

**Boxted Solar Farm**  
Ecological Assessment

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| <b>Client</b>         | RES Ltd                             |
| <b>Project</b>        | Boxted Solar Farm                   |
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# 1 Summary

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| <b>Report purpose</b>                                      | This report provides an ecological assessment of the proposal for the construction and operation of a solar farm with all associated works, equipment, necessary infrastructure and biodiversity net gains on land within the Boxted Estate, located west of Boxted, Suffolk. This report accompanies the planning application and is to inform the decision for consent to be made by Babergh District Council. This report is supported by two separate reports: A Biodiversity Net Gain Statement and a Skylark Mitigation Strategy.  |
| <b>Client</b>  | The client is RES Ltd.   |
| <b>Surveys conducted</b>                                   | The surveys that have been conducted on the site are: <ul style="list-style-type: none"> <li>• Phase 1 habitats</li> <li>• Protected species scoping</li> <li>• Bats (roost trees, activity)</li> <li>• Badger</li> <li>• Breeding birds</li> <li>• Great crested newt pond habitat suitability</li> </ul>   |
| <b>Key findings: Protected sites</b>                       | The desk study has identified that: <ul style="list-style-type: none"> <li>• There are no international statutorily designated sites within 5 km of the Site</li> <li>• There is one nationally statutorily designated site within 2 km of the Site</li> <li>• There are three CWS adjacent to the Site and a further 8 CWS within 2 km of the Site</li> </ul>   |
| <b>Key findings: Habitats</b>                              | The surveys have identified that the habitats on the site are: <ul style="list-style-type: none"> <li>• Arable</li> <li>• Poor semi-improved grassland</li> <li>• Hedgerows (native species rich and species poor)</li> </ul>  |
| <b>Key findings: Species</b>                               | The surveys have identified that: <ul style="list-style-type: none"> <li>• <b>Bats:</b> the Site provides foraging and commuting habitat for 10 species and three bat species regularly roost within, or in close proximity to, the Site: Barbastelle, common pipistrelle and brown long-eared.</li> <li>• <b>Badger:</b> There is one active main sett and one active outlier sett on the boundaries of the Site</li> <li>• <b>Breeding birds:</b> A breeding bird community of common and widespread species associated with farmland and its boundary features, presence of breeding skylark nesting in the arable fields (nine territories)</li> </ul>   |
| <b>Designed-in measures to avoid and/or reduce impacts</b> | The measures taken to avoid or reduce impacts are: <ul style="list-style-type: none"> <li>• Avoiding the loss of any important habitats</li> <li>• Buffering of existing habitats with grassland creation</li> <li>• Minimising the potential for harm to habitats and protected species by particular working practices</li> </ul>  |
| <b>Opportunities for biodiversity enhancement</b>          | The following biodiversity enhancements are integral to the proposal: <ul style="list-style-type: none"> <li>• Planting of native hedgerows and woodland</li> <li>• Planting of native, species rich grass and flower mixes</li> </ul>   |
| <b>Conclusion</b>  | Accounting for the designed-in avoidance, mitigation and enhancement measures and the additional mitigation measures targeted at particular protected species (including skylark nesting off-Site), all ecological impacts from the Proposed Development can be adequately avoided, mitigated or compensated for and the outcome will be an overall gain in the biodiversity value of the land over which the solar farm is constructed and operated. That overall gain in biodiversity value has been quantified by applying the Government's 'Metric' and its output is a 99.18% gain in the biodiversity value of area-based habitats and a 48.08% gain in the biodiversity value of hedgerows. |

## 2 Introduction

### Background to commission

- 2.1 BSG Ecology was commissioned by RES Limited in April 2022 to carry out a series of ecological surveys and, based on that survey information and a desk study, to prepare an Ecological Assessment on the proposal for the construction and operation of a solar farm with all associated works, equipment, necessary infrastructure and biodiversity net gains (the 'Proposed Development') on land within the Boxted Estate, located south of Moorhouse Farm Lane, Boxted, Suffolk (central OS grid reference TL819509) (the 'Site').
- 2.2 This report accompanies the planning application and is to inform the decision for consent to be made by Babergh District Council (Babergh DC).

### Site description

- 2.3 The Proposed Development is located on 6 fields of varying sizes covering approximately 44 ha. The fields are in arable cultivation divided by hedgerows and are in a landscape of rolling hills, woodland and river valleys.

### The Proposed Development

- 2.4 The Proposed Development is for the construction and operation of a solar farm with all associated works, equipment, necessary infrastructure and biodiversity net gains.
- 2.5 The cable grid connection route will be entirely within the Site, as the point of connection is within the Site. The effects of the underground cable connection are not assessed within this Ecological Assessment.

### Consultation with Babergh District Council

- 2.6 Babergh DC was consulted through their pre-application advice service and a response received dated 8<sup>th</sup> November 2022 (Ref: DC/22/04456). In relation to ecological interests, the key elements of their advice were that consultation with Natural England over statutory protected sites was not necessary and that the following should be submitted with the planning application:
- An Ecological Assessment.
  - Reports and assessments on relevant protected species including a bat preliminary roost assessment, a bat activity survey, a habitat suitability assessment for great crested newt and a breeding bird survey.
  - Biodiversity net gain and enhancement measures.
  - A Skylark Mitigation Strategy.
- 2.7 An opinion was sought from Babergh DC as to whether the Proposed Development might give rise to significant environmental effects and require an Environmental Statement to be submitted. The conclusion in a report from Babergh DC (dated 21<sup>st</sup> December 2022; Ref DC/22/06236) was that an Environmental Impact Assessment was not required. A re-screening was requested in October 2023 and a decision by Babergh DC is awaited.

### Scope of Study

- 2.8 This report provides an Ecological Assessment of the Proposed Development.

- 2.9 It sets out the methods and findings of:
- a desk study; and
  - a series of ecology surveys undertaken to inform this assessment, comprising –
    - a Phase 1 habitat survey;
    - a protected species scoping survey;
    - bat activity surveys by transect and static detectors;
    - a bat potential tree roost assessment;
    - a badger survey;
    - a breeding bird survey; and
    - a suitability assessment of two ponds to support great crested newt *Triturus cristatus*.
- 2.10 This report sets out the features of ecological interest of the Proposed Development and extends, where relevant to the ecological features concerned, outside the location of the Proposed Development.
- 2.11 This report assesses potential impacts on ecological interests (sites, habitats and species) associated with the Proposed Development, taking into account the designed-in ecology mitigation and enhancements.
- 2.12 This report is supported by a separately submitted Biodiversity Net Gain Statement that reports on the biodiversity net gain assessment carried out for the Proposed Development.
- 2.13 The scope and structure of this report has been informed by the guidance on ecological impact assessment issued by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2022).

### 3 Methods

#### Desk study

- 3.1 To inform the desk study, data was accessed or requested from a number of sources as detailed in Table 1. The search areas used have been adopted with reference to desk study data search area guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017). These distances define the extent of a precautionary zone of influence based on the likely scope and nature of the Proposed Development.

**Table 1: Desk study data sources.**

| Data source   | Date accessed / received   | Notes   |
|---|--|---|
| MAGIC (www.magic.defra.gov.uk)                      | Accessed April 2022 prior to field surveys and again in October 2023 for report preparation. | Internationally designated sites (within 5 km of the Site), nationally designated sites and European protected species licences (within 2 km of the Site). Ponds within 250 m of the Site. Priority habitats (on Site). |
| Google maps (www.Google.co.uk/maps)                 | Accessed April 2022 prior to field surveys and again in October 2023 for report preparation. | A search was made for ponds within 250 m of the Site and for other habitats / features within the surrounding landscape.  |
| The Suffolk Biodiversity Information Service (SBIS) | Received May 2022  | Records on locally designated sites and existing species records. A 2 km search area was adopted.   |

#### Field surveys

- 3.2 The field surveys comprised of those aimed at habitats; those identifying conditions or features suitable for, or signs of the presence of, protected species; and a number of specific protected species surveys.

#### Phase 1 habitat survey

- 3.3 A Phase 1 habitat survey of the fields where it was proposed to locate the solar farm was undertaken on 26 April 2022 by Dr Roger Buisson, Associate Director, of BSG Ecology. On the survey visit the vegetation and land use types present within the Site were classified with reference to the standard JNCC methodology (JNCC, 2010).

#### Consideration of potential limitations to habitat survey

- 3.4 The survey was carried out in the spring, an appropriate time to carry out the habitat survey, and no limitations were identified to carrying out the survey.

#### Protected species scoping survey

- 3.5 A protected species scoping survey of the fields where it was proposed to locate the solar farm was undertaken on 26 April 2022 by Dr Roger Buisson, Associate Director, of BSG Ecology. The survey method involved an assessment of the habitats present for their suitability to support protected species and to observe and search for any signs of protected species. The results of the habitat assessment and signs of species are reported in the relevant protected species sections.

- 3.6 The results of that survey were supported by observations made on all other visits to the location in April through to September 2022 and May and June 2023 when surveys were being conducted for specific protected species.



### **Consideration of potential limitations to protected species scoping survey**

- 3.7 A protected species scoping survey is an initial visit to assess the potential of the land to support particular species and as such it is always limited by the restricted time spent at the location. In this instance the scoping survey has been supported by additional visits in 2022 and 2023 and, in the case of particular species, by targeted surveys using particular techniques – see below.

#### **Bat surveys**

- 3.8 The programme of bat surveys comprised a ground level tree assessment survey for potential bat roost features, a series of bat activity surveys by walked nocturnal transects and a series of bat activity surveys by the deployment of static bat detectors.

#### **Ground level tree assessment (GLTA) survey**

- 3.9 A ground level assessment was made during the protected species scoping survey of the potential for the trees within the Site and on its boundary to support roosting bats and an evaluation made of the features present on each tree for their suitability to support roosting bats.
- 3.10 The GLTA involved a thorough search of the trees from ground level using binoculars to search for potential roosting features (PRF) or indicative evidence of bat roosting. Based on the characteristics of the PRF present, the tree structure and its location, each tree was classified as being of high, moderate, low or negligible suitability for bat roosting with reference to the Good Practice Survey Guidelines published by the Bat Conservation Trust (Collins, 2016)<sup>1</sup>. This classification is set out in Table 2.

*Table 2. Roost suitability of PRF on trees (adapted from Collins, 2016)*

| <b>Suitability</b> | <b>Description of roosting habitat</b>  |
|--------------------|---|
| Negligible         | Negligible habitat features on tree likely to be used by roosting bats.   |
| Low                | A tree of sufficient size and age to contain PRFs but with none seen from the ground, or features seen with only very limited roosting potential.   |
| Moderate           | A structure or 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.                                |
| High               | A structure or tree with one or more 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. |

#### **Survey of bat activity by walked nocturnal transects**

- 3.11 The programme of bat activity surveys by walked nocturnal transects was based on the guidance applicable at the time of survey (Collins, 2016) and developed by Huma Pearce a suitably experienced and licenced bat ecologist. The aim of the surveys was to identify the bat assemblage at the Site and to interpret the behaviour and distribution of bats within the Site.
- 3.12 The Site, being dominated by arable fields, was assessed as being of low suitability for foraging bats and accounting for the limited potential for impacts on bats from the Proposed Development (due to the solar arrays only being placed on arable fields, the retention of boundary features and the avoidance of lighting) one survey per season was carried out (i.e. three times between spring and autumn).
- 3.13 Due to the size of the Site, which would preclude suitable coverage within the ca. two-hour post-sunset period, it was divided into two halves with a transect route in each that followed boundary features and had stopping points at regular intervals (transect A on the eastern half, transect B on the western half, illustrated in Figure 4). This gave the surveys a focus on hedgerows and woodland

<sup>1</sup> These were the guidelines that were current at the time of the survey.

edges which are likely to provide suitable commuting and foraging habitat for bats. The two transects were surveyed simultaneously by suitably experienced ecologists. The surveys commenced at or just after sunset and continued for around two hours to complete the transects. The direction (i.e., clockwise or anticlockwise) of the transect route was swapped on each visit to ensure that different parts of the Site were surveyed at different times of the night. This approach removes bias that could be introduced into the survey data if the transect was always walked in the same direction.

- 3.14 Each surveyor was equipped with a bat detector that gave them immediate visual and sound evidence of bat activity (either an Elekon Batlogger M or an EchoMeter Touch running on an iPad) and a detector programmed to record bat ultrasonic calls and locations (using GPS) along a transect (Anabat Swift) for later analysis. Field notes were made during the survey of each bat encounter including any behaviour such as direct flight (indicating commuting), circling or hunting vocalisations (indicating foraging). These observations could then be cross-referenced with the recorded data.
- 3.15 Survey dates, observers and conditions are listed in Table 3. Weather conditions during the surveys were suitable for bat activity.

