ECOSA
Ecological Survey & Assessment
A Trinity Consultants Company

LAND EAST OF NEWGATE LANE, FAREHAM

ECOLOGICAL IMPACT ASSESSMENT

Final Document

January 2022

Preliminary Ecological Appraisals • Protected Species Surveys and Licensing • NVC • EcIA • HRA • Management Plans
Habitats • Badger • Bats • Hazel Dormouse • Birds • Reptiles • Amphibians • Invertebrates • Riparian and Aquatic Species

ECOSA, Ten Hogs House, Manor Farm Offices, Flexford Road, North Baddesley, Hampshire, SO52 9DF
Tel: 02380 261065 Email: info@ecosa.co.uk Web: www.ecosa.co.uk

Registered Office: 3-4 Eastwood Court, Romsey, Hampshire, SO51 8JJ Registered in England No: 6129868
Ecological Survey & Assessment Limited is a Trinity Consultants Company

ECOSA Quality Assurance Record

This report has been produced in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Report Writing 2017 (CIEEM, 2017). The Ecological Impact Assessment and report has been prepared in line with the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018) and survey work has been undertaken in line with references within CIEEM's Source of Survey Guidance (CIEEM, 2017).

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Author:	 **Richard Chilcott MSc MCIEEM** Principal Ecologist
Checked by:	 **Simon Boswell MSc MCIEEM CEcol** Principal Ecologist
Reviewed by:	 **Simon Colenutt BSc (Hons) MCIEEM CEnv** Managing Principal Ecologist

LAND EAST OF NEWGATE LANE, FAREHAM

ECOLOGICAL IMPACT ASSESSMENT

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EXECUTIVE SUMMARY

Ecological Survey and Assessment Ltd (ECOSA) have been appointed by Bargate Homes and Miller Homes to undertake an Ecological Impact Assessment to support a planning application for the redevelopment of Land East of Newgate Lane, Fareham. The site is located south of Fareham and east of Stubbington, Hampshire, and comprises three arable fields and one field for grazing livestock separated by hedgerows. The proposals entail developing the site for residential dwellings and their associated access infrastructure.

The main findings of the Ecological Impact Assessment are:

- Portsmouth Harbour SPA/Ramsar site lies approximately 570 north-east of the site. The site itself has been assessed as supporting a low use site and Secondary Support Area as identified in the Solent Wader and Brent Goose strategy. The effects and proposed mitigation are dealt within a separate Shadow Habitats Regulations Assessment.

- The habitats identified within the site have been assessed as being of local value with the key features being the hedgerow and tree network, semi-improved grassland and areas of scrub.

- The site supports foraging and commuting bats, breeding and wintering birds and a good population of slow-worm and low population of grass snake. The site has also been assessed as having suitability to support tree roosting bats, invertebrates, European hedgehog and common toad in their terrestrial phase.

- In the absence of mitigation and compensation the proposals have the potential to result in negative effects on protected species and a net loss of habitats. A range of mitigation measures have been proposed including sensitive clearance methods and retention and protection of key ecological features.

- The proposals will deliver an enhancement over the existing situation with opportunities to deliver new native species planting and habitat features throughout the site. This has been confirmed though the Biodiversity Net Gain Assessment undertaken which is due to be submitted with the planning application.

- Given the impacts identified, and the mitigation, compensation and enhancement measures proposed it is considered that the proposals accord with all relevant local and national planning policy.

- If the planning application boundary changes or the proposals for the site alter, a re-assessment of the scheme in relation to ecology may be required. Given the

mobility of animals and the potential for colonisation of the site over time, updating survey work may be required, particularly if development does not commence within 18 months of the date of the most recent relevant survey.

1.0 INTRODUCTION

1.1 Background

Ecological Survey & Assessment Limited (ECOSA) have been appointed by Bargate Homes and Miller Homes to undertake an Ecological Impact Assessment to support a planning application for the development of the land east of Newgate Lane, Fareham (hereafter referred to as the site).

ECOSA were previously instructed by Bargate Homes to prepare an Ecological Impact Assessment for the area of land known as Copps Field, which comprises the field to the north of the site as shown on **Map 1**. These surveys commenced in December 2020. ECOSA were subsequently instructed to undertake survey work on the southern fields forming the land south of Copps Field in August 2021. Therefore, surveys of each distinct area have been undertaken at different dates depending on the time of instruction and in some cases surveys work has yet to be completed on the parcels of land to the south as a result of the seasonal constraints at the time of instruction. Throughout this report reference is made to Copps Field and land south of Copps Field (as shown on **Map 1**) to distinguish between these two areas for the purposes of the surveys undertaken. Where reference is made to the site this cover the entire red line boundary proposed for development.

1.2 The Site

The site is located in Fareham, Hampshire, centred on National Grid Reference (NGR) SU 574 036 (**Map 1**). The Phase 1 habitat map (**Map 2**) depicts the boundary of the site.

The site comprises three arable agricultural fields with associated boundary features and one field of grassland grazed by livestock in the north, with the site totalling approximately 20 hectares. The western site boundary is formed by B3385 Newgate Lane East , with the remaining boundaries formed by agricultural fields north, west and south of the site, and residential housing to the east of the site.

The wider landscape comprises the town of Fareham to the north with Portsmouth harbour to the east and the Solent to the west.

1.3 Aims and Scope of Report

The information within this report is based on a field survey and desktop study and relevant species-specific surveys carried out between April 2021 and January 2022. The report describes the habitats and species (hereafter referred to as ecological features) within the site's Zone of Influence (Paragraph 3.2), and provides a detailed assessment of potential ecological effects of the proposed development of the site. It identifies the need for any measures to avoid, mitigate or compensate for significant

adverse effects[1] ecological features and outlines enhancements to the site's ecology to be implemented as part of the development. The objectives of the assessment are:

- To provide baseline information on ecological features within the site's Zone of Influence and determine the importance of these features;
- To assess, characterise and quantify the effects on ecological features, including cumulative effects, and identify significant effects in the absence of any mitigation;
- To set out measures to avoid, mitigate and compensate for significant ecological effects in accordance with the 'mitigation hierarchy'[2];
- To provide an assessment of the significance of any residual effects;
- To outline opportunities for enhancement in order to achieve a net gain for biodiversity; and
- To set out the requirements for any post-construction monitoring.

This Ecological Impact Assessment will be submitted in conjunction with a Shadow Habitats Regulations Assessment (Tetra Tech, 2022) and Biodiversity Net Gain Assessment (Tetra Tech, 2022) both of which have been produced by Tetra Tech. Reference to these documents are made within this report where relevant and these documents and the Ecological Impact Assessment should be read in conjunction with one another for the purposes of the planning application.

1.4 Site Proposals

The proposals for the site are for an "*Outline application with all matters reserved except Access for residential development of up to 375 dwellings, access from Newgate Lane East, landscaping and other associated infrastructure works on land east of Newgate Lane East, Fareham, Hampshire"*

The Ecological Impact Assessment is based on the Concept Masterplan produced by Pegasus Design, dated 6th January 2022 (Drawing No. P20-3154_03 Rev C) (**Appendix 1**).

[1] For the purposes of this assessment a 'significant' adverse effect is one which will have an adverse effect on the ecological feature at the site level or higher.
[2] In accordance with CIEEM Ecological Impact Assessment guidance (CIEEM, 2018) a sequential process is adopted to address impacts on features of ecological interest, with 'Avoidance' prioritised at the top of the hierarchy and Compensation/Enhancement' at the bottom. This is often referred to as the 'mitigation hierarchy'.

The exact timescales for the development are currently unknown however outline planning permission is being sought during 2022.

2.0 PLANNING POLICY CONTEXT

2.1 Introduction

This section summarises the planning policy in relation to ecology and biodiversity within the Fareham Borough Council administrative area. This information is then used to assess the compliance of the scheme in relation to relevant planning policy and where necessary make recommendations for mitigation, compensation and enhancements (see Section 5.0).

2.2 National Policy

The National Planning Policy Framework (NPPF) sets out the government's requirements for the planning system in England. The original document was published in 2012 with the most recent revised NPPF published in July 2021. A number of sections of the NPPF are relevant when taking into account development proposals and the environment. As set out within Paragraph 11 of the NPPF "*Plans and decisions should apply a presumption in favour of sustainable development*". However, Paragraph 182 goes on to state that "*The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.*".

The NPPF sets out that development proposals should not only minimise the impacts on biodiversity but also to provide enhancement. Paragraph 174 states that the planning system should contribute to and enhance the natural environment by *"…minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures...".*

A number of principles are set out in Paragraph 180, including that where harm cannot be adequately avoided then it should be mitigated for, or as a last resort, compensated for. Where impacts occur on nationally designated sites, the benefits must clearly outweigh any adverse impact and incorporating biodiversity in and around developments should be encouraged. Specific reference is also made to the protection of irreplaceable habitats[3], including ancient woodland[4]. Where loss to irreplaceable

[3] The NPPF defines irreplaceable habitats as "*Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen."*

[4] Natural England defines ancient woodland as "An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites (PAWS)."

habitats occurs planning permission would normally be refused unless there are wholly exceptional reasons and an adequate compensation strategy is in place. Paragraph 180 also states "*development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.*". Paragraph 181 also sets out that potential SPAs, SACs and listed or proposed Ramsar sites or sites acting as compensation for SPAs, SACs and Ramsar sites, should receive the same protection as habitat sites.

In addition to the NPPF, Circular 06/05 provides guidance on the application of the law relating to planning and nature conservation as it applies in England. Paragraph 98 states "*the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat*". Paragraph 99 states "*it is essential that the presence or otherwise of a protected species, and the extent that they may be affected by the Proposed Project Development, is established before planning permission is granted*".

2.3 Local Policy

Local planning policy within Fareham Borough is provided by the adopted Core Strategy August 2011 and polices within the Fareham Borough Council Local Plan, adopted June 2015. A total of two policies within the Local Plan specifically refer to ecology and biodiversity:

- **Policy DSP13**: Nature Conservation. This policy refers to the protection and enhancement of designated sites and sites of nature conservation and protected species and their habitats. Where development may cause a detrimental impact, it may be considered if the impacts are outweighed by the benefits of the development and adverse impacts can be minimised and provision is made for mitigation and, where necessary, compensation for those impacts is provided.

- **Policy DSP14**: Supporting Sites for Brent Geese and Waders. Development on "uncertain" sites for Brent geese and/or waders may be permitted where studies have been completed that clearly demonstrate that the site is not of 'importance'. Development on 'important' sites for Brent Geese and/or Waders, may be granted planning permission where it can be demonstrated that there is no adverse impact on those sites, or appropriate avoidance and/or mitigation measures to address the

identified impacts, and a programme for the implementation of these measures, can be secured.

In addition to these policies, a single policy within the adopted Core Strategy refers to ecology and biodiversity:

- **Policy CS4**: Green Infrastructure, Biodiversity and Geological Conservation. This policy is a largely an all-encompassing policy which refers to the protection of designated sites and important habitats. The policy also refers to the need to have regard for Biodiversity Opportunity Areas and targets within the local, regional and national Biodiversity Action Plans (BAP). The policy also refers to the importance to incorporate networks of green infrastructure and to the implementation of a strategy in order to minimise recreational impacts on European sites.

A number of policies within the draft Local Plan 2037 also make reference to ecology including draft Policies NE1 to NE5. These largely reflect the current requirements of the existing local plan with additional reference to the need to incorporate a minimum of 10% Biodiversity Net Gain under Policy NE2 and the need to consider potential water quality effects on SPAs, SACs and Ramsar sites of the Solent under Policy NE4.

3.0 METHODS

3.1 Introduction

This section details the methods employed during the Ecological Impact Assessment. Any significant limitations to the assessment are also considered.

3.2 Zone of Influence

To define the total extent of the study area for this assessment, the proposed scheme was reviewed to establish the spatial scale at which ecological features could be affected[5]. The appropriate survey radii for the various elements of the assessment (i.e. desktop study, field survey and species-specific surveys) have been defined in the relevant sections below. These distances are determined based on the professional judgement of the ecologist leading the appraisal, taking into account the characteristics of the site subject to assessment, its surroundings and the nature of the proposals.

3.3 Scoping

Protected species considered within the Ecological Impact Assessment are those species/species groups considered likely to be encountered given the geographical location and context of the site. Where the site was found to be suitable to support these species/species groups, and adverse effects cannot be avoided from the outset, further species-specific surveys are undertaken. These are discussed within the results section (Section 4.0) of the current report. Where such a species is unlikely to be present on site a justification for likely absence is provided. Species considered likely absent from the site are not then considered in the assessment of ecological effects and mitigation/compensation measures section (Section 5.0) of this report.

3.4 Desk Study

3.4.1 Biological Records Centre

Hampshire Biodiversity Information Centre (HBIC) was consulted on 16th February 2021 and 22nd September 2021[6] for the following data:

- Records of non-statutory designated sites (Sites of Importance for Nature Conservation (SINCs)) within one kilometre of the site boundary. See **Appendix 2** for details;

[5] The Zone of Influence (ZoI), as defined by CIEEM, is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities (CIEEM, 2018).
[6] A second desk study request was made when the red line was expanded to take into account land south of Copps Field.

- Records of legally protected and notable species (flora and fauna) within one kilometre of the site boundary, including Species of Principal Importance (**Appendix 3**); and

- Records of bats within two kilometres of the site boundary. Bat species are highly mobile and therefore the search radius is increased for this species group.

3.4.2 Multi-Agency Geographic Information for the Countryside

The Multi-Agency Geographic Information for the Countryside (MAGIC) database (DEFRA, 2021) was reviewed on 8th December 2021 to establish the location of statutory designated sites located within the vicinity of the site. This included a search for all internationally and nationally designated sites such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Wetlands of International Importance (Ramsar sites), Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs) within two kilometres of the site. See **Appendix 2** for details. Where appropriate, the desk study search area has been extended to take account of any appropriate statutory designated sites which need consideration in terms of potential in-direct effects and which support particularly mobile species, particularly those specifically mentioned in local planning policy. The Impact Risk Zones (IRZ) were also obtained from MAGIC, which are used to help guide and assess planning applications for likely effects on SSSIs.

Sites within two kilometres of the site boundary where European Protected Species Mitigation (EPSM) licences have been granted were reviewed. This information allows a greater understanding of the potential for European Protected Species to be present in the local area.

3.4.3 Other Sources of Information

Online mapping resources, at an appropriate scale, were used to identify the presence of habitats such as woodland blocks, ponds, watercourses and hedgerows, in the vicinity of the site. These habitats may offer resources and connectivity between the site and suitable habitat in the local area, which may be exploited by local species populations.

The presence of ponds or other waterbodies within a 500 metre radius of the site in particular are noted in relation to great crested newt. The 500 metre radius is a standardised search radius to assist in the assessment of the suitability of a site and its surrounding habitat to support this species, based on current Natural England guidance (English Nature, 2001).

Where relevant reference is also made to the survey work undertaken by WYG on the immediately adjacent site to the south (WYG, 2018) (WYG, 2018a) as well as work

undertaken by Ethos Environmental Planning (Ethos Environmental Planning, 2019) (Ethos Environmental Planning, 2019) on sites to the west and WSP on the Stubbington Bypass (WSP, 2015).

3.5 Field Survey

3.5.1 Survey Methods

The field survey broadly followed standard Phase 1 habitat survey methodology (JNCC, 2010) and included a search for evidence of, and an assessment of the site's suitability to support, protected and notable species as recommended by CIEEM (CIEEM, 2017). The field survey covered all accessible areas of the site, including boundary features. Habitats described in Section 4.0, have been mapped (**Map 2**) and photographs provided, where relevant. For ease of reference, Target Notes (TN) depict locations of particular ecological interest or features which are too small to map.

Phase 1 Habitat Survey

An assessment was made of all areas of vegetation within the site based on the standardised Phase 1 habitat survey methodology (JNCC, 2010). This involved identification of broad vegetation types, which were then classified against Phase 1 habitat types, where appropriate. A list of characteristic plant species for each vegetation type was compiled and any invasive species[7] encountered as an incidental result of the survey recorded.

Protected and Notable Species Appraisal

A preliminary appraisal of the site's suitability to support legally protected and notable species was carried out. Specific methods for species/species groups considered during the appraisal are provided in **Appendix 4**.

3.5.2 Survey Details

The field survey of Copps Field was carried out by Richard Chilcott, Principal Ecologist of ECOSA on 18th September 2020. The weather conditions were clear, dry and warm with no cloud cover, an ambient temperature of 19°C and a light breeze.

The field survey of the land south of Copps Field was carried out by Richard Chilcott, Principal Ecologist of ECOSA on 3rd August 2021. The weather conditions were warm with approximately 40% cloud cover, an ambient temperature of 19°C and a light northernly air.

[7] Plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). The survey was not specifically aimed at assessing the presence of these species and further specialist advice may need to be sought.

During the surveys, the surveyor was equipped with 10x40 binoculars and a digital camera.

3.5.3 Field Survey Limitations

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The field survey has therefore not produced a complete list of plants and animals and in the absence of evidence of any particular species should not be taken as conclusive proof that the species is absent or that it will not occur in the future.

Online mapping resources provide an indication of habitat features present in the wider area, but do not provide a detailed assessment of habitat types.

During the survey undertaken of Copps Field dense scrub was recorded around the boundaries of the site which limited access to the site boundaries. Therefore, it was not possible to access these areas to undertake a full investigation for evidence for protected species.

During the survey of the land south of Copps Field, the site had been sown with crops tight to the margins of each field, this limited accessibility and visibility of features away from the margins and towards the centre of the field.

3.6 Bat Survey

3.6.1 Survey Methods

Ground Level Tree Assessment

The ground level tree assessment was undertaken in line with current best practice guidelines (Collins, 2016). An assessment was made of the suitability of the trees within Copps Field and immediately on the field boundary (**Map 3**) to support roosting bats based on the presence of Potential Roost Features such as holes, cracks, splits, loose bark and ivy cladding. The assessment of the potential for trees on the site to support roosting bats is based on a four-point scale as detailed in **Appendix 5**. No specific ground level tree assessment of the land south of Copps Field was undertaken as these trees are to remain unaffected by the development proposals.

Bat Transect Survey

Bat transect surveys were undertaken in line with current best practice guidelines (Collins, 2016).

Given that Copps Field has been assessed as having moderate suitability for supporting foraging and commuting bats eight survey visits were undertaken between

April and October 2021 to allow an assessment of the status and importance of foraging/commuting bats to be made.

Land south of Copps Field was also assessed as having moderate suitability for supporting foraging and commuting bats, three survey visits were undertaken on a monthly basis between August and October 2021. Five additional surveys are scheduled to be undertaken in 2022 between April and July 2022, to allow an assessment of the status and importance of foraging/commuting bats to be made.

A team of two surveyors walked pre-determined transect routes on each occasion (**Map 4a to Map 4g**), walking the same transect routes on each survey with start and end points varied on each survey visit in order to vary the coverage of the site. The transect routes ensured that the surveyors visited key areas of foraging and commuting habitat within the site, such as mature hedgerows and scattered trees as well as less suitable habitats. The dusk transect surveys commenced at sunset and lasted for at least two hours depending on the level of bat activity recorded whilst the dawn transect survey visit of the most northerly field commenced two hours before sunrise and lasted until sunrise. A single dusk and dawn transect survey was undertaken in the same 24 hour period only for Copps Field at the time of this report.

The transect route was split into equal sections and was walked at a steady speed so that the activity levels on each section and from each survey are comparable.

