxes will be determined on the ground by the ecologist, who will ensure that the orientation and position of the boxes is appropriate, and that suitable trees are chosen. Indicative locations are shown on Plan ECO2.

### 6.3. Type and Source of Materials

- 6.3.1. Seven bat boxes, such as Schwegler 2F Universal Bat Boxes, Schwegler 1FF Flat Bat Box, or similar (see Appendix 1) will be installed on suitable trees throughout the site. A further three boxes have been recommended within the woodland management plan relating to the development of Jack's Field.

---

<sup>2</sup> Bat Conservation Trust and Institution of Lighting Professionals (2018). *Guidance Note 08/18 Bats and artificial lighting in the UK*.

#### **6.4. Initial Aftercare and Long-term Management and Maintenance**

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

## 7. HEDGEHOGS

### 7.1. Conservation Objectives

To provide greater opportunities for Hedgehogs within the woodland.

To explore opportunities to establish local Hedgehog highways and improve dispersal routes.

### 7.2. Enhancement and Management

#### *Habitats*

- 7.2.1. Enhancement and ongoing management of the woodland as described in previous sections may encourage greater use of the site by Hedgehogs, which are known to be present in the local area.

#### *Vegetation Management*

- 7.2.2. Where any works are required to potential ground cover, these will be undertaken outside the winter hibernation period wherever possible. Where this is not possible, a check for hibernation nests will be completed by an ecologist prior to work. In general, disturbance of such sites will be avoided.

#### *Hibernation Boxes and Log Piles*

- 7.2.3. Three Hedgehog hibernation boxes and at least five log piles (timing subject to materials being available as a result of tree works within the woodland) will be installed in discreet locations throughout the woodland under the direction of the ecologist. Indicative locations are shown on Plan ECO2.

#### *Hedgehog Gateways*

- 7.2.4. Hedgehog Gateways will be a feature throughout the new development at Bull Field. In appropriate locations within private gardens Hedgehog Gateways, a 13cm x13cm section of fence cut out at the base of timber fencing, will facilitate dispersal for Hedgehogs and other small animals (see Appendix 2). This will maintain the permeability of the immediate area for wildlife.

### 7.3. Type and Source of Materials

- 7.3.1. Three Ecoplate Hedgehog houses (see Appendix 2), or similar, will be positioned in discreet locations within the woodland, at the direction of the ecologist. Over time log piles will be established in suitable locations (such as those shown on Plan ECO2) following tree management work.

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

- 7.4.1. 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.

## 8. BIRDS

### 8.1. Conservation Objectives

<p>To enhance foraging opportunities for birds.</p> <p>To provide greater nesting opportunities for birds.</p>
--

### 8.2. Enhancement and Management

#### *Habitats*

- 8.2.1. Enhancement and ongoing management of the woodland as described in previous sections will promote new foraging and nesting opportunities for woodland birds.

#### *Nesting Bird Checks*

- 8.2.2. In order to avoid impacts on nesting birds, and to avoid a potential offence under the Wildlife & Countryside Act 1981, any vegetation management 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 in situ with an appropriate exclusion zone until the young had fledged.

#### *Bird Boxes*

- 8.2.3. A series of bird boxes will be provided to enhance nesting opportunities for birds within the site. A selection of hole- and open-fronted designs will be used in order to encourage a variety of species. Boxes will be positioned on suitable mature trees under the direction of the ecologist. Indicative locations are shown on Plan ECO2.

### 8.3. Type and Source of Materials

- 8.3.1. Nine bird boxes, such as Schwegler 2H Open Front Bird Boxes, Schwegler 1N General Purpose Deep Bird Boxes, Schwegler 1B Bird Boxes, or similar, will be installed on suitable trees throughout the site (see Appendix 3). A further three boxes have been recommended within the woodland management plan relating to the development of Jack's Field.

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

- 8.4.1. 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.

## 9. AMPHIBIANS

### 9.1. Conservation Objectives

To enhance habitats and provide greater opportunities for amphibians within the woodland.

### 9.2. Enhancement and Management

#### *Habitats*

- 9.2.1. Enhancement and ongoing management of the woodland, as described in previous sections, in particular the pond, may encourage greater use by amphibians.
- 9.2.2. Additional habitats suitable for use amphibian species will be provided by creating log piles in areas of the woodland. The piles would be established using wood generated through vegetation management. These structures would benefit amphibians by providing places of shelter and or rest and potential hibernation opportunities along with increasing habitat for invertebrates, for foraging.

#### *Vegetation Management*

- 9.2.3. Where any works are required to potential ground cover, these will be undertaken outside the winter hibernation period wherever possible, with due regard to the potential presence of amphibians. Where this is not possible, a check will be completed by an ecologist prior to work. In general, disturbance of such sites will be avoided.
- 9.2.4. No Great Crested Newts are known from the local area and a Natural England licence is not necessary to undertake any work.

### 9.3. Type and Source of Materials

- 9.3.1. Log piles will be created from materials sourced on site from tree management activities.

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

- 9.4.1. Log piles will be checked periodically for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ. Log piles will be replaced if found to be missing.

## 10. INVERTEBRATES

### 10.1. Conservation Objectives

To enhance habitats and provide greater opportunities for invertebrates within the woodland.

### 10.2. Enhancement and Management

#### *Habitats*

- 10.2.1. Enhancement and ongoing management of the woodland as described in previous sections would encourage greater use of the site by invertebrates.

#### *Log Piles*

- 10.2.2. As a further enhancement, invertebrate nesting aids and log piles will be established within the woodland, using materials derived from woodland management. These features will provide new opportunities for invertebrates. Indicative locations are shown on Plan ECO2.

### 10.3. Type and Source of Materials

- 10.3.1. Log piles and 'loggeries' will be created from materials sourced on site from tree management activities (see Appendix 4).

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

- 10.4.1. Log piles will be checked annually for the first five years following establishment, by a suitably experienced ecologist to ensure that they are still in situ and are not damaged. Log piles will be replenished and replaced by ongoing management.



## **11. RESPONSIBILITY FOR IMPLEMENTATION AND DELIVERY**

- 11.1. Weston Homes has ultimate responsibility for implementation of this strategy. A suitable individual will be appointed to lead delivery for the company.
- 11.2. It is the responsibility of the appointed individual to instruct appropriate experienced contractors to establish the various management processes and features proposed and to instruct appropriate experienced professionals to check the work where necessary.
- 11.3. Suitable notices will be installed at the principal entrance points to the woodland, to summarise and explain the management proposals. This is important to address any concerns of visitors, who may perceive vegetation management and selective tree felling to be detrimental at the outset.

## 12. FIFTEEN-YEAR WORK PROGRAMME

12.1. The table below sets out the outline timetable for implementation of the works set out in the previous sections.

Receptor	Action	Timing
Woodland Management	Coppicing Hornbeam and Hazel	Annually from Year 1 onwards, autumn / winter
	Establishment of deadwood habitats	Annually from Year 1 onwards, using brash arising
	Canopy thinning	From Year 1, then annually as considered appropriate, autumn / winter
	Layering Hazel and Hornbeam	Annually from Year 1 onwards, autumn / winter
	Bramble control	Annually from Year 2 onwards, autumn / winter
	Pond enhancement	Year 1, autumn/ winter, then as required
Woodland Extension	Tree and shrub establishment	Annually from Year 1 onwards, autumn / winter planting season
Visitor Management	Footpath management	Initial works Year 1, autumn / winter, then as required to maintain dead hedges
	Information points	Information boards established Year 1, then maintained as necessary
	Communication strategy	Notices displayed at woodland entrances to inform the public of woodland management and any temporary path closures and diversions
	Friends of Prior's Wood	Encouraged from Year 1
	Litter removal and Dog waste	By Management Company from Year 1
Bats	Bat box installation	On suitable trees, spring / summer Year 1
Hedgehogs	Establishment of Hedgehog gateways	Dependent on progress of development; likely spring / summer Year 1 or 2 onwards
	Hedgehog hibernation box installation	Late summer Year 1
Birds	Nesting bird checks of vegetation to be removed	March to July inclusive, as required
	Bird box installation	On suitable trees, spring / summer Year 1
Invertebrates	Loggery installation	Year 1 winter, then ongoing, depending on availability of material

**Table 12.1.** Fifteen-Year Work Programme.

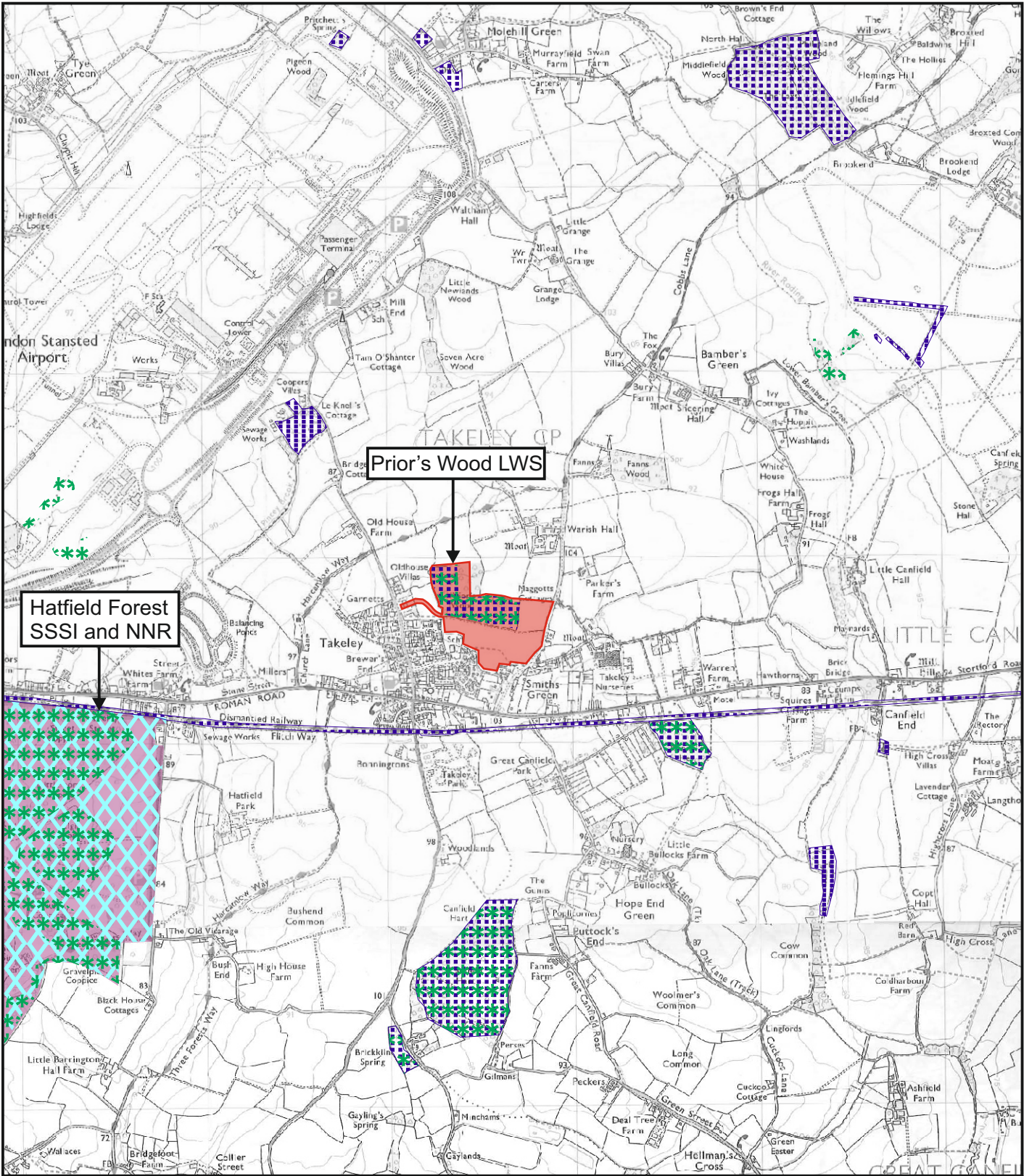
### **13. MONITORING, REPORTING AND REVIEW PROCESS**

- 13.1. The site will be subject to an annual walkover by an ecologist, in conjunction with the land manager. This will review work undertaken over the previous year, discuss work proposed for the coming year, and inspect particular features (bat boxes, etc.) to determine whether replacements are necessary.
- 13.2. The effectiveness of the measures set out in this document will be reviewed, and where necessary alternative approaches will be adopted. Where this is the case an updated version of this management plan will be prepared. A summary note of the review would be written, detailing any actions.
- 13.3. A comprehensive review will be completed at the end of Year 5.
- 13.4. A further review would be completed at the end of Year 10.
- 13.5. At the end of Year 15, a concluding review will be completed and the way forward would be discussed.






## PLANS

## **PLAN ECO1**


Site Location and Ecological Designations



**KEY:**

-  SITE LOCATION
-  SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
-  NATIONAL NATURE RESERVE (NNR)
-  LOCAL WILDLIFE SITE (LWS)
-  ANCIENT WOODLAND



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<p>9282: BULL FIELD,          WARISH HALL FARM, TAKELEY, ESSEX</p>	
<p>PLAN ECO1: SITE LOCATION AND          ECOLOGICAL DESIGNATIONS</p>	
<p>Rev: A          Jun 2023</p>	



## **PLAN ECO2**

Woodland Management Strategy



## **APPENDICES**

## **APPENDIX 1**

### Bat Boxes

# Bat Boxes

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

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



## 1FF Bat Box

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

*Woodcrete construction.*

*Width: 27cm*

*Height: 43cm*

*Weight: 8.3kg*



## 2F Bat Box

A standard bat box, attractive to the smaller British bat species. Simple design with a narrow entrance slit on the front.

*Woodcrete construction.*

*Diameter: 16cm*

*Height: 33cm*

*Weight: 4kg*

## **APPENDIX 2**

### Hedgehog Gateways and Houses



# Hedgehog Gateways

A 13 x 13 cm section cut out at the base of the gravel board or directly into the fence panel creating links between residential gardens and the surrounding landscape.

This will facilitate the dispersal of Hedgehogs and other small animals and enhance the permeability of the new development for wildlife.

Signposting the features seeks to inform residents and aid the features retention and function.



# Hedgehog Houses

## Ecoplate Hedgehog House

This large, environmentally friendly house is made from recycled plastic and is weather resistant and very durable. A hidden entrance tunnel inside makes it more difficult for predators to reach Hedgehogs inside.



## **APPENDIX 3**

### Bird Boxes

# Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting.

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



## 1B Bird Box

This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

*Available in four colours and three entrance hole sizes. 26mm for small tits, 32mm standard size and oval, for redstarts for example.*

## 2H Bird Box

This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and black redstarts.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.



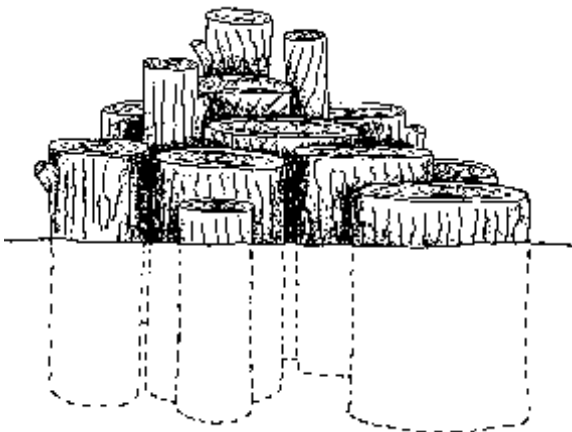
## 1N Deep Nest Box

A deeper than standard nest box which is ideal for robins, spotted flycatchers, pied wagtails, tits and sparrows. Its depth offers protection from cats, magpies, jays and martens.

*Two entrance holes, 30 x 50mm. Nesting area 15 x 21cm.*

**APPENDIX 4**  
Loggery Design

# Invertebrate Loggery



## Loggery

Large logs (10-50cm diameter) of hardwood (e.g. Oak, Beech, Sycamore, Ash) with bark still attached sunk c. 60cm into the ground, in partially shaded areas. Treated wood should not be used.





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**Appendix F - Bird Hazard Management Plan [June 2021] by Ecology Solutions**



**ECOLOGY**SOLUTIONS

Part of the ES Group

WARISH HALL FARM, TAKELEY,  
ESSEX

## **Bird Hazard Management Plan**

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## **CONTENTS**

1	INTRODUCTION	1
2	CONVENTION ON INTERNATIONAL CIVIL AVIATION ANNEX 14	2
3	EUROPEAN COMMISSION REGULATION 139/2014	3
4	DfT/ ODPM CIRCULAR 1/2003	4
5	CAP 772 WILDLIFE HAZARD MANAGEMENT AT AERODROMES	5
6	SAFEGUARDING OF AERODROMES ADVICE NOTE 8	6
7	SAFEGUARDING OF AERODROMES ADVICE NOTE 3	7
8	RISK ASSESSMENT OF LAND AT WARISH HALL FARM, TAKELEY	8
9	BIRD HAZARD MANAGEMENT PLAN	10
10	OBLIGATIONS AND UNDERTAKING	13
11	SUMMARY AND CONCLUSIONS	15
12	REFERENCES AND BIBLIOGRAPHY	16

## **PLANS**

PLAN ECO1                      Site Location

## **APPENDICES**

APPENDIX 1                      Example Bird Hazard Management Log

## 1. INTRODUCTION

- 1.1. Ecology Solutions was commissioned by Weston Homes PLC Limited in October 2020 to complete a Bird Hazard Management Plan for the development land at Warish Hall Farm, Takeley, Essex (see Plan ECO1 for the location of the site).
- 1.2. The site is located to the north of Takeley, approximately 3km southeast of the runway at Stansted Airport. Given that the site is within 13km of Stansted Airport, it lies within the aerodrome safeguarding zone where aircraft are at lower altitudes and thus at increased risk of birdstrikes. All developments within the 13km radius require consultation to ensure no potential increases in birdstrike risk.
- 1.3. The site is approximately 22.5ha in size and comprises largely arable fields, made up of Bull Field in the south, 7 Acres in the northwest and Jack's Field in the far east, with associated field margins, hedgerows and ditches. Prior's Wood Local Wildlife Site (LWS), an area of ancient and semi-natural woodland, dominates the north of the site.
- 1.4. The proposals for the site are for a mixed-use development including residential and employment areas, as well as local amenities.
- 1.5. The purpose of this document is to ensure that the risk of birdstrike as a direct result of the development does not significantly increase.
- 1.6. The proposals have been assessed in the context of the regulatory framework published by the Convention on International Civil Aviation and European Commission Regulation 139/2014, and guidelines set out in the UK Government DfT / ODPM Circular 1/2003 and CAP 772 Wildlife Hazard Management at Aerodromes, produced by the Civil Aviation Authority (CAA, 2014).
- 1.7. The information contained within this document identifies the potential hazards resulting from the proposed development, considers the likelihood of that potential and illustrates how risks of bird hazard will be minimised through implementation of measures during construction, through good design, and through management and monitoring during the operational phase, with the aim of reducing any residual risk to as low as reasonably practicable.



## 2. CONVENTION ON INTERNATIONAL CIVIL AVIATION ANNEX 14

2.1. Guidance on wildlife strike hazard reduction is provided by Annex 14 to the Convention on International Civil Aviation, published by the International Civil Aviation Organization (ICAO).

2.2. This is as follows<sup>1</sup>:

### 9.4 Wildlife strike hazard reduction

***Note.—The presence of wildlife (birds and animals) on and in the aerodrome vicinity poses a serious threat to aircraft operational safety.***

**9.4.1 The wildlife strike hazard on, or in the vicinity of, an aerodrome shall be assessed through:**

- a) the establishment of a national procedure for recording and reporting wildlife strikes to aircraft;
- b) the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations; and
- c) an ongoing evaluation of the wildlife hazard by competent personnel.