*Table 3: Dates, observers and conditions recorded during the bat activity transect surveys*

| Date       | Transect | Surveyors     | Survey time   | Weather Conditions                     |
|------------|----------|---------------|---------------|--|
| 09/06/2022 | A (east) | Roger Buisson | 21:30 – 23:20 | Start: cloud 7/8, Bft 3, no rain, 17°C |
|            | B (west) | Huma Pearce   |               | End: cloud 7/8, Bft 1, no rain, 15°C   |
| 26/07/2022 | A (east) | Huma Pearce   | 21:20 – 22:50 | Start: cloud 2/8, Bft 1, no rain, 17°C |
|            | B (west) | Roger Buisson |               | End: cloud 4/8, Bft 0, no rain, 15°C   |
| 14/09/2022 | A (east) | Huma Pearce   | 19:30 – 21:05 | Start: cloud 4/8, Bft 1, no rain, 18°C |
|            | B (west) | Roger Buisson |               | End: cloud 7/8, Bft 1, no rain, 15°C   |

#### **Survey of bat activity by static (automated) detectors**

- 3.16 The programme of automated bat surveys using static detectors was based on the guidance applicable at the time of survey (Collins, 2016) and developed by Huma Pearce a suitably experienced and licenced bat ecologist. The aim of the surveys was to monitor bat activity over a more extended period than is possible via walked transects.
- 3.17 The Site, being dominated by arable fields, was assessed as being of low suitability for foraging bats and accounting for the limited potential for impacts on bats from the Proposed Development (due to the solar arrays only being placed on arable fields, the retention of boundary features and the avoidance of lighting) one survey per season was carried out (i.e. three times between spring and autumn).
- 3.18 Due to the size of the Site it was evaluated as requiring six detectors to give adequate spatial coverage of the features most likely to be used by bats when commuting around and across the Site. Locations chosen for static detectors had a focus on hedgerows likely to be used to commute between roost sites (most likely to be in the adjacent woodlands) and the sheltered woodland edges and the adjacent river valley (most likely to be used for foraging). The locations of the static detectors are illustrated in Figure 4.
- 3.19 Static detectors (Anabat Swift) were deployed three times between May and September 2023, programmed to turn on 30 minutes before sunset and turn off 30 minutes after sunrise. The deployments were for a minimum of 5 nights but if left longer it was only the first five nights that were

analysed for bat calls. Table 4 gives the dates the detectors were deployed and the nights of data analysed at each location across the survey season.

Table 4: Dates and number of nights of data from automated detectors across the survey period.

| Month     | Deployment | Collection | Nights from which data were analysed |
|-----------|------------|------------|--------------------------------------|
| May       | 31/05/2022 | 09/06/2022 | 31/05 – 04/06/2022                   |
| July      | 20/07/2022 | 26/07/2022 | 20/07 – 24/07/2022                   |
| September | 08/09/2022 | 14/09/2022 | 08/09 – 12/09/2022                   |

### Bat data analysis

- 3.20 The calls were analysed using Kaleidoscope Pro software to identify the species of bat present and to evaluate their relative levels of activity.
- 3.21 Where possible, bat calls were identified to species level using the identification function in Kaleidoscope Pro. This was followed by a manual check of all identified bat calls (carried out by Huma Pearce, an experienced bat ecologist) and a manual check of 10% of the files with no bat identification (classified as 'noise') to check if bat calls were being missed by the software. Species of the genus *Myotis* are grouped together as their calls are similar in structure and have overlapping call parameters, making species identification problematic (Russ, 2012). For long-eared bats *Plecotus* species, calls of grey long-eared bats *Plecotus austriacus* and brown-long-eared bats *Plecotus auritus* cannot be distinguished due to overlapping call parameters. However, since grey long-eared bats are restricted to the extreme south of the UK (Harris & Yalden, 2008), any *Plecotus* calls recorded are assumed to be from brown long-eared bats. The criteria that were used to classify calls are presented in Table 5.

Table 5: Criteria, based on measurements of peak frequency, that were used to classify calls.

| Bat species / species group                         | Peak frequency  |
|---|-----------------|
| Common noctule <i>Nyctalus noctula</i>              | ≥ 20–25kHz      |
| Leisler's bat <i>Nyctalus leisler</i>               | ≥ 25 kHz        |
| Serotine <i>Eptesicus serotinus</i>                 | ≥ 27kHz         |
| Barbastelle bat <i>Barbastella barbastellus</i>     | ≥ 32kHz         |
| Nathusius' pipistrelle <i>Pipistrellus nathusii</i> | ≥ 39kHz         |
| Common pipistrelle <i>Pipistrellus pipistrellus</i> | ≥ 42 and <49kHz |
| Brown long-eared bat <i>Plecotus auritus</i>        | ≥ 45–50 kHz     |
| Soprano pipistrelle <i>Pipistrellus pygmaeus</i>    | ≥ 51kHz         |
| <i>Myotis</i> species                               | ≥ 30–100 kHz    |

- 3.22 Analysis of the relative activity of different species of bats is carried out by counting the minimum number of bat calls recorded within discrete sound files. For the purpose of the analysis, a bat pass is defined as a single, uninterrupted sequence of echolocation calls lasting a maximum of 15 seconds. The assessment of relative bat activity between species is based on the relative abundance of recorded calls of each species within each survey period (i.e., each five-day period of automated monitoring per month) and across the combined study period. It should be recognised that a series of separate sound files could represent multiple bats calling infrequently (e.g., as they each pass overhead moving in one direction) or a small number of bats (or even one individual) calling frequently e.g., bats making repeated foraging passes up and down a feature. This cannot be determined unless bats can be directly observed (the transect survey is helpful in identifying where foraging takes place). Despite this, an indication of overall patterns of use of the Site by different species can be established based on the regularity of recording.

### Analysis of ultrasonic recordings for other mammal species

- 3.23 A number of mammal species in addition to bats make ultrasonic calls. There is an emerging method to use the same equipment that is used to record and analyse bat calls to detect other mammal

species. The recordings from the static detectors were analysed by Huma Pearce for other mammal ultrasonic calls using the processes and evidence given in Newson and Pearce (2022) and Middleton, Newson and Pearce (2023). This technique is a viable method for identifying the presence of hazel dormouse *Muscardinus avellanarius* when the detector is placed in suitable habitat.

### Badger survey

- 3.24 A badger *Meles meles* survey was undertaken during the protected species scoping survey. This was for signs of badger including sett entrances, dung pits, latrines, foraging (snuffle) holes, paw prints, pathways in vegetation and badger hairs caught on fencing or vegetation. Any evidence recorded was mapped and described and any setts found classified according to the method of Harris *et al.* (1989). The search for signs extended 30 m beyond the location of the Site where land access permission was granted. In addition, the results of that survey were supported by observations made on all other visits to the Site in 2022 and 2023 when ecology surveys were being conducted.

### Breeding bird community characterisation survey

#### Field survey

- 3.25 A breeding bird community characterisation survey was undertaken by Dr Roger Buisson, Associate Director of BSG Ecology. This comprised three survey visits in April to June 2022. Dates, times and weather conditions of the survey visits are set out in Table 6.

Table 6: Dates, times and weather conditions of breeding bird characterisation survey visits.

| Date       | Start / end time | Wind (Beaufort Scale) | Cloud Cover (Oktas) | Precipitation | Temperature (°C)              |
|------------|------------------|-----------------------|---------------------|---------------|-------------------------------|
| 26/04/2022 | 07:00<br>11:00   | 1                     | 4                   | None          | 4°C at start;<br>12°C at end  |
| 31/05/2022 | 06:15<br>09:45   | 1                     | 5                   | None          | 10°C at start;<br>16°C at end |
| 23/06/2022 | 06:00<br>09:35   | 1                     | 5                   | None          | 10°C at start;<br>18°C at end |

- 3.26 A programme of surveys was conducted over the period April to June 2022 with the aim of identifying the species and numbers of birds breeding, or potentially breeding across the location of the solar array.
- 3.27 Three visits were made, spaced at regular intervals across the territory establishment and nesting phase of the bird breeding season, the period when birds that are breeding at a location are most visible and vociferous.
- 3.28 All visits were made in the morning and during each visit all land across the Site was approached to within 50 m. The land was walked at a slow pace to enable all birds detected to be located, identified and recorded on to an iPad running TouchGIS and BSG Ecology bespoke recording tables. Regular stops were made to listen and scan for bird activity indicative of territory establishment or breeding such as singing, calling, displaying and carrying food. The direction of the walked circuit was alternated across the survey programme to avoid the same parts of the Site being recorded either at the start or end of the visit.
- 3.29 Additional observations of nocturnal birds and any associated breeding activity were made during the three visits for the bat transect surveys.

#### Evaluation of survey results

- 3.30 The principle behind the evaluation of the results of the field work for the breeding bird characterisation survey is that over the course of the programme of survey visits a bird that is holding

territory at any particular location is likely to be recorded there over several visits and on each visit is more likely to be observed showing territorial behaviour or breeding behaviour. The results of the three breeding bird survey visits were digitised (using QGIS) and the number of breeding species and the number of potential territories for each species evaluated by filtering the records to create on screen a map of each species in turn from which single observations, or clusters of observation across the visits, of birds showing breeding behaviour or other territorial activity could be identified. The observation of a singing bird in suitable habitat and clusters of observations of birds showing other breeding behaviour such as carrying food or alarm calling were identified as a potential territory. Birds observed flying over the Site but showing no apparent association with it were noted in order to contextualise the breeding territory information gained but those observations do not form part of the evaluation of potential territory numbers.

3.31 The conservation status of each species of bird was also taken into account and the following lists were considered:

- The Wildlife and Countryside Act 1981 (as amended), Schedule 1;
- Species of Principal Importance (SPI) for the Conservation of Biodiversity in England as listed in accordance with section 41 of the Natural Environment and Rural Communities Act (NERC) 2006 (S41);
- Species of high conservation concern (Red category species) and species of medium conservation concern (Amber category species) included in Birds of Conservation Concern (BOCC) 5 (Stanbury *et al.*, 2021); and

#### **Skylark territory mapping survey on-Site and off-Site**

3.32 In May to June 2023 three additional visits were made to the Site and to a series of arable fields within the Boxted Estate to survey for, and quantify the territory numbers of, skylark. The three visits were made by Dr Roger Buisson, Associate Director of BSG Ecology, and the recording method was the same as for the breeding bird community characterisation survey except that the focus was on skylark and for the other bird species only a list of presence / absence was made. Table 7 lists the dates, times and weather conditions of the survey visits.

*Table 7: Dates, times and weather conditions of skylark on-Site and off-Site survey visits.*

| Date       | Start / end time | Wind (Beaufort Scale) | Cloud Cover (Oktas) | Precipitation | Temperature (°C)              |
|------------|------------------|-----------------------|---------------------|---------------|-------------------------------|
| 04/05/2022 | 09:00<br>13:15   | 2                     | 5                   | None          | 12°C at start;<br>16°C at end |
| 26/05/2023 | 06:15<br>12:30   | 1                     | 4                   | None          | 8°C at start;<br>16°C at end  |
| 05/06/2023 | 06:10<br>11:30   | 1                     | 6                   | None          | 12°C at start;<br>16°C at end |

3.33 The skylark territory numbers were evaluated in the same manner as for the breeding bird community characterisation survey albeit interpretation was simpler because of the frequency with which skylark sang and the occurrence of two or more birds singing together over a field or adjacent fields.

#### **Great crested newt (GCN) pond habitat suitability survey**

3.34 The location of the solar array and a buffer extending 250 m around it was initially assessed using aerial photographs and OS maps for the presence of ponds and other still water bodies such as non-flowing or slow flowing ditches. This was followed by a field survey of the solar array area and those ponds within the 250 m buffer where access permission had been granted or they could be viewed from a public highway. This process identified two ponds, both of which were off-Site to the east.

3.35 The two off-Site ponds were assessed for their suitability to support breeding great crested newt. The survey was carried out during the extended Phase 1 habitat survey on 26 April 2022 and the

two ponds were assessed using the great crested newt Habitat Suitability Index (HSI) method published by Oldham *et al.* (2000). An HSI is a helpful measure of evaluating habitat quality for great crested newt. It is a numerical index between 0 and 1 where 0 indicates unsuitable habitat and 1 indicates optimal habitat. Its calculation is based on 10 individual suitability indices, all of which are factors thought to affect great crested newt presence. The characteristic features of each pond required to carry out the HSI were recorded on a pond habitat survey form published by the Freshwater Habitats Trust<sup>2</sup> and the calculation of the HSI carried out using a MSExcel spreadsheet.

### **Consideration of potential limitations to species surveys**

- 3.36 The time of year in which the surveys were carried out is within the optimal period for these surveys and no limitations were identified as a result of seasonal timings. Access was possible throughout the area of the Site and its boundaries.
- 3.37 Breeding birds: The territory identification and location process is open to some subjectivity in interpretation except where active nests are located. Therefore, the territories are classed as indicative and their mapped locations will indicate the central focus of territorial activity and not necessarily the nesting location.
- 3.38 Overall, these limitations did not affect the identification of species occurrence or distribution on the Site.

### **Biodiversity net gain assessment**

- 3.39 A biodiversity net gain assessment of the Proposed Development has been carried out using the Defra Metric 4.0 and this is reported in a separately submitted report.

### **Assessment of ecological impacts**

- 3.40 Potential ecological impacts of the Proposed Development were assessed with reference to industry standard guidance on ecological impact assessment (CIEEM, 2022). Although this is recognised as current best practice for ecological assessment, the guidance itself acknowledges that it is not a prescription about exactly how to undertake an ecological impact assessment; rather, it aims to “provide guidance to practitioners for refining their own methodologies”.

### **Important ecological features**

- 3.41 A first step in the assessment is determination of which ecological features (sites, habitats and species) are important. Important features should then be subject to detailed assessment if they are likely to be affected by the Proposed Development. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to project effects, such that there is no risk to their viability.
- 3.42 Ecological features can be important for a variety of reasons and the rationale used to identify these is explained below. Importance may relate, for example, to the quality or extent of designated sites or habitats, to habitat / species rarity, to the extent to which they are threatened throughout their range, or to their rate of decline.

