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## Ecological Impact Assessment

### Site Name

Land West of Herne Bay Road, Sturry

### Client

Fairfax Land Ventures  
Ltd.

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### Author

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## About the Author

This report has been prepared by Nik Neale, an Assistant Ecologist at The Ecology Co-op. He has been involved with, and managed various bat emergence and activity surveys, reptile surveys, dormouse surveys, great crested newt eDNA surveys, bat scoping surveys, bat scoping reports and Preliminary Ecological Appraisals. As a Qualifying member of the Chartered Institute for Ecology and Environmental Management (CIEEM) he is bound by their code of professional conduct.

## About the Reviewer

This report has been reviewed by Dan Bennett, a Principal Ecologist with over 25 years' experience as a professional ecologist. Dan holds survey licences for bats, dormice, great crested newts and white-clawed crayfish. He has prepared multiple impact assessments, designed mitigation strategies and successfully applied for European Protected Species Licences on these species for numerous projects. As a Full member of the Chartered Institute for Ecology and Environmental Management (CIEEM), he is bound by their code of professional conduct.



## Report Summary

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purpose</b>                     | The Ecology Co-op has been commissioned by Fairfax Land Ventures Ltd. to undertake an Ecological Impact Assessment of a proposed residential development on land to the north of Land West of Herne Bay Road, Sturry. Following a Preliminary Ecological Appraisal by The Ecology Co-op on 28 <sup>th</sup> November 2022, further ecological surveys were undertaken including protected species surveys and desk-top studies between March 2024 and October 2024 to provide sufficient baseline information for this assessment. This document presents the findings of these surveys, and a full Ecological Impact Assessment in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Context</b>                     | The Site comprises a collection of grassland fields harvested for hay and silage production, measuring approximately 9.3 ha, on the northern side of Broad Oak, Canterbury with associated field boundaries of hedgerows, scrub, tree lines and tree belts. The site is situated in a rural area, with mixed arable and horse pasture to the north, east and west, and extensive broadleaved woodland further north forming the Blean Woods complex. The south side of the site is bordered by a ribbon of residential properties along Sweechgate Lane as part of the small settlement at Broad Oak.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Impact on Habitats</b>          | <p>The existing site comprises common and widespread habitats of relatively low biodiversity value including 'other neutral grassland (g3), native hedgerow (h2a), line of trees (w22), dense scrub (h3) and bramble thicket (h3d). The proposal will result in the direct loss of a large proportion of the grassland habitat, but the field boundaries comprising native hedgerow, scrub and tree belts are largely retained apart from four short sections where hedgerows are cut through to make way for access roads onto the site and between field parcels.</p> <p>The proposed development layout includes a generous buffer zone of greenspace around the development parcels, providing an opportunity for biodiversity enhancements and protecting the retained field boundary habitats.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Impact on Protected Species</b> | <p>Baseline surveys revealed that the site supports:</p> <ol style="list-style-type: none"> <li>1. An assemblage of common breeding birds. It does not support ground-nesting farmland species or other species of high conservation concern.</li> <li>2. A small assemblage of foraging and commuting bats comprising common and widespread species that use the site as part of a wider foraging resource.</li> <li>3. A population of common dormouse in the bordering tree belt, scrub and hedgerows.</li> <li>4. Potentially suitable foraging habitat for great crested newts within their home range, centred on ponds to the south of Sweechgate Lane.</li> <li>5. All three common reptile species (grass snake, slow worm and viviparous lizard) are present in the field edges.</li> <li>6. The site contains habitat suitable for hedgehogs, harvest mouse, and brown hare. A hedgehog road casualty record nearby indicates likely presence locally but no evidence of these species on site was recorded.</li> <li>7. The small heath butterfly, a priority species (S41) was recorded incidentally during surveys along with some other common and widespread butterflies. The site habitats are likely to support an assemblage of common invertebrates only.</li> </ol> <p>While the proposed development will result in loss of most of the open grassland, much of the existing hedgerows, scrub and tree belts that are important to these species will be retained. The development will, in the absence of mitigation, result in indirect impacts through risk of killing and injuring protected species during construction, and disturbance and degradation of their retained boundary habitats once occupied. These impacts will be</p> |



|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              | mitigated by timing works to avoid the bird nesting season and winter hibernation season, careful habitat manipulation and capture/translocation of animals (common dormice, reptiles, and hedgehogs) where appropriate to minimise risk of direct harm and implementing an ecologically sensitive lighting scheme to minimise impacts on bats and other nocturnal wildlife. The development layout has been designed to minimise biodiversity loss. Incorporating habitat enhancement and creation into the soft landscaping to complement and protect retained habitats, together with a strategy for post-development habitat management will compensate for unavoidable loss of protected species habitat and maximise biodiversity value at the final developed site. |
| <b>Biodiversity Net Gain</b> | In line with the National Planning Policy Framework, and new legislation under the Environment Act concerning 'biodiversity net gain' that came into force in February 2024, the development will need to demonstrate that it can achieve a 10% net gain in biodiversity value. This will be demonstrated through a separate Biodiversity Impact Calculation and accompanying report to be read in conjunction with this EclA.                                                                                                                                                                                                                                                                                                                                             |



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# 1 INTRODUCTION

## 1.1 Background

The Ecology Co-op was commissioned by Fairfax Land Ventures Ltd. to undertake an Ecological Impact Assessment (EclA) of a proposed residential development of Land West of Herne Bay Road, Sturry Kent. This report presents the findings of baseline ecological surveys and desk-study research and assesses the likely impacts and significance of effects of the proposed works in relation to protected/notable species, habitats and designated sites.

The proposed development site currently comprises a collection of grassland fields harvested for hay and silage production, collectively measuring approximately 9.3 ha, located on the northern side of the village of Broad Oak, north-east of Canterbury. The fields are separated by hedgerows, dense scrub and tree belts. The site is situated in a rural area, with mixed arable and horse pasture to the north, east and west, and further afield there is extensive broadleaved woodland towards the north forming part of the Blean Woods complex. The south side of the site is bordered by a ribbon of well-established residential properties along Sweechgate Lane forming the northern perimeter of Broad Oak village, and there is a newly constructed housing estate nearby to the south. To the east, the site is bordered by the main road between Canterbury and Herne Bay. Figure 1 shows the boundary of the site and local context.

The Ecology Co-op undertook a Preliminary Ecological Appraisal (PEA)<sup>1</sup> on the Land West of Herne Bay Road, Sturry in 2022.

## 1.2 Purpose of this Report

Following the recommendations of the PEA, The Ecology Co-op undertook a suite of further including botanical survey and habitat mapping, breeding bird surveys, bat activity surveys and presence absence surveys for common dormice *Muscardinus avellanarius*, great crested newts *Triturus cristatus*, and common reptiles, grass snake *Natrix helvetica*, slow worms *Anguis fragilis* and common lizard *Zootaca vivipara*.

The purpose of this report is to:

- present the findings of surveys and desk-study research (baseline ecological information);
- identify and evaluate ecologically important features present on the site and within the zone of influence of the proposed development.
- describe the potential impacts of the proposed development and determine the significance of effects on these ecologically important features.
- set out the proposed impact avoidance, mitigation, compensation measures that will be undertaken to reduce significant adverse effects to an acceptable level.
- outline the habitat creation and enhancement measures that will be put into place as part of the

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<sup>1</sup> The Ecology Co-op (2022) *Preliminary Ecological Appraisal, Land at Broad Oak, Canterbury*.



proposed development. These are designed to ensure that the proposals contribute to both local and national biodiversity objectives.

This report is intended for submission as part of the planning application for the proposed development.

The surveys and report were carried out and produced at the request of Fairfax Land Ventures Ltd. and supervised by Dan Bennett, a Full member of the Chartered Institute for Ecology and Environmental Management (CIEEM) and licenced ecologist for bats, dormice, white-clawed crayfish and great crested newts.

### *1.3 Policy and Legislation*

Legal protection applying to relevant bird, mammal, herpetofauna and invertebrate species and current nature conservation planning policy is outlined in Appendix 1 of this report.

Where possible, this report provides information on how the development proposal will be designed to meet the requirements of both the National Planning Policy Framework (NPPF) and local planning policy. Details of the NPPF is provided in Appendix 1 and relevant local planning policy by Canterbury City Council is provided in Appendix 2.



**Figure 1.** An aerial image showing the location of the site. The approximate site boundary is outlined in red. Images produced courtesy of Google maps (map data ©2024 Google).



## 2 SURVEY METHODOLOGY

The following sections describe the methods used in the desk study and protected species/habitat survey(s). All survey methods are in accordance with current best practice guidance for the respective species/taxonomic group and any limitations encountered during the survey are explained in section 3.

This document is written in accordance with the CIEEM Guidelines for Ecological Impact Assessment<sup>2</sup> and CIEEM Guidelines for Ecological Report Writing<sup>3</sup> Details of the ecological assessment methods are provided within section 2.12 below.

### 2.1 Desk Studies

A search for pre-existing records of protected species, priority species for conservation and invasive non-native species was requested from the Kent and Medway Biological Records Centre (KMBRC) within a radius of 2 km of the site boundaries.

A search of on-line mapping resources was undertaken to identify the location of any features of potential ecological interest including ponds within 500m (relevant to great crested newts *Triturus cristatus*), watercourses (relevant to riparian mammals and crayfish for example) and connectivity to woodland, scrub, and hedgerow networks (relevant to bats and dormice *Muscardinus avellanarius* for example) in the wider landscape around the site. The connectivity of the site to these features, buildings and other semi-natural habitats are also relevant to species such as bats, great crested newts and reptiles.

The MAGIC website resource ([www.magic.gov.uk](http://www.magic.gov.uk)) was used to identify the location of designated sites for nature conservation and European Protected Species (EPS) licences granted in relation to the survey site.

### 2.2 Habitat Survey

A site walkover survey was undertaken on 17<sup>th</sup> May 2024, during which the habitats contained within the site were described and evaluated in accordance with standard UK Habitat Classification (UKHab)<sup>4</sup>. The dominant species and indicators of important habitat types such as ancient woodland or unimproved grassland, were recorded.

UKHab survey presents a standardised system for classifying and mapping wildlife habitats in all parts of Great Britain, including urban areas. The aim of the survey is to provide, relatively rapidly, a record of the vegetation and wildlife habitats present. The habitat classification is based principally on vegetation, augmented by reference to topographic and substrate features, particularly where vegetation is not the dominant component

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<sup>2</sup> CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester.

<sup>3</sup> CIEEM (2017) *Guidelines for Ecological Report Writing, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

<sup>4</sup> The UK Habitat Classification Working Group (2018) *The UK Habitat Classification User Manual* at <http://ecountability.co.uk/ukhabworkinggroup-ukhab>



of the habitat.

Data was gathered through a site walkover survey and use of on-line aerial photography to broadly categorise the habitats present using the UKHab classifications<sup>5</sup>. The results are presented as a map showing the distribution of habitat categories across the site. Target notes are used to describe specific features of biodiversity interest and record indicator species where appropriate. In addition to this, notable habitats, such as habitats listed under the NERC Act, 2006, are highlighted. The UKHab methodology is a recognised tool for initial scoping of potential ecological constraints and opportunities, and for identifying potential effects of the proposed development as part of the planning application process.

## 2.3 Detailed Botanical Assessment

As an extension to the UKHab survey, a botanical survey was undertaken on 17<sup>th</sup> May 2024 to assess the grassland habitat. This is the optimum time of year for botanical surveys when most flora is actively growing. Each field was assessed for their botanical composition using a series of 1mx1m quadrats placed randomly across the middle of each field. The species present in each quadrat was then recorded together with their relative abundance on the DAFOR scale. The aim of the survey was to list the dominant species composition. The walkover surveys were undertaken by Dan Bennett, MCIEEM, FISC Level 4.

## 2.4 Badgers

Badgers *Meles meles* tend to live in family groups with clearly defined territories with the main sett, used throughout the year, as a focal point. The territory often also contains a few 'annex', 'subsidiary' and outlier setts that are used intermittently. Badgers can exist in a variety of habitats, but a mixed farmland landscape containing pasture and arable land, studded with woodland, scrub and hedgerows support the highest population density.

A comprehensive walkover survey of the site was undertaken on 28<sup>th</sup> November 2022, during the PEA, and again in 2024, covering all field parcels. Special attention was paid to boundary features such as hedgerows, woodland edge, and fence-lines, where signs of badger activity are often concentrated. Surveyors searched for badger setts, latrines, foraging marks, footprints and worn pathways, and trapped hairs on fences and any other evidence of badger activity.

## 2.5 Bats

There are 18 species of bat resident in the UK, each with their own specific habitat requirements. Bats can use a wide range of features for roosting purposes including loft spaces, cavity walls, loose tiles, mortice joints and cracks/gaps in a variety of built structures. They can also be found in trees with holes, splits, cracks, cavities, ivy and loose bark. Bats are generally active at night and utilise a wide range of habitats for foraging and commuting between roost sites, hibernation sites and foraging habitats. Linear features such as hedgerows, woodland edges, even fences can be important for navigation between roosting and foraging habitats.

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<sup>5</sup> UK Habitat Classification Working Group (2018). *UK Habitat Classification – Habitat Definitions V1.0* at <http://ecountability.co.uk/ukhabworkinggroup-ukhab>



### 2.5.1 Bat Activity Surveys – Walked Transects

Bat activity surveys followed best practice guidelines<sup>6</sup>. Pre-determined walked transect routes were followed by surveyors (Figure 2), focussing on all linear features within the site boundary (tree-lines, woodland edge and hedgerows). The transect routes were walked at a slow pace during the period from sunset to two hours after sunset by the surveyors, such that each part of the route was passed approximately every twenty minutes. All surveys were undertaken during weather conditions suitable for bat activity and at ambient temperatures above 10°C. The surveyors manually recorded bat activity using 'Echo Meter Touch' bat detectors featuring auto-identification of bat species and automatically triggered recording for later review. The locations of all bat 'registrations' was recorded onto a field map during the survey.

### 2.5.2 Bat Activity Surveys – Automated Static Bat Detecting

Two Song Meter Mini static bat loggers were deployed across the site (Figure 2) on seven separate occasions, from April to October 2024, and left in the field for a minimum of five days – the expected maximum lifetime of the battery. Static bat detectors comprise a passive recording device with real-time full spectrum calls that can be viewed in detail once downloaded on analysis software, allowing accurate identification of most bat calls to species level (or genus level in the case of *Myotis* and *Plecotus* spp.).



**Figure 2.** The transect routes of surveyors with stops (green dots and black numbers) and the position of the two of static bat detectors deployed on the site between April and October 2024 (April = turquoise, May = orange, June = blue, July = red, August = yellow, September = purple and October = grey). Image produced using QGIS Prizren 3.34.



The data was processed using the British Trust for Ornithology's (BTO) Acoustic Pipeline v5.502<sup>8</sup>, an auto-identification system. The Acoustic Pipeline uses classifiers to detect and identify bat calls within files and assign them a probability or confidence percentage of the call belonging to a particular species. The data output from the pipeline was then processed differently depending on the species identified, but groups of species' calls underwent some degree of post-classification manual analysis by a suitably experienced bat acoustic analyst using Kaleidoscope Lite software v5.6.3<sup>9</sup>. Data management was facilitated using the R Shiny App through R Studio v2023.09.1+494<sup>10</sup>, which assisted with creating random samples of some datasets to establish error rates.

#### Common and Soprano Pipistrelles

All calls with a confidence score of below 50% were discarded from the dataset. 10% of remaining calls from each detector then underwent post-classification validation through manual analysis to establish false positive error rates within the dataset. Each static detector was validated as bat calls can vary between habitats, meaning that the location in which the bat static detector is placed can influence the effectiveness of species detection. For the purpose of reporting, some results were adjusted in light of the error rate found to create a more representative number of calls, accounting for positive error rates. The data that has undergone this modification are clearly labelled as such.

#### Barbastelle and Serotine

All 'low confidence' calls (i.e. calls with a confidence score of below 50%) were discarded from the dataset. All remaining calls were manually analysed due to the small call sample size for this species. All calls found to be incorrectly identified as barbastelle during verification were then also discarded from the dataset. The false positive error rate for this species was 1% for the central hedgerow static detector and 0% for the northern hedgerow static detector.

#### *Myotis*, *Plecotus* and *Nyctalus* species

All calls from *Myotis*, *Plecotus* and *Nyctalus* species were analysed, regardless of their confidence score. This is because calls from these genera overlap and are often very difficult to distinguish. Therefore, it is likely that the Acoustic Pipeline may otherwise underestimate the numbers of calls from these genera as it assigns them a lower confidence score, whilst the confidence in correctly analysing the genera the call belongs to is still high.

#### Noise Files

10% of all noise files identified by BTO Acoustic Pipeline were manually analysed to establish a false negative error rate. Individual error rates were established for each static detector deployment location (over the three seasonal deployments) due to possible variation in noise production from static detector placement.

The walked transect and static bat detector survey methods complement each other with the transect surveys providing information on foraging and commuting patterns, and distribution across the site; and automated static detector surveys giving more prolonged coverage through consecutive nights, thus increasing the likelihood of detecting scarce species.

## **2.6 Breeding Birds**

The methods used for the breeding bird survey was adapted from a methodology developed by the Bird Survey



and Assessment Steering Group (RSK Biocensus)<sup>6</sup>. This methodology requires six visits spread evenly between late-March and early-July. Any deviation from this number should be justified. These should be carried out approximately thirty minutes before sunrise through to mid-morning (10am to 11am). At least one of these visits should be in the evening, extending past sunset. All bird surveys were only undertaken during favourable weather conditions for bird activity, with periods of persistent or heavy rain, high winds or fog avoided.

A pre-determined transect (Figure 3) was walked on each visit, during which the observer recorded all birds encountered. As recommended in the guidelines, the transect route was walked at a constant slow pace by a competent bird surveyor, stopping to check any priority habitat/features and causing minimum disturbance, recording all birds detected either by sight or calls/song. Notes regarding the behaviour of birds identified were made to determine their breeding status. Birds were said to be 'confirmed as breeding' if they were observed carrying nesting material, food or faecal pellets; or nests, eggs, or recently fledged young were discovered. Birds were recorded as 'likely breeding' if observed singing or displaying, repeatedly visiting the same locations, and showing agitated or distraction behaviour. Each bird 'registration' was recorded on a field map of the survey site using standard BTO Common Birds Census (CBC) notation<sup>7</sup>, which includes behaviours and flight movements – new standards. A note was also made of the start and end time, sunrise/sunset time, temperature, wind (Beaufort scale) and precipitation levels.

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<sup>6</sup> <https://birdsurveyguidelines.org/methods/survey-method/>

<sup>7</sup> [https://www.bto.org/sites/default/files/u16/downloads/forms\\_instructions/bto\\_bird\\_species\\_codes.pdf](https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf)



**Figure 3.** Breeding bird survey transect routes for the six surveys. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

## 2.7 Common Dormouse

Common dormice are typically associated with broadleaved woodland habitat, hedgerows and scrub. They tend to occur at low density and good habitat connectivity is important. Common dormice need a constant supply of food throughout the active season over a large home range. A diversity of tree and shrub species will provide a range of fruit, nuts and insects. They hibernate during the winter – typically at ground level amongst leaf litter and mosses protected by coppice stools, tree stumps or piles of brash wood.