**9.4.2 Wildlife strike reports shall be collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database.**

**9.4.3 Action shall be taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft.**

**9.4.4 The appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem. Where the elimination of existing sites is not possible, the appropriate authority shall ensure that any risk to aircraft posed by these sites is assessed and reduced to as low as reasonably practicable.**

**9.4.5 Recommendation.— States should give due consideration to aviation safety concerns related to land developments in the vicinity of the aerodrome that may attract wildlife.**

2.3. Paragraphs 9.4.4 and 9.4.5 of this guidance are most relevant to the development, with the stipulation *to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity.*

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<sup>1</sup> American English text retained from the original.

### **3. EUROPEAN COMMISSION REGULATION 139/2014**

- 3.1. Regulation 139/2014 sets out the regulatory framework at the European level, and is administered by the European Aviation Safety Agency (EASA). Sections relevant to wildlife management at aerodromes are as follows:

#### **Article 9**

##### **Monitoring of aerodrome surroundings**

**Member States shall ensure that consultations are conducted with regard to human activities and land use such as:**

...

- (e) the creation of areas that might encourage wildlife activity harmful to aircraft operations;**

...

#### **Article 10**

##### **Wildlife hazard management**

- 1. Member States shall ensure that wildlife strike hazards are assessed through:**
    - (a) the establishment of a national procedure for recording and reporting wildlife strikes to aircraft;**
    - (b) the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife constituting a potential hazard to aircraft operations; and**
    - (c) an ongoing evaluation of the wildlife hazard by competent personnel.**
  - 2. Member States shall ensure that wildlife strike reports are collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database.**
- 3.2. This document considers the potential hazards arising as a result of the development and the means by which they will be addressed.

#### 4. DfT / ODPM CIRCULAR 1/2003

- 4.1. Department for Transport / Office of the Deputy Prime Minister Circular 1/2003 places responsibility for aerodrome safeguards with the aerodrome operators and introduces a consultation process for any development proposals which may affect an aerodrome.
- 4.2. Stansted Airport Limited (STAL), owned by Manchester Airport Group (MAG) is a relevant aerodrome operator and so must be consulted on any planning application within the safeguarding area (13km).
- 4.3. It is the responsibility of the aerodrome operator to take all *reasonable* steps to ensure that the aerodrome and its surrounding airspace are safe at all times for use by aircraft.
- 4.4. One of the purposes of safeguarding of aerodromes in this way is to “...ensure that their operation and development are not inhibited...by developments which have the potential to increase the number of birds or the bird hazard risk” [Circ 1/2003 Annex 2 para 3].
- 4.5. Notwithstanding this reference, it is important to note that an increase in the number of birds in the vicinity of an aerodrome is not in itself a problem; it is the possible increase in birdstrike risk that is the issue of concern which plans are required to address. An increase in non-problem bird species is of no significance to the overall birdstrike risk.
- 4.6. Annex 2 to Circ 1/2003 sets out particular advice on birdstrike hazard and identifies particular forms of development which are most important and where the primary aim is to guard against new or increased hazards. These are: “...facilities intended for the handling, compaction, treatment or disposal of household or commercial wastes; the creation or modification of areas of water such as reservoirs, lakes, ponds, wetlands and marshes; nature reserves and bird sanctuaries; and sewage disposal and treatment plant and outfalls” [Circ 1/2003 Annex 2 para 8].
- 4.7. Annex 2 also advises that “...A local planning authority will need to consider not only the individual potential bird attractant features of a proposed development but also whether the development, when combined with existing land features, will make the safeguarded area, or parts of it, more attractive to birds or create a hazard such as bird flightlines across aircraft flightpaths” [para 9].
- 4.8. For the types of development described in paragraph 8 of the Circular, a Local Planning Authority is advised to ask an applicant to demonstrate by means of a risk assessment that the development would not be likely to increase the bird hazard risk to aircraft. This Statement therefore sets out the detail of this risk assessment.

## 5. CAP 772 WILDLIFE HAZARD MANAGEMENT AT AERODROMES

- 5.1. CAP 772 sets out guidelines for the control of bird hazards in and around aerodromes. Whilst the document concentrates on bird control on aerodromes there is some relevant guidance for landscape areas in the vicinity.
- 5.2. The principal hazards are gulls, wading birds, pigeons and Starlings *Sturnus vulgaris*, and to a lesser extent corvids. Other species such as Canada Geese *Branta canadensis* and Greylag Geese *Anser anser* are considered in the CAA Safety Regulation Group document *Large Flocking Birds – An International Conflict Between Conservation and Air Safety*, but are of lower concern in a UK context. The objective of CAP 772 is to reduce the potential for roosting and to make sure that landscape areas are not attractive to such large flocking bird species. Smaller birds that do not form dense flocks have a low hazard potential.
- 5.3. Typical measures to accommodate the recommendations of CAP 772 are:
  - Reduce tree planting density to 4m centres or lower, use open rides and thin existing stands to avoid formation of Starling roosts;
  - Reduce species providing abundant winter food source, the most attractive of which are Holly *Ilex aquifolium* (female), Rowan *Sorbus aucuparia*, Hawthorn *Crataegus monogyna*, *Viburnum* spp. and *Cotoneaster* spp. together with Crab Apple *Malus sylvestris* and Honeysuckle *Lonicera* spp.;
  - Pay attention to normal management programmes such as trimming Hawthorn hedges, which can limit berry production and thereby form part of a mitigation strategy; and
  - Avoid larger, permanent open water sites.

## 6. SAFEGUARDING OF AERODROMES ADVICE NOTE 8

- 6.1. Advice Note 8 sets out the hazards which may arise from building design and advises on measures to avoid them, or where this is not possible to mitigate and manage these hazards to reduce them to acceptable levels.
- 6.2. Section 4 of Advice Note 8 states that the following features should be considered when designing a building:
- Roof overhangs should be kept to a minimum;
  - Ledges beneath overhangs and external protrusions should be avoided where possible;
  - Steeply pitched roofs should be used to deter gulls from nesting, roosting and loafing;
  - The roof space be designed in such a way as to prevent access by birds;
  - Self-closing doors to prevent access to birds or openings should have plastic strip curtains fitted; and
  - Where flat and / or shallow pitched roofs greater than 10m x 10m cannot be avoided in the design, there must be access available by foot to all areas of the roof to ensure that any hazardous birds, nesting, roosting and loafing can be dispersed and where necessary any nests and eggs can be removed (see note below regarding licences).
- 6.3. Prevention, inspection and dispersal measures are included at Section 5, and comprise the following:
- Netting;
  - Bird spikes;
  - Pyrotechnics;
  - Distress Calls;
  - Removal of Nests and / or Eggs (under the relevant Natural England licence as appropriate); and
  - Inspections, where flat or shallow pitched roofs are present.
- 6.4. Management of birds relating to flat or shallow pitched roofs would include the following measures:
- Confirmation that access to all areas of the roof is available and by what method, to ensure that inspections can be carried out;
  - Confirmation that inspections will be carried out year-round with increased frequency during the breeding season;
  - Confirmation that any nests / eggs will be removed, with the appropriate licences first being obtained;
  - Confirmation that any hazardous birds found nesting, roosting and loafing will be dispersed when detected or when requested by Airfield Operations staff. In some instances, it may be necessary to contact Airfield Operations staff before bird dispersal takes place;
  - Details of any dispersal methods to be used; and
  - A log to be kept of bird numbers and species utilising the roof(s).

## 7. SAFEGUARDING OF AERODROMES ADVICE NOTE 3

- 7.1. Advice Note 3 considers the types of development that may come forward in the vicinity of an aerodrome and the particular issues that can arise. Parts of the advice are similar to that provided in the (earlier) Advice Note 8.
- 7.2. Developments such as housing, factories, industrial estates / units, mineral extraction and green roofs can provide food and shelter for urban species such as pigeons, gulls, corvids, Starlings etc..
- 7.3. Buildings with flat roofs can provide nesting opportunities for gull colonies; Feral Pigeons *Columba livia*, Jackdaws *Corvus monedula* and Starlings can take advantage of ledges and gullies for nesting sites and perching areas.
- 7.4. The advice sets out ways in which these potential risks could be reduced, as follows:
- Netting to proof roofs and exclude hazardous species;
  - Roof overhangs kept to a minimum;
  - Ledges beneath overhangs and external protrusions avoided where possible;
  - Redesign roof to steeply pitched to deter gulls from loafing, roosting and resting;
  - Lighting structures proofed to prevent perching;
  - Choice of roof material to reduce attractiveness (smooth surfaces with minimal protrusions or vents to reduce breeding opportunities);
  - Roof spaces to be designed in such a way as to prevent access by birds;
  - Self-closing doors to prevent access to birds or openings fitted with netting or plastic strip enclosure materials;
  - Safe access by foot access to all areas of roof that cannot be proofed;
  - Outside dining areas enclosed or avoided in close proximity to an aerodrome.
- 7.5. Advice is provided with regards to monitoring and inspection of gulls, as follows:

**During the breeding season for Gulls, for example, inspections to assure compliance with a 'no breeding' BHMPs should be carried out at least weekly during the breeding season, (e.g. Gulls typically April to June). To ensure that all hazardous birds found nesting are dispersed and any nests and / or eggs are removed. This process should be fully documented to provide an audit trail.**

**For roosting or loafing (resting) birds, regular inspections should be carried out and if the threshold level is exceeded then birds should be dispersed. The frequency of inspections should be dictated by the presence of hazardous birds and be sufficient as to ensure the efficacy of the plan. This process should be fully documented to provide an audit trail and compliance site visits from the aerodrome operator may be required, subject to the necessary Health and Safety considerations.**



## 8. RISK ASSESSMENT OF LAND AT WARISH HALL FARM, TAKELEY

- 8.1. The proposals for the site are for a mixed-use development including residential and employment areas, as well as local amenities.
- 8.2. This does not constitute one of the 'most important' types of development that create new or increased birdstrike hazards, such as landfill and mineral extraction as set out in DfT / ODPM Circular 1/2003 Annex 2 paragraph 8.
- 8.3. New landscape planting is proposed as part of the development. Factors such as planting of trees and bushes are referred to in Paragraph 8 of Annex 2 to Circular 1/2003.
- 8.4. A source of potential risk for the development is the proposed landscaping scheme, which includes a small extension to the existing ancient and semi-natural woodland in the north of the site. Species composition will be based on the existing woodland, with dominant Hornbeam *Carpinus betulus* and smaller components of Oak *Quercus robur*, Hawthorn *Crataegus monogyna*, Hazel *Corylus avellana* and Elm *Ulmus* sp..
- 8.5. Whilst this area of woodland planting will provide new nesting and foraging opportunities for birds it is not expected that the new planting will increase levels of flocking species such as Starling within the site. The guidance set out in previous section is concerned with avoiding *additional* risk.
- 8.6. Small areas of flat roof will also be a source of potential risk for the development. Shallow and flat roofs are attractive to species such as gulls to roost, nest and loaf. Portacabin buildings typically used to serve as an ancillary office for administration and amenity facilities for staff welfare purposes, will provide small areas of flat roofs, which provide the potential to attract gulls and Feral Pigeons.
- 8.7. Given the pre-development status of the site it is not likely that the construction phase would give rise to any significant additional risk. Significant areas of topsoil are already annually exposed through agricultural practices, and no significant areas of standing water are expected to establish.
- 8.8. Chapter 4 of CAP 772 identifies the various risks that can arise within and adjacent to an aerodrome, which include the presence of food sources, nest and roost sites and the presence of open water.
- 8.9. Certain plant species, generally berry-bearing species, are considered to be greater attractants for birds, and it is recommended that such species be avoided.
- 8.10. CAP 772 states that buildings and structures with access holes and crevices provide nest sites and roosts, especially for Feral Pigeons and Starlings, but also gulls. Pigeons roost and nest inside buildings and on ledges on their exteriors. It is recommended that, wherever possible, flat roofs be avoided, and that where they are constructed, they be fully accessible for inspection purposes.

- 8.11. Section 5 of Chapter 4 lists off-aerodrome bird attractant habitats. The proposed development is not located on *The Coast* and does not include *Landfills for Food Wastes; Sewage Treatment and Disposal; or Sand Gravel and Clay Pits*.
- 8.12. Overall, the development of the site has the potential to increase bird hazards in the vicinity of Stansted Airport if not subject to appropriate avoidance and mitigation measures.
- 8.13. The Bird Hazard Management Plan is concerned with managing potential risks that may arise during the operational phase.

## 9. BIRD HAZARD MANAGEMENT PLAN

- 9.1. Taking into account the regulations and guidance reviewed in the previous sections, this section sets out the means by which bird hazards will be addressed and monitored as part of the development.
- 9.2. The overarching principle of this plan is that the developer implements all reasonable endeavours to maintain the birdstrike risk associated with the development as low as reasonably practicable, in line with published guidance and legislation.

### **Operational Phase**

#### *Roof Overhangs*

- 9.3. The design of the roof of any portacabin buildings or the extent of any neighbouring buildings placed adjacent to one another is to be such that these are kept to a minimum to reduce nesting opportunities. Any openable skylights will be fitted with appropriate grilles or netting to prevent nesting opportunities.

#### *Roof Inspections*

- 9.4. Portacabin roofs will be accessible for safe inspection and will be inspected on a weekly basis (or sooner if bird activity dictates) during the nesting bird season (March to July inclusive). Inspections will be undertaken by a designated person or company. During the remainder of the year inspections would be undertaken on a monthly basis. In the event that bird activity during any given period is found to be high, the frequency of inspections would increase.
- 9.5. All accessible roof or void spaces would be searched for roosting, loafing and nesting birds such as gulls and Feral Pigeon. Any roosting or loafing birds would be dispersed by means of human presence and activity.
- 9.6. Where nesting birds are found, an ecologist would be contacted for advice. All wild birds are protected while nesting and removal of nests and eggs may require a Natural England licence. If it is clear that eggs are not present, then any nest in the process of being constructed can be cleared away without the need for further advice or intervention. As a general principle the roof area should be kept free of material at all times.

#### *Bird Spikes*

- 9.7. Wherever possible, bird spikes would be affixed to the top of temporary lighting columns. These would be inspected, and replaced if necessary, as part of annual site maintenance.

#### *Log of Activity*

- 9.8. A paper and electronic log of monitoring activity will be kept by the designated individual or company and will be available for inspection by interested parties. Details of activities undertaken and of birds recorded

will be kept, together with views on the efficacy of measures taken. An example of a recording sheet is included at Appendix 1.

#### *Reassessment*

- 9.9. The effectiveness of these measures will be reassessed on a six-monthly basis. Where they are considered to be lacking then additional methods such as netting of roofs and use of installed sonic deterrents will be considered.

#### *Trees and Shrubs*

- 9.10. CAP 772 cites formation of Starling roosts as being a significant potentially hazardous consequence of landscape proposals within a development. Such risks are only seasonal, with the huge communal roosts of this bird species forming between late summer and winter. These roosts are commonly found in “... *dense vegetation, such as thorn thickets, game coverts [and] young un-thinned conifer screening belts.*”
- 9.11. New woodland extension and landscape planting is proposed as part of the development. The new woodland extension planting will consist of the same species composition of the existing woodland with Hornbeam being the dominant species. High proportions of berry-bearing understorey planting will be avoided.
- 9.12. The establishment of dense vegetation throughout the open green space and housing parcels shall also be avoided in favour of individual street trees and scattered shrub planting. These measures will prevent additional attraction to flocking species.

#### *Water Features*

- 9.13. Drainage will be attenuated in shallow SUDs basins designed to slow down storm water. These depressions will not hold standing water for long periods of time (over 72 hours) and are not therefore intended to create new standing water features within the site.
- 9.14. The woodland ponds will be enhanced through silt removal and native species planting. They will not be made larger or their existing setting altered in any way that would increase use by flocks of waders, gulls or water fowl. Thus, no *additional* risk is envisaged in this regard.

#### *Waste Imports and Monitoring*

- 9.15. As the proposals do not feature use of the site for landfill, incineration or the treatment of hazardous wastes, no wastes are to be brought onto the site.

#### *Waste Collection and Storage*

- 9.16. Chapter 5 of CAP 772 states that:

**Waste food is an attractant to gulls, corvids, pigeon species and starlings in particular and should not be tolerated [...]. Where food waste could**

**occur, all bins and skips provided should be of designs that prevent animals (such as foxes and rodents) and birds getting in; for example, with drop-down or swinging lids. They should be emptied before they overflow.**

- 9.17. Any food, garden or other putrescible wastes produced within the proposed development will be disposed of in appropriate refuse bins, which will be installed at suitable locations.
- 9.18. Bins will be of designs that exclude birds (e.g. with drop-down or swinging lids), as will any skips used for refuse. Bins will be subject to standard collections.

### **Obligations and Undertaking**

- 9.19. The following section sets out the commitment of the end user of the development to implement the Bird Hazard Management Plan as set out in this section. The wording will be agreed with Stansted Airport and Uttlesford Borough Council.

## 10. OBLIGATIONS AND UNDERTAKING

### I / we can confirm the following:

- That the roofs are constructed in such a manner so that all areas are safely accessible to enable any nests and eggs to be cleared and birds to be dispersed.
- Checks will be made weekly or sooner if bird activity dictates, during the breeding season by an appointed person / company. The breeding seasons for gulls typically runs from March to June.
- Any birds found nesting and / or roosting and / or loafing during the breeding season will be dispersed when detected and / or when requested by Stansted Airport Airfield Operations staff.
- Any nests or eggs found will be removed, the appropriate licence(s) will be obtained from Natural England beforehand if required.
- Checks will be made on a regular basis, as dictated by bird activity, outside of the breeding season by a nominated person/company.
- Any birds found roosting and / or loafing outside of the breeding season will be dispersed when detected and / or when requested by Stansted Airport Operations Staff.
- The methods of dispersal used will be as follows:
  - Physical disturbance through human presence
- A log will be kept which will detail the following:
  - Dates and times of inspections
  - Who carried out the inspections
  - Bird numbers and species seen
  - Details of any dispersal action taken along with details of any nests/eggs removed.
  - The log must be available to Stansted Airport Airfield Operations to view upon request.

### Review of the Management Plan

The management plan shall be subject to review to reflect changes in habitat or populations of bird species. Should the airport deem it necessary, a meeting between Stansted Airport Limited, the developer / operator and / or Uttlesford District Council will be convened at the earliest opportunity to discuss and agree any changes which may be necessary.

### Inspection & Site Access

Stansted Airport Limited, or their nominated representatives, will be allowed access to the site by prior arrangement, to evaluate the success of the Management Plan and to review any remaining birdstrike hazard.

## **Long Term Management**

This Management Plan will remain enforceable by Stansted Airport Limited, Uttlesford District Council, the CAA or any successor to these bodies throughout the existence of the buildings. These obligations will be passed to any subsequent owners/operators of these buildings and land.

**Signed:**

**On Behalf of:          Weston Homes**

**Date:**



## 11. SUMMARY AND CONCLUSIONS

- 11.1. Ecology Solutions was commissioned by Weston Homes PLC Limited in October 2020 to complete a Bird Hazard Management Plan for the development land at Warish Hall Farm, Takeley, Essex.
- 11.2. The site is located to the north of Takeley, approximately 3km south of the runway at Stansted Airport. Given that the site is within 13km of Stansted Airport, it lies within the aerodrome safeguarding zone where aircraft are at lower altitudes and at increased risk of birdstrikes. All developments within the 13km radius require consultation to ensure no potential increases in birdstrike risk.
- 11.3. The site is approximately 22.5ha in size and comprises largely arable fields, made up of Bull Field in the south, 7 Acres in the northwest and Jack's Field in the far east, with associated field margins, hedgerows and ditches. Prior's Wood Local Wildlife Site (LWS), an area of ancient and semi-natural woodland dominates the north of the site.
- 11.4. The proposals for the site are for a mixed-use development including residential and employment areas, as well as local amenities.
- 11.5. The purpose of this document is to ensure that the risk of birdstrike as a direct result of the proposed development does not significantly increase. The proposals have been considered in the context of the relevant regulations and guidelines.
- 11.6. The effect of the construction phase on birdstrike risk is considered to be negligible. The landscape scheme includes new woodland and landscape planting, but this is not likely to represent a significant additional attraction of the site to flocking species such as Starling.
- 11.7. During the construction period, the roofs of new portacabin buildings may also be attractive to problem bird species, particularly roosting, nesting and loafing gulls. All roof areas will be safely accessible and will be subject to regular inspection to disperse any birds that may be present. A log of activity will be kept.
- 11.8. The end user of the development, Weston Homes PLC, will be given an undertaking to implement the Bird Hazard Management Plan.
- 11.9. Overall, with these measures in place it is considered that the development of the site would not result in an additional significant birdstrike risk to Stansted Airport during the construction or operational phases.

