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# BEANE SOLAR FARM

## Ecological Assessment Report

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# EXECUTIVE SUMMARY

RPS was commissioned by Renewable Energy Systems (RES) Group Ltd. to undertake an Ecological Assessment (EA) at Cottered Airfield, Lodge Farm, Cottered, Buntingford, SG9 9PU. This comprised a desk study, Phase 1 habitat survey, badger survey, preliminary bat roost assessment (PBRA), two seasons of breeding bird surveys, wintering bird surveys, great crested newt (GCN) Habitat Suitability Index (HSI) assessment and GCN environmental DNA (eDNA) surveys.

The Site is located approximately 6 km to the northeast of Stevenage and 5 km to the west of Buntingford. The Site is approximately 80 ha in size and comprises predominantly arable fields with poor semi-improved grassland margins.

The proposals involve the development of a 49.9 MW ground-mounted solar park. The works will comprise the installation of PV panels, which will be supported atop steel or aluminium frame tables which are driven or pushed into the ground, associated energy storage facility, access tracks, electrical infrastructure, and associated landscaping.

Three statutory designated sites were located within 5 km of the Site, the closest being Moor Hall Meadows Site of Special Scientific Interest (SSSI) 3.04 km from the Site boundary, which is designated for its species-rich grassland. A total of 29 non-statutory sites were located within a 2 km search radius of the Site, the closest being Cottered Road Verge which is adjacent to the Site boundary.

The Phase 1 habitat survey identified the Site to comprise mostly arable fields with poor semi-improved grassland margins and species-rich hedgerows boundaries. Small areas of scrub, tall ruderal vegetation, broadleaved woodland, a pond, a wet ditch, and the dry River Beane were also present.

The majority of the hedgerows, woodland edge, ditches, and trees would all be retained as part of the proposals. These were assessed as being the habitats of greatest value to protected and notable species. However, 13 m of hedgerow will be lost to facilitate access, this will be replaced with new hedgerow planting and landscaping. Some areas of scrub and grassland may be removed to facilitate the proposed development.

The grassland, scrub, woodland edges, and ditch were considered suitable terrestrial habitats for GCN with good connectivity to off-site terrestrial and aquatic habitats. A pond and wet ditch were present across the Site; these were considered to provide suitable aquatic habitat for GCN. An eDNA survey provided negative results.

The Ground Level Tree Assessment (GLTA) identified five trees with Potential Roost Feature – Multiple (PRF–M) and 49 trees with Potential Roost Feature – Individual (PRF–I), all other trees were considered to have negligible potential to support roosting bats.

The breeding bird surveys undertaken in 2023 showed that the Site is used by widespread and common bird species, with higher levels of activity recorded along hedgerows, scattered trees, and woodland edges. High numbers of skylark *Alauda arvensis* territories were recorded, and a second season of breeding bird surveys was carried out. The 2024 surveys showed reduced numbers of skylark and similar results for all other species.

The arable fields were used by skylark and other farmland birds such as corn bunting *Emberiza calandra* and yellowhammer *Emberiza citronella*. Further mitigation measures would be required to ensure that any adverse effects on the species present and using the Site would be compensated for. A mitigation strategy for farmland birds is provided in Appendix H.

Wintering bird surveys undertaken in 2023 and 2024 showed that the Site is used by widespread and common bird species, with higher levels of activity recorded along hedgerows and woodland edge. Further mitigation measures would be required to ensure that there would be no adverse effects on the species present and using the Site.

A badger survey was undertaken of the Site, the results for which are held in a confidential appendix (Appendix F).

Measures to protect the designated sites, including Cottered Road Verge Local Wildlife Site (LWS), and habitats on Site as well as enhancement measures for the Site are provided in this report, including using appropriate management to enhance the value of retained boundaries and undertaking tree and hedgerow planting.

A full Construction Ecological Management Plan (CEMP) and a Landscape and Ecological Management Plan (LEMP) should be provided prior to works commencing. Environmental best practice would be included within these plans which should be put in place and followed to ensure that the adjacent designated sites are not adversely affected by the development. It is suggested that any emerging planning consent for the proposals would include a condition requiring the submission of CEMP and LEMP documents for Council review prior to commencement of development.

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# 1 INTRODUCTION

## 1.1 Purpose and Scope of this Report

1.1.1 RPS was commissioned by Renewable Energy Systems (RES) Group Ltd. to undertake an Ecological Assessment (EA) of a site at Cottered Airfield, Lodge Farm, Cottered, Buntingford, SG9 9PU.

1.1.2 This comprised a desk study, Phase 1 habitat survey, badger survey, ground level tree assessment (GLTA), breeding bird surveys, wintering bird surveys, great crested newt (GCN) Habitat Suitability Index (HSI) assessment and great crested newt (GCN) environmental DNA (eDNA) surveys.

1.1.3 The objectives of the EA were to:

- Undertake a desk-based review of designated sites and records of protected species and other species that would need to be considered as part of the development proposals;
- Identify, map, and assess the habitats present on Site;
- Determine the potential value of waterbodies for GCN within 500 metres (m) of the Site;
- Assess the potential for any trees/structures to support a bat roost;
- Identify the numbers and distribution of protected and notable breeding and wintering birds on the Site;
- Identify any badger setts or signs of badger activity within the Site boundary or up to 30 m from it;
- Assess any potential affects the proposed solar farm may have on any designated sites, protected or notable habitats or species; and
- Make recommendations for avoidance, mitigation and compensation measures that should be addressed in the scheme design and provide appropriate biodiversity enhancements in line with national and local planning policy.

1.1.4 This report pertains to these results only; recommendations included within this report are the professional opinion of an experienced ecologist and therefore the view of RPS.

1.1.5 The surveys and desk-based assessments undertaken as part of this review and subsequent report including the ecological appraisal notes are prepared in accordance with the British Standard for Biodiversity Code of Practice for Planning and Development (BS42020:2013).

## 1.2 Study Area

1.2.1 The Site is located adjacent to the A507 at Cottered, a village approximately 6 kilometres (km) to the northeast of Stevenage and 5 km to the west of Buntingford. The National Grid coordinates for the centre of the Site are TL307292.

1.2.2 The Site is approximately 80 hectares (ha) - as delineated by the red line on Figure 3.1 in size and comprised predominantly arable fields with areas of grassland, and a wet ditch. An area of broadleaved woodland, a waterbody, and an area of semi-improved grassland were directly adjacent to the south-eastern boundaries of the Site. The River Beane runs through the centre of the Site but was dry at the time of the Phase 1 survey.

1.2.3 Aerial imagery available via Google Earth Pro was also reviewed to assess the Site in relation to its context in the wider landscape.

1.2.4 The surrounding landscape is predominantly agricultural with some scattered farm holdings and agricultural buildings.

## 1.3 Development Proposals

1.3.1 The proposals involve the development of a 49.9 MW ground-mounted solar farm. The works will comprise the installation of approximately 80 ha of Photovoltaic (PV) panels, which will be supported atop steel or aluminium frame tables which are driven or pushed into the ground, inverter and energy storage compound) enclosures, access tracks, electrical infrastructure, and associated landscaping.

## 1.4 Legislation and Policy

1.4.1 Relevant legislation, policy guidance and both local and national Biodiversity Action Plans (BAPs) are referred to throughout this report where appropriate. Their context and application are explained in the relevant sections of this report.

1.4.2 The relevant articles of legislation are:

- The National Planning Policy Framework (NPPF, 2023);
- The Environment Act 2021;
- The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019;
- The Wildlife and Countryside Act 1981 (as amended);
- The Protection of Badgers Act 1992;
- The Hedgerow Regulations 1997;
- The UK Biodiversity Framework 2024;
- The Natural Environment and Rural Communities (NERC) Act 2006; and
- Hertfordshire BAP 2021 – 2026.

1.4.3 A summary of legislation relevant to protected or other species identified as potential constraints in this report is provided in Appendix A.

# 2 METHODS

## 2.1 Desk Study

2.1.1 Ecological records within a 2 km radius of the Site were requested from Hertfordshire Environmental Records Centre (HERC), with an extended 5 km radius search area requested for bats and otters. Data requests were limited to records for protected and notable species recorded within the last ten years. Radii of 2km and 5km were deemed appropriately robust as per CIEEM guidelines (CIEEM 2017). This included a review of existing statutory sites of nature conservation interest, such as Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Area of Conservation (SACs) and National Nature Reserves (NNRs), and non-statutory sites, such as Sites of Importance for Nature Conservation (SINCs) and Local Wildlife Sites (LWSs).

2.1.2 Locations of statutory designated sites were accessed via the government 'MAGIC' website (MagicMap, 2024).

2.1.3 A 1:25,000 OS map was used to identify nearby features such as ponds or green corridors that could provide habitat or connectivity to other areas.

## 2.2 Ecological Appraisal

2.2.1 The Ecological Appraisal consisted of two components: a Phase 1 habitat survey and a scoping survey for protected species and other species of conservation concern which could present a constraint to development.

2.2.2 The Phase 1 habitat survey was undertaken on 30th May 2023 by an RPS Ecologist, experienced in undertaking such surveys.

2.2.3 The Phase 1 habitat survey followed the standard methodology (JNCC, 2016) and as described in the Guidelines for Preliminary Ecological Assessment (CIEEM, 2017). In summary, this comprised walking over the Site and recording the habitat types and boundary features present.

2.2.4 Habitats were mapped onto the Ordinance Survey base maps using the JNCC Phase 1 habitat survey categories. Typical botanical species were recorded for each category of habitat and species names followed the nomenclature used in the Botanical Society of Britain and Ireland (BSBI)'s Plant Atlas 2020 (BSBI, 2020). Mapping outputs of the Phase 1 survey are provided in Figure 3.2.

2.2.5 A protected species scoping survey was conducted in conjunction with the Phase 1 habitat survey. The Site was assessed for its suitability to support protected species, in particular GCN, reptiles, birds, badgers, bats and other species of conservation importance that would require due consideration as part of the proposed development.

2.2.6 The surveyors looked for evidence of signs such as burrows, droppings, footprints, paths, hairs, refugia and particular habitat types known to be used by certain groups such as ponds. Any mammal paths were also noted down and where possible followed. Fence boundaries were walked to establish any entry points or animal signs such as latrines. Areas of bare earth were inspected for mammal prints. Areas of habitat considered suitable for protected species or those of conservation interest were recorded.

## 2.3 Great Crested Newt Survey

### Habitat Suitability Index (HSI) Assessment

2.3.1 A HSI assessment is a numerical index, between 0 and 1 where 0 indicates unsuitable habitat and 1 represents optimal habitat. The HSI methodology for GCN was developed to assess the suitability of waterbodies for use as breeding sites. The HSI assessments were undertaken in accordance with the methodology set out in Advice Note 5 published by the Amphibian and Reptile Group UK (ARGUK, 2010).

2.3.2 The HSI incorporates ten suitability indices, all of which are factors thought to affect the likelihood of GCN presence. The ten indices are location, waterbody area, drying, water quality, shade, waterfowl, fish, other ponds within 1 km, terrestrial habitat quality and macrophyte cover.

2.3.3 All waterbodies within and immediately adjacent to the Site were visited and assessed, this included two water bodies were identified adjacent to the site and within 500m, and one waterbody within the Site boundary which were visited.

2.3.4 Table 2.1 below provides the HSI scores created on a categorical scale defining pond suitability for GCN and their locations are shown in Figure 3.3.

**Table 2.1: Categorical scale showing waterbody HSI and the suitability for GCN (ARGUK, 2010)**

| HSI Score | Waterbody Suitability |
|---|---|
| <0.5 | Poor |
| 0.5-0.59 | Below average |
| 0.6-0.69 | Average |
| 0.7-0.79 | Good |
| >0.8 | Excellent |

### Great Crested Newt eDNA Survey

2.3.5 A GCN eDNA survey was undertaken on one waterbody adjacent to the Site boundary on 20th May 2023. The survey was undertaken within the optimum period for this type of survey (Biggs *et al.,* 2014).

2.3.6 The eDNA survey was undertaken on one waterbody (P1) in May 2023. P2 was scoped out due to the fast flow of the water; D1 was scoped out due to steep-sided, heavily vegetated banks, and water flow, the steep sided banks also meant it was not accessible; and D2 was dry at the time of the survey.

2.3.7 The survey was undertaken by a suitably competent Natural England GCN licensed ecologist. The surveys followed the eDNA surveying and laboratory analysis described by Biggs *et al.* (2014).

2.3.8 Water samples were collected using sampling kits supplied by SureScreen Scientifics Ltd.

2.3.9 Surveyors collected 30 (millilitres) ml water samples from 20 locations along the margins of each waterbody surveyed, using a sterile ladle. Surveyors collected the sample from points evenly spaced along each waterbody, to ensure a representative sample was collected and to ensure the effectiveness of the survey was not compromised.

2.3.10 The surveyors used the ladle to gently agitate the water to mix the water column, whilst taking care not to disturb and collect any sediment. The twenty samples collected from each waterbody were emptied into a sterile plastic bag and homogenised by gently shaking the bag to ensure eDNA was evenly mixed through the sample.

2.3.11 A pipette was used to collect six 15 ml subsamples of the waterbody from the bag into sterile tubes that already contained 35 ml of ethanol, used to preserve the eDNA sample.

2.3.12 The samples were then removed from the Site and sent off to SureScreen Scientifics for analysis. The water samples were analysed using a quantitative Polymerase Chain Reaction (qPCR) eDNA test.

2.3.13 SureScreen Scientifics Ltd. participate in Natural England's proficiency testing scheme and carry out inter-laboratory checks on accuracy of results as part of quality procedures.

2.3.14 Defra project WC1067 demonstrated the effectiveness of eDNA in the detection of GCN. In detailed field studies, eDNA detected GCN in 99.3% of the time in ponds where they were known to occur. When used by volunteer surveyors, eDNA detected GCN at 91% of ponds where they were known to be present.

## 2.4 Ground Level Tree Assessment

2.4.1 A ground level tree assessment (GLTA) of trees was undertaken at the Site and area of broad-leafed woodland adjacent to the south-eastern Site boundary, on 7th November 2023. The GLTA was

undertaken to ascertain the presence or absence of potential roost features (PRF) on each tree, to ascertain the tree's suitability for roosting bats. The GLTA was undertaken by a suitably competent Natural England bat licensed ecologist.

2.4.2 A search for PRFs such as holes, cavities, split/broken limbs, trunk hollows, knot holes, flaking bark and woodpecker holes was undertaken. The features were then assessed for their suitability to support roosting bats based on suitability categories defined in The Bat Conservation Trust's Good Practice Guidelines 4th Edition (Collins, 2023). These categories are set out in Table 2.2 below.

2.4.3 The suitability of the trees for roosting bats was also assessed by examining the surrounding habitat. Important habitat features surrounding the structure which may influence bat roost potential include whether the structure is in a semi-rural or parkland location and its proximity to significant linear habitat features such as a watercourse, mature hedgerow, wooded lane, or an area of woodland.

2.4.4 When PRFs were identified, they were inspected for signs indicating use or possible use by bats including tiny scratches, staining and flies around the entry points, bat droppings and feeding remains in, around and below entrances, distinctive smell of bats and the smoothing of surfaces around cavities.

**Table 2.2: Suitability Categories as per the Good Practice Guidelines 4th Edition (2023).**

| Suitability (Collins, 2023) | Description (Collins, 2023) |
|---|---|
| PRF – I | PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats. |
| PRF – M | PRF is suitable for multiple bats and may, therefore, be used as a maternity colony. |

2.4.5 GLTAs of trees can be conducted at any time of year; however, summer surveys are more likely to reveal signs of bat activity.

2.4.6 The locations of the trees assessed for their suitability to support roosting bats are shown in Figure 3.4.

## 2.5 Breeding Bird Surveys

2.5.1 The breeding bird survey was based on a standard territory mapping methodology as outlined in Gilbert *et al.* (1998), Bibby *et al.* (2000) and the Bird Survey Guidelines (2023).

2.5.2 This method is based on the observation that many species during the breeding season are territorial. This is found particularly amongst passerines, where territories are often marked by conspicuous song, display and periodic disputes with neighbouring individuals, allowing their location and abundance to be estimated.

2.5.3 The Site boundary was walked at a slow pace in appropriately fine weather in order to locate and identify all individual birds. All field boundaries and suitable breeding habitats were walked. Visits were undertaken early in the morning, finishing before midday.

2.5.4 Suitable optical equipment was used to observe bird behaviour. Survey routes were mapped, and routes were alternated on each visit to ensure that all areas were covered at various times of day across the duration of the survey.

2.5.5 Surveys were undertaken between May and July 2023 and April and July 2024 with a total of eleven survey visits completed – five in 2023 and six in 2024. The survey visits were undertaken over the following dates:

**2023**

- Visit 1: 31st May: Cool, drizzle, gentle breeze;
- Visit 2: 9th June: Clear, mild, moderate north-easterly breeze;
- Visit 3: 21st June: Warm, clear, gentle breeze;
- Visit 4: 26th June; Dry, clear, moderate south-westerly breeze; and

- Visit 5: 5th July: Warm, clear, light south-westerly breeze.