### 2.7.1 Nest Tube/Box Survey

Dormouse surveys are undertaken by attaching purpose built ‘nest tubes’ on trees and shrubs in suitable habitat such as woodland, scrub and hedgerows. Nest tubes are used by dormice as places of shelter and they will often construct their nests within them during their periods of activity (typically between April and November). In accordance with current best practice guidelines<sup>8</sup>, 76 nest tubes were deployed approximately 20m apart in hedgerows and treelines around the site on 28<sup>th</sup> March 2024 and left *in situ* for the survey

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<sup>8</sup> Bright, B., Morris, P., Mitchell-Jones, A.J. and Mitchell-Jones, T (1997) *The Dormouse Conservation Handbook*. English Nature.



season (see Figure 4). These were checked on a monthly basis for presence of animals and evidence of dormouse presence (distinctively woven nests) from 17<sup>th</sup> May to 21<sup>st</sup> October 2024. Since the likelihood of use by dormice varies through the year, an index of probability score is used to determine confidence in a particular survey (see Table 2 below) comprising checks over several months. A minimum score of 20 is normally accepted to establish 'likely absence' in the event that no signs of dormice are found during the survey.

**Table 2.** Search effort score for each month that dormouse tubes are out on the site and subject to checks for occupation.

| Month of check | Index of probability |
|----------------|----------------------|
| April          | 1                    |
| May            | 4                    |
| June           | 2                    |
| July           | 2                    |
| August         | 5                    |
| September      | 7                    |
| October        | 2                    |
| November       | 2                    |

Dormice checks were undertaken in the mornings and commenced one month after the nest-tubes were positioned. Surveys were undertaken under the supervision of licensed surveyor Dan Bennett.



**Figure 4.** Dormouse nest tube locations (identified as orange dots) across all suitable habitat. Image produced using QGIS Prizren 3.34.



## 2.8 Great Crested Newts and Other Amphibians

Great crested newts require ponds for breeding that meet a series of habitat criteria including good quality water, aquatic plants and an absence of predatory fish. The ponds must have good connectivity to semi-natural terrestrial habitats that provide their invertebrate food sources and suitable safe places to rest and hibernate outside the breeding season. Great crested newts tend to occur more frequently in areas of high pond density across the landscape in ‘metapopulations’ where habitat occupancy ebbs and flows according to changes in conditions.

The common toad *Bufo bufo* is a priority species in England under Biodiversity 2020: A strategy for England’s wildlife and ecosystem services and under section 41 of The Natural Environment and Rural Communities (NERC) Act 2006, where UKBAP species were recognised as of principal importance for the conservation of biodiversity. This species should therefore be considered during planning and development. No surveys have been undertaken at the site that specifically target common toad, but a record has been made if they are found during any other site visit/survey.

### 2.8.1 Environmental DNA Sampling and Analysis

This relatively new technique allows a quick and reliable qualitative measure of the presence/likely absence of great crested newts. It involves collection of water samples from a pond, using a standard protocol set out by Natural England<sup>9</sup>. The samples are sent to an approved laboratory to isolate and determine presence of eDNA shed into the water by amphibians during the breeding season. The eDNA samples were taken on 10<sup>th</sup> May 2024.

## 2.9 Reptiles

The common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, grass snake *Natrix natrix* and to a lesser extent, adder *Vipera berus*, are widespread species that can be found in many semi-natural habitats, such as rough grassland, scrub, heathland and open woodland where there is good vegetation cover, an abundance of invertebrate, amphibian or small mammal prey and areas of open ground for basking.

Standard reptile presence/likely absence surveys involve setting out artificial refugia (reptile ‘mats’ or ‘tins’) in potentially suitable habitat. Reptile mats are pieces of bitumen roofing felt, and reptile tins are pieces of corrugated metal sheet approximately 1m x 0.5m in size, which absorbs heat from the sun more rapidly than the surrounding vegetation and provide cover and basking places attractive to reptiles. These are then checked for the presence of animals under suitable weather conditions. They are placed in areas of potentially suitable habitat at an approximate density of 20 per ha, or 20m apart along linear features. There are no up-to-date best practice guidelines for reptile surveys, but a minimum of seven survey visits under suitable weather conditions is generally considered to be adequate when determining their presence/likely absence, and 15–20 visits are used to calculate a ‘peak count’ for population size class assessment.

A total of 95 roofing felt mats were used in this survey (see Figure 5). The mats were left *in situ* for a minimum

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<sup>9</sup> Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. *Analytical and methodological development for improved surveillance of the Great Crested Newt*. Defra Project WC1067. Freshwater Habitats Trust: Oxford.



of one week to 'bed in' and allow reptiles to locate them before the first check. The mats were checked at least seven times over the period 8<sup>th</sup> April to 24<sup>th</sup> September 2024 and all observations of reptiles were recorded, together with the weather conditions, temperature and time of day.



**Figure 5.** Location of reptile refuges (identified as orange dots) across all suitable habitat. Image produced using QGIS Prizren 3.34.

## 2.10 Other Notable Species

The site's habitats were broadly assessed for their potential to support species of principal importance for nature conservation (Section 41 NERC Act 2006) and other notable species. This includes mammals such as harvest mouse *Micromys minutus*, hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus*, and many bird species. The site was broadly assessed for its potential to support important invertebrate assemblages with specific attention paid to features such as standing deadwood, wet flushes, bare earth banks and botanically rich areas.

## 2.11 Invasive Non-native Species

No specific surveys for invasive non-native species (INNS) were undertaken. However, the presence of any invasive non-native species encountered during other fieldwork, was recorded.



## 2.12 Impact Assessment Methodology and Mitigation

The assessment of ecological impacts and mitigation recommendations in this report follow CIEEM Guidelines for Ecological Impact Assessment (EclA)<sup>2</sup>. This involves evaluating the importance of an ‘ecological feature’ (habitat, vegetation community, population of a single species or assemblages of species) in terms of nature conservation priority, followed by the application of the ‘mitigation hierarchy’.

### 2.12.1 Importance of Ecological Features

A level of importance was assigned to all existing ecological features through consideration of the rarity and distribution of a habitat or species, the population size, ecological function, and trends (declining/expanding), together with any designations, legal status, or conservation policies. CIEEM recommend that the importance of an ecological feature, in terms of nature conservation priority, should be considered within a defined geographical context (for definitions used by The Ecology Co-op, see Appendix 3):

- international and European
- national
- regional
- county
- local or parish
- site/negligible.

Where protected species are present and there is the potential for a breach of the legislation as a result of the development proposals, those species are considered as ‘important’ features and included in the EclA. However, the level of importance assigned to the affected population of a protected species will vary depending on contextual information about the population size, distribution, abundance and trends across the range of geographical scales.

Similarly, irreplaceable habitats such as ancient broadleaved woodland are considered as important features and included in the EclA. The level of importance will vary depending on the size of the habitat parcel, its distribution and abundance at different geographical scales.

Features that are considered to be important at site level only or are of negligible importance (such as paved ground or amenity grassland) are excluded from this EclA and it should be reasonable to assume that if a feature is not mentioned, it is not ecologically important.

### 2.12.2 Significance of Effects

In accordance with EclA (CIEEM 2018)<sup>2</sup>, a significant effect is defined as “an effect that either supports or undermines biodiversity conservation objectives for important ecological features”. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy). The effects may be described as significant at a range of geographic scales as defined above.

The impacts are identified and described in relation to the following characteristics:

- *adverse or positive* – does the impact result in the loss or gain in biodiversity/quality of the environment?



- *extent, magnitude* – the spatial area over which the impact may occur, the area of habitat lost, or the number of individuals/populations affected
- *timing* – in relation to the life cycle of the ecological feature (e.g. nesting bird season)
- *duration, frequency* – is the impact temporary or permanent, frequently repeated or a one-off event?
- *reversibility* – is the impact temporary or permanent? Would the ecological feature recover after the impact?
- *cumulative impacts* – in combination with other plans/projects.

### 2.12.3 The 'Mitigation Hierarchy'

The assessment of the significance of an effect is made initially in the absence of mitigation. This is followed by a sequential process of determining the most appropriate way to remove or minimise significant effects. The preferred option is to avoid impacts in the first place, for example by redesigning the scheme to retain an important area of habitat, or timing works sensitively. Mitigation measures such as translocation or displacement of populations is only applied as a last resort where significant effects are unavoidable.

When residual significant adverse effects remain after all practicable measures to avoid and/or minimise impacts have been applied, compensation measures are required. Compensation measures include habitat creation in alternative locations that offset unavoidable habitat loss.

Finally, enhancements are proposed that do not relate to a specific impact and effect but provide net gains in biodiversity – taking advantage of opportunities in the design and operation of the proposed development. These measures are intended to ensure that the proposed development contributes towards national and local biodiversity objectives.

## 2.13 Constraints/Limitations to Surveys

Surveys record any flora or fauna that is present at the time of the survey visits. It is therefore possible that some species may not have been present during the surveys but may be evident at other times of the year and may appear or disappear from the site if habitat conditions change. For this reason, the surveys are considered valid for up to eighteen months for badgers and bats, two years for reptiles and three years for great crested newts and dormice. If the habitat conditions change significantly in the intervening period, then it is recommended that the surveys be updated.

## 3 ECOLOGICAL BASELINE

### 3.1 Designated Sites

There are five designated sites that are located within 5km of the proposed development for the Land West of Herne Bay Road, Sturry. Of these, Stodmarsh has multiple designations such as an SSSI, RAMSAR site, Special Area of Conservation (SAC) and a Special Protection Area (SPA). The locations of these sites in relation to the application site can be seen in Figure 6, and a summary of the designated features for these sites can be found in Table 3.

The surrounding landscape has blocks of ancient and semi-natural woodland priority habitat around the site to the east and south, the closest is located 305m away to the east. There are also blocks of priority habitat

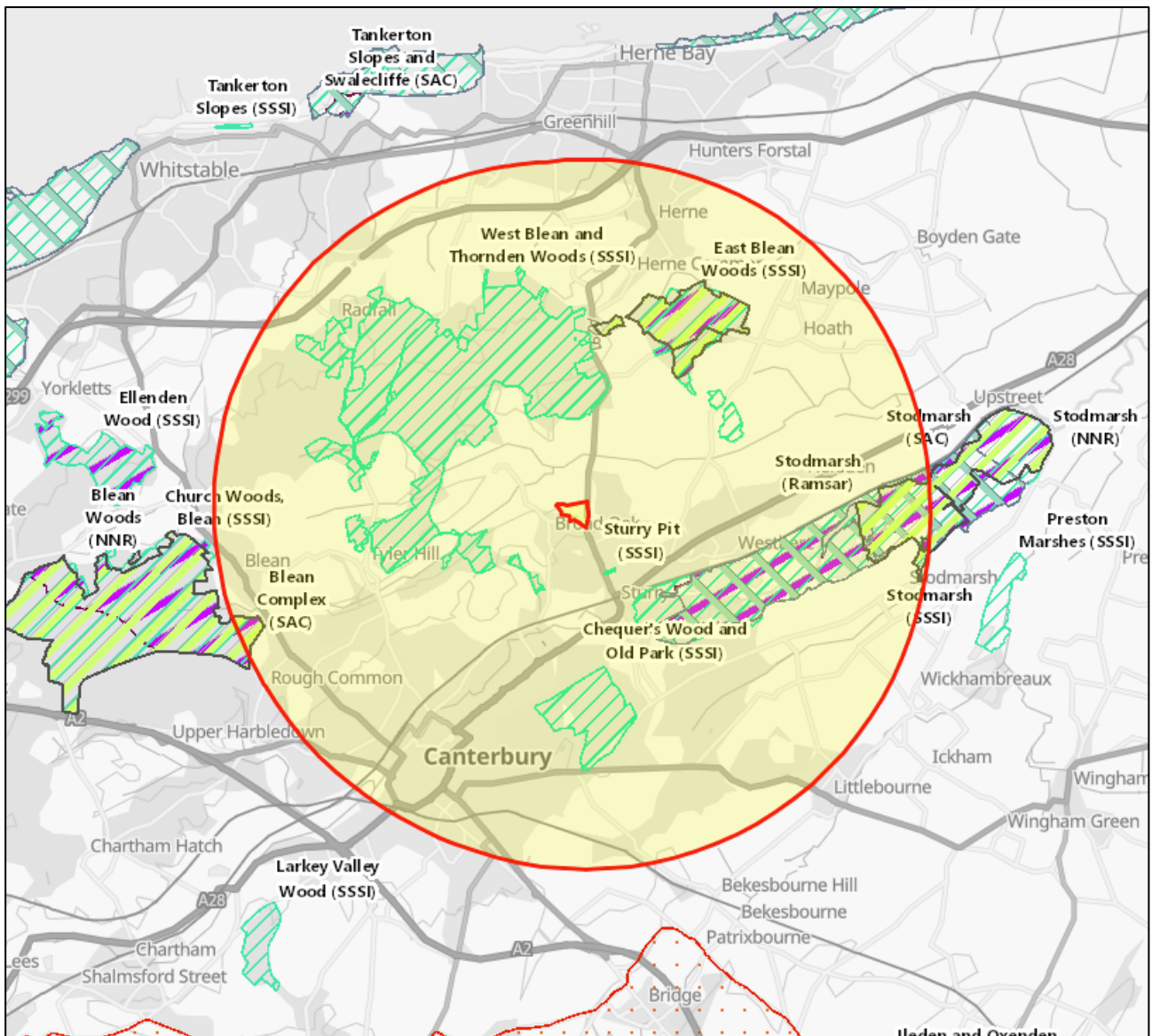


semi-natural deciduous woodland to the south and west (Figure 7).

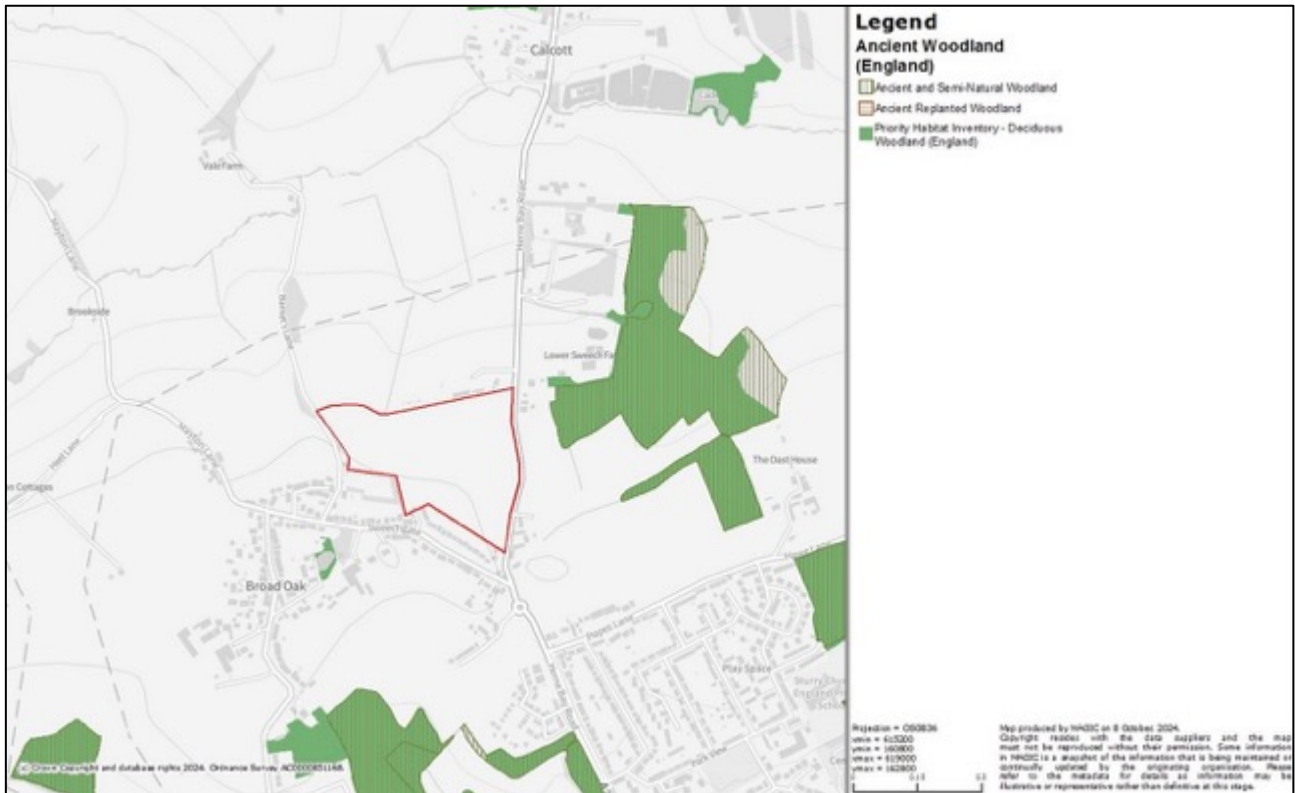
There are three granted EPS licences for mitigation projects within 1km of the site boundary (Figure 8), all concerning great-crested newts. The closest EPS licence to the site is located 347m away south-west. There are no granted EPS licences for other species.