## 12. REFERENCES AND BIBLIOGRAPHY

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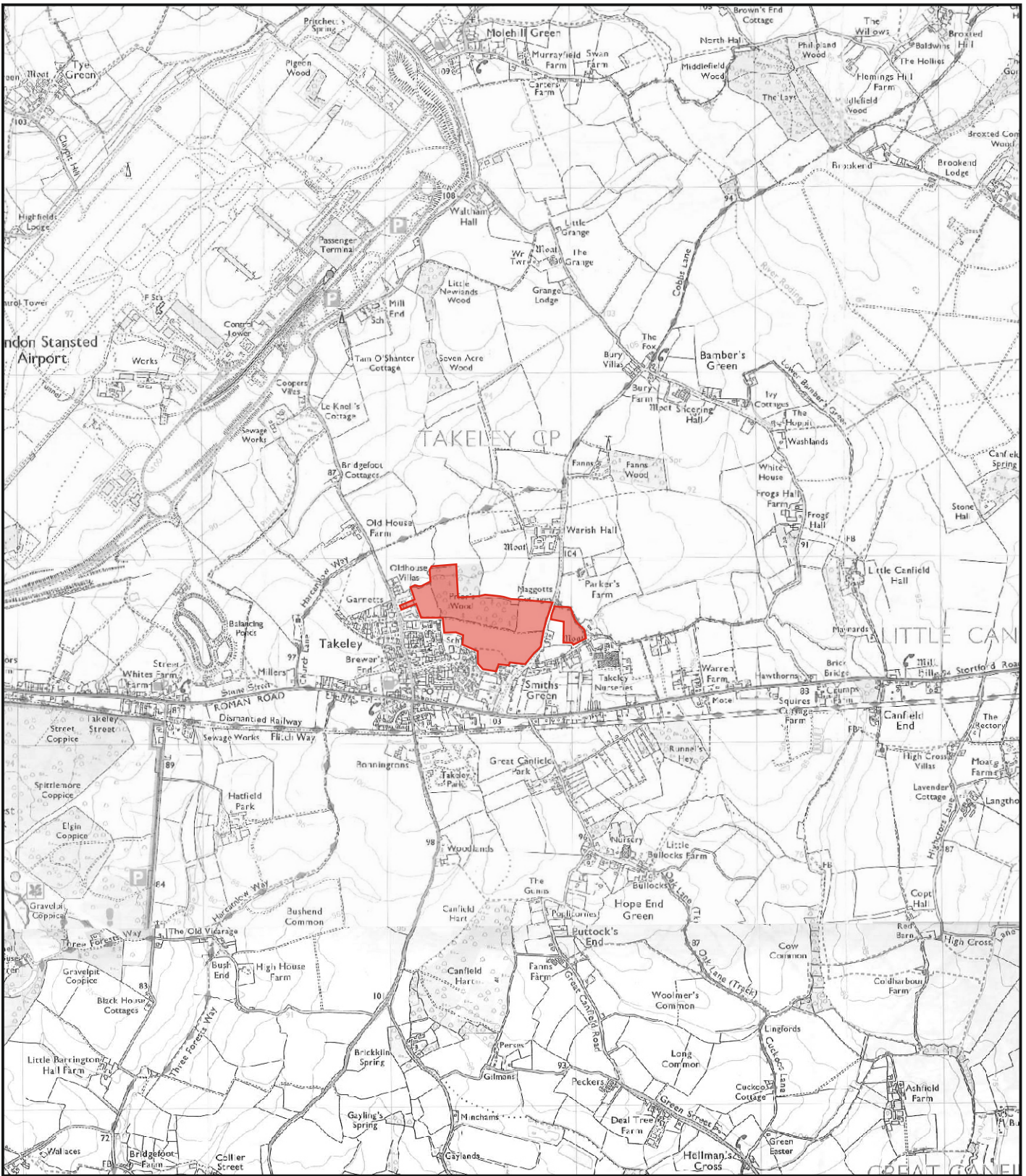
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## PLANS

## **PLAN ECO1**

Site Location



**KEY:**



**SITE LOCATION**



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**9261: WARISH HALL FARM,  
TAKELEY, ESSEX**

**PLAN ECO1: SITE LOCATION**

Rev: A  
Mar 2021

## **APPENDICES**

## **APPENDIX 1**

### Example Bird Hazard Management Log







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**Appendix G – Biodiversity Net Gain Report [May 2023] by Ecology Solutions**



**ECOLOGY SOLUTIONS**

Part of the ES Group

BULL FIELD,  
WARISH HALL FARM,  
TAKELEY,  
ESSEX

## **Biodiversity Net Gain Report**

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## **CONTENTS**

1	INTRODUCTION	1
2	BIODIVERSITY METRIC 4.0	3
3	RESULTS AND DISCUSSION OF METRIC	4
4	EVALUATION	24
5	SUMMARY AND CONCLUSIONS	27

## **PLANS**

PLAN ECO1	Site Location and Ecological Designations
PLAN ECO2	Ecological Features
PLAN ECO3	Baseline Habitats
PLAN ECO4	Post-Development Habitats
PLAN ECO5	Habitat Retention, Enhancement and Loss

## **APPENDICES**

APPENDIX 1	LDA Design Consulting Ltd - Overall Softworks Masterplan - Dwg No. 8749_103
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## 1. INTRODUCTION

### 1.1. Background & Proposals

- 1.1.1. Ecology Solutions was commissioned in October 2022 by Weston Homes PLC to undertake a Biodiversity Net Gain Assessment of the proposed development at Bull Field, Warish Hall Farm, Takeley, Essex.
- 1.1.2. A planning application was previously submitted for the wider Land at Warish Hall Farm (Planning Ref: UTT/21/1987/FUL), for which Ecology Solutions produced various documents, including an Ecological Assessment (October 2021) and High-level Biodiversity Net Gain Assessment (October 2021).
- 1.1.3. This report relates to a smaller parcel of land, referred to as Bull Field, that falls within the original red line boundary of the wider Land at Warish Hall Farm application. The proposals for the site comprise a residential development containing 96 properties with associated access, infrastructure and public open space.

### 1.2. Site Characteristics

- 1.2.1. The site is located to the north of Takeley, approximately 1.3km southeast of London Stansted Airport and approximately 1.5km northeast of Hatfield Forest Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR). The immediately adjacent Smiths Green Road bounds the eastern boundary, beyond which lies a line of residential properties. Residential gardens exist immediately adjacent to the southern boundary, along with a portion of the western boundary, with the playground of Roseacres Primary School bordering to the southwest. A narrow corridor, which will provide the future access road to the site, extends the site boundary to the northwest from Bull Field, through the adjacent arable field known as 7 Acres, and onto the premises of the Weston Group Business Centre. Arable fields and associated neutral grassland margins lie adjacent to the remaining western, northern, and eastern boundaries of the site. The wider area is characterised by residential properties to the south, east, and west, with arable fields to the north.
- 1.2.2. The site itself is approximately 19.6ha and is predominantly composed of a large arable field, known as Bull Field, intensively managed for arable agriculture, and Prior's Wood, an area of ancient and semi-natural woodland designated as a Local Wildlife Site (LWS). The site is effectively split along the centre, with Prior's Wood to the north, and Bull Field to the south. Three small ponds exist within Prior's Wood, two further to the north, and one more towards the centre. Bull Field possesses neutral grassland field margins of varying width along its entire perimeter. The narrow corridor extending to the northwest from Bull Field comprises an arable field, with a small section of neutral grassland, and hardstanding. Areas of arable field and associated neutral grassland field margin exist to the north and northeast of the site, adjacent to Prior's Wood, the area to the north being much larger than the area to the northeast.
- 1.2.3. A series of shallow ditches are located along field boundaries in the east of the site, and are associated with hedgerows and the woodland edge.



Two hedgerows not associated with the ditches bound the site to the south and southwest.

### 1.3. Biodiversity Net Gain Report

- 1.3.1. This document assesses the level of Biodiversity Net Gain within the site. This report has been prepared with due consideration to the guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM)<sup>1,2</sup> in relation to Biodiversity Net Gain. The assessment has been based on the results of the extended phase one habitat surveys undertaken by Ecology Solutions in October 2020 and walkover surveys undertaken in April 2021 and February 2023. The results of these surveys can be found in the Ecological Assessment for the wider Warish Hall Farm application (dated October 2021) and the Ecological Appraisal for Bull Field (dated June 2023) and should be read in conjunction with this report.

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<sup>1</sup> CIEEM (2019). *Biodiversity Net Gain. Good Practice Principles for Development, A practical Guide.*

<sup>2</sup> CIEEM, CIRIA, IEMA (2016). *Biodiversity Net Gain: Good Practice Principles for Development.*

## 2. BIODIVERSITY METRIC 4.0

2.1. The Biodiversity Metric 4.0 was released on 28 March 2023 and uses habitat features as a proxy measure for capturing the value and importance of nature. It uses calculations to assess the importance of each habitat based on its size, ecological condition, and location.

### 2.2. Methodology

2.2.1. Measurements for pre-development baseline habitats were calculated using Natural England's QGIS Net Gain Habitat Mapping template and QGIS Import Tool. Information regarding the habitats present as well as their condition were based on survey information obtained in October 2020, April 2021 and February 2023. The Biodiversity Metric 4.0 Technical Annex 2<sup>3</sup> as well as professional judgement was used to inform the habitats condition criteria.

2.2.2. The proposed landscape scheme was provided by LDA Design Consulting Ltd in their Overall Softworks Masterplan (Dwg no. 8749\_103) (see Appendix 1).

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<sup>3</sup> Natural England (2023). *The Biodiversity Metric 4.0, User Guide - Technical Annex 2*, Natural England Joint Publication JP039.

### **3. RESULTS AND DISCUSSION OF METRIC**

3.1. This section should be read in conjunction with the Biodiversity Metric calculation tool, which has been provided separately.

#### **3.2. Baseline Habitat (Pre-Development)**

3.2.1. Table 3.1, below, summarises the baseline habitats present on site, illustrated in Plan ECO3. The information included within this table is based on information gathered during the Phase 1 habitat survey undertaken by Ecology Solutions in October 2020 and the subsequent walkover surveys carried out in April 2021 and February 2023.

3.2.2. Baseline habitats on site constitute cropland, neutral grassland, hardstanding, woodland, and ponds, resulting in a baseline habitat biodiversity value of 150.93 units. Hedgerows are also present along some of the field boundaries within the site, with a baseline value of 8.35 hedgerow units. Additionally, a number of drainage ditches are present across the east of the site, giving a baseline value of 3.42 watercourse units.

Baseline habitat	Baseline Biodiversity Units	Condition Criteria / Pass or Fail / Indicator Score		Condition	Ecological Features and Condition Notes	After Works
Cropland – cereal crops	18.95	Low distinctiveness  Condition assessment N/A		Condition assessment N/A	<p>Bull Field, a large arable field, makes up the majority of the southern region of the site, with portions of another on site arable field adjacent to Prior’s Wood to the north and northeast. The narrow corridor extending northwest from Bull Field, which will form the future site access, also comprises predominantly arable field.</p> <p>The majority of the existing arable land will be lost as a result of the development of the site.</p> <p>Areas towards the northeast and southwest are not included within the development proposals for the site and will therefore be retained.</p>	<p>16.91 units lost</p> <p>2.04 units retained</p> <p>0 units enhanced</p>
Grassland – other neutral grassland	10.05	Medium distinctiveness		Moderate  (3 / 6 condition criteria passed = Moderate)	<p>Neutral grassland field margins of variable width exist within the site boundary, these are often narrow and heavily trodden.</p> <p>Additionally, a wide roadside neutral grassland verge exists adjacent to Smiths Green Road along the eastern boundary of the site.</p> <p>As a result of only passing three out of six necessary criteria, all the present areas of neutral grassland habitat are considered to</p>	<p>5.18 units lost</p> <p>4.86 units retained</p> <p>0 units enhanced</p>
		C1 – Meets UKHab description (essential for achieving ‘moderate’ – ‘good’ condition)	Pass			

		C2 – Varied sward height 20% < 7cm & 20% > 7cm	Pass		<p>achieve ‘moderate’ condition, according to the following justification.</p> <p>C1 – The grassland field margins and roadside verges within the site meet the UKHab definition of neutral grassland, defining it as ‘vegetation dominated by grasses and herbs on a range of neutral soils usually with a pH of between 4.5 and 6.5’.</p> <p>C2 – Surveys found all grassland areas generally possessed a varied sward height.</p> <p>C3 –Owing to being well-trodden, bare ground pathways are prevalent, and are considered to make up more than 5% of the total area of grassland.</p> <p>C4 – While Bracken and scrub are present to some degree, they do not constitute large enough areas to exceed the defined acceptable limits.</p> <p>C5 – Again, owing to the well-trodden nature of the grassland margins, physical damage is prevalent, with the occasional to frequent presence of a number of sub-optimal species such as Cow Parsley <i>Anthriscus sylvestris</i>, Spear Thistle <i>Cirsium vulgare</i>, Creeping Thistle <i>Cirsium arvense</i> and Common Nettle <i>Urtica dioica</i>.</p> <p>C6 – Random sampling found that grassland areas did not contain a high enough species diversity per m2 to meet the criterion needed to achieve ‘good’ condition.</p>	
		C3 – Bare ground 1%-5%	Fail			
		C4 – Bracken <i>Pteridium aquilinum</i> < 20% & Scrub < 5%	Pass			
		C5 – Physical damage and cover of sub-optimal species < 5%  No schedule 9 species present	Fail			
		C6 – Vascular plants no. > 10 species / m2 (essential for achieving ‘good’ condition)	Fail			

					<p>The majority of the existing neutral grassland areas will be lost as a result of the development of the site.</p> <p>Grassland field margins towards the northeast and southwest, along with the roadside grassland verges, are not included in the development proposals for the site, and will therefore be retained. These areas are not considered viable for enhancement, owing to edge effects from adjacent land use, such as trampling from recreational pressures and pollution from road traffic.</p>	
Developed land; sealed surface	0	Very low distinctiveness Condition assessment N/A	Condition assessment N/A		A small area of hardstanding extends from the Weston Group Business Centre towards the boundary of the narrow northwestern corridor that extends for Bull Field. This forms the start of the future access road to the post-development site.	N/A
Lakes – ponds (non-priority habitat)	0.34	Medium distinctiveness	Moderate  (All ponds – 6 / 7 condition criteria passed = moderate)		<p>Three small ponds exist within Prior's Wood. Ponds P1 and P2 lie to the north, while pond P7 lies towards the centre of the woodland. All three ponds were wet at the time of the surveys.</p> <p>All three ponds are in poor health, experiencing heavy disturbance from dog walkers, increasing the volume of silt and preventing the establishment of aquatic vegetation.</p> <p>All three ponds are deemed to achieve 'moderate' condition, according to the following justification.</p>	<p>0 units lost</p> <p>0 units retained</p> <p>0.34 units enhanced</p>
		<p>A – Good water quality / low turbidity (except where there is livestock)</p> <p>Fail</p>				

		entire perimeter by at least 10m from the pond edge			<p>A – Generally poor water quality and high turbidity across all three ponds, likely owing to disturbance.</p> <p>B – All three ponds exist within Prior’s Wood, an area of semi-natural and ancient woodland.</p> <p>C – All three ponds possess minimal surface cover of Duckweed or filamentous algae.</p> <p>D – None of the ponds possess artificial connections to other waterbodies.</p> <p>E – Water levels of the three ponds fluctuate naturally, without artificial intervention.</p> <p>F – All three ponds are lacking in aquatic vegetation, with no non-native species found to be present.</p> <p>G – No naturally or artificially occurring fish populations exist within any of the three ponds.</p> <p>All three ponds will undergo enhancement towards achieving a target ‘good’ condition.</p> <p>Management prescriptions to this end will include the implementation of proper visitor management within the woodland, with designated pathways located away from the ponds, allowing them to develop without potential disturbance from visitors or dog walkers, improving overall water quality.</p>	
		C – Duckweed <i>Lemna</i> sp., or filamentous algae covers < 10% of the surface	Pass			
		D – Not artificially connected to other waterbodies e.g. ditches, pipes.	Pass			
		E – Water levels are able to fluctuate, with no dams, pumps, or pipes	Pass			
		F – Absence of listed non-native species	Pass			
		G – Not artificially stocked with fish or only native low-	Pass			



		density assemblage if naturally occurring				
Woodland and forest – lowland mixed deciduous woodland	121.60	High distinctiveness		Moderate (27 / 39 condition criteria passed = Moderate)	<p>Prior's Wood, an area of ancient and semi-natural woodland, makes up the majority of the northern region of the site.</p> <p>The condition assessment of the woodland, consisting of 13 criteria scored from 3-1, resulted in a score of 27 out of 39, achieving 'moderate' condition, according to the following justification.</p> <p>The woodland comprises native species with no invasive non-native species but lacks age and structure diversity with evidence of browsing.</p> <p>The woodland contains no ancient or veteran specimens, primarily consisting of Hornbeam <i>Carpinus betulus</i>, with significant components of Oak <i>Quercus robur</i>, Ash <i>Fraxinus excelsior</i>, Hawthorn <i>Crataegus monogyna</i> and Hazel <i>Corylus avellana</i>, with Field Maple <i>Acer campestre</i>, Elm <i>Ulmus sp.</i>, Willow <i>Salix sp.</i>, European Larch <i>Larix decidua</i>, and Scots Pine <i>Pinus sylvestris</i> found in small numbers.</p> <p>The understorey of the woodland is virtually absent, the canopy is closed throughout, and the field layer lacks variety, being dominated by Bramble <i>Rubus fruticosus</i> in most areas but with some Dog's Mercury <i>Mercurialis perennis</i>, Ivy <i>Hedera helix</i>, Wood-sedge <i>Carex sylvatica</i>, Pendulous Sedge <i>Carex</i></p>	<p>0 units lost</p> <p>0 units retained</p> <p>121.60 units enhanced</p>
		A – Age distribution of trees	2			
		B – Wild, domestic and feral herbivore damage	2			
		C – Invasive plant species	3			
		D – Number of native tree species	3			
		E – Cover of native tree and shrub species	3			
		F – Open space within woodland	1			
		G – Woodland regeneration	1			

		H – Tree health	3		<p><i>pendula</i>, Wood Avens <i>Geum urbanum</i>, False Brome <i>Brachypodium sylvaticum</i> and Oxlip <i>Primula elatior</i> also present.</p> <p>It is clear that the woodland has been unmanaged for many years and suffers from significant damage from browsing by deer.</p> <p>The woodland will undergo enhancement towards achieving a target 'good' condition. This will involve the implementation of a fifteen-year woodland management plan (ref: 9282.WMP.vf1).</p> <p>Measures within the management plan include the introduction of a coppicing regime for Hornbeam and Hazel, establishment of dead wood habitats, canopy thinning, layering, and Bramble control, with the aim to develop a well-structured native species understorey, rides and glades, and a diverse age and height structure. Additional measures, such as visitor management and fencing of select areas will help to prevent damage from trampling from visitors and grazing herbivores and allow natural regeneration.</p>	
		I – Vegetation and ground flora	1			
		J – Woodland vertical structure	2			
		K – Veteran trees	1			
		L – Amount of deadwood	3			
		M – Woodland disturbance	2			
<b>Hedgerows</b>						
<b>Baseline habitat</b>	<b>Baseline Hedgerow Units</b>	<b>Condition Criteria / Pass or Fail</b>		<b>Condition</b>	<b>Ecological Features and Condition Notes</b>	<b>After Works</b>
Species-rich native hedgerows	6.52	Medium distinctiveness		Good (H1 – 8 / 8 condition criteria passed = good)	Species-rich native hedgerows H1 and H2 bound the site to the south and southwest, adjacent to the grassland field margins of Bull Field.	0 units lost  6.52 units retained
		A1 – > 1.5m average height	Both pass			