2.5.6 Six surveys, including one dusk survey, were undertaken between April and July 2024 to follow the updated survey guidelines and to better capture the nesting behaviours of farmland birds, on the following dates:

**2024**

- Visit 1: 15th April: Cool, showers, moderate south-westerly breeze;
- Visit 2: 28th May: Clear, dry, moderate north-westerly breeze;
- Visit 3: 19th June: Cool, drizzle, gentle breeze;
- Visit 4: 25th June: Calm, mild, clear;
- Visit 5: 8th July: Calm, mild, clear; and
- Visit 6: 15th July: Mild, showers, easterly breeze.

2.5.7 On each visit, registrations were recorded directly into ESRI ArcPad GIS software loaded onto handheld tablets, with a 1:10,000 scale Ordnance Survey base map of the Site boundary (and adjacent land). A fresh map was used for each survey. Registrations of birds were recorded using standard British Trust for Ornithology (BTO) one- and two-letter species codes. Standard behaviour codes were also used for singing, calling, movements between areas, flying, carrying food, nest building, aggressive encounters, and other behaviours.

2.5.8 The expected outcome of a territory mapping survey is that mapped registrations fall into clusters approximately coinciding with territories. A cluster is generally a spatially distinct group of registrations that represent the activity of not more than one territorial male or pair. Ideally, clusters include registrations of territorial behaviour across all visits and are clearly demarcated from adjacent clusters by simultaneous recording of neighbouring birds. Where a species exhibits high territory density, the mapping of simultaneously singing birds becomes essential. Territory boundaries are assumed to be between such birds.

2.5.9 Territory mapping methods produce analysis maps of records thought to relate to separate territorial males or breeding pairs. The points mapped do not show the entire extent of a pair's actual breeding territory, which will be significantly larger, however, they are likely to show those areas in which the pair is most active.

2.5.10 On completion of the surveys, analysis maps were produced for each species, consisting of all registrations recorded during the survey. From these species' maps, the number of territories was calculated by identifying the number of territories or clusters present.

2.5.11 Standard registration mapping techniques were also used to record non-breeding species.

2.5.12 The following definitions have been used to identify the breeding status of the species recorded:

2.5.13 Confirmed Breeding: includes species for which territories were positively identified as a result of the number of registrations, the location of an active nest, and the presence of recently fledged young or downy young;

2.5.14 Probable Breeding: includes a pair observed in suitable nesting habitat in the breeding season, or agitated behaviour/anxiety calls from adults. Behaviour was observed on insufficient occasions to confirm the presence of a territory;

2.5.15 Possible Breeding: includes species observed in the breeding season in suitable nesting habitats or singing males present (or breeding calls heard) in the breeding season in suitable breeding habitat however records to determine a confirmed breeding either limited or sporadic; and

2.5.16 Non-breeding: fly-over species observed but suspected to be on migration, or species observed but suspected to be summering non-breeder.

2.5.17 The results are shown in Section 3.6, Figures 3.5-3.8.

### Assessment Criteria

2.5.18 The assessment of the breeding bird community at the Site includes a focus on species that are afforded special statutory protection or those included on one, or more, of the lists of species of conservation interest. These include:

- Species listed on Annex 1 of the EC Birds Directive (Directive 2009/147/EC), or species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
- Species included in the Birds of Conservation Concern (BoCC) Red and Amber Lists (Stanbury *et al.,* 2021), and priority species within the NERC S41 and Hertfordshire BAP species; and
- Those occurring in nationally, regionally, or locally important numbers.

2.5.19 Annex 1 species are those for which the UK Government are required to take special measures, including the designation of SPAs, to ensure the survival and reproduction of these species throughout their area of distribution.

2.5.20 The NERC Act 2006 lists Priority Species and is used as a guide to decision-makers, including local and regional authorities, in implementing their duty under section 40 of the Act. Under section 40 every public authority (e.g., a local authority or local planning authority) must, in exercising its functions, have regard, as far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. In addition, with regard to the Priority Species, the Secretary of State must:

a. Take such steps as appear to the Secretary of State to be reasonably practicable to further the conservation of the living organisms and types of habitats included in any list published under this section; or

b. Promote the taking by others of such steps.

2.5.21 Species listed on the BoCC Red List are those that have declined in numbers by 50% over the last 25 years, those that have shown a historical population and species that are of global conservation concern. The 70 species on the Red List are of the most urgent conservation concern.

2.5.22 Species listed on the BoCC Amber List, of which there are currently 103, include those that have shown a moderate decline in numbers (25%-49%) over the last 25 years and those with total populations of less than 300 breeding pairs. Also included are those species which represent a significant proportion (greater than 20%) of the European breeding or wintering population, those for which at least 50% of the British population is limited to 10 sites or less and those of unfavourable conservation status in Europe.

2.5.23 The remaining species are placed on the Green List, indicating that they are of low conservation priority. These species still receive full protection through the provisions of the Wildlife and Countryside Act 1981 (as amended).

2.5.24 Thresholds for national significance in terms of population size for individual species are based on the criteria for SSSI designation, whereby a site is considered eligible for designation at SSSI level if it regularly supports >1% of the national breeding population of a species. A population of a species can be considered to be of County importance if it exceeds 1% of the county population, where estimates for this are available (e.g., from local bird group reports).

2.5.25 When assessing the significance of the overall breeding bird assemblage, the number of species recorded in an area is a simple measure of diversity. Fuller (1980) gives the following breeding bird assemblage diversity criteria which are presented in Table 2.3 below.

**Table 2.3: Breeding bird diversity criteria**

| | National importance | Regional importance | County importance | Local importance |
|---|---|---|---|---|
| Number of species | 85+ | 70-84 | 50-69 | 25-49 |

## 2.6 Wintering Bird Survey

2.6.1 The wintering bird surveys were based on a transect survey methodology as detailed in Bibby *et al.* (2000) and Gilbert *et al.* (1998).

2.6.2 The transect route was selected to include all the Site boundaries, all field margins and visit all areas of the Site within 100 m, where possible. All bird species were recorded and mapped across the survey areas, where accessible.

2.6.3 Surveys for wintering birds were undertaken between October 2023 and March 2024 over the following dates:

- Visit 1: 27th October 2023: Mild, light showers, light south-easterly wind;
- Visit 2: 8th November 2023: Mild, heavy showers, moderate westerly breeze;
- Visit 3: 7th December 2023. Mild, light showers, light south-westerly wind;
- Visit 4: 31st January 2024. Mild, clear, gentle breeze;
- Visit 5: 12th February 2024. Cold, clear, light westerly breeze; and
- Visit 6: 18th March 2024. Mild, clear, gentle breeze.

2.6.4 Reference is not made to species afforded special protection under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) as the protection measures only apply to these species within the breeding season.

2.6.5 Results are shown in Appendix H.

## 2.7 Badger Survey

2.7.1 The badger survey was undertaken at the same time as the GLTA in November 2023 in accordance with best practice guidelines (Harris et al., 1989), and included all areas within the Site boundary, specifically focussing on the field boundaries and hedgerows.

2.7.2 Badger surveys can be conducted at any time of year, as badgers do not hibernate. Winter surveys are often preferred as the vegetation levels are likely to be reduced, facilitating the visibility of setts. However, levels of badger activity using other signs such as runs, and foraging may be more easily understood when vegetation growth is present, and this also tends to make it easier to understand how recent and how frequent such activity might be.

2.7.3 The survey sought to identify and record all signs of badger activity based primarily on field signs. Evidence of badger activity can be identified in the following ways.

### Setts

2.7.4 A sett is defined as “any structure or place, which displays signs indicating current use by a badger.” Natural England guidance (Natural England, 2009) regarding “current use” considers the fact that badgers may use setts on an occasional basis and therefore, suggests that signs of activity recorded within weeks of proposed works schedules, rather than months or days, should be taken as an indication of current use. Signs that could indicate the absence of badgers should also be surveyed for, such as the absence of signs of activity or debris in sett entrance ways.

2.7.5 Setts are identified on the basis of their size, location, and form. To establish relatively recent badger activity, and to confirm that the structure really is a sett, spoil heaps are inspected for badger hair or footprints. Activity is gauged by general demeanour, with fresh spoil and unobstructed holes. They are categorised as:

- Well used: being clear of debris or vegetation or obviously in regular use and may or may not have been excavated recently;
- Partially/occasionally used: not in regular use, with debris such as leaves and twigs in the entrance, or moss and/or other plants growing in or around the entrance. Partially used holes could be in regular use after a minimal amount of clearance; or
- Disused: not been in use for some time, with partially or completely blocked entrances which could not be re-used without a considerable amount of clearance effort. If the hole had been disused for some time, all that may be visible is a depression in the ground where the hole used to be and the remains of a spoil heap, which may be covered in moss or plants.

2.7.6 Setts are generally classified as one of four types:

- Main – Normally the focal point sett of a group of badgers. Generally, always occupied, main setts usually have several active holes with radiating tracks, latrines, and other signs of activity. The actual number of holes can vary greatly, depending on social group size and soil conditions;
- Annexe – A secondary sett, close to the main sett. Will normally be connected to the sett with very obvious tracks. Annexes may not be occupied constantly, even when the main sett is very active;
- Subsidiary – Occurring at a greater distance from the main sett and not as clearly linked to it as an annexe. These setts will fall clearly within the territory of a social group and may be seasonally used by badgers; or
- Outlier – less frequently used, these setts may be colonised by other species when not in use by badgers. Outliers may represent a temporary sett, or a habitation for migrating individuals, or those excluded from a social group.

### Exploratory Holes

2.7.7 A single entrance way excavation created by a badger, which was abandoned as it was for some reason considered unsuitable for occupation. The excavation is visibly short, and the end of the excavation is visible.

### Dung Pits

2.7.8 The normal method of excretion for badgers is to defecate into a small scrape or pit, which is left uncovered.

### Latrines

2.7.9 Collective names for a series of dung pits within an area. These are used by badger social groups to demarcate their territory and may be used for other behavioural purposes. Latrines are therefore an important part of badger social life.

### Track

2.7.10 A main arterial route frequently used by badgers, which may be clearly visible over a considerable distance.

### Run

2.7.11 A less frequently used route, which may only be visible where it crosses some obstacle, such as a bank, a hedge, or a fence. Badger hair can sometimes be collected along tracks where they have pushed under barbed wire fences.

### Foraging Area

2.7.12 An area which shows signs of foraging activity. Most often occurs as some form of “snuffle holes” and rooting up of turf or ground cover, overturning of dried cow manure, when in search of earthworms. Other foraging evidence may appear as holes left from digging out wasp or bees’ nests, or in arable areas, “rolling” of cereal crops.

### Prints

2.7.13 Can be detected where badgers have crossed areas of bare ground and are easily distinguishable from other mammal prints.

## 2.8 Limitations

### Desk Based Assessment

2.8.1 The desk study data is third party controlled data, purchased for the purposes of this report only. RPS cannot vouch for its accuracy and cannot be held liable for any error(s) in these data.

### Survey

2.8.2 It should be noted that whilst every effort has been made to provide a comprehensive description of the Site, no investigation can ensure the complete characterisation and prediction of the natural environment.

2.8.3 The protected and notable species assessment provides a preliminary view of the likelihood of these species occurring on the Site, based on the suitability of the habitat, known distribution of the species in the local area provided in response to our enquiries and any direct evidence on the Site. It should not be taken as providing a full and definitive survey of any protected/notable species group.

2.8.4 Due to timing constraints and project commission, the breeding bird surveys did not commence until May 2023. Although the data is not representative of an entire breeding season, sufficient numbers of territories and species accounts including sufficient information on relative abundance and distribution were recorded to inform the assessment relevant to the proposed development. The 2024 surveys covered the complete survey period from April to July.

### Accurate Lifespan of Ecological Data

2.8.5 The majority of ecological data remain valid for only short periods due to the inherently transient nature of the subject. The survey results contained in this report are considered accurate for 18 months to two years, assuming no significant considerable changes to the Site conditions. A Site verification walkover could be required following this time period to determine whether the Site has changed.

# 3 RESULTS

## 3.1 Desk Study

### Designated Sites

3.1.1 There were three statutory designated sites designated for their nature conservation value located within 5 km of the Site; the closest being Moor Hall Meadows SSSI, which was located 3.04 km to the southeast of the Site boundary. Moor Hall Meadows SSSI is designated for its species-rich grassland.

3.1.2 A total of 29 non-statutory sites were located within the 2 km search radius of the Site; the closest of these was Cottered Road Verge LWS, an area of species-rich grassland that lay adjacent to the eastern boundary of the Site.

3.1.3 A summary of these sites is provided in Table 3.1 below and their locations are shown in Figure 3.1.

**Table 3.1: Statutory designated sites within 5 km and non-statutory designated sites within 2 km of the Site boundary**

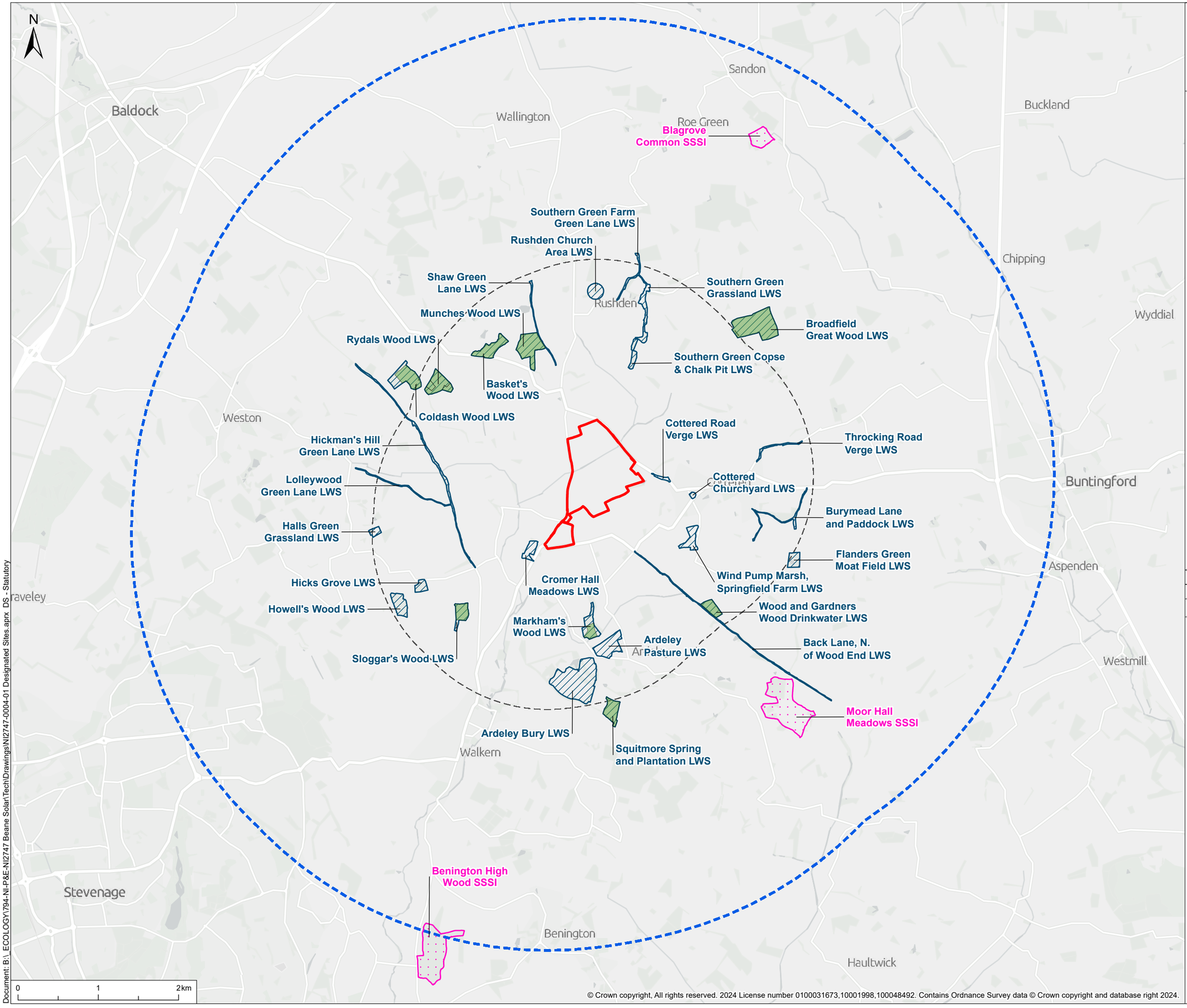
| Site name | Type | Approx. area (ha) | Interest Features | Distance from Site (km) |
|---|---|---|---|---|
| | | | **Statutory Sites** | |
| Moor Hall Meadows | SSSI | 1.99 | This spring-fed meadow is notified for its mixture of species-rich neutral/calcareous grassland, wet grassland, and fen-meadow plant communities. | 3.04 |
| Blagrove Common | SSSI | 3.97 | Blagrove Common is one of the few remaining areas of unimproved marshy grassland in Hertfordshire, earning it Site of Special Scientific Interest designation. It is bisected by a stream and varies from marshy to dry neutral grassland. The marshy areas are dominated by rushes and tufted hair grass. Among these, large numbers of early marsh, southern marsh and common spotted orchids and a variety of their hybrids can be found. | 4.48 |
| Benington High Wood | SSSI | 20.66 | A significant Oak-Hornbeam woodland of ash-maple variant, restricted to southeast England. Last assessed in 2014. Favourable condition targets are being progressed, and many met, under Countryside Stewardship woodland management funding. | 4.98 |
| | | | **Non-statutory Sites** | |
| Cottered Road Verge | LWS | 0.39 | Grassland along the verges has Red Fescue, False Oat-grass and Cocks-foot, a large variety of herbs include Black Medick, Tall Melilot, Chalk Knapweed, Greater Knapweed, Field Scabious, and Ox-eye Daisy. | 0.01 |
| Cottered Churchyard | LWS | 0.37 | Churchyard supporting species-rich neutral grassland, with numerous grassland indicators recorded. | 0.50 |
| Back Lane, North of Wood End | LWS | 4.29 | Ancient green lane, which to the north-west is quite open with a hard track and verges of rough neutral grassland bordered by low cut hedges, and to the southeast becomes wooded and supports a range of woody species. | 0.61 |
| Cromer Hall Meadows | LWS | 2.54 | Two fields supporting old neutral/calcareous grassland with no signs of improvement evident. There is a good mix of grasses and herbs including indicators of unimproved grassland. Wildlife Site criteria: Grassland indicators. | 0.70 |
| Wind Pump Marsh, Springfield Farm | LWS | 3.49 | The site comprises three fields surrounded by old hedgerows, with unimproved neutral grassland in the south, semi-improved neutral grassland in the north, and a small central area supporting rush and Common Sedge marsh. | 0.75 |