**Table 3.** Designated sites

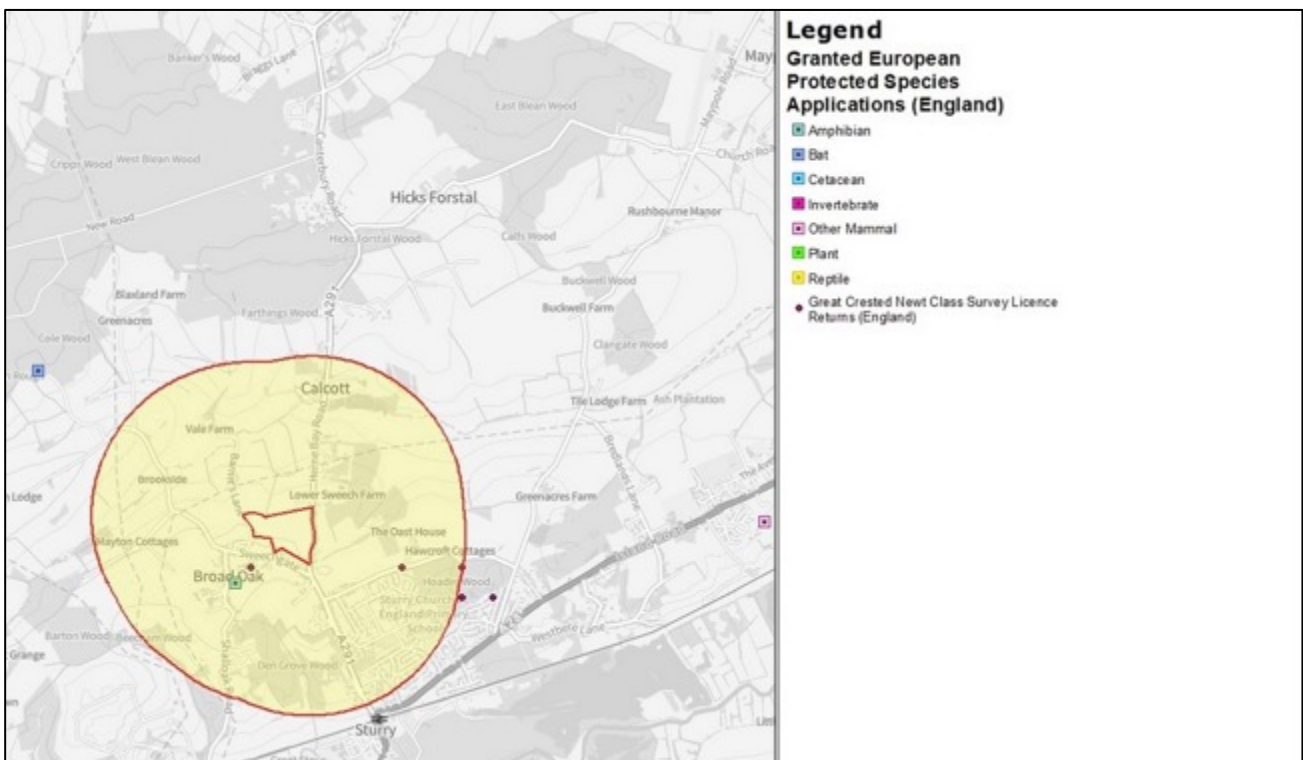
| Site name                          | Features listed on citation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Proximity        | Ecological Importance |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------|
| Sturry Pit SSSI                    | Former quarry, part of the Paleolithic and Pleistocene Thames Terrace sequence and containing Pleistocene gravels which has yielded numerous “Middle Acheulian” hand axes. Not designated for ecological features.                                                                                                                                                                                                                                                                                               | 0.9km south-east | National              |
| West Blean and Thornden Woods SSSI | A mixture of ancient semi-natural woodland and conifer plantation with over 50 species of breeding bird recorded together with nationally scarce invertebrate species, including the specially protected heath fritillary butterfly <i>Mellicta athalia</i> . The site also supports an important local population of hazel dormouse.                                                                                                                                                                            | 1km south-west   | National              |
| Stodmarsh SSSI                     | A wetland site in the River Great Stour valley containing open water, extensive reedbeds, scrub and alder <i>Alnus glutinosa</i> carr. The site is important for breeding birds and includes breeding populations of rare Cetti’s warbler <i>Cettia cetti</i> and bearded tit <i>Panurus biarmicus</i> . The site also contains rare aquatic plants such as sharp-leaved pondweed <i>Potamogeton acutifolius</i> and rootless duckweed <i>Wolffia arrhiza</i> .                                                  | 1.5km south-east | National              |
| Stodmarsh RAMSAR                   | The above SSSI qualifies as a wetland site supporting eight British Red Data book invertebrate species, two nationally rare plants and a diverse assemblage of wetland bird species, including water rail <i>Rallus aquaticus</i> and ruff <i>Philomachus pugnax</i> .                                                                                                                                                                                                                                           | 1.7km south-east | National              |
| Stodmarsh SAC                      | The above SSSI qualifies as an SAC for supporting a sizeable population of the Desmoulin’s whorl snail <i>Vertigo moulinsiana</i> , an Annex II species which lives on the river Stour floodplain together with a range of other species.                                                                                                                                                                                                                                                                        | 1.7km south-east | National              |
| Stodmarsh SPA                      | Wetland site with an important breeding bird assemblage including 13 Annex II listed bird species.                                                                                                                                                                                                                                                                                                                                                                                                               | 1.7km south-east | National              |
| Chequers Wood and Old Park SSSI    | The mosaic of grassland, scrub and woodland gives this site considerable interest. The acidic sandy soils of the plateau contrast with the base-rich peaty soils of the valley bottom. There is consequently a wide variety of plants present.                                                                                                                                                                                                                                                                   | 2km south        | National              |
| Blean Complex SAC                  | Hornbeam <i>Carpinus betulus</i> coppice occurs interspersed with pedunculate oak <i>Quercus robur</i> stands and introduced sweet chesnut <i>Castanea sativa</i> . Great wood rush <i>Luzula sylvatica</i> is locally dominant in the woodland, and the characteristic greater stitchwort <i>Stellaria holostea</i> is found in more open patches. The woodlands have traditionally been managed as coppice and are one of the British strongholds for the heath fritillary butterfly <i>Mellicta athalia</i> . | 4.3km west       | National              |



**Figure 6.** Statutory designated sites within a radius of 5km of the application site. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



**Figure 7.** Priority Habitats contained by and adjacent to the application site. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



**Figure 8.** Granted EPS licences within 1km (buffer zone) of the application site. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



## 3.2 Habitats

### 3.2.1 UK Habitat Classification

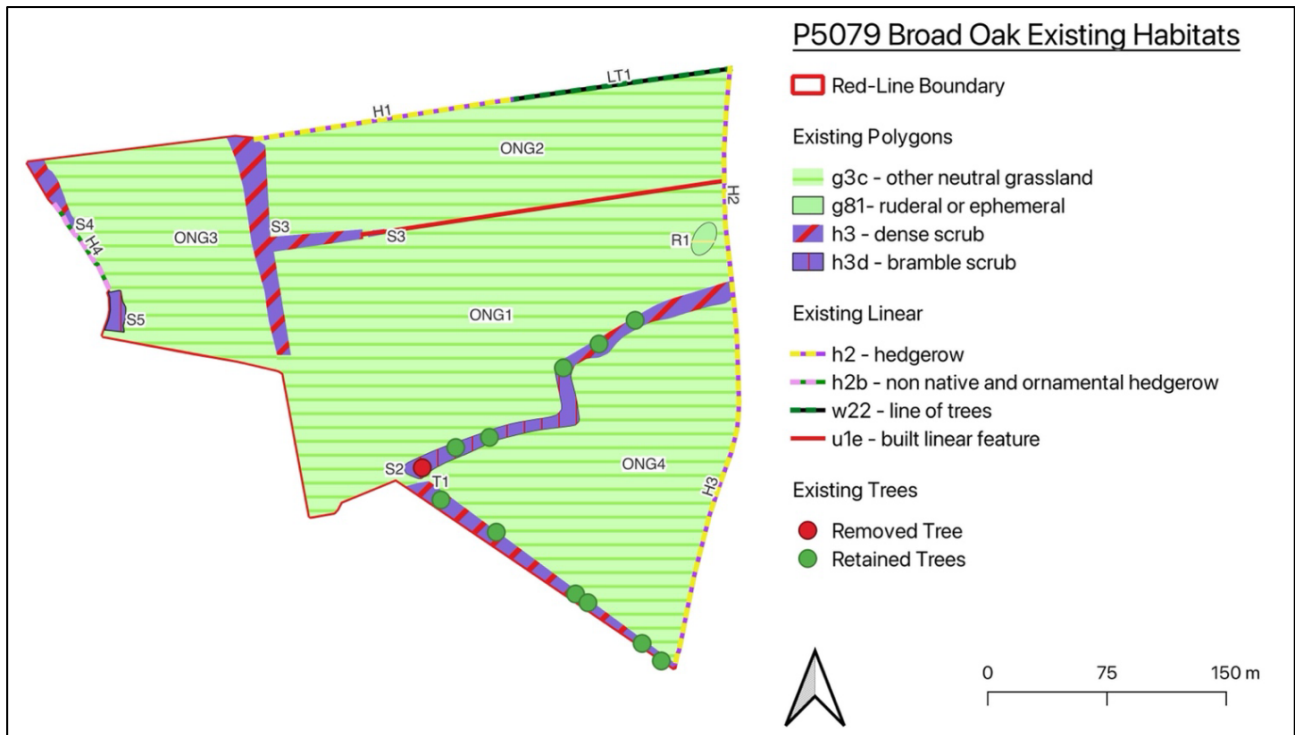
The site comprises four field parcels (Fields A-D) which are composed of 'other neutral grassland' (g3c) with relative low botanical richness. The field boundaries are comprised variously by dense bramble scrub, dense woody scrub with scattered trees, a line of trees along the northeastern boundary, and hedgerows along the northern and eastern boundaries of the site. Table 4 below lists the UKHab habitats present at the site with their general species composition. The UK Hab map for the site is presented in Figure 9. Photographs of important areas of habitat are presented below.

**Table 4.** The UKHab habitat contained within the site.

| Habitat type              | UKHab Code | Species composition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Ecological importance |
|---------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 'Other Neutral grassland' | g3c        | <b>Central field ONG1</b><br>A large field of neutral grassland in the centre of the site, the site is dominated by sweet vernal-grass <i>Anthoxanthum odoratum</i> , with Yorkshire fog <i>Holcus lanatus</i> and red fescue <i>Festuca rubra</i> also frequent. Additional species present include perennial ryegrass <i>Lolium perenne</i> , soft brome <i>Bromus hordeaceus</i> , cat's ear <i>Hypochaeris</i> sp., dandelion <i>Taraxacum</i> sp., goat's-beard <i>Aruncus dioicus</i> , cocks-foot <i>Dactylis glomerata</i> , lesser trefoil <i>Trifolium dubium</i> , smooth hawksbeard <i>Crepis capillaris</i> , broad-leaved dock <i>Rumex obtusifolius</i> , common vetch <i>Vicia sativa</i> , bulbous buttercup <i>Ranunculus bulbosus</i> , meadow buttercup <i>R. acris</i> , false oat-grass <i>Arrhenatherum elatium</i> , creeping thistle <i>Cirsium arvensis</i> , hairy tare <i>Vicia hirsuta</i> and perforate St John's-wort <i>Hypericum perforatum</i> . | Site                  |
|                           |            | <b>Northern field ONG2</b><br>This large field covers the north of the site and is dominated by tall fescue <i>Schedonorus arundinaceus</i> , giving it a very tall sward, with sweet vernal-grass and Yorkshire fog frequent underneath. Other species present in patches include meadow foxtail <i>Alopecurus pratensis</i> , soft brome, common nettle, dandelion, meadow buttercup, creeping buttercup, common bent <i>Agrostis capillaris</i> , broad-leaved dock, lesser trefoil and lesser stitchwort <i>Stellaria graminea</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                           | Site                  |
|                           |            | <b>Western field ONG3</b><br>A field of neutral grassland present in the west of the site, this field is dominated by sweet vernal grass and red fescue, Yorkshire fog, and creeping buttercup <i>Ranunculus repens</i> are frequent. Other species identified include soft brome, perennial ryegrass, meadow buttercup, creeping thistle, lesser trefoil, common mouse-ear <i>Cerastium fontanum</i> and oxeye daisy <i>Leucanthemum vulgare</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Site                  |
|                           |            | <b>Southern field ONG4</b><br>The field that covers the south of the site was the most botanically rich in terms of flowering herbs and is characterised by a finer grass sward with abundant sweet vernal-grass and frequent Yorkshire fog, red fescue, lesser trefoil and oxeye daisy. Other species present in smaller quantity include tall fescue, smooth tare <i>Vicia tetrasperma</i> , hairy tare, common vetch, meadow buttercup, cat's-ear, creeping buttercup,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Site                  |



|                                          |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |
|------------------------------------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|                                          |     | common mouse-ear, bulbous buttercup, perforate St John's-wort, common sorrel <i>Rumex acetosa</i> , soft brome, dandelion, common ragwort <i>Jacobaea vulgaris</i> , creeping thistle, curled dock <i>Rumex crispus</i> , smooth hawk's-beard and black knapweed <i>Centaurea nigra</i> .                                                                                                                                                                                                                                                                                                         |       |
| Ruderal/<br>ephemeral<br>vegetation      | g81 | The eastern end of Field A has recently been subject to disturbance due to manure spreading operations, and the resultant species recolonisation is indicative of disturbed ground with nutrient enrichment; cocks foot <i>Dactylis glomerata</i> , Yorkshire fog <i>Holcus lanatus</i> , common nettle <i>Urtica dioica</i> , broad leaved dock <i>Rumex obtusifolius</i> , cow parsley <i>Anthriscus sylvestris</i> , bristly oxtongue <i>Helminthotheca echioides</i> , and curled dock <i>Rumex crispus</i> .                                                                                 | Site  |
| Mixed scrub<br>(bramble)                 | h3d | Dense bramble scrub with occasional shrubs and small trees occurs intermittently along the boundary between the central field and southern field (S1). Species recorded are bramble <i>Rubus fruticosus</i> , hawthorn <i>Crataegus monogyna</i> , walnut <i>Juglans regia</i> , common nettle <i>Urtica dioica</i> , common hogweed, greengage <i>Prunus domestica italica</i> , cleavers <i>Galium aparine</i> and elder <i>Sambucus nigra</i> .                                                                                                                                                | Local |
| Mixed scrub                              | h3  | A belt of scrub more than 6m wide separates the western field from the northern and central fields (S3), and is dominated by blackthorn <i>Prunus spinosa</i> , with field maple <i>Acer campestre</i> , willow <i>Salix</i> sp., oak <i>Quercus robur</i> saplings, hawthorn, common fleabane <i>Pulicaria dysenterica</i> , bramble and dog rose <i>Rosa canina</i> . A patch of scrub with scattered trees is present in the north-western corner of the site (S4). This scrub is dominated by blackthorn, dog rose, common fleabane and creeping thistle <i>Cirsium arvense</i> also present. | Local |
|                                          |     | A belt of mixed scrub with scattered semi-mature trees is present on the south-western boundary (S6), separating the site from neighbouring residential housing. This scrub is dominated by bramble, with wild cherry <i>Prunus avium</i> , common nettle <i>Urtica dioica</i> , holly <i>Ilex aquifolium</i> , silver birch <i>Betula pendula</i> , ivy <i>Hedera helix</i> , cleavers, buddleja <i>Buddleja davidii</i> , blackthorn, hawthorn and an unidentified conifer <i>Coniferae</i> .                                                                                                   | Local |
| Hedgerow                                 | h2  | A native hedgerow is present on the northern boundary (H1) that is gappy and dominated by wild plum <i>Prunus domestica</i> , blackthorn, hazel <i>Corylus avellana</i> , ivy, silver birch and dog rose. Another species poor native hedgerow is present all along the eastern boundary of the site that is maintained by frequent flail cutting (H2, H3). It is dominated by hawthorn, with oak, elder, ivy, bramble, and a section of wych elm in the middle of its length. The understorey has herb-robert <i>Geranium robertianum</i> , cleavers and common nettle.                          | Local |
| Non-native and<br>ornamental<br>hedgerow | h2b | A small section of ornamental hedge forms the boundary between the western field and a neighbouring property's domestic garden (H4). This is comprised of non-native <i>Cotoneaster</i> sp. and is tightly clipped.                                                                                                                                                                                                                                                                                                                                                                               | Site  |
| Line of trees                            | w22 | A line of trees is present on the northern boundary of the site (LT1), dominated by white poplar <i>Populus alba</i> , as well as blackthorn, hawthorn and willow.                                                                                                                                                                                                                                                                                                                                                                                                                                | Local |



**Figure 9.** UKHab habitat survey map of the site of the site. Image prepared using QGIS version 3.28.5 - Firenze.



**Photograph 1.** Central field ONG1.



**Photograph 2.** Northern field ONG2.



**Photograph 3.** Western field ONG3.



**Photograph 4.** Southern field ONG4.



**Photograph 5.** Bramble scrub between central and southern field boundaries.



**Photograph 6.** Scrub with semi-mature trees on south-western boundary.



**Photograph 7.** Hedgerow on the northern boundary.



**Photograph 8.** Hedgerow on the south-eastern boundary.

### 3.2.2 Botanical Baseline

The botanical survey of the grassland habitat in each field indicated that the species composition of the fields is typical for this habitat type, and that species richness is relatively poor. The southern field contained the highest botanical richness, with a sward dominated by finer grass species such as red fescue and sweet vernal grass and higher density of flowering plants, most notably ox eye daisy. However, it was observed in June that this field had apparently been sprayed off with a selective herbicide that reduced the density of forb species, as ox eye daisy and other flowering plants appeared to wilt and die prematurely without going to seed. The western field is similar to the southern field in supporting a finer grass sward, but with lower density of forbs. The northern field and central field had a different character, being dominated by the more rank grass species tall fescue, and some areas of false oat grass. These fields are likely to have higher soil fertility and productivity in terms of biomass for hay and silage cropping. All fields were cut in late June, and again in late September as part of their normal agricultural use and management. The survey did not reveal any scarce or notable plant species as occurring in the fields.

A full list of the species identified is presented in Appendix 4.



### 3.2.3 Interpretation

The habitat types contained within the site are not exceptionally rare or priority for conservation and are typical for the area. The grasslands are relatively species poor and appear not to be managed in a way that encourages biodiversity. The hedgerows contained within and bordering the site are probably the most important feature, although the open grassland fields have potential for significant improvement in botanical richness through appropriate management. As such, the habitats contained within the site are important at up to **local level** only.

## 3.3 Badgers

### 3.3.1 Survey Results

No evidence of any badger activity was found during any surveys, although there are habitats of value for this species within the site and surrounding landscape. It is likely that if any setts were situated within 30m of the site boundary, evidence of badger activity would have been identified.

### 3.3.2 Pre-existing Records

The Kent and Medway Biological Record Centre provided seven records of badger in the search area. The closest of these was at 1.6km from the boundary of the site.

### 3.3.3 Interpretation

Badger populations have been rising for several decades, and they are now a common and widespread species across most of the UK countryside. Badgers are therefore not currently considered to be of great conservation concern within the UK, although the UK supports a significant proportion of the global population.

The lack of evidence of badger activity suggests that they are not resident or regularly using the proposed development site for foraging, so the site is currently of **negligible** importance for badgers. However, since the grassland provides potentially valuable foraging opportunities and the hedgerows are suitable cover for setts, badgers may occasionally pass through the site from time to time and may establish setts in future.

## 3.4 Bats

### 3.4.1 Bat Activity Surveys – Walked Transects

All surveys were undertaken in suitable conditions for bat activity, though nighttime temperatures were a little low. Survey conditions and timings are presented in Table 5. The results of each walked transect survey are summarised in Figures 10-12. This shows the distribution of all bat observations on each walked transect, during which the route was covered at least three times in a session.

**Table 5.** Walked transect metadata: dates, times, temperature, weather conditions.

| Date | Survey start time/end time | Temp. degrees centigrade, weather conditions | Surveyors |
|------|----------------------------|----------------------------------------------|-----------|
|------|----------------------------|----------------------------------------------|-----------|



|                                    |                               |                                                             |                                                        |
|------------------------------------|-------------------------------|-------------------------------------------------------------|--------------------------------------------------------|
| 13 <sup>th</sup> May<br>2024       | 20:37–22:37<br>Sunset: 20:37  | Max/min temp.: 14-12°C<br>60% cloud cover, calm (BF1), dry. | Dan Bennett, BSc, MCIEEM<br>Isabella Friar, BSc (Hons) |
| 16 <sup>th</sup> July<br>2024      | 21:05-23:05<br>Sunset: 21:05  | Max/min temp.: 16-12°C<br>50% cloud cover, calm (BF1), dry. | Dan Bennett, BSc, MCIEEM<br>Isabella Friar, BSc (Hons) |
| 23 <sup>rd</sup> September<br>2023 | 18:49-20:49<br>Sunset – 18:49 | Max/min temp.: 15-13°C<br>0% cloud cover, calm (BF1), dry.  | Dan Bennett, BSc, MCIEEM<br>Isabella Friar, BSc (Hons) |

General bat activity was exceptionally low during the walked transect activity surveys. The common pipistrelle *Pipistrellus pipistrellus* was occasionally encountered foraging along hedgerows in a few places on all survey visits, and soprano pipistrelle *Pipistrellus pygmaeus* on the second and third visits. A noctule bat *Nyctalus noctula* was also recorded on all three occasions. The third survey saw the most activity with additional passes from a *Myotis* sp. and a brown long eared bat *Plecotus auritus*. Activity was spread across the site but the most activity was recorded along the northern boundary of the site.



**Figure 10.** Approximate distribution of bats detected during each walked transect survey. Coloured dots represent bat activity. Orange = common pipistrelle, Green = Noctule. The size of the dot indicates the intensity of activity: Small dot = a single pass of one bat; medium dot = several passes on two to three separate occasions; large dot = activity recorded



continuously on four or more occasions at that location during the night. Image produced using QGIS Prizren 3.34.