At the end of each transect survey, data was downloaded and then analysed using BatExplorer (Version 2.1.9.1). This program is designed to analyse bat call data by identifying key call characteristics such as call shape, call length, call 'distance' (i.e. the time period between two consecutive calls) and peak frequency.

The species calls were subsequently checked manually by a suitably qualified ecologist using the spectrogram feature of BatExplorer to verify their identities. Where suitable recordings were obtained, bats were identified to species level. For some groups, notably long-eared bat species[8] and *Myotis*[9] bat species, specific identification was not always possible.

[8] There are two species of long-eared bat, the brown long-eared bat *Plecotus auritus* and the grey long-eared bat *Plecotus austriacus*. These species can only be separated by examination of physical characteristics and Phylogenetic Analysis Identification of bat droppings. Unless confirmation of identification has been made by visual identification the two species shall be referred to in this report as long-eared bat. The brown long-eared bat is the commonest of the two species typically being found roosting within large roof voids although small voids and trees are also utilised. The grey long-eared bat is rare and confined to southern England and like the brown long-eared typically roosts in roof voids.

[9] There are seven species of *Myotis* bats in Britain. *Myotis* bats are very difficult to identify specifically, this can generally only be done by examination of physical features and Phylogenetic Analysis Identification of bat droppings. Many of these bats are common and will utilise buildings for roosting often occupying small and inaccessible voids. For the purpose of this report all species shall be referred to as *Myotis* bats unless a specific identification has been possible.

The GPS feature of the Batlogger M allows the location of the surveyor at the time of each bat call registration to be recorded. This data is exported to BatExplorer and used to create a 'heat map' of activity at the site for each bat species recorded.

The GPS feature shows the location of the surveyor when the registration was recorded, not the location of the bat. Where bats were heard but not seen it has been assumed that they are flying in the vicinity of the surveyor. Where bats were seen some distance from the surveyor the locations of these bats were noted.

Bat Automated Detector Survey

In addition to the transect surveys automated detector surveys were undertaken in line with current best practice guidelines (Collins, 2016). These were undertaken between April and October 2021 inclusive for Copps Field, and between August and October 2021 inclusive for land south of Copps Field. Further automated detector surveys are due to be undertaken at land south of Copps Field between April and July 2022.

Two Wildlife Acoustics Song Meter 4 (SM4 FS) detectors with SMM-U2 microphones were deployed at Copps Field for five consecutive nights each month between April and October 2021 and for five consecutive nights each month between August and October 2021 at land south of Copps Field.

The automated detectors were secured in suitable habitat with the microphone positioned to face towards the nearest open space. The devices were programmed to record between 30 minutes before sunset, until 30 minutes after sunrise the following morning on each night they were deployed. The settings utilised on the automated detectors are provided in **Appendix 6**.

The location at which each detector was deployed was varied throughout the survey period. The suitable habitat within the site was equally divided into a number grid. The location at which each detector was located on each month was determined through the use of a random number generator. Where the generator determined that a detector would be deployed within a single grid on more than one month the program was re-run until detectors were at varied location throughout the survey period. The locations at which the automated detectors were deployed are provided in (**Map 5**).

At the end of each automated survey period, the remote bat detectors were retrieved from the site, data was downloaded and then analysed using Kaleidoscope Pro© (Version 5.1.9G). This program is designed to analyse large volumes of bat call data using an automated classifier (Bats of Europe Version 5.1.0). More information on the settings used for the conversion process are provided in **Appendix 6**.

The species calls were subsequently checked manually by a suitably qualified ecologist using the Kaleidoscope software, to verify their identities. Sonobat® (v2.9.7) was used to confirm the species identity for ambiguous bat calls. Where suitable recordings were obtained, bats were identified to species level. For some groups, notably long-eared bat species[8] and *Myotis*[9] bat species, specific identification was not always possible.

The data was then exported to Microsoft Excel for detailed analysis (i.e. counts of bat registrations) of various parameters.

The number of registrations recorded is not a measure of the number of bats present on site; the number of registrations provides a quantitative assessment of the level of bat activity at a particular location (i.e. the greater the number of registrations, the greater the level of bat activity). The data cannot differentiate between, for example, a single bat passing the detector 10 times or 10 bats passing the detector on a single occasion. The detectors were programmed to count each two second call as a single bat pass.

In order to standardise the number of bat calls recorded the data was then used to calculate an "Activity Index" for various different parameters to be assessed. This involved dividing the number of registrations by the number of nights which detectors were deployed. This data is then represented as number of registrations per night.

3.6.2 Survey Details

Ground Level Tree Assessment

The ground level tree assessment was carried out by Jack Medley, Senior Field Ecologist of ECOSA (Natural England Bat Licence 2018-38355-CLS-CLS) on 31st March 2021. The weather conditions were dry with approximately 0% cloud cover, an ambient temperature of 16ºC and no wind.

Bat Transect Survey

The bat transect surveys were undertaken between April and October 2021 for Copps Field, with a total of seven dusk bat transect surveys and a single dusk pre-dawn survey. **Table 1** provides details of each survey Copps Field.

Table 1: Bat transect survey details for Copps Field

Survey Date	Survey Type	Duration	Weather Conditions	Sunset/ Sunrise Time
20th April 2021	Dusk	20:09 – 22:09	11°C, dry and cool, 30% cloud cover and no wind	20:09

Survey Date	Survey Type	Duration	Weather Conditions	Sunset/ Sunrise Time
1st June 2021	Dusk	21:09 – 23:09	20°C, dry, 10% cloud cover and light air	21:09
24th June 2021	Dusk	21:22 – 23:23	20°C, dry, 60% cloud cover with a light breeze	21:22
20th July 2021	Dusk	21:08 – 23:08	22°C, dry and warm, 10% cloud cover with a light breeze	21:08
21st July 2021	Dawn	03:16 – 05:16	20°C, dry, 0% cloud cover with light air	05:16
3rd September 2021	Dusk	19:44 – 21:46	21°C, dry and mild, 40% cloud cover and no wind	19:44
13th September 2021	Dusk	19:23 – 21:23	19°C, dry, 20% cloud cover with a moderate breeze	19:23
5th October 2021	Dusk	18:33 – 20:33	14°C, dry, 70% cloud cover with a moderate breeze	18:33

Three bat transect surveys were undertaken between August and October 2021 for land south of Copps Field. **Table 2** provides details of each survey within the land south of Copps Field.

Table 2: Bat transect survey details for south of Copps Field

Survey Date	Survey Type	Duration	Weather Conditions	Sunset/ Sunrise Time
25th August 2021	Dusk	20:02 – 22:02	20°C, dry, 10% cloud cover and light air	20:02
29th September 2021	Dusk	18:46 – 20:46	13°C, dry, 10% cloud cover and a light breeze	18:46
11th October 2021	Dusk	18:21 – 20:21	14°C, dry, 20% cloud cover with light air	18:21

The bat transect surveys were coordinated and led by Richard Chilcott, Principal Ecologist of ECOSA (Natural England Bat Licence No. 2015-16561-CLS-CLS), assisted by suitably qualified and experienced ECOSA surveyors.

The detector programming and data analysis was conducted by Megan Woolley, Assistant Ecologist of ECOSA.

Bat Automated Detector Survey

The automated detector surveys of Copps Field were undertaken between April and October 2021 with a total of 35 nights recording undertaken. **Table 3** provides details of each recording period for this area of land.

Table 3: Copps Field - Automated detector survey details

Survey Period	Date	Weather Conditions[10]				Sunset	Sunrise
		Temperature (°C)		Wind (km/h)	Precipitation (mm)		
		High	Low				
April 2021	20th	11	5	3	0.0	20:07	05:59
	21st	13	4	7	0.0	20:09	05:57
	22nd	11	5	8	0.0	20:11	05:55
	23rd	14	8	10	0.0	20:12	05:53
	24th	13	6	9	0.0	20:14	05:51
Early June 2021	1st	21	17	8	0.0	21:08	04:56
	2nd	18	13	6	0.0	21:09	04:55
	3rd	14	12	9	0.0	21:10	04:54
	4th	16	9	4	0.0	21:11	04:54
	5th	15	12	7	0.0	21:12	04:53
June 2021	14th	24	15	5	0.0	21:19	04:50
	15th	20	12	5	0.0	21:19	04:50
	16th	18	16	3	3.6	21:20	04:50
	17th	17	16	4	24	21:20	04:50
	18th	14	13	9	25	21:21	04:50
July 2021	21st	24	18	2	0.0	21:06	05:16
	22nd	21	17	5	0.3	21:04	05:17
	23rd	20	17	9	6.1	21:03	05:18
	24th	20	17	6	0.0	21:02	05:20
	25th	21	16	4	0.0	21:00	05:21
	1st	18	16	8	0.0	19:50	06:18

[10] Weather data is sourced from online weather data. Weather station ID: IFAREH35 and IFAREH22 (Weather Underground)

Survey Period	Date	Weather Conditions[10]				Sunset	Sunrise
		Temperature (°C)		Wind (km/h)	Precipitation (mm)		
		High	Low				
Early September 2021	2nd	18	12	9	0.0	19:48	06:20
	3rd	20	14	4	0.0	19:46	06:22
	4th	20	14	7	0.0	19:43	06:23
	5th	22	14	3	0.0	19:41	06:25
Late September 2021	29th	13	9	7	0.0	18:47	07:02
	30th	16	16	13	2.0	18:45	07:04
	1st	14	8	10	0.0	18:43	07:05
	2nd	18	11	9	3.1	18:40	07:07
	3rd	15	11	10	1.5	18:38	07:08
October 2021	15th	15	12	3	0.0	18:12	07:28
	16th	16	9	3	0.0	18:10	07:29
	17th	16	9	3	0.0	18:08	07:31
	18th	17	17	6	0.0	18:06	07:33
	19th	19	16	15	23.9	18:04	07:34

The automated detector surveys of the land south of Copps Field were undertaken between August and October 2021 with a total of 15 nights recording undertaken. **Table 4** provides details of each recording period for this area of land.

Table 4: Land South of Copps Field - Automated detector survey details

Survey Period	Date	Weather Conditions[11]				Sunset	Sunrise
		Temperature (°C)		Wind (km/h)	Precipitation (mm)		
		High	Low				
August 2021	25th	20	13	8	0.0	20:05	06:08
	26th	18	12	8	0.0	20:03	06:09
	27th	17	10	6	0.0	20:01	06:11
	28th	20	12	6	0.0	19:59	06:12
	29th	17	15	5	0.0	19:56	06:14

[11] Weather data is sourced from online weather data (Weather Underground)

Survey Period	Date	Weather Conditions[11]				Sunset	Sunrise
		Temperature (°C)		Wind (km/h)	Precipitation (mm)		
		High	Low				
September 2021	17th	18	14	3	0.0	19:14	06:43
	18th	20	14	4	0.0	19:12	06:45
	19th	19	12	5	0.0	19:10	06:46
	20th	19	10	6	0.0	19:07	06:48
	21st	18	9	2	0.0	19:05	06:49
October 2021	11th	14	5	3	0.0	18:21	07:21
	12th	15	10	3	0.0	18:19	07:23
	13th	15	12	3	0.0	18:16	07:24
	14th	15	12	5	0.0	18:14	07:26
	15th	15	12	3	0.0	18:12	07:28

The automated detectors were deployed by a suitably experienced ECOSA ecologist. The detector programming and data analysis was conducted by Megan Woolley, Assistant Ecologist of ECOSA.

3.6.3 Survey Limitations

Some bat species, e.g. long-eared bats *Plecotus* species[8], generally emerge from their roosts in total darkness and do not produce strong echolocations, and therefore these bats can be difficult to observe and record during bat surveys, leading to under-recording.

As a result of the time of year which the surveys were commissioned for land south of Copps Field it was not possible to complete a single transect survey or deploy automated detectors each month between April and October as recommended within the Bat Conservation Trust guidelines. Therefore, bat transect surveys and bat automated detector surveys for this area of the site will continue into the 2022 survey period.

In addition, the survey design as a result of the differing times of instruction meant that the transect around Copps Field was shorter and, therefore, a greater number of repeats were undertaken each survey when compared to south of Copps Field.

The quality of both hand-held and automated bat detector recordings is based, to a large extent, on the proximity of a bat to the detector's microphone. Obstructions such as vegetation or environmental variables such as rainfall and wind noise from

vegetation will all influence the quality of sound reaching the microphone and thus some bat echolocation recordings are of insufficient quality for specific identification. Bats routinely alter their echolocations in relation to behaviour and their environment. It is not always possible to make a robust identification of every bat recording.

The use of bat detectors is likely to result in the under-recording of a percentage of bats present, such as those flying at height (Collins & Jones, 2009), which would be out of the recording range for the detectors.

3.7 Hazel Dormouse Survey

3.7.1 Survey Methods

The hazel dormouse survey was undertaken in line with current best practice guidelines (Bright, et al., 2006).

The hazel dormouse survey involved the erection of 124 dormouse tubes within suitable hazel dormouse habitat throughout the site at intervals of approximately 20 metres. The locations of these tubes are marked on **Map 6**. The nest tubes were subsequently checked for evidence of dormouse on a monthly basis between May and September 2021 for Copps Field and between September and November 2021 for land south of Copps Field.

In accordance with survey guidance, a value is assigned to each month, which is weighted depending on the likelihood of finding evidence of hazel dormouse in a given month. These scores are based on the erection of 50 dormouse nest tubes. The values for each month that the tubes are in place are then added together. In accordance with survey guidance, absence of hazel dormouse should not be assumed for a search effort of less than 20 points[12]. **Table 5** shows points assigned for each month during the survey undertaken at Copps Field.

Table 5: Copps Field - Hazel dormouse survey Index of Probability scores

Month	Index of Probability Score
April	1
May	4
June	2
July	2

[12] Each month, between April and November, inclusive is assigned an index of probability score, based on optimum survey timings.

Month	Index of Probability Score
August	5
September	7
Total	**21**

The level of survey effort carried out at Copps Field currently provides a search effort of 21, which allows a robust assessment of the likely absence of hazel dormouse at the site to be undertaken.

Table 6 shows points assigned for each month during the survey undertaken at land south of Copps Field.

Table 6: Land south of Copps Field - Hazel dormouse survey Index of Probability scores

Month	Index of Probability Score
August	5
September	7
October	2
November	2
Total	**16**

The level of survey effort carried out at land south of Copps Field currently provides a search effort of 16.

Current guidance states that where the number of tubes at a site are doubled (i.e. 100) the index of probability score can be doubled for each month, as evidence of hazel dormouse presence/absence is obtained with a higher certainty than when using the standardised 50 tubes (Natural England, 2015). As 74 tubes have been used on site the probability score can be multiplied by 1.48. Therefore, working on this basis the score for land south of Copps Field achieved is 23.7.

3.7.2 Survey Details

The dormouse tubes were erected on 8th April 2021 at Copps Field with monthly visits undertaken between May to September 2021. **Table 7** provides details of each hazel dormouse survey.

Table 7: Hazel dormouse survey details Copps Field

Survey Date	Weather Conditions
25th May 2021	Rain, 12°C, 100% cloud cover with a light breeze
14th June 2021	Dry and sunny, 25°C, 5% cloud cover with a light breeze
21st July 2021	Dry, 17°C, 0% cloud cover with a light breeze
1st September 2021	Dry, 19°C, 95% cloud cover with a light breeze
29th September 2021	Dry and sunny, 11°C, 0% cloud cover with a moderate breeze

The dormouse tubes were erected on 4th August 2021 across land south of Copps Field with monthly visits undertaken between September to November 2021. **Table 8** provides details of each hazel dormouse survey.

Table 8: Hazel dormouse survey details land south of Copps Field

Survey Date	Weather Conditions
29th September 2021	Dry and sunny, 14°C, 40% cloud cover with moderate breeze
21st October 2021	Sunny and dry, 10°C, 25% cloud cover with a moderate breeze
25th November 2021	Sunny, 11°C, 0% cloud cover with a light breeze

The hazel dormouse surveys were co-ordinated and led by David Miller, Assistant Ecologist of ECOSA assisted by suitably qualified ECOSA surveyors.

The surveys were undertaken using 50 dormouse tubes distributed in at Copps Field and 74 dormouse tubes distributed south of Copps Field. They comprised corrugated plastic tubes of standard dimensions (Bright, et al., 2006) with plywood insert secured in the relevant habitat with heavy duty garden wire.

3.7.3 Survey Limitations

Some dormouse tubes became inaccessible due to overgrown vegetation at Copps Field, this is not considered to be a significant limitation as the total dormouse tubes distributed gave good coverage of the survey area and the missing dormouse tubes in question were replaced on the August visit.

In the land south of Copps Field, 11 dormouse tubes were missing for the November 2021 survey. As the majority of the dormouse tubes could be surveyed this is not considered to be of detriment to the November hazel dormouse survey results. Surveys for land south of Copps Field will continue into 2022 survey season and the missing dormouse tubes here will be replaced.

3.8 Bird Survey

3.8.1 Survey Methods

Wintering Bird Survey

A mixture of walked transect and vantage point surveys (**Map 7a** to **Map 7l**) were undertaken at Copps Field in December 2020 and then again of the entire site between October 2021 and January 2022 with the remainder of the surveys to be completed by March 2022, to determine the usage of the site by wintering birds. The survey largely consisted of the surveyor/s scanning the site using telescope and binoculars to identify the bird species utilising the site. Largely, the open areas such as fields were not traversed as this generates disturbance that may deter birds and therefore compromise the results of the survey. However, boundary hedgerows and tree lines were walked to record the birds present.

The wintering bird survey methodology made reference to that carried out as part of the Solent Waders and Brent Strategy (Whitfield, 2019). Twelve wintering bird surveys were carried out across the site between December 2020 and January 2022, five of which were carried out at Copps Field and seven of which were subsequently carried out across the site as a whole (Copps Field and land south of Copps Field). The surveys aimed to determine the presence of notable or protected wintering bird species with particular reference to those associated with the internationally designated sites in the vicinity of the survey site and those associated with the Solent Waders and Brent Goose Strategy.

The detectability of bird species and associated territorial activity is affected by a variety of factors including, but not limited to; species detectability, species abundance, temporal variations in activity, species phenology, habitat structure, survey effort and observer ability. During the wintering bird survey methods to reduce these potential impacts included; using experienced ornithologists and undertaking a robust number of surveys spread over the winter season. As a result, a comprehensive assessment of the wintering bird assemblage at the site was completed.

3.8.2 Survey Details

Wintering Bird Survey

A total of five survey visits were undertaken between December 2020 and March 2021 at Copps Field and six were undertaken between October 2021 and December 2021 at the entire site including both Copps Field and land south of Copps Field. **Table 9 and Table 10** provides details of each wintering bird survey.