| Site name | Type | Approx. area (ha) | Interest Features | Distance from Site (km) |
|---|---|---|---|---|
| Markham's Wood | LWS | 4.54 | Part ancient semi-natural broadleaved woodland with areas of broadleaved plantation. The ground flora includes abundant Bluebell. | 0.76 |
| Southern Green Copse & Chalk Pit | LWS | 1.89 | Semi-natural ancient coppice woodland with an old chalk pit at the southern end, including Pedunculate Oak, Hornbeam, Ash, Hazel, and Field Maple. | 0.76 |
| Hickman's Hill Green Lane | LWS | 6.15 | A long green lane with ancient hedges on either side with trees, including some planted Small-leaved Lime. A thin strip of broadleaf woodland occurs in the middle section of the lane. | 0.82 |
| Shaw Green Lane | LWS | 1.10 | Ancient trackway with old hedgerows of at least medieval date with some old pollards and coppiced trees. | 0.82 |
| Munches Wood | LWS | 8.42 | Ancient semi-natural woodland mainly of Hornbeam coppice with some Pedunculate Oak and Ash standards. There are also areas of Field Maple, Ash and Hazel coppice, mature hedgerows, a ditch along the north-west edge and patches of dense shrub undergrowth. | 0.89 |
| Lolleywood Green Lane | LWS | 1.54 | Green lane with a gappy ancient hedge supporting a moderate diversity of woody species including some old Pedunculate Oak, Field Maple, Hornbeam, Dogwood and Small-leaved Elm. There are some woodland indicator species recorded in the ground layer. | 1.05 |
| Southern Green Grassland | LWS | 3.16 | A linear village green, partly dissected by a road and track, which supporting mainly semi natural acid/neutral clay grassland with scrub and old secondary woodland to the southern end. The grassland supports indicators such as Common Knapweed, Oxeye Daisy, Common Sorrel, and Meadow Vetchling. Ponds are present with several aquatic species of interest recorded. | 1.12 |
| Sloggar's Wood | LWS | 3.51 | Ancient semi-natural Pedunculate Oak/Hornbeam woodland with coppiced Hornbeam and Ash. Hazel is present in the south plus old, coppiced Wych Elm. | 1.18 |
| Ardeley Pasture | LWS | 6.42 | Old, semi-improved neutral grassland with species such as Bird's-foot-trefoil, Common Sorrel, Cowslip, Common Knapweed, Meadow Vetchling and Pepper Saxifrage. | 1.21 |
| Burymead Lane and Paddock | LWS | 1.70 | Ancient green lane and a small field. The lane supports a moderate diversity of woody species and several woodland indicators. The small field, probably formerly a part of the lane, supports unimproved damp neutral grassland surrounded by scrubby hedges. | 1.29 |
| Throcking Road Verge | LWS | 0.48 | Road verge with species-rich neutral to calcareous grass banks on the north side of the road. Old hedges are also present. | 1.29 |
| Basket's Wood | LWS | 5.01 | Ancient semi-natural Ash/Field Maple woodland with Pedunculate Oak. There is some ancient Ash coppice and more recent Hazel coppice plus planted Beech and Spruce in the north-east corner. | 1.37 |
| Ardeley Bury | LWS | 20.77 | Parkland with broadleaved woodland, an ancient, moated site, and a small lake. The wood is a mix of large old Pedunculate Oak with coppiced Hazel and regenerating Ash and Sycamore. Formal avenues of Yew and Lime are important historic features of the park. | 1.42 |
| Hicks Grove | LWS | 1.84 | Ancient semi-natural coppiced woodland with a few standards. Mainly coppices of Hornbeam and Ash, some very old, with occasional Wild Cherry which in one area forms the dominant canopy species. | 1.46 |
| Rushden Church Area | LWS | Not available | Building and environs important for protected species. | 1.50 |

| Site name | Type | Approx. area (ha) | Interest Features | Distance from Site (km) |
|---|---|---|---|---|
| Southern Green Farm Green Lane | LWS | 1.49 | Wooded overgrown green lane with a small, overgrown pond in the north. Woody species recorded include Pedunculate Oak, Ash, and Field Maple. | 1.51 |
| Rydals Wood | LWS | 5.94 | Ancient semi-natural woodland of Ash/Field Maple woodland with Pedunculate Oak standards and Hazel coppice. There is also some Larch and Beech plantation. A ditch is present along the woodland margin and there are two ponds in the south. | 1.56 |
| Drinkwater Wood and Gardner's Wood | LWS | 2.86 | Ancient semi-natural woodland of Pedunculate Oak/Hornbeam stand type. The canopy is mainly Field Maple, Hornbeam, Ash, and Pedunculate Oak with Hazel coppice plus some Hawthorn below. | 1.64 |
| Howell's Wood | LWS | 4.15 | Ancient, coppiced Hornbeam woodland with coppice and standards of Ash plus occasional Wild Cherry and some coppiced Elm in the north-west corner. The ground flora is typically Bramble, woodland grasses, Bluebell and Dog's Mercury. | 1.78 |
| Halls Green Grassland | LWS | 1.18 | Small area of predominantly old, neutral pasture with a variety of habitats and a good diversity of flora for its size. In the central area there is some wet acid grassland flora and two ponds. Small hollows and mounds add to the habitat diversity, and mark the site of a former settlement | 1.89 |
| Coldash Wood | LWS | 7.56 | Ancient broadleaved woodland of Ash/Field Maple, Pedunculate Oak standards and Hazel coppice. A moderately species-rich ground flora, including woodland indicators such as Bluebell and Dog's Mercury, along with several orchids. | 1.94 |
| Squitmore Spring and Plantation | LWS | 4.01 | Ancient semi-natural Pedunculate Oak/Hornbeam woodland with Hazel coppice plus some old secondary plantation of Ash and Sycamore. A green lane cuts through the southern section of the wood. | 1.94 |
| Flanders Green Moat Field | LWS | 2.51 | Old grassland enclosed by substantial hedgerows. The field supports diverse habitats including unimproved, generally rank, neutral grassland with some damper rushy areas plus scattered to dense scrub, particularly to the western half of the site. | 1.94 |
| Broadfield Great Wood | LWS | 14.75 | The site comprises three compartments of ancient semi-natural woodland predominantly of Pedunculate Oak, Ash, Field Maple, and Hazel coppice, with a small area of Hornbeam coppice with Pedunculate Oak standards to the southeast. | 1.97 |

Abbreviations used in Table 3.1: SSSI: Site of Special Scientific Interest; LWS: Local Wildlife Site; km: kilometre; ha: hectare.

**Figure 3.1: Statutory designated sites within 5 km and non-statutory designated sites within 2 km**





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## Legend

- Site Boundary
- 2km Buffer from Site Boundary
- 5km Buffer from Site Boundary
- Sites of Special Scientific Interest (SSSI)
- Local Wildlife Site (LWS)
- Ancient Woodland

| Rev | Description | By | CB | Date |
|---|---|---|---|---|
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Project: Beane Solar Farm

Title: Statutory Designated Sites within 5km and Non-Statutory Designated Sites within 2km of Site Boundary

| Status | Drawn By | PM/Checked By |
|---|---|---|
| Draft | PJ | NH |

| Project Number | Scale @ A3 | Date Created |
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## Species

3.1.4 Records of protected species were obtained from HERC. A number of species of conservation importance or otherwise notable were recorded within the 2 km search radius of the Site (extended to 5 km for bats and otters). A summary of these records is provided below in Table 3.2.

3.1.5 In order to simplify the results, only records of species from the last 10 years are shown. In addition, only data with a 6-figure grid reference resolution or higher are provided since locations given at a lower resolution do not allow accurate calculation of the distance to the Site boundary.

**Table 3.2: Species records from the last 10 years within 2 km of the Site (extended to 5 km for bats and otters)**

| Common name | Scientific name | Nearest distance from Site (km) | Year of most recent record | Conservation Status |
|---|---|---|---|---|
| | | **Flora** | | |
| Bluebell | *Hyacinthoides non-scripta* | 0.49 | 2013 | WCA8 |
| Rye Brome | *Bromus secalinus* | 0.01 | 2014 | NT |
| Sanicle | *Sanicula europaea* | 1.16 | 2017 | NT |
| Wood-sorrel | *Oxalis acetosella* | 1.16 | 2017 | NT |
| | | **Invertebrates** | | |
| Blood-vein | *Timandra comae* | 0.25 | 2018 | NERC S41, UKBAP |
| Cinnabar | *Tyria jacobaeae* | 1.31 | 2015 | NERC S41, UKBAP |
| Purple Emperor | *Apatura iris* | 1.63 | 2016 | NT |
| Small Heath | *Coenonympha pamphilus* | 0.25 | 2020 | NERC S41, UKBAP, NT |
| White-letter hairstreak | *Satyrium w-album* | 0.85 | 2018 | NERC S41, UKBAP, EN |
| | | **Herpetofauna** | | |
| Common toad | *Bufo bufo* | 0.85 | 2019 | WCA5, NERC S41, UKBAP |
| Great crested newt | *Triturus cristatus* | 1.82 | 2014 | EPS, WCA5, NERC S41, UKBAP |
| | | **Birds** | | |
| Barn owl | *Tyto alba* | 0.29 | 2018 | BDir1, WCA1 |
| Bullfinch | *Pyrrhula pyrrhula* | 0.21 | 2018 | Amber |
| Corn Bunting | *Emberiza calandra* | 0.21 | 2014 | Red |
| Cuckoo | *Cuculus canorus* | 0.21 | 2018 | NERC S41, UKBAP, Red |
| Fieldfare | *Turdus pilaris* | 0.21 | 2017 | WCA1, Red |
| Greenfinch | *Chloris chloris* | 0.49 | 2017 | Red |
| Grey partridge | *Perdix perdix* | 0.29 | 2018 | NERC S41, UKBAP, Red |
| Hawfinch | *Coccothraustes coccothraustes* | 1.67 | 2018 | NERC S41, UKBAP, Red |
| Hen Harrier | *Circus cyaneus* | 0.29 | 2017 | BDir1, WCA1, NERC S41, Red |
| Hobby | *Falco subbuteo* | 0.21 | 2018 | BDir1, WCA1 |
| House martin | *Delichon urbicum* | 0.21 | 2018 | Red |
| Kestrel | *Falco tinnunculus* | 0.21 | 2018 | Amber |
| Lesser Redpoll | *Acanthis cabaret* | 0.84 | 2015 | NERC S41, UKBAP |
| Linnet | *Linaria cannabina* | 0.21 | 2018 | Red |
| Mallard | *Anas platyrhynchos* | 0.49 | 2018 | Amber |
| Merlin | *Falco columbarius* | 0.21 | 2018 | Red |

| Common name | Scientific name | Nearest distance from Site (km) | Year of most recent record | Conservation Status |
|---|---|---|---|---|
| Mistle thrush | *Turdus viscivorus* | 0.21 | 2018 | Red |
| Montagu's Harrier | *Circus pygargus* | 1.20 | 2015 | BDir1, WCA1, Red |
| Moorhen | *Gallinula chloropus* | 0.21 | 2018 | Amber |
| Peregrine | *Falco peregrinus* | 0.21 | 2018 | BDir1, WCA1 |
| Red kite | *Milvus milvus* | 0.29 | 2017 | BDir1, WCA1 |
| Redwing | *Turdus iliacus* | 0.21 | 2018 | WCA1, Amber |
| Reed bunting | *Emberiza schoeniclus* | 0.21 | 2018 | NERC S41, UKBAP, Amber |
| Rook | *Corvus frugilegus* | 0.21 | 2018 | Amber |
| Skylark | *Alauda arvensis* | 0.65 | 2019 | NERC S41, UKBAP, Red |
| Song thrush | *Turdus philomelos* | 0.21 | 2018 | NERC S41, UKBAP, Amber |
| Sparrowhawk | *Accipiter nisus* | 0.95 | 2018 | Amber |
| Spotted flycatcher | *Muscicapa striata* | 0.21 | 2018 | NERC S41, UKBAP, Red |
| Stock dove | *Columba oenas* | 0.21 | 2018 | Amber |
| Tawny owl | *Strix aluco* | 0.29 | 2018 | Amber |
| Turtle dove | *Streptopelia turtur* | 0.73 | 2018 | NERC S41, UKBAP, Red |
| Wheatear | *Oenanthe oenanthe* | 1.20 | 2014 | Amber |
| Whitethroat | *Curruca communis* | 0.21 | 2018 | Amber |
| Willow warbler | *Phylloscopus trochilus* | 0.21 | 2017 | Amber |
| Woodcock | *Scolopax rusticola* | 0.21 | 2018 | Red |
| Woodpigeon | *Columba palumbus* | 0.87 | 2018 | Amber |
| Wren | *Troglodytes troglodytes* | 0.21 | 2018 | Amber |
| Yellow wagtail | *Motacilla flava* | 1.20 | 2017 | NERC S41, UKBAP, Red |
| Yellowhammer | *Emberiza citrinella* | 0.21 | 2018 | NERC S41, UKBAP, Red |
| **Mammals (bats)** | | | | |
| Brown long-eared bat | *Plecotus auritus* | 0.91 | 2018 | EPS, WCA5, NERC S41, UKBAP |
| Common pipistrelle | *Pipistrellus* | 0.91 | 2018 | EPS, WCA5 |
| Myotis bat species | *Myotis sp.* | 1.57 | 2017 | EPS, WCA5, NERC S41, UKBAP |
| Serotine | *Eptesicus serotinus* | 3.74 | 2017 | EPS, WCA5, VU |
| Soprano pipistrelle | *Pipistrellus pygmaeus* | 1.62 | 2018 | EPS, WCA5, NERC S41, UKBAP, VU |
| **Mammals** | | | | |
| Badger | *Meles* | 0.21 | 2019 | PBA |
| Brown hare | *Lepus europaeus* | 0.83 | 2019 | NERC S41, UKBAP |
| Hedgehog | *Erinaceus europaeus* | 0.99 | 2018 | NERC S41, UKBAP, VU |

Abbreviations used in Table 3.2: BDir1: Birds Directive; WCA1: Wildlife & Countryside Act Schedule 1, part 1; WCA5: Wildlife & Countryside Act Schedule 5; WCA8: Wildlife & Countryside Act Schedule 8; NERC S41: Natural Environment & Rural Communities Act Species of Principal Importance; VU: Red List (pre 1994 IUCN guidelines) Vulnerable; EN: Red List (pre 1994 IUCN guidelines) Endangered; NT: Red List (pre 1994 IUCN guidelines) Near Threatened; Red: Bird Population Status: Red; Amber: Bird Population Status: amber; EPS: European Protected Species; UKBAP: UK Biodiversity Action Plan

## 3.2 Phase 1 Habitat Survey

3.2.1 The survey results are presented in the form of a plan with the habitat types and boundary features marked (Figure 3.2). Photographs are provided in Appendix B.

3.2.2 The Fields have been numbered for reference and shown in Figure 3.2.

3.2.3 Descriptions of the habitat types and boundary features for each site are detailed below. Habitat descriptions are defined by broad habitat types (JNCC, 2016).

## Within the Site boundary

### A2.1 Dense Scrub

3.2.4 An area of dense scrub measuring approximately 10 m by 5 m was present in the centre of Field 2 (F2), between a strip of grassland and an arable field. The scrub predominantly comprised dog rose *Rosa canina* and bramble *Rubys fruticosus* with some common nettle *Urtica dioica*.

3.2.5 A small area of dense scrub with semi-mature trees was present in the southwestern corner of Field 1 (F1). Species present included ash *Fraxinus excelsior*, English oak *Quercus robur*, and hawthorn *Crataegus monogyna*.

3.2.6 A strip of mature, dense, scrub with scattered mature trees lay adjacent to the farm. Species included mature ash, field maple *Acer campestre* and hawthorn, with elder *Sambucus nigra*, bramble, hazel *Corylus avellana* and dog rose scrub.

### A2.2 Scattered Scrub

3.2.7 Scattered scrub was recorded in areas adjacent to the Site boundaries (Photograph 1). This comprised hawthorn, elder, rose, bramble and blackthorn *Prunus spinosa*. Occasional ruderal species including rosebay willowherb *Chamaenerion angustifolium*, common nettle, lesser burdock *Arctium minus* and cow parsley *Anthriscus sylvestris* were scattered throughout.