**Figure 11.** Approximate distribution of bats detected during each walked transect survey. Coloured dots represent bat activity. Orange = common pipistrelle, Green = Noctule, blue = soprano pipistrelle. The size of the dot indicates the intensity of activity: Small dot = a single pass of one bat; medium dot = several passes on two to three separate occasions; large dot = activity recorded continuously on four or more occasions at that location during the night. Image produced using QGIS Prizren 3.34.



**Figure 12.** Approximate distribution of bats detected during each walked transect survey. Coloured dots represent bat activity. Orange = common pipistrelle, Green = Noctule, blue = soprano pipistrelle, Myotis sp. = red, Yellow = Brown long-eared bat. Image produced using QGIS Prizren 3.34.

### 3.4.2 Bat Activity Surveys – Automated Static Bat Detecting

A total of 3 species and 4 genera were recorded: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, long-eared bats *Plecotus* sp., *Myotis* sp., and *Nyctalus* sp.

The results broadly reflect the walk transect findings, with the addition of serotine bat and Nathusius' pipistrelle. It is interesting to note that the number of passes changes significantly between the dates apparently at random. This may be explained by the multiple passes of a single bat on a foraging 'beat', passing back and forth on occasions when it just happens to choose to do so near a static detector device.

Due to the echolocation overlap from the *Plecotus* and *Myotis* genera it is almost impossible to accurately separate the individual species and therefore their importance within the context of their conservation status cannot be obtained. In addition, *Nyctalus* bats were grouped together due to the difficulty determining between these two species. Most of these calls are assumed to be noctules due to the abundance of this species within Kent, however Leisler's bats do have a patchy distribution within the county and therefore cannot be discounted



as being present on the site<sup>10</sup>.

The results of the automatic static bat detector surveys are summarised in Table 6. Figure 2 shows the positions of each static logger deployed per month.

**Table 6.** Mean number of passes recorded by each static detector (rounded to nearest whole number) per night. Static detectors were placed out for a minimum of five nights. Note that the deployment of SM2 in August was corrupted and no data was retrieved from this logger. CP = common pipistrelle, SP = soprano pipistrelle, NP = Nathusius' pipistrelle, LE = long-eared species, MYO = *Myotis* species, SER = serotine, NYCT = *Nyctalus* species.

| Logger no. | Month          | CP  | SP  | NP | LE | MYO | SER | NYCT |
|------------|----------------|-----|-----|----|----|-----|-----|------|
| SM1        | April 2024     | 202 | 19  | 2  | 1  | 18  | 78  | 10   |
|            | May 2024       | 49  | 27  | -  | -  | 1   | -   | 16   |
|            | June 2024      | 145 | 160 | 1  | 1  | 1   | 2   | 44   |
|            | July 2024      | 84  | 72  | -  | -  | 3   | -   | 77   |
|            | August 2024    | 83  | 66  | -  | 2  | 9   | -   | 4    |
|            | September 2024 | 389 | 26  | -  | 22 | 73  | -   | 89   |
|            | October 2024   | 131 | 7   | 1  | 1  | 1   | -   | -    |
| SM2        | April 2024     | 33  | 172 | 3  | -  | 20  | -   | 3    |
|            | May 2024       | 48  | 28  | -  | -  | -   | 1   | 3    |
|            | June 2024      | 50  | 21  | -  | 11 | 3   | -   | 61   |
|            | July 2024      | 347 | 187 | -  | 1  | -   | -   | 39   |
|            | September 2024 | 128 | 24  | -  | 13 | 6   | 1   | 11   |
|            | October 2024   | 46  | 28  | -  | -  | 1   | -   | 1    |

For bats considered in group 1; common pipistrelles, soprano pipistrelles and serotines, and in group 2; Nathusius' pipistrelle, *Myotis* sp., *Nyctalus* sp., long-eared sp. post-classification verification of the data auto-analysed by BTO Acoustic Pipeline was carried out. Any loggers with false error rates over 10% were manually analysed.

### 3.4.3 Pre-existing Records

The Kent and Medway biodiversity records search found 1,344 records of 9 species of bat, details of which are provided in Table 7 below. This is a large number of records, but it is important to note that the search area of 5km radius includes the Blean complex SSSI and SAC, which includes large tracts of ancient woodland, and Stodmarsh National Nature Reserve, both of which are well studied for bats by the Kent Bat Group.

**Table 7.** Number of pre-existing records of each bat species within 5 km of the site boundary.

| Species                                             | No. of records |
|-----------------------------------------------------|----------------|
| Common pipistrelle <i>Pipistrellus pipistrellus</i> | 460            |
| Soprano pipistrelle <i>Pipistrelle pygmaeus</i>     | 282            |

<sup>10</sup> JNCC (2017). UK distribution map for S1331 – Leisler's bat *Nyctalus leisleri*.



|                                               |     |
|-----------------------------------------------|-----|
| Nathusius' pipistrelle bat <i>P. nathusii</i> | 12  |
| Brown long-eared <i>Plecotus auritus</i>      | 160 |
| Serotine <i>Eptesicus serotinus</i>           | 39  |
| Noctule <i>Nyctalus noctule</i>               | 114 |
| Daubenton's Myotis <i>Myotis daubentoniid</i> | 163 |
| Whiskered bat <i>Myotis mystacinus</i>        | 18  |
| Natterer's bat <i>Myotis nattereri</i>        | 96  |

### 3.4.4 Interpretation

The activity surveys have demonstrated that the habitats contained within the development site do support foraging bats, but in relatively low numbers. Bats are opportunistic and will exploit a range of habitats across the landscape in response to the rise and fall of insect populations. These surveys indicate that the habitats contained on the Land West of Herne Bay Road, Sturry are utilised intermittently as part of the wider landscape by common and widespread bat species.

As such, the development site is not considered to be important to bats beyond the **local level**.

**Table 8.** Conservation status and distribution of bats recorded on site.<sup>11</sup>

| Species               | Conservation status England | Distribution in England                                    |
|-----------------------|-----------------------------|------------------------------------------------------------|
| Common pipistrelle    | Least concern               | Widespread                                                 |
| Soprano pipistrelle   | Least concern               | Widespread                                                 |
| Nathusius pipistrelle | Near threatened             | Rarer or restricted distribution                           |
| Brown long eared      | Least concern               | Widespread                                                 |
| Noctule               | Least concern               | Widespread                                                 |
| Daubenton's bat*      | Least concern               | Widespread in many geographies, but not as abundant in all |
| Natterer's bat*       | Least concern               | Widespread in many geographies, but not as abundant in all |
| Whiskered bat*        | <b>Data deficient</b>       | Widespread in many geographies, but not as abundant in all |

\*It is not possible to identify the species of *Myotis* without droppings for DNA analysis or the capture of a live animal.

## 3.5 Breeding Birds

### 3.5.1 Survey Results

In total, 35 species of bird were recorded during the survey; of these, five species are 'red' listed under the Birds of Conservation Concern (BoCC) and 10 are 'amber' listed. The following species recorded during the survey are also listed under Section 41 of the NERC Act (2006): common bullfinch *Pyrrhula pyrrhula*, common starling *Sturnus vulgaris*, song thrush *Turdus philomelos*, skylark *Alauda arvensis*, linnet *Linnaria cannabina*, herring gull *Larus argentatus*, house sparrow *Passer domesticus* and dunnock *Prudella modularis*.

Table 9 presents the bird survey results combined for all three visits. The table is divided into red, amber and green lists from the BoCC categories. A map of bird registrations for each survey visit is presented in Appendix

<sup>11</sup> The Mammal Society (2020): <https://www.mammal.org.uk/science-research/red-list/>



5. Table 10 presents the dates, times and survey conditions recorded for each visit.

**Table 9.** Breeding bird survey summary list. Numbers represent the total number of registrations per visit for each species.

| RESULTS<br>Species                                 | Mar<br>(1) | Apr<br>(1) | Apr<br>(2) | May<br>(1) | May<br>(2) | Jun<br>(1) | Breeding status            |
|----------------------------------------------------|------------|------------|------------|------------|------------|------------|----------------------------|
| Common starling<br><i>Sturnus vulgaris</i>         | 160        | 9          | 2          | 4          | 18         | 11         | Confirmed in nearby houses |
| Herring gull<br><i>Larus argentatus</i>            |            |            |            |            |            | 15         | Non-breeding               |
| House sparrow<br><i>Passer domesticus</i>          | 3          |            | 4          | 5          | 10         | 12         | Confirmed                  |
| Linnet<br><i>Linnaria cannabina</i>                |            | 2          |            | 1          | 1          |            | Likely                     |
| Bullfinch<br><i>Pyrrhula pyrrhula</i>              |            | 1          |            |            |            |            | Non-breeding               |
| Dunnock<br><i>Prunella modularis</i>               | 2          | 1          | 6          | 8          | 3          | 3          | Confirmed                  |
| Kestrel<br><i>Falco tinnunculus</i>                |            | 1          |            |            |            |            | Non-breeding               |
| Mallard<br><i>Anas platyrhynchos</i>               |            |            |            | 1          |            |            | Non-breeding               |
| Marsh Harrier<br><i>Circus aeruginosus</i>         |            | 1          |            |            |            |            | Non-breeding               |
| Song thrush<br><i>Turdus philomelos</i>            | 1          | 1          | 2          | 1          | 2          | 1          | Likely                     |
| Stock dove<br><i>Columba oenas</i>                 |            |            | 2          |            |            | 1          | Possible                   |
| Woodpigeon<br><i>Columba palumbus</i>              | 7          | 25         | 16         | 5          | 12         | 6          | Likely                     |
| Whitethroat<br><i>Sylvia communis</i>              |            |            | 1          | 3          | 3          | 1          | Likely                     |
| Wren<br><i>Troglodytes troglodytes</i>             | 4          | 2          | 5          | 6          | 4          | 3          | Likely                     |
| Blackbird<br><i>Turdus merula</i>                  | 4          | 4          | 4          | 10         | 5          | 5          | Likely                     |
| Blackcap<br><i>Sylvia atricapilla</i>              |            |            | 4          | 4          | 3          | 2          | Likely                     |
| Blue tit<br><i>Cyanistes caeruleus</i>             | 6          | 4          | 3          | 5          | 2          | 13         | Confirmed                  |
| Carrion crow<br><i>Corvus corone</i>               |            |            |            |            | 1          | 1          | Non-breeding               |
| Chaffinch<br><i>Fringilla coelebs</i>              | 7          | 4          | 5          | 7          | 7          | 3          | Likely                     |
| Chiffchaff<br><i>Phylloscopus collybita</i>        | 1          |            | 2          | 2          |            |            | Possible                   |
| Collared Dove<br><i>Streptopelia decaocto</i>      | 3          | 2          | 4          | 2          | 2          | 9          | Likely                     |
| Cormorant<br><i>Phalacrocorax carbo</i>            |            |            |            | 1          |            |            | Non-breeding               |
| Feral Pigeon <i>Columba livia domestica</i>        |            |            |            | 1          |            |            | Non-breeding               |
| Goldfinch<br><i>Carduelis carduelis</i>            | 2          |            | 1          | 5          | 2          | 2          | Likely                     |
| Great spotted woodpecker. <i>Dendrocopos major</i> |            |            | 1          |            |            |            | Non-breeding               |
| Great tit                                          | 3          | 2          | 3          | 4          |            | 1          | Likely                     |



| RESULTS<br>Species                            | Mar<br>(1) | Apr<br>(1) | Apr<br>(2) | May<br>(1) | May<br>(2) | Jun<br>(1) | Breeding status |
|-----------------------------------------------|------------|------------|------------|------------|------------|------------|-----------------|
| <i>Parus major</i>                            |            |            |            |            |            |            |                 |
| Jackdaw<br><i>Coloeus monedula</i>            | 3          | 1          | 2          | 2          | 2          | 2          | Possible        |
| Jay<br><i>Garrulus glandarius</i>             |            |            |            |            | 1          |            | Non-breeding    |
| Lesser whitethroat <i>Sylvia curruca</i>      |            | 1          | 2          |            |            |            | Non-breeding    |
| Long-tailed tit <i>Aegithalos caudatus</i>    | 2          | 1          | 2          | 2          |            |            | Possible        |
| Magpie<br><i>Pica pica</i>                    | 2          | 1          |            | 1          |            | 2          | Possible        |
| Pied wagtail<br><i>Motacilla alba yarelli</i> |            |            |            |            | 1          |            | Non-breeding    |
| Robin<br><i>Erithacus rubecula</i>            | 6          | 1          | 3          | 5          | 5          |            | Likely          |
| Swallow <i>Hirundo rustica</i>                |            |            | 3          | 1          | 14         |            | Non-breeding    |

**Table 10.** Breeding bird transect metadata: dates, times, temperature, weather conditions.

| Date                           | Survey start<br>time/end time | Temp. degrees centigrade, weather<br>conditions | Surveyors                |
|--------------------------------|-------------------------------|-------------------------------------------------|--------------------------|
| 28 <sup>th</sup> March<br>2024 | Start: 07:20                  | Temp.: 7°C<br>Rain showers, BF1                 | Dan Bennett, BSc, MCIEEM |
| 16 <sup>th</sup> April<br>2024 | Start: 18:57                  | Temp: 13°C<br>Cloud 50%, light showers          | Dan Bennett, BSc, MCIEEM |
| 26 <sup>th</sup> April<br>2024 | Start: 06:00                  | Temp: 3°C<br>Cloud 5%, damp                     | Dan Bennett, BSc, MCIEEM |
| 10 <sup>th</sup> May<br>2024   | Start: 06:00                  | Temp: 10°C<br>Cloud 0%, BF0                     | Dan Bennett, BSc, MCIEEM |
| 17 <sup>th</sup> May<br>2024   | Start: 06:45                  | Temp: 14°C<br>Cloud 50%, calm/misty             | Dan Bennett, BSc, MCIEEM |
| 10 <sup>th</sup> June<br>2024  | Start: 06:20                  | Temp: 14°C<br>Cloud 0%, cool                    | Dan Bennett, BSc, MCIEEM |

### 3.5.2 Pre-existing Records

The Kent and Medway biodiversity records search found 19,967 records of 212 species within 5km of the site. As for bats, it is important to note that the search area of 5km radius includes the Blean complex SSSI and SAC, and Stodmarsh National Nature Reserve, both of which are well recorded for birds.



### 3.5.3 Interpretation

The breeding bird survey findings indicate that the application site supports an assemblage of common and widespread breeding birds that is typical for the type of habitats it contains. Of the red-listed and priority species, the two territories of linnet found in hedgerows and bramble scrub along the southern boundary are probably the highest ecological importance, though this is a relatively small number of birds and there were no other nationally declining farmland bird species present. Two species (starlings and house sparrow) are breeding in the adjacent residential buildings and gardens, and the proposed development site provides supporting habitat for foraging. The herring gull are simply non-breeding birds that are passing overhead and do not rely on the site.

Based on these findings, the breeding bird assemblage supported by the Land West of Herne Bay Road, Sturry is important for the conservation of birds at no more than **local level**.

## 3.6 Dormice

### 3.6.1 Nest-tube Survey

Four adult dormice were recorded on the site, a pair in one nest tube in the belt of trees abutting the south corner of the western field, and two in separate tubes, one on the eastern boundary and one on the northern boundary. Two potential nests were also identified during the surveys, one near the southeastern corner and another along the northern boundary. The exact locations are shown in Figure 13.

The survey findings, dates of checks, weather conditions are presented in Appendix 6.



**Figure 13.** Dormouse survey results. Orange dots indicate nest tubes with no evidence found, blue dots indicate nest tubes occupied by dormice on at least one occasion and green dots indicate the location of dormouse nests unoccupied at the time of the visits. Image produced using QGIS Prizren 3.34.

### 3.6.2 Pre-existing Records

The Kent and Medway biological record centre identified 22 dormouse records in the 2km search area. The closest of these was at 1.3km to the north of the site boundary.

### 3.6.3 Interpretation

The scattered distribution of dormouse records found during this survey indicates that all the hedgerows contained within and bordering the proposed development site are likely to support this species in relatively good numbers. The hedgerows and scrub belts contained on the site, despite a lack of hazel, contain a range of plants that provide a reliable source of food and a complex plant architecture for nests and shelter, combined with a safe, undisturbed leaf litter and ground layer for hibernation, and are therefore suitable for use by individual dormice all year round. While the hedgerows and scrub belts are of limited extent and probably not capable of supporting a self-sustaining population on their own, they are well connected through an extensive network of similar hedgerows towards the north and west to larger blocks of ancient woodland. As such, they will make a valuable contribution to the local dormouse population as a part of the wider network of suitable habitat through the landscape. Based on these findings, the habitats contained within the Land West of Herne Bay Road are important for the conservation of dormice at a **local level**.



### 3.7 Great Crested Newts and Other Amphibians

#### 3.7.1 Habitat Suitability, eDNA Testing and Field Survey Results

The preliminary ecological appraisal identified seven ponds within 250m of the site during a desk study. Of these, only three were granted permission for eDNA sampling in 2024. The remaining ponds could not be accessed although two of them (ponds 6 and 7) are understood to be subject to ongoing monitoring by an unrelated ecologist in relation to a current EPS licence for another new development undergoing construction to the south of Broad Oak.

Table 11 presents a summary of all ponds within 250m of the proposed development boundary and the surveys conducted to date. The location of each pond is presented in Figure 14. All ponds identified within 250m have been assessed in some way or another and have been accounted for, for the purposes of this EclA.

**Table 11.** Summary of great crested newt assessments and surveys.

| Ref. | NGR        | Distance/<br>direction | Description                                                                                    | HSI<br>value | Interpretation          | Survey results                                                                          |
|------|------------|------------------------|------------------------------------------------------------------------------------------------|--------------|-------------------------|-----------------------------------------------------------------------------------------|
| P1   | TR16786151 | 415m SW                | Lined pond that contains a population of introduced fish (goldfish <i>Carassius auratus</i> ). | 0.33         | Low suitability         | eDNA sampling was completed in May 2024 with negative results. No further action taken. |
| P2   | TR16756152 | 430m SW                | Lined pond that contains a population of introduced fish                                       | 0.41         | Low suitability         | eDNA sampling was completed in May 2024 with negative results. No further action taken. |
| P3   | TR16736154 | 450m W                 | Ornamental garden pond, with introduced aquatic plants, no fish.                               | 0.57         | Low suitability         | eDNA sampling was completed in May 2024 with negative results. No further action taken. |
| P4   | TR17506192 | 440m NW                | Large pond located to the rear of a private property/Farm.                                     | N/A          | Assessment not possible | No sample taken                                                                         |
| P5   | TR17496188 | 410m NW                | Large pond located to the rear of a private property/Farm.                                     | N/A          | Assessment not possible | No sample taken                                                                         |
| P6   | TR16906140 | 360m SE                | Pond at David Wilson development – No Access agreed                                            | 0.88         | Assessment not possible | Being monitored by unrelated consultant ecologists – GCN assumed present                |
| P7   | TR16866140 | 390m SE                | Pond at David Wilson development – No Access agreed?                                           | 0.79         | Assessment not possible | Being monitored by unrelated consultant ecologists – GCN assumed present                |

Details of the HSI assessments, eDNA results and field survey results are presented in Appendix 7.



**Figure 14.** Ponds within 500m of the site (shown with red outline). Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

### 3.7.2 Pre-existing Records

The Kent and Medway biodiversity records search indicates the presence of great crested newt, smooth newt *Lissotriton vulgaris*, palmate newt *Lissotriton helveticus*, common frog *Rana temporaria*, marsh frog *Pelophylax ridibundus* and common toad *Bufo bufo* within 2km of the site.