Table 9: Copps Field - Wintering bird survey details

Survey Date	Duration	Weather Conditions	Tide State
5th December 2020	13:11 - 15:11	Dry, 75% cloud cover, 5°C, fresh-strong breeze	High 14:11
11th December 2020	08:15 - 10:15	Breezy with showers, 75% cloud cover, 13°C, moderate-fresh breeze	High 08:11
5th January 2021	10:30 – 10:30	Overcast and dry, 75-100% cloud cover, 9°C, moderate-fresh breeze	High 08:39
8th February 2021	12:04 – 14:04	Dry and overcast, 100% cloud cover, 5°C, gentle-moderate breeze	High 14:04
4th March 2021	13:00 – 15:00	Dry and sunny, 25-50% cloud cover, 11°C, gentle-moderate breeze	High 15:02

Table 10: Land south of Copps Field - Wintering bird survey details

Survey Date	Duration	Weather Conditions	Tide State
25th October 2021	13:30 – 15:30	Dry, 40% cloud cover, 15°C, light breeze	High 14:51
9th November 2021	13:30 – 15:30	Dry, 100% cloud cover, 14°C, light breeze	High 14:19
16th November 2021	09:45 – 11:45	Dry, 50% cloud cover, 10°C, light air	High 09:41
26th November 2021	14:30 – 16:30	Overcast with light drizzle, 100% cloud cover, 8°C, moderate-fresh breeze	High 15:32
10th December 2021	13:45 – 15:45	Dry, 20% cloud cover, 9°C, fresh breeze	High 16:08
20th December 2021	11:50 – 13:45	Dry, 100% cloud cover, 8°C, light breeze	High 12:09
13th January 2022	08:10 – 10:10	Dry, <10% cloud cover, 1°C, light air	High 08:08

The wintering bird survey was carried out by experienced ornithologists Simon Colenutt, Managing Principal Ecologist of ECOSA and Steve Boswell.

During the wintering bird survey the surveyors were equipped with 10x40 binoculars.

3.8.3 Survey Limitations

There were no significant limitations to the bird surveys undertaken with further surveys to be completed over winter 2021/2022.

3.9 Reptile Survey

3.9.1 Survey Methods

The reptile survey was undertaken in accordance with current best practice guidelines (Froglife, 2015).

The reptile survey consisted of the laying bitumen felt mats approximately 500 millimetres x 500 millimetres in areas of suitable habitat on the site. Typically, this included areas of suitable habitat with good exposure to the sun. The mats were distributed in all areas considered to offer suitable reptile habitat. The locations of these mats are marked on **Map 8**.

The use of such refugia is an effective way of surveying for all species of reptile and current survey guidance states that seven inspections are sufficient to confirm presence/likely absence. Survey visits were undertaken in marginal weather conditions such as cold but sunny weather or hazy and somewhat overcast conditions, as this will maximise the thermal value of the refugia for basking reptiles.

During each visit surveyors also undertook a visual inspection survey of other suitable refugia in the site and other suitable basking locations. During the survey a note was also made of any suitable hibernation features present within the site.

3.9.2 Survey Details

A total of 60 reptile refugia were distributed on 8th April 2021 at Copps Field with seven inspection visits undertaken between 28th April and 29th September 2021. **Table 11** provides details of each reptile survey.

Table 11: Reptile survey details – Copps Field

Survey Date	Air Temperature (°C)	Weather Conditions
28th April 2021	11	Dry after rain shower before survey, 85% cloud cover, with a light breeze
11th May 2021	11	Dry, 70% cloud cover, calm
1st June 2021	22	Sunny, 10% cloud cover, with a moderate breeze
21st July 2021	18-20	Dry and sunny, 0% cloud cover, with a light breeze
13th September 2021	19	Dry, 15% cloud cover, with a light breeze
22nd September 2021	20	Dry, 15% cloud cover, calm
29th September 2021	14	Dry and sunny, 50% cloud cover, with a light breeze

A total of 130 reptile refugia were distributed on 1st September 2021 at land south of Copps Field with seven inspection visits undertaken between 17th September and 4th October 2021. **Table 12** provides details of each reptile survey.

Table 12: Reptile survey details – South of Copps Field

Survey Date	Air Temperature (°C)	Weather Conditions
17th September 2021	20	Dry, 100% cloud cover, with a light breeze
22nd September 2021	20	Dry and sunny, 30% cloud cover, with a light breeze
24th September 2021	20	Dry and sunny, 5% cloud cover, with a light breeze
27th September 2021	17	Dry, 60% cloud cover, with a moderate breeze
29th September 2021	13	Dry and sunny , 40% cloud cover, with a moderate breeze
1st October 2021	17	Dry after shower, 40% cloud cover, with a light breeze
4th October 2021	15	Dry but waterlogged ground, 70% cloud cover, with a moderate breeze

The reptile survey was coordinated by David Miller, Assistant Ecologist of ECOSA assisted by suitably experienced ECOSA surveyors.

3.9.3 Survey Limitations

It was not possible to survey several reptile mats across the site due to some being damaged or overgrown vegetation obscuring them. This is not considered to be of significant detriment to the results due to the good coverage of mats which were successfully surveyed. Overall there were no significant limitations to the reptile survey.

3.10 Criteria used to Assess Ecological Value

The evaluation criteria used in this report are based on ECOSA's professional judgement and publicly available publications, survey data and other sources as referenced in the main text. The evaluation is based on a sliding scale of importance as follows; international and European, national, regional, county, local and site. There are a wide range of characteristics which contribute to the importance of ecological features, and these may justify an increase or reduction in the value of an ecological feature. Where deviations occur, these will be explained in the evaluation section of this report (Section 4.0). Current published relevant guidance, including information sources such as A Nature Conservation Review (Ratcliffe, 1977) and Guidelines for

Ecological Impact Assessment in the United Kingdom (CIEEM, 2018) have also been used to inform the assessment.

4.0 BASELINE ECOLOGICAL CONDITIONS AND EVALUATION

4.1 Introduction

This section details the results of the Ecological Impact Assessment undertaken for the site. It assesses the baseline ecological conditions of the site at the time the desktop study was completed and based on the findings of the field survey and subsequent protected species surveys. This section also provides an assessment of the ecological value of ecological features present at the site.

4.2 Statutory and Non-statutory Designated Sites

4.2.1 Baseline Ecological Conditions

Details of designated sites are provided in the paragraphs below.

Statutory Designated Sites

There are six statutory designated sites of nature conservation interest situated within two kilometres of the site boundary. These are:

- Portsmouth Harbour (Ramsar site) – located approximately 570 metres north-east of the site. Designated for supporting wetlands of international importance including the presence of extensive eelgrass *Zostera* species beds and over-wintering dark-bellied brent goose *Branta bernicla benicla*.

- Portsmouth Harbour (SPA) – located approximately 570 metres north-east of the site. Designated for supporting internationally important numbers of over-wintering dark-bellied brent goose, black-tailed godwit *Limosa limosa*, dunlin *Calidris alpina* and red-breasted merganser *Mergus serrator*;

- Solent and Dorset Coast (SPA) – located approximately 550 metres north-east of the site. Designated for supporting international important populations of foraging sandwich tern *Sterna sandvicensis* common tern *Sterna hirundo* and little tern *Sternula albifrons;*

- Portsmouth Harbour (SSSI) – located approximately 570 metres north-east of the site. Designated for supporting important wetland habitats and associated species;

- The Wilds Ground (SSSI) – located approximately 1.8 kilometres to the south of the site and desinated for spport acid oak woodland set on former common land; and

- The Wild Grounds (LNR) – located approximately 1.8 kilometres to the south of the site designated for supporting woodland habitat.

The Solent Wader and Brent Goose Strategy was also consulted for records of sites which are present within one kilometre of the site boundary. The following Solent Wader and Brent Goose Strategy sites were identified as part of this search:

- F23 Secondary Support Area – located within the red line boundary;
- F15 Low Use – located within red line boundary and beyond;
- F12 Low Use – located approximately 500 metres to the west of the site
- G28 Secondary Support Area – located approximately 650 metres to the east of the site;
- F11 Secondary Support Area – located approximately 720 metres to the west of the site; and
- F13 Secondary Support Area – located approximately 830 metres to the south of the site; and
- G34 SPA – located approximately 970 metres north-east of the site.

Further details of the statutory designations listed above are provided in **Appendix 7**.

Non-Statutory Designated Sites

There are four non-statutory designated sites of nature conservation interest situated within one kilometres of the site boundary. These are:

- Meadows North of Woodcote Lane, Peel Common (SINC) – 280 metres south west of the site. Designated for supporting one or more notable species. However, the species for which this was designated was not returned by HBIC as part of the desktop study;
- Fort Fareham (SINC) – 730 metres north of the site. Designated for supporting retained elements of relic unimproved grassland and for supporting to semi-natural woodland consisting of important wet woodland community types;
- Alverwood (SINC) – 790 metres south of the site. Designated for supporting ancient semi-natural woodland, important community types of semi-natural woodland which are restricted distribution in the County and areas of wetland habitat; and
- Lee-on-Solent Golf Course (SINC) – 900 metres south of the site. Designated for comprising important community types of semi-natural woodland which are

restricted to wet woodland, areas of heathland vegetation and areas of wetland habitat.

Further information on sites designated for nature conservation are provided in **Appendix 2**.

4.2.2 Evaluation

Ramsar sites are designated at the international level and therefore, of international value, SPAs and SACs are of European value whilst SSSIs are of national value. The SINCs returned as part of the desktop study are of county value. The Solent Wader and Brent Goose Strategy Sites are not designated at a geographic frame of reference individually, however, the network as a whole is functional linked to the Solent SPAs and, therefore, taken as a whole the network is of international importance.

4.3 Habitats

4.3.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with the MAGIC Database and HBIC did not identify any Habitats of Principal Importance either within or adjacent to the site however, this does not confirm their absence. A small area of traditional orchard is located approximately 220 metres south-west of the site. A number of notable plant species were returned within one kilometre search radius of the site within the HBIC desktop study including chamomile *Chamaemelum nobile*, dwarf spurge *Euphorbia exigua* and strawberry clover *Trifolium fragiferum*.

Field Survey Results

Habitats within the site are shown on the Phase 1 Habitat Map (**Map 2**), Target Notes and photographs have been provided as appropriate, Target Notes are cross referenced to **Map 2**. Habitats are described in general terms using standard Phase 1 habitat survey terminology, with reference to dominant, characteristic and notable species in each vegetation type. The main habitats recorded on site during the Phase 1 habitat survey were as follows:

Improved grassland

The road verges along Newgate Lane consist of regularly mown improved grassland. Species present within this habitat are dominated by perennial rye-grass *Lolium perenne* with the only herbaceous species recorded being curled dock *Rumex crispus*, cleavers *Galium aparine*, dandelion *Taraxacum officinale*, ribwort plantain *Plantago lanceolata* and spear thistle *Cirsium vulgare*.

Dense/continuous scrub

Areas of dense/continuous scrub area present around the margins of Copps Field largely growing out from the boundary hedgerows (**Figure 1**). These areas are dominated by bramble *Rubus fruticosus* aggregate with bracken *Pteridium aquilinum* and creeping thistle *Cirsium arvense* also recorded in these areas.

Figure 1: Scrub along northern boundary of Copps Field

Semi-improved neutral grassland

The majority of Copps Field comprises lightly horse grazed semi-improved neutral grassland which was recorded as being lightly horse grazed during the field survey (**Figure 2** and **Figure 3**). The sward height is mixed across the site with some areas more tightly grazed than others. Occasional longer areas, including those more ruderal in nature, were also present within the field. The grazing was recorded as having been suspended during the later surveys in Autumn/Winter 2021/2022 with a longer sward height having developed. Species recorded during the survey were typical of the habitat including common bent *Agrostis capillaris*, cock's-foot *Dactylis glomerata*, Yorkshire fog *Holcus lanatus*, creeping buttercup *Ranunculus repens*, ribwort plantain, scentless mayweed *Tripleurospermum inodorum*, creeping thistle *Cirsium arvense*, common nettle *Urtica dioica*, ragwort *Jacobaea vulgaris* and yarrow *Achillea millefolium* with species indicating the less improved nature of the grassland recorded including common knapweed *Centaurea nigra*, red bartsia *Odontites vernus*, marsh cudweed *Gnaphalium uliginosum* and common fleabane *Pulicaria dysenterica*.

Figure 2: Semi-improved grassland looking west from east boundary

Figure 3: Semi-improved grassland looking south from northern site boundary

Arable

The majority of the site comprises three arable fields separated by hedgerows (**Figure 4**). During the field survey these had largely been cropped tightly to the boundary features with only narrow margins of improved grassland of around one metre in width. The margins are largely unmanaged with a sward height of approximately 30-40 centimetres with species recorded including false-oat grass *Arrhenatherum elatius*, Yorkshire fog, cock's foot, bracken, ragwort, common nettle, hedge mustard *Sisymbrium officinale*, ribwort plantain, broad-leaved dock *Rumex obtusifolius* and creeping thistle.

Figure 4: Arable field within the site

Intact Species-rich Hedgerow with Trees

There are a total of three hedgerows which are intact species-rich with trees (labelled H1 to H3 on **Map 2**)

H1 forms the eastern boundary of the site and comprises a mature unmanaged hedgerow with trees up to approximately six metres in height and three metres in width (**Figure 5**). Species present within this hedgerow include pedunculate oak *Quercus*

robur, blackthorn *Prunus spinosa*, hazel *Corylus avellena*, poplar *Populus* species and crab apple *Malus sylvestris* with bramble and bracken recorded in the ground flora.

Figure 5: Hedgerow H1

Figure 6: Hedgerow H2

H2 forms the northern boundary of the site and comprises a largely unmanaged hedgerow with trees (**Figure 6**). The majority of the hedgerow is up to five metres in height, with individual trees taller than this, and in excess of three metres in width. Species recorded within the hedgerow include pedunculate oak, blackthorn, hawthorn *Crataegus monogyna*, gorse *Ulumus* species and dog rose *Rosa cania* with bramble and bracken both present within the ground flora.

H3 forms the western site boundary and development from a more established hedgerow structure at the northern end to a tree line at the southern end (**Figure 7**). The northern section of the hedgerow is also adjoined to a significant band of scrub of approximately four metres in width. The hedgerow is approximately five to six metres in height excluding the tallest trees. Species recorded in the hedgerow include pedunculate oak, blackthorn, hazel, hawthorn, dog rose, willow *Salix* species, cherry *Prunus* species and horse chestnut *Aesculus hippocastanum*. A shallow ditch is also present running along this hedgerow which was dry at the time of survey.

Figure 7: Hedgerow H3

H11 and H12 are both newly planted hedgerows situated along Newgate Lane which are highly managed to approximately 1.5 metres in height with individual trees planted

along the length. Species recorded within the hedgerow include blackthorn, hawthorn, field maple *Acer campestre* and hornbeam *Carpinus betulus* with pedunculate oak, silver birch *Betula pendula* and beech *Fagus sylvatica* forming the individual trees.

Intact Species-poor Hedgerow

There are six hedgerows within the site which are intact species-poor hedgerows largely forming the boundaries between the arable fields.

H5 is situated on the southern boundary of the site and is a short section of hedgerow managed to approximately two metres and one to two metres in width. Species recorded including hawthorn, hazel, blackthorn and pedunculate oak. Species in the ground flora include honeysuckle *Lonicera periclymenum* and ivy *Hedera helix*.

H6 forms the boundary between the western most arable field and the central arable field. The hedgerow is approximately two metres in height and subject to light management and set along a ditch. The hedgerow is dominated by blackthorn with other species recorded including hawthorn, dog-rose and pedunculate oak whilst honeysuckle and hedge bindweed *Calystegia sepium* were recorded in the ground flora.

H7 is similar to H6 forming the boundary between the eastern most arable field and the central arable field. The hedgerow is managed to approximately two metres in height with a ditch situated on the eastern side. The hedgerow is dominated by blackthorn with only very occasional other species recorded including hazel, hawthorn, dog rose, bramble, ash *Fraxinus excelsior*, willow, field maple, cherry and dogwood *Cornus sanguinea*.

Figure 8: Hedgerow H6 looking north

Figure 9: Hedgerow H7 looking south

H8 is a short section of hedgerow situated along the southern boundary of the site which is situated along a ditch. Species recorded in this hedgerow including blackthorn and bramble.

Intact Species-poor Hedgerow with Trees

H9 forms the eastern boundary of the site between south of Copps Field and residential properties to the west (**Figure 10**). The hedgerow is set along a ditch with several mature trees along the length. The main structure of the hedgerow is approximately three to four metres in height with mature trees set behind. Species recorded in the understorey including hawthorn, blackthorn, dogwood, willow and field maple with the mature trees comprising pedunculate oak and ash. The understorey is largely dominated by bramble with other species recorded including honeysuckle, ivy and hedge bindweed.

Figure 10: Hedgerow H9 on eastern boundary looking north

Treeline

H4 forms the southern boundary of Copps Field and comprises a tree line which separates Copps Field from the land to the south. Species present are dominated by pedunculate oak with blackthorn, ash and poplar also recorded along this tree line. An area of self seeding poplar has also begun to establish within the field (**TN1** and **Figure 12**).

Figure 11: Treeline forming southern boundary of Copps Field

Figure 12: Area of self seeded poplar establishing adjacent to tree line (**TN1**)

H10 is a tree line forming the boundary between the land south of Copps Field and the playing field situated to the north (**Figure 13**). This tree line is situated along a ditch

with occasional areas of understorey growth. Tree species recorded including ash, pedunculate oak, lime and willow with occasional understorey species recorded including hazel, hawthorn, blackthorn, field maple and cherry.

Figure 13: Treeline forming north boundary of the site

Ditch

A number of ditches are present across the site. These are largely either within or immediately adjacent to hedgerow and where vegetation is present this is dominated by coarse grasses found in the arable field edge. They were not recorded as holding water during the Spring/Summer months but were seasonally wet across the winter.

A drainage ditch is also present along the Newgate Lane road verge which was recorded as dry at the time of survey.

Scattered Trees

A number of scattered trees are present either as individual standard in hedgerows or set alone along field boundaries (**Figure 14**). These individual trees comprise pedunculate oak.

Figure 14: Scattered tree set within field margin

A small number of newly planted trees are present along the Newgate Lane road verge which include silver birch, pedunculate oak and beech.

Other Habitats

A small area of hardstanding is present in the south-eastern corner of the site for access whilst a fence line forms the western boundary of the site.

4.3.2 Evaluation

The majority of the habitats within the site comprise highly managed arable habitat of limited ecological interest. The habitats of greater ecological interest are the hedgerow and tree line network, which would qualify as a Habitat of Principal Importance with other habitats of relatively value in terms of the site being the semi-improved grassland and scattered trees. These habitats are assessed as being of local value overall.

4.4 Bats

4.4.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with the MAGIC database revealed two EPSM licences granted in 2009 and 2010 for the destruction resting places of common pipistrelle *Pipistrellus pipistrellus* within the two kilometre search radius of the site.

Consultation with HBIC produced a record of eight species of bat within the two kilometre desktop study area, including barbastelle *Barbastella barbastellus*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii*, serotine *Eptesicus serotinus*, noctule *Nyctalus noctula* and brown long-eared bat *Plecotus auratus.* Bats not identified to species level were also recorded including long-eared bat species *Plecotus*, *Myotis* bat species, pipistrelle bat species *Pipistrellus* and unidentified bat species *Chiroptera*. The closest bat roosts to site include a record of 51 unidentified bat species located 0.5 kilometres from site in 1985, 130 pipistrelle bat located 1.1 kilometres from site in 1985 and 201 common pipistrelle located 1.6 kilometres from site in 2012.

Field Survey Results

Tree Assessment

A large number of trees are present along the boundaries of the fields within the site many of which are mature and are highly likely to support potential roost features such as crack, splits and rot holes. Given the number of trees present it was not possible fully assess each tree during the initial field surveys.

Foraging and Commuting Habitat

The boundary tree lines and hedgerows provide good foraging and commuting resources for bat species and the areas of scrub and less grazed areas of grassland would provide foraging opportunities. The site also provides good connectivity to

foraging and commuting bats to hedgerows to the south and Tukes Avenue open space to the north. Therefore, the site is assessed as having moderate suitability to support foraging and commuting bats overall.