				(H2 – 7 / 8 condition criteria passed = good)	Species present include Hawthorn, Blackthorn <i>Prunus spinosa</i> , Hazel, Field Maple, Bramble, Dog Rose, Ivy, Elder <i>Sambucus nigra</i> , and Oak.	0 units enhanced
		A2 – > 1.5m average width	Both pass		Both hedgerows achieve 'good' condition, according to the following justification.	
		B1 – Gap between ground and base of canopy <0.5m for > 90% of length	Both pass		A1 – Both hedgerows are approximately 1.5m in height on average.	
		B2 – Gaps make up <10% of total length, no canopy gaps > 5m	Pass (H1) Fail (H2)		A2 – Both hedgerows are approximately 1.5m wide on average.	
		C1 – >1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length	Both pass		B1 – Both hedgerows have <0.5m gap for >90% of length	
		C2 – Plant species indicative of nutrient enrichment of soils dominate <20% cover of	Both pass		B2 – Gaps make up <10% of hedgerow H1 with no large canopy gaps, while hedgerow H2 fails this criterion.	
					C1 – Both hedgerows typically possess at least 1m width of undisturbed ground with perennial vegetation.	
					C2 – Neither hedgerow exceeds the threshold of plant species indicative of nutrient enrichment.	
					D1 – Both hedgerows are free of invasive non-native plant species.	
					D2 – Both hedgerows are largely free from damage caused by human activity.	

		undisturbed ground			Future management and maintenance will ensure the current favourable condition of these hedgerows is maintained.	
		D1 – > 90% of the hedgerow and undisturbed ground is free from invasive non-native plant species and recently introduced naturalised species	Both pass			
		D2 – > 90% of the hedgerow or undisturbed ground is free of human damage	Both pass			
Native hedgerows associated with bank or ditch	1.8	Medium distinctiveness		Poor	Native hedgerows H3 and H4, associated with immediately adjacent ditches, bound Bull Field to the east, adjacent to the grassland roadside verge, and to the northeast, adjacent to the grassland field margin.  Owing to excessive maintenance work, both hedgerows have been significantly reduced in form, and can only achieve ‘poor’ condition, according to the following justification.  A1 – Both hedgerows are clearly below 1.5m height on average.	0.03 units lost  0 units retained  1.8 units enhanced
		A1 – > 1.5m average height	Both fail	(H3 and H4 – 2 / 8 condition criteria passed = poor)		
		A2 – > 1.5m average width	Both fail			
		B1 – Gap between ground and base of canopy <0.5m	Both fail			

		for > 90% of length				
		B2 – Gaps make up <10% of total length, no canopy gaps > 5m	Both fail			A2 – Both hedgerows are clearly below 1.5m width on average.  B1 – Both hedgerows have been reduced to the point where no canopy is present.  B2 – Both hedgerows have been reduced to the point where no canopy is present.
		C1 – >1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length	Both fail			C1 – Both hedgerows have been heavily disturbed, with limited ground cover vegetation present.  C2 – Both hedgerows have limited ground cover vegetation, with neither exceeding the threshold of plant species indicative of nutrient enrichment.
		C2 – Plant species indicative of nutrient enrichment of soils dominate <20% cover of undisturbed ground	Both pass			D1 – Both hedgerows are free of invasive non-native plant species.  D2 – Both hedgerows have experienced significant disturbance from human activity, and have suffered extensive damage as a result.
		D1 – > 90% of the hedgerow and undisturbed ground is free from invasive non-native	Both pass			A small stretch of hedgerow H3 will be lost due to the proposed improved footpath towards the southeastern corner of the site, creating a small disconnect within the hedgerow.  The remaining hedgerows will undergo enhancement through a prescribed management regime, toward achieving a 'good' target condition

		plant species and recently introduced naturalised species			Towards this aim, future management will include additional native planting to bolster and fill gaps within the hedgerows, with any maintenance in the form of pruning and weeding being such that it allows the hedgerows to develop the desired dimensions, structure, and ground cover vegetation.  This will serve to enhance the intrinsic value of the habitat, offering greater opportunities for a range of species, while also improving their functionality as wildlife corridors.	
		D2 – > 90% of the hedgerow or undisturbed ground is free of human damage	Both fail			
<b>Watercourses</b>						
Baseline habitat	Baseline Watercourse Units	Condition Criteria / Pass or Fail		Condition	Ecological Features and Condition Notes	After Works
Ditches	3.42	Medium distinctiveness		Poor  (All ditches – 3 / 8 condition criteria passed = poor)	Ditch D1, a shallow on site ditch with an associated on site hedgerow, runs along the eastern boundary of Bull Field, beyond which exists a roadside neutral grassland verge.  Ditch D2, with an associated on site hedgerow, bounds the site along the northeastern boundary of Bull Field, adjacent to another off-site arable field.  Ditch D3, a shallow on site ditch, runs south along the eastern boundary separating Prior's Wood and an adjacent off-site arable field.  Ditch D4 runs east and west along the boundary separating Bull Field and Prior's Wood.	0 units lost  2.29 units retained  1.13 units enhanced
		A – Good quality water with low turbidity	All fail			
		B – > 10 species of emergent, floating, or submerged plants / 20m	All fail			
		C – < 10% cover of filamentous algae and or Duckweed	All pass			





					<p>no watercourse encroachment. Ditch D4 has no encroachment of any kind.</p> <p>F – None of the ditches possess stable water levels of sufficient depth.</p> <p>G – Ditches D1 and D2 are relatively unshaded, while ditches D3 and D4 experience significant shading.</p> <p>H – None of the ditches exhibited evidence of non-native plant and animal species.</p> <p>Ditches D1 and D2 will be enhanced towards improving their levels of encroachment, as a result of the improved surrounding habitats, with Ditch D1 changing from moderate / minor riparian encroachment to none / minor, and ditch D2 changing from moderate / moderate riparian encroachment to moderate / minor.</p> <p>All other ditches will be retained as part of the development.</p>	
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**Table 3.1** Summary of Baseline Habitats and Hedgerows.

### 3.3. Post-Development

- 3.3.1. Table 3.2 below summarises the proposed on site post-development habitats, which are further illustrated in Plan ECO4 and Appendix 1.
- 3.3.2. In addition to the retention and enhancement of areas of baseline habitat, such as Prior's Wood and the on site ponds, the landscape strategy includes several new habitats, including native and non-native tree planting, woodland planting, woodland edge planting, structural planting, defensive shrub planting, ornamental shrub and herbaceous planting, clipped hedge, bulb planting, species-rich wildflower meadow, wetland meadow, amenity grassland and lawn, with vegetated gardens assumed within the residential gardens.
- 3.3.3. The proposed habitats have been categorised according to the UKHab classification system for the purpose of this assessment.
- 3.3.4. Overall, the proposed post-development habitats would result in an additional 23.44 habitat units, producing an 15.53% net gain from the baseline condition.
- 3.3.5. In addition to the proposed enhancement of the existing on site hedgerows H3 and H4, the post-development landscape strategy proposes the inclusion of three additional native species-rich hedgerows with trees planted along former field boundaries. This results in an additional 5.68 hedgerow units, producing a 68.04% net gain from the baseline condition.
- 3.3.6. Though no specific measures have been proposed to enhance the on site ditches and the ditches are not to form part of the drainage strategy for the development, there is a betterment to ditches D1 and D2 as a result of the adjacent land use change from arable to grassland. These changes result in an additional 0.8 watercourse units, producing a 2.48% net gain from the baseline condition.
- 3.3.7. The target conditions for proposed habitats will be achieved through appropriate management undertaken during the operational phase development. This will ensure that the proposed habitats offer continuing benefits to biodiversity in the future.

#### *Trading Rules*

- 3.3.8. All trading rules in relation to baseline and proposed habitats have been achieved.

Created Habitats				
Proposed Habitat	Landscape Plan Habitat	Target Condition	Biodiversity Units Delivered	Target Condition Notes
Urban – introduced shrub	Defensive shrub planting; ornamental shrub and herbaceous planting; clipped hedge	N/A	0.83	<p>Areas of amenity shrub planting, containing a mix of native and non-native species, will be planted throughout the site, both in small localised pockets and in linear rows, often adjacent to pathways and houses, but also providing a buffer for newly created neutral grassland areas.</p> <p>This will not only provide public amenity, screening, and edge protection for higher distinctiveness habitats, such as the wildflower meadows, but will also provide a resource for invertebrates, benefitting insectivores such as bats and birds. It will also provide potential nesting and foraging opportunities for birds, particularly in relation to berry-bearing shrub species, and sheltering opportunities for Hedgehogs <i>Erinaceus europaeus</i>.</p> <p>A target condition assessment is not applicable.</p>
Woodland and forest – lowland mixed deciduous woodland	Woodland planting	Poor	2.05	<p>A large area of new woodland will be planted as an extension to Prior’s Wood towards the northeast of the site, where there currently exists arable field and neutral grassland field margins.</p> <p>New planting will consist of a range of native tree species of local provenance, planted in accordance with best practice guidance. The species composition of planted trees will be precisely controlled according to an agreed design, creating a species-rich woodland reflecting the woodland character of Prior’s Wood.</p> <p>Management and monitoring prescriptions will be designed to ensure the woodland develops successfully, involving, in the immediate term, ground preparation, weeding of competitive vegetation, and protection of planted trees and shrubs using fencing, tree guards, or tree shelters, preventing damage from grazing herbivores and trampling from visitors.</p> <p>Long-term management will work to prevent the establishment of invasive plant species, with the implantation of a coppicing regime, establishment of dead wood habitats, canopy thinning, and layering after 10-15 years, with the aim to develop a well-structured native species understorey, open spaces in form of glades and rides, and a diverse age and height structure.</p>

				Given the establishment phase for most new woodlands lasts around twenty years, a target condition of 'poor' is considered the realistic outcome within a 30-year time frame, with the assumption that the management prescriptions will be implemented consistently over this period.
Heathland and shrub – mixed scrub	Structural planting; woodland edge planting	Moderate	1.40	<p>Native woodland edge planting, comprising a native mix of varying species, will be used to enhance the peripheral areas of Prior's Wood and the newly created woodland extension, providing a buffer zone from adjacent footpaths and recreational areas. The created habitat will provide new nesting and foraging opportunities for a range of wildlife.</p> <p>The scrub areas will be subject to management and monitoring to ensure that they meet and maintain the desired condition, with the aim to create scrub with a diverse age structure that offers clearings and is absent of invasive non-native plant species.</p> <p>The scrub areas should also be managed to ensure a well-developed edge where possible, with scattered scrub and tall grassland or forbs between the scrub and adjacent habitat.</p> <p>A target condition of 'moderate' is considered the realistic outcome within a 30-year time frame, with the assumption that the management prescriptions will be implemented consistently over this period.</p>
Urban – vegetated garden	Assumed within residential gardens	N/A	1.65	<p>It is expected that some ecological benefit will be provided by residential gardens that is at least greater than that provided by the existing agricultural fields.</p> <p>Owing to the lack of control over future management, given they are located within private properties, new residential gardens are automatically attributed a 'poor' target condition.</p>
Developed land; sealed surface	N/A	N/A	0	<p>This area includes the proposed building and associated hardstanding infrastructure.</p> <p>Existing public rights of way will be upgraded to be shared pedestrian and cycle routes, enhancing access within the site and reducing the likelihood of disturbance to higher distinctiveness habitats, such as wildflower meadows.</p>

				A target condition assessment is not applicable.
Grassland – modified grassland	Species-rich amenity grassland; lawn; bulb planting	Moderate	2.88	<p>Amenity grassland and bulbs will be planted within the new public recreational areas and as buffer strips adjacent to pathways and other hard surfaces to reduce the disturbance of higher distinctiveness wildflower meadows.</p> <p>As these areas are intended for amenity and recreation, as well as a buffer, they will utilise a diverse mix of robust grass species which can withstand the recreational pressures while increasing species diversity.</p> <p>While management prescriptions are intended to maintain relatively uniform areas with a generally short sward, further management and monitoring, in terms of weeding, will prevent the establishment of invasive non-native species and the incursion of Bracken.</p> <p>Areas of bulb planting will be subject to a separate cutting regime when in flower, whereby they will be left uncut until after flowering for a period of at least four weeks, and later integrated into the same regime as the surrounding amenity grassland.</p> <p>Given the use of a diverse seed mix and areas of bulb planting, the areas are expected to be of relatively high species diversity. Therefore, providing these areas are kept relatively free from physical damage, the target condition for the habitat is 'moderate'.</p>

Grassland – other neutral grassland	Species-rich wildflower meadow; wetland meadow	Moderate – 0.88ha  Good – 2.12ha	Moderate – 5.93  Good – 17.93	<p>Native wildflower mixes will be planted, both in large areas to the south and east, and small patches throughout the site, typically buffered by amenity planting, amenity grassland, and hedgerows, with shade tolerant species to be included along hedgerows and woodland edge planting.</p> <p>It should be noted that some of the proposed planting within the landscape strategy overlaps with existing areas of Prior’s Wood, being overshadowed by canopy. These areas were therefore not incorporated into the post-development habitat assessment.</p> <p>A large area of wetland meadow will be planted towards the south of the site within the sustainable urban drainage basin, surrounded by wildflower meadow.</p> <p>The new wildflower and wetland meadows will provide greater floristic diversity than is currently present on site, attracting a range of invertebrate species, which in turn will provide foraging resources to bats and birds. The maintenance of a varied sward will create micro-climates, providing further opportunities for birds, small mammals, and reptile species.</p> <p>Management prescriptions will vary across the initial phases of the wildflower meadow development, ensuring appropriate management for each stage in terms of the cutting and weeding regime. These prescriptions will ensure that the diversity of the grassland is maintained long-term and will ensure that undesirable species do not become dominant.</p> <p>Despite the buffer provided by amenity planting and amenity grassland, the edge effects from adjacent areas, such as recreational grounds and footpaths, will likely cause a degree of disturbance and damage. The target condition for 0.88ha of the meadow habitat is therefore ‘moderate’.</p> <p>However, the large of area of wildflower meadow planting to the east of the site is not considered as vulnerable to edge effects, being well buffered from the housing development and recreational areas to the west by the new proposed hedgerows. Additionally, the area will be fenced to help limit recreational pressure. The target condition for 2.12ha of the meadow habitat is therefore ‘good’.</p>
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<p>Individual trees – urban trees</p>	<p>Proposed feature tree; proposed specimen tree, proposed small specimen tree</p>	<p>Poor – 0.4519ha (equivalent)           Moderate – 0.4519ha (equivalent)</p>	<p>Poor – 1.53           Moderate – 1.38</p>	<p>A total of 245 new trees will be planted as part of the development, consisting of a mixture of native and non-native species.</p> <p>111 native species trees including Field Maple, Hornbeam, Oak, Rowan <i>Sorbus aucuparia</i>, and Small-leaved Lime (Winter Orange) <i>Tilia cordata</i>, will be planted along the southern edge of Prior’s Wood and around the areas of wildflower planting to the south of the site.</p> <p>134 native and non-native trees including Field Maple (Elrijk), Ornamental Cherry (Sunset Boulevard) <i>Prunus</i> sp., Whitebeam (Magnifica) <i>Sorbus aria</i>, Flowering Pear (Chanticleer) <i>Pyrus x calleryana</i>, Small-leaved Lime (Streetwise), and Birch <i>Betula</i> sp. will be planted along the access roads and parking courtyards within the new housing development.</p> <p>It is expected that some ecological benefit will be provided, as new trees will offer suitable opportunities for foraging and nesting birds, as well as providing potential ecological niches and roosting opportunities for bats as they mature. However, this may be limited through frequent management i.e. pruning to avoid uncontrolled growth.</p> <p>Trees will be planted individually, in staggered rows, and in small clusters across the site. All trees are expected to oversail vegetation, such as amenity planting, amenity grassland, and wildflower meadows, with some planted within hedgerows.</p> <p>The management plan pertaining to new tree planting outlines a phased approach, ensuring appropriate monitoring and management at each stage of the trees’ development over a fifteen-year period, and then thereafter. This will involve some limited pruning initially, and while more marked pruning will occur after 10+ years, this not considered likely to impact more than &gt;75% of the expected canopy at any given age range.</p> <p>As per the guidance, all new trees are suggested to be considered small (&lt;30cm in diameter) unless sufficient evidence is given to support trees achieving a larger size within a 30-year timeframe. The trees are not expected to reach full maturity within this time frame, and so would likely be absent of any natural ecological niches, such as cavities or loose bark.</p>
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				Given these factors, the target condition for the known 111 native trees is 'moderate', while the remaining 134 mixed native and non-native trees can only achieve a target 'poor' condition.
<b>Created Hedgerows</b>				
<b>Proposed Habitat</b>	<b>Landscape Plan Habitat</b>	<b>Target Condition</b>	<b>Hedgerow Units Delivered</b>	<b>Target Condition Notes</b>
Hedgerows – species-rich native hedgerows with trees	Proposed hedgerows	Good	2.69	<p>The three new species-rich native hedgerows with trees, PH1, PH2, and PH3, will be planted to the east of the new housing development, enclosing an area of amenity grassland and recreational play area.</p> <p>While hedgerow PH3 provides a buffer to the large area of adjacent wildflower meadow to the east, all the additional hedgerows will improve the green infrastructure of the site, acting as green corridors, providing greater habitat connectivity for wildlife within the surrounding area.</p> <p>For a species-rich native hedgerow with trees, the time to target condition is one year for 'poor', ten years for 'moderate', and twenty years for 'good'.</p> <p>The management plan pertaining to hedgerow planting outlines a phased approach, ensuring appropriate monitoring and management, in terms of weeding and pruning, at each stage of development over a fifteen-year period and thereafter.</p> <p>These management prescriptions will ensure the hedgerows develop the desired dimensions, structure, and ground cover vegetation.</p> <p>It is expected that the new hedgerows will be able to achieve a 'good' target condition within a 30-year time frame when assessed against a set of minimum requirements regarding dimensions and physical characteristics.</p>

**Table 3.2.** Summary of post-development habitats and hedgerows.

## 4. EVALUATION

### 4.1. The Principles of Evaluation

#### *Biodiversity Net Gain – Good Practice Principle for Development*

- 4.1.1. CIRIA, CIEEM and, IEMA have developed principles of good practice to achieve Biodiversity Net Gain. These principles provide a framework that helps improve the UK's biodiversity by contributing towards strategic priorities to conserve and enhance nature through sustainable development. There are ten principles in total, and all principles must be applied together as one approach. The ten principles are set out below.
- 4.1.2. **Principle 1. Apply Mitigation Hierarchy.** Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision makers where possible, compensate for losses that cannot be avoided. If compensation for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.
- 4.1.3. **Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere.** Avoid impacts on irreplaceable biodiversity; these impacts cannot be offset to achieve no net loss or net gain.
- 4.1.4. **Principle 3. Be inclusive and equitable.** Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluation the approach to net gain. Achieve Net Gain in partnership with stakeholders where possible and share the benefits fairly among stakeholders.
- 4.1.5. **Principle 4. Address risks.** Mitigate difficulty, uncertainty, and other risks to achieving Net Gain. Apply well accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised.
- 4.1.6. **Principle 5. Make a measurable net gain contribution.** Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.
- 4.1.7. **Principle 6. Achieve the best outcomes for biodiversity.** Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly-justified choices when:
- Delivering compensation that is ecologically equivalent in type, amount and condition, and that accounts for the location and timing of biodiversity losses.
  - Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation.
  - Achieving net gain locally to the development while also contributing towards nature conservation priorities at local, regional, and national levels.
  - Enhancing existing or creating new habitat.