### 3.7.3 Interpretation

The habitats contained within the proposed development site provide moderate quality foraging and resting habitat for great crested newts, and although the site contains no suitable ponds for breeding, it is within the typical home range of great crested newts using ponds in the surrounding landscape. These ponds are separated from the site by significant barriers to dispersal – the existing residential ribbon settlement and busy Sweechgate Lane. Presence of this species is therefore considered unlikely but cannot be completely discounted.

In summary, the site is not considered important beyond **local level** for great crested newts, based on their likelihood of reaching the site, and the available information on the local ponds.

## 3.8 Reptiles

### 3.8.1 Survey Results

The survey confirmed presence of both grass snakes and common lizard on the site. These were found scattered across the site. The survey focussed attention along the field boundaries where tall grassland and scrub/hedgerow remain after harvests and therefore the most suitable habitat for reptiles occurs. Reptile mats



were placed in these locations for practical reasons so that they do not interfere with agricultural operations or attract reptiles into areas where they may be at risk of mortality from mowers. The bulk of the grassland fields were subject to mowing and hay cropping during the survey season, which removes much of the vegetation cover and renders the grass sward as unsuitable for reptiles, although it may be used temporarily during the period of growth and maximum sward height, this management prevents the build-up of a thatch litter layer that is an important habitat component for slow worms. It should be noted that grass snakes exploit a diversity of habitat types, are highly mobile and have extensive home ranges. As such, they are more adaptable to changes in habitat conditions through the season.

The survey findings, dates and conditions are presented in Table 12 and Figure 15.

**Table 12.** Reptile survey results.

| Date                            | Start time | Air temp. °C | Refugia temp. °C | Weather conditions                          | Results                                                                     |
|---------------------------------|------------|--------------|------------------|---------------------------------------------|-----------------------------------------------------------------------------|
| 18 <sup>th</sup> April 2024     | 13:00      | 12           | 13               | 5%cc, BF1, dry, sunny                       | 2 Common lizards (Adult)                                                    |
| 7 <sup>th</sup> May 2024        | 10:30      | 14           | 16               | 5% cc, BF1, dry but damp in shady areas.    | 1 Grass snake (Adult)<br>1 Common lizard (Adult)                            |
| 17 <sup>th</sup> May 2024       | 9:30       | 14           | 17               | 10%cc, BF1, sunny, damp in areas            | 2 Common lizards (Adult)                                                    |
| 4 <sup>th</sup> September 2024  | 10:00      | 18           | 24               | 0%cc, bf0, dry sunny spells                 | 3 Grass snakes (Adults)                                                     |
| 13 <sup>th</sup> September 2024 | 10:30      | 12           | 12               | 0%cc, bf1. dry                              | 2 Grass snakes (Adult)<br>4 Common lizard (Adult)                           |
| 19 <sup>th</sup> September 2024 | 10:30      | 17           | 21               | 60%cc, sunny spells, dry but damp in areas. | 4 Common lizard (juv.)<br>12 Common lizard (Adult)                          |
| 24 <sup>th</sup> September 2024 | 11:00      | 15           | 18               | 50%cc, damp, sunny spells                   | 8 Common lizard (Adult)<br>2 Common lizard (juv.)<br>4 Grass snakes (Adult) |



**Figure 15.** Reptile survey results. Orange dots indicate refugia locations and, blue dots indicate where reptiles were identified. Image produced using QGIS Prizren 3.34.

### 3.8.2 Pre-existing Records

The Kent and Medway biodiversity records search indicates the presence of slow worm, common lizard, adder and grass snake within 2km of the site.

### 3.8.3 Interpretation

Grass snakes and common lizards are common and widespread species in south-east England and likely to be present in most areas of suitable habitat. Based on the small numbers involved, the small extent of suitable habitat and absence of other reptile species, the population contained within the development site is not considered important to common reptiles beyond the **local level**.

## 3.9 Other Notable Species

### 3.9.1 Survey Results

During the fieldwork for the above-described surveys for protected species, a number of invertebrate species were recorded incidentally, including meadow brown *Maniola jurtina*, large skipper *Ochlodes sylvanus*, small heath *Coenonympha pamphilus*, marbled white *Melanargia galathea*, holly blue *Celastrina argiolus*, and common blue *Polyommatus icarus* butterflies, cinnabar moth *Tyria jacobaeae*. The habitats contained within the site are also potentially suitable for European hedgehog *Erinaceus europaeus*, brown hare *Lepus*



*europaeus* and harvest mouse *Micromys minutus*. No evidence of these species was found incidentally during the surveys, but one squashed hedgehog was recorded on the Sweechgate road in May, the result of a traffic collision, suggesting that there is an extant population. The current management of the site for hay cropping several times a year means that the habitat is probably unsuitable for harvest mouse, and they are likely to be absent, and no evidence of presence of brown hare was found, although the wider landscape contains suitable habitat.

### 3.9.2 Pre-existing Records

The Kent and Medway Biodiversity Records Centre provided 27 records of European hedgehog *Erinaceus europaeus*, as well as records of brown hare *Lepus europaeus* and harvest mouse *Micromys minutus* within 2km of the site.

### 3.9.3 Interpretation

Based on an assessment of the habitat quality, management and botanical composition of the site, the proposed development site probably supports an assemblage of common and widespread invertebrate species only and is not likely to support significant numbers of species with high conservation status. The presence of the small heath butterfly, which is listed as a priority species (S41, NERC Act 2006) is one possible exception. This species remains relatively widespread on neutral grassland habitats where fine grasses predominate, although there is some evidence of a national decline in abundance and increased local extinction.

The proposed development site provides potentially suitable habitat for hedgehog, brown hare and harvest mouse, all of which have both been recorded locally. As such, the site is considered potentially important at no more than **local level** for the range of other notable species.

## 3.10 Invasive Non-native Species

### 3.10.1 Survey Results

One of the hedgerows located on the western site boundary contains an invasive *Cotoneaster* sp. However, this is a managed ornamental hedgerow forming part of a garden that borders the site and is unlikely to be affected as part of any development. *Buddleja davidii* was also recorded along the southern boundary of the proposed site as a possible garden escape.

### 3.10.2 Pre-existing Records

The Kent and Medway biodiversity records search indicates the presence of invasive plant species, including Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandulifera* and winter heliotrope *Petasites fragrans* within 2km of the site though none of these were recorded on the site during the current surveys.

### 3.10.3 Interpretation

The ornamental hedge comprised of *Cotoneaster* forms the boundary between the proposed development site and an adjacent private residential garden and as such, the developer is not likely to be able to exert any direct influence. The presence of invasive non-native species represents a threat to nature conservation regardless of the development proposal.



## 4 IMPACT ASSESSMENT

In this section, the predicted impacts and effects of the proposed scheme are described for each important ecological feature in turn. This is based on the best available information, both on the baseline ecological condition and on the method of construction, timescale and other development/planning constraints known at the time. The significance of the impact on nature conservation is recorded in accordance with CIEEM guidance and the degree of uncertainty relating to the occurrence and severity of an impact is discussed.

This assessment is based on the most up-to-date plan available showing the construction of up to 127 units of residential housing including a range of detached, semi-detached and terraced dwellings together with associated garden space, hard and soft landscaping and access roads and infrastructure (Figure 16). The development is set in three areas surrounded by open greenspace that retains the existing field geometry and field boundaries although these are penetrated in three locations to make way for access roads.

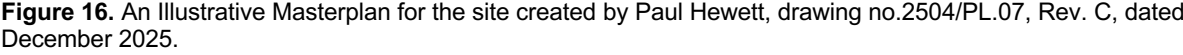
Activities that will occur during the proposed construction and operational phases that could give rise to significant ecological impacts include:

### **Construction:**

- direct harm from pollution, noise, lighting, vibration and the movement of people and construction machinery
- soil compaction
- habitat severance caused by construction works on-site
- habitat destruction during site clearance activities

### **Post construction/operation:**

- permanent habitat loss
- chronic disturbance from noise, lighting, vibration and the movement of people, vehicles on-site; risk of traffic collisions
- increased recreational use of adjacent habitats leading to soil compaction, human/dog disturbance, littering, physical damage to trees
- increase in numbers of people and pets on site.



#### 4.1.1 Impact Characterisation

The proposal will increase the number of residents within the area, and therefore there is likely to be an increase in recreational pressure upon these sites. West Blean and Thornden Woods is about 1km away from the site so is within reach to be frequented by dog walkers based in the completed development.

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Nature Reserve. The lakes at this site have, in recent years, been failing to meet favourable condition parameters because of eutrophication, believed to be caused by nutrient enrichment coming from sewage effluent. As from 2020, any new residential planning applications in this catchment have been required to demonstrate that measures to mitigate or offset the nutrient load have been put in place. Natural England have now set up a 'Nutrient Neutrality Scheme' which offers a means for developers to offset their nutrient impact on Stodmarsh (see mitigation section below).

#### 4.1.2 Significance of Effects

The proposed development is one of several similar projects that have potential impacts on Stodmarsh, which taken in combination is likely to lead to significant negative impacts on the sensitive wetland habitats it contains by contributing to the eutrophication problem. The impacts of recreation pressures are also cumulative. In the case of Stodmarsh, which has facilities for visitor management already in place, this is not expected to be significant, but it may potentially be more significant at Blean and Thornden Woods SSSI. Overall, the impacts of the proposed scheme taken in isolation upon the surrounding designated sites is considered to be significant at **local level**.

### 4.2 Habitats

#### 4.2.1 Impact Characterisation

The proposed development will result in the direct loss of a large proportion of the neutral grassland habitat area contained within the site. The current scheme layout largely retains the existing hedgerows, scrub and tree belts that border the site and separate fields, apart from short sections in three locations where access roads will cut through.

The quantity of habitat lost to the proposed scheme has been measured in accordance with the statutory requirements under the Biodiversity net Gain Condition, see, Section 6 of this document and the Biodiversity Offset Calculation). Taken from these calculations, the proposed scheme would result in the permanent loss of:

- 5.25 Ha other neutral grassland (g3c),
- 0.02 ha ruderal ephemeral (tall ruderal herbs) (g81),
- 0.03 Ha mixed scrub (h3),
- 0.01 ha bramble scrub (h3d),
- 0.037 ha one rural tree,
- 0.042 km native hedgerow (h2).

It is important to note that none of the habitat types lost to the proposed scheme are priority habitats for conservation but are relatively common and widespread across the landscape in Kent and do not support exceptionally rich biodiversity or species of high conservation importance.

#### 4.2.2 Significance of Effects

In the absence of mitigation, the habitat loss resulting from the proposed development (primarily other neutral grassland) will be significant at no more **local level**.



## 4.3 Badgers

**Please note that the following information regarding badgers may be sensitive and should be redacted if placed in the public domain.**

### 4.3.1 Impact Characterisation

During the surveys no badger setts were identified on or within the site, although there are habitats of value for badgers contained within the site and they could establish setts in the future, as they are highly likely to be present within the surrounding landscape. Construction activity has the potential to cause disturbance to badgers that may be using the site for foraging from time to time.

Disturbance from construction activity to badgers that may be present within the construction zone could be caused by noise, vibration and regular presence of people. Loss of grassland habitats will reduce the resource availability for badgers that may forage within the zone of influence of the site in future. During the construction phase there is a risk that badgers may fall/become entrapped in excavations. Impacts during the construction phase are likely to be temporary, however impacts from loss of potential foraging habitat will be permanent.

### 4.3.2 Significance of Effects

The proposed development will result in the loss of grassland habitat which is a potentially important ecological feature for badger foraging, however, there is suitable foraging habitat adjacent to the site within adjacent agricultural fields, and so the loss of habitat on site is a small proportion of the wider landscape resources that badgers are likely to be using. Badgers are generally quite adaptable, with foraging, commuting routes and the occupation of old established setts and creation of new ones is dynamic, constantly responding to new food sources and disturbance.

Since badgers are common and widespread, the impact of this scheme on the badger sett has **negligible** significance in nature conservation terms, but it is important to consider badgers from a welfare perspective and to ensure compliance with legislation should badgers become established.

## 4.4 Bats

### 4.4.1 Impact Characterisation

The proposed development has potential to result in disturbance to commuting and foraging bats, both during construction and in the long term after completion, through increased artificial lighting, disruption of commuting corridors and direct loss of the grassland habitat. The hedgerows could both be an important source of insect prey for bats and a linear feature for bats to use for commuting between roosting sites in residential buildings and foraging across the local landscape. While these features are largely retained in the proposed development, bats may cease to use them through changes in lighting or disturbance. The impacts of the loss of foraging habitat and disruption to commuting would be permanent.

### 4.4.2 Significance of Effects

Since the activity surveys did not identify the use of the site by large numbers of foraging bats, any important commuting corridors or the presence of rare bat species, these impacts of the proposed development are not predicted to be significant to bats beyond the **local** level.



## 4.5 Breeding Birds

### 4.5.1 Impact Characterisation

There is potential for impacts on breeding birds in two ways, firstly, in the absence of mitigation, direct impacts on individual birds could occur through destruction of nests, eggs and young during site preparation and construction activities. This is a low magnitude risk since much of the existing woody vegetation will be retained, and no ground nesting species were recorded using the site. Breeding birds could also be subject to disturbance from construction activities, through noise, physical disturbance to habitats and lighting. Secondly, there is a longer-term impact due to the loss of foraging habitats that supports the birds nesting in the hedgerows which, together with human disturbance and cat predation once residential development becomes occupied, could lead to the displacement of some elements of the breeding bird assemblage and replacement with species that are more adapted to urban environments. This would be expected to impact on the farmland birds that have higher conservation importance such as linnet and song thrush.

### 4.5.2 Significance of Effects

Based on the breeding bird survey results, the loss of these habitats will impact upon common and widespread species and only a small number of birds of conservation concern, and there is suitable alternative habitat for these species that will be retained as part of the scheme and across the local landscape. As such, the effects of habitat loss on individual species and the breeding bird assemblage are not considered to be significant beyond **local level**.

## 4.6 Common Dormice

### 4.6.1 Impact Characterisation

The proposed development generally avoids direct impacts to common dormouse through habitat loss, as most of the existing hedgerows, scrub and bramble suitable habitat will be retained. However, the scheme will require the permanent removal of short sections of hedgerow in four places to make way for access roads. This loss of suitable habitat is small in extent and not more than 30m wide in each case. However, the gap in the hedgerow that it creates could be viewed as a severance of ecological connectivity. The proximity to residential housing could lead to indirect impacts on dormice including artificial light spill and increased risk of predation by domestic cats, together with habitat degradation and disturbance.

### 4.6.2 Significance of Effects

The loss of a small amount of suitable dormouse habitat is probably not significant as it represents a very small proportion of the total habitat available, and only affects the suboptimal habitat where dormice were not found during surveys. It is difficult to predict the significance of the severance of these linear features on dormice as their movements across this landscape is not known, but alternative routes are available and the average distance across each gap is smaller than the gaps that they are known to be capable of crossing short distances over ground<sup>12</sup>.

The indirect impacts caused by proximity of housing is more widespread across the site and are more difficult to quantify with certainty. Overall, the impact of the proposed scheme on the dormouse population is not considered to be significant beyond **local level**.

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<sup>12</sup> Eden, S. (2009) Living with Dormice. Papadakis, Berkshire.



## 4.7 Great Crested Newts and Other Amphibians

### 4.7.1 Impact Characterisation

Based on the available survey information, the proposed development is situated approximately 200m from the nearest known breeding pond for great crested newts, and just over 200m from the ponds for which no data could be obtained, both at their closest points. Furthermore, there are significant barriers to dispersal between these locations (See Figure 17).

Much of the grassland habitat that will be lost to the scheme is situated beyond 250m and is therefore distant terrestrial habitat for great crested newts with limited importance to sustaining the population. The grassland sward is managed by regular mowing and hay cropping, which removes the tussocky structure and dense thatch favoured by this species (and reptiles) and is therefore sub-optimal habitat. The overall conclusion is that, while presence of great crested newts cannot be completely discounted, the combination of distance, significant barriers to dispersal, and sub-optimal habitat, the proposed development is highly unlikely to lead to significant effects on the conservation status of this species.



**Figure 17.** Aerial image showing distance measured between known GCN population in ponds 6 and 7 (left image) and unknown status ponds 4 and 5 (right image).

### 4.7.2 Significance of Effects

It follows that the impact of the proposed scheme upon great crested newts is not likely to be significant beyond **local level**.

## 4.8 Reptiles

### 4.8.1 Impact Characterisation

The proposed development site supports grass snake and common lizard; the permanent loss of grassland habitat to the proposed scheme could result in significant effects on these populations through direct harm to individual animals (high risk of killing and injury which would be a breach in wildlife legislation) during vegetation clearance and site preparation for construction, permanent loss of foraging habitat and severance/fragmentation of habitat across the landscape.



However, based on observations during the survey and management of the site for hay and silage cropping, most of the grassland habitat that will be lost is sub-optimal habitat for reptiles and the population is probably focused on the grassland edge bordering the hedgerows and bramble/scrub belts which act as a refuge when the grass is harvested. This zone will remain intact throughout the development process as the field boundaries are retained together with a generous buffer of grassland.

There is however a risk of harm to reptiles during construction in the absence of mitigation through inappropriate management of the grassland sward, habitat degradation through encroachment of construction activities and use of vehicles that could cause injury or mortality to reptiles. Once the development is complete, there is a longer-term risk of further habitat degradation, disturbance and mortality from recreational use of the open greenspace and predation by domestic cats (primarily of lizards).

#### 4.8.2 Significance of Effects

Based on the small population size found during the surveys, the retention of suitable habitat and the local population status of common lizard and grass snakes, the proposed development is not considered to be significant beyond the **local** level.

### 4.9 Other Notable Species

#### 4.9.1 Impact Characterisation

Based on the low biodiversity value of most of the existing habitats that will be lost to the proposed development, in general it can be concluded that important populations of other notable species are unlikely to be present.

However, based on pre-existing records the scheme has potential to impact on European hedgehog through habitat loss. Most of the existing habitat is sub-optimal for this species due to a lack of ground cover for resting hedgehogs, though the grassland habitat could potentially be used for foraging. This habitat will be replaced by residential development and the associated mosaic of private gardens and greenspace created would, in time, potentially become more suitable for hedgehogs and largely compensate the habitat lost. In the absence of mitigation, there remains a risk of direct harm to hedgehogs during construction activities, if present on the development site. In the long term, the proposed development could result in fragmentation of hedgehog foraging and resting areas as fencing between properties could restrict the movement of hedgehogs. Since there is no evidence that harvest mouse or brown hare are present on the development site, no impacts are predicted.

#### 4.9.2 Significance of Effects

The hedgehog has suffered dramatic declines in population in recent decades, although it remains widespread and has declined less severely in urban areas than rural areas<sup>13</sup>. There is a high degree of uncertainty of impacts occurring but based on the relatively low habitat quality habitat contained on the site for hedgehogs, the proposed scheme is unlikely to result in impacts that are significant beyond **local level**.

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<sup>13</sup> Warwick, H. (2016) Britain's Hedgehogs: research and the conservation effort in the face of serious decline. British wildlife Vol. 28, pp78-86



## 4.10 Invasive Non-native Species

### 4.10.1 Impact Characterisation

Buddleja, recorded growing along the southern boundary of the site is not listed on Sch. 9 of the Wildlife and Countryside Act as an invasive non-native species, it is widely regarded as such and has the potential to spread in certain circumstances, such as following ground disturbance.

There is also a risk of accidental introduction of other INNS during construction that could lead to impacts on retained habitats surrounding the development.

### 4.10.2 Significance of Effects

The spread of invasive species can lead to these species threatening native species for resources. Given continued current management practices, it is unlikely to occur until construction commences, and when this happens the site would be subject to intensive management and relandscaping so is unlikely to be allowed to spread. This impact risk is considered significant at a **site** level.