Bat Ground Level Tree Assessment Results

The results of the ground level tree assessment of the on-site trees are provided in **Table 13**. Details of tree locations and levels of bat suitability are provided in **Map 3**. During the ground level tree assessment a total of 12 trees were assessed as having low suitability for roosting bats, 13 trees with moderate suitability and three trees with high suitability.

Table 13: Ground level tree assessment results

Tree Number (Map 3)	Species and Description	Description of Features	Suitability for Bats
1	Oak	Ivy cladding obscures view of tree stem and limbs. Ivy not developed enough to form feature itself.	Low
2	Oak	Ivy cladding obscures view of tree and, therefore, other minor features may not be visible from the ground level.	Low
3	Oak	Ivy cladding obscures view of tree and, therefore, other minor features may not be visible from the ground level.	Low
4	Oak	Rot hole within callus roll on northern elevation. Blue tits nesting in feature at time of survey.	Moderate
5	Oak	A hazard beam was recorded approximately 7 metres high on north-eastern elevation and a rot hole in callus roll approximately 5 metres on north-eastern elevation.	Moderate
6	Oak	Ivy cladding obscures view of tree and, therefore, other minor features may not be visible from the ground level.	Low
7	Hawthorn x3	Ivy cladding obscures view of tree and, therefore, other minor features may not be visible from the ground level.	Low
8	Alder	Ivy cladding obscures view of tree and, therefore, other minor features may not be visible from the ground level.	Low
9	Dead tree	Dead wood, snags and cracks in limbs. Multiple woodpecker holes 6 metres high on south western elevation and also 14 metres high on north eastern elevation which may lead to hollow limbs.	High

Tree Number (Map 3)	Species and Description	Description of Features	Suitability for Bats
10	Oak	Small hazard beam on limb on southern elevation. Ivy cladding obscures view on parts of tree stem and limbs.	Moderate
11	Oak	Ivy cladding obscures view of tree and, therefore, other minor features may not be visible from the ground level.	Low
12	Oak	Multiple callus rolls present on this tree which all appear shallow from ground level.	Low
13	Oak	A single rot hole is present at six metres high on western elevation on main stem.	Moderate
14	Ash	Ivy cladding obscures view of tree and, therefore, other minor features may not be visible from the ground level.	Low
15	Oak	Large complex callus roll starting at ground level on the main trunk and extending upwards into limbs at two metres high forming a cavity.	Moderate
16	Oak	Cavity at 40 centimetres above ground level on main stem.	Moderate
17	Oak	Cavity extending upwards into western limb. Opening at 1.5 metres.	Moderate
18	Ash	Cavities at ground level extending upwards and possibly adjoining rot holes in the stem and limbs further up the tree.	Moderate
19	Oak	Rot hole within callus roll on southern limb.	Moderate
20	Ash	Cavities extending upwards into stems which are protected from the prevailing weather and offer good bat roost suitability.	High
21	Oak	A rot hole is present on underside of limb five metres high on southern elevation.	Moderate
22	Willow	Callus roll is present at three meters high. Split present in stem which extends all the way though tree and is therefore exposed to the elements and reduces suitability.	Low
23	Oak	The tree supports a hollow limb extending upwards with an opening at 0.5 metres from ground.	Moderate
24	Ash	The tree supports multiple hollow trunks and limbs extending upwards ground level and two metres up. Further two openings observed higher up in canopy.	High
25	Oak	The trees supports a snapped hazard beam/ split and lateral cracks in branch observed.	Moderate

Tree Number (Map 3)	Species and Description	Description of Features	Suitability for Bats
26	Oak	Ivy cladding obscures view of tree and, therefore, other minor features may not be visible from the ground level.	Low
27	Oak	The tree supports a rot hole and branch tear at nine metres high on north eastern elevation. Some minor snagging and deadwood is also present.	Moderate
28	Oak	Ivy cladding obscures view of tree and, therefore, other minor features may not be visible from the ground level.	Low

Bat Transect Survey Results

A total of 11 bat transect surveys were undertaken between April 2021 and October 2021 during which time a minimum of four species of bat were recorded within the site including common pipistrelle, soprano pipistrelle, serotine and *Myotis* bat species.

The activity recorded during the transect surveys was dominated by common pipistrelle which accounted for 98% of all registrations recorded only very low number of soprano pipistrelle (accounting for less than 2%) were recorded with single registrations of *Myotis* bat species and serotine. Activity around Copps Field (northern transect) was spread across the boundaries of the field. Activity recorded in land south of Copps Field (southern transect) was largely focused on the northern and western boundaries. The locations of the bat activity recorded are provided on **Map 4a** to **Map 4g** with a summary of the findings of each survey provided in **Table 14**.

Table 14: Bat activity recorded during transect surveys

Survey Date	Northern/Southern Transect	General Bat Activity at the Site
20th April 2021	Northern	The activity recorded during this survey was dominated by common pipistrelle which accounted for 49 of the 51 registrations made during the survey with two registrations of soprano pipistrelle also made. The activity was largely spread throughout the northern transect with the single soprano pipistrelle recorded on the eastern boundary of the site.
1st June 2021	Northern	The activity recorded was largely similar in terms of number of registrations to the previous survey with 48 registrations recorded. The activity entirely comprised common pipistrelle with no other bat species recorded during this survey. The activity recorded was largely spread throughout the transect.

Survey Date	Northern/Southern Transect	General Bat Activity at the Site
24th June 2021	Northern	A relatively higher level of activity was recorded during this survey when compared to the earlier transects with a total of 155 registrations made during the survey. The activity was once again dominated by common pipistrelle which accounted for 98% of registrations with only four registrations of soprano pipistrelle recoded on the western boundary of the field. A concentration of activity was recorded along the southern-western and southern field boundaries with the north-western being the area of relatively lower activity.
20th July 2021 (dusk)	Northern	A total of 66 bat registrations were recorded during this survey. The activity was again dominated by common pipistrelle which accounted for 97% of the registrations recorded with single registrations of soprano pipistrelle and serotine both on the western boundary of the site. The activity recorded was largely spread across the field boundaries during this survey.
21st July 2021 (dawn)	Northern	A total of 102 registrations were made during the survey which were entirely attributed to common pipistrelle with no other species recorded during the survey. Activity was largely recorded spread across the field boundaries with relative concentration recorded along the western and eastern site boundaries.
25th August 2021	Southern	A total of 59 registrations were recorded during this survey with 97% of the registrations being attributable to common pipistrelle. A single registration of *Myotis* bat species was made on the eastern site boundary with a single registration of soprano pipistrelle made on the northern boundary. The area of relatively higher activity recorded during the survey was the northern boundary of the transect along H4.
3rd September 2021	Northern	The activity recorded was again dominated by common pipistrelle accounting for 68 of the 70 registrations recorded during the survey. The activity was largely spread across the transect with the two soprano pipistrelle registrations recorded on the western boundary of the site.
13th September 2021	Northern	The activity recorded during this survey was relatively higher with a total of 116 registrations recorded. The activity was dominated by common pipistrelle accounting for 98% of the registrations with only two registrations of soprano pipistrelle both of which were on the eastern boundary of the transect.
29th September 2021	Southern	The survey recorded relatively lower levels of activity with only 21 registrations recorded all of which were attributed to common pipistrelle. The activity recorded was entirely along the northern end of the transect.

Survey Date	Northern/Southern Transect	General Bat Activity at the Site
5th October 2021	Northern	A total of 93 registrations were made during the survey 98% of which were attributed to common pipistrelle with only two registrations of soprano pipistrelle recorded along the western boundary of the site. The activity during the survey was concentration on the western boundary with only two registrations away from this location.
11th October 2021	Southern	The activity recorded during this survey was generally low with only 17 registrations of common pipistrelle recorded during the survey. The activity was spread across e site with only occasional registrations made and a small concentration of nine in the north-western most corner of the transect.

Bat Automated Detector Survey Results

The automated bat detector survey results recorded a total of 29,259 bat registrations of at least nine species: common pipistrelle, soprano pipistrelle, Nathusius pipistrelle, noctule, serotine, *Myotis* bat species, long-eared bat species and barbastelle.

Activity by Species

Table 15 and **Table 16** shows the number of registrations and proportion of recorded bat activity at the site by species. Given that a different number of surveys have been undertaken at Copps Field and south of Copps Field these have been split out separately. Across the surveys the activity was dominated by common pipistrelle which accounted for 96.7% and 95.6% of activity at Copps Field and south of Copps Field respectively. The next most commonly recorded bat was soprano pipistrelle and noctule with relatively low numbers of the remainder of the species recorded. The most notable species encountered was the single registration of barbastelle.

Table 15: Copps Field - Number of registrations and proportion of bat activity from each species

Species	No. Registrations	% Registrations
Common pipistrelle	19,951	96.7%
Soprano pipistrelle	462	2.2%
Noctule	109	0.5%
Myotis bat species	42	0.2%
Serotine	30	0.2%
Nathusius' pipistrelle	24	0.1%
Long-eared bat species	6	0.0%
Grand Total	**20,624**	**100.0%**

Table 16: South of Copps Field - Number of registrations and proportion of bat activity from each species

Species	No. Registrations	% Registrations
Common pipistrelle	8,252	95.6%
Soprano pipistrelle	295	3.4%
Myotis bat species	61	0.7%
Nathusius' pipistrelle	11	0.1%
Serotine	5	0.1%
Long-eared bat species	5	0.1%
Noctule	5	0.1%
Barbastelle	1	0.0%
Grand Total	**8,635**	**100.0%**

Activity Levels at Locations

Table 17 and **Table 18** shows the number of registrations recorded at each individual location throughout the survey period. Given that the survey location was varied across the survey period the month at which these detectors were deployed was also a variable and, therefore, it is not possible to directly compare individual locations. However, generally it would appear that species diversity across all locations remained consistent with common pipistrelle consistently being the most commonly recorded species. Occasional higher peaks were also recorded (e.g. Location 3, Location 10 and Location 18). The single registration of barbastelle was made at Location 11 in August 2021.

Table 17: Copps Field - Activity Recorded at Each Location

Location	Species	No. Registrations	Activity Index
Location 1 (April)	Common pipistrelle	174	34.8
	Noctule	32	6.4
	Soprano pipistrelle	1	0.2
	Myotis bat species	1	0.2
Location 1 Total		**208**	**41.6**
Location 3 (early June)	Common pipistrelle	3,589	717.8
	Noctule	13	2.6
	Soprano pipistrelle	21	4.2
	Serotine	4	0.8
	Nathusius' pipistrelle	1	0.2
	Myotis bat species	7	1.4
Location 3 Total		**3,635**	**727.0**
Location 4 (September)	Common pipistrelle	429	85.8
	Soprano pipistrelle	6	1.2
	Long-eared bat species	1	0.2

Location	Species	No. Registrations	Activity Index
	Myotis bat species	5	1.0
Location 4 Total		**441**	**88.2**
Location 5 (April)	Common pipistrelle	229	45.8
	Noctule	2	0.4
	Myotis bat species	1	0.2
Location 5 Total		**232**	**46.4**
Location 8 (October)	Common pipistrelle	1,058	211.6
	Noctule	5	1.0
	Soprano pipistrelle	9	1.8
	Nathusius' pipistrelle	3	0.6
	Myotis bat species	2	0.4
Location 8 Total		**1,077**	**215.4**
Location 10 (early September)	Common pipistrelle	7,543	1508.6
	Noctule	12	2.4
	Soprano pipistrelle	263	52.6
	Serotine	7	1.4
	Nathusius' pipistrelle	6	1.2
	Long-eared bat species	2	0.4
	Myotis bat species	4	0.8
Location 10 Total		**7,837**	**1567.4**
Location 13 (early September)	Common pipistrelle	183	36.6
	Noctule	5	1.0
	Soprano pipistrelle	22	4.4
	Serotine	3	0.6
	Myotis bat species	3	0.6
Location 13 Total		**216**	**43.2**
Location 14 (July)	Common pipistrelle	1,335	267.0
	Noctule	18	3.6
	Soprano pipistrelle	29	5.8
	Serotine	3	0.6
	Nathusius' pipistrelle	2	0.4
	Myotis bat species	2	0.4
Location 14 Total		**1,389**	**277.8**
Location 15 (September)	Common pipistrelle	81	16.2
	Soprano pipistrelle	18	3.6
	Nathusius' pipistrelle	1	0.2
	Myotis bat species	9	1.8
Location 15 Total		**109**	**21.8**
Location 16 (June)	Common pipistrelle	1,695	339.0
	Noctule	5	1.0

Location	Species	No. Registrations	Activity Index
	Soprano pipistrelle	16	3.2
	Serotine	3	0.6
Location 16 Total		**1,719**	**343.8**
Location 17 (October)	Common pipistrelle	29	5.8
	Noctule	7	1.4
	Soprano pipistrelle	6	1.2
	Serotine	3	0.6
	Nathusius' pipistrelle	1	0.2
	Long-eared bat species	1	0.2
	Myotis bat species	5	1.0
Location 17 Total		**52**	**10.4**
Location 18 (early June)	Common pipistrelle	2,469	493.8
	Noctule	4	0.8
	Soprano pipistrelle	62	12.4
	Serotine	4	0.8
	Nathusius' pipistrelle	8	1.6
	Myotis bat species	2	0.4
Location 18 Total		**2,549**	**509.8**
Location 19 (July)	Common pipistrelle	636	127.2
	Noctule	3	0.6
	Soprano pipistrelle	5	1.0
	Long-eared bat species	1	0.2
	Myotis bat species	1	0.2
Location 19 Total		**646**	**129.2**
Location 20 (June)	Common pipistrelle	501	100.2
	Noctule	3	0.6
	Soprano pipistrelle	4	0.8
	Serotine	3	0.6
	Nathusius' pipistrelle	2	0.4
	Long-eared bat species	1	0.2
Location 20 Total		**514**	**102.8**
Grand Total		**20,624**	**589.3**

Table 18: Land south of Copps Field - Activity Recorded at Each Location

Location	Species	No. Registrations	Activity Index
Location 5 (October)	Common pipistrelle	172	34.4
	Soprano pipistrelle	5	1
	Nathusius' pipistrelle	1	0.2
	Long-eared bat species	1	0.2

Location	Species	No. Registrations	Activity Index
	Myotis bat species	34	6.8
Location 5 Total		**213**	**42.6**
Location 9 (September)	Common pipistrelle	623	124.6
	Soprano pipistrelle	21	4.2
	Nathusius' pipistrelle	2	0.4
	Myotis bat species	3	0.6
Location 9 Total		**649**	**129.8**
Location 11 (August)	Common pipistrelle	296	59.2
	Noctule	1	0.2
	Soprano pipistrelle	25	5
	Serotine	3	0.6
	Nathusius' pipistrelle	1	0.2
	Barbastelle	1	0.2
	Long-eared bat species	4	0.8
	Myotis bat species	5	1
Location 11 Total		**336**	**67.2**
Location 14a (August)	Common pipistrelle	36	7.2
	Noctule	1	0.2
	Soprano pipistrelle	8	1.6
	Myotis bat species	1	0.2
Location 14a Total		**46**	**9.2**
Location 15 (September)	Common pipistrelle	7,081	1,416.2
	Noctule	3	0.6
	Soprano pipistrelle	235	47
	Serotine	2	0.4
	Nathusius' pipistrelle	6	1.2
	Myotis bat species	18	3.6
Location 15 Total		**7,345**	**1,469.0**
Location 16a (October)	Common pipistrelle	44	8.8
	Soprano pipistrelle	1	0.2
	Nathusius' pipistrelle	1	0.2
Location 16a Total		**46**	**9.2**
Grand Total		**8,635**	**287.8**

4.4.2 Evaluation

Roosting Bats

No bat emergence/re-entry surveys in respect of tree roosting bats had been undertaken as this need for these survey have been scoped out as impacts have been

avoided in the scheme design. Therefore, an assessment of the value of the site for tree roosting bats has not been undertaken.

Foraging and Commuting Bats

The activity surveys were constrained on the basis that the land south of Copps Field only had surveys commenced in August 2021 and not in the early part of the season between April and July. However, a robust data set was still gathered in Copps Field and the data gathered from the land south of Copps Field for the months the survey was undertaken largely represent that which was recorded in Copps Field.

Bat surveys recorded at least nine species of bat foraging and commuting at the site with the vast majority of the activity attributable to common and widespread species with the single registration of barbastelle being the most notable record made as part of the surveys.

It is also not possible to establish whether the records of long-eared bat are of the common and widespread brown long-eared bat or rarer grey long-eared bat. It is considered highly unlikely to be the rarer grey long-eared bat based on the lack of records in the wider area.

It is unknown whether the *Myotis* bat species recorded are commoner species such as Natterer's bat or rarer species, such a Bechstein's bat *Myotis bechsteinii*. However, the latter species rely on complex woodland networks which are neither present on site or in the immediate surrounds.

Hampshire SINC criteria only allows designation of SINCs for supporting breeding populations of notable species. Whilst not all boundary trees have been assessed there is no evidence to indicate a maternity species of bats on the site itself based on the information gathered during the bat activity surveys such as notable commuting records made during the transect survey. Therefore, the site is not of county value for either individual species or the overall assemblages. Whilst the site is not of county level importance the woodland boundary habitat in particular provides good linkages to the surrounds and an assemblage of bats was recorded during the automated detector and transect surveys. Therefore, the site is assessed as being of local importance for foraging and commuting bats overall.

4.4.3 Otter

4.4.4 Baseline Ecological Conditions

Desktop Study Results

Consultation with HBIC produced no records of otter *Lutra lutra* within the one kilometre desktop study area, however this does not confirm the absence of the species in the local area.

Field Survey Results

The ditches recorded within the hedgerows on site are all shallow with no signs that they would permanently hold water. These are also poorly connected to any other watercourse with the nearest river (River Alver) being situated approximately 0.8 kilometres to the south. The habitat on site is unsuitable for otter and therefore the species is not considered further in this report.

4.5 Hazel Dormouse

4.5.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with the MAGIC database did not reveal the presence of any recently granted EPSM licences in respect of hazel dormouse *Muscardinus avellanarius* within a two kilometre radius of the site.

Consultation with HBIC produced no records of hazel dormouse within the desktop study area, however, this does not confirm the absence of the species in the local area.

In addition, a hazel dormouse survey previously undertaken by WYG in 2018 concluded that hazel dormouse were likely absent from the site immediately to the south (WYG, 2018).

Field Survey Results

The site is bounded by mature hedgerows which provide the structure and species diversity which hazel dormouse require. These are directly linked to other potentially suitable habitat to the south. The off-site habitat to the north, east and west is generally sub-optimal being fragmented by existing roads, residential development and commercial development.

Hazel Dormouse Survey Results

The results of the hazel dormouse survey are shown on **Map 6**. No hazel dormouse have been recorded during the surveys undertaken and a complete survey covering the entire season has been undertaken of Copps Field. In addition, no hazel dormouse

were recorded as part of survey work undertaken by the proposed development to the south of the site in 2018. The area of land is isolated from other surrounding habitat by Newgate Lane to the west and residential development to the north, south and west. Therefore, whilst it is acknowledged that a full survey has yet to be completed of the land to the south of Copps Field, it is considered a robust assessment of the likely absent of hazel dormouse can be undertaken and it is concluded that the species is likely absent from the site.