- Enhancing ecological connectivity by creating more, bigger, better and joined areas for biodiversity.

4.1.8. **Principle 7. Be additional.** Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e. do not deliver something that would occur anyway).

4.1.9. **Principle 8. Create a net gain legacy.** Ensure net gain generates long-term benefits by:

- Engaging stakeholders and jointly agreeing practical solutions that secure net gain in perpetuity.
- Planning for adaptive management and securing dedicated funding for long-term management.
- Designing net gain for biodiversity to be resilient to external factors, especially climate change.
- Mitigating risks from other land uses.
- Avoiding displacing harmful activities from one location to another.
- Supporting local-level management of net gain activities.

4.1.10. **Principle 9. Optimise sustainability.** Prioritise Biodiversity Net Gain and, where possible, optimise the wider environmental benefits for a sustainable society and economy.

4.1.11. **Principle 10. Be transparent.** Communicate all net gain activities in a transparent and timely manner, sharing the learning with all stakeholders.

#### *Lawton's Principle*

4.1.12. Principles for enhancing England's wildlife sites were developed as part of the Lawton Review<sup>4</sup>. Across the UK, these principles can be used to design Biodiversity Net Gain activities to boost wildlife sites. They are:

- Improving the quality of wildlife sites;
- Increasing the size of the wildlife sites;
- Enhancing connections between, or joining up wildlife sites;
- Creating new wildlife sites; and
- Reducing pressure on wildlife sites.

## 4.2. Post-Development Evaluation

4.2.1. The site's contribution to Biodiversity Net Gain has been assessed with due regard to the principles outlined and discussed above.

4.2.2. The on site landscape strategy includes several new habitats, including native and non-native tree planting, species-rich hedgerow with trees planting, woodland planting, woodland edge planting, structural planting, defensive shrub planting, ornamental shrub and herbaceous planting, clipped hedge, bulb planting, species-rich wildflower meadow, wetland meadow, amenity grassland, and lawn; with vegetated gardens assumed within the residential gardens.

---

<sup>4</sup> Department for Environment, Food and Rural Affairs (2010). *Making Space for Nature: A Review of England's Wildlife Sites*, DEFRA.

- 4.2.3. The scheme will also enhance the lowland mixed deciduous woodland that makes up Prior's Wood while retaining a few areas of existing neutral grassland and areas of cropland.
- 4.2.4. The on site ditches do not form part of the drainage strategy for the development and no specific enhancement measures are proposed; however, the existing ditches D3 and D4 will be retained, with some enhancement seen within ditches D1 and D2 due to changes in the level of encroachment.
- 4.2.5. Existing hedgerows H1 and H2 will be retained, while hedgerows H3 and H4 will undergo enhancement, with a small length of hedgerow H3 lost.
- 4.2.6. All retained, enhanced, and lost habitats are illustrated in Plan ECO5.
- 4.2.7. The above habitats combined will achieve a net gain for the site across all categories, in accordance with trading rules, improving the ecological value of the site beyond the existing baseline condition, with new ecological opportunities for a wide range of species.
- 4.2.8. These measures will in turn offer a significant increase in opportunities for wildlife, primarily for bats, birds, reptiles and invertebrates, while additional enhancements such as bat and bird boxes will be incorporated across the proposed scheme.

Site Baseline	Habitat Units	150.93
	Hedgerow Units	8.35
	River Units	3.42
Post-intervention	Habitat units	174.37
	Hedgerow Units	14.03
	River Units	3.50
Total Net Unit Change	Habitat units	<b>+23.44</b>
	Hedgerow Units	<b>+5.68</b>
	River Units	<b>+0.08</b>
Total net Percentage Gain	<b>Habitat Units</b>	<b>+15.53%</b>
	<b>Hedgerow Units</b>	<b>+68.04%</b>
	<b>River Units</b>	<b>+2.48%</b>

**Table 4.1.** Summary of Biodiversity Net Gain results.

## 5. SUMMARY AND CONCLUSIONS

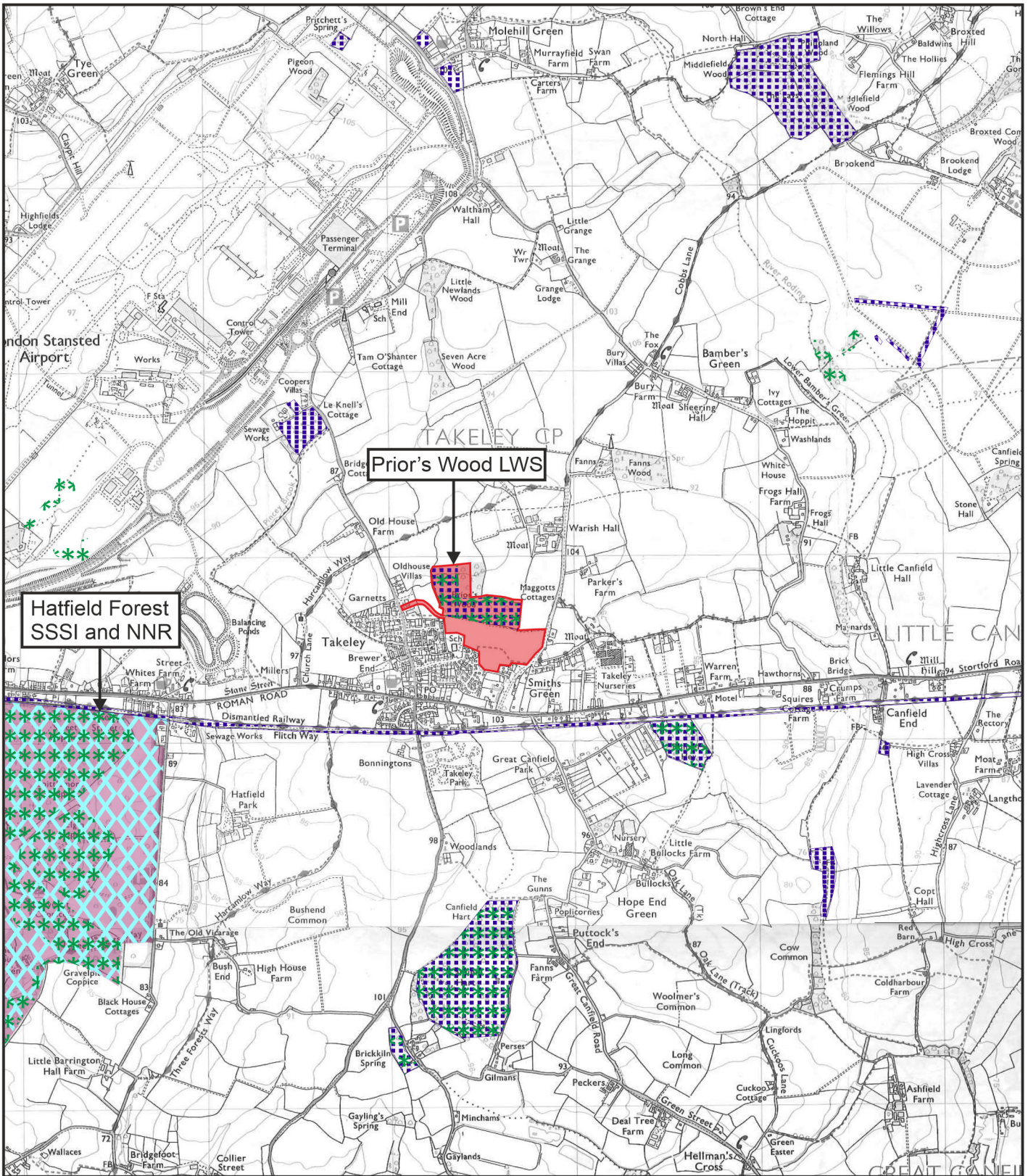
- 5.1. Ecology Solutions was commissioned in October 2022 by Weston Homes PLC to undertake a Biodiversity Net Gain assessment of the proposed development at Bull Field, Warish Hall Farm, Takeley, Essex.
- 5.2. A planning application was previously submitted for the wider Land at Warish Hall Farm (Planning Ref: UTT/21/1987/FUL), for which Ecology Solutions produced various documents, including an Ecological Assessment (October 2021) and Biodiversity Net Gain Assessment (October 2021).
- 5.3. This report relates to a smaller parcel of land that falls within the original red line boundary of the wider Land at Warish Hall Farm application. The proposals for the site comprise a residential development containing 96 properties with associated access, infrastructure, and public open space.
- 5.4. The Biodiversity Metric 4.0 was used to calculate the pre-development baseline units. A total of 150.93 baseline habitat units, 8.35 hedgerow units, and 3.42 watercourse units are present pre-development. The proposed development will result in an on site increase of 15.53% in habitat units, an increase of 68.04% in hedgerow units, and an increase of 2.48% in watercourse units.
- 5.5. The landscape scheme has been designed to ensure that continued green infrastructure and opportunities for important faunal species remain present within the site, with new proposed habitats improving the ecological value of the site beyond the existing baseline condition, according with all trading rules, and providing an overall increase in the ecological opportunities available for a wide range of species post-development.
- 5.6. Overall, when assessed against the Biodiversity Metric version 4.0, the on site post-development changes will meet the target of achieving a minimum 10% biodiversity net gain across habitats and hedgerows. And while it fails to meet the target for watercourses, this should be considered against the proposals and the significant gains made elsewhere within the site.

## PLANS






## **PLAN ECO1**

Site Location and Ecological Designations





**KEY:**

-  SITE LOCATION
-  SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
-  NATIONAL NATURE RESERVE (NNR)
-  LOCAL WILDLIFE SITE (LWS)
-  ANCIENT WOODLAND



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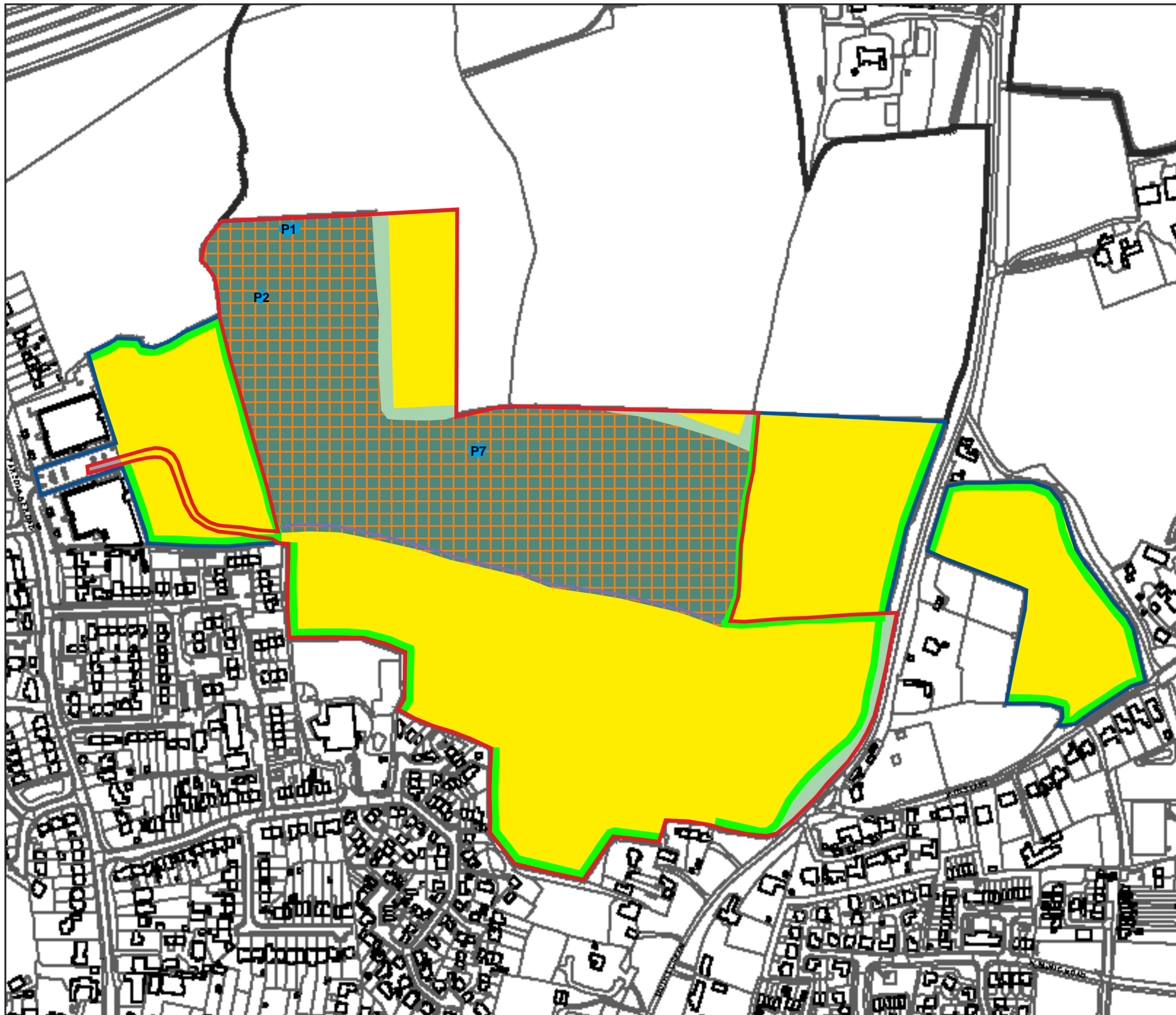
PLAN ECO1: SITE LOCATION AND  
 ECOLOGICAL DESIGNATIONS

Rev: A  
 Jun 2023











## **PLAN ECO2**

Ecological Features





**KEY:**

-  SITE BOUNDARY
-  WIDER SURVEY AREA
-  LOCAL WILDLIFE SITE
-  ANCIENT AND SEMI-NATURAL WOODLAND
-  ARABLE
-  SEMI-IMPROVED GRASSLAND
-  HARDSTANDING
-  HEDGEROW
-  DITCH
-  POND



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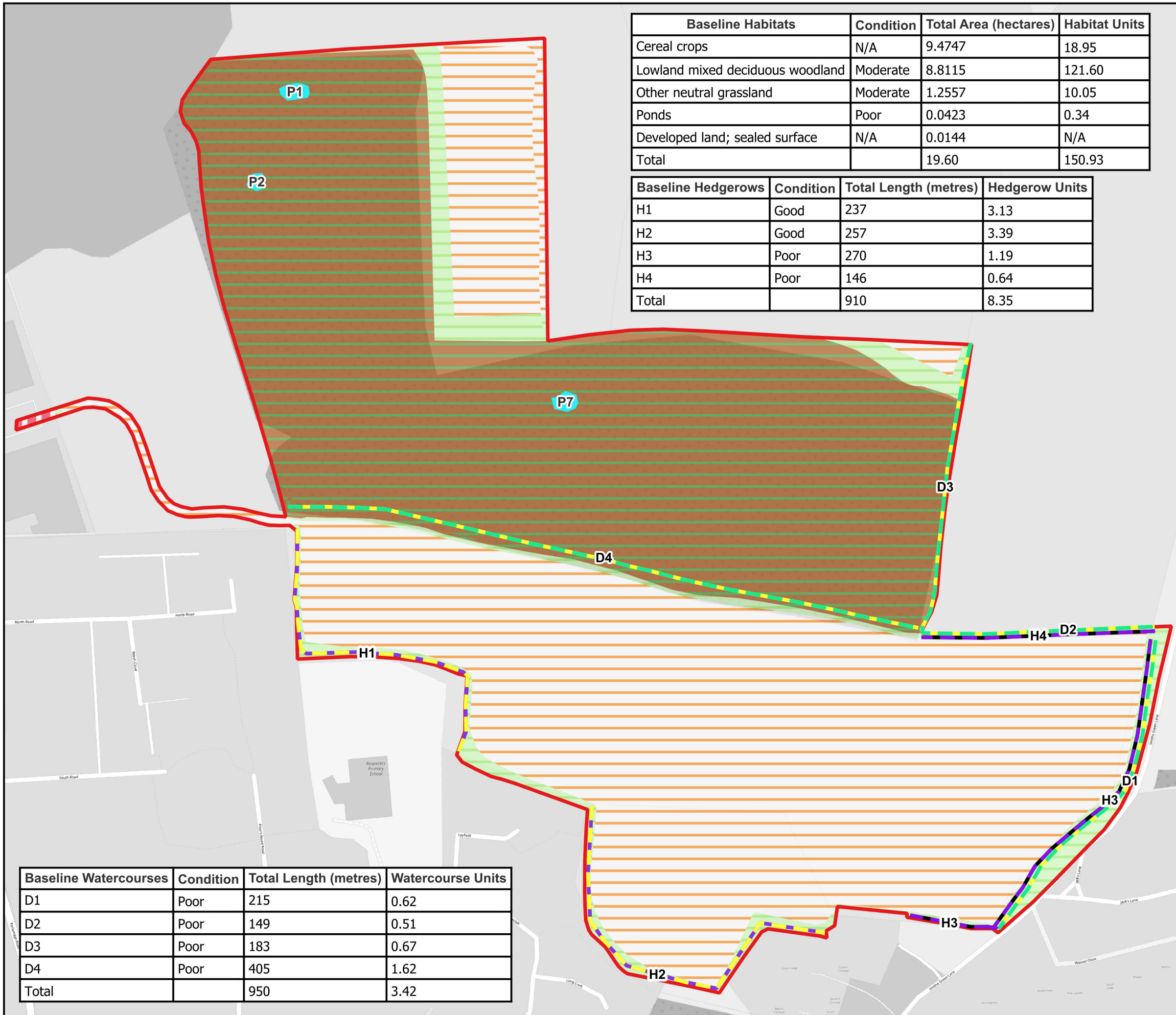
PLAN ECO2:  
 ECOLOGICAL FEATURES

Rev: A  
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## **PLAN ECO3**

Baseline Habitats





Baseline Habitats	Condition	Total Area (hectares)	Habitat Units
Cereal crops	N/A	9.4747	18.95
Lowland mixed deciduous woodland	Moderate	8.8115	121.60
Other neutral grassland	Moderate	1.2557	10.05
Ponds	Poor	0.0423	0.34
Developed land; sealed surface	N/A	0.0144	N/A
<b>Total</b>		<b>19.60</b>	<b>150.93</b>

Baseline Hedgerows	Condition	Total Length (metres)	Hedgerow Units
H1	Good	237	3.13
H2	Good	257	3.39
H3	Poor	270	1.19
H4	Poor	146	0.64
<b>Total</b>		<b>910</b>	<b>8.35</b>

Baseline Watercourses	Condition	Total Length (metres)	Watercourse Units
D1	Poor	215	0.62
D2	Poor	149	0.51
D3	Poor	183	0.67
D4	Poor	405	1.62
<b>Total</b>		<b>950</b>	<b>3.42</b>

**KEY:**

- SITE BOUNDARY
- BASELINE HABITATS**
- CEREAL CROPS
- LOWLAND MIXED DECIDUOUS WOODLAND
- OTHER NEUTRAL GRASSLAND
- PONDS (NON-PRIORITY HABITAT)
- DEVELOPED LAND; SEALED SURFACE
- BASELINE HEDGEROWS**
- SPECIES-RICH NATIVE HEDGEROWS
- NATIVE HEDGEROWS ASSOCIATED WITH DITCHES
- BASELINE WATERCOURSES**
- DITCHES



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PLAN ECO3: BASELINE HABITATS Rev: A  
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## **PLAN ECO4**