## 4.11 Cumulative Effects

### 4.11.1 Impact Characterisation

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Additive/incremental – multiple activities/projects (each with potentially insignificant effects) added together can give rise to a significant effect due to their proximity in time and space. The effect may be additive ( $1+1 = 2$ ) or synergistic ( $1+1 = 3$ ). For example, one development activity could facilitate another development activity. Associated developments may include different aspects of the project which may be authorised under different consent processes.

### 4.11.2 Significance of Effects

A detailed assessment of all other developments proposed or consented within the district is beyond the scope for this EclA. Housing targets mean that alongside other developments, this development proposal will pose a cumulative impact risk through increased visitor pressures to designated sites and will result in habitat losses and protected species impacts that may have a greater impact than the sum of their parts. National and local strategies including district licencing (for great crested newts) and objectives set through the National Planning Policy Framework should provide a mechanism to ensure development does not result in significant cumulative biodiversity losses as part of the planning process.

## 5 MITIGATION PROPOSALS

### 5.1 Designated Sites

#### 5.1.1 Impact Avoidance

Impacts from the construction phase seem highly unlikely to affect the designated sites within the local area of the site, given the distance between them. It is essential that good practice guidance is followed during the construction phase in that measures are undertaken to avoid disposal of by-products caused by construction into the landscape, including fuel and other oil spills from machinery during operation, or release of dust or air pollutants that could impact the surrounding environment.



An increase in the recreation pressure is unavoidable should the development proceed, though there is scope for mitigation and compensation measures to combat their effects. The increased nutrient load on the catchment and contribution to impacts on the Stodmarsh SAC through wastewater discharge from the development is also largely unavoidable.

### 5.1.2 Mitigation Measures

Post development there is likely to be an increase in the footfall that designated sites receive due to the increased number of residents locally. Information can be provided to new residents within property brochures to raise awareness of the importance of these sites for nature, and to encourage that they are used respectfully. This mitigation measure is however constrained to the first occupants of these properties only.

The proposed development will be required to demonstrate 'nutrient neutrality' to mitigate for the impact on Stodmarsh SAC. Natural England have developed a scheme to help developers meet this requirement, which can be accessed through the local planning authority. The scheme provides a framework for offsetting the nutrient load from the development by reducing nutrient inputs into the catchment from other sources (e.g. farming). Further guidance on current requirements for nutrient neutrality can be found on the planning authority website<sup>14</sup> and government website which contains the 'nutrient neutrality calculator'<sup>15</sup>.

### 5.1.3 Residual Effects

A degree of a residual adverse effects are always likely to occur at these designated sites, although increased pressure from visitors has been considered as a minor effect based on the distance between the proposed development to the designated sites and the likelihood is that visitor pressure on these sites will remain largely unchanged, however in conjunction with other developments nearby could be subject to cumulative effects.

### 5.1.4 Compensation Measures

The planning authority will need to consider funding for available strategies to offset the impact of visitors to designated sites, including information made to manage visitors such as raising awareness of harm from dog fouling or littering and improvements to the provision of bins for waste at these sites. Fencing off sensitive areas can also help to ensure that public encroachment risks are reduced. Funding mechanisms to achieve these objectives can be secured through the planning process and typically consider both the scale of a development and its proximity to a designated site.

## 5.2 Habitats

### 5.2.1 Impact Avoidance

The loss of grassland habitat to the proposed development is unavoidable. However, the scheme layout retains the hedgerows and bramble/scrub belts between the fields and therefore avoids direct habitat loss of the most ecologically important existing habitat types contained within the site wherever possible. The proposed development avoids impacts on priority habitats for conservation.

### 5.2.2 Mitigation Measures

It is not possible to mitigate for the direct loss of grassland habitat, although mitigation will be put in place to

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<sup>14</sup> <https://www.canterbury.gov.uk/planning-and-building/how-planning-applications-are-affected-stodmarsh-water-quality>

<sup>15</sup> <https://www.gov.uk/government/publications/stodmarsh-sac-ramsar-nutrient-neutrality-calculator>



prevent harm to priority species where possible. Indirect impacts upon the retained habitat during construction will be mitigated for by implementing standard best practice construction methods, including dust suppression techniques, enforcing site rules on preventing pollution. Encroachment by vehicles and staff onto sensitive habitat will be prevented by use of barrier fencing to establish appropriate buffer strips and root protection zones around trees and hedgerows. A Construction Environmental Management Plan (CEMP) shall be prepared that sets out these measures in detail.

Post construction, the effects of recreation pressure on the retained habitats will be mitigated by establishing defined footpaths through the public open greenspace, fencing and signage to focus and direct public access away from the more sensitive areas, while also allowing the benefits to the local community that arise from improved connectivity to natural greenspace and wildlife. The biodiversity value shall be communicated through information panels and signage. Dog waste bins and prohibition signs (e.g. no cycling, motorised vehicles, lighting fires/BBQs, ball games) will be used to encourage appropriate recreational use of the site.

### 5.2.3 Residual Effects

The permanent loss of the grassland habitat remains a residual effect that cannot be avoided or mitigated. This is significant at a local level and will be compensated through the Biodiversity Net Gain Condition which came into effect as a mandatory requirement for developments in February 2024.

### 5.2.4 Compensation Measures

The current scheme includes some retained and new areas of grassland habitat on site that can be enhanced to go some way to compensate for the loss of grassland habitats, but in addition it will require a substantial biodiversity offset as, despite these habitat enhancements, it does not yet meet the 10% net gain mandatory requirement (see Section 6, Biodiversity Offset Calculation).

## 5.3 Badgers

### 5.3.1 Impact Avoidance

No badger setts have been identified throughout the surveys. However, as badgers are common and widespread across the local landscape and the site contains habitat of value to foraging badgers, there is a chance that badgers could establish new setts at any time. The loss of potential foraging habitat for badgers is unavoidable but it is important to ensure that impacts to badgers and their setts is prevented where possible, and mitigation put in place where impacts cannot be avoided.

Survey information on the status of badgers across the development site should be updated at least six months prior to the commencement of site preparation and construction. This includes a comprehensive walkover survey to determine whether any new setts have been established in the intervening period, and appropriate monitoring of the known sett (and any new ones) to determine whether they are currently occupied or not.

If an active sett is found, mitigation measures shall follow the mitigation hierarchy with a preference for avoiding direct impacts on the sett wherever possible as the first option. The updated surveys shall be conducted with sufficient lead-in times to allow time for a licence application where necessary, so that mitigation can be put in place to avoid inadvertent harm to badgers.

### 5.3.2 Mitigation Measures

Although considered unlikely, if a sett is identified prior to construction and direct impacts cannot be avoided,



a licence will be required from Natural England that permits 'interference with a sett for the purpose of development'. It is a condition of the licence that adequate mitigation measures are put in place to prevent harm to badgers, and licences can only be issued for sett closures between July and November inclusive.

As standard practice, construction site safeguarding measures are recommended during the construction period to prevent harm to badgers. All deep excavations should be kept covered at night, or a means of escape provided (ramp or ladder) to prevent entrapment of badgers, and all hazardous waste, chemicals or food should be suitably contained to prevent access by badgers.

### 5.3.3 Residual Effects

There are no residual effects identified.

### 5.3.4 Compensation Measures

None are required.

## 5.4 Bats

### 5.4.1 Impact Avoidance

The proposed scheme retains all existing hedgerows, scrub belts and treelines and, together with the buffer zones and open greenspace that has been incorporated into the design layout, this will minimise impacts on commuting and foraging flightpaths used by bats. However, the loss of open grassland to the proposed scheme cannot be avoided and remains a potential impact for the small foraging bat assemblage present at the site.

### 5.4.2 Mitigation Measures

Where possible, lighting proposals must be restricted to reduce impact risks to bats. It is important that the proposed scheme incorporates a 'sensitive lighting plan' developed as part of the detailed design, in accordance with guidelines set out by the Bat Conservation Trust. (summarised in Appendix 8). This should include measures to minimize light spill onto all semi-natural habitats and measures to create 'dark corridors' alongside the retained hedgerows through the development site, for example, all street lighting should be shielded and directed downwards and use light sources that are not attractive to insects. Reflective white line marking should be used in preference to artificial lighting in all non-essential applications.

Any mature trees that must be felled to facilitate the development will be assessed for their bat roost potential in advance. Further surveys and mitigation, either by using precautionary felling techniques or under an EPS licence if required, will be undertaken in accordance with best practice guidance.

### 5.4.3 Residual Effects

These impact avoidance and mitigation measures will reduce the impact of the proposed development to an acceptable level so that the residual effects are not considered significant beyond **site level** in the long term.

### 5.4.4 Compensation Measures

The habitat enhancement measures put in place to provide some biodiversity gain include improvements to botanical diversity in the remaining grassland buffer strips and open greenspace (see Biodiversity Offset Calculation, section 6). This will in turn encourage invertebrate diversity that will bring benefits to bats through improved prey availability and foraging opportunities.



As a specific enhancement feature for bats, the new buildings of the residential development should incorporate bespoke bat roosting features into the fabric of the building. This will provide new permanent roosting opportunities for bats that use the site for foraging. The location and number of these features can be set out through the preparation of a landscape and ecology management plan or similar document and secured through the planning conditions.

## 5.5 Breeding Birds

### 5.5.1 Impact Avoidance

The proposed development has been designed to retain most of the existing tree lines and hedgerows and therefore avoids significant nesting habitat loss for breeding birds. However, the loss of grassland habitats that are potentially used for foraging by the breeding bird assemblage cannot be avoided to make way for the development. The loss of short sections of hedgerow and scrub to construct access roads cannot be avoided.

### 5.5.2 Mitigation Measures

To prevent direct impacts on nesting birds and comply with legislation, all vegetation removal, including felling of trees, clearance of scrub and bramble to make way for construction of access roads shall be timed outside of the nesting bird season (typically 1 March to 31 August inclusive).

### 5.5.3 Residual Effects

The unavoidable loss of open grassland to the development represents a residual impact on breeding birds as it cannot be mitigated for. However, based on the baseline survey findings, the effects on individual species and the breeding bird assemblage are not likely to be significant beyond **site level**.

### 5.5.4 Compensation Measures

The landscape planting scheme includes new lines of trees and hedgerows planted around the perimeter of the residential parcels around the scheme. These new habitats will compensate for the loss of short sections of hedgerows, scrub belt and trees that are lost to the scheme (see Biodiversity Offset Calculation, section 6) and will provide new nesting opportunities for birds.

As for bats, the habitat enhancements included in the buffer strips and open greenspace around the development will encourage invertebrate diversity that will in turn provide additional food sources for the local breeding bird assemblage.

In addition, the new buildings on the residential development should incorporate bespoke nesting opportunities such as sparrow terraces and swift boxes to encourage these species into the site. This will be specified in detail in a detailed Landscape and Ecology Management Plan for the development scheme to be approved by the local planning authority under reserved matters and represents a habitat enhancement.

## 5.6 Common Dormouse

### 5.6.1 Impact Avoidance

As for nesting birds, the proposed development has been designed to retain most of the existing tree lines and hedgerows and therefore avoids significant habitat loss and direct impacts on dormice to a large degree. The proposed clearance of short sections of hedgerow and scrub belt to make way for construction of access roads is, however, unavoidable.



### 5.6.2 Mitigation Measures

While the proposed development results in small scale habitat loss that is unlikely to affect conservation status, there remains a small risk of direct harm to individuals at the four locations to make way for access roads, and there are potential indirect impacts in the longer-term once the development becomes occupied.

A European Protected Species (EPS) licence will be required (under current legislation) for the development to legally proceed. Mitigation to prevent harm to individuals will involve careful timing of vegetation clearance at the end of autumn, when dormice have finished breeding but are still active and not yet in hibernation. The section of habitat shall be subject to a comprehensive search for dormouse nests immediately before and during the clearance process, under supervision by a licensed ecologist.

The scheme shall include an 'ecologically sensitive lighting plan' as described for bats. This will serve to minimise artificial light spill onto dormouse habitat as well as commuting and foraging routes for bats and establish 'dark corridors' around the development site.

All retained habitats shall be protected from damage throughout the construction phase by implementing the protection measures (buffer strips, barrier fencing and root protection zones) as described in Section 5.2.2. The proposed scheme incorporates generous buffer strips to protect the retained dormouse habitat; these represent an opportunity for enhancement that will compensate for impacts to dormouse.

Mitigation for the potential long-term impacts from residents occupying the new development is more difficult to achieve with certainty but will include signage to raise awareness of the ecological value of the open greenspace and hedgerows, and clearly demarcated footpaths through the open greenspace. The use of strategically planted thorny scrub (and/or tolerance/encouragement of native brambles) would help to reduce the threat of predation from domestic cats.

### 5.6.3 Residual Effects

Provided that measures are put in place above, there are no predicted residual effects on common dormouse.

### 5.6.4 Compensation Measures

The open greenspace and buffer strips around the site represent an opportunity to plant with native scrub and tree species that are known to provide a source of food and shelter to dormice. The existing hedgerow along the eastern and northern boundaries of the site are currently in poor condition and could be significantly improved for dormice. Such habitat enhancement and planting will need to be consistent with the proposed landscape design and comply with trading rules on the biodiversity net gain calculation (see Biodiversity Offset Calculation, section 6).

## 5.7 Great Crested Newts and Other Amphibians

### 5.7.1 Impact Avoidance

Based on the available information, the proposed development does not require mitigation under an EPS licence for great crested newts. However, the presence of an occasional animal cannot be completely discounted, and it is recommended that the scheme proceeds under 'reasonable avoidance measures' set out under a method statement to prevent an offence from occurring. These measures are set out below.



### 5.7.2 Mitigation Measures

The reasonable avoidance measures for great crested newts shall be done in conjunction with that for reptiles. It is the same procedure for both.

Prior to commencement of any construction activities, the protection measures set out in Section 5.2.2 above (buffer strips, protective fencing, root protection zones) shall be established around all retained vegetation. The open grassland fields shall be mechanically cut to a height of 150mm and all arisings removed. This should be left undisturbed for a short period (2-3 days/nights) to allow any remaining animals to move away and seek refuge in the retained habitat and buffer strips. A second pass to mow the grass to a height of less than 50mm will then render the construction zone as unsuitable habitat for amphibians and reptiles. These operations should be undertaken in spring/summer during warm weather conditions when amphibians and reptiles are active and able to take evasive action of their own volition.

These measures shall be set out under a detailed method statement, coupled with a toolbox talk and overseen by a suitably qualified ecologist. In the unlikely event that a great crested newt is encountered at any stage during this process, all works should cease, and this assessment re-evaluated to determine whether an EPS licence is now required.

### 5.7.3 Residual Effects

Provided that measures are put in place above, the risk of impacts on great crested newts is considered negligible, although this is subject to revision in the unlikely event that one is found during the precautionary measures.

### 5.7.4 Compensation Measures

Based on the above assessment there is no requirement for compensation for impacts upon great crested newts. The habitat enhancement measures set out under the Biodiversity Net Gain Condition will serve to provide suitable distant terrestrial habitat for great crested newts, should they colonise the completed development site.

## 5.8 Reptiles

### 5.8.1 Impact Avoidance

The loss of grassland habitat to the proposed development is unavoidable. However, the scheme layout retains the hedgerows and bramble/scrub belts between the fields and therefore avoids loss of the most important habitat for reptiles wherever possible.

### 5.8.2 Mitigation Measures

As previously stated, the risk of impacts on reptiles is relatively small, provided that the current hay cropping management regime is continued until commencement and measures are put in place to protect the retained habitat features. There remains a risk of killing and injury to reptiles during the initial vegetation clearance and preparation of the site, should they be present in the open grassland fields and construction zone at that time. This risk can be mitigated in conjunction with the reasonable avoidance methods described in Section 5.7.2 above for great crested newts. It is the same procedure for both.

Should the habitat condition change in the intervening time between this EcIA and the commencement of construction, the above assessment should be reviewed, as informed by updated surveys as appropriate.



Post construction impacts such as predation by domestic cats can be mitigated by planting of thorny scrub species as described for common dormouse.

### 5.8.3 Residual Effects

Provided that measures are put in place above, the residual risk of impacts are reduced to site level for common reptiles.

### 5.8.4 Compensation Measures

The habitat enhancement measures set out under the Biodiversity Net Gain Condition will serve to provide enhanced habitat for the common reptile population. This can be further improved by the installation of strategically placed log piles and bespoke reptile hibernacula in suitable locations in the open greenspace, away from areas of public footpaths and residential zones. The location and number of these features can be set out through the preparation of a landscape and ecology management plan or similar document and secured through the planning conditions.

## 5.9 Other Notable Species

### 5.9.1 Impact Avoidance

As described above, the most ecologically important habitats contained within the site are retained throughout this proposed development. The loss of open grassland habitat is unavoidable, but as stated this habitat has less ecological value than the retained field boundaries, although it probably supports an assemblage of common and widespread terrestrial invertebrates and plants which probably provides a food resource supporting breeding birds, foraging bats and potentially hedgehogs.

### 5.9.2 Mitigation Measures

It is not possible to mitigate for the permanent loss of grassland habitat. However, the retention of grassland buffer strips around the retained field boundaries will help maintain populations of wild plants and invertebrates that are supported in the open fields. This includes the small heath butterfly, which is a priority species for conservation.

The mitigation measures (progressive mowing) put in place to prevent harm to common reptiles will also reduce the risk of harm to hedgehogs during the construction.

Soft landscaping within the development site should consider hedge planting to define the residential gardens where possible, in place of 'hard' fencing. This will provide potentially suitable resting places and maintain permeability through the urban landscape for hedgehogs. These hedges will also provide nesting habitat and cover for garden birds, suitable for two of the priority species present at the site, dunnoek and song thrush.

### 5.9.3 Residual Effects

The unavoidable loss of open grassland to the development represents a potential residual impact, significant at **local level**, although there is always some uncertainty with this assessment in the absence of information on presence of hedgehogs or important invertebrate species. The retention of a proportion of the grassland habitat will help to maintain populations of invertebrates and other species, but the fragmentation of the large expanses of grassland habitat represents an unavoidable residual impact.



#### 5.9.4 Compensation Measures

The retained field boundary, associated grassland buffer strips and open greenspace represents an opportunity for habitat enhancement measures as described in Section 5.2.4. Grassland management targeted at maintaining suitable habitat for small heath butterfly should be included in the landscape and ecology management plan, as secured through planning conditions, and measures to improve botanical diversity (e.g. reseeded with a wildflower meadow mix and yellow rattle) will provide significant benefits to the invertebrate assemblage, and in turn the other species that feed on them. This will provide some compensation for the residual impacts, together with the measures to satisfy to the Biodiversity Net Gain condition.

### 5.10 Invasive Non-native Species

#### 5.10.1 Impact Avoidance

The existing site is relatively clear of invasive non-native species apart from some small amounts of buddleja along the southern boundary and an ornamental cotoneaster hedge to the west. Consideration shall be given throughout the life of the development to avoid the introduction of non-native species. This includes ensuring that all machinery and imported materials are free from contamination and that the soft landscape scheme does not include non-native ornamental species with potential to escape and become invasive (e.g. buddleia, cotoneaster, Japanese rose, rhododendron).

#### 5.10.2 Mitigation Measures

The developer is unlikely to be able to exert influence on the ornamental Cotoneaster hedgerow as it is part of the neighbouring domestic garden. To help prevent further spread during construction, the scattered Buddleja bushes backing the rear of the residential houses along Sweechgate could be removed prior to commencement.

Best practice construction measures will be implemented to prevent importing INNS and the final soft landscape scheme shall not include any species with potential to become invasive.