### **Evaluation: Determining importance**

- 3.43 The importance of an ecological feature should be considered within a defined geographical context. The following frame of reference has been used in this report:
- International (European)
  - United Kingdom
  - England
  - Regional (East Anglia)

<sup>2</sup> <https://freshwaterhabitats.org.uk/wp-content/uploads/2019/04/1-POND-HABITAT-SURVEY-RECORDING-FORM.pdf>

- County (Suffolk)
- District (Babergh)
- Local (Boxted)
- Site (the location of the Proposed Development)

3.44 Taking into account the CIEEM guidance, features of less than Local importance are generally considered unlikely to trigger a mitigation or policy response in an assessment. However, where it is helpful to characterise and evaluate features within the site, this assessment approach also uses the term “site importance”. This includes features which are assessed to be of value only in the context of the location of the Proposed Development. Features of site importance are typically unlikely to require further assessment for the reasons set out above.

#### **Assessment of significance**

3.45 The assessment of significance process involves:

- Identifying and characterising significant effects.
- Incorporating measures to avoid and mitigate (reduce) these significant effects.
- Assessing the significance of any residual effects after mitigation.
- Identifying appropriate compensation measures to offset significant residual effects.
- Identifying opportunities for ecological enhancement.

3.46 It is only necessary to assess and report significant residual effects (those that remain after mitigation measures have been taken into account). However, it is good practice in ecological assessment to make clear both the potential significant effects without mitigation and the residual significant effects following mitigation. This process of assessment without mitigation helps to identify necessary and relevant mitigation measures that are proportionate to the size, nature and scale of anticipated effects.

3.47 The assessment only needs to describe those characteristics of effects that are relevant to understanding the ecological effect and determining the significance. It should consider, as appropriate: direct, indirect, secondary and cumulative effects and whether these are short, medium, long-term, permanent, temporary, reversible and / or irreversible. In this report, positive effects are referred to as beneficial; negative effects as adverse. The assessment of significant effects then takes into account the baseline conditions to describe how the baseline conditions will change as a result of the project and associated activities.

#### **Significant effects**

3.48 The CIEEM guidance sets out information about the concept of ecological significance and how it relates to the ability to deliver biodiversity conservation objectives for a given feature.

3.49 Significant effects are qualified with reference to an appropriate geographic scale, and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

3.50 The nature of the identified significant effects on each assessed feature is characterised. This is considered, along with available research, professional judgement about the sensitivity of the feature affected, and professional judgement about how the significant effect is likely to affect the site, habitat, or population’s structure and continued function. Where it is concluded that an effect would be likely to reduce the importance of an assessed feature, it is described as significant. The degree of significance of the effect takes into account the geographic context of the feature’s importance and the degree to which its interest is judged to be affected.

#### **Mitigation**

3.51 Where significant effects have been identified, the mitigation hierarchy has been taken into account, as suggested in the CIEEM EclA Guidelines, which sets out a sequential approach of avoiding significant effects where possible; applying mitigation measures to minimise unavoidable significant effects and then compensating for any remaining significant effects. Once avoidance and mitigation

measures, and any necessary compensation measures, have been applied, and opportunities for enhancement incorporated, residual significant effects have then been identified. This approach is reflected across UK planning policy at a country level. Where mitigation and compensation has been proposed, this is proportionate with the geographical scale at which an effect is significant.

#### **Personnel involved**

- 3.52 The survey and reporting programme was managed by Dr Roger Buisson, Associate Director, BSG Ecology. Roger is a suitably qualified ecologist and has over 30 years' professional ecology experience. Further details of his experience and qualifications can be found at [https://www.bsg-ecology.com/portfolio\\_page/roger-buisson-director-of-ecology-cambridge/](https://www.bsg-ecology.com/portfolio_page/roger-buisson-director-of-ecology-cambridge/).
- 3.53 The bat activity surveys were scoped, designed and led by Huma Pearce, Bat Ecologist, BSG Ecology. Huma also analysed the ultrasonic recordings for bats and other terrestrial mammals including hazel dormouse. Huma is a highly experienced bat ecologist living in Suffolk and holds Natural England bat licences 2019-41792-CLS\_CLS (Class 3) and 2019-41793-CLS\_CLS (Class 4). Huma is one of the authors of the soon to be published "*Sound Identification of Terrestrial Mammals of Britain and Ireland*" (Middleton, Newson and Pearce, 2023).



## 4 Findings of the Desk Study and Surveys

### Statutory designated Sites

#### *International statutory designations*

- 4.1 There are no internationally designated sites within the boundary of the Proposed Development.
- 4.2 There are no internationally designated Sites within 5 km of the boundary of the Proposed Development (see Figure 1).

#### *National statutory designations*

- 4.3 There are no nationally designated sites within the boundary of the Proposed Development.
- 4.4 There is one nationally designated Sites within 2 km of the boundary of the Proposed Development (see Figure 1). This is Cavendish Woods SSSI with the component woodland Northey Wood 1.8 km to the west (the other components of this SSSI are further to the west or south-west). These are lowland mixed woodland of woodland NVC habitat types W8 and W10 that are ancient woodland. Ash-maple woodland (NVC W8) is the dominant stand-type with small areas of maple-ash-lime and ash-wych elm woodland. The diverse ground flora contains several ancient woodland plants including Oxlip *Primula elatior* which has a very localised distribution in Suffolk.

### Non-statutory designated sites

- 4.5 There are no County Wildlife Sites (CWS) within the boundary of the Site but three are located on its boundary. These sites are, with a summary of their interest features:
- **Dripping Pan Wood CWS:** This is a 1.36 ha woodland that has been replanted with pedunculate oak *Quercus robur* and ash *Fraxinus excelsior* and, whilst not on the ancient woodland inventory, has characteristics of ancient woodland. It has numerous old coppice stools and a ground flora dominated by dog's mercury *Mercurialis perennis*, creeping thistle *Cirsium arvense* and wood false-brome *Brachypodium sylvaticum* and uncommon ancient woodland indicator plants including yellow archangel *Lamium galeobdolon* and hairy St John's-wort *Hypericum hirsutum*.
  - **Lownage Wood CWS:** This is a 2.27 ha ancient woodland. The tree layer consists in the main of ash, field maple *Acer campestre* and hazel *Corylus avellana* coppice with pedunculate oak standards. The south-western corner of the wood is dominated by elm *Ulmus sp.* trees. The main species present on the woodland floor are dog's mercury, stinging nettle *Urtica dioica* and bramble *Rubus fruticosus agg.* In addition, oxlip and yellow archangel are locally common in the ground flora.
  - **Park Wood CWS:** This is a 2.23 ha ancient woodland. A large proportion of Park Wood consists of ash, field maple and hazel coppice. A small section of the wood on the western boundary is dominated by elm. In addition, the northern edge of Park Wood has been planted with beech *Fagus sylvatica*. The ground flora is a patchwork of dog's mercury and bramble. Bluebell *Hyacinthoides non-scripta* is frequent in some places together with a number of uncommon ancient woodland indicator plants, for example oxlip, yellow archangel and hairy St John's-wort.
- 4.6 There are a further eight CWS that are within 2 km of the Site. These are:
- Church Grove CWS
  - Hartest Cemetery CWS
  - Hawkedon Water CWS
  - Houghton Wood CWS
  - Longley Wood CWS
  - Oak Grove CWS
  - Price Wood CWS
  - Rochester Wood CWS
  - Thurston Park CWS

- 4.7 The locations of these CWS along with the location of nationally and locally designated sites, ancient woodland, protected species and veteran trees are shown in the map prepared by the Suffolk Biodiversity Information Service and reproduced as Appendix 2.

### Habitats on the Site / nearby

#### Desk study

- 4.8 The habitat inventory database accessed from within MAGIC identified that:
- Within the boundary of the Site there were no priority habitats.
  - Adjacent to the Site were two areas of ancient woodland that are recorded in the Natural England Ancient Woodland Inventory<sup>3</sup>: Park Wood and Lownage Wood as already described above under non-statutory designated sites.
  - To the north of the Site in the River Glem valley there was floodplain grassland, good quality semi-improved grassland and lowland fen.
- 4.9 The data search map supplied by the Suffolk Biodiversity Information Service (see Appendix 2) identified that:
- Within the boundary of the Site there were no ancient / veteran / notable trees.

#### Survey

- 4.10 Set out in Table 8 below for each habitat type found within the Site is a brief description of its vegetation and its condition. Details on whether the habitat meets criteria for Habitats of Principal Importance (HPIs) (Maddock, 2011) are also provided (see Appendix 1 for the legal and policy basis for HPI).
- 4.11 The distribution of these habitats is shown in Figure 2.

Table 8: Habitats recorded within the boundary of the Site

| Habitat                              | Description   |
|--------------------------------------|---|
| Arable                               | <p>The six fields within the Site are all arable fields, in spring 2022 growing winter cereals with some field edge blocks cultivated in preparation for the sowing of cover crops.</p> <p>The fields were managed with herbicides and no scarce or rare arable flora was noted.</p> <p>Arable fields are not HPI.</p>  |
| Species poor semi-improved grassland | <p>The four arable fields in the southern and western parts of the Site all had 6 m wide margins that contained species poor semi-improved grassland. The south-eastern of these fields had such grass margins on three sides, the other three fields had no grass margins around their boundaries. The broad-leaved flowering plant component of the grass margin comprised creeping thistle <i>Cirsium arvense</i>, curled dock <i>Rumex crispus</i>, dandelion <i>Taraxacum</i> agg., stinging nettle <i>Urtica dioica</i> and white dead-nettle <i>Lamium album</i>.</p> <p>Species poor semi-improved grassland is not an HPI.</p> |

<sup>3</sup> A third woodland area adjacent to the Site – Dripping Pan Wood – is not on the Inventory but it was flagged in the pre-application response from BDC as “*probable ancient woodland*”. This woodland is described above under non-statutory designated sites.

| Habitat                                | Description  |
|--|--|
| Hedgerows                              | <p>All of the field boundaries, except where adjacent to the three woodlands, comprised hedgerows. Four different categories of hedgerow were recorded and the hedgerows are grouped by these categories below. The hedgerow numbering system (H1 – H25) applied below and on Figure 2 is the same numbering used in the Arboricultural Survey Report (Barton Hyett Associates, 2023). The condition assessment of each hedge follows the requirements of the Natural England biodiversity net gain Metric 4.0<sup>4</sup>.</p>  |
| Intact hedge, native, species rich     | <p>Hedge 14</p> <p>The shrubs comprised blackthorn <i>Prunus spinosa</i>, elder <i>Sambucus nigra</i>, field maple <i>Acer campestre</i>, hawthorn <i>Crateagus monogyna</i> and spindle <i>Euonymus europaeus</i>, the base of the hedge contained stinging nettle and had frequent gaps.</p> <p>Hedge 14 was in poor condition.</p>  |
| Intact hedge, native, species poor     | <p>Hedges H1, H3, H4, H9, H16, H17, H19, H20, H22 &amp; H23</p> <p>The shrubs comprised blackthorn, field maple and hawthorn and the base of the hedge contained bramble <i>Rubus fruticosus</i> agg., cleavers <i>Galium aparine</i>, garlic mustard <i>Alliaria petiolata</i> and stinging nettle. Hedgerow 20 appeared to be more of a line of self-sown scrub than a managed hedge.</p> <p>Hedge H22 was in moderate condition.</p> <p>Hedges H1, H3, H4, H9, H16, H17, H19, H20 and H23 were in poor condition.</p>   |
| Hedge with trees, native, species rich | <p>Hedges H2, H6, H7, H10, H12, H13, H24 &amp; H25</p> <p>The trees comprised ash <i>Fraxinus excelsior</i>, elm <i>Ulmus spp</i>, field maple and pedunculate oak <i>Quercus robur</i>, the shrubs comprised blackthorn, dog rose <i>Rosa canina</i>, elder, hazel <i>Corylus avellana</i> and hawthorn and the base of the hedge contained bramble, cowslip <i>Primula veris</i>, dog's mercury <i>Mercurialis perennis</i>, greater stitchwort <i>Stellaria holostea</i> and lords-and-ladies <i>Arum maculatum</i>.</p> <p>Hedges H2 and H10 were in moderate condition.</p> <p>Hedges H6, H7, H12, H13, H24 and H25 were in poor condition.</p> |
| Hedge with trees, native, species poor | <p>Hedges H5, H8, H11, H15, H18 &amp; H21</p> <p>The trees comprised field maple and pedunculate oak, the shrubs comprised blackthorn and hawthorn and the base of the hedge contained bramble, dog's mercury, garlic mustard and stinging nettle.</p> <p>Hedge H21 was in moderate condition.</p> <p>Hedges H5, H8, H11, H15 and H18 were in poor condition.</p> <p>All hedgerows, with or without trees, which are largely free from gaps and formed of native species are HPI. All of the hedgerows on the Site were HPI.</p>   |

<sup>4</sup> <https://publications.naturalengland.org.uk/publication/6049804846366720>

**Species on the Site / Nearby: Records from the desk study****Bats**

- 4.12 The data search returned records of five species of bat from the data search area, none of which were from the Site itself: Serotine *Eptesicus serotinus*, Natterer's bat *Myotis nattereri*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus* and brown long-eared bat *Plecotus auritus*. The closest records were of a hibernation roost of Natterer's bat and common pipistrelle to the north of Boxted recorded in 2003. This location was ca 500 m north-east of the Site.
- 4.13 No EPSM licence for bats has been granted with 2 km of the Site.
- 4.14 All UK bats and their roosts are protected under the Wildlife and Countryside Act 1981 (as amended), and by the Conservation of Habitats and Species Regulations 2017. Seven species of bat are Species of Principal Importance (SPI) for the conservation of biodiversity under the NERC Act 2006.
- 4.15 Of the five species of bat in the data search return, soprano pipistrelle and brown long-eared bat are SPI.