Post-Development Habitats

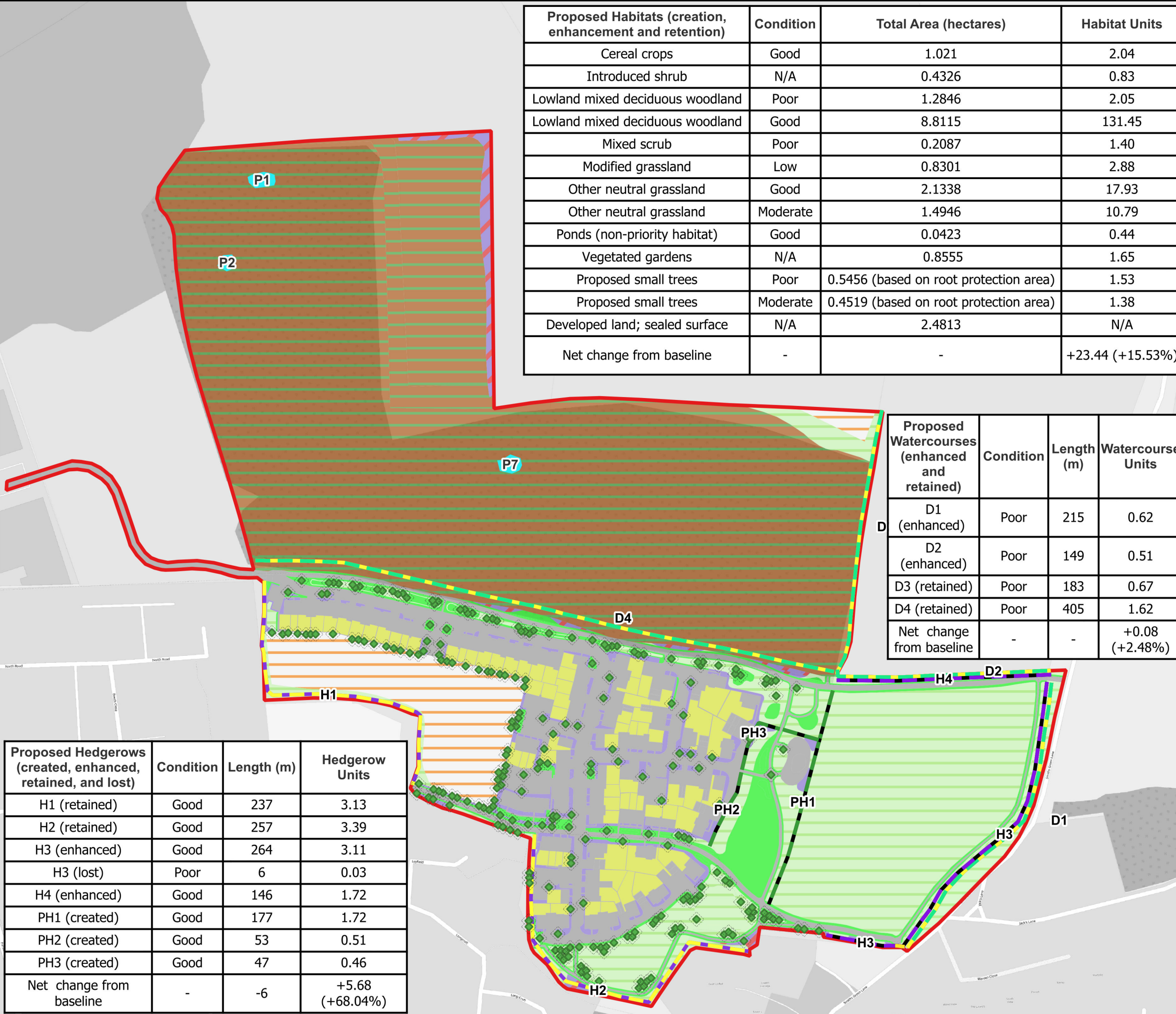


Proposed Habitats (creation, enhancement and retention)	Condition	Total Area (hectares)	Habitat Units
Cereal crops	Good	1.021	2.04
Introduced shrub	N/A	0.4326	0.83
Lowland mixed deciduous woodland	Poor	1.2846	2.05
Lowland mixed deciduous woodland	Good	8.8115	131.45
Mixed scrub	Poor	0.2087	1.40
Modified grassland	Low	0.8301	2.88
Other neutral grassland	Good	2.1338	17.93
Other neutral grassland	Moderate	1.4946	10.79
Ponds (non-priority habitat)	Good	0.0423	0.44
Vegetated gardens	N/A	0.8555	1.65
Proposed small trees	Poor	0.5456 (based on root protection area)	1.53
Proposed small trees	Moderate	0.4519 (based on root protection area)	1.38
Developed land; sealed surface	N/A	2.4813	N/A
<b>Net change from baseline</b>	-	-	<b>+23.44 (+15.53%)</b>

Proposed Watercourses (enhanced and retained)	Condition	Length (m)	Watercourse Units
D1 (enhanced)	Poor	215	0.62
D2 (enhanced)	Poor	149	0.51
D3 (retained)	Poor	183	0.67
D4 (retained)	Poor	405	1.62
<b>Net change from baseline</b>	-	-	<b>+0.08 (+2.48%)</b>

Proposed Hedgerows (created, enhanced, retained, and lost)	Condition	Length (m)	Hedgerow Units
H1 (retained)	Good	237	3.13
H2 (retained)	Good	257	3.39
H3 (enhanced)	Good	264	3.11
H3 (lost)	Poor	6	0.03
H4 (enhanced)	Good	146	1.72
PH1 (created)	Good	177	1.72
PH2 (created)	Good	53	0.51
PH3 (created)	Good	47	0.46
<b>Net change from baseline</b>	-	-6	<b>+5.68 (+68.04%)</b>

- KEY:**
- SITE BOUNDARY
  - PROPOSED HABITATS**
  - CEREAL CROPS
  - INTRODUCED SHRUB
  - LOWLAND MIXED DECIDUOUS WOODLAND
  - MIXED SCRUB
  - MODIFIED GRASSLAND
  - OTHER NEUTRAL GRASSLAND
  - PONDS (NON-PRIORITY HABITAT)
  - VEGETATED GARDENS
  - PROPOSED HEDGEROWS**
  - ENHANCED NATIVE HEDGEROWS ASSOCIATED WITH DITCHES
  - CREATED SPECIES-RICH NATIVE HEDGEROWS WITH TREES
  - RETAINED SPECIES-RICH NATIVE HEDGEROWS
  - LOST SPECIES-RICH NATIVE HEDGEROW ASSOCIATED WITH DITCH
  - PROPOSED WATERCOURSES**
  - RETAINED & ENHANCED DITCHES
  - PROPOSED INDIVIDUAL TREES**
  - CREATED SMALL URBAN TREES



Developed land; sealed surface not detailed on plan



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PLAN ECO4:  
POST-DEVELOPMENT HABITATS

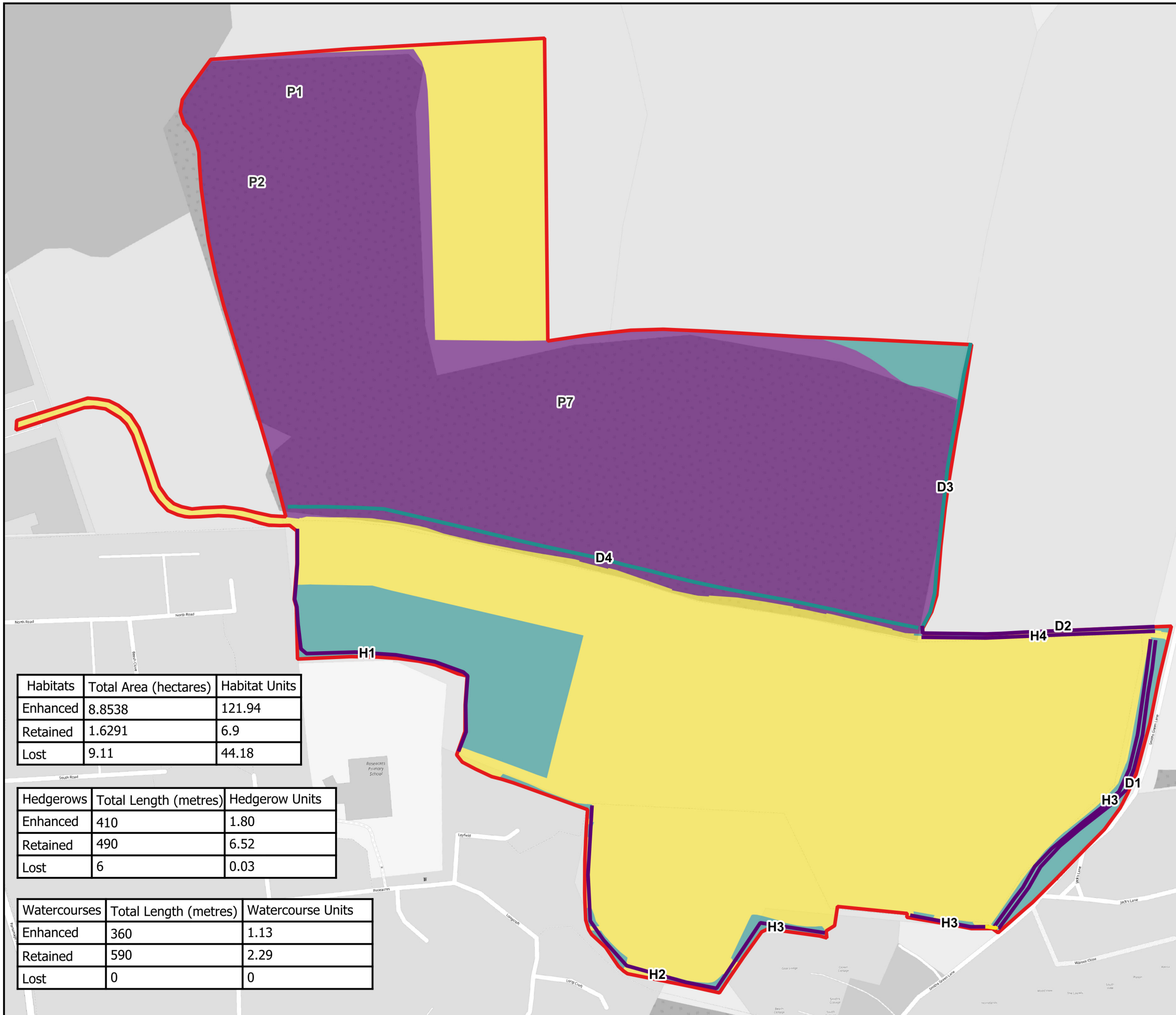
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## **PLAN ECO5**

Habitat Retention, Enhancement and Loss



- KEY:**
- SITE BOUNDARY
  - HABITAT RETENTION**
  - ENHANCED
  - RETAINED
  - LOST
  - HEDGEROW RETENTION**
  - ENHANCED
  - RETAINED
  - LOST
  - WATERCOURSE RETENTION**
  - RETAINED
  - ENHANCED



Habitats	Total Area (hectares)	Habitat Units
Enhanced	8.8538	121.94
Retained	1.6291	6.9
Lost	9.11	44.18

Hedgerows	Total Length (metres)	Hedgerow Units
Enhanced	410	1.80
Retained	490	6.52
Lost	6	0.03

Watercourses	Total Length (metres)	Watercourse Units
Enhanced	360	1.13
Retained	590	2.29
Lost	0	0

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PLAN ECO5: HABITAT RETENTION, ENHANCEMENT AND LOSS	Rev: A Jun 2023
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## **APPENDICES**

## **APPENDIX 1**

LDA Design Consulting Ltd - Overall Softworks  
Masterplan - Dwg No. 8749\_103



X:\080518\_1\080518\_MASTERPLAN\080518\_MASTERPLAN.dwg



- LEGEND**
- Site boundary
  - Phase 1 boundary
  - EXISTING**
  - Existing trees to be removed
  - Existing trees to be retained
  - Existing trees RPA
  - PROPOSED**
  - Proposed woodland planting
  - Proposed woodland edge planting
  - Proposed structural planting
  - Proposed feature tree
  - Proposed specimen tree
  - Proposed small specimen tree
  - Proposed hedgerow
  - Proposed clipped hedge
  - Proposed defensive shrub planting
  - Proposed ornamental shrub and herbaceous planting
  - Proposed climber planting
  - Proposed bulb planting
  - Proposed species rich wildflower meadow
  - Proposed wetland grass
  - Proposed amenity grass
  - Proposed lawn
  - Gravel

REV. DESCRIPTION. APP. DATE

**LD** DESIGN

PROJECT TITLE  
TAKELEY MASTERPLANNING

DRAWING TITLE  
OVERALL SOFTWARES MASTERPLAN

ISSUED BY	Plotborough	T: 01733 310 471
DATE	May 23	DRAWN
SCALE/AD	1:750	CHECKED
STATUS	Draft	APPROVED
		GSR

**DWG. NO 8749\_103**

No dimensions are to be scaled from this drawing.  
All dimensions are to be checked on site.  
Area measurements for indicative purposes only.

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# The Biodiversity Metric 4.0

Auditing and accounting for biodiversity

## Calculation Tool

Open Tool

ISBN: 978-1-7393362-0-2





# The Biodiversity Metric 4.0 - Calculation Tool

## Start page

Project details		
Planning authority:	Utlesford District Council	
Project name:	Bulls Field	
Applicant:	Weston Homes	
Application type:	Residential	
Planning application reference:		
Completed by:	Alex Downey	
Date of metric completion:	07 June 2023	
Reviewer:	Nicole Watts	
Version control:	vf	
Consenting body reviewer:		
Date of consenting body review:		
Target % net gain:	10%	
Irreplaceable habitat present on-site at baseline:	Yes	Irreplaceable habitats at baseline, you must fill in the irreplaceable habitat tab <b>A</b>
Total site area (including irreplaceable habitat area):	19.60	Irreplaceable habitat area at baseline: 8.80

Instructions

Main menu

Results

Cell style conventions	
	Attention required
	Input error/rules and principles not met
	Use of this cell is not appropriate
	Enter data
	Automatic lookup
	Result

View all

Reset view

On-site baseline map Insert



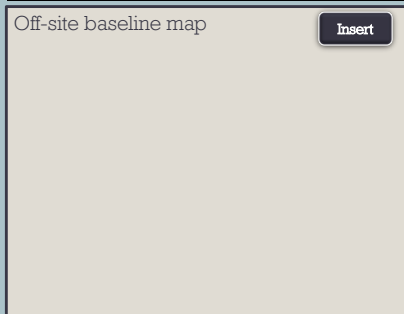
On-site baseline map reference number

On-site post intervention map Insert



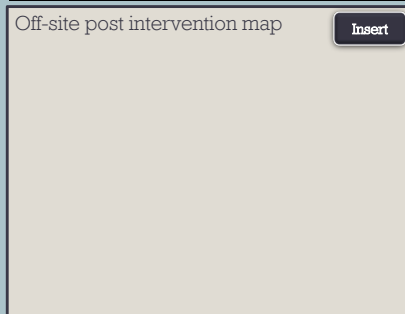
On-site post-intervention map reference number

Off-site baseline map Insert



Off-site baseline map reference number

Off-site post intervention map Insert



Off-site post-intervention reference number

# The Biodiversity Metric 4.0 - Calculation Tool Instructions

Double click the front page below to open the file

Start page

Main menu

Phase 1 - metric  
habitat translation  
tool

**This guide can also be found as an Appendix to the main  
Biodiversity Metric 4.0 – User guide.**

## The Biodiversity Metric 4.0

### Short Data Input Guide

First published March 2023

Natural England Joint Publication JP039

[www.gov.uk/natural-england](http://www.gov.uk/natural-england)





**Key**

- Area habitats
- Hedgerows and lines of trees
- Watercourses

# The Biodiversity Metric 4.0 - Calculation Tool

## Main menu

- [Start page](#)
- [Instructions](#)
- [Technical data](#)
- [Results](#)

Tree helper						
Tree size	Number of trees and area (ha) for each condition state					
	Poor	Area	Moderate	Area	Good	Area
Small	111	0.4519	245	0.9975		0.0000
Medium		0.0000		0.0000		0.0000
Large		0.0000		0.0000		0.0000
<b>Total</b>	<b>111</b>	<b>0.4519</b>	<b>245</b>	<b>0.9975</b>	<b>0</b>	<b>0.0000</b>

Start here



**On-site baseline**

- A-1 On-site Area Habitat Baseline**
- B-1 On-site Hedge Baseline**
- C-1 On-site Watercourse Baseline**

**On-site post development**

- A-2 On-site Area Habitat Creation**
- A-3 On-site Area Habitat Enhancement**
- B-2 On-site Hedge Creation**
- B-3 On-site Hedge Enhancement**
- C-2 On-site Watercourse Creation**
- C-3 On-site Watercourse Enhancement**

**Off-site baseline**

- D-1 Off-site Area Habitat Baseline**
- E-1 Off-site Hedge Baseline**
- F-1 Off-site Watercourse Baseline**

**Off-site post development**

- D-2 Off-site Area Habitat Creation**
- D-3 Off-site Area Habitat Enhancement**
- E-2 Off-site Hedge Creation**
- E-3 Off-site Hedge Enhancement**
- F-2 Off-site Watercourse Creation**
- F-3 Off-site Watercourse Enhancement**

## The Biodiversity Metric 4.0 - Calculation Tool Results

[Return to start  
page](#)

[Headline results](#)

[Detailed results](#)

[Habitat trading  
summaries](#)

[Off-site  
summary](#)

Bulls Field
<b>Headline Results</b>
Scroll down for final results $\Delta$

Return to results menu

On-site baseline	Habitat units	150.93	
	Hedgerow units	8.35	
	Watercourse units	3.42	
On-site post-intervention <small>(Including habitat retention, creation &amp; enhancement)</small>	Habitat units	174.37	
	Hedgerow units	14.03	
	Watercourse units	3.50	
On-site net change <small>(units &amp; percentage)</small>	Habitat units	23.44	15.53%
	Hedgerow units	5.68	68.04%
	Watercourse units	0.08	2.48%

On-site net gain is less than target set  $\Delta$

Off-site baseline	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention <small>(Including habitat retention, creation &amp; enhancement)</small>	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change <small>(units &amp; percentage)</small>	Habitat units	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%

Combined net unit change <small>(Including all on-site &amp; off-site habitat retention, creation &amp; enhancement)</small>	Habitat units	23.44	
	Hedgerow units	5.68	
	Watercourse units	0.08	
Spatial risk multiplier (SRM) deductions	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	

**FINAL RESULTS**

Total net unit change <small>(Including all on-site &amp; off-site habitat retention, creation &amp; enhancement)</small>	Habitat units	23.44	
	Hedgerow units	5.68	
	Watercourse units	0.08	
	Habitat units	15.53%	

<b>Total net % change</b> (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Hedgerow units</i>	68.04%
	<i>Watercourse units</i>	2.48%

Total net gain achieved is less than target set  $\Delta$

<b>Trading rules satisfied?</b>	Yes $\checkmark$
---------------------------------	------------------

Unit Type	Target	Baseline Units	Units Required	Unit Deficit
<i>Habitat units</i>	10.00%	150.93	166.03	0.00
<i>Hedgerow units</i>	10.00%	8.35	9.19	0.00
<i>Watercourse units</i>	10.00%	3.42	3.76	0.26

Unit requirement met or surpassed  $\checkmark$   
 Unit requirement met or surpassed  $\checkmark$