#### 5.10.3 Residual Effects

There are no identified residual impacts.

#### 5.10.4 Compensation Measures

Not applicable.

## 6 BIODIVERSITY ENHANCEMENTS

The Ecology Co-op was commissioned to undertake a 'Biodiversity Impact Calculation' for the proposed scheme for the Land at West of Herne Bay Road, Sturry. The results of this exercise are reported in a separate report<sup>16</sup> that should be read in conjunction with this document.

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<sup>16</sup> Ecology Co-op (2024) Biodiversity Impact Calculation; Broad Oak, Canterbury. Unpublished report prepared by The Ecology Co-op on behalf of Fairfax Properties Ltd. Dated 3<sup>rd</sup> January 2025.



The calculation demonstrated that the proposed scheme results in a net loss of biodiversity units (-35.28 units) and for 'linear habitats' (hedgerows and tree lines), the calculation demonstrated a net gain in biodiversity units (+0.39). For a scheme to be delivering net gain and meet the statutory requirements, the calculated gain must exceed 10% of the gross loss of biodiversity units calculated for the site. In this case, that means that an off-site biodiversity credit should be sought to offset the loss of neutral grassland habitat.

The aim of the biodiversity offset calculation is to provide an objective measure of the losses and gains in biodiversity resulting from the current layout and habitat retention, enhancement package and determine whether the overall scheme results in a net gain or net loss in biodiversity. Any net loss in biodiversity can be offset by contributing towards habitat creation or restoration at another off-site location.

There are also opportunities for biodiversity enhancement through the installation of wildlife infrastructure such as nesting boxes for birds, roosting bats on new buildings, and reptile hibernacula strategically placed around the site. These additional enhancement measures could be secured through a Landscape and Ecology Management Plan (LEMP) document that sets out the number, type and location of enhancement features that will be provided, the on-going maintenance needs and responsibilities and secured through the planning conditions.

## 7 CONCLUSIONS

A summary of the EcIA process is presented in Table 13 below.

**Table 13.** EcIA summary table

| Ecological feature                     | Importance    | Impact characterisation                                                                                                   | Impact significance                         | Avoidance/Mitigation                                                                         | Residual effects                                                                             | Compensation/enhancement opportunities                              |
|----------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Designated sites – 'The Blean Complex' | International | increasing the local residential population leading to increased recreation pressure                                      | Local but cumulative with other development | Follow best practices, Raise awareness of residents                                          | Local but cumulative with other development                                                  | Planning authority to consider strategies to offset visitor impacts |
| Stodmarsh SSSI, SAC, Ramsar, SPA       | International | Increase nutrient load to designated wetland. Increased recreational pressure.                                            | Local but cumulative with other development | Apply 'nutrient neutrality' calculations                                                     | Negligible (with nutrient neutrality). Local (recreation), cumulative with other development | Planning authority to consider strategies to offset visitor impacts |
| Habitats contained within the site     | Local         | Direct loss of open 'other neutral grassland', Indirect impacts on retained boundary features (hedgerow, lines of trees). | Local                                       | Loss of grassland, but priority habitats protected; boundary features retained with buffers. | Permanent loss of open grassland habitat unavoidable. Significant at local level.            | Adherence to Biodiversity Net Gain condition.                       |



| Ecological feature          | Importance | Impact characterisation                                                                                                                          | Impact significance                          | Avoidance/Mitigation                                                                                                                                        | Residual effects | Compensation/enhancement opportunities                                                                       |
|-----------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------|
| Badgers                     | Negligible | Loss of grassland <i>potential</i> foraging habitats.                                                                                            | Negligible unless badgers colonise in future | Apply precautions and remain vigilant for changes, follow best practice.                                                                                    | Negligible       | None required                                                                                                |
| Foraging and commuting bats | Local      | Loss of supporting habitat (open grassland) and disturbance. Disruption to commuting routes by artificial lighting.                              | Local                                        | Existing linear features retained with buffer zones to reduce habitat loss and flight path disruption. Sensitive lighting plan including 'dark corridors'.  | Negligible       | Enhanced habitat along linear features, introduction of new roosting opportunities in new built environment  |
| Breeding birds              | Local      | Low risk of direct harm to nesting birds during site preparation and construction. Permanent loss of supporting habitat.                         | Local                                        | Vegetation clearance to be timed outside nesting season. Most important habitat (hedgerow and trees) are retained with buffer zones.                        | Negligible       | Habitat enhancement measures to improve foraging availability. Adherence to Biodiversity Net Gain condition. |
| Common dormouse population  | Local      | Severance of hedgerow connectivity, human disturbance. Predation by domestic cats.                                                               | Local                                        | Most important habitat (hedgerow and trees) are retained with buffer zones. Timing vegetation clearance outside of breeding season. EPS mitigation licence. | Negligible       | Native shrub and hedgerow planting, improved maintenance of retained hedgerows with buffers.                 |
| Great crested newts         | Local      | Loss of sub-optimal open grassland habitat only. All other potential habitat retained. Impacts unlikely due to barriers to dispersal from ponds. | Local                                        | Reasonable avoidance measures                                                                                                                               | Negligible       | Native shrub and hedgerow planting, improved maintenance of retained hedgerows with buffers.                 |
| Common reptiles             | Local      | Loss of grassland habitat, killing/injuring animals during vegetation clearance/. Predation by domestic cats.                                    | Local                                        | Reasonable avoidance measures                                                                                                                               | Negligible       | Native shrub and hedgerow planting, improved maintenance of retained                                         |



| Ecological feature                           | Importance | Impact characterisation                                                                                                                                                      | Impact significance | Avoidance/Mitigation                                                                                                                                           | Residual effects | Compensation/enhancement opportunities                                                                                       |
|----------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------|
|                                              |            |                                                                                                                                                                              |                     |                                                                                                                                                                |                  | hedgerows with buffers.                                                                                                      |
| Other notable species: European hedgehog     | Local      | Loss of grassland habitat, killing/injuring animals during vegetation clearance, Disruption to commuting routes by artificial lighting. Increased risk of traffic mortality. | Local               | Most important habitat (hedgerow and trees) are retained with buffer zones. Timing vegetation clearance outside of hibernation season. EPS mitigation licence. | Negligible.      | Habitat enhancements of retained field boundaries and grassland buffer strips.                                               |
| Other notable species: Small heath butterfly | Local      | Loss of open grassland habitat, fragmentation.                                                                                                                               | Local               | Loss and fragmentation of suitable open grassland unavoidable, but some grassland retained in buffer strips                                                    | Local            | Habitat enhancements of retained field boundaries and grassland buffer strips. Adherence to biodiversity net gain condition. |
| Invasive Non-native species                  | Site       | Risk of Buddleia spreading, and other INNS introduced during construction                                                                                                    | Site                | Ensuring machinery and imported materials are free from INNS. Removal of Buddleja prior to commencement.                                                       | Negligible       | N/A                                                                                                                          |



## APPENDIX 1 – LEGISLATION AND POLICY

### Introduction

The following text is intended for general guidance only and does not constitute comprehensive professional legal advice. It provides a summary of the current legal protection afforded to wildlife in general and certain species. It includes current national planning policy relevant to nature conservation.

### The ‘Birds Directive’, ‘Habitats Directive’ and ‘Natura 2000 Sites’

The Council Directive 79/409/EEC on the Conservation of Wild Birds (“the Birds Directive”) sets a framework for the protection of wild birds. Under the Directive, several provisions are made including the designation and protection of ‘Special Protection Areas’ (SPAs) – areas which support important bird populations, and the legal protection of rare or vulnerable species.

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the “Habitats Directive”) directs member states of the EU to take measures to maintain the favourable conservation status of important habitats and species. This requires the designation of a series of sites which contain important populations of species listed on Annex II of the Directive. Together with ‘Special Areas of Conservation’ (SACs), SPAs form a network across Europe of protected areas known as the ‘Natura 2000’.

Annex IV lists species in need of more strict protection, these are known as “European Protected Species (EPS)”. All bat species, common dormice *Muscardinus avellana*, otter *Lutra lutra* and great crested newts *Triturus cristatus* are examples of EPS that are regularly encountered during development projects.

### The ‘Habitats Regulations’

The Conservation of Habitats and Species Regulations 2017, as amended (the Habitats Regulations”) is the principle means of transposing the Habitats Directive and the Birds Directive, and updates the Conservation (Natural Habitats, &c.) Regulations 1994 (“the 1994 regulations”) in England and Wales.

‘Natura 2000’ sites, now known as National Site Network sites under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, receive the highest level of protection under the Regulations which requires that any activity within the zone of influence of these sites would be subject to a Habitats Regulations Assessment (HRA) by the competent authority (e.g. planning authority), leading to an Appropriate Assessment (AA) in cases where ‘likely significant effects’ to the conservation objectives are identified.

For European Protected Species, Regulation 41 makes it a criminal offence to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb wild animals of such species;
- deliberately take or destroy their eggs (where relevant);
- damage or destroy a *breeding or resting place* of such an animal;
- possess, control, sell or exchange any live or dead animal or plant, of such species;
- deliberately pick, collect, cut, uproot or destroy a wild plant of such species.

The Habitats Directive and Habitats Regulations provide for the derogation from these prohibitions for specific reasons provided certain conditions are met. An EPS licensing regime allows operations that would otherwise be unlawful acts to be carried out lawfully. Natural England is the licensing Authority and, in order to grant a



license, ensures that three statutory conditions (sometimes referred to as the ‘three derogation tests’) are met:

- a licence can be granted for the purposes of “preserving public health or safety or for other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment” (Regulation 53 (2) (e));
- a licence can be granted if “there are no satisfactory alternatives” to the proposed action;
- a licence shall not be granted unless the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

### **Wildlife and Countryside Act (1981) as amended**

The Wildlife and Countryside Act (1981)<sup>17</sup> remains one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).

Under the Wildlife and Countryside Act (WCA) 1981, all wild birds (with the exception of those listed on Schedule 2), their eggs and nests are protected by law and it is an offence to:

- take, damage or destroy the nest of any wild bird while it is in use or being built
- take or destroy the egg of any wild bird
- disturb any bird listed on Schedule 1, while it is nest building, or at a nest with eggs or young, or disturb the dependant young of any such bird.

Schedule 5 lists all non-avian animals receiving protection to a varied degree. At its strongest, the Act makes it an offence to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturb animals while occupying such places. Examples of species with *full protection* include all EPS, common reptile species, water vole *Arvicola amphibius*, white-clawed crayfish *Austropotamobius pallipes* and Roman snail *Helix pomatia*. Other species are protected from sale, barter or exchange only, such as white letter hairstreak *Satyrrium w-album*.

The Act makes it an offence to intentionally pick, uproot or destroy any plant or seed, and sell or possess any plant listed on Schedule 8. It is also an offence to intentionally uproot any wild plant not listed on Schedule 8 unless authorised [by the land owner]. Species on Schedules 5 and 8 are reviewed every 5 years when species can be added or removed.

Measures for the prevention of spreading non-native species which may be detrimental to native wildlife is included in the Act, which prohibits the release of animals or planting of plants into the wild of species listed on Schedule 9 (for example Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandifera*, New Zealand Pygmyweed *Crassula helmsii*).

The Wildlife and Countryside Act 1981 (as amended) also prohibits certain inhumane methods of traps and devices for the capture or killing of wild animals and certain additional methods such as fixed trap, poisoning with gas or smoke, or spot-lighting with vehicles for killing species listed on Schedule 6 of the Act (this includes all bat species, badger, otter, polecat, dormice, hedgehog and red squirrel).

### **Natural Environment and Rural Communities (NERC) Act (2006)**

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<sup>17</sup> Wildlife and Countryside Act (WCA) (1981). HMSO London.



The NERC Act (2006)<sup>18</sup> places a statutory duty under Section 40 on all public bodies, including planning authorities, to take, or promote the taking by others, steps to further the conservation of *habitats and species of principal importance for the conservation of biodiversity* in England (commonly referred to as the 'Biodiversity Duty'). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers. Section 41 lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants, invertebrates through to mammals and birds. It originates from the priority species listed under the UK Biodiversity Action Plan (UK BAP) with some omissions and additions.

### **Environment Act (2021)**

The Environment Act sets a target of halting the decline in species through the inclusion of a legally binding 2030 species abundance target. Aiming to restore natural habitats and enhance biodiversity, the Act requires new developments to improve or create habitats for nature (through mechanisms such as mandatory Biodiversity Net Gain), and tackle deforestation. Going forwards, UK businesses will need to look closely at their supply chains as amongst other measures they will be prohibited from using commodities associated with wide-scale deforestation. Woodland protection measures are also strengthened through the Act.

The Act enables the reform of the Habitats Regulations and further improves protection for nature through the establishment of Local Nature Recovery Strategies that support national Nature Recovery Networks. In addition, the Act provides for the production of Protected Site Strategies and Species Conservation Strategies, aimed at supporting the design and delivery of strategic approaches to deliver better outcomes for nature.

### **Protection of Badgers Act (1992)**

The Badger *Meles meles* is afforded specific legal protection in Britain under the Protection of Badgers Act (1992)<sup>19</sup>, and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) (see above).

Under this legislation, it is a criminal offence to:

- intentionally kill, injure, take, possess, or cruelly ill-treat, a Badger, or to attempt to do so;
- interfere with a sett, by damaging or destroying it;
- to obstruct access to, or any entrance of, a badger sett; or
- to disturb a badger when it is occupying a sett.

A licence may be obtained from Natural England to permit certain prohibited actions for a number of defined reasons including interference of a sett for the purpose of development, provided that a certain number of conditions are met. Note that licenses are not normally granted for works affecting badgers between the end of November and the start of July.

### **National Planning Policy Framework**

The National Planning Policy Framework (NPPF 2023)<sup>20</sup> sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

Paragraph 185b, states that council plans should "*promote the conservation, restoration and enhancement of*

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<sup>18</sup> Natural Environment and Rural Communities Act (2006). HMSO London.

<sup>19</sup> Protection of Badgers Act (1992). HMSO London.

<sup>20</sup> HM Government (2023). National Planning Policy Framework. Department for Communities and Local Government. Available online at: [https://assets.publishing.service.gov.uk/media/64f991c99ee0f2000fb7c001/NPPF\\_Sept\\_23.pdf](https://assets.publishing.service.gov.uk/media/64f991c99ee0f2000fb7c001/NPPF_Sept_23.pdf).



*priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.”*

The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, 2005)<sup>21</sup>. In accordance with the NPPF, it is important that developments should contribute to and enhance the natural and local environment by:

- minimising impacts on existing biodiversity and habitats;
- providing net gains in biodiversity and habitats, wherever possible;
- establishing coherent ecological networks that are more resilient to current and future pressures.

## **UK Post-2010 Biodiversity Framework**

The UK Biodiversity Action Plan (UK BAP), published in 1994, was the UK's response to the commitments of the Rio Convention on Biological Diversity (1992). The UK BAP was replaced by the UK Post-2010 Biodiversity Framework. This framework covers the period 2011 to 2020 and forms the UK government's response to the new strategic plan of the United Nations Convention on Biodiversity (CBD) published in 2010. This promotes a focus on individual countries delivering target for protection for biodiversity through their own strategies.

The most recent biodiversity strategy for England, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra (2011)<sup>22</sup>, and a progress update was provided in July 2013 (Defra 2013)<sup>23</sup>.

'Biodiversity 2020' builds on the Natural Environment White Paper for England – 'The Natural Choice', published on 7 June 2011, and sets out the strategic direction for biodiversity policy for the next decade.

Biodiversity 2020 deliberately avoids setting specific targets and actions for local areas because Government believes that local people and organisations are best placed to decide how to implement the strategy in the most appropriate way for their area or situation.

## **Birds of Conservation Concern (BoCC)**

In 1996, the UK's leading non-governmental bird conservation organisations reviewed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every five years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2021<sup>24</sup> (Stanbury et al, 2015), which provides an up to date assessment

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<sup>21</sup> HM Government (2005) ODPM Circular 06/05 Government Circular: *Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*. Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/7692/147570.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf).

<sup>22</sup> Defra (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services. Available at: <https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services>.

<sup>23</sup> Defra (2013) Progress Update. Available at: <https://www.gov.uk/government/publications/biodiversity-2020-simple-guide-and-progress-update-july-2013>.

<sup>24</sup> Stanbury, A., Eaton, M., Aebischer, N., Balmer, N., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). Birds of Conservation Concern 5: the status of bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 114, pp 723-747.



of the conservation status of birds in the UK.



## APPENDIX 2 – LOCAL PLANNING POLICY

**Table 6.** Local policy plan for Canterbury District Council.

| Policy Number/Title                                                                                                   | Policy Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LB5 - Sites of international conservation importance                                                                  | <p>No development will be permitted if it may have an adverse effect on an SAC, SPA or Ramsar site alone or in combination with another plan.</p> <p>It will need to be considered by Canterbury City Council to work out appropriate mitigation and these must be funded by the developer.</p>                                                                                                                                                                                                                                                                                                                                                 |
| LB6 - SSSIs                                                                                                           | <p>Development on or near SSSIs is not usually permitted but may only be permitted if:</p> <ul style="list-style-type: none"> <li>the objectives of that designated site won't be affected by the development; or</li> <li>these adverse effects cannot be avoided and there is no other site which would make for less impacts, in this case the impacts must be fully mitigated or clearly outweighed by social and economic benefits of the site.</li> </ul>                                                                                                                                                                                 |
| LB7 - Locally designated sites                                                                                        | <p>Development which may affect Local Wildlife Sites, LNRs will only be permitted if the justification for the proposals clearly outweighs any harm to the intrinsic nature conservation value of the site and when it is permitted, the mitigation should be carefully considered. If this mitigation isn't adequate, compensatory habitat creation will be needed.</p>                                                                                                                                                                                                                                                                        |
| LB8 - Landscape scale biodiversity network                                                                            | <p>New development needs to show that it will avoid fragmentation of existing habitats and support the creation of coherent ecological networks through both rural and urban areas, retain existing ecological features (ancient woodland, rivers, hedgerows, grassland, wetlands etc), lighting should be sensitively designed to prevent disturbance to protected species and habitats should have improved connectivity.</p>                                                                                                                                                                                                                 |
| LB9 - Protection, mitigation, enhancement and increased connectivity for species and habitats of principal importance | <p>Developers will be expected to pay for ecological surveys to be undertaken and submit the results with their proposals.</p> <p>If impacts on wildlife will be too significant the council will need the developer to find a suitable alternative site and if not, the application may be refused.</p> <p>Development to these sites will not be permitted unless: there are no reasonable alternatives, adequate mitigation is planned in advance and proven to the council, overall mitigation is secured long-term to then prevent further development to the surrounding area, the development also funds the management of habitats.</p> |
| LB10 - Trees, hedgerows and woodland                                                                                  | <p>Development should be designed to retain trees, hedgerows and woodland which make a good contribution to the amenity of the site and surrounding area. The council will refuse plans which could threaten the future retention of trees, hedgerows and woodland unless, the social and economic need outweighs the negative impacts or adequate mitigation, and compensation measures can be implemented.</p>                                                                                                                                                                                                                                |