4.6 Birds

4.6.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with HBIC produced 1,126 records for 86 species within the desktop study area. Those notable species returned which may be present breeding on site are house sparrow *Passer domesticus*, yellowhammer *Emberiza citrinella*, song thrush *Turdus philomelos*, skylark *Alauda Arvensis* and linnet *Linaria cannabina*.

Field Survey Results

During the field surveys a small number of species were recorded within the site including the red listed house sparrow and amber listed dunnock *Prunella modularis* and wren *Troglodytes troglodytes* with common and widespread species magpie *Pica pica*, woodpigeon *Columba palumbus,* long-tailed tit *Aegithalos caudatus,* blue tit *Cyanistes caeruleus* and carrion crow *Corvus corone* also recorded in the site.

The site offers good opportunities for nesting birds in the form of the hedgerows, mature trees and dense scrub habitat whilst the open arable fields may provide suitability for ground nesting birds suck as skylark. A range of other similar habitats are present in the wider area in the form of mature hedgerows associated with agricultural fields.

The site also offers suitability for over wintering birds, specifically those associated with the Solent SPAs and the site has been specifically highlighted as being a low use site and Secondary Support Area for these species.

Wintering Bird Survey Results

The full results are provided in **Appendix 8** with results mapped on **Map 7a** to **Map 7l**[13]. Notable species or those potentially associated with the Solent SPAs recorded on the site included black-headed gull *Chroicocephalus ridibundus*, black-tailed godwit *Limosa limosa,* common gull *Larus canus*, herring gull *Larus argentatus*, sparrowhawk

[13] Only notable species and both mapped and contained within the results table.

Accipiter nisus, dunnock *Prunella modularis*, house sparrow *Passer domesticus*, bullfinch *Pyrrhula pyrrhula*, meadow pipit *Anthus pratensis*, song thrush, starling *Sturnus vulgaris* redwing *Turdus iliacus* and skylark A summary of the notable species recorded within the site itself are provided **Table 19**.

Table 19: Summary of notable bird species recorded within the site*

Species	Peak Count	Schedule 1[14]	Red List[15]	Amber List[16]	Species of Principal Importance
Black-headed gull	34			X	
Black-tailed godwit	1		X		
Common gull	1			X	
Herring gull	1		X		
Sparrowhawk	1			X	
Dunnock	2			X	
House sparrow	12		X		
Bullfinch	2			X	
Meadow pipit	6			X	
Song thrush	2			X	
Starling	60		X		
Redwing	46			X	
Skylark	3		X		X

* Numbers marked in brackets () were recorded flying over the site.

In addition, a number of common and widespread species were recorded as part of the survey work including wood pigeon *Columba palumbus*, magpie *Pica pica*, carrion crow *Corvus corone*, jackdaw *Corvus monedula*, jay *Garrulus glandarius*, blue tit, great tit *Parus major*, coal tit *Periparus ater*, long-tailed tit *Aegithalos caudatus*, robin *Erithacus rubecula*, pied wagtail *Motacilla alba*, chaffinch *Fringilla coelebs*, blackbird *Turdus merula*, goldfinch *Carduelis carduelis*, green woodpecker *Picus viridis*, great spotted

[14] Schedule 1
Birds listed on Schedule 1 of the Wildlife and Countryside Act (1981 as amended) are afforded additional protection receive further protection making it an offence to: Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or; Intentionally or recklessly disturb the dependent young of any such bird.
[15] Birds of Conservation Concern Red List
The UK's birds are split in to three categories of conservation importance - red, amber and green. Red is the highest conservation priority, with species needing urgent action. Amber is the next most critical group, followed by green. Red List criteria include species which are: globally threatened; have been subject to historical population decline in UK during 1800–1995; are in severe (at least 50%) decline in UK breeding population over last 25 years, or longer-term period, or; subject to severe (at least 50%) contraction of UK breeding range over last 25 years, or longer-term period.
[16] Birds of Conservation Concern Amber List
Amber list criteria include species which are: in unfavourable conservation status in Europe; subject to historical population decline during 1800–1995, but recovering; subject to moderate (25-49%) decline in UK breeding population or contraction of UK breeding range over last 25 years, or the longer-term period; subject to moderate (25-49%) decline in UK non-breeding population over last 25 years, or the longer-term period; rare breeders (1–300 breeding pairs in UK); rare non-breeders (less than 900 individuals), or; internationally important species with at least 20% of European breeding or non-breeding population in UK .

woodpecker *Dendrocopos major*, goldcrest *Regulus regulus*, collared dove *Streptopelia decaocto*.

At the time of surveys notable bird species were also recorded foraging outside the site boundary on the area of land adjacent to the sites' western boundary. Peak counts recorded off site include; 140 black-headed gull, 52 herring gull, 18 brent geese *Branta bernicla*, six common gull, three oystercatcher *Haematopus ostralegus* and three lesser black-backed gull.

4.6.2 Evaluation

Breeding Birds

Detailed breeding bird surveys have yet to be undertaken given the time of year that the surveys were commissioned. These surveys are currently proposed to be undertaken during Spring 2022. However, the habitats present are not unique within the wider area and, therefore, are assessed as likely as being of no more than local value. However, this assessment may require revision once the breeding bird surveys are completed.

Wintering Birds

During the wintering bird surveys undertaken across winter 2020/2021 and 2021/2022 the wintering bird assemblage recorded is typical of an agricultural site in the area. However, given the inclusion of the site in the Solent Wader and Brent Goose strategy consideration needs to be given to the wider function which the land offers in the wider area given the presence of the SPA network in the area and the function of the surrounding land. However, the site in isolation is assessed as having local level value for overwintering birds.

4.7 Reptiles

4.7.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with HBIC produced one record of slow-worm from 2014 from ten metres east of the site boundary.

The previous reptile surveys undertaken by WYG on the site to the south in 2018 identified a good population of slow-worm (WYG, 2018a).

Field Survey Results

Copps Field contains small areas of tussocky grassland which is grazed by livestock along with the presence of scrub and hedgerow which provides suitable shelter for foraging and basking reptiles. In addition, the land south of Copps Field contains arable

farmland which is separated by hedgerows with some unmanaged field margins which provides suitable shelter for foraging and basking reptiles. The site is well connected to further suitable habitat in the wider area due to the presence of grassland to the north, south and west.

Reptile Survey Results

Summaries of the reptile surveys at Copps Field and land south of Copps Field are provided in **Table 20** and **Table 21** and on **Map 8**. Slow-worm *Anguis fragilis* were found at both areas on the site in addition to one record of grass snake *Natrix helvetica.*

Table 20: Summary of reptile survey results Land at Copps Field

Survey Date	Number of Individuals Recorded					
	Slow-worm		Common Lizard		Grass Snake	
	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
28th April 2021	13	3	0	0	0	0
11th May 2021	18	2	0	0	0	0
1st June 2021	17	5	0	0	0	0
21st July 2021	4	1	0	0	0	0
13th September 2021	5	4	0	0	0	0
22nd September 2021	3	0	0	0	0	0
29th September 2021	3	0	0	0	0	0
Peak Count	**18**	**5**	**0**	**0**	**0**	**0**

Table 21: Summary of reptile survey results for the land south of Copps Field

Survey Date	Number of Individuals Recorded					
	Slow-worm		Common Lizard		Grass Snake	
	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
17th September 2021	22	10	0	0	0	0
22nd September 2021	2	1	0	0	1	0

Survey Date	Number of Individuals Recorded					
	Slow-worm		Common Lizard		Grass Snake	
	Adult	Juvenile	Adult	Juvenile	Adult	Juvenile
24th September 2021	4	1	0	0	0	0
27th September 2021	4	2	0	0	0	0
29th September 2021	1	2	0	0	0	0
1st October 2021	4	6	0	0	0	0
4th October 2021	4	5	0	0	0	0
Peak Count	**22**	**10**	**0**	**0**	**1**	**0**

4.7.2 Evaluation

Population Class Size Assessment

Table 22 shows the current guidance (Froglife, 1999) for assessing the population size of reptiles based on a refugia density of 10 per hectare. The total which was the density used at the site.

Table 22: Criteria for population size assessment based upon a refugia density of 10 per hectare

Species	Low Population	Good Population	Exceptional Population
Slow-worm	<5	5-20	>20
Grass snake	<5	5-10	>10

However, the total area of suitable reptile habitat is estimated to be approximately five hectares which is a density of 38 refugia per hectare or 3.8 times the minimum density. Given the peak count of 22 adult slow-worm this should be divided by 3.8 to give a comparative number to assess against **Table 22**. Therefore, the site is assessed as supporting a good population of slow-worm and low population of grass snake.

Evaluation

The site has been assessed as supporting a good population of slow-worm and a low population of grass snake. The Hampshire SINC criteria only allows designation of SINCs for reptiles where an outstanding assemblage of species is present. The site, therefore, does not qualify as country level importance for the species as is assessed as having local value for slow-worm.

4.8 Great Crested Newt

4.8.1 Baseline Ecological Conditions

Desktop Study Results

The MAGIC search did not identify any granted EPSM licence in respect of great crested newt *Triturus cristatus* within two kilometres of the site.

A number of drains are marked on OS mapping to the south of the site, however, superficially these appear to be similar to the ditches within the site which are discussed in more detail below. A range of previous survey work for great crested newt has been undertaken in the area associated with the construction of Stubbington Bypass (WSP, 2015), the planning application to the south of the site (WYG, 2018) and two planning applications to the west of the site (Ethos Environmental Planning, 2019) (Ethos Environmental Planning, 2019). These reports all undertook survey for great crested newt and confirmed the species as likely absent from the waterbodies in the area.

Field Survey Results

No waterbodies suitable for great crested newt are present within the site itself. The shallow ditches associated with the boundaries of the site are heavily overshaded and unlikely to hold water for prolonged periods during the great crested newt survey season with no aquatic vegetation recorded within the ditches during the survey. Therefore, great crested newt do not breed within the site.

The habitats within the site are superficially suitable for great crested newt in their terrestrial form with the grassland, hedgerows and scrub suitable for providing foraging, shelter and hibernation resources. However, given the findings of previous survey work undertaken on waterbodies/ditches within 500 metres of the site, which is the maximum distance the species will disperse from breeding ponds, the species is considered likely absent from the site. Therefore the species is not considered further in this report.

4.9 Invertebrates

4.9.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with HBIC produced records for 93 species within the one kilometre desktop study area. Notable species considered likely to be present on site include stag beetle *Lucanus cervus*, white admiral *Limenitis camilla* and grizzled skipper *Pyrgus malvae*.

Field Survey Results

The site supports habitat for a variety of terrestrial invertebrate species in the form of the less intensively grazed areas of grassland, scrub and hedgerows whilst areas of deadwood would provide suitable habitat for saproxylic species. Similar habitats are present in the local area.

4.10 Other Relevant Species

4.10.1 Baseline Ecological Conditions

Desktop Study Results

Consultation with HBIC produced five records of European hedgehog *Erinaceus europaeus* within the one kilometre desktop study area, the closest records were 170 metres east of the site boundary.

Consultation with HBIC also produced two records of common toad *Bufo bufo* within the one kilometre desktop study area, the closest record was 650 metres east of the site boundary.

Field Survey Results

The grassland and hedgerows provide suitable foraging and refuge opportunities for west European hedgehog *Erinaceus europaeus* with other suitable habitats such as hedgerows, tree lines and gardens present in the surrounds. Common toad may also occasionally utilise habitat on site if present within the surrounds.

4.10.2 Evaluation

Given the presence of further suitable habitats in the surrounds the habitats on site are assessed being of no more than site value for both European hedgehog and common toad.

4.11 Summary of Baseline Ecological Conditions

Table 23 provides a summary of the ecological features of value at the site. Ecological features considered during the appraisal but concluded to have no ecological value have been omitted from this summary.

Table 23: Summary of Baseline Ecological Conditions at the Site

Ecological Feature		Level of Importance
Habitats		Local
Bats	Roosting	Unknown
	Foraging and Commuting	Local
Birds	Breeding	Local
	Wintering	Local
Reptiles (Slow-worm)		Local
Invertebrates		Site
European hedgehog		Site
Common toad		Site

5.0 ASSESSMENT OF ECOLOGICAL EFFECTS AND MITIGATION/COMPENSATION/ ENHANCEMENT MEASURES

5.1 Introduction

This section assesses the ecological effects of the proposed development scheme on the identified ecological features as identified in Section 4.0. Methods for addressing potential impacts on ecological features have been approached in accordance with the mitigation hierarchy[17] with avoidance of impacts prioritised where possible. Where significant adverse effects cannot be avoided other forms of mitigation are prioritised over compensation. Enhancement measures have been detailed, where relevant, in order to not only minimise the impacts on biodiversity but also to provide enhancement in accordance with Paragraph 174 of the NPPF (Paragraph 2.2). It is anticipated that mitigation, compensation and enhancement measures will be secured through the planning process.

5.2 Scheme Design

The proposed development entails residential development of up to 375 dwellings, access from Newgate Lane East, landscaping and other associated infrastructure works.

At the time of preparation of the report, and given the scheme's outline nature, no detailed landscaping or lighting plans were available. It is anticipated that the detail of the measures set out in this document will be secured by an Ecological Mitigation Strategy and/or a Landscape and Ecological Management plan which will be submitted as part of any Reserved Matters Application and secured by planning condition. However, a Biodiversity Net Gain Assessment has been undertaken (Tetra Tech, 2022) which sets out the anticipated post-development habitats based on the outline scheme. These figures are referred to within this section, where relevant.

The potential ecological impacts and effects of these proposals, in the absence of mitigation, are described for each ecological feature below. For each ecological feature, measures to mitigate and/or compensate for significant effects are described.

[17] In accordance with CIEEM Ecological Impact Assessment guidance (CIEEM, 2018) a sequential process is adopted to address impacts on features of ecological interest, with 'Avoidance' prioritised at the top of the hierarchy and Compensation/Enhancement' at the bottom. This is often referred to as the 'mitigation hierarchy'.

5.3 Designated Sites

5.3.1 Potential Impacts and Effects

The proposals have been subject to a separate Shadow Habitats Regulations Assessment exercise by Tetra Tech (Tetra Tech, 2022). Therefore, the potential impacts on European sites are considered within the Shadow Habitats Regulations Assessment and no further consideration is given to the potential impacts of the proposals on European sites within this document.

No impacts on any other designated sites are anticipated as a result of the proposals.

5.3.2 Mitigation Measures

For further information please refer to the Shadow Habitats Regulations Assessment prepared to support the application.

5.3.3 Significance of Residual Effects

For further information please refer to the Shadow Habitats Regulations Assessment prepared to support the application.

5.3.4 Compensation

For further information on compensation measures please refer to the Shadow Habitats Regulations Assessment prepared to support the application.

5.3.5 Enhancement

No enhancement measures in relation to designated sites is proposed.

5.3.6 Monitoring

For further information on any monitoring measures please refer to the Shadow Habitats Regulations Assessment prepared to support the application.

5.4 Habitats

5.4.1 Potential Impacts and Effects

The proposals will result in the loss of 4.36 hectares of semi-improved grassland and 11.90 hectares of arable. The existing scrub present within Copps Field will be retained and incorporated into the scheme. There will also be the loss of 0.09 kilometres of intact species-poor hedgerow and 0.02 kilometres of treeline. The hedgerow/tree line network within the site is to be largely retained within the proposals save for the creation of access. These will also be buffer from built form by a minimum of five metres as part of the design.

Construction activities also have the potential to result in damage and degradation to retained habitats, primarily existing hedgerow and tree lines.

5.4.2 Mitigation Measures

All retained trees and hedgerows will have root protection zones (RPZs) established in accordance with BS 5837:2012 Trees in relation to design, demolition and construction in order to avoid any potential damage as a result of construction activities. Semi-natural buffers of at least five metres will be created from the retained hedgerow/tree line network.

In addition, in order to minimise risk of degradation to retained habitats and the risk of potential pollution events a Construction Environmental Management Plan (CEMP) will be prepared and implemented as part of the scheme. This will detail pollution prevention measures and suitable construction methods in order to protect retained habitats.

5.4.3 Significance of Residual Effects

The loss of habitats cannot be mitigated within the proposals and, therefore, the residual effect is considered significant and the local level.

5.4.4 Compensation

In order to offset the loss in habitat at the site new habitat creation measures are proposed with the scheme as follows:

- Creation of 3.72 hectares of neutral grassland to comprise a native neutral grassland/meadow seed mix with appropriate management practices to create a varied sward;
- Creation of new SuDs features to be sown with a native water tolerant grass seed mix;
- Creation of a new Bird Mitigation Area of circa. two hectares which will include a managed areas of native short-sward grassland and SuDs features (Tetra Tech, 2022);
- Creation of 0.32 kilometres of new native species-rich hedgerow with trees;
- Creation of 0.4 kilometres of new native species-rich hedgerow; and
- Enhancement of 0.5 kilometres of native hedgerow with trees.

In addition, 3.65 hectares of new amenity/modified grassland will be created within the scheme which will contain a native seed mix including a minimum of six species.

5.4.5 Enhancement

Following the implementation of the compensation measures set out in Paragraph 5.4.4 the Biodiversity Net Gain assessment (Tetra Tech, 2022) undertaken identified that the site will deliver in excess of 10% net gain in biodiversity units for both habitat and hedgerow units.

5.4.6 Monitoring

Following the creation of the new habitats proposed these will need to be subject to regular monitoring visits by the management agent/contractor with reviews undertaken by a suitably qualified ecologist on completion of the habitat creation works and a formal review on a no less than five-yearly basis.

5.5 Bats

5.5.1 Potential Impacts and Effects

The introduction of new lighting at the site has the potential to result in an increase disturbance to foraging and commuting bats at the site and has the potential to result in disturbance to any roosting bats within retained trees on site.

The majority of the key foraging and commuting habitat identified including the east-west treeline (H4), north-south hedgerows and boundary features are to be retained within the proposals with the exception of gaps created for access in H4, H6 and H7

In England, bats and their habitat are fully protected under the Wildlife and Countryside Act 1981 through inclusion in Schedule 5. In addition, all bat species are protected under the Conservation of Habitats and Species Regulations 2017. Refer to **Appendix 3** for details.

5.5.2 Mitigation Measures

Wherever possible the hedgerow network is being retained within the site, only subject to losses for access with measures put in place to prevent any damage or degradation during the construction period.

No lighting plans were available at the time of preparation of this report. A sensitive lighting scheme will require implementation at the site including maintaining dark corridors across key areas of suitable foraging and commuting habitat such as the hedgerows and trees. Guidance on task related lighting levels and mitigation options as described within the Bats and Artificial Lighting in the UK report should be followed (Institution of Lighting Professionals, Bat Conservation Trust, 2018).

5.5.3 Significance of Residual Effects

Following the implementation of mitigation measures there will be a net loss in suitable foraging and commuting habitat and increased fragmentation which would be significant on a local scale.

5.5.4 Compensation

In order to strengthen the boundaries of the site new planting is to be undertaken along the eastern and western boundaries in order to strengthen those retained routes. New grassland creation will also deliver new habitat at the site as set out in Paragraph 5.4.4.

5.5.5 Enhancement

In order to provide an enhancement for roosting bats new integrated roost units will be installed on a minimum of 10% of new buildings across the site with a Vivara Pro Build-in WoodStone Bat Box (or similar) providing a suitable unit.

5.5.6 Monitoring

No monitoring is proposed is respect of bats.