Inch Field		Return to results	
Detailed Results			
<b>Summary Figures</b>			
Net project biodiversity units (including all on-site & off-site habitat creation / retention)		Wetland units	50.44
		Biodiversity units	0.00
Total project biodiversity % change (including all on-site & off-site habitat creation / retained habitats)		Wetland units	18.89%
		Biodiversity units	60.24%
<b>Combined habitat retention and enhancement</b>			
Total on-site and off-site baseline area (hectares)		1997	4.6
Total on-site and off-site baseline area (hectares)		1997	4.6
Total on-site and off-site baseline area (hectares)		1997	4.6
Area through proposed for enhancement		1997	4.6
Baseline area proposed for enhancement		1997	4.6
Total on-site and off-site baseline area - length lost		1997	4.6
Total on-site and off-site baseline area lost		1997	4.6

On-site changes by broad habitat type						
Habitat group	Baseline		Post-development on-site		On-site change	
	On-site existing (hectares)	On-site existing (value)	On-site proposed (hectares)	On-site proposed (value)	On-site length change (hectares)	On-site value change (value)
Grassland	1.00	1.00	1.00	1.00	0.00	0.00
Woodland	1.00	1.00	1.00	1.00	0.00	0.00
Watercourse	1.00	1.00	1.00	1.00	0.00	0.00
Other	1.00	1.00	1.00	1.00	0.00	0.00
<b>Total</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>0.00</b>	<b>0.00</b>

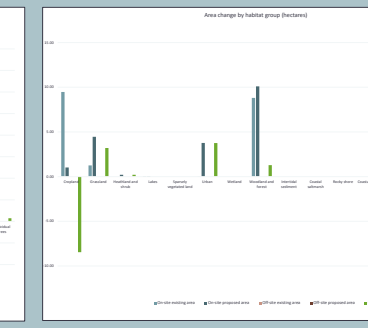
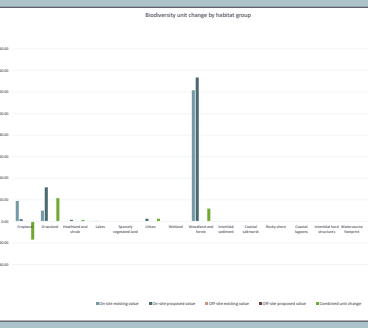
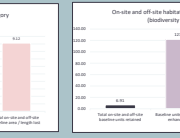
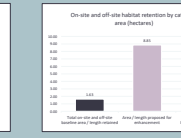
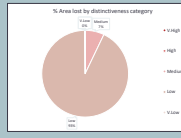
  

Off-site changes by broad habitat type						
Habitat group	Baseline		Post-development off-site		Off-site change	
	Off-site existing (hectares)	Off-site existing (value)	Off-site proposed (hectares)	Off-site proposed (value)	Off-site length change (hectares)	Off-site value change (value)
Grassland	1.00	1.00	1.00	1.00	0.00	0.00
Woodland	1.00	1.00	1.00	1.00	0.00	0.00
Watercourse	1.00	1.00	1.00	1.00	0.00	0.00
Other	1.00	1.00	1.00	1.00	0.00	0.00
<b>Total</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>0.00</b>	<b>0.00</b>

Combined on-site and off-site changes by broad habitat type						
Habitat group	Combined existing area		Combined proposed area		Combined change	
	Combined existing (hectares)	Combined existing (value)	Combined proposed (hectares)	Combined proposed (value)	Combined length change (hectares)	Combined value change (value)
Grassland	2.00	2.00	2.00	2.00	0.00	0.00
Woodland	2.00	2.00	2.00	2.00	0.00	0.00
Watercourse	2.00	2.00	2.00	2.00	0.00	0.00
Other	2.00	2.00	2.00	2.00	0.00	0.00
<b>Total</b>	<b>8.00</b>	<b>8.00</b>	<b>8.00</b>	<b>8.00</b>	<b>0.00</b>	<b>0.00</b>

Combined area lost by disturbance band		
Category	Area lost (hectares)	Area lost (€)
Very High	0.00	0.00
High	0.00	0.00
Medium	0.00	0.00
Low	0.00	0.00
Very Low	0.00	0.00



On-site changes by hedgerow type						
Hedgerow type	Baseline		Post-development on-site		On-site change	
	On-site existing (hectares)	On-site existing (value)	On-site proposed (hectares)	On-site proposed (value)	On-site length change (hectares)	On-site value change (value)
Grassland	1.00	1.00	1.00	1.00	0.00	0.00
Woodland	1.00	1.00	1.00	1.00	0.00	0.00
Watercourse	1.00	1.00	1.00	1.00	0.00	0.00
Other	1.00	1.00	1.00	1.00	0.00	0.00
<b>Total</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>0.00</b>	<b>0.00</b>

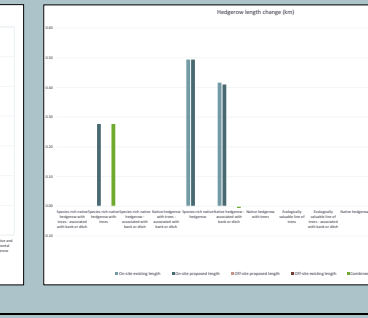
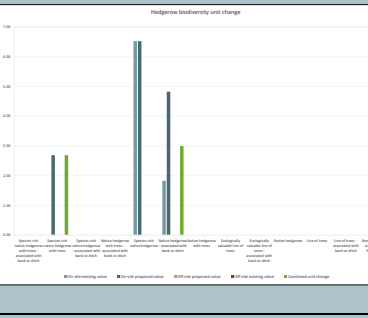
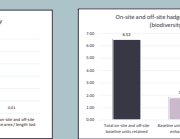
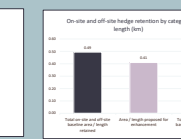
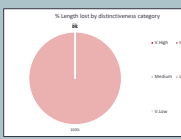
  

Off-site changes by hedgerow type						
Hedgerow type	Baseline		Post-development off-site		Off-site change	
	Off-site existing (hectares)	Off-site existing (value)	Off-site proposed (hectares)	Off-site proposed (value)	Off-site length change (hectares)	Off-site value change (value)
Grassland	1.00	1.00	1.00	1.00	0.00	0.00
Woodland	1.00	1.00	1.00	1.00	0.00	0.00
Watercourse	1.00	1.00	1.00	1.00	0.00	0.00
Other	1.00	1.00	1.00	1.00	0.00	0.00
<b>Total</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>0.00</b>	<b>0.00</b>

Combined on-site and off-site changes by hedgerow type						
Hedgerow type	Combined existing area		Combined proposed area		Combined change	
	Combined existing (hectares)	Combined existing (value)	Combined proposed (hectares)	Combined proposed (value)	Combined length change (hectares)	Combined value change (value)
Grassland	2.00	2.00	2.00	2.00	0.00	0.00
Woodland	2.00	2.00	2.00	2.00	0.00	0.00
Watercourse	2.00	2.00	2.00	2.00	0.00	0.00
Other	2.00	2.00	2.00	2.00	0.00	0.00
<b>Total</b>	<b>8.00</b>	<b>8.00</b>	<b>8.00</b>	<b>8.00</b>	<b>0.00</b>	<b>0.00</b>

Combined length lost by disturbance band		
Category	Length lost (hectares)	Length lost (€)
Very High	0.00	0.00
High	0.00	0.00
Medium	0.00	0.00
Low	0.00	0.00
Very Low	0.00	0.00



On-site changes by watercourse type						
Watercourse type	Baseline		Post-development on-site		On-site change	
	On-site existing (hectares)	On-site existing (value)	On-site proposed (hectares)	On-site proposed (value)	On-site length change (hectares)	On-site value change (value)
Grassland	1.00	1.00	1.00	1.00	0.00	0.00
Woodland	1.00	1.00	1.00	1.00	0.00	0.00
Watercourse	1.00	1.00	1.00	1.00	0.00	0.00
Other	1.00	1.00	1.00	1.00	0.00	0.00
<b>Total</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>0.00</b>	<b>0.00</b>

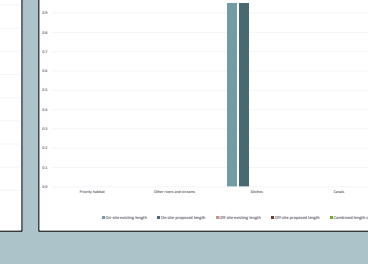
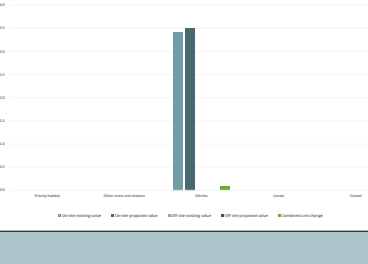
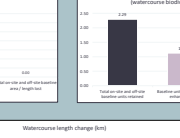
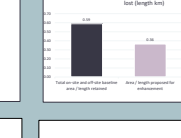
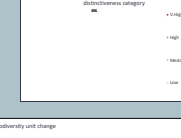
  

Off-site changes by watercourse type						
Watercourse type	Baseline		Post-development off-site		Off-site change	
	Off-site existing (hectares)	Off-site existing (value)	Off-site proposed (hectares)	Off-site proposed (value)	Off-site length change (hectares)	Off-site value change (value)
Grassland	1.00	1.00	1.00	1.00	0.00	0.00
Woodland	1.00	1.00	1.00	1.00	0.00	0.00
Watercourse	1.00	1.00	1.00	1.00	0.00	0.00
Other	1.00	1.00	1.00	1.00	0.00	0.00
<b>Total</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>4.00</b>	<b>0.00</b>	<b>0.00</b>

Combined on-site and off-site changes by watercourse type						
Watercourse type	Combined existing area		Combined proposed area		Combined change	
	Combined existing (hectares)	Combined existing (value)	Combined proposed (hectares)	Combined proposed (value)	Combined length change (hectares)	Combined value change (value)
Grassland	2.00	2.00	2.00	2.00	0.00	0.00
Woodland	2.00	2.00	2.00	2.00	0.00	0.00
Watercourse	2.00	2.00	2.00	2.00	0.00	0.00
Other	2.00	2.00	2.00	2.00	0.00	0.00
<b>Total</b>	<b>8.00</b>	<b>8.00</b>	<b>8.00</b>	<b>8.00</b>	<b>0.00</b>	<b>0.00</b>

Combined length lost by disturbance band		
Category	Length lost (hectares)	Length lost (€)
Very High	0.00	0.00
High	0.00	0.00
Medium	0.00	0.00
Low	0.00	0.00
Very Low	0.00	0.00





Healthland and Shrub - Other sea buckthorn scrub	Healthland and shrub	0.00	0.00	0.00
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-11.84

-11.84

Return to results menu

Trading summary Area Habitats

Trading summary Watercourses

### Trading Summary

Distinctiveness Group	Trading Rule	Trading Satisfied?
Very High	Some habitat required =	Yes ✓
High	Like for like or better	Yes ✓
Medium	Some distinctiveness or better habitat required	Yes ✓
Low/Very Low	Some distinctiveness or better habitat required	Yes ✓

#### Very High Distinctiveness

Habitat group	Co-site unit change	Off-site unit change	Project wide unit change
Species-rich native hedgerow with trees - associated with bank or ditch	0.00	0.00	0.00
	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

#### Very High Distinctiveness Summary

Very High Distinctiveness units available to offset lower distinctiveness deficit	0.00
Net Deficit: Like for like not available	0.00

#### High Distinctiveness

Habitat group	Co-site unit change	Off-site unit change	Project wide unit change
Species-rich native hedgerow with trees	3.69	0.00	3.69
Species-rich native hedgerow - associated with bank or ditch	0.00	0.00	0.00
Native hedgerow with trees - associated with bank or ditch	0.00	0.00	0.00
	<b>3.69</b>	<b>0.00</b>	<b>3.69</b>

#### High Distinctiveness Summary

High Distinctiveness units available to offset lower distinctiveness deficit	3.69
High Distinctiveness Deficit to be offset by trading in	0.00
Higher Distinctiveness surplus units exceed any high distinctiveness deficit	0.00

#### Medium Distinctiveness

Habitat group	Co-site unit change	Off-site unit change	Project wide unit change
Species-rich native hedgerow	0.00	0.00	0.00
Native hedgerow with trees - associated with bank or ditch	0.00	0.00	0.00
Ecologically valuable line of trees	0.00	0.00	0.00
Ecologically valuable line of trees - associated with bank or ditch	0.00	0.00	0.00
	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

#### Medium Distinctiveness Summary

Units available from higher distinctiveness habitats	3.69
Medium Distinctiveness net change in units	3.69
Cumulative availability of units	3.69

#### Low/Very Low Distinctiveness

Habitat group	Co-site unit change	Off-site unit change	Project wide unit change
Native hedgerow	0.00	0.00	0.00
Edge of trees	0.00	0.00	0.00
Line of trees - associated with bank or ditch	0.00	0.00	0.00
Non-native and ornamental hedgerow	0.00	0.00	0.00
	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

#### Low Distinctiveness Summary

Low Distinctiveness net change in units	0.00
Cumulative availability of units	3.69



Return to results menu

Trading summary Area Habitats

Trading summary hedgerows

### Trading Summary

Distinctiveness Group	Trading Rule	Trading Satisfied?
Vary High	Respects compensation likely to be required if	Yes ✓
High	Same habitat required =	Yes ✓
Medium	Same habitat required =	Yes ✓
Low	Better distinctiveness habitat required	Yes ✓

#### Very High Distinctiveness

Habitat group	On-site unit change	Off-site unit change	Project-wide unit change
Priority habitat	0.00	0.00	0.00
	0.00	0.00	0.00

#### Very High Distinctiveness Summary

Very High Distinctiveness Units available to offset lower distinctiveness deficit	0.00
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#### High Distinctiveness

Habitat group	On-site unit change	Off-site unit change	Project-wide unit change
Other rivers and streams	0.00	0.00	0.00
	0.00	0.00	0.00

#### High Distinctiveness Summary

High Distinctiveness Units available to offset lower distinctiveness deficit	0.00
Use Deficit: Like for like not satisfied	0.00

#### Medium Distinctiveness

Habitat group	On-site unit change	Off-site unit change	Project-wide unit change
Ditches	0.08	0.00	0.08
Canals	0.00	0.00	0.00
	0.08	0.00	0.08

#### Medium Distinctiveness Summary

Medium Distinctiveness Units available to offset lower distinctiveness deficit	0.08
Use Deficit: Like for like not satisfied	0.00

#### Low Distinctiveness

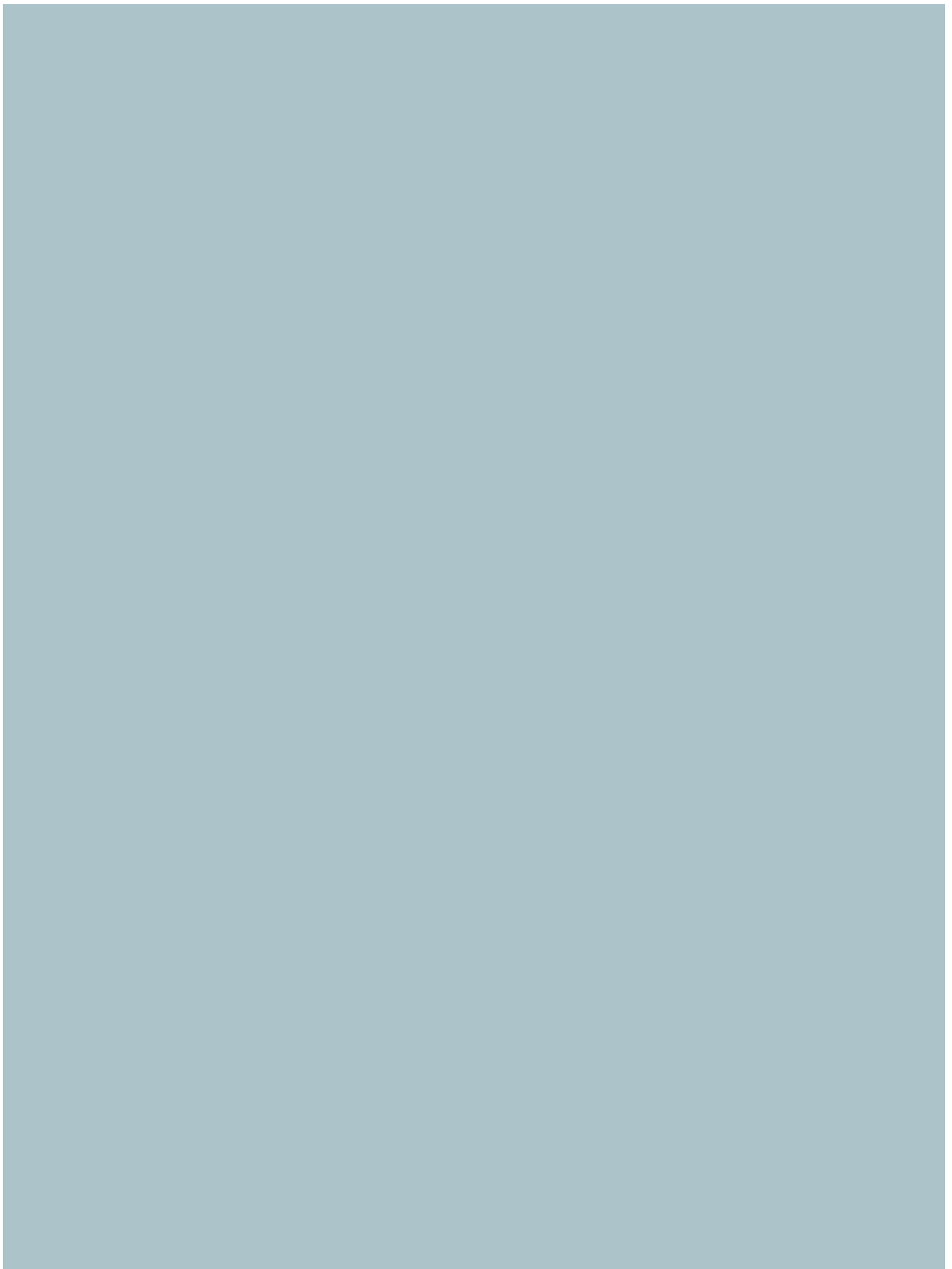
Habitat group	On-site unit change	Off-site unit change	Project-wide unit change
Clayvat	0.00	0.00	0.00
	0.00	0.00	0.00