**Badger**

- 4.16 The data search returned 2 records of badger *Meles meles* from the data search area, none from the Site itself. The closest record was from Boxted Park in 2014, at ca 800 m south-east of the Site.
- 4.17 Badger is a common and widespread mammal across the UK. Badgers and their setts are fully protected under the Protection of Badgers Act 1992.

**Water vole**

- 4.18 The data search returned 2 records for water vole *Arvicola amphibious* from the data search area, none from the Site itself. The closest record was from the River Glem near Somerton in 2006, at ca 900 m north-west of the Site.
- 4.19 Water vole is protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to kill, injure or take any water vole, damage, destroy or obstruct access to any place of shelter or protection that the animals are using (i.e. burrows), or disturb voles while they are using such a place. Water vole is a SPI.

**Dormouse**

- 4.20 The data search returned no records for dormouse *Muscardinus avellanarius*.
- 4.21 No EPSM licence for dormouse has been granted with 2 km of the Site.

**Otter**

- 4.22 The data search returned 6 records for otter *Lutra lutra* from the data search area, none of which were from the Site itself. The closest records were a series of three from the River Glem as it runs in to the north end of Boxted Park at 100 m east of the Site.
- 4.23 No EPSM licence for otter has been granted with 2 km of the Site.

**Brown hare**

- 4.24 The data search returned no records for brown hare *Lepus europaeus* from the data search area.

**Hedgehog**

- 4.25 The data search returned 7 records of hedgehog *Erinaceus europaeus* from the data search area, none from the Site itself. The closest was from a tree belt ca 470 m to the south of the Site in 2014.

**Birds**

- 4.26 The data search returned 390 records for 57 bird species within the data search area and 33 species from Boxted. The following species were recorded from Boxted and use farmland and field boundaries as nesting habitat: Grey partridge *Perdix perdix*, lapwing *Vanellus vanellus*, skylark *Alauda arvensis*, song thrush *Turdus philomelos*, mistle thrush *Turdus viscivorus*, dunnock *Prunella modularis*, starling *Sturnus vulgaris*, bullfinch *Pyrrhula pyrrhula*, and yellowhammer *Emberiza citrinella*. The lapwing records were from 2009 and 2011 and did not relate to breeding.
- 4.27 The nests of all wild birds, whilst in use, and their eggs, are protected from damage and destruction under the WCA 1981 (as amended). Birds listed on Schedule 1 of this Act<sup>5</sup> receive additional protection from disturbance while nesting.

**Amphibians**

- 4.28 The data search returned records of two species of amphibian from the data search area, none of which were from the Site itself: Great crested newt *Triturus cristatus* and smooth newt *Lissotriton vulgaris*. The great crested newt records comprised a record of an unstated number in 2005 from a waterbody at Mile End, Hartest, ca 1.3 km to the north of the Site and an observer's comment in 2010 that the pond south of Boxted Hall Farm, 280 m to the south-east of the Site, was suitable for great crested newt. The smooth newt record was of an unstated number in 2010 in the pond south of Boxted Hall Farm, 280 m to the south-east of the Site.
- 4.29 No EPSM licence for great crested newt has been granted within 2 km of the Site.
- 4.30 Great crested newts and their resting places and breeding sites receive full protection under the Conservation of Habitats and Species Regulations 2017 and under the Wildlife and Countryside Act (WCA) 1981 (as amended). Great crested newt is a SPI.

**Reptiles**

- 4.31 The data search returned a single record of a reptile. This was of a slow-worm *Anguis fragilis* in 2020 at Mill Hill Farm, Hartest, ca 1.3 km to the north of the Site.
- 4.32 Reptiles are protected by the WCA 1981 (as amended) against intentional killing and injuring (but not taking). Grass snake is a SPI.

**Species on the Site / Nearby: Evidence from the field surveys**

- 4.33 Table 9 below summarises the potential for, or evidence of the presence of, protected and notable fauna within the boundary of the Site as identified by the protected species scooping survey. It also notes if more detailed surveys were carried out and the results of those are detailed in separate sections below.

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<sup>5</sup> <https://www.legislation.gov.uk/ukpga/1981/69/schedule/1>

Table 9: Evidence for protected fauna presence on the Site

| Species        | Description   |
|----------------|---|
| Bats           | <p>The land use of the Site is arable farmland which overall is of limited value for this species group. The hedgerows that bound and cross the Site are of value for bat foraging and as commuting corridors.</p> <p>The Site has been the subject of more detailed bat surveys that are detailed below.</p>   |
| Badger         | <p>The land use of the Site is arable farmland which overall is of limited value for badger. The hedgerows that bound and cross the Site are of value as sett building habitat and the adjacent grass margins will provide foraging habitat.</p> <p>The Site has been the subject of a more detailed survey that is detailed below.</p>   |
| Water vole     | <p>The Site does not contain any permanently filled ditches or flowing water. The Site is unsuitable for water vole.</p>  |
| Hazel dormouse | <p>A number of the hedgerows contain hazel and the hedgerows link deciduous woodland located to the north and south of the Site albeit all of the hedgerows have at least one break in them where farm vehicles move from field to field. It is possible that hazel dormouse uses the hedgerows to move between the off-Site woodlands.</p> <p>Hazel dormouse is an SPI.</p>  |
| Otter          | <p>The Site does not contain any flowing water and whilst close to the valley of the River Glem, the hedgerows are not suitably structured to conceal an otter holt.</p>  |
| Brown hare     | <p>The arable habitat is considered suitable for this species. Brown hare were recorded on all three of the bird survey visits with a peak count of six.</p> <p>Brown hare is an SPI.</p>   |
| Hedgehog       | <p>The land use of the Site is arable farmland which overall is of limited value for hedgehog. The hedgerows that bound and cross the Site are of value for concealment during the day and the hedgerows and adjacent grass margins will provide foraging habitat. No hedgehog, or signs of hedgehog, were observed on any of the survey visits, including the bat transect surveys that took place at night.</p> <p>If present, it is considered it would only be a low-density population.</p> <p>Hedgehog is an SPI.</p> |
| Birds          | <p>The combination of arable land, grass margins and hedgerows provide suitable habitat for a range of birds including farmland specialists such as skylark and yellowhammer.</p> <p>A breeding bird territory characterisation survey was carried out and is reported below.</p>   |

| Species    | Description   |
|------------|---|
| Amphibians | <p>There are no ponds on the Site that would provide breeding habitat for amphibians. The hedgerows would provide some foraging habitat when they are in their terrestrial phase and would assist amphibians move across the landscape.</p> <p>Two off-Site ponds were assessed for their suitability for great crested newt and is reported below.</p> <p>Great crested newt and common toad <i>Bufo bufo</i> are SPI.</p> |
| Reptiles   | <p>Arable farmland is poor habitat for reptiles with what little suitable habitat there is being around the field boundaries. The Site is not connected to high value reptile habitat and it is considered the Site could only support a very low density population using the boundaries of the fields.</p>  |

**Mammal species present from the analysis of ultrasonic recordings**

- 4.34 The analysis of the ultrasonic recordings made by the static bat detectors identified one species of mammal and three mammal groups. These were brown rat *Rattus norvegicus* and vole *Microtus / Myodes spp*, wood / yellow-necked mouse *Apodemus spp* and shrew *Sorex spp*.
- 4.35 It is noted that hazel dormouse was not recorded by the detectors.

**Evidence from the targeted species surveys**

**Bats**

- 4.36 The results from the three types of bat survey are presented individually below.

**Ground level tree assessment (GLTA) survey**

- 4.37 The GLTA survey identified 9 trees within the Site or on its boundary with a more than negligible evaluation of bat roost potential. These trees are described in Table 10 below and the locations identified on Figure 3. Note that a group of three trees is given a single TN number and the arboriculture survey (Barton Hyett Associates, 2023) has not given trees specific numbers where they are part of a wood or are already dead.

Table 10: Results of the GLTA survey

| Target Note number | Arboriculture Survey number | Description   | Evaluation    |
|--------------------|-----------------------------|---|---------------|
| TN8                | T25                         | Pollarded oak tree. Hole present, shallow and exposed.                                      | Low potential |
| TN10               | -                           | Dead elm. Trunk may have some hollowing but no firm evidence.                               | Low potential |
| TN12               | -                           | Ash close to the edge of Park Wood. Lightning scar on trunk, no firm evidence of hollowing. | Low potential |
| TN13               | -                           | Dead trunk on the edge of Park Wood. No firm evidence of hollowing.                         | Low potential |
| TN14               | -                           | Three adjacent dead trunks on the edge of Park Wood. No firm evidence of hollowing.         | Low potential |

| Target Note number | Arboriculture Survey number | Description  | Evaluation    |
|--------------------|-----------------------------|--|---------------|
| TN15               | T13                         | Ash tree. Hole created by woodpecker, does not appear to give way to large hollow. | Low potential |
| TN16               | T18                         | Pollarded oak tree. No firm evidence of hollowing.                                 | Low potential |

#### Survey of bat activity by walked nocturnal transects

4.38 A summary of the walked bat transect survey information obtained on three visits in 2022 is provided in Table 11. The transect routes are illustrated on Figure 4.

Table 11: Summary of transect survey information (number of passes)

| Transect / Species  | 09 June    |           |            | 26 July   |           |           | 14 Sept    |            |            | Total      |
|---------------------|------------|-----------|------------|-----------|-----------|-----------|------------|------------|------------|------------|
|                     | Tra. A     | Tra. B    | Total      | Tra. A    | Tra. B    | Total     | Tra. A     | Tra. B     | Total      |            |
| Barbastelle         | 27         |           | 27         |           | 7         | 7         | 13         | 6          | 19         | 53         |
| Daubenton's         | 1          |           | 1          |           |           |           |            |            |            | 1          |
| Natterer's          |            |           |            |           |           |           | 3          |            | 3          | 3          |
| Myotis sp           |            |           |            | 1         |           | 1         |            | 1          | 1          | 2          |
| Leisler's           | 2          | 2         | 4          |           |           |           |            | 1          | 1          | 4          |
| Common pipistrelle  | 71         | 79        | 150        | 37        | 35        | 72        | 123        | 157        | 280        | 502        |
| Soprano pipistrelle | 2          | 2         | 4          |           |           |           | 8          | 13         | 21         | 25         |
| Brown long-eared    |            | 1         | 1          | 1         |           | 1         |            |            |            | 2          |
| <b>Grand Total</b>  | <b>103</b> | <b>84</b> | <b>187</b> | <b>39</b> | <b>42</b> | <b>81</b> | <b>147</b> | <b>178</b> | <b>325</b> | <b>593</b> |

4.39 Over the transects seven species of bat and one species group was recorded. These were barbastelle, Daubenton's, Natterer's, Leisler's, common pipistrelle, soprano pipistrelle, brown long-eared and Myotis sp.

4.40 Behavioural observations during the transects included:

- Barbastelle flying across the gap between Park Wood and Hedgerow 7 (Transect B stopping point 7) at about 4 m high. This gap was for farm machinery to travel between fields.
- Common pipistrelle flying round and round a mature oak tree in Hedgerow 7 (Transect B stopping point 7) with feeding 'buzzes' indicating that it was foraging.

#### Survey of bat activity by static (automated) detectors

4.41 The six static bat detectors that were deployed over three periods of five nights recorded ten species of bats and one bat grouping. These were barbastelle, serotine, Daubenton's, Natterer's, Leisler's, noctule, common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared and Myotis sp. The number of bat passes recorded over each of the three periods of five nights is presented in Table 12 along with the percentage contribution of each bat species to the total.



Table 12: Summary of automated bat detector survey information

| Species                | May          | July         | September     | Total         | Percentage |
|------------------------|--------------|--------------|---------------|---------------|------------|
| Barbastelle            | 463          | 1,944        | 834           | <b>3,241</b>  | 14%        |
| Serotine               | 1            | 14           | -             | <b>15</b>     | 0%         |
| Daubenton's            | 108          | 28           | 46            | <b>182</b>    | 1%         |
| Natterer's             | 44           | 24           | 5             | <b>73</b>     | 0%         |
| Myotis sp              | 1            | 9            | 3             | <b>13</b>     | 0%         |
| Leisler's              | 11           | 26           | 53            | <b>90</b>     | 0%         |
| Noctule                | 2            | -            | 6             | <b>8</b>      | 0%         |
| Common pipistrelle     | 4,726        | 3,830        | 9,704         | <b>18,260</b> | 80%        |
| Soprano pipistrelle    | 94           | 216          | 415           | <b>725</b>    | 3%         |
| Nathusius' pipistrelle | -            | -            | 2             | <b>2</b>      | 0%         |
| Brown long-eared       | 53           | 70           | 119           | <b>242</b>    | 1%         |
| <b>Grand Total</b>     | <b>5,503</b> | <b>6,161</b> | <b>11,187</b> | <b>22,851</b> |            |

- 4.42 For the five most numerous species (contributing >1% to the total) Tables 13 to 17 present the spatial distribution of the number of bat passes between the different static detectors (Figure 4 illustrates the location of the static detectors).