5.6 Birds

5.6.1 Potential Impacts and Effects

The majority of the wooded vegetation within the site will be retained within the proposals. However, the proposals will result in the loss of arable farmland with some relatively limited loss to hedgerow and scrub which provide suitable habitat for nesting birds. Any removal of this vegetation during the nesting bird season could result in direct harm to breeding birds.

The proposals will also result in the loss of suitable habitat for wintering birds including the low use and Secondary Support Area within the site which indicates that the site provided supporting habitat for over wintering birds associated with the Solent SPAs. The impacts on this are considered in more detail in the Shadow Habitats Regulation Assessment supporting the planning application (Tetra Tech, 2022).

All birds, their nests, eggs and young are legally protected, with certain exceptions, under the Wildlife and Countryside Act 1981 (as amended). Refer to **Appendix 3** for details.

5.6.2 Mitigation Measures

Any woody vegetation and arable field clearance will be undertaken outside of the nesting bird season (March to August inclusive) wherever possible. Should this not be possible then a nesting bird check will need to be undertaken by a suitably qualified ecologist prior to vegetation removal.

5.6.3 Significance of Residual Effects

Following the implementation of mitigation measures the residual effect on breeding birds and wintering birds would be significant at the local level.

5.6.4 Compensation

In order to deliver mitigation habitat for wintering birds a new Bird Mitigation Area is to be created in the western field to offset the loss of the Solent Wader and Brent Goose Strategy sites. This will comprise a managed area of grassland which will be screened and protected from potential human disturbance. The strategy for the Bird Mitigation Area is set out in the Shadow Habitats Regulations Assessment (Tetra Tech, 2022).

New hedgerow planting will provide compensatory nesting habitat for that lost as a result of site access creation.

5.6.5 Enhancement

In order to provide an enhancement for nesting birds it is proposed that a range of new nesting opportunities are incorporated into a minimum of 10% of new buildings within the site. These would be a mixed to provide a opportunities to a range of different species with appropriate models including Vivara Pro WoodStone House Sparrow Nest Box, Woodstone Build-In Swift Nest Box B, Vivara Pro House Martin Nest and Woodstone Build-In Open Nest Box.

5.6.6 Monitoring

No monitoring in respect of birds is proposed, subject to proposals in the Shadow HRA.

5.7 Reptiles

5.7.1 Potential Impacts and Effects

The proposals have the potential to result in direct effects on slow-worm and grass snake as a result of site clearance through killing/injury of individuals.

The proposals will result in the overall loss in suitable habitat for reptiles through the loss of approximately 4.36 hectares of grassland habitat and loss of 0.11 kilometres of shelter/refugia associated with hedgerow loss as a result of the proposals.

Widespread reptile species (slow-worm *Anguis fragilis*, common lizard *Zootoca vivipara*, grass snake *Natrix helvetica* and adder *Vipera berus*) are protected under the Wildlife and Countryside Act 1981 against harm. Refer to **Appendix 3** for details.

5.7.2 Mitigation Measures

Given the presence of a good population of slow-worm and low population of grass snake within the site it will be necessary to ensure that these animals are not harmed during the necessary ground clearance works prior to development and that animals

are not present within the development area during construction works. It will therefore be necessary to undertake a capture and translocation exercise to move animals to a suitable receptor area.

A suitable receptor area will be established prior to the commencement of the development. Given the outline nature of the proposals the detail of this will likely be secured as part of the Reserved Matters Application. However, an area of new grassland/meadow is to be created along western boundary of the site which will be utilised as the reptile receptor area.

Prior to the commencement of the development exclusion fencing will be erected around the perimeter of the construction area in order to ensure that reptiles do not enter the construction area during works.

Fencing will consist of semi-permanent HDPE reptile fencing buried into the ground by 100 millimetres with an external return to prevent reptiles from burrowing beneath it. Posts will be erected at approximately one to two metre intervals to support the fence. The fence will be between 750 millimetres and one metre in height. The fence is to be installed prior to construction commencing once planning permission has been granted. The fencing will remain in place until the completion of the translocation exercise.

Following the installation of the exclusion fencing, reptile capture and removal will be undertaken by a suitably qualified ecologist between April and September when reptiles are not in hibernation. A high density of refugia will be distributed throughout areas of suitable habitat and inspected on a daily basis in suitable weather conditions until five ‘clear’ visits have been achieved. It is envisaged that the translocation will take a minimum of 60 days. The exact number of visits required to remove the maximum number of animals possible will vary depending on site conditions.

All captured animals will be placed within a secure container and transported to the receptor area at the end of each visit.

As the translocation progresses it may be necessary to undertake habitat manipulation works in order to reduce the suitability of areas of the site and thus increase capture rates. This would entail the progressive and methodical strimming of areas of suitable habitat to ground level under the supervision of a suitably qualified ecologist.

Following five clear days of no capture of reptiles, a destructive search will be undertaken of the on-site habitat under the supervision of a suitably qualified ecologist. The habitats are to be cleared via methodical strimming to ground level under the supervision of, or carried out, by a suitably qualified ecologist. Following this, the top layer of vegetation is to be stripped using an excavator under the supervision of a

suitably qualified ecologist. Any additional reptiles encountered as part of the destructive search will be captured by the ecologist and relocated to the receptor area. Once the destructive search has been completed, and all suitable reptile habitat has been removed from the site, the development work will be able to proceed.

The fencing will remain *in situ* for the remainder of the construction period or until it requires removal in a phase manner as the construction works complete. Any fencing removal can only take place in the active season for reptiles (April to September) and would be undertaken under the supervision of a suitably qualified ecologist.

The fencing will need to be monitored by on-site contractors with any repairs made where necessary in order to remove the risk of reptile re-colonising at the site. During the construction period the construction zone will also be maintained clear of vegetation in order to remove the likelihood of any reptiles re-colonising the site.

5.7.3 Significance of Residual Effects

The proposed translocation will avoid harm to reptiles, however, the loss of suitable reptile habitat cannot be mitigated. The removal of approximately 4.36 hectares of suitable will result in the loss in suitable reptile habitat, which will have a significant effect on reptiles at the site level.

5.7.4 Compensation

In order to compensate for the loss new reptile habitat totalling approximately 3.72 hectares is to be created across the site. In addition in order to provide new hibernation and refugia five hibernacula will be created in the newly created reptile habitat.

5.7.5 Enhancement

The habitat within the site is currently relatively poorly managed for reptiles and subject to either grazing or regular management as part of arable farming operations. Therefore, the delivery and long-term management of new reptile habitat will provide an overall enhancement over the baseline situation.

5.7.6 Monitoring

No monitoring is respect of reptiles is proposed.

5.8 Invertebrates

5.8.1 Potential Impacts and Effects

The proposals will result in the loss of common and widespread habitats for terrestrial invertebrates. However, given the context of the site in the context of the surrounds this impact is not considered to be significant.

5.8.2 Mitigation Measures

No specific mitigation in respect of invertebrates is proposed.

5.8.3 Significance of Residual Effects

Given the absence of effects no significant residual effects are anticipated.

5.8.4 Compensation

Given the absence of any significant impacts no compensation measures are proposed.

5.8.5 Enhancement

The proposed measures set out in Paragraph 5.4 will provide replacement habitat for invertebrates.

Five logs piles will be installed within the public open space to provide additional habitat for saproxylic invertebrates.

5.8.6 Monitoring

No monitoring in respect of invertebrates is proposed.

5.9 Other Relevant Species

5.9.1 Potential Impacts and Effects

The clearance of the site has the potential to result in in the killing and/or injury of European hedgehog and common toad and result in the long-term loss of habitat. The introduction of new solid boundaries within the site also has the potential to result in fragmentation of European hedgehog.

5.9.2 Mitigation Measures

A watching brief should be maintained by on-site contractors during the clearance works for European hedgehog and common toad. Should any be encountered as part of the clearance works then these should be relocated to retained habitats within the vicinity and outside of the construction zone. This information should be included in the Construction Environmental Management Plan (CEMP).

Gaps in any new fencing should be created to allow European hedgehog to access the landscaping. This will be achieved either through cutting a square hole of approximately 13 centimetres x 13 centimetres into the bottom of the fence or leaving out a small section of board with at least 13 centimetres clearance.

5.9.3 Significance of Residual Effects

The proposals will result in a loss of suitable habitat which cannot be mitigated which will be a residual effect at the site level.

5.9.4 Compensation

The proposed measures set out in Paragraph 5.4 will provide replacement habitat for the species identified.

5.9.5 Enhancement

No specific enhancement measures in respect of other relevant species are proposed.

5.9.6 Monitoring

No monitoring in respect of any other relevant species is proposed.

5.10 Cumulative Effects

Assuming that the mitigation and compensation measures outlined in the paragraphs above are implemented, no significant residual effects are anticipated. As such it is considered unlikely that the proposals will contribute to cumulative adverse effects in association with other proposals in the local area.

6.0 CONCLUSIONS

6.1 Conclusion

The site has been assessed as being of no more than local value in terms of habitats present with the features of relatively higher interest including the mature trees and hedgerow network being retained within the scheme design. Survey work undertaken at the site to date has identified the site as supporting a relatively low diversity of foraging and commuting bats, breeding and wintering birds and a population of slow-worm is also present on site.

The proposed mitigation and compensation includes the retention and positive management of retained features and the creation of new habitats which would deliver an enhancement at the site and an overall net gain in biodiversity. A translocation exercise for reptiles, sensitive lighting scheme in respect of bats and the provision of new bat and bird units within newly construction dwellings has also been proposed.

As such it is considered that the proposals will accord with all relevant national and local planning policy in relation to ecology including Policy DSP13, the emerging policy in the Local Plan 2037 and the NPPF (see Section 2.0).

6.2 Updating Site Survey

If the planning application boundary changes or the proposals for the site alter, a re-assessment of the scheme in relation to ecology may be required. Given the mobility of animals and the potential for colonisation of the site over time, updating survey work may be required, particularly if development does not commence within 18 months of the date of the most recent relevant survey.

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Map 1 Site Location Plan

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 1 - Site Location Plan

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

Site Boundary

Scale at A4: 1:10,000

0 100 200 400 Metres

N

Prepared by: JW	Date: 130122
Last amended by: JSW	Date: 270122

ECOSA
Ecological Survey & Assessment
A Trinity Consultants Company
ECOSA Ltd., Ten Hogs House, Manor Farm Offices, Flexford Road, North Baddesley, Hampshire SO52 9DF
Telephone: 02380 261065 Email: info@ecosa.co.uk
Web: www.ecosa.co.uk

Map 2 Phase 1 Habitat Map

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 2 - Phase 1 Habitat Map

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Improved Grassland
- Dense/Continuous Scrub
- Semi-improved Neutral Grassland
- Arable
- Hardstanding
- Intact Species-poor Hedgerow
- Intact Species-Rich Hedge with Trees
- Intact Species-poor Hedge with Trees
- Treeline
- Fence
- Dry Ditch
- Scattered Trees
- H1 Hedgerow Number
- TN1 Target Note Number

Scale at A4: 1:4,000

0 40 80 160 Metres

N

Prepared by: DM	Date: 201021
Last amended by: OW	Date: 280122

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Web: www.ecosa.co.uk

Map 3 Ground Level Tree Assessment

NEWGATE LANE (LAND EAST OF), FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 3 - Ground Level Tree Assessment

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

Site Boundary

Ground Level Tree Assessment Results

Trees with Bat Roosting Suitability

- High
- Moderate
- Low

Scale at A4: 1:2,000

0 20 40 80 Metres

N

Prepared by: DM	Date: 141021
Last amended by: JSW	Date: 260122

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Web: www.ecosa.co.uk

Map 4a. Bat Transect Survey: April

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 4a - Bat Transect Survey Results: April

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Area Not Surveyed
- Northern Transect Route (20th April 2021)

Bat Species Recorded

- Common Pipistrelle
- Soprano Pipistrelle

N.B. The southern part of the site was not surveyed during April 2021.

Scale at A4: 1:4,031

0 40 80 160 Metres

N

Prepared by: JSW	Date: 251121
Last amended by: JSW	Date: 260122

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Map 4b. Bat Transect Survey: May

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 4b - Bat Transect Survey: Early June

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Area Not Surveyed
- Northern Transect Route (1st June 2021)

Bat Species Recorded

- Common Pipistrelle

N.B. The southern part of the site was not surveyed during May 2021.

Scale at A4: 1:4,000

0 40 80 160 Metres

N

Prepared by: JSW	Date: 251121
Last amended by: JSW	Date: 260122

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Map 4c. Bat Transect Survey: June

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 4c - Bat Transect Survey: Late June

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Area Not Surveyed
- Northern Transect Route (24th June 2021)

Bat Species Recorded

- Common Pipistrelle
- Soprano Pipistrelle

N.B. The southern part of the site was not surveyed during late June 2021.

Scale at A4: 1:4,000

0 40 80 160 Metres

N

Prepared by: JSW	Date: 251121
Last amended by: JSW	Date: 260122

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Map 4d. Bat Transect Survey: July

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 4d - Bat Transect Survey: July (Dusk/Dawn)

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Area Not Surveyed
- Northern Transect Route (20th & 21st July 2021)

Bat Species Recorded

- Common Pipistrelle
- Serotine
- Soprano Pipistrelle

N.B. The southern part of the site was not surveyed during July 2021.

Scale at A4: 1:4,000

0 40 80 160 Metres

N

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Last amended by: JSW	Date: 260122

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Map 4e. Bat Transect Survey: August

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 4e - Bat Transect Survey: August / Early September

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Northern Transect Route (3rd September 2021)
- Southern Transect Route (25th August 2021)

Bat Species Recorded

- Common Pipistrelle
- Myotis species
- Serotine
- Soprano Pipistrelle

Scale at A4: 1:4,000

0 40 80 160 Metres

N

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Last amended by: JSW	Date: 260122

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Map 4f. Bat Transect Survey: September

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 4f - Bat Transect Survey: September

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Northern Transect Route (13th September 2021)
- Southern Transect Route (29th September 2021)

Bat Species Recorded

- Common Pipistrelle
- Soprano Pipistrelle

Scale at A4: 1:4,000

0 40 80 160 Metres

N

Prepared by: JSW	Date: 251121
Last amended by: JSW	Date: 260122

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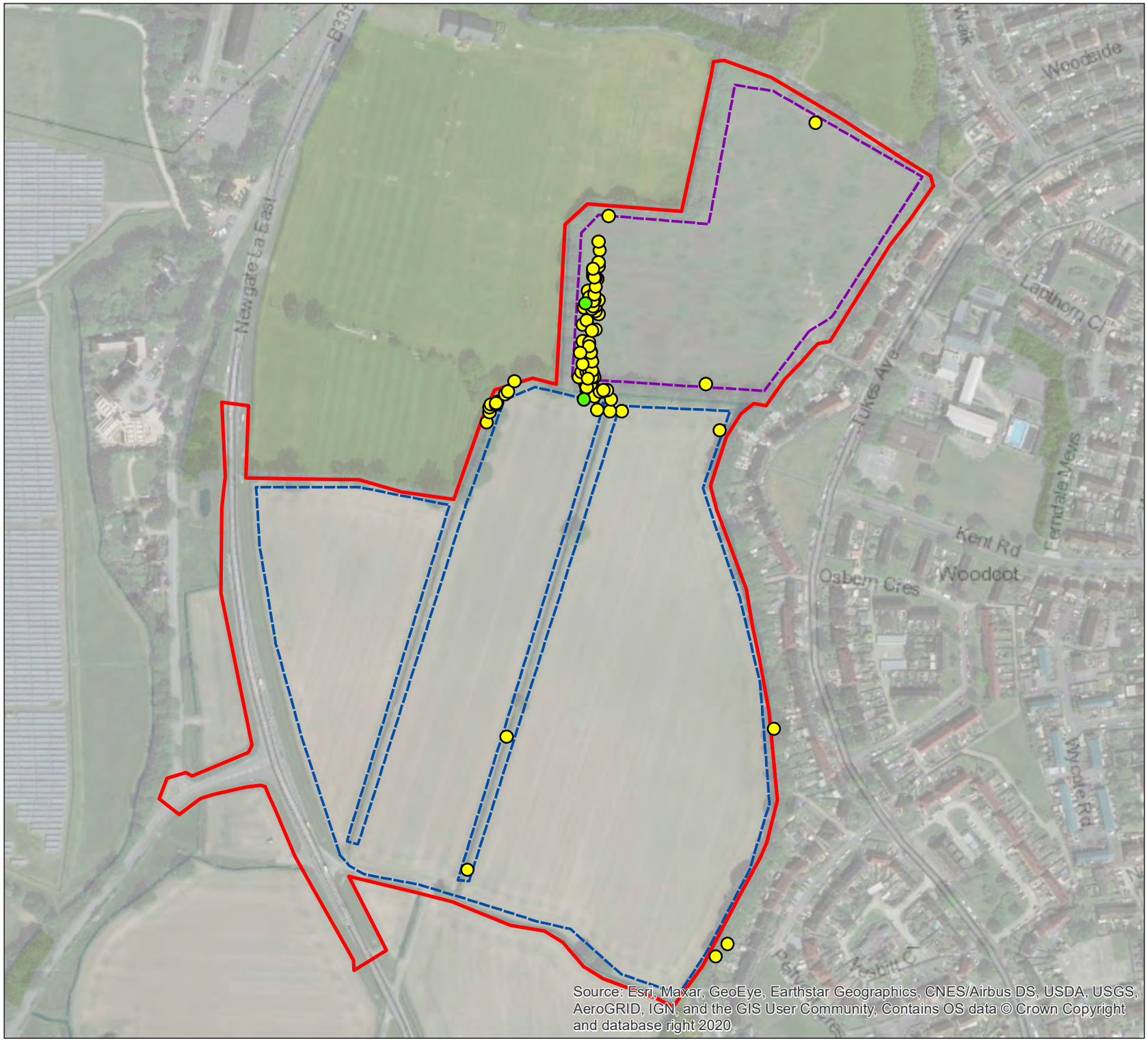
Map 4g. Bat Transect Survey: October



LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 4g - Bat Transect Survey: October

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Northern Transect Route (5th October 2021)
- Southern Transect Route (11th October 2021)

Bat Species Recorded

- Common Pipistrelle
- Soprano Pipistrelle

Scale at A4: 1:4,000

0 40 80 160 Metres

N

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Last amended by: JSW	Date: 260122

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Map 5 Bat Automated Detector Survey

NEWGATE LANE (LAND EAST OF), FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 5 - Bat Automated Detector Survey

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

Site Boundary

Automated Detector Locations

- April 2021 (x2)
- Early June 2021 (x2)
- Late June 2021 (x2)
- July 2021 (x2)
- August / Early September 2021 (x4)
- September 2021 (x4)
- October 2021 (x4)

N.B. Detectors are labelled with location numbers.