## APPENDIX 3 - IMPORTANCE OF ECOLOGICAL FEATURES

**Table 1.** Determining importance of an ecological feature.

| Level of importance | Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| International       | <p>Internationally designated site; Special Protected Area (SPA), Special Areas of Conservation (SAC), Ramsar, Biosphere Reserves;</p> <p>Regularly occurring population of internationally important species listed in Annex 1, 2 or 4 of the Habitats Directive and Annex 1 of the Birds Directive;</p> <p>A viable area of a habitat listed in Annex 1 of the Habitats Directive or area important for maintaining viability listed as in Annex 1 of the Habitats Directive;</p> <p>Areas outside designated sites that are important for supporting and maintaining the viability of the above designated habitats and/or species.</p>                                                                                     |
| National            | <p>Nationally designated sites; Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Local Nature Reserves (LNR).</p> <p>A sufficiently large population of a species or area of habitat listed as a priority for nature conservation (S41 NERC Act) to make a significant contribution to the national conservation status (e.g. greater than 1% of the national total).</p> <p>A viable or regularly occurring population of a species that is nationally scarce, threatened or declining on a national scale.</p> <p>A habitat type that is nationally scarce, threatened or declining on a national scale.</p>                                                                                       |
| Regional            | <p>A habitat type that is scarce, threatened or declining on a regional scale.</p> <p>A sufficiently large population of a species or area of habitat listed as a priority for nature conservation (S41 NERC Act) to make a significant contribution to the regional conservation status (e.g. greater than 1% of the national total).</p>                                                                                                                                                                                                                                                                                                                                                                                     |
| County              | <p>Locally designated sites; Local Wildlife Sites (LWSs), Sites of Nature Conservation (SNCIs) and Site of Importance for Nature conservation (SINCs).</p> <p>A sufficiently large population of a species or area of habitat listed as a priority for nature conservation (S41 NERC Act) to make a significant contribution to the conservation status of the species at county level (e.g. greater than 10% of the county total).</p> <p>A viable or regularly occurring population of a species that is rare in the county, but may be common and widespread elsewhere, For example, a population at the edge of a species' range.</p> <p>A habitat type that is scarce in a county but may be more frequent elsewhere.</p> |
| Local/parish        | Habitats and species which are scarce in the local area but are sufficiently common and widespread elsewhere that they do not meet the above criteria.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Site/negligible     | Habitats with little to no ecological value (e.g. amenity grassland and hardstanding)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |



## APPENDIX 4 – BOTANICAL SURVEY RESULTS.

**Table 1.** Species list and abundance (DAFOR Scale – D=dominant; A=abundant; F=frequent; O=occasional; R=rare) for each field for the Land West of Herne Bay Road, Sturry. AWI= Ancient Woodland indicator species; SCH 9=invasive non-native species listed on Schedule 9 of the Wildlife and Countryside Act (1981) as amended.

| Unique Polygon Reference: |                              | ONG1 | ONG3 | ONG2 | ONG4 |
|---------------------------|------------------------------|------|------|------|------|
| UKHab Code:               |                              | G3c  | G3c  | G3c  | G3c  |
| Field Number:             |                              | A    | B    | C    | D    |
| English Name:             | Latin Name:                  |      |      |      |      |
| Birdsfoot Trefoil         | <i>Lotus angustissimus</i>   | O    | O    | R    |      |
| Black Knapweed            | <i>Centaurea nigra</i>       |      |      |      | R    |
| Broad-leaved Dock         | <i>Rumex obtusifolius</i>    | R    |      | R    |      |
| Bulbous Buttercup         | <i>Ranunculus bulbosus</i>   | R    |      |      | O    |
| Cat's Ear                 | <i>Hypochaeris radicata</i>  | O    |      |      | O    |
| Cocksfoot Grass           | <i>Dactylis glomerata</i>    | R    |      |      |      |
| Common Bent               | <i>Agrostis capillaris</i>   |      |      | R    | R    |
| Common Mouse-ear          | <i>Cerastium fontanum</i>    |      | O    |      |      |
| Common Ragwort            | <i>Jacobaea vulgaris</i>     |      |      |      | R    |
| Common Sorrel             | <i>Rumex acetosa</i>         |      |      |      | R    |
| Common Vetch              | <i>Vicia sativa</i>          | F    |      |      | O    |
| Creeping Buttercup        | <i>Ranunculus repens</i>     |      | F/O  | R    | R    |
| Creeping Thistle          | <i>Cirsium arvense</i>       | R    | O/F  |      | R    |
| Curled Dock               |                              |      |      |      | R    |
| Dandelion                 | <i>Taraxacum officinale</i>  | R    |      | O    | O/R  |
| False Oat Grass           | <i>Arrhenatherum elatius</i> | R    |      |      |      |
| Hairy Tare                | <i>Vicia hirsuta</i>         | R    |      |      | R    |
| Least Trefoil             |                              | O    | O    | R    | F    |
| Lesser Stitchwort         | <i>Stellaria graminea</i>    |      |      | R    |      |
| Meadow Buttercup          | <i>Ranunculus acris</i>      | R    | F/O  | R    | O    |
| Meadow Foxtail            |                              |      |      | O    |      |
| Oxeye Daisy               | <i>Leucanthemum vulgare</i>  |      | R    |      | F    |
| Perennial Ryegrass        | <i>Lolium perenne</i>        | O    | O    |      |      |
| Perforate St John's-wort  | <i>Hypericum perforatum</i>  | R    |      |      | R    |
| Red Fescue                | <i>Festuca rubra</i>         | F    | F    |      | F    |
| Smooth Hawksbeard         | <i>Crepis capillaris</i>     | R    |      |      | R    |
| Soft Brome                | <i>Bromus hordeaceus</i>     | O    | R    | O    | O    |
| Sweet Vernal              | <i>Anthoxanthum odoratum</i> | D    | A    | F    | A    |
| Tall Fescue               | <i>Lolium arundinaceum</i>   |      |      | D    | R    |
| Common Nettle             | <i>Urtica dioica</i>         |      |      | O/F  |      |
| Yorkshire Fog             | <i>Holcus lanatus</i>        | F    | O    | F    | F    |



## APPENDIX 6 – COMMON DORMOUSE SURVEY RESULTS

Abbreviations: DM=dormouse; WM=wood mouse; YN=yellow-necked mouse; ad=adult; juv=juvenile, N=nest only; NM=nest material, not woven, unspecified; F=food cache (wood mouse); bee=tree bumblebee *Bombus hypnorum* nest. Bird=bird nest (BTO codes apply to species); E=empty; nf=tube not found or tube damaged.

**Table 3.** Full dormouse presence/absence survey results.

| Completion date | 17 May 2024   | 17 June 2024 | 17 July 2024 | 19 August 2024 | 24 September 2024 | 22 October 2024 |
|-----------------|---------------|--------------|--------------|----------------|-------------------|-----------------|
| Temp/°C         | 15            | 18           | 19           | 21             | 13                | 15              |
| Cloud cover     | 50%           | 80%          | 0%           | 20%            | 100%              | 0%              |
| Precipitation   | Dry           | Dry          | Dry          | Dry            | Dry, Damp ground  | Dry             |
| 1               | nf            | nf           | nf           | nf             | nf                | nf              |
| 2               | <b>DM + N</b> | <b>N</b>     | <b>Old N</b> | MT             | nm                | <b>Old N</b>    |
| 3               | MT            | WM           | MT           | MT             | MT                | WM              |
| 4               | MT            | MT           | MT           | MT             | MT                | MT              |
| 5               | MT            | MT           | MT           | MT             | MT                | MT              |
| 6               | MT            | MT           | MT           | MT             | MT                | MT              |
| 7               | MT            | MT           | MT           | MT             | <b>N</b>          | <b>Old N</b>    |
| 8               | MT            | MT           | MT           | MT             | MT                | MT              |
| 9               | MT            | MT           | MT           | MT             | <b>DM x2 + N</b>  | MT              |
| 10              | MT            | MT           | MT           | nf             | nf                | MT              |
| 11              | MT            | MT           | MT           | MT             | MT                | MT              |
| 12              | MT            | MT           | MT           | MT             | MT                | MT              |
| 13              | MT            | MT           | MT           | MT             | MT                | MT              |
| 14              | MT            | MT           | MT           | MT             | MT                | MT              |
| 15              | MT            | MT           | MT           | MT             | MT                | MT              |
| 16              | MT            | MT           | MT           | MT             | MT                | MT              |
| 17              | MT            | MT           | MT           | MT             | MT                | F               |
| 18              | MT            | MT           | MT           | MT             | MT                | MT              |
| 19              | MT            | MT           | MT           | MT             | MT                | MT              |
| 20              | MT            | MT           | MT           | MT             | MT                | MT              |
| 21              | MT            | MT           | MT           | MT             | MT                | MT              |
| 22              | MT            | MT           | MT           | MT             | MT                | MT              |
| 23              | MT            | MT           | MT           | MT             | MT                | MT              |
| 24              | MT            | MT           | MT           | MT             | MT                | MT              |
| 25              | MT            | MT           | MT           | MT             | MT                | MT              |
| 26              | MT            | MT           | MT           | MT             | <b>DM + N</b>     | <b>Old N</b>    |
| 27              | MT            | MT           | MT           | MT             | MT                | MT              |
| 28              | MT            | MT           | MT           | MT             | <b>N</b>          | <b>Old N</b>    |
| 29              | MT            | MT           | MT           | nf             | nf                | nf              |
| 30              | MT            | MT           | MT           | MT             | MT                | MT              |
| 31              | MT            | MT           | MT           | MT             | MT                | MT              |
| 32              | MT            | MT           | MT           | MT             | MT                | MT              |
| 33              | MT            | MT           | MT           | MT             | MT                | MT              |
| 34              | MT            | MT           | MT           | MT             | MT                | MT              |
| 35              | MT            | MT           | MT           | MT             | MT                | MT              |



|    |    |    |    |    |    |              |
|----|----|----|----|----|----|--------------|
| 36 | MT | MT | MT | MT | MT | MT           |
| 37 | MT | MT | MT | MT | MT | MT           |
| 38 | MT | MT | MT | MT | MT | MT           |
| 39 | MT | MT | MT | MT | MT | MT           |
| 40 | MT | MT | MT | MT | MT | MT           |
| 41 | MT | MT | MT | MT | MT | F            |
| 42 | MT | MT | MT | MT | MT | MT           |
| 43 | MT | MT | MT | MT | MT | MT           |
| 44 | MT | MT | MT | MT | MT | MT           |
| 45 | MT | MT | MT | MT | MT | MT           |
| 46 | MT | MT | nf | nf | nf | MT           |
| 47 | MT | MT | MT | MT | MT | MT           |
| 48 | MT | MT | MT | MT | MT | MT           |
| 49 | MT | MT | MT | MT | MT | MT           |
| 50 | MT | MT | nf | nf | MT | MT           |
| 51 | MT | MT | MT | MT | nm | <b>Old N</b> |
| 52 | MT | MT | MT | MT | MT | MT           |
| 53 | MT | MT | MT | MT | MT | MT           |
| 54 | MT | MT | MT | MT | MT | MT           |
| 55 | MT | MT | MT | MT | MT | MT           |
| 56 | MT | MT | MT | MT | MT | MT           |
| 57 | MT | MT | MT | MT | MT | MT           |
| 58 | MT | MT | MT | MT | MT | MT           |
| 59 | MT | MT | MT | MT | MT | MT           |
| 60 | MT | MT | MT | MT | MT | MT           |
| 61 | MT | nf | nf | nf | nf | MT           |
| 62 | MT | MT | nf | MT | nf | nf           |
| 63 | MT | MT | MT | MT | MT | MT           |
| 64 | MT | MT | MT | MT | MT | MT           |
| 65 | MT | MT | MT | MT | MT | MT           |
| 66 | MT | MT | MT | MT | MT | MT           |
| 67 | MT | MT | MT | nf | MT | MT           |
| 68 | MT | MT | MT | MT | MT | MT           |
| 69 | MT | MT | MT | MT | WM | F            |
| 70 | MT | MT | MT | MT | MT | MT           |
| 71 | MT | MT | MT | MT | MT | MT           |
| 72 | MT | MT | MT | MT | MT | MT           |
| 73 | MT | MT | MT | MT | MT | WM           |
| 74 | MT | MT | MT | MT | MT | MT           |
| 75 | MT | MT | MT | MT | MT | MT           |
| 76 | MT | MT | MT | MT | MT | MT           |



## APPENDIX 7 - GREAT CRESTED NEWT SURVEY RESULTS

**Table 4.** HSI calculation for ponds assessed during the survey.

|                     | Pond 1       |                           | Pond 2       |                           |
|---------------------|--------------|---------------------------|--------------|---------------------------|
| NGR                 | TR 1676 6152 |                           | TR 1678 6151 |                           |
| SI attribute        | SI value     | Notes                     | SI value     | Notes                     |
| Location            | 1.00         | SE England                | 1.00         | SE England                |
| Pond area           | 0.27         | 134m <sup>2</sup>         | 0.9          | 146m <sup>2</sup>         |
| Pond drying         | 1.00         | Rarely                    | 1.00         | Rarely                    |
| Water quality       | 0.67         | Moderate                  | 0.67         | Good                      |
| Shade cover         | 0.20         | 100%                      | 0.2          | 0%                        |
| Waterfowl           | 0.67         | Minor                     | 0.67         | Minor                     |
| Fish presence       | 0.01         | Major                     | 0.01         | Major                     |
| No. ponds           | 1.00         | 9                         | 1.00         | 9                         |
| Terrestrial habitat | 0.33         | poor                      | 0.33         | poor                      |
| Macrophytes         | 0.51         | 20%                       | 0.51         | 20%                       |
| <b>HSI value</b>    | <b>0.33</b>  | <b>'Poor' suitability</b> | <b>0.41</b>  | <b>'Poor' suitability</b> |

|                     | Pond 3       |                                    | Pond 4 & 5     |       |
|---------------------|--------------|------------------------------------|----------------|-------|
| NGR                 | TR 1673 6154 |                                    | Not accessible |       |
| SI attribute        | SI value     | Notes                              | SI value       | Notes |
| Location            | 1.00         | SE England                         |                |       |
| Pond area           | 0.01         | 6m <sup>2</sup>                    |                |       |
| Pond drying         | 1.00         | Rarely                             |                |       |
| Water quality       | 1            | good                               |                |       |
| Shade cover         | 1            | 10%                                |                |       |
| Waterfowl           | 1            | absent                             |                |       |
| Fish presence       | 1            | absent                             |                |       |
| No. ponds           | 0.33         | 9                                  |                |       |
| Terrestrial habitat | 0.67         | moderate                           |                |       |
| Macrophytes         | 1.00         | 80%                                |                |       |
| <b>HSI value</b>    | <b>0.57</b>  | <b>'below average suitability'</b> |                |       |

|               | Pond 6       |                    | Pond 7       |                   |
|---------------|--------------|--------------------|--------------|-------------------|
| NGR           | TR 1676 6152 |                    | TR 1678 6151 |                   |
| SI attribute  | SI value     | Notes              | SI value     | Notes             |
| Location      | 1.00         | SE England         | 1.00         | SE England        |
| Pond area     | 0.90         | 1334m <sup>2</sup> | 0.29         | 146m <sup>2</sup> |
| Pond drying   | 1.00         | Rarely             | 1.00         | Rarely            |
| Water quality | 1.00         | Good               | 1.00         | Good              |
| Shade cover   | 0.20         | 100%               | 1.00         | 50%               |
| Waterfowl     | 1.00         | Absent             | 1.00         | Absent            |



|                     |             |                                    |             |                               |
|---------------------|-------------|------------------------------------|-------------|-------------------------------|
| Fish presence       | 1.00        | Absent                             | 1.00        | Absent                        |
| No. ponds           | 1.00        | 9                                  | 1.00        | 9                             |
| Terrestrial habitat | 1.00        | Good                               | 1.00        | Good                          |
| Macrophytes         | 0.31        | 0%                                 | 0.31        | 0%                            |
| <b>HSI value</b>    | <b>0.88</b> | <b>'Excellent'<br/>suitability</b> | <b>0.79</b> | <b>'Good'<br/>suitability</b> |



## APPENDIX 8 - ARTIFICIAL LIGHTING AND WILDLIFE

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts to other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness.

Guidelines issued by the Bat Conservation Trust<sup>25</sup> should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

### **Avoid lighting key habitats and features altogether**

There is no legal duty requiring any place to be lit. British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so. It is acknowledged that in certain situations lighting is critical in maintaining safety, such as some industrial sites with 24-hour operation; however, in the public realm, while lighting can increase the perception of safety and security, measurable benefits can be subjective. Consequently, lighting design should be flexible and be able to fully consider the presence of protected species.

### **Apply mitigation methods to reduce lighting to agreed limits in other sensitive locations – lighting design considerations**

Where bat habitats and features are considered to be of lower importance or sensitivity to illumination, the need to provide lighting may outweigh the needs of bats. Consequently, a balance between a reduced lighting level appropriate to the ecological importance of each feature and species, and the lighting objectives for that area will need to be achieved. The following are techniques which have been successfully used on projects and are often used in combination for best results:

- dark buffers, illuminance limits and zonation;
- sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill;
- consideration of the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consideration should be given to the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cat eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times;
- screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding;
- glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and features;

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<sup>25</sup> Bat Conservation Trust and Institute for Lighting Professionals (2018) Guidance note 8. Bats and Artificial Lighting. <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>



- creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for any such habitat being lost to the development;
- dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

### **Demonstrate compliance with illuminance limits and buffers**

- *Design and pre-planning phase*; it may be necessary to demonstrate that the proposed lighting will comply with any agreed light-limitation or screening measures set as a result of your ecologist's recommendations and evaluation. This is especially likely to be requested if planning permission is required.
- *Baseline and post-completion light monitoring surveys*; baseline, pre-development lighting surveys may be useful where existing on or off-site lighting is suspected to be acting on key habitats and features and so may prevent the agreed or modelled illuminance limits being achieved.
- *Post-construction/operational phase compliance-checking*; as a condition of planning, post-completion lighting surveys by a suitably qualified person should be undertaken and a report produced for the local planning authority to confirm compliance. Any form of non-compliance must be clearly reported, and remedial measures outlined. Ongoing monitoring may be necessary, especially for systems with automated lighting/dimming or physical screening solutions.

### **Lighting Fixture Specifications**

The Bat Conservation Trust recommends the following specifications for lighting on developments to prevent disturbance:

- Lighting spectra: peak wavelength >550nm
- Colour temperature: <2700K (warm)
- Reduction in light intensity
- Minimal UV emitted
- Upward light ratio of 0% and good optical control

### **Further reading:**

Buglife (2011) A review of the impact of artificial light on invertebrates.

Royal Commission on Environmental Pollution (2009) Artificial light in the environment. HMSO, London. Available at: <https://www.gov.uk/government/publications/artificial-light-in-the-environment>

Rich, C., Longcore, T., Eds. (2005) Ecological Consequences of Artificial Night Lighting. Island Press. ISBN 9781559631297.

CPRE (2014) Shedding Light: A survey of local authority approaches to lighting in England. Available at: <http://www.cpre.org.uk/resources/countryside/dark-skies/item/3608-shedding-light>

Planning Practice Guidance (2014) When is light pollution relevant to planning? Available at:



<https://www.gov.uk/guidance/light-pollution>

Institution of Lighting Professionals (2021) Guidance Notes for the Reduction of Obtrusive Light GN01:2011.  
Available at: <https://www.theilp.org.uk/resources/free-resources/>

Voigt, C.C., Azam, C., Dekker, J., Ferguson, J., Fritze, M., Gazaryan, S., Hölker, F., Jones, G., Leader, N., Lewanzik, D. and Limpens, H., 2018. *Guidelines for consideration of bats in lighting projects*. Unep/Eurobats.  
Available at:  
[https://cdn.bats.org.uk/uploads/pdf/Resources/EUROBATSGuidelines8\\_lightpollution.pdf?v=1542109376](https://cdn.bats.org.uk/uploads/pdf/Resources/EUROBATSGuidelines8_lightpollution.pdf?v=1542109376)