Table 13: Barbastelle passes by detector location

| Period / Detector | 1          | 2         | 3          | 4            | 5          | 6          |
|-------------------|------------|-----------|------------|--------------|------------|------------|
| <b>May</b>        | 25         | 15        | 67         | 291          | 30         | 35         |
| <b>July</b>       | 98         | 11        | 86         | 1,440        | 67         | 242        |
| <b>September</b>  | 15         | 17        | 247        | 338          | 100        | 117        |
| <b>Total</b>      | <b>138</b> | <b>43</b> | <b>400</b> | <b>2,069</b> | <b>197</b> | <b>394</b> |

Table 14: Daubenton's passes by detector location

| Period / Detector | 1         | 2         | 3         | 4         | 5         | 6         |
|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>May</b>        | 11        | 27        | 24        | 7         | 21        | 18        |
| <b>July</b>       | 3         | 2         | 3         | 7         | -         | 13        |
| <b>September</b>  | 2         | 6         | 13        | 8         | 11        | 6         |
| <b>Total</b>      | <b>16</b> | <b>35</b> | <b>40</b> | <b>22</b> | <b>32</b> | <b>37</b> |

Table 15: Common pipistrelle passes by detector location

| Period / Detector | 1            | 2            | 3            | 4            | 5            | 6            |
|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>May</b>        | 648          | 1,018        | 248          | 1,273        | 84           | 1,455        |
| <b>July</b>       | 621          | 294          | 276          | 756          | 527          | 1,356        |
| <b>September</b>  | 62           | 717          | 2,672        | 1,191        | 2,402        | 2,660        |
| <b>Total</b>      | <b>1,331</b> | <b>2,029</b> | <b>3,196</b> | <b>3,220</b> | <b>3,013</b> | <b>5,471</b> |

Table 16: Soprano pipistrelle passes by detector location

| Period / Detector | 1         | 2         | 3          | 4          | 5          | 6         |
|-------------------|-----------|-----------|------------|------------|------------|-----------|
| May               | 40        | 3         | 5          | 40         | 2          | 4         |
| July              | 20        | 16        | 17         | 149        | 5          | 9         |
| September         | 9         | 5         | 100        | 169        | 109        | 23        |
| <b>Total</b>      | <b>69</b> | <b>24</b> | <b>122</b> | <b>358</b> | <b>116</b> | <b>36</b> |

Table 17: Brown long-eared passes by detector location

| Period / Detector | 1         | 2         | 3          | 4         | 5         | 6         |
|-------------------|-----------|-----------|------------|-----------|-----------|-----------|
| May               | -         | 1         | 34         | 13        | 2         | 3         |
| July              | 9         | 3         | 20         | 13        | 16        | 9         |
| September         | 2         | 7         | 79         | 10        | 4         | 17        |
| <b>Total</b>      | <b>11</b> | <b>11</b> | <b>133</b> | <b>36</b> | <b>22</b> | <b>29</b> |

4.43 Notable amongst the bat distribution by location are the:

- Barbastelle records from static detector 4 that is located between Lownage Wood and Park Wood with the number recordings indicating many more movements between the wood than north along hedgerow 10 and past static detector 3.
- Common pipistrelle records from static detector 6 being both large in number and regular across the seasons.

4.44 Overall static detectors 1 and 2 had the lower number of bat passes. These detectors are located at the eastern end of the Site, an area of poorer quality hedgerows for bat foraging and less well connected to off-Site higher quality bat foraging habitat, thus less likely to be used as a commuting route.

4.45 The time of occurrence of the first bat calls can give an indication as to whether or not those bats have emerged from a roost nearby. The different bat species have different times in relation to sunset to emerge from a roost. These timings are:

- 0 – 20 minutes after sunset: Common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Leisler's and Noctule
- 0 – 40 minutes after sunset: Barbastelle and serotine
- 21 – 60 minutes after sunset: Myotis bats
- 20 – 100 minutes after sunset: Brown long-eared bat

4.46 The timing of the recorded bat passes has been analysed and Table 18 to 26 presents information for each static detector location of bat occurrence in the first 100 minutes of recording after sunset. The three recording periods have been combined. There are no tables for Nathusius' pipistrelle and Myotis sp as none were recorded within the first 100 minutes of recording after sunset. The green shading indicates the typical roost emergence times for each species.

Table 18: *Barbastelle* number of passes recorded in the first 100 minutes after sunset by detector location

| Detector / Time period | 0 - 20 | 21 - 40 | 41 - 60 | 61 - 80 | 81 - 100 |
|------------------------|--------|---------|---------|---------|----------|
| 1                      | -      | -       | 7       | 5       | 9        |
| 2                      | -      | -       | -       | 1       | 1        |
| 3                      | -      | 4       | 7       | 5       | 4        |
| 4                      | 1      | 66      | 91      | 107     | 140      |
| 5                      | -      | -       | 2       | 6       | 5        |
| 6                      | -      | 2       | 21      | 11      | 18       |

Table 19: *Serotine* number of passes recorded in the first 100 minutes after sunset by detector location

| Detector / Time period | 0 - 20 | 21 - 40 | 41 - 60 | 61 - 80 | 81 - 100 |
|------------------------|--------|---------|---------|---------|----------|
| 1                      | -      | -       | -       | 1       | -        |
| 2                      | -      | -       | -       | -       | -        |
| 3                      | -      | -       | -       | -       | -        |
| 4                      | -      | -       | -       | 1       | -        |
| 5                      | -      | -       | -       | -       | -        |
| 6                      | -      | -       | -       | -       | 1        |

Table 20: *Daubenton's* number of passes recorded in the first 100 minutes after sunset by detector location

| Detector / Time period | 0 - 20 | 21 - 40 | 41 - 60 | 61 - 80 | 81 - 100 |
|------------------------|--------|---------|---------|---------|----------|
| 1                      | -      | -       | -       | -       | -        |
| 2                      | -      | -       | -       | -       | 2        |
| 3                      | -      | -       | -       | 1       | 3        |
| 4                      | -      | -       | -       | 3       | -        |
| 5                      | -      | -       | -       | -       | -        |
| 6                      | -      | -       | 2       | 1       | 1        |

Table 21: *Natterer's* number of passes recorded in the first 100 minutes after sunset by detector location

| Detector / Time period | 0 - 20 | 21 - 40 | 41 - 60 | 61 - 80 | 81 - 100 |
|------------------------|--------|---------|---------|---------|----------|
| 1                      | -      | -       | -       | -       | -        |
| 2                      | -      | -       | -       | -       | -        |
| 3                      | -      | -       | -       | -       | -        |
| 4                      | -      | -       | -       | -       | -        |
| 5                      | -      | -       | -       | -       | -        |
| 6                      | -      | -       | 1       | -       | -        |

Table 22: Leisler's number of passes recorded in the first 100 minutes after sunset by detector location

| Detector / Time period | 0 - 20 | 21 - 40 | 41 - 60 | 61 - 80 | 81 - 100 |
|------------------------|--------|---------|---------|---------|----------|
| 1                      | -      | -       | -       | -       | 1        |
| 2                      | -      | -       | -       | 1       | 3        |
| 3                      | -      | -       | -       | -       | -        |
| 4                      | -      | -       | -       | -       | 6        |
| 5                      | -      | -       | 2       | 2       | -        |
| 6                      | -      | -       | 1       | -       | -        |

Table 23: Noctule number of passes recorded in the first 100 minutes after sunset by detector location

| Detector / Time period | 0 - 20 | 21 - 40 | 41 - 60 | 61 - 80 | 81 - 100 |
|------------------------|--------|---------|---------|---------|----------|
| 1                      | -      | -       | -       | -       | -        |
| 2                      | -      | -       | -       | -       | -        |
| 3                      | -      | -       | -       | -       | -        |
| 4                      | -      | -       | 2       | -       | -        |
| 5                      | -      | -       | -       | -       | -        |
| 6                      | -      | -       | -       | -       | -        |

Table 24: Common pipistrelle number of passes recorded in the first 100 minutes after sunset by detector location

| Detector / Time period | 0 - 20 | 21 - 40 | 41 - 60 | 61 - 80 | 81 - 100 |
|------------------------|--------|---------|---------|---------|----------|
| 1                      | -      | 180     | 294     | 74      | 66       |
| 2                      | -      | 157     | 313     | 82      | 73       |
| 3                      | 15     | 45      | 41      | 43      | 34       |
| 4                      | 8      | 51      | 122     | 86      | 105      |
| 5                      | -      | 3       | 19      | 48      | 36       |
| 6                      | -      | 249     | 459     | 139     | 82       |

Table 25: Soprano pipistrelle number of passes recorded in the first 100 minutes after sunset by detector location

| Detector / Time period | 0 - 20 | 21 - 40 | 41 - 60 | 61 - 80 | 81 - 100 |
|------------------------|--------|---------|---------|---------|----------|
| 1                      | -      | -       | 34      | 2       | 4        |
| 2                      | -      | -       | -       | 4       | 6        |
| 3                      | -      | -       | 3       | 3       | 4        |
| 4                      | 2      | 3       | 15      | 39      | 25       |
| 5                      | -      | 1       | -       | -       | -        |
| 6                      | -      | -       | -       | 1       | 1        |

Table 26: Brown long-eared number of passes recorded in the first 100 minutes after sunset by detector location

| Detector / Time period | 0 - 20 | 21 - 40 | 41 - 60 | 61 - 80 | 81 - 100 |
|------------------------|--------|---------|---------|---------|----------|
| 1                      | -      | -       | -       | 1       | 2        |
| 2                      | -      | -       | -       | -       | 1        |
| 3                      |        | 1       | 2       | 5       | 3        |
| 4                      | -      | -       | -       | 2       | 3        |
| 5                      | -      | -       | -       | 1       | 1        |
| 6                      | -      | -       | -       | -       | -        |

- 4.47 This examination of the time of recording of bat passes indicates that there is barbastelle, common pipistrelle and brown long-eared regularly roosting on the Site or nearby, that possibly Daubenton's, Natterer's and soprano pipistrelle roost nearby occasionally and that it is unlikely that there are serotine, noctule or Leisler's roosting even nearby. The numerous and early timing of passes indicates that barbastelle is roosting near to the location of static detector 4 and this is considered to be in one or both of Lownage Wood and Park Wood. Similarly, the common pipistrelle records indicate roosting in one or more of Lownage Wood, Park Wood and Dripping Pan Wood and moving between them along hedgerows 9, 10 and 11 (there are no potential roost trees in these hedgerows).
- 4.48 The analysis of the static detector recordings provides some additional information on bat activity. Feeding 'buzzes' (a call indicating that a prey has been detected) were noted from barbastelle, Daubenton's, Natterer's, common pipistrelle and soprano pipistrelle. Social calls were noted from common pipistrelle, soprano pipistrelle and brown long-eared.

#### Overall results

- 4.49 Taken together, the results of the bat surveys suggest that the Site provides foraging, and commuting habitat for a wide range of bat species that might be expected to be recorded in eastern England, including the SPI barbastelle, soprano pipistrelle and brown-long-eared bat. The results also indicate that three bat species regularly roost within, or in close proximity to, the Site: Barbastelle, common pipistrelle and brown long-eared. The barbastelle roost is considered to be in one or both of Lownage Wood and Park Wood given this species' roost requirements of several mature, dead or dying trees (particularly oaks) within a woodland (Carr *et al.*, 2018) with roost trees having peeling bark on the trunk behind which they roost.

#### Badger

- 4.50 The badger survey, carried out in April 2022 and supported by observations on subsequent visits, identified the following (locations illustrated on Figure 3):
- A active main sett on the north-eastern boundary of the Site in Hedgerow 15 comprising six active holes of which five had large spoil heaps and discarded bedding, with four of the holes in the hedge bank and two on the field edge.
  - An active outlier sett on the south-western boundary on the boundary bank of Lownage Wood comprising a single hole whose entrance was open and clear with signs of some excavation activity that had occurred in spring 2022.
  - An inactive outlier sett in the gap between Hedgerows 19 and 20 comprising two holes that were large enough to have been excavated by badger but there was no sign of recent excavations or of discarded bedding. Rabbits are present in area and may have kept the entrances clear.
- 4.51 A badger was noted emerging from the main sett on the bat transect survey in June 2022

#### Birds

- 4.52 The three-visit breeding bird community characterisation survey recorded a total of 39 bird species and the visits for the bat transect surveys added two nocturnal species – barn owl *Tyto alba* and

tawny owl *Strix aluco*. Of the 39 species recorded on the breeding bird community characterisation survey, three species of bird were only flying high over the Site and had no association with the land: Greylag goose *Anser anser*, lesser black-backed gull *Larus fuscus* and kestrel *Falco tinnunculus*.