3.2.8 The scattered scrub surrounding Fields 4 (F4) and 5 (F5) also contained bracken *Pteridium aquilinum*.

### A3.1 Scattered Broadleaved Trees

3.2.9 Four mature oak trees were present along the western boundary of Field 3 (F3).

### B4 Improved Grassland

3.2.10 Areas of improved grassland were recorded in the western sections of Fields 5 (F5) and 6 (F6), approximately 1.3 and 1.5 ha. This grassland was almost entirely dominated by black grass *Alopecurus myosuroides*.

3.2.11 Intensively managed grassland margins were recorded across the Site (Photograph 2). Species included slender meadow foxtail *Alopecurus pratensis*, perennial rye-grass *Lolium perenne*, cocks-foot *Dactylis glomerata,* common nettle, broad-leaved dock *Rumex obtusifolius,* spear thistle *Cirsium vulgare*, dandelion *taraxacum officinale agg.,* common daisy *Bellis perennis* and cow parsley.

3.2.12 These margins ranged in width between 1 m and 5 m, surrounding all field boundaries and running adjacent to both sides of the wet and dry ditches described in Paragraphs 5.2.7 and 5.2.12 below. The southern grassland boundary of Field 2 (F2) widened to approximately 100 m, on the eastern side from the pond discussed in paragraph 5.2.15.

3.2.13 A 25 m wide strip of grassland, formerly an old runway strip for the disused Cottered Airfield (Photograph 2), dissected the centre of Field 2 (F2). A small area of dense scrub was located between the grassland and arable fields, with species comprising those described in Paragraph 5.2.2 above.

### C3.1 Tall Ruderal

3.2.14 Tall ruderal vegetation was recorded across the raised earth mounds bordering the western and southern sides of the farm buildings (Photograph 3). Species included cow parsley, common

nettle, and broad-leaved dock; a small amount of grass species, including, cock's-foot and slender black grass, were interspersed throughout these mounds.

3.2.15 Ruderal vegetation of a similar composition to that described above ran adjacent to the wet ditch adjacent to the southern boundary of Field 2 (F2), the western boundaries of Field 3 (F3) and the north-eastern boundary of Field 4 (F4). The boundary in Field 4 (F4) also contained bracken.

### G1 Standing Water

3.2.16 A wet ditch (D1 – Figure 3.3) was present across the centre of the Site (Photograph 4). The ditch was approximately 2 m in depth with steep-sided banks. There was no aquatic vegetation present; common nettle and rosebay willowherb were the dominant species recorded in the bankside vegetation.

### J1.1 Arable

3.2.17 The majority of the Site comprised maize *Zea* sp. fields (Photograph 5). Where present, the field margins comprised poor semi-improved grassland as described in Paragraph 5.2.5 above.

### J2.1.1 Intact Species-rich Hedgerow

3.2.18 A flailed, 2 m x 2 m species-rich hedgerow was recorded on the eastern boundary of the Site adjacent to the neutral semi-improved grassland discussed in paragraph 5.2.13. This comprised holly *Ilex aquifolium,* hawthorn, blackthorn, dog rose and elder, with common nettle, bramble, and ivy *Hedera helix*. This hedgerow extended down to the ground level with neutral semi-improved grassland adjacent to it.

### J2.2.1 Defunct Species-rich Hedgerow with Trees

3.2.19 A section of the species-rich hedgerow described in Paragraph 5.2.9 was recorded as defunct due to the presence of many large gaps of varying distances between sections.

### J2.3.1 Intact Species-rich Hedgerow with Trees

3.2.20 Sections of unmanaged species-rich hedgerow, ranging between 2 m and 5 m high and 2 m and 3 m wide were present across the Site (Photograph 6). These hedgerows typically comprised hawthorn, blackthorn, elder, dog rose, field maple, spindle *Euonymus europaeus*, ivy and holly. Mature oak, ash, sycamore, and willow *Salix sp.* trees were recorded throughout the species-rich hedgerows.

3.2.21 The ground flora of these hedgerows comprised broadleaved dock, common nettle, cow parsley and bramble.

### J2.6 Dry Ditch

3.2.22 The River Beane (D2 – Figure 3.3) was present between Fields 1 and 2 and was dry at the time of the survey (Photograph 7). It ranged in depth between 0.75 m and 1.5 m with no aquatic vegetation and steep-sided banks which are heavily vegetated with species including hogweed *Heracleum sphondylium*, common nettle, cock's foot, and perennial ryegrass.

### Adjacent to the Site boundary

### A1.1.2 Broadleaved Plantation Woodland

3.2.23 An area of broadleaved plantation woodland was present adjacent to and immediately south of of the south-eastern boundary of the Site (Photograph 1 (8)). The woodland comprised predominantly mature poplar *Populus sp*. with occasional mature ash, English oak, beech

*Fagus sylvatica* and horse chestnut *Aesculus hippocastanum*. A number of trees had some bat roost potential (as discussed in Section 5.5 below).

3.2.24 The woodland had limited understorey growth, the ground was predominantly bare, with some common nettle, common ivy, and common hogweed.

### A3.1 Scattered Broadleaved Trees

3.2.25 A row of young sycamore Acer pseudoplatanus trees was recorded along the south-eastern boundary of Field 2 (Photograph 3 (9)).

3.2.26 A mature ash tree was present on the eastern boundary within the species-rich hedgerow (Photograph 4 (10)). The tree was approximately 15 m high and had potential for roosting bats (as discussed in Section 5.5 below).

### B2.2 Neutral Semi-improved Grassland

3.2.27 An area of neutral semi-improved grassland (approximately 0.9 ha) was recorded adjacent to the south-eastern boundary of the Site. This was sown as part of a farmland stewardship scheme (pers. comms). Species included meadow foxtail *Alopecurus pratensis*, barren brome *Bromus sterilis*, smooth meadow grass *Poa pratensis*, cocks-foot *Dactylis glomerata*, oxeye daisy *Leucanthemum vulgare*, yellow rattle *Rhinanthus minor*, common vetch *Vicia sativa*, cornflower *Centaurea cyanus*, crimson clover *Trifolium incarnatum*, meadow cranesbill *Geranium pratense* and corncockle *Agrostemma githago.*

### C3.1 Tall Ruderal

3.2.28 A 4 m wide strip of ruderal vegetation ran adjacent to the pond and woodland in the south of the Site. Common nettle was the dominant species, with occasional yellow iris *Iris pseudacorus*, lesser burdock, common teasel *Dipsacus fullonum* and cow parsley also recorded.

### G1 Standing Water

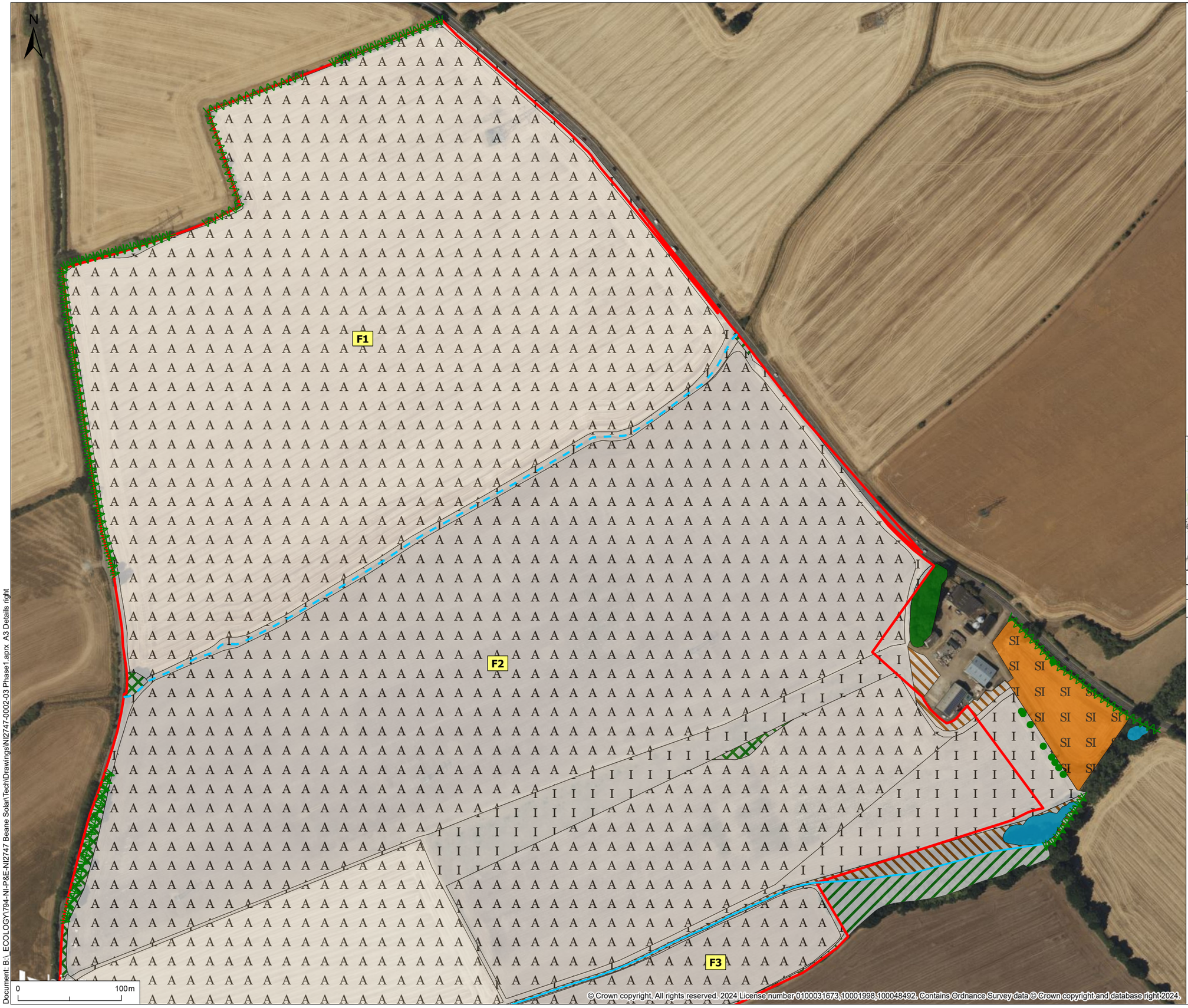
3.2.29 A large pond (P1 – Figure 3.3) was present immediately to the southeast of the southern Site boundary (Photograph 8 (11)). The pond measured approximately 80 m by 25 m with a small, vegetated island in the middle. Vegetation included flag iris, common nettle, and rosebay willowherb.

3.2.30 A small, shallow, running waterbody was recorded adjacent to the southern boundary, with a fast water flow feeding into P1 and D1. No aquatic or bankside vegetation was present.

### J4 Bare Ground

3.2.31 A farm track measuring approximately 150 m by 2 m was located at the entrance to the farm running along the eastern boundary.

**Figure 3.2: Phase 1 habitat plan**






Notes
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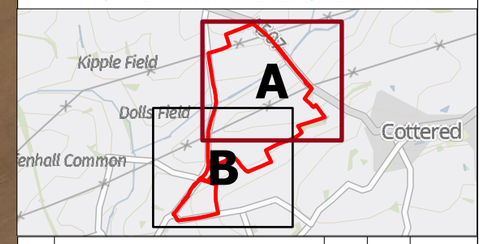
**Legend**

- Site Boundary

**Phase1 Habitat Classification:**

- A1.1.1 - Broadleaved woodland - semi-natural
- A1.1.2 - Broadleaved woodland - plantation
- A2.1 - Scrub - dense/continuous
- A2.2 - Scrub - scattered
- B2.2 - Neutral grassland - semi-improved
- B4 - Improved grassland
- C3.1 - Other tall herb and fern - ruderal
- G1 - Standing water
- J1.1 - Cultivated/disturbed land - arable
- J4 - Bare ground
- Road
- G2 - Running water
- J2.1.1 - Intact hedge - native species-rich
- J2.2.1 - Defunct hedge - native species-rich
- J2.3.1 - Hedge with trees - native species-rich
- J2.6 - Dry ditch
- A3.1 - Broadleaved Parkland/scattered trees

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Project: Beane Solar Farm

Title: Phase 1 Habitat Map

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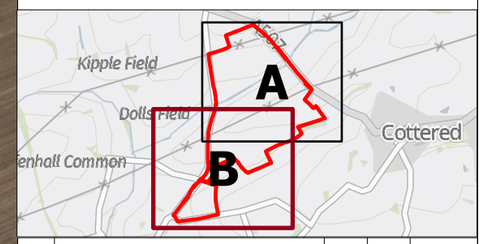
**Legend**

- Site Boundary

**Phase1 Habitat Classification:**

- A2.1 - Scrub - dense/continuous
- A2.2 - Scrub - scattered
- B4 - Improved grassland
- C3.1 - Other tall herb and fern - ruderal
- J1.1 - Cultivated/disturbed land - arable
- J4 - Bare ground
- Road
- G2 - Running water
- J2.3.1 - Hedge with trees - native species-rich
- A3.1 - Broadleaved Parkland/scattered trees

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## 3.3 Ecological Scoping Survey

### Plants

3.3.1 The species-rich hedgerows are Habitats of Principal Importance listed under Section 41 of the NERC Act (2006).

3.3.2 The majority of the grassland field margins were identified as improved or species-poor and there was no notable plant species were observed during the Phase 1 habitat survey.

3.3.3 An area of neutral semi-improved neutral grassland was recorded in the south-eastern corner of the Site, which was sown as part of a farmland stewardship scheme (pers. comms).

### Invertebrates

3.3.4 The hedgerows and mature trees provide good habitat for a range of invertebrate species. The semi-improved neutral grassland, hedgerows and areas of woodland provide good opportunities for pollinating insects.

3.3.5 The neutral grassland areas extending from the woodland and hedgerows provides good invertebrate habitat and adds ecological connectivity to the wider landscape.

3.3.6 The areas of improved grassland and field margins provided limited value to invertebrate species.

3.3.7 Considering all the habitats on Site and the plant species recorded during the Phase 1 habitat survey, no further invertebrate surveys are considered necessary, however, suggestions of enhancement measures to provide further suitable habitat for invertebrates are included in Section 7 of this report.

### Herpetofauna

#### GCN

3.3.8 There were no desk study records for GCN within 500 m of the Site, however, a pond and wet ditches with potential to support amphibians, including GCN were present within and adjacent to the Site.

3.3.9 The grassland margins, hedgerows, scrub, woodland edges, and dry ditches were considered to provide suitable terrestrial habitats for GCN connected to off-site terrestrial and aquatic habitats.

#### Reptiles

3.3.10 The Site comprised a mixture of grasslands which lay adjacent to ditches, pond, and hedgerows. The areas of scrub and ruderal vegetation associated with some of these features were considered to provide suitable habitats for basking, foraging and hibernating reptiles. The hedgerows also provided suitable hibernation habitat.

3.3.11 The field margins and boundary features will be retained and buffered by the development; however, some small sections of managed grassland may be lost to facilitate vehicular access across the Site.

3.3.12 Given the in-built design measures which mitigates the potential for impacts, effects on reptiles are therefore not considered further in this report, however, a precautionary method of works and measures to enhance the Site for them are included in Section 7 of this report.

### Breeding and Wintering Birds

3.3.13 The scrub, hedgerows, trees, and woodland within the Site provided foraging and nesting habitat for a range of common and widespread breeding birds and foraging resources for wintering birds. The arable fields were suitable for ground-nesting bird species, such as skylark.

### Mammals

#### Bats

3.3.14 The woodland edge and hedgerows were considered to provide moderate suitability foraging and commuting habitat for bats (as per Collins, 2023) and would likely support a variety of night-flying invertebrates for bats to forage upon. These features were linked via hedgerows (off site), water courses and other linear features to areas of suitable foraging and roosting habitat within the wider landscape.

3.3.15 Several mature trees were present within the Site boundary with roosting potential for bats. The GLTA identified five trees with PRF–M and 49 trees with PRF–I, all other trees were considered to have negligible potential to support roosting bats.

#### Badgers

3.3.16 The Site had areas of habitat including woodland, hedgerows and field margins that were all suitable to support badgers and sett creation. The fields also provided foraging opportunities for badgers.

#### Otter and Water Vole

3.3.17 There were no records for otter or water vole returned in the desk study.

3.3.18 The River Beane ran through the centre of the Site, which was dry at the time of the survey. The River Beane rises from springs in the chalk hills near the village of Cromer to the southwest of the Site. The river extends south for approximately 15 km before joining the rivers Rib and Mimram and the River Lee to the east of Hertford. Abstraction, impoundment structures and sediment from agricultural run-off are causing the river to dry.

3.3.19 The wet ditch present ran through the Site and was considered to be unsuitable for either otter or water vole due to it being isolated in a predominantly agricultural landscape with limited connectivity to other waterbodies. The ditch was approximately 0.75 m in depth with steep-sided banks and shallow water with no fish or crustaceans to sustain otters, or grasses and waterside plants to sustain water vole; common nettle was dominant throughout.