Scale at A4: 1:4,000

0 40 80 160 Metres

N

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Last amended by: JSW	Date: 260122

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Map 6 Hazel Dormouse Survey

NEWGATE LANE (LAND EAST OF), FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 6 - Hazel Dormouse Survey

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

Site Boundary

Locations of Hazel Dormouse Tubes

Survey Results

- Woodmouse, Individual and Nest
- Woodmouse, Nest
- Woodmouse, Food Cache
- No Evidence Recorded

Scale at A4: 1:4,000

0 40 80 160 Metres

N

Prepared by: DM	Date: 141021
Last amended by: JSW	Date: 260122

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Map 7a. Wintering Bird Survey 5th December 2020

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 7a - Wintering Bird Survey Results: 5th December 2020

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Direction of Flight (where species recorded in flight)
- (BH) Black-headed Gull
- (CM) Common Gull
- (HG) Herring Gull

Scale at A4: 1:1,500

0 15 30 60 Metres

N

Prepared by: JSW	Date: 141221
Last amended by: JSW	Date: 270122

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Map 7b. Wintering Bird Survey 11th December 2020

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 7b - Wintering Bird Survey Results: 11th December 2020

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Direction of Flight (where species recorded in flight)
- (BH) Black-headed Gull
- (BG) Brent Goose
- (BF) Bullfinch
- (CM) Common Gull
- (HG) Herring Gull
- (HS) House Sparrow
- (MP) Meadow Pipit

Scale at A4: 1:1,750

0 15 30 60 Metres

N

Prepared by: JSW	Date: 141221
Last amended by: JSW	Date: 270122

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Map 7c. Wintering Bird Survey 5th January 2021

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 7c - Wintering Bird Survey Results: 5th January 2021

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Direction of Flight (where species recorded in flight)
- (BH) Black-headed Gull
- (CM) Common Gull
- (D) Dunnock
- (HG) Herring Gull
- (RK) Redshank
- (ST) Song Thrush

Scale at A4: 1:1,750

0 15 30 60 Metres

N

Prepared by: JSW	Date: 100122
Last amended by: JSW	Date: 270122

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Map 7d. Wintering Bird Survey 8th February 2021

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 7d - Wintering Bird Survey Results: 8th February 2021

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Direction of Flight (where species recorded in flight)
- (BH) Black-headed Gull
- (D) Dunnock
- (HG) Herring Gull
- (K) Kestrel
- (LB) Lesser Black-backed Gull
- (RE) Redwing

Scale at A4: 1:1,500

0 15 30 60 Metres

N

Prepared by: JSW	Date: 100122
Last amended by: JSW	Date: 270122

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Map 7e. Wintering Bird Survey 4th March 2021

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 7e - Wintering Bird Survey Results: 4th March 2021

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Direction of Flight (where species recorded in flight)
- (BH) Black-headed Gull
- (D) Dunnock
- (HG) Herring Gull
- (O) Oystercatcher
- (ST) Song Thrush

Scale at A4: 1:1,750

0 15 30 60 Metres

N

Prepared by: JSW	Date: 100122
Last amended by: JSW	Date: 270122

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Telephone: 02380 261065 Email: info@ecosa.co.uk
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Map 7f. Wintering Bird Survey 25th October 2021

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 7f - Wintering Bird Survey Results: 25th October 2021

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Wintering Bird Transect
- Wintering Bird Survey Points
- Direction of Flight (where species recorded in flight)
- (BH) Black-headed Gull
- (BZ) Buzzard
- (HG) Herring Gull
- (K) Kestrel
- (SH) Sparrowhawk
- (SG) Starling

Scale at A4: 1:3,692

0 35 70 140 Metres

N

Prepared by: JSW	Date: 301121
Last amended by: JSW	Date: 270122

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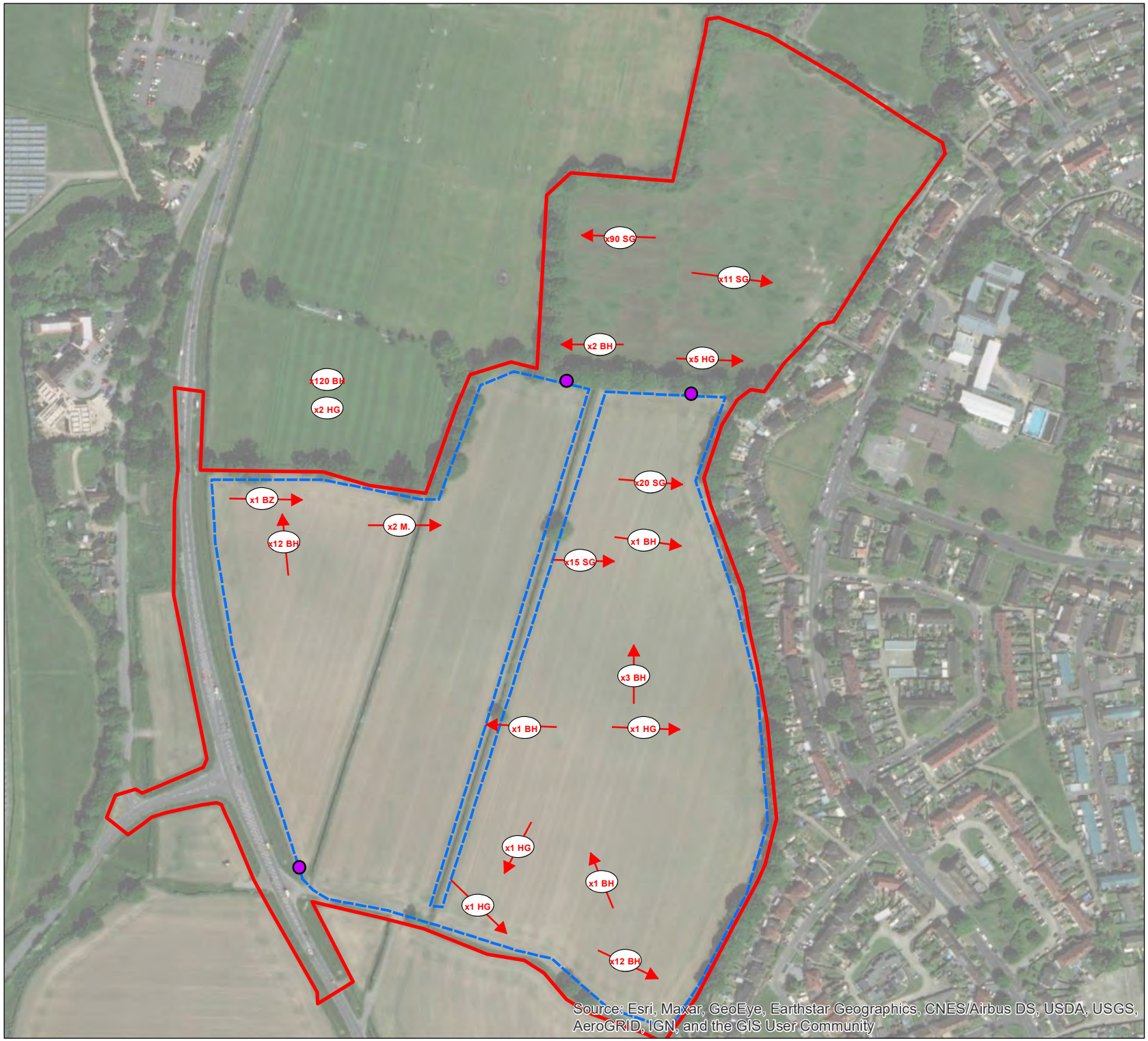
Map 7g. Wintering Bird Survey 9th November 2021



LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 7g - Wintering Bird Survey Results: 9th November 2021

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Wintering Bird Transect Route
- Wintering Bird Survey Points
- Direction of Flight (where species recorded in flight)
- (BH) Black-headed Gull
- (BZ) Buzzard
- (HG) Herring Gull
- (M) Mistle Thrush
- (SG) Starling

Scale at A4: 1:3,692

0 35 70 140 Metres

N

Prepared by: JSW	Date: 011221
Last amended by: JSW	Date: 270122

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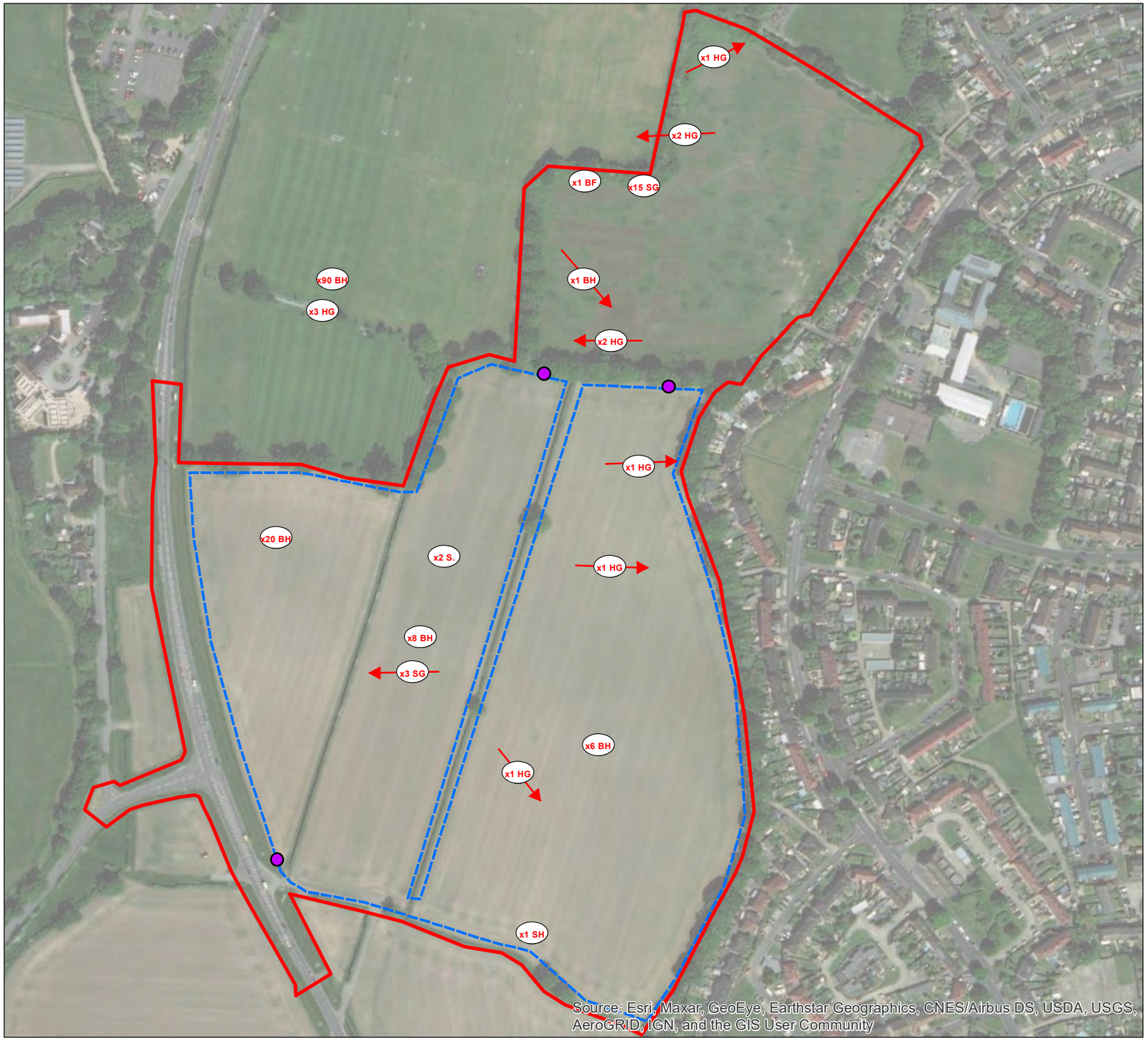
Map 7h. Wintering Bird Survey 16th November 2021



LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 7h - Wintering Bird Survey Results: 16th November 2021

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Wintering Bird Transect Route
- Wintering Bird Survey Points
- Direction of Flight (where species recorded in flight)
- (BH) Black-headed Gull
- (BF) Bullfinch
- (HG) Herring Gull
- (S) Skylark
- (SH) Sparrowhawk
- (SG) Starling

Scale at A4: 1:3,692

0 35 70 140 Metres

N

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Last amended by: JSW	Date: 270122

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Map 7i. Wintering Bird Survey 26th November 2021

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 7i - Wintering Bird Survey Results: 26th November 2021

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Wintering Bird Transect Route
- Wintering Bird Survey Points
- Direction of Flight (where species recorded in flight)
- (BH) Black-headed Gull
- (BF) Bullfinch
- (HG) Herring Gull
- (MP) Meadow Pipit
- (ST) Song Thrush
- (SG) Starling

Scale at A4: 1:4,000

0 40 80 160 Metres

N

Prepared by: JSW	Date: 021221
Last amended by: JSW	Date: 270122

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Map 7j. Wintering Bird Survey 10th December 2021

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 7j - Wintering Bird Survey Results: 10th December 2021

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Wintering Bird Transect Route
- Wintering Bird Survey Points
- Direction of Flight (where species recorded in flight)
- (BH) Black-headed Gull
- (BZ) Buzzard
- (CM) Common Gull
- (HG) Herring Gull
- (RH) Red-throated Diver
- (ST) Song Thrush
- (SG) Starling

Scale at A4: 1:3,692

0 35 70 140 Metres

N

Prepared by: JSW	Date: 171221
Last amended by: JSW	Date: 270122

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Ecological Survey & Assessment
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Flexford Road, North Baddesley, Hampshire SO52 9DF
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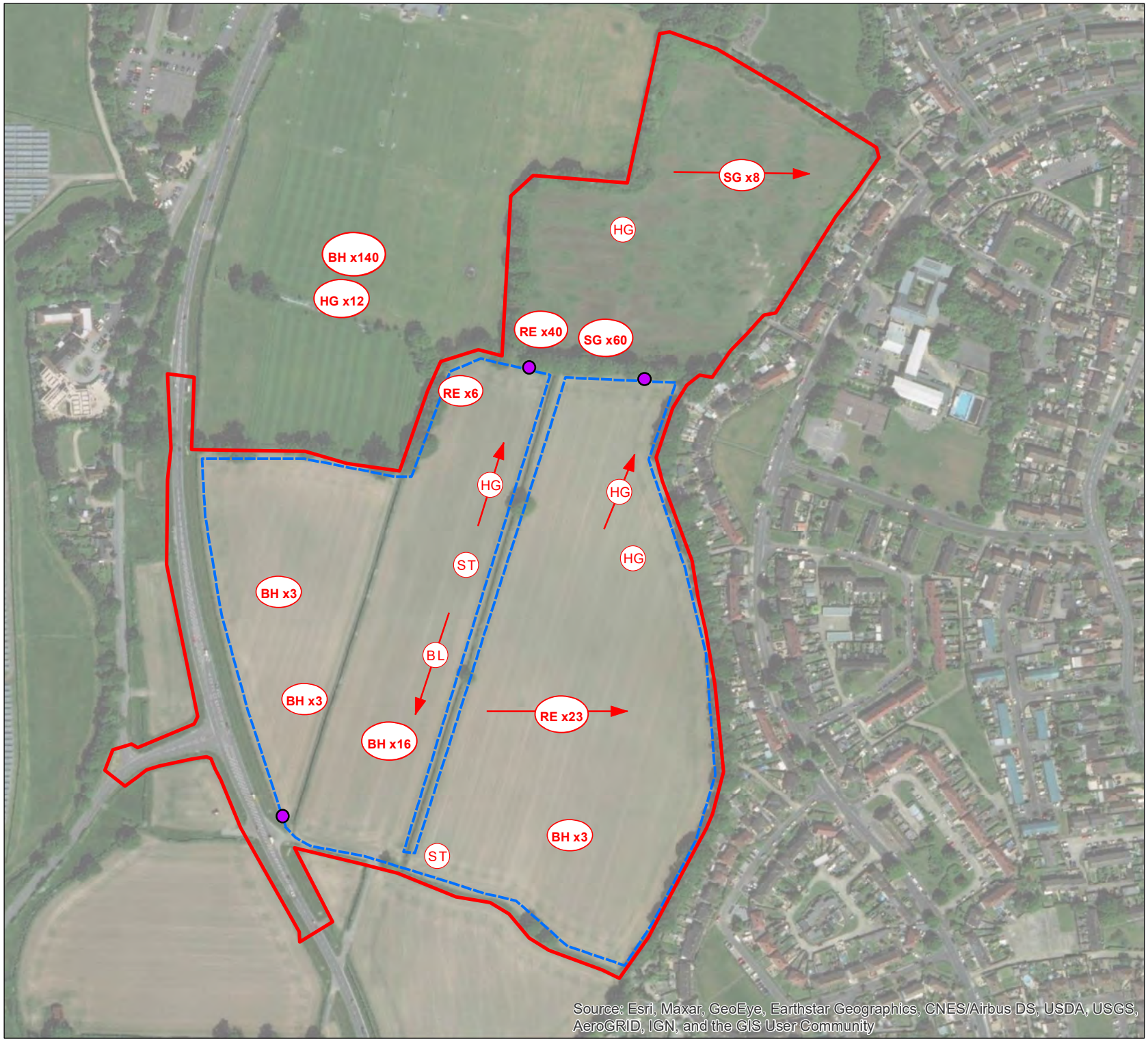
Web: www.ecosa.co.uk

Map 7k. Wintering Bird Survey 20th December 2021



LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 7k - Wintering Bird Survey Results: 20th December 2021

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Wintering Bird Transect Route
- Wintering Bird Survey Points
- Direction of Flight (where species recorded in flight)
- BH — Black-headed Gull
- BL — Brambling
- HG — Herring Gull
- RE — Redwing
- SG — Starling
- ST — Song Thrush

Scale at A4: 1:4,000

0 40 80 160 Metres

N

Prepared by: OW	Date: 140122
Last amended by: JSW	Date: 270122

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Map 7l. Wintering Bird Survey 13th January 2021

LAND EAST OF NEWGATE LANE, FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 7L - Wintering Bird Survey Results: 13th January 2022

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

- Site Boundary
- Wintering Bird Transect Route
- Wintering Bird Survey Points
- Direction of Flight (where species recorded in flight)
- (BH) Black-headed Gull
- (D) Dunnock
- (HG) Herring Gull
- (RE) Redwing
- (RW) Reed Warbler
- (SG) Starling
- (SK) Siskin

Scale at A4: 1:4,028

0 40 80 160 Metres

N

Prepared by: OW	Date: 140122
Last amended by: JSW	Date: 270122

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Map 8 Reptile Survey

NEWGATE LANE (LAND EAST OF), FAREHAM, HAMPSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Map 8 - Reptile Survey

Client:	Bargate Homes and Miller Homes
Date:	January 2022
Status:	Final

KEY

Site Boundary

Locations of Reptile Refugia

Survey Results

- Grass Snake Adult, and Slow-worm Juvenile(s)
- Slow-worm, Adult(s) and Juvenile(s)
- Slow-worm,
- Slow-worm,
- No reptiles

Scale at A4: 1:4,000

0 40 80 160 Metres

N

Prepared by: DM	Date: 141021
Last amended by: JSW	Date: 260122

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Web: www.ecosa.co.uk

Appendix 1 Proposed Site Layout

KEY

- SITE BOUNDARY
- EXISTING VEGETATION
- PROPOSED VEGETATION
- PROPOSED RESIDENTIAL DEVELOPMENT
- MAIN VEHICLE ROUTE
- POTENTIAL PEDESTRIAN/CYCLE LINK & EMERGENCY VEHICLE ACCESS
- POTENTIAL PEDESTRIAN/CYCLE LINK
- INDICATIVE PATH THROUGH PUBLIC OPEN SPACE
- NEIGHBOURHOOD EQUIPPED AREA FOR PLAY (NEAP)
- SUSTAINABLE DRAINAGE SYSTEMS (SuDS)
- EXISTING PUBLIC RIGHT OF WAY
- LOCAL SHOPS
- BUS STOP
- EXISTING CROSSING POINT ON NEWGATE LANE EAST

LAND EAST OF NEWGATE LANE EAST - **CONCEPT MASTERPLAN**

Pegasus Design

PLANNING | DESIGN | ENVIRONMENT | ECONOMICS | WWW.PEGASUSGROUP.CO.UK | TEAM/DRAWN BY: BA | APPROVED BY: P.M. TB | DATE: 06.01.21 | SCALE: 1:1000 @ A0 | DRWG: P20-3154_03 | SHEET NO:1 REV:C | CLIENT: MILLER HOMES & BARGATE HOMES

Appendix 2 Sites Designated for Nature Conservation

Statutory Sites

Internationally Designated Sites - Ramsar Sites, Special Areas of Conservation and Special Protection Areas

Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) form a network of protected sites across the European Union and United Kingdom. In the United Kingdom the primary legislative protection is afforded to these sites under the Conservation of Habitats and Species Regulations 2017 (as amended).