- 4.53 The behaviour observed enabled the bird species recorded to be categorised according to the method of the national bird atlas (Balmer *et al.*, 2013) as breeding 'confirmed', 'probable' or 'possible' and this information is presented in Table 27 along with their conservation evaluation in accordance with Birds of Conservation Concern 5 (BoCC5) (Stanbury *et al.*, 2021), whether they are SPI and whether they are listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

Table 27: Breeding bird community and their conservation status

| Vernacular name          | Scientific name                | Breeding status | BoCC5 | SPI | Sch 1 |
|--------------------------|--------------------------------|-----------------|-------|-----|-------|
| Red-legged Partridge     | <i>Alectoris rufa</i>          | Probable        | N/A   |     |       |
| Grey Partridge           | <i>Perdix perdix</i>           | Possible        | Red   | SPI |       |
| Pheasant                 | <i>Phasianus colchicus</i>     | Possible        | N/A   |     |       |
| Greylag Goose            | <i>Anser anser</i>             | Non-breeder     | N/A   |     |       |
| Stock Dove               | <i>Columba oenas</i>           | Probable        | Amber |     |       |
| Woodpigeon               | <i>Columba palumbus</i>        | Probable        | Amber |     |       |
| Lesser Black-backed Gull | <i>Larus fuscus</i>            | Non-breeder     | Amber |     |       |
| Sparrowhawk              | <i>Accipiter nisus</i>         | Possible        | Amber |     |       |
| Red Kite                 | <i>Milvus milvus</i>           | Possible        | Green |     | Sch 1 |
| Buzzard                  | <i>Buteo buteo</i>             | Possible        | Green |     |       |
| Barn Owl                 | <i>Tyto alba</i>               | Possible        | Green |     | Sch 1 |
| Tawny Owl                | <i>Strix aluco</i>             | Confirmed       | Amber |     |       |
| Great Spotted Woodpecker | <i>Dendrocopos major</i>       | Confirmed       | Green |     |       |
| Green Woodpecker         | <i>Picus viridis</i>           | Possible        | Green |     |       |
| Kestrel                  | <i>Falco tinnunculus</i>       | Non-breeder     | Amber |     |       |
| Jay                      | <i>Garrulus glandarius</i>     | Possible        | Green |     |       |
| Magpie                   | <i>Pica pica</i>               | Probable        | Green |     |       |
| Jackdaw                  | <i>Coloeus monedula</i>        | Probable        | Green |     |       |
| Rook                     | <i>Corvus frugilegus</i>       | Possible        | Amber |     |       |
| Carrion Crow             | <i>Corvus corone</i>           | Confirmed       | Green |     |       |
| Coal Tit                 | <i>Periparus ater</i>          | Confirmed       | Green |     |       |
| Blue Tit                 | <i>Cyanistes caeruleus</i>     | Confirmed       | Green |     |       |
| Great Tit                | <i>Parus major</i>             | Probable        | Green |     |       |
| Skylark                  | <i>Alauda arvensis</i>         | Probable        | Red   | SPI |       |
| Long-tailed Tit          | <i>Aegithalos caudatus</i>     | Probable        | Green |     |       |
| Whitethroat              | <i>Sylvia communis</i>         | Probable        | Amber |     |       |
| Lesser Whitethroat       | <i>Sylvia curruca</i>          | Probable        | Green |     |       |
| Blackcap                 | <i>Sylvia atricapilla</i>      | Probable        | Green |     |       |
| Chiffchaff               | <i>Phylloscopus collybita</i>  | Probable        | Green |     |       |
| Wren                     | <i>Troglodytes troglodytes</i> | Probable        | Amber |     |       |
| Song Thrush              | <i>Turdus philomelos</i>       | Probable        | Amber | SPI |       |
| Mistle Thrush            | <i>Turdus viscivorus</i>       | Possible        | Red   |     |       |
| Blackbird                | <i>Turdus merula</i>           | Confirmed       | Green |     |       |
| Robin                    | <i>Erithacus rubecula</i>      | Probable        | Green |     |       |
| Dunnock                  | <i>Prunella modularis</i>      | Confirmed       | Amber | SPI |       |
| Chaffinch                | <i>Fringilla coelebs</i>       | Probable        | Green |     |       |

| Vernacular name | Scientific name             | Breeding status | BoCC5 | SPI | Sch 1 |
|-----------------|-----------------------------|-----------------|-------|-----|-------|
| Linnet          | <i>Linaria cannabina</i>    | Probable        | Red   | SPI |       |
| Goldfinch       | <i>Carduelis carduelis</i>  | Probable        | Green |     |       |
| Bullfinch       | <i>Pyrrhula pyrrhula</i>    | Possible        | Amber | SPI |       |
| Reed Bunting    | <i>Emberiza schoeniclus</i> | Probable        | Amber | SPI |       |
| Yellowhammer    | <i>Emberiza citrinella</i>  | Confirmed       | Red   | SPI |       |

4.54 In summary the Site supports the numbers of species with the different status categories as presented in Table 28 (noting that one species can have multiple status, the numbers should not be summed and that species that are BoCC5 Green are of no conservation concern).

Table 28: Summary of breeding bird community conservation status

| Conservation status | Number of species |
|---------------------|-------------------|
| BoCC5 Red           | 5                 |
| BoCC5 Amber         | 13                |
| SPI                 | 8                 |
| Schedule 1          | 2                 |

4.55 The following bird species were simultaneously BoCC5 Red and SPI: Grey partridge, skylark, linnet and yellowhammer.

4.56 The breeding bird community comprises common and widespread species associated with farmland boundary features and woodland.

4.57 The notable species, based on its making use of open fields for nesting where the solar arrays are to be placed is skylark. Further evaluation of this species was undertaken through the quantification of the number of breeding territories on the Site. A total of 9 territories were identified within the Site. The location of each skylark territory is identified on Figure 5.

#### **Skylark territories on-Site and off-Site in 2023**

4.58 The survey and mapping of skylark territories in 2023 on the Site and across the Boxted Estate identified 17 fields that were either of high suitability or moderate suitability for breeding skylark off-Site. Six of the high suitability fields currently supporting 9 skylark territories have been taken forward for consideration in the Skylark Mitigation Strategy that is detailed separately.

#### **Great crested newt (GCN) pond habitat suitability survey**

4.59 The location of the two off-Site ponds within 250 m of the Site are identified on Figure 3. The result of the habitat suitability assessment for each is:

- Pond 1 in the parkland of the Boxted Estate: HSI 0.61; Average suitability
- Pond 2 in a garden off Braggon's Hill, Boxted: HSI 0.55; Below average suitability

4.60 The derivation of the HSI scores based on the features of each pond and its surroundings is given in Table 29.

Table 29: Features of the ponds contributing to the HSI scores

| Criteria                       | Pond 1    |                | Pond 2    |                      |
|--------------------------------|-----------|----------------|-----------|----------------------|
|                                | Value     | Score          | Value     | Score                |
| Surface area (m <sup>2</sup> ) | 54.95     | 0.10           | 18.84     | 0.05                 |
| Desiccation rate               | Sometimes | 0.50           | Sometimes | 0.50                 |
| Water quality                  | Moderate  | 0.67           | Moderate  | 0.67                 |
| Shade (% 1 m from bank)        | 25        | 1.00           | 5         | 1.00                 |
| Waterfowl                      | Absent    | 1.00           | Minor     | 0.67                 |
| Fish population                | Absent    | 1.00           | Absent    | 1.00                 |
| Number of ponds within 1 km    | 13        | 1.00           | 13        | 1.00                 |
| Terrestrial habitat            | Moderate  | 0.67           | Moderate  | 0.67                 |
| Macrophyte cover (%)           | 0         | 0.31           | 2         | 0.33                 |
| <b>HSI score =</b>             |           | <b>0.61</b>    |           | <b>0.55</b>          |
| <b>Pond suitability =</b>      |           | <b>Average</b> |           | <b>Below average</b> |



## 5 Evaluation of the Site and Scoping of the Ecological Assessment

5.1 Based on the findings of the desk study and the surveys conducted of the location of the Proposed Development an evaluation has been carried out of the importance of any site, habitat or species population present. The evaluation also considers if the receptor should be taken forward to the ecological assessment section that follows. This evaluation is presented in Table 30.

Table 30: Evaluation and scoping of sites, habitats and species

| Receptor                             | Summary of presence within and adjacent to the boundary of the Proposed Development  | Evaluation   |
|--------------------------------------|--|--|
| <b>Designated Sites</b>              |  |  |
| Statutory designated sites           | None within or adjacent to the Site  | Scoped out from assessment   |
| Non-statutory designated sites       | None within the Site<br>Three CWS adjacent to the Site   | CWS of county importance<br>CWS scoped into the assessment   |
| <b>Habitats</b>                      |  |  |
| Arable                               | All of the fields within the Site consist of large arable fields.  | Not HPI<br>Site importance<br>Scoped out from assessment   |
| Species poor semi-improved grassland | The arable field margins within the Site support species poor semi-improved grassland  | Not HPI<br>Site importance<br>Scoped out from assessment   |
| Hedgerows                            | Hedgerows divide the arable fields within the Site   | HPI<br>Site importance<br>Scoped into the assessment   |
| Ancient woodland                     | Two ancient woodlands adjacent to the Site   | HPI<br>District importance<br>Scoped into the assessment   |
| <b>Species</b>                       |  |  |
| Bats                                 | 10 species of bat foraging or commuting across the Site<br>Three species of bat regularly roosting on the Site or nearby   | Three species are SPI<br>Protected species<br>Taken forward to ensure legal compliance                 |
| Badger                               | An active main sett and an active outlier sett on the boundaries of the Site   | Not SPI<br>Protected species<br>Taken forward to ensure legal compliance                               |
| Dormouse                             | Not present  | Scoped out from assessment   |
| Brown hare                           | Present using arable fields within the Site  | SPI<br>Site importance<br>Scoped into the assessment   |
| Hedgehog                             | Likely to be present using boundary features   | SPI<br>Site importance<br>Scoped into the assessment   |
| Breeding birds                       | Majority of the breeding birds are common and widespread species associated with farmland and its boundary features, presence of breeding skylark nesting in the arable fields | Assemblage contains 8 SPI<br>Local level importance<br>Protected species<br>Scoped into the assessment |
| Great crested newt                   | Not present  | Scoped out from assessment   |
| Reptiles                             | Not present  | Scoped out from assessment   |

## 6 Designed-in Ecology Avoidance, Mitigation and Enhancement Measures

- 6.1 The following measures are designed into the development as set out in the Landscape Masterplan submitted with the application. These designed-in measures are taken into account in the assessment of impacts of the Proposed Development.
- 6.2 The overall biodiversity enhancement provided by these measures is quantified, in terms of change in habitat condition, in the separate Biodiversity Net Gain Statement submitted with the application.
- 6.3 Measures to avoid killing of, or injury to, protected species or damage or destruction of their resting or breeding places during the construction phase is included at the end of this section.

### Designed-in habitat avoidance, mitigation and enhancement measures

- 6.4 The installation of the proposed solar arrays, transformers and associated infrastructure will be confined to within the existing arable fields.
- 6.5 Access to construct and maintain the Proposed Development will use existing access points currently in use by large farm machinery to cultivate and harvest the arable fields. This avoids creating new breaks in existing natural boundary features but there will be some minor widening of four existing field entrances.
- 6.6 The semi-natural habitats present will be retained, enhanced or created as set out for individual habitat types below. These measures will avoid adverse impacts on Habitats of Principal Importance and will target habitat creation (e.g. of flower rich grassland) in the most ecologically appropriate locations.

#### *Adjacent CWS and ancient woodland*

- The adjacent CWS of Lownage Wood (also ancient woodland), Park Wood (also ancient woodland) and Dripping Pan Wood that are all on the boundary of the Site will be buffered from the works and installations required for the construction and maintenance of the Proposed Development by a strip of flower rich grassland at least 15 m wide (this width being in accordance with the Standing Advice from Natural England<sup>6</sup>).
- One exception has been made to avoid widening a gap between Park Wood and Hedgerow 7 that has been identified as an important route for barbastelle bats commuting from Park Wood (where they are considered to have a roost) toward the River Glem valley. Here the security fence has been moved closer to the wood (within the 15 m buffer) such that vehicle access can be gained along the existing farm track without removing a part of the south-west end of Hedgerow 7.
- New deciduous woodland will be planted in blocks along the northern edge of the Site with the planting mix being appropriate to the location and soil type (specified in the Landscape Masterplan).

#### *Hedgerows*

- Hedgerows will be retained with buffers present of at least 5 m width within which there will be retained or created wildflower rich grassland.
- Where there is a large, mature tree in the hedgerow a wider buffer will be applied in accordance with the recommendations for protection zones in the arboriculture survey report (Barton Hyett Associates, 2023)
- Existing hedgerows within the Site and along the boundaries of the Site will be positively managed to increase their width and height. Where hedgerows are already established to heights above 3.6 m, these heights shall be maintained. Where hedgerows are below 3.6 m in average height they shall be managed to increased heights of 3.6 m and above.

<sup>6</sup> <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions>

- Existing elm suckers within hedgerows will be identified and allowed to develop to form hedgerow trees during the ongoing course of hedgerow management.
- Infill planting will be implemented (where necessary) to strengthen the existing hedgerows where it is sparse or a gap is present. The planting mix will be appropriate to the location and soil type (specified in the Landscape Masterplan).

*Poor semi-improved grassland field margins*

- Where field grass margins exist at present they will be retained and where the new buffer width is greater than the existing grass margin width then that extra width will be planted with a flower rich grassland (specified in the Landscape Masterplan).

*New flower rich grassland*

- Flower rich grassland will be planted across the Site where there is at present arable cropping. A wildflower / grass mix will be sown that is suited to the location and soil type and also varied to be appropriate to its specific location with seed mixes being used that are suited to being adjacent to hedgerows, adjacent to woodland and able to be lightly grazed with sheep (specified in the Landscape Masterplan).
- The grassland between and beneath the solar arrays and within the security fence can be grazed at a low intensity by sheep.
- The new flower rich grassland outside of the security fence will be mown in the manner of a hay-meadow, being allowed to flower in the spring and summer and cut in the late summer.