3.3.20 Impacts on otter and water vole are therefore not considered further in this report.

## 3.4 Great Crested Newt Survey

### Habitat Suitability Index Assessment

3.4.1 The grassland, scrub, woodland edges, pond, and ditches were considered suitable terrestrial and aquatic habitats for GCN with good connectivity to off-site terrestrial and aquatic habitats. A wet ditch was present ran through the Site fed by the large pond adjacent to and south of the southern boundary. There is a further small pond in a field immediately east of the Site next to the A507 road.

3.4.2 A description of the ponds and ditches and their HSI scores are provided in Table 3.3 below, with a full copy of the HSI scoring system provided in Appendix C. The locations of all accessible ponds and wet ditches identified are shown in Figure 3.3.

3.4.3 Ponds or ditches with an HSI score of < 0.5 are considered poor, 0.5 - 0.59 below average, 0.6 - 0.69 average, 0.7 – 0.79 good and > 0.8 excellent. Therefore, P1 and D2 were considered ‘Below Average’ and P2 and D1 are considered ‘Average’.

**Table 3.3: GCN HSI results**

| Feature ref. | Description | HSI score |
|---|---|---|
| P1 | Large waterbody adjacent to the southern boundary of the Site. Heavily shaded by willow trees along southern boundaries. Small island located in the middle of the pond. Evidence of use by Canada geese and moorhen. Limited aquatic vegetation present. Pond size approximately 80 m x 25 m | Below Average |

| Feature ref. | Description | HSI score |
|---|---|---|
| P2 | Small, shallow, running waterbody outside but adjacent to the southern boundary. No aquatic vegetation present with a fast water flow feeding into P1 and D1. | Average |
| D1 | Wet ditch through the centre of the Site – emergent vegetation present along length. Heavily sheltered due to vegetation growth. Appears shallow. Suitable bankside vegetation. Steep-sided banks which are heavily vegetated with scrub/ruderal species. Flowing water. | Average |
| D2 | Dry river through the centre of the Site - no aquatic vegetation. Steep-sided banks which are heavily vegetated with ruderal species. | Below Average |

## GCN eDNA Survey

3.4.4 An eDNA survey was undertaken on one waterbody (P1) in June 2023. P2 was scoped out due to the fast flow of the water; D1 was scoped out due to the flow of the water, the steep sided, heavily vegetated banks also meant it was not accessible; and D2 was dry at the time of the survey.

3.4.5 The eDNA surveys returned negative results for P1. The results of the eDNA surveys are provided in Appendix D.

**Figure 3.3: Pond/waterbody locations**






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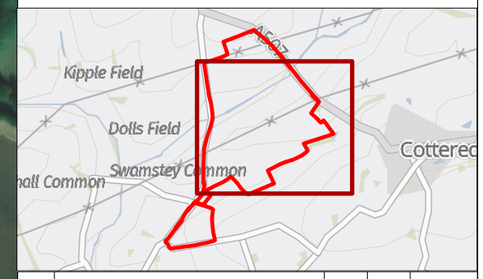
**Legend**

- Site Boundary
- Pond
- Ditch

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## 3.5 Ground Level Tree Assessment

3.5.1 A GLTA of all trees within the Site boundary was undertaken in November 2023.

3.5.2 A total of 54 trees either along existing field boundaries or within the area of broad-leafed woodland immediately south of the Site, were identified as having features suitable to support roosting bats. These comprised five trees with PRF–M and 49 trees with PRF–I, all other trees were considered to have negligible potential to support roosting bats.

3.5.3 The full details of the tree assessments are provided in Appendix E and their locations are shown in Figure 3.4.

**Figure 3.4: Ground Level Tree Assessment**






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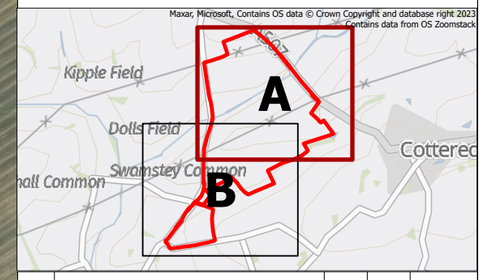
## Legend

Site Boundary

**Bat Tree Roost Potential:**

PRF-M

PRF-I

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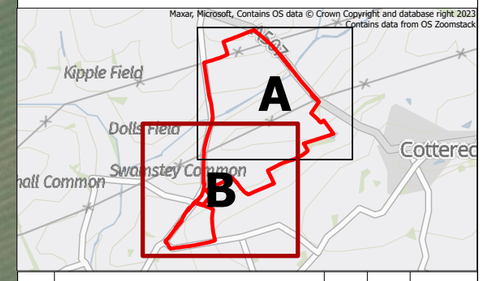
## Legend

Site Boundary

**Bat Tree Roost Potential:**

- PRF-M
- PRF-I

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## 3.6 Breeding Bird Surveys

### 2023

3.6.1 A total of 37 species were recorded within the Site boundary, during the breeding bird surveys undertaken in 2023. Of these, 24 were confirmed to be breeding.

3.6.2 The remaining 13 species were of non-breeding status, either passing through the Site or using the Site for foraging.

3.6.3 Skylark, a Red listed species, and Species of Principal Importance were recorded in high numbers during the breeding bird surveys.

3.6.4 Corn bunting, house sparrow *Passer domesticus*, linnet *Linaria cannabina*, yellow wagtail *Motacilla flava,* and yellowhammer which are Red List species, and dunnock *Prunella modularis*, reed bunting *Emberiza schoeniclus*, song thrush *Turdus philomelos*, stock dove *Columba oenas*, whitethroat *Curruca communis*, woodpigeon *Columba palumbus*, and wren *Troglodytes troglodytes*, which are Amber List species, were included in the 24 species confirmed as breeding within the Site boundary.

3.6.5 A summary of the breeding and conservation status of the bird species recorded, with the numbers of territories identified is provided in Table 3.4 below. The locations of territories of species confirmed as breeding on Site and which are listed as protected or notable species are shown in Figures 3.5 and 3.6. Due to the number of skylark territories recorded, these are shown in a separate figure (Figure 3.7).

**Table 3.4: Breeding and conservation status of birds recorded in 2023.**

| Species | Breeding status | Number of territories | Conservation Status | | | |
|---|---|---|---|---|---|---|
| | | | Annex 1 EU Birds Directive | Schedule 1 WCA | NERC Species of Principal Importance | BoCC 5 Red and Amber Species |
| Blackbird | Confirmed | 4 | - | - | - | - |
| Blackcap | Confirmed | 2 | - | - | - | - |
| Blue Tit | Confirmed | 12 | - | - | - | - |
| Canada Goose | Confirmed | 1 | - | - | - | - |
| Carrion Crow | Confirmed | 6 | - | - | - | - |
| Corn Bunting | Confirmed | 1 | - | - | ■ | Red |
| Dunnock | Confirmed | 2 | - | - | ■ | Amber |
| Goldfinch | Confirmed | 6 | - | - | - | - |
| Great Tit | Confirmed | 8 | - | - | - | - |
| House Sparrow | Confirmed | 1 | - | - | ■ | Red |
| Jackdaw | Confirmed | - | - | - | - | - |
| Linnet | Confirmed | 3 | - | - | ■ | Red |
| Magpie | Confirmed | 3 | - | - | - | - |
| Pied Wagtail | Confirmed | 1 | - | - | - | - |
| Red-legged Partridge | Confirmed | 1 | - | - | - | - |
| Reed Bunting | Confirmed | 1 | - | - | ■ | Amber |
| Robin | Confirmed | 6 | - | - | - | - |
| Skylark | Confirmed | 45 | - | - | ■ | Red |
| Song Thrush | Confirmed | 1 | - | - | ■ | Amber |
| Stock Dove | Confirmed | 1 | - | - | - | Amber |
| Whitethroat | Confirmed | 8 | - | - | - | Amber |
| Woodpigeon | Confirmed | 9 | - | - | - | Amber |
| Wren | Confirmed | 5 | - | - | - | Amber |

| Species | Breeding status | Number of territories | Conservation Status | | | |
|---|---|---|---|---|---|---|
| | | | Annex 1 EU Birds Directive | Schedule 1 WCA | NERC Species of Principal Importance | BoCC 5 Red and Amber Species |
| Yellow Wagtail | Confirmed | 1 | - | - | ■ | Red |
| Yellowhammer | Confirmed | 8 | - | - | ■ | Red |
| Black-headed Gull | Non-breeding | - | - | - | - | Amber |
| Chaffinch | Non-breeding | - | - | - | - | - |
| Goldcrest | Non-breeding | - | - | - | - | - |
| Great Spotted Woodpecker | Non-breeding | - | - | - | - | - |
| Greenfinch | Non-breeding | - | - | - | - | Red |
| Grey Heron | Non-breeding | - | - | - | - | - |
| Jay | Non-breeding | - | - | - | - | - |
| Kestrel | Non-breeding | - | - | - | - | Amber |
| Lesser-black-backed Gull | Non-breeding | - | - | - | - | Amber |
| Pheasant | Non-breeding | - | - | - | - | - |
| Red Kite | Non-breeding | - | ■ | ■ | - | - |
| Rook | Non-breeding | - | - | - | - | Amber |

### 2024

3.6.6 A total of 39 species were recorded within the Site boundary, during the breeding bird surveys undertaken in 2024. Of these, 20 were confirmed to be breeding.

3.6.7 The remaining 19 species were of non-breeding status, either passing through the Site or using the Site for foraging.

3.6.8 Corn bunting, house sparrow, linnet, skylark, yellow wagtail, and yellowhammer which are Red List species, and dunnock, whitethroat, woodpigeon, and wren, which are Amber List species, were included in the 20 species confirmed as breeding within the Site boundary.

3.6.9 A summary of the breeding and conservation status of the bird species recorded, with the numbers of territories identified is provided in Table 3.5 below. The locations of territories of species confirmed as breeding on Site and which are listed as protected or notable species are shown in Figures 3.8 and 3.9.

**Table 3.5: Breeding and conservation status of birds recorded in 2024.**

| Species | Breeding status | Number of territories | Conservation Status | | | |
|---|---|---|---|---|---|---|
| | | | Annex 1 EU Birds Directive | Schedule 1 WCA | NERC Species of Principal Importance | BoCC 5 Red and Amber Species |
| Blackcap | Confirmed | 1 | - | - | - | - |
| Blue Tit | Confirmed | 12 | - | - | - | - |
| Canada Goose | Confirmed | 1 | - | - | - | - |
| Carrion Crow | Confirmed | 1 | - | - | - | - |
| Corn Bunting | Confirmed | 1 | - | - | ■ | Red |
| Dunnock | Confirmed | 1 | - | - | ■ | Amber |
| Goldfinch | Confirmed | 3 | - | - | - | - |
| Great Tit | Confirmed | 6 | - | - | - | - |
| Grey Partridge | Confirmed | 1 | - | - | ■ | Red |
| House Sparrow | Confirmed | 1 | - | - | ■ | Red |
| Linnet | Confirmed | 1 | - | - | ■ | Red |

| Species | Breeding status | Number of territories | Conservation Status | | | |
|---|---|---|---|---|---|---|
| | | | Annex 1 EU Birds Directive | Schedule 1 WCA | NERC Species of Principal Importance | BoCC 5 Red and Amber Species |
| Magpie | Confirmed | 1 | - | - | - | - |
| Pied Wagtail | Confirmed | 1 | - | - | - | - |
| Robin | Confirmed | 1 | - | - | - | - |
| Skylark | Confirmed | 21 | - | - | ■ | Red |
| Whitethroat | Confirmed | 1 | - | - | - | Amber |
| Woodpigeon | Confirmed | 4 | - | - | - | Amber |
| Wren | Confirmed | 6 | - | - | - | Amber |
| Yellowhammer | Confirmed | 6 | - | - | ■ | Red |
| Yellow Wagtail | Confirmed | 1 | - | - | ■ | Red |
| Blackbird | Probable | 3 | - | - | - | - |
| Jay | Possible | 1 | - | - | - | - |
| Reed Bunting | Possible | 1 | - | - | ■ | Amber |
| Stock Dove | Possible | 1 | - | - | - | Amber |
| Bullfinch | Non-breeding | - | - | - | - | Amber |
| Buzzard | Non-breeding | - | - | - | - | - |
| Chaffinch | Non-breeding | - | - | - | - | - |
| Chiffchaff | Non-breeding | - | - | - | - | - |
| Green Woodpecker | Non-breeding | - | - | - | - | - |
| Greenfinch | Non-breeding | - | - | - | - | Red |
| Grey Heron | Non-breeding | - | - | - | - | - |
| Jackdaw | Non-breeding | - | - | - | - | - |
| Lesser Whitethroat | Non-breeding | - | - | - | - | Amber |
| Mallard | Non-breeding | - | - | - | - | Amber |
| Pheasant | Non-breeding | - | - | - | - | - |
| Red Kite | Non-breeding | - | ■ | ■ | - | - |
| Red-legged Partridge | Non-breeding | - | - | - | - | - |
| Rook | Non-breeding | - | - | - | - | Amber |
| Song Thrush | Non-breeding | - | - | - | ■ | Amber |

**Figure 3.5: Territories of Red Listed breeding birds 2023**




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## Legend

- Site Boundary
- Red List Species Breeding Territory

Abbreviations:
CB - Corn bunting
HS - House sparrow
LI - Linnet
YW - Yellow wagtail
Y. - Yellowhammer

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Title: Territories of Red Listed breeding birds 2023

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**Figure 3.6: Territories of Amber Listed breeding birds 2023**




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## Legend

- Site Boundary
- Amber List Species Breeding Territory

Abbreviations:
DN - Dunnock
RB - Reed bunting
ST - Song thrush
SD - Stock dove
WH - Whitethroat
WP - Woodpigeon
WR - Wren

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Title: Territories of Amber Listed breeding birds 2023

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**Figure 3.7: Skylark territories 2023**




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## Legend

- Site Boundary
- Skylark Territories
- Edge Territories

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**Figure 3.8: Territories of Red and Amber Listed breeding birds 2024**




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## Legend

- Site Boundary
- Red List Species Breeding Territory
- Amber List Species Breeding Territory

**Species List:**

- **CB** Corn Bunting (1)
- **P.** Grey Partridge (1)
- **HS** House Sparrow (1)
- **LI** Linnet (1)
- **S.** Skylark (20)
- **Y.** Yellow Wagtail (1)
- **YW** Yellowhammer (6)
- **WH** Whitethroat (1)
- **WP** Wood Pigeon (4)
- **WR** Wren (5)

| Rev | Description | By | CB | Date |
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## 3.7 Wintering Bird Survey

3.7.1 A total of 49 species were recorded within the Site boundary during the winter bird surveys undertaken between October 2023 to March 2024. A summary of the species recorded, together with their peak and mean counts is provided in Table 3.6 below and their locations shown on Figure 3.9 to Figure 3.20 in Appendix G.

**Table 3.6: Survey summary data – October 2023 to March 2024**

| Species | Peak Count | Mean Count | Species | Peak Count | Mean Count |
|---|---|---|---|---|---|
| Blackbird | 2 | 3.0 | Linnet | 11 | 4.3 |
| Blue Tit | 4 | 13.0 | Long-tailed tit | 3 | 2.3 |
| Brambling | 1 | 0.2 | Magpie | 2 | 1.1 |
| Bullfinch | 1 | 0.3 | Mallard | 2 | 1.5 |
| Buzzard | 1 | 0.7 | Meadow pipit | 2 | 1.1 |
| Canada goose | 10 | 3.3 | Mistle thrush | 2 | 1.3 |
| Carrion crow | 66 | 41.5 | Moorhen | 1 | 1.0 |
| Chaffinch | 12 | 5.8 | Pheasant | 3 | 1.6 |
| Chiffchaff | 1 | 0.2 | Pied wagtail | 2 | 1.2 |
| 9orn bunting | 33 | 16.0 | Red kite | 2 | 1.2 |
| Dunnock | 1 | 2.0 | Red-legged partridge | 4 | 2.0 |
| Fieldfare | 75 | 27.8 | Redwing | 13 | 2.9 |
| Goldcrest | 1 | 1.2 | Reed bunting | 1 | 1.0 |
| Golden plover | 6 | 1.0 | Robin | 2 | 1.1 |
| Goldfinch | 2 | 0.5 | Rook | 400 | 49.8 |
| Great spotted woodpecker | 1 | 0.2 | Skylark | 150 | 4.2 |
| Great tit | 2 | 3.8 | Song thrush | 8 | 1.6 |
| Green woodpecker | 1 | 0.2 | Starling | 70 | 26.3 |
| Greenfinch | 1 | 0.3 | Stock dove | 10 | 4.3 |
| Grey heron | 1 | 0.2 | Stonechat | 2 | 1.3 |
| Grey partridge | 2 | 1.0 | Teal | 1 | 1.0 |
| House sparrow | 6 | 3.7 | Woodpigeon | 650 | 46.6 |
| Jackdaw | 200 | 85.3 | Wren | 1 | 1.0 |
| Jay | 2 | 2.3 | Yellowhammer | 8 | 2.2 |
| Kestrel | 1 | 0.5 | | | |

3.7.2 Twenty-five species recorded during the surveys meet at least one of a range of criteria relating to nature conservation. These species, and their relevant conservation importance, are shown in Table 3.7 below.