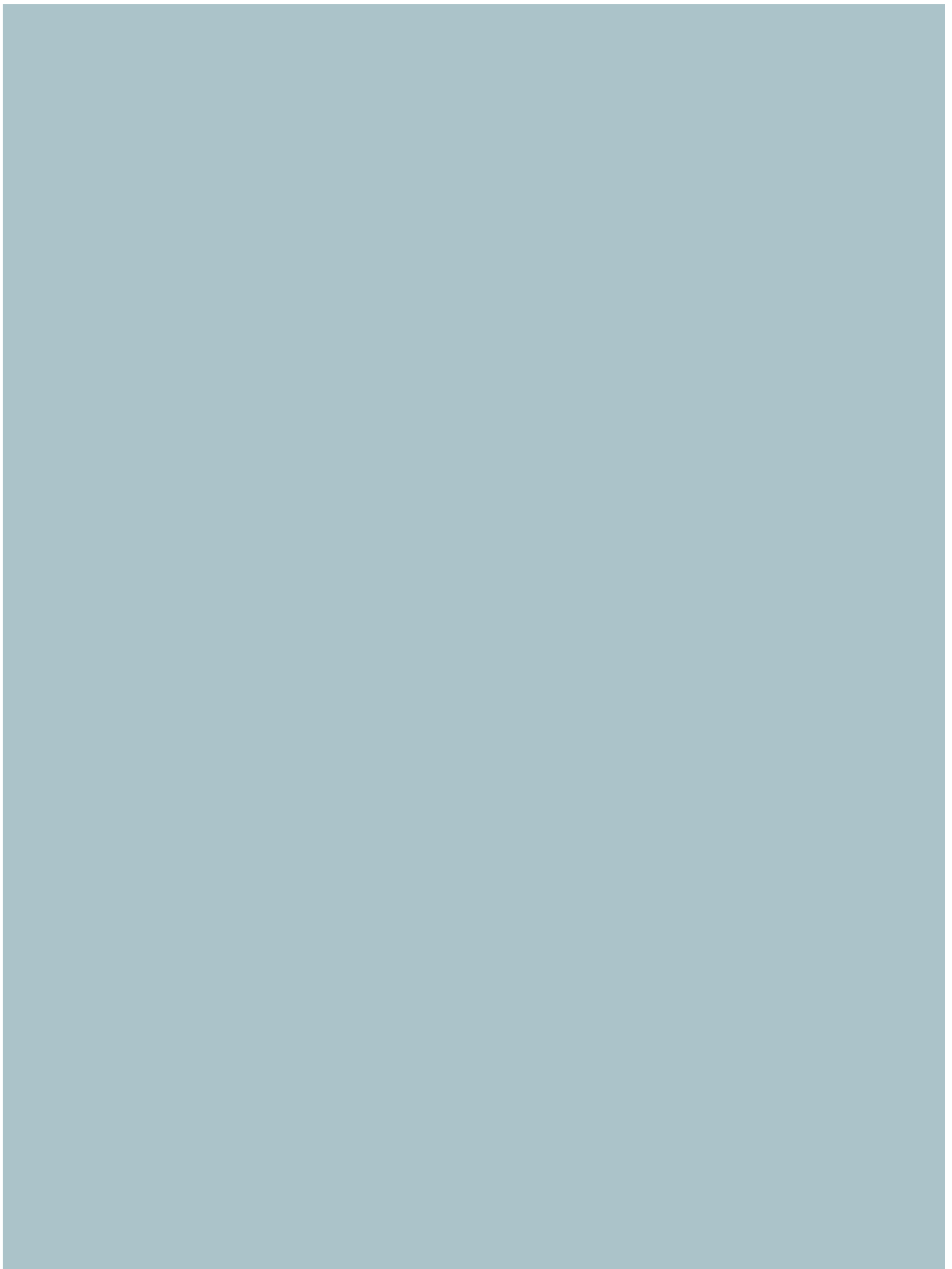
#### Low Distinctiveness Summary

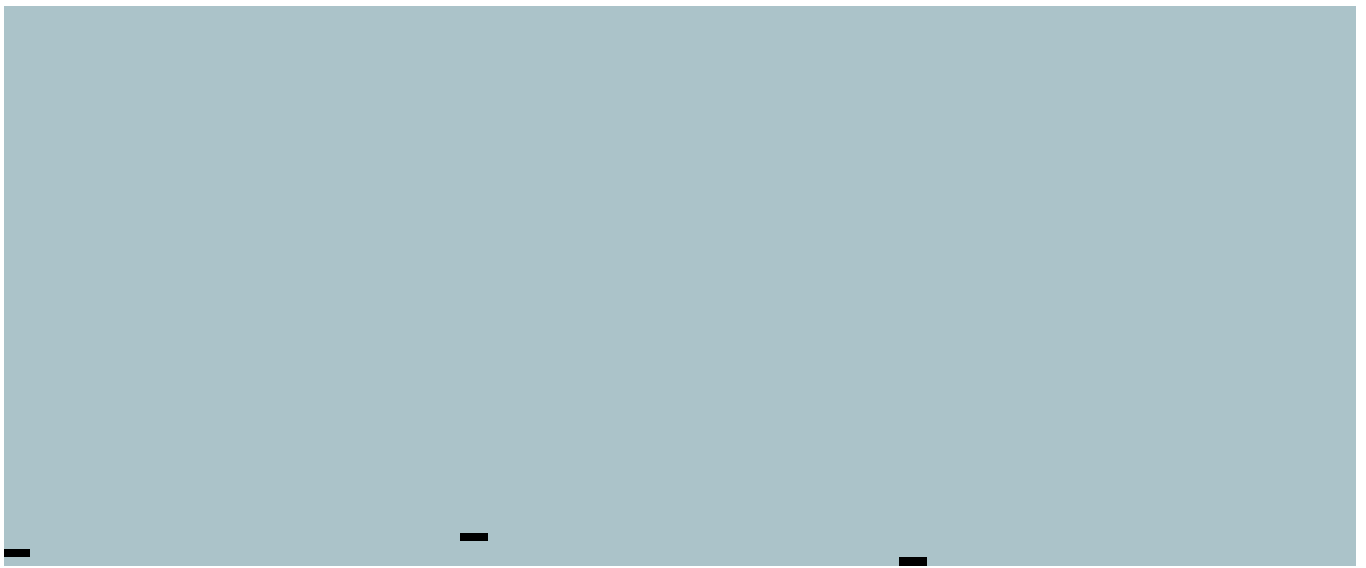
Low Distinctiveness net change in units	0.00
Disturbance availability of units	0.08





























Sheet No.	Proposed feature		Description		Condition		Design requirements			Impoundment				Efficiency			Waterway		Structure		Remarks		Other
	Structure type	Length (ft)	Diameter	Area	Condition	Area	Design algorithm	Design algorithm	Design algorithm	Check flow to target condition	Check flow to target condition	Check flow to target condition	Check flow to target condition	Check flow to target condition	Check flow to target condition	Check flow to target condition	Check flow to target condition	Check flow to target condition	Check flow to target condition	Check flow to target condition	Check flow to target condition	Check flow to target condition	
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Local Authority List	Application type	Habitat list
Adur and Worthing Borough Council	Householder planning consent	Cropland - Arable field margins cultivated annually
Adur District Council	Full planning consent;	Cropland - Arable field margins game bird mix
Allerdale Borough Council	Hybrid planning consent	Cropland - Arable field margins pollen and nectar
Amber Valley Borough Council	Outline planning consent	Cropland - Arable field margins tussocky
Arun District Council	Reserved Matters	Cropland - Cereal crops
Ashfield District Council	Listed building consent	Cropland - Winter stubble
Ashford Borough Council	Advertisement consent	Cropland - Horticulture
Aylesbury Vale District Council	Lawful Development Certificate (LDC)	Cropland - Intensive orchards
Babergh District Council	Prior notification	Cropland - Non-cereal crops
Barnsley Metropolitan Borough Council	Removal/variation of conditions	Cropland - Temporary grass and clover leys
Barrow-in-Furness Borough Council	Approval of conditions	Grassland - Traditional orchards
Basildon Borough Council	Consent under Tree Preservation Orders	Grassland - Bracken
Basingstoke and Deane Borough Council	Notification of proposed works to trees in conservation areas	Grassland - Floodplain wetland mosaic and CFGM
Bassetlaw District Council	Application for non-material amendments	Grassland - Lowland calcareous grassland
Bath and North East Somerset Council	Nationally Significant Infrastructure Habitats (NSIP'S)	Grassland - Lowland dry acid grassland
Bedford Borough Council		Grassland - Lowland meadows
Birmingham City Council		Grassland - Modified grassland
Blaby District Council		Grassland - Other lowland acid grassland
Blackburn with Darwen Borough Council		Grassland - Other neutral grassland
Blackpool Borough Council		Grassland - Tall herb communities (H6430)
Blaenau Gwent County Borough Council		Grassland - Upland acid grassland
Bolsover District Council		Grassland - Upland calcareous grassland
Bolton Metropolitan Borough Council		Grassland - Upland hay meadows
Borough of Broxbourne		Heathland and shrub - Blackthorn scrub
Borough of Poole		Heathland and shrub - Bramble scrub
Boston Borough Council		Heathland and shrub - Gorse scrub
Bournemouth Borough Council		Heathland and shrub - Hawthorn scrub
Bracknell Forest Council		Heathland and shrub - Hazel scrub
Bradford Metropolitan District Council		Heathland and shrub - Lowland heathland
Braintree District Council		Heathland and shrub - Mixed scrub
Breckland District Council		Heathland and shrub - Mountain heaths and willow scrub
Brentwood Borough Council		Heathland and shrub - Rhododendron scrub
Bridgend County Borough Council		Heathland and shrub - Dunes with sea buckthorn (H2160)
Brighton and Hove City Council		Heathland and shrub - Other sea buckthorn scrub
Bristol City Council		Heathland and shrub - Upland heathland
Broadland District Council		Lakes - Aquifer fed naturally fluctuating water bodies
Bromsgrove District Council		Lakes - High alkalinity lakes
Broxtowe Borough Council		Lakes - Low alkalinity lakes
Buckinghamshire County Council		Lakes - Marl lakes
Burnley Borough Council		Lakes - Moderate alkalinity lakes
Bury Metropolitan Borough Council		Lakes - Peat lakes
Caerphilly County Borough Council		Lakes - Ponds (priority habitat)
Calderdale Metropolitan Borough Council		Lakes - Ponds (non-priority habitat)
Cambridge City Council		Lakes - Reservoirs
Cambridgeshire County Council		Lakes - Temporary lakes ponds and pools (H3170)
Cannock Chase District Council		Sparsely vegetated land - Calaminarian grasslands
Canterbury City Council		Sparsely vegetated land - Coastal sand dunes
Cardiff Council		Sparsely vegetated land - Coastal vegetated shingle
Carlisle City Council		Sparsely vegetated land - Ruderal/Ephemeral
Carmarthenshire County Council		Sparsely vegetated land - Inland rock outcrop and scree habitats
Castle Point Borough Council		Sparsely vegetated land - Limestone pavement
Central Bedfordshire Council		Sparsely vegetated land - Maritime cliff and slopes
Ceredigion County Council		Sparsely vegetated land - Other inland rock and scree
Charnwood Borough Council		Urban - Allotments
Chelmsford City Council		Lakes - Ornamental lake or pond
Cheltenham Borough Council		Urban - Artificial unvegetated, unsealed surface
Cherwell District Council		Urban - Bioswale
Cheshire East Council (Unitary)		Urban - Intensive green roof
Cheshire West and Chester Council		Urban - Built linear features
Chesterfield Borough Council		Urban - Cemeteries and churchyards
Chichester District Council		Urban - Developed land; sealed surface
Chiltern District Council		Urban - Other green roof
Chorley Council		Urban - Facade-bound green wall
Christchurch Borough Council		Urban - Ground based green wall
City of Lincoln Council		Urban - Ground level planters
City of London		Urban - Biodiverse green roof
City of York Council		Urban - Introduced shrub
Colchester Borough Council		Urban - Open mosaic habitats on previously developed land
Conwy County Borough Council		Urban - Rain garden
Copeland Borough Council		Urban - Actively worked sand pit quarry or open cast mine
Corby Borough Council		Individual trees - Urban tree
Cornwall Council (Unitary)		Urban - Sustainable drainage system
Cotswold District Council		Urban - Unvegetated garden
Coventry City Council		Urban - Vacant or derelict land
Craven District Council		Urban - Vegetated garden
Crawley Borough Council		Wetland - Blanket bog
Cumbria County Council		Wetland - Depressions on peat substrates (H7150)
Dacorum Council		Wetland - Fens (upland and lowland)
Darlington Borough Council		Wetland - Lowland raised bog
Dartford Borough Council		Wetland - Oceanic valley mire[1] (D2.1)
Daventry District Council		Wetland - Purple moor grass and rush pastures
Denbighshire County Council		Wetland - Reedbeds
Derby City Council		Wetland - Transition mires and quaking bogs (H7140)

Derbyshire County Council	Woodland and forest - Felled
Derbyshire Dales District Council	Woodland and forest - Lowland beech and yew woodland
Devon County Council	Woodland and forest - Lowland mixed deciduous woodland
Doncaster Metropolitan Borough Council	Woodland and forest - Native pine woodlands
Dorset County Council	Woodland and forest - Other coniferous woodland
Dover District Council	Woodland and forest - Other Scot's pine woodland
Dudley Metropolitan Borough Council	Woodland and forest - Other woodland; broadleaved
Durham County Council	Woodland and forest - Other woodland; mixed
East Cambridgeshire District Council	Woodland and forest - Upland birchwoods
East Devon District Council	Woodland and forest - Upland mixed ashwoods
East Dorset District Council	Woodland and forest - Upland oakwood
East Hampshire District Council	Woodland and forest - Wet woodland
East Hertfordshire District Council	Woodland and forest - Wood-pasture and parkland
East Lindsey District Council	Coastal lagoons - Coastal lagoons
East Northamptonshire Council	Rocky shore - High energy littoral rock
East Riding of Yorkshire Council	Rocky shore - High energy littoral rock - on peat, clay or chalk
East Staffordshire Borough Council	Rocky shore - Moderate energy littoral rock
East Sussex County Council	Rocky shore - Moderate energy littoral rock - on peat, clay or chalk
Eastbourne Borough Council	Rocky shore - Low energy littoral rock
Eastleigh Borough Council	Rocky shore - Low energy littoral rock - on peat, clay or chalk
Eden District Council	Rocky shore - Features of littoral rock
Elmbridge Borough Council	Rocky shore - Features of littoral rock - on peat, clay or chalk
Epping Forest District Council	Intertidal sediment - Littoral coarse sediment
Epsom and Ewell Borough Council	Intertidal sediment - Littoral mud
Erewash Borough Council	Intertidal sediment - Littoral mixed sediments
Essex County Council	Coastal saltmarsh - Saltmarshes and saline reedbeds
Exeter City Council	Intertidal sediment - Littoral seagrass
Fareham Borough Council	Intertidal sediment - Littoral seagrass on peat, clay or chalk
Fenland District Council	Intertidal sediment - Littoral biogenic reefs - Sabellaria
Flintshire County Council	Intertidal sediment - Features of littoral sediment
Forest Heath District Council	Intertidal sediment - Artificial littoral coarse sediment
Forest of Dean District Council	Intertidal sediment - Artificial littoral muddy sand
Fylde Borough Council	Intertidal sediment - Artificial littoral mixed sediments
Gateshead Metropolitan Borough Council	Intertidal sediment - Artificial littoral seagrass
Gedling Borough Council	Intertidal sediment - Artificial littoral biogenic reefs
Gloucester City Council	Individual trees - Rural tree
Gloucestershire County Council	0
Gosport Borough Council	0
Gravesham Borough Council	0
Great Yarmouth Borough Council	0
Guildford Borough Council	0
Gwynedd County Council	0
Halton Borough Council	0
Hambleton District Council	0
Hampshire County Council	0
Harborough District Council	0
Harlow Council	0
Harrogate Borough Council	0
Hart District Council	0
Hartlepool Borough Council	0
Hastings Borough Council	0
Havant Borough Council	0
Herefordshire Council	0
Hertfordshire County Council	0
Hertsmere Borough Council	0
High Peak Borough Council	0
Hinckley and Bosworth Borough Council	0
Horsham District Council	0
Huntingdonshire District Council	0
Hyndburn Borough Council	0
Ipswich Borough Council	0
Isle of Anglesey County Council	0
Isle of Wight Council	0
Isles of Scilly	0
Kent County Council	0
Kettering Borough Council	0
King's Lynn and West Norfolk Borough Council	0
Kingston-upon-Hull City Council	0
Kirklees Council	0
Knowsley Metropolitan Borough Council	0
Lancashire County Council	0
Lancaster City Council	0
Leeds City Council	0
Leicester City Council	0
Leicestershire County Council	0
Lewes District Council	0
Lichfield District Council	0
Lincolnshire County Council	0
Liverpool City Council	0
London Borough of Barking and Dagenham	0
London Borough of Barnet	0
London Borough of Bexley	0
London Borough of Brent	0
London Borough of Bromley	0

London Borough of Camden
London Borough of Croydon
London Borough of Ealing
London Borough of Enfield
London Borough of Hackney
London Borough of Hammersmith & Fulham
London Borough of Haringey
London Borough of Harrow
London Borough of Havering
London Borough of Hillingdon
London Borough of Hounslow
London Borough of Islington
London Borough of Lambeth
London Borough of Lewisham
London Borough of Merton
London Borough of Newham
London Borough of Redbridge
London Borough of Richmond upon Thames
London Borough of Southwark
London Borough of Sutton
London Borough of Tower Hamlets
London Borough of Waltham Forest
London Borough of Wandsworth
Luton Borough Council
Maidstone Borough Council
Maldon District Council
Malvern Hills District Council
Manchester City Council
Mansfield District Council
Medway Council
Melton Borough Council
Mendip District Council
Merthyr Tydfil County Borough Council
Mid Devon District Council
Mid Suffolk District Council
Mid Sussex District Council
Middlesbrough Borough Council
Milton Keynes
Mole Valley District Council
Monmouthshire County Council
Neath Port Talbot County Borough Council
New Forest District Council
Newark and Sherwood District Council
Newcastle-Under-Lyme District Council
Newport City Council
Newcastle-upon-Tyne City Council
Norfolk County Council
North Devon Council
North Dorset District Council
North East Derbyshire District Council
North East Lincolnshire Council
North Hertfordshire District Council
North Kesteven District Council
North Lincolnshire Council
North Norfolk District Council
North Somerset Council
North Tyneside Metropolitan Borough Council
North Warwickshire Borough Council
North West Leicestershire District Council
North Yorkshire County Council
Northampton Borough Council
Northamptonshire County Council
Northumberland Council
Norwich City Council
Nottingham City Council
Nottinghamshire County Council
Nuneaton and Bedworth Borough Council
Oadby and Wigston District Council
Oldham Metropolitan Borough Council
Oxford City Council
Oxfordshire County Council
Pembrokeshire County Council
Pendle Borough Council
Perth and Kinross Council
Peterborough City Council
Plymouth City Council
Portsmouth City Council
Powys County Council
Preston City Council
Purbeck District Council
Reading Borough Council
Redcar and Cleveland Council
Redditch Borough Council
Reigate & Banstead Borough Council

Rhondda Cynon Taf County Borough Council
Ribble Valley Borough Council
Richmondshire District Council
Rochdale Metropolitan Borough Council
Rochford District Council
Rossendale Borough Council
Rother District Council
Rotherham Metropolitan Borough Council
Royal Borough of Greenwich
Royal Borough of Kensington and Chelsea
Royal Borough of Kingston upon Thames
Royal Borough of Windsor and Maidenhead
Rugby Borough Council
Runnymede Borough Council
Rushcliffe Borough Council
Rushmoor Borough Council
Rutland County Council
Ryedale District Council
Salford City Council
Sandwell Metropolitan Borough Council
Scarborough Borough Council
Sedgemoor District Council
Sefton Metropolitan Borough Council
Selby District Council
Sevenoaks District Council
Sheffield City Council
Shepway District Council
Shropshire Council - Unitary
Slough Borough Council
Solihull Metropolitan Borough Council
Somerset County Council
South Buckinghamshire District Council
South Cambridgeshire District Council
South Derbyshire District Council
South Gloucestershire Council
South Hams District Council
South Holland District Council
South Kesteven District Council
South Lakeland District Council
South Norfolk District Council
South Northamptonshire Council
South Oxfordshire District Council
South Ribble Borough Council
South Somerset District Council
South Staffordshire Council
South Tyneside Council
Southampton City Council
Southend-on-Sea Borough Council
Spelthorne Borough Council
St Albans City and District Council
St Edmundsbury Borough Council
St Helens Metropolitan Borough Council
Stafford Borough Council
Staffordshire County Council
Staffordshire Moorlands District Council
Stevenage Borough Council
Stockport Metropolitan Borough Council
Stockton-on-Tees Borough Council
Stoke-on-Trent City Council
Strabane District Council
Stratford-on-Avon District Council
Stroud District Council
Suffolk Coastal District Council
Suffolk County Council
Sunderland City Council
Surrey County Council
Surrey Heath Borough Council
Swale Borough Council
Swansea City and Borough Council
Swindon Borough Council
Tameside Metropolitan Borough Council
Tamworth Borough Council
Tandridge District Council
Taunton Deane Borough Council
Teignbridge District Council
Telford & Wrekin Council
Tendring District Council
Test Valley Borough Council
Tewkesbury Borough Council
Thanet District Council
Three Rivers District Council
Thurrock Council
Tonbridge and Malling Borough Council
Torbay Council