**Designed-in protected species avoidance, mitigation and enhancement measures**

6.7 The following measures are designed to minimise potential impacts on the protected species potentially present on Site and to provide particular measures of enhancement beyond that described above for the semi-natural habitats.

*Bats*

- The within Site construction and maintenance access track does not require enabling arboriculture works on any of the trees that were identified through the GLTA as having potential for bat roosts (categorised as 'low'). The result is that impacts on potential bat tree roosts are avoided.
- As noted above, the existing field access gap between Park Wood and Hedgerow 7 will not be widened and the existing access track will be retained on its present alignment. This will avoid increasing the gap on an important route for barbastelle bats commuting from Park Wood (where they are considered to have a roost) toward the River Glem valley.
- Bat roosting boxes will be installed on mature trees across the site.

*Badger, brown hare and hedgehog*

- Mammal gaps will be placed in the base of the deer fencing suitable for the passage of badgers, hedgehogs, brown hare and other smaller animals (measuring at least 35 x 25 cm) to avoid interruption to movement between hibernation/resting/breeding locations and foraging locations. As a minimum one such gap will be placed wherever there is a sharp turn or 90° corner and one such gap placed for every 100 m of straight fence line. In addition, there will be three additional gaps placed within a 50 m stretch of fence adjacent to the locations of each of the two active badger setts - such multiple gaps being to give badgers flexibility in the route by which they leave their sett to forage across the new grassland created within the Site.

*Birds*

- The areas of flower rich grassland will, through enhancing invertebrate numbers and seed sources, provide additional foraging habitat for the farmland bird community.
- The location and management of areas to mitigate for the displacement of nesting skylark are described in the separate Skylark Mitigation Strategy submitted with the application.
- Two nest boxes designed for barn owl will be installed on trees within the boundary of the Site.

**Protected species avoidance and mitigation measures for the construction phase**

- 6.8 The following avoidance and mitigation will be necessary to address the potential impacts on protected species not already included within the designed-in measures identified above.
- 6.9 These measures relate to actions to be taken before and during construction phase for protected species.

***Pre-construction measures***

- 6.10 Due to the highly mobile nature of badgers an update badger survey will be carried out prior to commencement of construction in order to assess the status of the setts recorded during the current survey, detect any new setts which might have been created and assess impacts to those appropriately.
- 6.11 The buffers for hedgerows and trees will be protected during construction by installing the site security fencing in each field before the installation of the main solar infrastructure. This will safeguard these habitats against accidental damage by machinery, and through limiting the proximity of vehicles, will limit dust deposition and disturbance of boundary features.
- 6.12 Clearance of any vegetation that has developed on any arable field after the last harvest has been taken should be undertaken outside of the bird breeding season (i.e. avoiding March to August inclusive), to avoid destruction of skylark nests. To reduce the likelihood of skylark or other ground nesting birds nesting within the area, cleared land should be maintained bare until the construction work commences.

***Construction mitigation***

- 6.13 All excavations will be kept covered overnight, or ramps provided to prevent badgers and other animals becoming trapped within them.

***Protected species method statements***

- 6.14 Method statements and/or licencing will be necessary to ensure that construction works avoid potential impacts on protected species as follows:

***Bat roosts in trees***

- 6.15 If the buffers to trees described above are not sufficient to allow access or passage for construction vehicles and works might be required to one or more trees then all such trees will be subject to a ground level tree assessment for potential bat roost features and any recommendations in the report on that survey implemented as required.

***Badger (works within 30 m of an active sett)***

- 6.16 The design will avoid any ground disturbance or digging within 30 m of badger setts. If such works become necessary, consideration will be given to alternative methods of work and, if necessary, application to Natural England for a licence for temporary or permanent sett closure.

***Nesting birds: clearance of shrubby vegetation***

- 6.17 If any clearance of shrubby vegetation during the bird breeding season (March to August inclusive) proves unavoidable, it is to be undertaken following a precautionary method statement to avoid impacts on nesting birds. This method involves a suitably experienced ecologist searching the vegetation for evidence of breeding birds immediately prior to vegetation clearance. If an active nest is found, work will stop within a suitable area around the nest until the ecologist can confirm that the nesting attempt has concluded.

## 7 Assessment of the Impact of the Proposed Development

7.1 This assessment is carried out on those receptors that have been screened-in as set out in Table 29 above.

7.2 It should be noted that the habitat creation and enhancement measures described above will provide benefit to a much wider range of habitats and species than is described below. The overall benefit to habitats and biodiversity has been assessed in a quantitative way using the biodiversity net gain assessment process and the Defra Metric 4.0. This is reported in the separate Biodiversity Net Gain Statement submitted with the application. That overall gain in biodiversity value has been quantified by applying the Government's 'Metric' and its output is a 99.18% gain in the biodiversity value of area-based habitats and a 48.08% gain in the biodiversity value of hedgerows.

### Non-statutory designated sites: CWS

7.3 Three CWS are present on the boundary of the Site and direct impacts to these sites are avoided by the design and layout of the Proposed Development. Indirect impacts to these sites are also avoided by setting out a 15 m buffer in which development will not take place and which will be planted with an appropriate flower rich grassland mix.

7.4 **Conclusion** on ecological assessment for CWS: The Proposed Development avoids the loss of any CWS and creates grassland buffers adjacent to them. This will lead to an improvement in the condition of the CWS. Accounting for these avoidance and enhancement actions, the result is a **minor beneficial effect** at the county level.

### Habitats: Hedgerows

7.5 Native hedgerows, both species rich and species poor and in poor and in moderate condition are present across the Site. Direct impacts to these hedgerows are avoided by the design and layout of the Proposed Development. Indirect impacts to these sites are also avoided by setting out a 5 m buffer (sometimes wider where a mature tree is present) in which development will not take place and which will be planted with an appropriate flower rich grassland mix. Hedgerows will be enhanced by infill planting and allowing them to grow taller and wider.

7.6 **Conclusion** on ecological assessment for hedgerows: The Proposed Development avoids the loss of hedgerows; enhances them through infill planting and future management; and creates grassland buffers adjacent to them. This will lead to an improvement in the condition of the hedgerows. Accounting for these avoidance and enhancement actions, the result is a **minor beneficial effect** at the local level.

### Habitats: Ancient woodland

7.7 Two ancient woodlands are present on the boundary of the Site and direct impacts to these are avoided by the design and layout of the Proposed Development. Indirect impacts to these ancient woodlands are also avoided by setting out a 15 m buffer in which development will not take place and which will be planted with an appropriate flower rich grassland mix.

7.8 **Conclusion** on ecological assessment for ancient woodland: The Proposed Development avoids the loss of any ancient woodland and creates grassland buffers adjacent to them. This will lead to an improvement in the condition of the ancient woodlands. Accounting for these avoidance and enhancement actions, the result is a **minor beneficial effect** at the district level.

### Bats

#### *Bat foraging habitat and landscape connectivity*

7.9 Hedgerows are retained and enhanced within the Site with at least a 10 m grassland buffer adjacent to each. An existing hedgerow gap on an important bat commuting route is not widened. Deciduous woodland planting, existing hedgerow enhancement and hedgerow gap infilling will increase connectivity across the landscape. Those measures and the reversion of arable to flower rich

grassland with some areas having sheep grazing (herbivore dung is an important source of flying insects for bats) will increase the foraging resource across the site. The result is that the Proposed Development will increase the quality of the site for bats.

- 7.10 The completed development does not feature permanent visible wavelength lighting.

#### *Bat roosts*

- 7.11 No trees that have the potential to support bat roosts within hedgerows nor on the boundaries with woodland are being removed for the construction of the Proposed Development and no tree works have been identified as being necessary to such trees prior to the construction phase to enable the Proposed Development to be delivered.

- 7.12 **Conclusion** on impact assessment for bats: The Proposed Development avoids works adjacent to potential roost trees, creates buffers adjacent to them, converts arable land to grassland and enhances the condition of hedgerows on the Site. This will lead to a minor improvement in foraging habitat and foraging resource for bats, potentially increasing their population on the Site. Accounting for these avoidance and enhancement actions, the result is a **minor beneficial effect** at the local level.

#### **Badger**

- 7.13 The Proposed Development does not involve major construction work or excavation within 30 m of the two known active badger setts with buffers being placed around them that will be planted with flower rich grassland. Killing, injury or disturbance of individual badgers, or damage or destruction of badger setts is therefore avoided. The risk of badgers becoming trapped in excavations can be avoided by suitable methods.

- 7.14 Access for badgers across the Site is maintained by placing mammal gaps at regular intervals in the security fencing.

- 7.15 The reversion of arable to grassland, the planting of deciduous woodland and the enhancement of existing hedgerows will increase the foraging resource for badger across the site.

- 7.16 **Conclusion** on impact assessment for badger: The Proposed Development avoids killing or injury to badgers and damage to their setts, it enables continued access the Site and it enhances the foraging resources for badger through habitat creation and enhancement. This will lead to a minor improvement in foraging resource for badgers, potentially increasing their population on the Site. Accounting for these avoidance and enhancement actions, the result is a **minor beneficial effect** at the local level.

#### **Brown hare**

- 7.17 The existing farmland supports a population of brown hare that feed on the existing grass margins and the sown arable crops. The reversion of arable to grassland will increase the year-round foraging resource for brown hare. Access for brown hare across the Site is maintained by placing mammal gaps at regular intervals in the security fencing.

- 7.18 **Conclusion** on impact assessment for brown hare: The Proposed Development enables continued access the Site and it enhances the foraging resources through habitat creation and enhancement. This will lead to a minor improvement in foraging resource for brown hare, potentially increasing their population on the Site. Accounting for these avoidance and enhancement actions, the result is a **minor beneficial effect** at the local level.

#### **Hedgehog**

- 7.19 The Site is likely to support a low population of hedgehog that are present within the hedgerows. The infilling of gaps in the hedgerows and deciduous woodland planting within the Site will increase the quantity and quality of habitat for hedgehog. Access for hedgehog across the Site is maintained by placing mammal gaps at regular intervals in the security fencing.

- 7.20 **Conclusion** on impact assessment for hedgehog: The Proposed Development enables continued access the Site and it enhances the foraging resources through habitat creation and enhancement. This will lead to a minor improvement in foraging resource for hedgehog, potentially increasing their population on the Site. Accounting for these avoidance and enhancement actions, the result is a **minor beneficial effect** at the local level.

### Breeding birds

#### *Skylark*

- 7.21 The construction of the solar array on arable farmland will reduce the available nesting habitat for skylark. This arable farmland will be replaced with flower rich grassland under and around the solar panels. Evidence on the use of solar farms by breeding skylark suggests that while they may be deterred from nesting beneath solar arrays (Solar Energy UK, 2023) they will continue to forage there amongst the sown grassland (Shotton, 2018).

- 7.22 To mitigate for the loss of arable nesting habitat a Skylark Mitigation Strategy has been prepared (submitted as a separate report with the application) that identifies two blocks of fields under the control of the Applicant within which 'skylark plots' will be created in the arable crops and rotated across the years. These plots will be created following the RSPB promoted guidance to farmers<sup>7</sup> and in a manner that has been delivered by farmers across lowland England as Countryside Stewardship AB4 Skylark Plots<sup>8</sup>. They will be created at a rate of 2 plots/ha, away from hedgerows and tramlines. Sufficient fields have been included in the Skylark Mitigation Strategy that have high suitability for skylark (as identified by a survey in 2023) to give the farmer the flexibility to rotate the arable crops to manage potential pests and diseases. The published evidence is that skylark plots at a density of 2 plots/ha in winter cereal crops grown on calcareous clay soils (as is the case at Boxted) will increase the population of skylark in each field with plots by a factor of three (Donald & Morris, 2005). The wildflower rich grassland created on the Site will also offer significantly improved foraging opportunities for skylark during the operational phase, as the grassland habitats will support a larger biomass of insect prey items than the arable land they will replace.

- 7.23 **Conclusion** on impact assessment for breeding skylark: The Proposed Development converts arable land to grassland, introduces a large area of solar panels and associated infrastructure, and creates nesting habitat off-Site in compensation. It improves the foraging resource through grassland creation. Accounting for these compensation and enhancement actions, the result is a **neutral effect** at the local level.

#### *Hedgerow and field boundary nesting birds*

- 7.24 The hedgerows and existing grass margins are to be retained in the design. Nesting and foraging habitat will therefore not be lost for widespread farmland birds such as song thrush, linnet and yellowhammer. Arable reversion to grassland, enhancement of existing hedgerows and the planting of deciduous woodland will increase the nesting habitat and foraging resources for such breeding birds.
- 7.25 Without appropriate protection measures during construction there is a low risk of disturbing or damaging nests and young during the construction phase. Appropriate methods can be applied as and where required to avoid such risks.
- 7.26 **Conclusion** on impact assessment for hedgerow and field boundary nesting birds: The Proposed Development increases nesting opportunities and foraging resources for this group of breeding birds and this will lead to an increase in their population on the Site. Accounting for these enhancement actions, the result is a **minor beneficial effect** at the local level.