**Table 3.7: Conservation status of recorded birds – October 2023 to March 2024**

| Species | Annex 1 EU Birds Directive | NERC Species of Principal Importance | BoCC 5 Red and Amber Species |
|---|---|---|---|
| Bullfinch | - | - | Amber |
| Corn bunting | - | ■ | Red |
| Dunnock | - | ■ | Amber |
| Fieldfare | - | - | Red |
| Golden plover | ■ | - | - |
| Greenfinch | - | - | Red |

| Species | Annex 1 EU Birds Directive | NERC Species of Principal Importance | BoCC 5 Red and Amber Species |
|---|---|---|---|
| Grey partridge | - | ■ | Red |
| Kestrel | - | - | Amber |
| Linnet | - | ■ | Red |
| Mallard | - | - | Amber |
| Meadow pipit | - | - | Amber |
| Mistle thrush | - | - | Red |
| Moorhen | - | - | Amber |
| Redwing | - | - | Amber |
| Red kite | ■ | - | - |
| Reed bunting | - | ■ | Amber |
| Rook | - | - | Amber |
| Skylark | - | ■ | Red |
| Song thrush | - | ■ | Amber |
| Starling | - | ■ | Red |
| Stock dove | - | - | Amber |
| Teal | - | - | Amber |
| Woodpigeon | - | - | Amber |
| Wren | - | - | Amber |
| Yellowhammer | - | ■ | Red |

## 3.8 Badger Survey

3.8.1 Due to the sensitive nature of badger survey data, the results are provided within a confidential Appendix F. Those with a legitimate need for the information may request it from RPS.

# 4 EVALUATION AND POTENTIAL IMPACTS

## 4.1 Designated Sites

4.1.1 The proposals do not directly affect any statutory designated sites. The closest statutory site (Moor Hall Meadows SSSI) was located 3.04 km to the southeast, which is sufficiently separated from the Site and therefore unlikely to be affected by the proposed solar farm.

4.1.2 A total of 29 non-statutory designated sites were located within 2 km of the Site boundary and were designated for a range of habitats and species. Cottered Road Verge LWS, an area of species-rich grassland ley adjacent to the eastern boundary of the Site. A further nine LWSs were located within 1 km of the Site boundary and therefore there is potential for these sites to be impacted by accidental pollution events during any construction activities without further mitigation measures.

4.1.3 All other statutory and non-statutory designated sites are located further than 1 km from the Site and considered sufficiently separated from the Site, therefore no further mitigation measures would be required for these sites.

## 4.2 Habitats

4.2.1 Table 4.1 below summarises the habitat types within the Site and outlines the potential impacts of the development proposals on each of these habitats.

**Table 4.1: Summary of potential habitat impacts.**

| JNCC Code | Habitat Type | Area/length | % of Site | Development impact |
|---|---|---|---|---|
| A2.1 | Dense/continuous scrub | 0.05 ha | <1 | This is a very small area of the Site and will be lost in the proposed development |
| A2.2 | Scattered scrub | N/A | <1 | This is a very small area of the Site and will be lost in the proposed development |
| A3.1 | Scattered broadleaved trees | N/A | <1 | None – the mature trees within the field boundaries will be retained and buffered. |
| B4 | Improved grassland | 8.6 ha | 9.79 | This will be lost in the proposed development. |
| C3.1 | Tall ruderal | 0.60 ha | <1 | This is a very small area of the Site and will be lost in the proposed development. |
| G1 | Standing water (wet ditch and pond) | 1.02 km | N/A | None – the wet ditch will be retained and not impacted during construction. Waterbodies which are adjacent to the Site boundary will be protected alongside hedgerows. |
| J1.1 | Arable | 76.25 ha | 86.70 | This will be lost in the proposed development. |
| J2.1.1 | Intact species-rich hedgerow | 0.18 km | N/A | The majority of hedgerows will be retained and protected; therefore, no impacts are anticipated. |
| J2.2.1 | Defunct species-rich hedgerow with trees | 0.23 km | N/A | The majority of hedgerows will be retained and protected; therefore, no impacts are anticipated. |
| J2.3.1 | Species-rich hedgerow with trees | 1.43 km | N/A | The majority of hedgerows will be retained and protected; therefore, no impacts are anticipated. |
| J2.6 | Dry ditch | 0.67 km | N/A | None – the ditches around the Site would not be impacted during construction. |

Abbreviations used in Table 4.1: ha - hectare; km - kilometre.

4.2.2 The habitats are discussed regarding their intrinsic value to the Site, the effect of the habitats on species are discussed in Section 6.3 of this report.

## 4.3 Species

### Plants

4.3.1 The species identified during the Phase 1 habitat survey were common and widespread, no protected, notable, or invasive non-native species were recorded within the Site boundary.

4.3.2 An area of neutral semi-improved neutral grassland was recorded adjacent to the south-eastern boundary of the Site, which was sown as part of a farmland stewardship scheme (pers. comms). This area will be retained and unaffected by the proposed development.

4.3.3 Therefore, further botanical surveys are not required.

### Invertebrates

4.3.4 Most of the habitats identified on Site were likely to support a variety of common and widespread invertebrates. The Site was not considered floristically diverse and was therefore considered to be of limited value for invertebrates.

4.3.5 Considering the habitats on Site and the plant species recorded during the Phase 1 habitat survey, no further invertebrate surveys are considered necessary, however, enhancement measures to provide suitable habitat for invertebrates are included in Section 7 of this report.

### Great Crested Newts

4.3.6 The grassland, scrub, woodland edges, pond, and ditches, within and adjacent to the Site boundary, were considered suitable terrestrial and aquatic habitats for GCN with good connectivity to off-site terrestrial and aquatic habitats. A wet ditch (D1) was present across the Site fed by the large pond (P1) adjacent to the southern boundary.

4.3.7 Of the four waterbodies assessed during the HSI assessment, two were considered 'Below Average' and two were considered 'Average' suitability. The eDNA sampling undertaken on P1 confirmed a negative result for GCN eDNA.

4.3.8 As a precautionary approach, it is recommended that avoidance and mitigation measures are followed during construction to ensure that there are no impacts on GCN. Mitigation measures are discussed in Section 7.3 of this report.

### Breeding Birds

#### Distribution of Species

4.3.9 The breeding bird surveys undertaken in 2023 and 2024 showed that the Site is used by widespread and common bird species, with higher levels of activity recorded along hedgerows, scattered trees, and woodland edges.

4.3.10 The arable fields were used by nine species of birds of conservation concern which is discussed further below and overleaf.

#### Specially Protected Species

4.3.11 There were no confirmed territories of any Schedule 1 species recorded during the breeding bird surveys undertaken in 2023 or 2024.

4.3.12 Red kite, which are protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), were recorded on passage during multiple visits. These birds were believed to be foraging and no indicative signs of breeding on Site were observed, such as carrying prey or alarm calling. There were no suitable breeding trees within the Site boundary.

## Species of Principal Importance

4.3.13 Nine of the species recorded as breeding or probable/possibly breeding within the Site in 2023 and 2024 (corn bunting, dunnock, house sparrow, linnet, reed bunting, skylark, song thrush, yellowhammer, and yellow wagtail) are listed in Section 41 of the NERC Act 2006 as being of principal importance for the conservation of biodiversity in England.

4.3.14 Six of the species recorded as part of the breeding assemblage (confirmed, probable and possible) for the Site are included on the BoCC Red List. The species and reasons for their inclusion on the Red List are provided below:

- Corn bunting – historic declines in breeding populations and severe breeding population/range decline over the longer term;
- Greenfinch – severe population decline over 25 years and the longer term;
- House sparrow – severe breeding population decline over the longer term;
- Linnet – severe breeding population decline over the longer term;
- Skylark – severe breeding population decline over the longer term;
- Yellowhammer – moderate breeding population decline over 25 years and severe decline over the longer term; and
- Yellow wagtail – moderate breeding population decline over 25 years and severe population decline over the longer term.

4.3.15 The 2024 surveys produced the same results in the breeding assemblage of BoCC Red List species with the exception of greenfinch which was recorded as non-breeding.

4.3.16 Seven of the species recorded as part of the breeding assemblage (confirmed, probable and possible) in 2023 for the Site are included on the BoCC Amber List. The species and reasons for their inclusion on the Amber List are provided below:

- Dunnock – moderate breeding population decline over the longer term;
- Reed bunting – moderate breeding population decline over the longer term;
- Song thrush – moderate breeding population decline over the longer term;
- Stock dove – breeding international importance;
- Whitethroat – moderate breeding population decline over the longer term;
- Woodpigeon – breeding international importance, and
- Wren – breeding international importance.

4.3.17 The 2024 surveys produced the same results in the breeding assemblage of Amber List species with the exception of song thrush which was recorded as non-breeding.

## Geographical Importance

4.3.18 The following geographical frames of reference and selection criteria (based on the Guidelines for Ecological Impact Assessment in the United Kingdom (CIEEM, 2018)) are used to describe the nature conservation value or potential value to the breeding bird populations within the survey area:

- International importance – a species which is cited as part of the designated interest of an SPA and occurs in internationally or nationally important numbers;
- National importance – a species which is cited as part of the designated interest of a SSSI and occurs in nationally important numbers;
- Regional importance – NERC Species of Principal Importance, BoCC Red List species or UK BAP Priority species that regularly occur in regionally important numbers;

- County importance – NERC Species of Principal Importance, BoCC Red List species, UK or Hertfordshire BAP Priority Species that regularly occur in numbers that are important at a county level;
- Local importance – NERC Species of Principal Importance, BoCC Red or Amber List species, UK or Hertfordshire BAP Priority Species which occur regularly in locally sustainable populations; and
- Site – all common and widespread species.

### 2023

4.3.19 The number of birds recorded during the survey is compared to the species national breeding population estimate and county status. National breeding population estimates are based on Woodward *et al*. (2020). County breeding population estimates are not available. Where no regional or county population estimates are available, professional judgment and comparisons with population estimates at higher geographical levels have been used to inform this assessment.

4.3.20 Table 4.2 below summarises the abundance of species of conservation interest recorded during the survey, the national and/or regional population estimate and county status for these species and the geographical importance of the populations within the survey area as derived from the criteria outlined above.

**Table 4.2: Species of conservation interest, number of territories, county status and geographical importance of survey area population 2023**

| Species | No. of pairs/ territories | UK breeding population estimate (pairs/territories) | County status | Geographical Importance |
|---|---|---|---|---|
| Corn bunting | 1 | 11,000 | Common and widespread breeding species | Local |
| Dunnock | 2 | 2,500,000 | Abundant resident and autumn visitor | Local |
| House sparrow | 1 | 5,300,000 | Abundant and widespread but declining resident | Local |
| Linnet | 3 | 560,000 | Common and widespread resident, winter visitor and passage migrant | Local |
| Reed bunting | 1 | 275,000 | Widespread and locally common but declining resident and passage migrant | Local |
| Skylark | 45 | 1,550,000 | Common resident which has declined recently | County |
| Song thrush | 1 | 1,300,000 | Common but declining resident | Local |
| Stock dove | 1 | 320,000 | Common resident | Local |
| Whitethroat | 8 | 1,100,000 | Very common summer visitor and passage migrant | Local |
| Woodpigeon | 9 | 5,150,000 | Abundant and widespread resident | Local |
| Wren | 5 | 11,000,000 | Abundant resident and winter visitor | Local |
| Yellowhammer | 8 | 700,000 | Common and widespread but declining resident | Local |
| Yellow wagtail | 1 | 19,500 | Common passage migrant and regular breeder in small numbers | Local |

4.3.21 The level of geographic importance for most of the breeding populations of species of conservation interest is 'local.' All other species recorded during the survey (i.e., those not of conservation interest) were present at a 'site' level and the bird community recorded during the survey are considered typical for the habitats present within the survey area.

4.3.22 Overall, and based on Fuller's criteria (Table 2.3), the breeding bird assemblage within the survey area is considered to be of no more than local importance due to the diversity and abundance of the species present, with the exception of skylark.

4.3.23 Skylark has a breeding population of County importance. County status is taken from the 2021 Hertfordshire bird report from the Hertfordshire Bird Club.

### 2024

4.3.24 The number of birds recorded during the survey is compared to the species national breeding population estimate and county status. National breeding population estimates are based on Woodward *et al*. (2020). County breeding population estimates are not available. Where no regional or county population estimates are available, professional judgment and comparisons with population estimates at higher geographical levels have been used to inform this assessment.

4.3.25 Table 4.3 below summarises the abundance of species of conservation interest recorded during the survey, the national and/or regional population estimate and county status for these species and the geographical importance of the populations within the survey area as derived from the criteria outlined above.

**Table 4.3: Species of conservation interest, number of territories, county status and geographical importance of survey area population 2024**

| Species | No. of pairs/ territories | UK breeding population estimate (pairs/territories) | County status | Geographical Importance |
|---|---|---|---|---|
| Corn bunting | 1 | 11,000 | Common and widespread breeding species | Local |
| Dunnock | 1 | 2,500,000 | Abundant resident and autumn visitor | Local |
| House sparrow | 1 | 5,300,000 | Abundant and widespread but declining resident | Local |
| Linnet | 1 | 560,000 | Common and widespread resident, winter visitor and passage migrant | Local |
| Reed bunting | 1 | 275,000 | Widespread and locally common but declining resident and passage migrant | Local |
| Skylark | 20 | 1,550,000 | Common resident which has declined recently | Local |
| Stock dove | 1 | 320,000 | Common resident | Local |
| Whitethroat | 1 | 1,100,000 | Very common summer visitor and passage migrant | Local |
| Woodpigeon | 4 | 5,150,000 | Abundant and widespread resident | Local |
| Wren | 6 | 11,000,000 | Abundant resident and winter visitor | Local |
| Yellowhammer | 6 | 700,000 | Common and widespread but declining resident | Local |
| Yellow wagtail | 1 | 19,500 | Common passage migrant and regular breeder in small numbers | Local |

4.3.26 The level of geographic importance for the breeding populations of species of conservation interest is 'local.' All other species recorded during the survey (i.e., those not of conservation interest) were present at a 'site' level and the bird community recorded during the survey are considered typical for the habitats present within the survey area.

4.3.27 Overall, and based on Fuller's criteria (Table 2.3), the breeding bird assemblage within the survey area is considered to be of no more than local importance due to the diversity and abundance of the species present.

## Breeding Bird Assemblage 2023-2024

4.3.28 The following recorded breeding species are farmland birds currently of most conservation concern included on the Red List. They include those that are ground-nesting birds (such as skylark) and species that nest in hedgerows or trees, but which rely on open arable habitats for

invertebrate prey for their young, and as foraging habitat in winter relying on weedy field margins and leftover grains in winter stubble/fallow land.

- Skylark – 45 territories of this Red List species were identified with distribution throughout the Site with only a few very small pockets of the Site not seemingly occupied. Birds were mainly recorded singing or calling overhead, but some family parties were also encountered, especially in areas of grassland on either side of the two main ditches that run through the Site. Territories that bordered the red line were included in the overall assessment for the Site as their territories are likely to incorporate habitats present within the Site boundary.

  The high numbers recorded during the 2023 surveys could be a result of the crop being grown at the time (maize), and the late sowing of the crop. Skylarks can be found on most areas of open farmland, preferring larger arable and grassland fields. Skylarks nest on the ground in short grass or crops, avoiding vegetation over 60 cm high. Winter-sown crops and silage fields are only suitable for a single brood, making buffer strips and spring crops essential to maintain adult populations. The open areas are chosen to allow sightings of potential predators. Adults feed on a range of seeds and plant shoots including knotgrass, groundsel, fat hen and grasses. Chicks are entirely dependent on insects until fledging, favouring sawfly larvae, beetles, ants, spiders, and grasshoppers. In Hertfordshire during 2021, very little information is included but the species is widespread and abundant within the county.

  The 2024 surveys revealed 20 confirmed territories, halving the number of the 2023 survey results suggesting the numbers were exceptionally high that year.

- Yellow wagtail – one territory recorded with a female bird observed carrying food and an adult male nearby during the 2023 survey. There was also a record of what was likely a different calling male along the southern boundary of the Site and an unsexed bird on the southwest parcel on the final visit, however, these records alone did not support confirmation of any further territories.

  The 2024 surveys revealed similar results with one confirmed territory with a pair carrying food, however, more individuals were recorded across the Site with one probable territory.

  Yellow wagtails usually breed on the fringes of wetlands, wet grassland, and hay meadows but sometimes vegetable crops and a number of arable crops, including cereals, potatoes, peas, and field beans. Vegetation must be open enough to give the birds easy access to the ground. They need a good supply of insects and spiders throughout the summer, particularly flying insects in sparse vegetation and open ground. Grazed pasture is a favourite foraging habitat for them, as are in-field manure heaps, ponds, and wet areas. In Hertfordshire, confirmed breeding was recorded at 13 sites and probable breeding at a further three. Peak summer counts included 30 individuals in fields at Buckland village on 19th July 2021 which mainly comprised juvenile birds.

- Linnet - four territories of this Red List species were identified on Site in the 2023 surveys, one of which was in the southwest parcel of land off-road and Newell Lane, one in the southwest corner of the central field on Site, and two along the northern boundary. All territories were largely associated with the various mature hedgerows.

  Only one confirmed territory was recorded during the 2024 surveys with two probable territories.

  On farmland, linnets can be found wherever there is a plentiful supply of seeds. Linnets and their chicks rely almost entirely on seeds throughout the year but during the winter, adults will favour stubbles and field margins where weed seed and split grains are abundant. Dandelion seeds in pasture are particularly important. Chicks feed on weed seeds and unripe oilseed rape grains. In Hertfordshire confirmed breeding records came from nine sites in 2021.