Ramsar sites are designated as wetlands of international importance which are afforded similar legislative protection to SPAs and SACs.

SACs are sites which support internationally important habitats or internationally important assemblages or populations of species. SPAs are designated for supporting internationally important populations of birds . SACs, SPAs and Ramsar sites are generally also designated as Sites of Special Scientific Interest.

Under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) there is a legal requirement that competent authorities, such as local planning authorities, need to consider whether plans or projects are likely to have a significant adverse effect on SPAs, SACs or Ramsar sites, either alone, or in combination with other plans or projects. In the event that a likely significant effect cannot be ruled out, on the basis of objective information, then the competent authority must undertake an “Appropriate Assessment” to fully assess the plan or project against the site’s conservation objectives. Unless certain defined derogation tests can be met, the competent authority may not authorise nor undertake any plan or project which adversely affects the integrity of a SPA, SAC or Ramsar site.

Nationally Designated Sites – Sites of Special Scientific Interest and National Nature Reserves

Sites of Special Scientific Interest (SSSI) receive legal protection under the Wildlife and Countryside Act 1981 (as amended). Such sites are designated to protect specific areas of biological or geological interest of national importance. Such sites also generally receive strict protection through the planning system.

National Nature Reserves (NNR) are also usually designated as SSSIs and are specifically managed for their wildlife value. They receive legal protection through the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 (as amended). As with SSSIs, these sites generally receive strict protection through the planning system.

Locally Designated Sites – Local Nature Reserves

Local Nature Reserves (LNR) are designated by local authorities under the National Park and Access to the Countryside Act 1949. These are generally designated not only for their local wildlife value but also for education, scientific and recreational purposes. These sites generally receive protection from development through the planning system.

Non-Statutory Sites

Locally Designated Sites

In addition to statutory designations, local authorities often designate sites of nature conservation importance at the local level. Such designations are named differently by each local authority and may be referred to as Local Wildlife Sites (LWS), Sites of Importance for Nature Conservation (SINC) or Sites of Nature Conservation Importance (SNCI), amongst others. The exact level of protection afforded to these sites varies and is normally defined through local planning policy.

Appendix 3 Relevant Legislation

Bats

All UK bat species are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations. These make it an offence to:

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb any such animal, including in particular any disturbance which is likely:
- To impair its ability to survive, breed, or rear or nurture their young;
- To impair its ability to hibernate or migrate;
- To affect significantly the local distribution or abundance of that species;
- Damage or destroy a breeding site or resting place of any such animal;
- Intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

- Greater horseshoe bat *Rhinolophus ferrumequinum*;
- Lesser horseshoe bat *Rhinolophus hipposideros*;
- Bechstein's bat *Myotis bechsteinii*;
- Barbastelle *Barbastella barbastellus*; and
- Greater mouse-eared bat *Myotis myotis*.

In certain circumstances where these species are found the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favourable conservation status. Outside SACs, the level of legal protection that these species receive is the same as for other bat species.

Breeding Birds

With certain exceptions, all wild birds, their nests and eggs are protected by Section 1 of the Wildlife and Countryside Act 1981 (as amended). Therefore, it is an offence, to:

- Intentionally kill, injure or take any wild bird;
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- Intentionally take or destroy the egg of any wild bird.

These offences do not apply to hunting of birds listed in Schedule 2 subject to various controls. Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- Intentionally or recklessly disturb the dependent young of any such bird.

Reptiles

The four widespread species of reptile that are native to Britain, namely common or viviparous lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, adder *Vipera berus* and grass snake *Natrix helvetica*, are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence to:

- Intentionally kill or injure any of these species.

The remaining native species of British reptile (sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca*) receive a higher level of protection via inclusion under Schedule 2 of the Conservation of Habitats and Species Regulations 2017. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations (in England and Wales only) and the Wildlife and Countryside Act 1981 (as amended). The distribution of these species are restricted to only a few sites in England.

Species and Habitats of Principal Importance in England

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The England Biodiversity List is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions. There are currently 943 species of principal importance and 41 habitats of principal importance included on the England Biodiversity List.

Schedule 9 Invasive Species

Japanese knotweed and Himalayan balsam are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This makes it illegal to plant or otherwise cause the species to grow in the wild. It is also classed as a 'controlled waste' under the Environmental Protection Act 1990 (EPA). As such it must be disposed of safely at a licensed landfill site according to the EPA (Duty of Care) Regulations 1991.

Appendix 4 Protected and Notable Species Appraisal Methods

Bats

The survey conformed to current Bat Conservation Trust guidelines (Collins, 2016). An assessment was made of the suitability of trees on the site and immediately on the site boundary to support roosting bats based on the presence of features such as holes, cracks, splits, loose bark and ivy cladding for trees.

An assessment was made of the suitability of the site and the surrounding landscape to support foraging and/or commuting bat species. The assessment of the potential for the site to support roosting, foraging and commuting bat is based on a four-point scale as detailed in **Appendix 5**.

Otter

The otter appraisal was based on an assessment of the suitability of the habitat present within the site to support otter by reference to habitat type (such as rivers, streams, ditches, wetlands, reed beds, lakes, ponds and reservoirs), proximity of the site to freshwater and potential important feeding resources (such as fisheries), presence of habitat features which could provide opportunities for resting places and/or holts (such as tunnels, hollows at the base of trees and presence of dense, undisturbed habitat). During the survey attention was paid to the presence of evidence such as spraints, feeding remains, footprints and slides.

Badger

The survey involved a detailed investigation of the site to identify evidence of badger residence, foraging or territorial activity. Particular emphasis was placed on locating badger setts, paths, and signs of territorial activity such as latrine sites both on-site and within immediately adjacent areas where access was possible.

Where badger setts are present on or adjacent to the site and are considered potentially vulnerable to interference, details of these setts, associated impacts and proposed mitigation are included in a separate confidential report.

Hazel Dormouse

The appraisal for the potential of the site to support dormouse was based on an assessment of habitat features that may indicate that the species is present. This includes the presence of key food sources such as hazel and bramble, or plants used as nesting material such as honeysuckle and clematis. Additionally, the species requires a continuum of food supply so that habitat structure, diversity and connectivity to adjacent areas of woodland/scrub are important features in determining the potential presence of hazel dormouse.

Water Vole

The water vole appraisal was based on an assessment of the suitability of the habitat present within the site to support water vole by reference to habitat type (such as rivers, streams,

ditches, wetlands, reed beds, lakes, ponds and reservoirs), bank structure and the bank side vegetation. Water voles generally require sloping banks in which to burrow and well-developed bank side vegetation to provide shelter and food. During the survey attention was paid to the presence of burrows, latrines, feeding remains, trails and footprints.

Birds

The appraisal of breeding birds on the site was based on the suitability of habitat present to support nesting bird communities, the presence of bird species that may potentially nest within the available habitat and evidence of nesting such as old or currently active nests.

The assessment of wintering birds was based on an assessment of the suitability of the habitat on site to support important wintering bird species and populations. Particular attention was paid to the potential for the site to support wintering farmland bird species, waders and wildfowl.

Reptiles

The reptile appraisal was based on an assessment of the suitability of the habitat present within the site to support a population of reptiles. Reptiles particularly favour scrub and rough grassland interfaces and the presence of these is a good indication that reptiles may be present on-site. In addition, reptiles may utilise features such as bare ground for basking, tussocky grassland for shelter and compost heaps and rubble piles for breeding and/or hibernating.

Great Crested Newt

The appraisal of the site to support great crested newt included establishing the presence of suitable aquatic habitats such as ponds, lakes or other waterbodies within or adjacent to the site and the presence of suitable terrestrial habitat. Waterbodies that are densely shaded, highly eutrophic or that contain fish are likely to be less suitable for this species. The suitability of on-site ponds and terrestrial habitat is considered in relation to the presence of ponds within the wider area, as identified within the desktop study (Paragraph 3.4.3), and their suitability to be used as a network.

Invertebrates

An assessment was made of the site for its potential value to support diverse communities of invertebrates. The assessment was based on the presence of habitat features which may support important invertebrate communities. These features include, for example, an abundance of dead wood, the presence of diverse plant communities, varied woodland structure, sunny woodland edges with a diverse flora, waterbodies and water courses and areas of free draining soil exposures. During the field survey there was no attempt made to identify species present as this is a more specialist area of ecological assessment reserved for targeted surveys.

Other Relevant Species

An assessment was made of site suitability for other notable species such as more rarely encountered protected species, Species of Principal Importance for the Conservation of

diversity in England notified under Section 41 of the NERC Act 2006 and as listed in the England Biodiversity List, and Local Biodiversity Action Plan (LBAP) species[18], specific to the study region.

Invasive Species

During the field survey any incidental records of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded. However, it should be considered that the survey was not specifically aimed at assessing the presence of these species and further specialist advice may need to be sought.

[18] LBAPs identify local priorities for biodiversity conservation by translating national targets for species into effective action at the local level and identifying targets for species important to the local area.

Appendix 5 Appraisal Criteria for Bats

The criteria used to assess the suitability of roosting and foraging/commuting habitat for bats is based on industry guidelines and outlined in **Table 24**[19].

Table 24: Criteria used to Assess Suitability of Roosting and Foraging/Commuting Habitat for Bats

Suitability	Description of roosting habitats	Commuting and foraging habitats
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
Moderate	A structure of tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically/structure that does not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerows or un-vegetated stream, but isolated (i.e. not very well connected to the surrounding landscape by other habitat). Suitable, but isolated, habitat that could be used by small numbers of foraging bats such as a lone tree or a patch or scrub.
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.

[19] Table adapted from (Collins, 2016)

Appendix 6 Automated Detector Settings

Automated Detector Settings

Automated detectors can be calibrated in a number of different settings which can result in the potential variations in the way that bat calls are recorded. **Table 25** details the standard settings used by ECOSA during automated detector surveys undertaken.

Table 25: Standard automated detector settings

Option	Basic Setup
Settings - Audio	
Sample rate	192000Khz
Channels	Mono L (left)
Compression	WAV
Gain Left	+0.00
Gain Right	+0.00
Settings - Audio Advanced	
Dig High Pass Filter (HPF) Left	Fs/12
Dig High Pass Filter (HPF) Right	Off
Digital Low Pass Filter (LPF) Left	Off
Digital Low Pass Filter (LPF) Right	Off
Trig Lvl Left	12SNR
Trig Lvl Right	Off
Trg Win Left	2.0s
Trg Win Right	2.0s
Trg Max Length	2s
Bits (Div Ratio)	16
Nap Trg Lvl	Off

Data Conversion Settings

In order to analyse the data efficiently the raw .wav files recorded on the automated detector are subsequently converted to zero crossing (.zc) files which and subject to automated classification by Wildlife Acoustics Kaleidoscope Pro. During the conversion process the data is filtered to remove noise files in line with Wildlife Acoustics recommended setting as provided in **Table 26**.

Table 26: Noise file filtering settings

Option	Basic Setup
Signal of Interest – Frequency	8 – 120 kHz
Signal of Interest – Call Length	2 - 500ms
Signal of Interest – Minimum Number of Calls	2
Advanced Signal Enhancement	On

All filtered noise files are kept and subsequently assessed for bat calls in order to ensure that no bat calls have been incorrectly classified as noise. The “Advanced Signal Enhancement” setting discards files which Kaleidoscope assessed as being insufficient quality. Any discarded files are subsequently not stored by Kaleidoscope and therefore, not subject to analysis by an ecologist.

Appendix 7 Statutory Designated Sites within the Desktop Study Area

Details of statutory designated sites within the desktop study area, as listed in Paragraph 4.2.1, are provided in **Table 27**.

Table 27: Statutory Designated Sites Located Within the Desktop Study Area

Site Name	Portsmouth Harbour
Site Designation	Ramsar site
Approximate Relative Location	560 metres north-east
Reasons for Designation:	
The site is designated under Ramsar Criterion 3 and 6. **Criterion 3 –** The intertidal mudflat areas possess extensive beds of eelgrass *Zostera angustifolia* and *Zostera noltei* which support the grazing dark-bellied brent geese populations. The mud-snail *Hydrobia ulvae* is found at extremely high densities, which helps to support the wading bird interest of the site. Common cord-grass *Spartina anglica* dominates large areas of the saltmarsh and there are also extensive areas of green algae *Enteromorpha* species and sea lettuce *Ulva lactuca*. More locally the saltmarsh is dominated by sea purslane *Halimione portulacoides* which gradates to more varied communities at the higher shore levels. The site also includes a number of saline lagoons hosting nationally important species. **Criterion 6 –** species/populations occurring at levels of international importance. **Qualifying species/populations (as identified at designation)** Species with peak counts in winter: ▪ Dark-bellied Brent goose	

Site Name	Portsmouth Harbour
Site Designation	SPA
Approximate Relative Location	560 metres north-east
Reasons for Designation:	
This site qualifies by supporting populations of European importance of the following migratory species: **Over winter** Dark-bellied Brent Goose, 2,847 individuals representing at least 0.9% of the wintering Western Siberia/Western Europe population.	

Site Name	Solent and Dorset Coast
Site Designation	SPA
Approximate Relative Location	560 metres north-east
Reasons for Designation:	
The site qualifies for supporting the following Annex I species: **Breeding**	

- Sandwich tern, 441 pairs representing at least 4.01% of the breeding population in Great Britain;
- Common tern, 492 pairs representing at least 4.77% of the breeding population in Great Britain; and
- Little tern, 63 pairs representing at least 3.31% of the breeding population in Great Britain

Site Name	Portsmouth Harbour
Site Designation	SSSI
Approximate Relative Location	560 metres north-east
Reasons for Designation:	
Portsmouth Harbour is the westernmost of three extensive and connected tidal basins – Portsmouth, Langstone and Chichester Harbours – which share physical characteristics and, in many respects, should be seen as a single biological system. The mudflats support an abundant fauna of benthic marine animals, though of a total fauna of about 60 species, only about ten occur in very large numbers. Of these, however, some occur at very high densities and form the main food sources for shorebirds. The mud surfaces support extensive beds of eelgrasses *Zostera noltii* and *Zostera angustifolia* and extensive areas of the mudflats support a high density of green algae, mainly *Enteromorpha* species and *Ulva lactuca* in summer. In general terms the eelgrasses and algae are mutually exclusive in distribution on the mudflats. The eelgrass beds are among the most extensive in Britain and Portsmouth Harbour is one of only four intertidal areas on the south coast to support extensive eelgrass beds. The SSSI also includes a small area of terrestrial habitat extending along the southern side of Horsea Island, where chalk spoil dumped early in the 20th century supports a rich chalk grassland flora invaded by hawthorn. The flora includes about 30 species with narrow habitat tolerances or of decided rarity in Britain, including five species of orchids and three species of the pea family. The grassland is dominated by red fescue Festuca rubra, creeping bent *Agrostis stolonifera* and quaking grass *Briza media*, with abundant herbs such as lady's bedstraw *Galium verum*, eyebright *Euphrasia* species, rough hawkbit *Leontodon hispidus*, common bird's-foot trefoil *Lotus corniculatus*, and cowslip *Primula veris*. Typical chalkloving species include kidney vetch *Anthyllis vulneraria*, yellow-wort *Blackstonia perfoliata*, stemless thistle *Cirsium acaule*, autumn gentian *Gentianella amarella*, salad burnet *Sanguisorba minor* and the nationally scarce species yellow vetch *Vicia lutea*, tuberous pea *Lathyrus tuberosus* and yellow vetchling *Lathyrus aphaca*.	

Site Name	The Wild Grounds
Site Designation	LNR
Approximate Relative Location	1.8 kilometres south
Reasons for Designation:	
The Wild Grounds Local Nature Reserve is an acid oakwood on the Brickearth of the south Hampshire coastal plain. It has no known history of management and probably developed naturally on former common land in the late 16th and early 17th centuries. It is dominated by uneven-aged pedunculate oak with scattered yew *Taxus baccata*, field maple and ash. The reserve includes Molinia tussock grassland and a sedge fen on the edge of the River Alver flood plain. Though not specially rich, the Wild Grounds represents a woodland type formerly widespread on coastal commons in Hampshire. Its natural origins and age structure, dominated by old trees which will be permitted to live their natural life span, are of great ecological and historical interest	

Site Name	The Wild Grounds
Site Designation	LNR
Approximate Relative Location	1.8 kilometres south
Reasons for Designation:	
The larger part of the Wild Grounds is covered by woodland most noted for its ancient oaks, some of which are estimated to be over 400 years old. Mature woodland of this type benefits hole-nesting birds in abundance. Woodpeckers are particularly common, with all three British species represented.	

Appendix 8 Wintering Bird Survey Results

Table 28: Copps Field wintering bird survey results Winter 2020/2021*

Species	Survey Date					Peak Count
	5th December 2020	11th December 2020	5th January 2021	8th February 2021	4th March 2021	
Black-headed gull					(12)	(12)
Common gull	1					1
Herring gull		(4)				(4)
Red kite			(1)			(1)
Kestrel				(1)		(1)
House sparrow		12				12
Dunnock			2	2	1	2
Bullfinch		2				2
Meadow pipit		6				6
Song thrush			1		2	2
Redwing				(32)		(32)

* Numbers marked in brackets () were recorded flying over the site.

Table 29: Whole Site Wintering bird survey results Winter 2021/2022*

Species	Survey Date							Peak Count
	25th October 2021	9th November 2021	16th November 2021	26th November 2021	10th December 2021	20th December 2021	13th January 2022	
Black-headed gull	(6)	(21)	34(1)	25(11)	1(11)	26	(35)	34(11)
Herring gull	1(8)	(8)	(8)	2(10)	1(11)	2(2)		1(11)
Black-tailed godwit							1	1
Starling	8(1)	(136)	15(3)	48	15(63)	60(8)	2	(136)
Kestrel	(1)							(1)
Sparrowhawk	1		1					1
Mistle thrush		(2)						(2)
Bullfinch			1	2				2
Skylark			2				3	3
Meadow pipit				3				3
Song thrush				1	1	2		2
Redwing					(1)	46(23)	2(34)	46(23)
House sparrow							(4)	(4)

Species	Survey Date							Peak Count
	25th October 2021	9th November 2021	16th November 2021	26th November 2021	10th December 2021	20th December 2021	13th January 2022	
Black-headed gull	(6)	(21)	34(1)	25(11)	1(11)	26	(35)	34(11)
Herring gull	1(8)	(8)	(8)	2(10)	1(11)	2(2)		1(11)
Dunnock							1	1

* Numbers marked in brackets () were recorded flying over the site.

Appendix 9 Confidential Badger Report