<sup>7</sup> <https://farmwildlife.info/how-to-do-it/farmed-area/skylark-plots/>

<sup>8</sup> <https://www.gov.uk/countryside-stewardship-grants/skylark-plots-ab4>

## 8 Conclusion

- 8.1 Accounting for the designed-in avoidance, mitigation and enhancement measures and the additional mitigation measures targeted at particular protected species (including skylark nesting off-Site), all ecological impacts from the Proposed Development can be adequately avoided, mitigated or compensated for and the outcome will be an overall gain in the biodiversity value of the land over which the solar farm is constructed and operated. That overall gain in biodiversity value is a 99.18% gain in the biodiversity value of area-based habitats and a 48.08% gain in the biodiversity value of hedgerows.



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## Appendix 1: Summaries of Relevant Policy, Legislation and Other Instruments

This section briefly summarises the legislation, policy and related issues that are relevant to the main text of the report. The following text does not constitute legal or planning advice.

### National Planning Policy Framework (England)

The Government issued the National Planning Policy Framework (NPPF) in July 2021 with a specific revision relating to onshore wind farms in September 2023. Text excerpts from the NPPF are shown where they may be relevant to planning applications and biodiversity including protected sites, habitats and species.

The Government sets out the three objectives for sustainable development (economy, social and environmental) at paragraphs 8-10 to be delivered through the plan preparation and implementation level and 'are not criteria against which every decision can or should be judged' (paragraph 9). The planning system's environmental objective is 'to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity...' (paragraph 8c).

In conserving and enhancing the natural environment, the NPPF (Paragraph 174) states that 'planning policies and decisions should contribute to and enhance the natural and local environment' by:

- Protecting and enhancing...sites of biodiversity value... '(in a manner commensurate with their statutory status or identified quality in the development plan)'.
- Recognising the wider benefits from natural capital and ecosystem services including trees and woodland.
- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.
- Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.

In respect of protected sites, at paragraph 175, the NPPF requires local planning authorities to distinguish, at the plan level, '...between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value...take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.' A footnote to paragraph 175 refers to the preferred use of agricultural land of poorer quality if significant development of agricultural land is to take place.

Paragraph 179 refers to how plans should aim to protect and enhance biodiversity. Plans should: 'identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity [a footnote refers to ODPM Circular 06/2005 for further guidance in respect of statutory obligations for biodiversity in the planning system], wildlife corridors and stepping stones that connect them and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation;' and to 'promote the conservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.'

Paragraph 180 advises that, when determining planning applications, '...local planning authorities should apply the following principles:

- a. if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b. development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments) should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

- c. development resulting in the loss or deterioration of irreplaceable habitats, (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- d. 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.'

In paragraph 181, the following should be given the same protection as habitats sites<sup>9</sup>:

- i. potential Special Protection Areas and possible Special Areas of Conservation;
- ii. listed or proposed Ramsar sites; and
- iii. sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.'

In paragraph 182 the NPPF refers back to sustainable development in relation to appropriate assessment and states: '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'.

In paragraph 183, the NPPF refers to planning policies and decisions taking account of ground conditions and risks arising from land instability and contamination at sites. In relation to risks associated with land remediation account is to be taken of 'potential impacts on the natural environment' that arise from land remediation.

In paragraph 185 the NPPF states that planning policies and decisions should ensure that development is appropriate to the location and take into account likely effects (including cumulative) on the natural environment and, in doing so, they 'should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation' (paragraph 185c).

### **Government Circular ODPM 06/2005 Biodiversity and Geological Conservation (England only)**

Paragraph 98 of Government Circular 06/2005 advises that "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. Local authorities should consult Natural England before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species' protection provisions affecting the site concerned..."

Paragraph 99 of Government Circular 06/2005<sup>10</sup> advises that "it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted".

### **Standing Advice (GOV.UK - England only)**

The GOV.UK website provides information regarding protected species and sites in relation to development proposals: 'Local planning authorities should take advice from Natural England or the Environment Agency about planning applications for developments that may affect protected species.' GOV.UK advises that 'some

<sup>9</sup> Habitats sites are defined in the glossary as 'Any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 (as amended) for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites.'

<sup>10</sup> ODPM Circular 06/2005. *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich.

species have standing advice which you can use to help with planning decisions. For others you should contact Natural England or the Environment Agency for an individual response.'

The standing advice (originally from Natural England and now held and updated on GOV.UK<sup>11</sup>) provides advice to planners on deciding if there is a 'reasonable likelihood' of protected species being present. It also provides advice on survey and mitigation requirements.

When determining an application for development that is covered by standing advice, in accordance with guidance in Government Circular 06/2005, Local planning authorities are required to take the standing advice into account. In paragraph 82 of the aforementioned Circular, it is stated that: 'The standing advice will be a material consideration in the determination of the planning application in the same way as any advice received from a statutory consultee...it is up to the planning authority to decide the weight to be attached to the standing advice, in the same way as it would decide the weight to be attached to a response from a statutory consultee.'

### **Natural Environment and Rural Communities (NERC) Act 2006 – Habitats and species of principal importance (England)**

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act require 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 list has been drawn up in consultation with Natural England as required by the Act. In accordance with the Act the Secretary of State keeps this list under review and will publish a revised list if necessary, in consultation with Natural England.

The S41 list is used to guide decision-makers such as public bodies, including local authorities and utilities companies, 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, including development control and planning. This is commonly referred to as the 'Biodiversity Duty.'

Guidance for public authorities on implementing the Biodiversity Duty<sup>12</sup> has been published by Defra. One of the key messages in this document is that 'conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them.' In England the administration of the planning system and licensing schemes are highlighted as having a 'profound influence on biodiversity conservation.' Local authorities are required to take measures to "promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species. The guidance states that 'the duty aims to raise the profile and visibility of biodiversity, clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making.'

In 2007, the UK Biodiversity Action Plan (BAP) Partnership published an updated list of priority UK species and habitats covering terrestrial, freshwater and marine biodiversity to focus conservation action for rarer species and habitats in the UK. The UK Post-2010 Biodiversity Framework<sup>13</sup>, which covers the period from 2011 to 2020, now succeeds the UK BAP. The UK priority list contained 1150 species and 65 habitats requiring special protection and has been used as a reference to draw up the lists of species and habitats of principal importance in England.

In England, there are 56 habitats of principal importance and 943 species of principal importance on the S41 list. These are all the habitats and species found in England that were identified as requiring action in the UK BAP and which continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

### **European protected species (Animals)**

The Conservation of Habitats and Species Regulations 2017 (as amended) consolidates various amendments that have been made to the original (1994) Regulations which transposed the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.

<sup>11</sup> <https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals#standing-advice-for-protected-species>

<sup>12</sup> Defra, 2007. *Guidance for Public Authorities on Implementing The Biodiversity Duty*. (<http://www.defra.gov.uk/publications/files/pb12585-pa-guid-english-070516.pdf>)

<sup>13</sup> JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. *UK Post-2010 Biodiversity Framework*. July 2012. (<http://jncc.defra.gov.uk/page-6189>)

“European protected species” (EPS) of animal are those which are shown on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these pieces of legislation make it an offence to:

- a. Intentionally or deliberately capture, injure or kill any wild animal included amongst these species
- b. Possess or control any live or dead specimens or any part of, or anything derived from a these species
- c. deliberately disturb wild animals of any such species
- d. deliberately take or destroy the eggs of such an animal, or
- e. intentionally, deliberately or recklessly damage or destroy a breeding site or resting place of such an animal, or obstruct access to such a place

For the purposes of paragraph (c), disturbance of animals includes in particular any disturbance which is likely—

- a. to impair their ability—
  - i. to survive, to breed or reproduce, or to rear or nurture their young, or
  - ii. in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
- b. to affect significantly the local distribution or abundance of the species to which they belong.

Although the law provides strict protection to these species, it also allows this protection to be set aside (derogated) through the issuing of licences. The licences in England are currently determined by Natural England (NE) for development works and by Natural Resources Wales in Wales. In accordance with the requirements of the Regulations (2017, as amended), a licence can only be issued where the following requirements are satisfied:

- a. The proposal is necessary ‘to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment’
- b. ‘There is no satisfactory alternative’
- c. The proposals ‘will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

### **Definition of breeding sites and resting places**

Guidance for all European Protected Species of animal, including bats and great crested newt, regarding the definition of breeding and of breeding and resting places is provided by The European Council (EC) which has prepared specific guidance in respect of the interpretation of various Articles of the EC Habitats Directive.<sup>14</sup> Section II.3.4.b) provides definitions and examples of both breeding and resting places at paragraphs 57 and 59 respectively. This guidance states that ‘The provision in Article 12(1)(d) [of the EC Habitats Directive] should therefore be understood as aiming to safeguard the ecological functionality of breeding sites and resting places.’ Further the guidance states: ‘It thus follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are not being used, but where there is a reasonably high probability that the species concerned will return to these sites and places. If for example a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can re-use it in winter. On the other hand, if a certain cave is used only occasionally for breeding or resting purposes, it is very likely that the site does not qualify as a breeding site or resting place.’

### **Competent authorities**

Under Regulation 7 of the Conservation of Habitats and Species Regulations 2017 (as amended) a “competent authority” includes “any Minister of the Crown..., government department, statutory undertaker, public body of any description or person holding a public office.

<sup>14</sup> Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. (February 2007), EC.

In accordance with Regulation 9, “a competent authority must exercise their functions which are relevant to nature conservation, including marine conservation, so as to secure compliance with the requirements of the [Habitats and Birds] Directives. This means for instance that when considering development proposals a competent authority should consider whether EPS or European Protected Sites are to be affected by those works and, if so, must show that they have given consideration as to whether derogation requirements can be met.

## Birds

All nesting birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to disturb them whilst they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.

The Conservation of Habitats and Species Regulations 2017 (as amended) places duties on competent authorities (including Local Authorities and National Park Authorities) in relation to wild bird habitat. These provisions relate back to Articles 1, 2 and 3 of the EC Directive on the conservation of wild birds (2009/147/EC, ‘Birds Directive’<sup>15</sup>) (Regulation 10 (3)) requires that the objective is the ‘preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat, as appropriate, having regard to the requirements of Article 2 of the new Wild Birds Directive...’ Regulation 10 (7) states: ‘In considering which measures may be appropriate for the purpose of security or contributing to the objective in [Regulation 10 (3)] Paragraph 3, appropriate account must be taken of economic and recreational requirements’.

In relation to the duties placed on competent authorities under the 2017 Regulations, Regulation 10 (8) states: ‘So far as lies within their powers, a competent authority in exercising any function [including in relation to town and country planning] in or in relation to the United Kingdom must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds (except habitats beyond the outer limits of the area to which the new Wild Birds Directive applies).’

## Badger

Badger is protected under the Protection of Badgers Act 1992. It is not permitted to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so; or to intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it. A badger sett is defined in the legislation as “a structure or place, which displays signs indicating current use by a badger”.

ODPM Circular 06/2005<sup>16</sup> provides further guidance on statutory obligations towards badger within the planning system. Of particular note is paragraph 124, which states that “The likelihood of disturbing a badger sett, or adversely affecting badgers’ foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties amongst badger populations, are capable of being material considerations in planning decisions.”

Natural England provides Standing Advice<sup>17</sup>, which is capable of being a material consideration in planning decisions. Natural England recommends mitigation to avoid impacts on badger setts, which includes maintaining or creating new foraging areas and maintaining or creating access (commuting routes) between setts and foraging/watering areas.

## Hedgerows

Article 10 of the Habitats Directive<sup>18</sup> requires that ‘Member States shall endeavour...to encourage the management of features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure...or their function as stepping stones...are

<sup>15</sup> 2009/147/EC Birds Directive (30 November 2009. European Parliament and the Council of the European Union.

<sup>16</sup> ODPM Circular 06/2005. *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich.

<sup>17</sup> <http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/specieslinks.aspx>

<sup>18</sup> Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

essential for the migration, dispersal and genetic exchange of wild species'. Examples given in the Directive include traditional field boundary systems (such as hedgerows).

The aim of the Hedgerow Regulations 1997<sup>19</sup>, according to guidance produced by the Department of the Environment<sup>20</sup>, is "to protect important hedgerows in the countryside by controlling their removal through a system of notification. In summary, the guidance states that the system is concerned with the removal of hedgerows, either in whole or in part, and covers any act which results in the destruction of a hedgerow. The procedure in the Regulations is triggered only when land managers or utility operators want to remove a hedgerow. The system is in favour of protecting and retaining 'important' hedgerows.

The Hedgerow Regulations set out criteria that must be used by the local planning authority in determining which hedgerows are 'important'. The criteria relate to the value of hedgerows from an archaeological, historical, wildlife and landscape perspective.

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<sup>19</sup> Statutory Instrument 1997 No. 1160 – The Hedgerow Regulations 1997. HMSO: London

<sup>20</sup> The Hedgerow Regulations 1997: a guide to the law and good practice, HMSO: London

## **Appendix 2: Map of designated sites, protected habitats and species within 2 km of the Site**

This is a copy of the results of the data search provided by the Suffolk Biodiversity Information Service showing the location of nationally and locally designated sites, ancient woodland, protected species and veteran trees.





## Appendix 3: Figures

Figure 1: Designated nature conservation sites in relation to the Proposed Development

Figure 2: Phase 1 habitat survey results

Figure 3: Protected species scoping survey results

Figure 4: Bat transect routes and static detector locations

Figure 5: Skylark territories on the Site in 2022