- Corn Bunting - one territory of this species was located singing just off-site on two visits; the territories were close enough to the Site boundary to be included in this assessment. An adult bird was also recorded singing on the final visit on 6th June 2023 in two different locations within the Site boundary.

  One confirmed, and 3 probable/possible territories were recorded during the 2024 surveys. The increase in records could be due to the surveys carrying on later into the season with the last one on the 15th of July allowing for the later nesting habits of corn bunting.

Corn Buntings nest on the ground in cereal fields, set-aside, grass field margins or unimproved grassland. They start nesting late in the spring, usually June or July and can have flightless chicks in August. The population in the UK has fallen by 90% between 1970 and 2003. This is mainly because their food source has been reduced on farmland and because they often nest late these can be destroyed during summer harvest. Adults mainly feed on cereal grains and other seeds but breeding success relies solely on the presence of invertebrates. In Hertfordshire, there were reports from 36 sites during the breeding season compared to 41 in 2020 and 24 in 2019.

- Yellowhammer – nine territories of this Red List species were identified on Site during 2023, with birds mainly recorded calling or singing from visible points along the various mature hedgerows. Five of these territories were spread between Lodge Farm, southern boundary hedgerows, and the junction of Newell Lane and Cromer Heath, with a further four along the western and northern boundaries. Although birds associate with hedgerows for song posts they readily use the open field to forage and feed chicks.

  The numbers recorded during the 2024 surveys were very similar to the previous year with six confirmed territories and five probable/possible territories of yellowhammer.

  The yellowhammer prefers a mixed farming landscape with well-managed hedgerows and scrub. Adults feed on a range of plants including dead nettles *Lamium purpureum*, groundsel *Senecio vulgaris*, sorrel *Rumex acetosa*, cereal grains, millet and annual plant weed seeds foraged from stubble fields. They will feed on spill from game hoppers and will also take insects in the breeding season. Young are dependent upon insects for the first week or so after hatching. In Hertfordshire in 2021 there was confirmed breeding at a minimum of ten sites and recorded at 39 BBS squares down from 31 in 2020. The highest count was 23 at Heartwood Forest on 13th July 2021.

## Potential Impacts on Breeding Birds

4.3.29 Given the widespread distribution and density of breeding birds across the Site, it is inevitable that the development of the Site will result in the loss of a small number of breeding territories, through direct loss of habitat during the construction stage, however, the hedgerows, trees and field margins will be retained and increased within the current proposals, therefore there is unlikely to be significant removal of breeding bird habitat.

4.3.30 Construction activities, such as noise from vegetation clearance and initial ground works have the potential to disturb birds using the boundary features for nesting and foraging. Active, high-level, infrequent disturbance causes most birds to be displaced for short periods. However, this will be temporary and short-term in duration, and it is expected that birds will reinhabit these areas once construction is complete.

4.3.31 Within the fields themselves, a high level of skylark territories were confirmed during the surveys undertaken in 2023, with greatly reduced numbers in 2024. Skylarks are ground-nesting birds and characteristic of arable farmland (and other open) habitats, making use of nesting cover and bare ground for feeding that crops provide throughout the year. The proposed development therefore presents particularly high risks for ground-nesting species such as skylark with the potential for disturbance and reduced opportunities for breeding and foraging.

4.3.32 Limited research has been undertaken on the effects of PV solar panels on birds in the UK, however, in a study by Montag *et al.* (2016) 'The Effects of Solar Farms on Local Biodiversity: A Comparative Study', greater diversity and abundance of birds of conservation concern utilise solar arrays when compared with control plots, indicating that solar farms may be able to provide an important resource for declining species such as skylark. The study concluded that while skylarks rarely utilise solar sites for nesting, they do incorporate solar sites into their territorial boundaries for foraging. There is little research beyond Montag *et al.* (2016) into bird use of solar farms; however, there is some evidence to suggest that ground nesting species including skylark and corn bunting will continue to nest, as well as forage, in solar farms over multiple years, which demonstrates the use of grassland on solar sites by a wide variety of species (including those of conservation concern).

4.3.33 Notwithstanding impacts to farmland birds, the diversity of the species present within the survey area is at a level indicative of local importance and therefore it is not considered that the development would result in impacts on breeding birds that are significant beyond the site level.

However, due to the farmland bird species of conservation concern, and the numbers of skylark recorded during the surveys undertaken in 2023 and 2024, a proposed farmland bird mitigation strategy is provided as in Appendix H.

## Wintering Birds

4.3.34 A total of 49 species were recorded within the Site boundary during the winter bird surveys undertaken between October 2023 to March 2024. A summary of the species recorded, together with their peak and mean counts is provided in Table 4.4 below and their locations are shown in Figure 3.10 to Figure 3.21 in Appendix G.

**Table 4.4: Survey summary data – October 2023 to March 2024**

| Species | Peak Count | Mean Count | Species | Peak Count | Mean Count |
|---|---|---|---|---|---|
| Blackbird | 2 | 1.1 | Linnet | 11 | 4.3 |
| Blue Tit | 4 | 2.0 | Long-tailed tit | 3 | 2.3 |
| Brambling | 1 | 1.0 | Magpie | 2 | 1.1 |
| Bullfinch | 1 | 1.0 | Mallard | 2 | 1.5 |
| Buzzard | 1 | 1.0 | Meadow pipit | 2 | 1.1 |
| Canada goose | 10 | 10.0 | Mistle thrush | 2 | 1.3 |
| Carrion crow | 66 | 10.4 | Moorhen | 1 | 1.0 |
| Chaffinch | 12 | 3.2 | Pheasant | 3 | 1.6 |
| Chiffchaff | 1 | 1.0 | Pied wagtail | 2 | 1.2 |
| Corn bunting | 33 | 8.7 | Red kite | 2 | 1.2 |
| Dunnock | 1 | 1.0 | Red-legged partridge | 4 | 2.0 |
| Fieldfare | 75 | 9.8 | Redwing | 13 | 2.9 |
| Goldcrest | 1 | 1.0 | Reed bunting | 1 | 1.0 |
| Golden plover | 6 | 6.0 | Robin | 2 | 1.1 |
| Goldfinch | 2 | 1.5 | Rook | 400 | 49.8 |
| Great spotted woodpecker | 1 | 1.0 | Skylark | 150 | 4.2 |
| Great tit | 2 | 1.6 | Song thrush | 8 | 1.6 |
| Green woodpecker | 1 | 1.0 | Starling | 70 | 26.3 |
| Greenfinch | 1 | 1.0 | Stock dove | 10 | 4.3 |
| Grey heron | 1 | 1.0 | Stonechat | 2 | 1.3 |
| Grey partridge | 2 | 1.5 | Teal | 1 | 1.0 |
| House sparrow | 6 | 3.1 | Woodpigeon | 650 | 46.6 |
| Jackdaw | 200 | 56.9 | Wren | 1 | 1.0 |
| Jay | 2 | 1.3 | Yellowhammer | 8 | 2.2 |
| Kestrel | 1 | 1.0 | | | |

4.3.35 Twenty-five species recorded during the surveys meet at least one of a range of criteria relating to nature conservation. These species, and their relevant conservation importance, are shown in Table 4.5 below.

**Table 4.5: Conservation status of recorded birds – October 2023 to March 2024**

| Species | Annex 1 EU Birds Directive | NERC Species of Principal Importance | BoCC 5 Red and Amber Species |
|---|---|---|---|
| Bullfinch | - | - | Amber |
| Corn bunting | - | ■ | Red |

| Species | Annex 1 EU Birds Directive | NERC Species of Principal Importance | BoCC 5 Red and Amber Species |
|---|---|---|---|
| Dunnock | - | ■ | Amber |
| Fieldfare | - | - | Red |
| Golden plover | ■ | - | - |
| Greenfinch | - | - | Red |
| Grey partridge | - | ■ | Red |
| Kestrel | - | - | Amber |
| Linnet | - | ■ | Red |
| Mallard | - | - | Amber |
| Meadow pipit | - | - | Amber |
| Mistle thrush | - | - | Red |
| Moorhen | - | - | Amber |
| Redwing | - | - | Amber |
| Red kite | ■ | - | - |
| Reed bunting | - | ■ | Amber |
| Rook | - | - | Amber |
| Skylark | - | ■ | Red |
| Song thrush | - | ■ | Amber |
| Starling | - | ■ | Red |
| Stock dove | - | - | Amber |
| Teal | - | - | Amber |
| Woodpigeon | - | - | Amber |
| Wren | - | - | Amber |
| Yellowhammer | - | ■ | Red |

## Wintering Bird Assemblage

4.3.36 As per Table 4.5, twenty-five of the 49 species recorded during the wintering bird surveys qualify as being of conservation interest. The following nine species are species of Principal Importance listed under Section 41 of the NERC Act (2006): corn bunting, dunnock, grey partridge *Perdix perdix*, linnet, reed bunting, skylark, song thrush, starling *Sturnus vulgaris*, and yellowhammer.

4.3.37 Golden plover *Pluvialis apricaria* and red kite *Milvus milvus* are Annex 1 species recorded during the wintering bird surveys. These were recorded passing through and flying over, however they had no other interaction with the Site.

4.3.38 The following nine species recorded during the wintering bird surveys are included on the BoCC Red List: corn bunting, fieldfare *Turdus pilaris*, greenfinch *Chloris chloris*, grey partridge, linnet, mistle thrush *Turdus viscivorus*, skylark, starling, and yellowhammer.

4.3.39 The following 22 species are included on the BoCC Amber List: bullfinch *Pyrrhula pyrrhula*, dunnock, kestrel *Falco tinnunculus*, mallard *Anas platyrhynchos*, meadow pipit *Anthus pratensis*, moorhen *Gallinula chloropus*, redwing *Turdus iliacus*, reed bunting *Emberiza schoeniclus*, rook *Corvus frugilegus*, song thrush, stock dove, teal *Anas crecca*, woodpigeon, and wren.

## Geographical Importance

4.3.40 The following geographical frames of reference and selection criteria (based on the Guidelines for Ecological Impact Assessment in the United Kingdom (CIEEM, 2019)) are used to ascribe nature conservation value or potential value to the breeding bird populations within the survey area.

- International importance – a species which is cited as part of the designated interest of a Specially Protected Area (SAP) or Ramsar or occurs in internationally or nationally important numbers (i.e., >1% threshold of international importance);
- National importance – a species which is cited as part of the designated interest of a SSSI or NNR, or occurs in nationally important numbers (i.e., >1% UK population or exceeds the 1% threshold for national importance);
- Regional importance – NERC Act (2016) Section 41 Priority Species and BoCC Red List species that regularly occur in regionally important numbers;
- County importance – NERC Act (2016) Section 41 Priority Species, BoCC Red List species, BAP Priority Species or species identified in the county biodiversity strategy that are important at a county level;
- Local importance – Species of conservation interest (i.e., Annex, Schedule 1, NERC Priority Species, BoCC Red or Amber List species); or
- Site – all common and widespread species.

4.3.41 The number of birds recorded during the survey is compared to the species national wintering population estimate and county status. National wintering population estimates are based on Woodward, *et al*. (2020), for those species for which only breeding population estimates are available the number of pairs/territories is doubled to provide an estimated wintering population.

4.3.42 Where no regional or county population estimates are available, professional judgment and comparisons with population estimates at higher geographical levels have been used to inform this assessment.

- Bullfinch – a common resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 450,000 individuals (Woodward *et al.,* 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Corn bunting – a declining resident breeding and wintering bird in the UK with an estimated population of 22,000 individuals (Woodward *et al*., 2020). Within Hertfordshire, corn bunting is an uncommon species, encountered in small numbers during the summer. However, in the winter, it will join mixed flocks of buntings, finches, and sparrows to feed on seeds on farmland. Given the number of corn bunting recorded and the extent of suitable habitat present, the numbers recorded are considered to be of local importance.
- Dunnock – a common resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 4,700,000 individuals (Woodward *et al.,* 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Fieldfare – a very common winter visitor in the UK and Hertfordshire with an estimated winter population size of 680,00 birds (Woodward *et al.,* 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Golden plover – a common winter visitor with an estimated winter population size of 400,00 birds (Woodward *et al.*, 2020). Golden plover were only recorded once and in small numbers, therefore, the wintering population was considered to be of no more than local importance.
- Greenfinch – a common but declining resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 1,520,000 individuals (Woodward *et al*., 2020). The numbers recorded during the winter season are unremarkable and broadly representative of the species in the wider landscape, considering the type and extent of suitable habitats present.
- Grey partridge – a widespread, but declining resident breeding and wintering bird in the UK and Hertfordshire with an estimated population of 74,000 individuals (Woodward *et al.*, 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.

- Kestrel – a common resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 60,000 individuals (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Linnet – a resident breeding and wintering bird in the UK and Hertfordshire with an estimated breeding population of 530,000 territories (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Mallard – a common resident breeding and wintering bird in the UK and Hertfordshire with an estimated winter population size of 665,000 birds (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Meadow pipit – a common resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 2,250,000 pairs (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Mistle thrush – a common resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 300,000 individuals (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Moorhen – a common resident breeding and wintering bird in the UK with an estimated population size of 200,000 territories with an estimated winter population size of 300,000 birds (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Red kite – an increasing resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 8,700 individuals (Woodward et al., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Redwing – a very common winter visitor to the UK and Hertfordshire with an estimated wintering population size of 650,000 birds (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Reed bunting – a common resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 255,000 territories (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Rook – a common resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 1,770,000 pairs (Woodward *et al.,* 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Skylark – a common resident breeding and wintering bird in the UK with an estimated population size of 1,500,000 territories (Woodward *et al.*, 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Song thrush – a common but declining resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 2,400,000 individuals (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Starling – a common but declining resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 3,300,000 individuals (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and

broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.

- Stock dove – a common resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 320,000 territories (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Woodpigeon – a common resident breeding and wintering bird in the UK and Hertfordshire with an estimated population size of 10,100,000 individuals (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Wren – a common resident breeding and wintering bird in the UK with an estimated population size of 9,750,000 territories (Woodward *et al*., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.
- Yellowhammer – a resident breeding and wintering bird in the UK and Hertfordshire with an estimated breeding population size of 685,000 territories (Woodward et al., 2020). The numbers recorded during the winter season are considered unremarkable and broadly representative of the species in the wider landscape, given the type and extent of suitable habitats present.

### Potential Impacts on Wintering Birds

4.3.43 Given the widespread distribution and density of wintering birds, the development of the Site will result in the loss of agricultural habitat which, in the absence of mitigation, could result in a slight decline in the numbers and species of wintering birds using the Site.

4.3.44 Indirect impacts on the wintering bird population could include displacement of birds which are less common and sensitive to increased visual, sound, and light disturbance (e.g., grey partridge and meadow pipit). It is also possible that an increase in vehicle movements across the Site during the construction phase could impact the habitats which are being retained.

4.3.45 The majority of wintering species identified during the survey were recorded along hedgerows and field margins. These habitats will be largely retained and increased in extent and/or enhanced in species diversity.

4.3.46 It is expected that fieldfare, redwing, and woodpigeon would benefit from the retained/enhanced hedgerows, scrub, and wood as a valuable source of winter food, and species such as starling would benefit from grassland areas, which would be expected to result in a long-term increase in foraging opportunities (i.e., increase in invertebrates which form a large part of the starling diet).

4.3.47 Skylark was recorded using the arable fields for foraging, while corn bunting was recorded foraging within the fields and using areas of scrub for cover. These species have the potential to be impacted by the proposed development, however, the proposed mitigation plan (Appendix H) for the breeding populations would ensure the longevity of the wintering populations.

4.3.48 The overall diversity of the species present within the survey area is at a level indicative of local importance to wintering birds and therefore it is not considered that the development would result in impacts on wintering birds that are significant beyond the local or Site level.

## Mammals

### Bats

4.3.49 The woodland and hedgerows were considered to provide moderate foraging and commuting habitats, further linking to suitable foraging, commuting, and roosting habitat within the wider landscape.

4.3.50 A total of 54 trees were identified as having features suitable to support roosting bats. These comprised five trees with high potential, 12 trees with moderate potential and 37 trees with low potential to support roosting bats.

4.3.51 As per the proposed planning drawings which form part of the planning application pack, no trees will be removed or affected. In the event that any PRF – M/I trees are likely to be affected by the proposed development works (i.e., removal for health and safety reasons or access routes) further survey work will be required to determine whether these are currently being used by bats. Any trees with low potential for roosting bats would need to be inspected by or in the presence of a licensed bat ecologist immediately prior to soft-felling if they were to be removed. Further details are provided in Section 7 of this report. It should be reinforced that this is a proposed safeguard and tree removals are not proposed.

4.3.52 All of these trees are to be protected and buffered during the construction phase to limit any indirect impacts.

## Badgers

4.3.53 The information on the impacts of badgers is contained within confidential Appendix F.

# 5 MITIGATION AND ENHANCEMENT

## 5.1 Designated Sites

5.1.1 The proposals do not directly affect any statutory designated sites. The closest statutory site (Moor Hall Meadows SSSI) was located 3.04 km to the southeast, which is sufficiently separated from the Site and therefore unlikely to be affected by the proposed solar farm.

5.1.2 A total of 29 non-statutory designated sites were located within 2 km of the Site boundary and were designated for a range of habitats and species. Cottered Road Verge LWS, an area of species-rich grassland lay adjacent to the eastern boundary of the Site, measures will be taken to prevent any impacts, these are discussed in Section 7.2.2 of this report. A further nine LWSs were located within 1 km of the Site boundary. There is potential for the habitats and species present to be adversely affected by the proposals during the construction period and therefore recommended mitigation measures are included in Section 7.2 of this report.

## 5.2 Habitats

5.2.1 The hedgerows, woodland edge, and ditches would all be retained, while the arable fields and some areas of grassland will be lost. These were considered the habitats of greatest value to protected and notable species. No trees will be removed.

5.2.2 The proposals will avoid direct impacts to the LWS through exclusion zones or protection buffers between the Site and features of the LWS. Good practice guidelines will be included within a CEMP and must be put in place and followed to ensure that the nearby LWSs are not adversely affected by the development. As per common practice, it is anticipated that the requirement to provide a CEMP prior to the commencement of development, will be conditioned as part of any emerging planning consent. Measures to be contained within the CEMP include but are not limited to:

- Protective fencing installed along retained hedgerows, trees, grass margins and ditches where they fall outside of construction areas. Best practice guidelines for constructing exclusion zones, barriers and ground protection around trees provided in British Standard 5837:2012 (Trees in Relation to design, demolition, and construction - Recommendations), should be followed where necessary and adapted for hedgerows;
- The sensitive siting of construction compounds, access roads and laydown areas away from retained boundary features; and
- A plan produced to ensure that air or water-borne pollution generated during construction of the solar farm does not impact nearby designated sites.

5.2.3 To avoid sediment or pollution entering watercourses, standard pollution control measures would be followed to ensure that run-off from construction areas that could be contaminated with sediment and other pollutants does not reach waterflows. This will include applying minimum separation distances to watercourses and providing silt fences during construction.

5.2.4 The NPPF (2023) states that to minimise impacts on biodiversity, planning policies should contribute to and enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.

### Hedgerows, Trees, and Other Boundary Features

5.2.5 The native species-rich hedgerows within the Site and along the boundary are Habitats of Principal Importance. The majority of the hedgerows would be retained in the current proposals with the exception of 13 m that will be removed to facilitate relocation of southern access.

5.2.6 Measures would be taken to ensure the retained hedgerows are protected from damage during the construction phase, such as installing sturdy fencing around them. Best practice guidelines provided in NHBC Standards (2023) *Building near trees* and British Standard for Trees (2012) would be followed.

5.2.7 All trees on Site would be protected with fencing and no work would be undertaken within the root protection zone of any tree.

5.2.8 Additional tree planting comprising native species will be undertaken where practicable, across the Site as reinforcement along existing boundary features.

## 5.3 Species

### Invertebrates

5.3.1 The measures incorporated within a CEMP to protect the designated sites and habitats on Site would be suitable to ensure that invertebrate species are protected from the construction of the solar development.

5.3.2 Post-construction retained habitats should be managed to improve the invertebrate diversity on Site. This should be focused on the hedgerows on Site and within new areas of neutral grassland. Increasing floristic diversity in these areas will aid pollinating insects and increase invertebrate diversity on Site.

5.3.3 Additional enhancements for invertebrates may also be provided in the form of beehives, insect 'hotels,' log piles and deadwood. These measures will be confirmed within the LEMP which is likely to be a pre-commencement condition requirement of any emerging planning consent. The LEMP will include measures for post-construction monitoring and reporting arrangements at the Site.

### Herpetofauna

#### Great Crested Newts

5.3.4 The grassland, scrub, woodland edges, pond, and ditches were considered suitable terrestrial and aquatic habitats for GCN with good connectivity to off-site terrestrial and aquatic habitats. A wet ditch was present across the Site fed by the large pond along the southern boundary.

5.3.5 The majority of these features would be retained and buffered as part of the proposed development; however, some areas of scrub, ruderal, and grassland may be lost to facilitate the proposed development. In addition, the majority of the arable fields would be temporarily disturbed during construction.

5.3.6 In the highly unlikely event that GCN are discovered during Site clearance, works will stop and the need for a licence will be assessed and, if required, obtained from Natural England. It is likely that the scope of works would not require a full mitigation licence but may require a Low Impact Licence.

5.3.7 In addition, during construction, the following precautionary measures should be implemented on Site to ensure that GCN and other amphibians are not adversely harmed:

- Work that may only affect newts above the ground will only be undertaken during daylight hours and no new artificial lighting will be constructed or lit during the night which may affect the nocturnal activities of great crested newts or other protected species in the area;
- Trenches and other excavations will be backfilled before nightfall or ramps will be placed to allow an egress point for newts;
- Materials stored on Site will be raised (as they may function as temporary resting places) off-ground (e.g., on pallets);
- They will also ensure that the clearance remains within the proposed construction area and no features such as hedgerows or hibernation features adjacent to the construction zone are indirectly affected by the development;
- Briefings for contractors on identifying GCN and other amphibians and what to do should a GCN be encountered during construction should be provided before any clearance work is undertaken on Site. This should include an instruction to cease works in the vicinity where the newt is identified and seeking advice from a suitably experienced and licensed ecologist.

## Reptiles

5.3.8 Areas of suitable reptile habitat comprising grassland field margins, ditches and areas of scrub and ruderal vegetation would be largely unaffected by the development and therefore further surveys are not considered necessary.

5.3.9 The retention and enhancement of boundary features across the Site would increase opportunities for reptiles for foraging, basking and shelter. Additional enhancement measures such as the provision of hibernacula and log piles, would provide suitable habitat for hibernating reptiles. These measures will be confirmed within the LEMP which as referred to previously will be provided prior to the commencement of construction.

5.3.10 As a precautionary approach, it is recommended that the removal of any suitable reptile habitat is undertaken under ecological supervision as a controlled process. such as:

- Suitable reptile habitats and features are to be hand searched and then carefully removed under ecological watching brief who will check for reptiles to be present below ground as the top level of soil is removed; and
- A small excavator will be used to carefully lift turfs and shake out roots and soil so that an ecologist can search for reptiles that may be present in the root masses. The clearance works should be conducted between April and September when it is at least 10°C and sunny when reptiles are active and can move off site. The development Site should then remain as bare ground to deter reptiles from re-inhabiting the area.

## Bats

5.3.11 The woodland and hedgerows were considered to provide moderate value foraging and commuting habitat, further linking to suitable foraging, commuting, and roosting habitat within the wider landscape.

5.3.12 The GLTA identified five trees with PRF–M and 49 trees with PRF–I, all other trees were considered to have negligible potential to support roosting bats.

5.3.13 The PRF – M/I trees will not be affected by the proposed development works on Site, however, if this was to change (i.e., lighting, removal for health and safety), then further survey work will be required.

5.3.14 All of the trees and hedgerows are to be protected and buffered in the construction phase by the erection of fencing, ideally, at least 5 m from the root protection area.

5.3.15 If any signs of bats are recorded present or bats are seen emerging or returning from any of the trees, a Natural England Licence application would be necessary before any work can be conducted on the trees and to inform mitigation design.

5.3.16 No further survey work is required for trees identified as having negligible potential to support roosting bats, however any trees that are to be removed will require a 'soft fell' methodology to be employed. This can be undertaken at any time of year during suitable weather conditions; however, a bat-licenced ecologist must be present to oversee the works. If any features are accessible from the ground / aerial inspection the bat-licenced ecologist will first check any potential roost features (PRFs) / cavities for signs of bat use (using a high-powered torch/endoscope). If no signs of bat use are identified a soft felling technique can be undertaken on the tree.

5.3.17 Soft felling a tree entails felling the tree in sections, with the following precautions: cutting above or below (rather than directly through) a potential roost feature; lowering cut sections gently to ground level by rope; and, cut sections are then to be left on Site, with any potential roost feature entrances left unobstructed, for 48 hours prior to chipping or removal from Site.

5.3.18 There would be no artificial or external lighting used during the construction or operation phases of the proposed development. In the event that lighting is to be used (e.g., out-of-hours maintenance), it will be directed to where it is needed (away from hedgerows, woodland, and mature trees on Site).

5.3.19 The mitigation measures detailed for habitats above would ensure the protection of retained mature trees and hedgerows and thus continued use of these features by bats.

## Breeding Birds

5.3.20 The breeding bird surveys undertaken in 2023 and 2024 showed that the Site is used by widespread and common bird species, present in relatively low numbers. These species were mostly recorded along the boundaries of the Site, adjacent to field margins, woodland edges and within the arable crop fields.

5.3.21 Construction activities, such as noise from vegetation clearance and initial ground works do have the potential to disturb birds along boundary features which are used for nesting and foraging. However, they will be temporary and short-term in duration, and it is expected that birds will reinhabit these areas once construction is complete.

5.3.22 Any longer-term disruption, loss of nesting and reduced foraging areas beneath the solar arrays will be compensated for in the Farmland Bird Mitigation Strategy.

5.3.23 Any vegetation clearance required for construction should be undertaken outside of the breeding season if possible. If any clearance is required between March and August (inclusive), the relevant areas must be inspected by a suitably qualified ecologist within 48 hours prior to clearance to check for the presence of nesting birds. If an active nest were present, the nest and vegetation within 5 m (minimum) of it would need to be retained until the young birds had fledged.

5.3.24 Any losses of nesting habitat lost due to any hedgerow removal would be compensated for through native hedgerow planting exceeding the length of the habitats lost. This would provide feeding and nesting opportunities for breeding birds; provide foraging habitat for woodland/garden birds and provide a source of food in the autumn to early winter months. As per the landscape mitigation plan contained within the Landscape and Visual Impact Assessment which forms part of the planning application pack, there is 13 linear metres of hedgerow removal associated with the development mainly to facilitate access arrangements. In terms of compensation there is 4,497 linear metres of new and 846 m of augmentation hedgerow planting, as well as further woodland planting and specimen tree planting. A wildflower grassland seed mix will be planted beneath the solar arrays to aid the increase of foraging opportunities throughout the Site.

5.3.25 It is also recommended that bird boxes are installed on retained mature trees within the Site boundary, to provide alternative nesting opportunities for smaller bird species. Boxes should comprise a variety of designs, such as open-fronted and traditional box holes to suit species recorded on Site. These will be part of the LEMP provided to the Council prior to construction.

## Farmland Birds

5.3.26 High numbers of skylark territories were recorded within the Site boundary and within the wider Site during the breeding bird surveys undertaken in 2023 and 2024. The levels of activity recorded during the surveys are considered to be unusually high and of county-level importance.

5.3.27 The number of confirmed skylark territories had reduced to 20 in the 2024 surveys, this is still considered to be significant but at local-level importance rather than county-level.

5.3.28 Corn bunting, linnet, yellowhammer, and yellow wagtail were also recorded with confirmed breeding territories, all of which are Red Listed species.

5.3.29 Any vegetation clearance required for construction should be undertaken outside of the breeding season if possible. If any clearance is required between March and August (inclusive), the relevant areas must be inspected by a suitably qualified ecologist within 48 hours prior to clearance to check for the presence of nesting birds, particularly ground nesting birds within the proposed solar arrays as these will be the species impacted the most. If an active nest were present, the nest and vegetation within 5 m (minimum) of it would need to be retained until the young birds had fledged.

5.3.30 A farmland bird mitigation strategy has been devised to reduce and mitigate adverse impacts on the local farmland bird population and is provided in Appendix H. The mitigation strategy considers additional areas of land adjacent to the Site which could be used for compensatory foraging and nesting habitat, and the aims and management objectives of creating such habitat.

5.3.31 The measures included within the farmland bird mitigation strategy not only supports the species of conservation highlighted in this report but also a broad range of other species that were recorded during the 2023 and 2024 breeding bird surveys.

### Wintering Birds

5.3.32 The Site was used by widespread and common bird species, with higher levels of activity associated with hedgerows and field margins. The arable fields were used by farmland species such as skylark and corn bunting. No birds were recorded in high numbers of national or county importance.

5.3.33 The majority of the hedgerows and ponds will be retained to create buffers between these features and the development. There will be no artificial lighting and no increase in noise disturbance of these features above existing levels, beyond the construction phase, thereby retaining their value as foraging and nesting habitat.

5.3.34 Any localised hedgerow removal would be compensated for through native hedgerow planting exceeding the length of the habitats removed to fully offset the localised loss. Additional hedgerow enhancement or planting would provide feeding opportunities for wintering birds; provide foraging habitat for woodland/farmland birds and provide a source of food in the autumn to early winter months.

5.3.35 The loss of arable fields will reduce the extent of roosting and feeding habitat within the Site for farmland species such as skylark, corn bunting, and other farmland birds. The proposed mitigation plan for the breeding populations would ensure the longevity of the wintering populations.

5.3.36 The proposed mitigation plan for the breeding populations would also ensure the longevity of the wintering populations.

5.3.37 To provide enhancements for wintering birds, the following measures should be considered:

- Management of existing hedgerows to encourage them to form large and dense structures with a diversity of canopy heights, ideally by only cutting no more than once every three years and not cutting both sides in the same year. Cutting should be in late winter so that fruits will remain on the hedgerows to provide early winter food;
- Managing the grassland buffers to maintain a long grassland sward while preventing the development of scrub or excessive cover of ruderals. This will provide some cover while also supporting invertebrates on which birds will feed; and
- Where possible within the Site planting sections of field margins with winter cover crop mixes to enhance the availability of winter food for birds.

5.3.38 These measures will not only support the species of conservation highlighted in this report but also a broad range of other common woodland and parkland bird species that were also recorded during the 2023 and 2024 wintering bird surveys.

5.3.39 The above measures will be confirmed within the LEMP.

### Badgers

5.3.40 Mitigation measures for badgers have been provided in confidential Appendix F.

## 5.4 Enhancement Opportunities

5.4.1 In addition to the mitigation measures outlined above, enhancement measures could also include:

- Two raptor and/or barn owl boxes located in mature trees;
- Invertebrate boxes in various habitats, including near hedgerows and within retained grassland;
- The provision of bat boxes on existing mature trees (up to three boxes per tree) facing in different directions to offer suitable roosting conditions all year round; and
- Amphibian/reptile hibernacula located in retained grassland.

5.4.2 Any enhancement measures will be formally detailed within the LEMP which will be submitted to the Council for consideration prior to the commencement of works on Site and in compliance with a planning condition as part of any consent.

5.4.3 A Biodiversity Net Gain (BNG) assessment has been undertaken for the Site and is reported separately.

# 6 CONCLUSIONS

6.1.1 Three statutory designated sites designated for their nature conservation value are located within 5 km of the Site, the closest being Moor Hall Meadows SSSI, 3 km to the southeast of the Site boundary, which is designated for its species-rich grassland.

6.1.2 A total of 29 non-statutory sites were located within the 2 km search radius of the Site: the closest of these is Cottered Road Verge, species-rich grassland that runs adjacent to the eastern boundary of the Site.

6.1.3 The Site comprised predominantly arable fields and improved grassland. An area of plantation woodland, a pond adjacent to the southern boundary, and a wet ditch running through the south of the Site. The River Beane running through the north of the Site (which was dry at the time of the survey). The Site was bound by species rich hedgerows with trees and small areas of ruderal vegetation and scrub were present adjacent to some field boundaries.

6.1.4 A GCN HSI assessment was undertaken on four waterbodies, these were found to provide some suitable breeding habitat for GCN. A GCN eDNA survey provided negative results.

6.1.5 The GLTA identified five trees with PRF–M and 49 trees with PRF–I, all other trees were considered to have negligible potential to support roosting bats.

6.1.6 Areas of suitable reptile and amphibian habitat were found across the Site which included hedgerows, scrub, ditches, and woodland edges. Due to some small losses / temporary disturbance of suitable habitat, mitigation measures are required to ensure that reptiles are not impacted as a result of the proposed development. It is recommended that the removal of any suitable reptile habitat is undertaken under ecological supervision.

6.1.7 The breeding bird surveys undertaken in 2023 and 2024 showed that the Site is used by widespread and common bird species, with higher levels of activity recorded along hedgerows, scattered trees, and woodland edges. Further mitigation measures would be required to ensure that there would be no adverse effects on the species present and using the Site. This would include clearing vegetation outside of the breeding season.

6.1.8 The arable fields were used by skylark, a NERC S41 and Red Listed species, at a county-level importance with 45 territories recorded in 2023 resulting in a second season of breeding bird surveys in 2024. The second season resulted in 20 skylark territories, numbers of a local-level. Other Red Listed farmland birds were recorded within the Site boundary, a mitigation strategy for skylark and farmland birds is provided in a separate addendum to this EA. Further to the implementation of proposed mitigation measures it is not anticipated there will be any significant adverse effects on the breeding bird species locally.

6.1.9 Wintering bird surveys recorded widespread and common bird species using the Site, with higher levels of activity associated with hedgerows and field margins. The arable fields were used by farmland species such as skylark and corn bunting. No birds were recorded in high numbers of national or county importance. Further mitigation and enhancement measures are recommended so there would be no adverse effects on the species present and using the Site.

6.1.10 The results of the badger survey are confidential and included in confidential Appendix F.

6.1.11 A detailed CEMP and LEMP should be provided prior to works commencing detailing the measures that would be needed to ensure safeguarding of habitats, designated sites, and species of conservation concern and how the new habitats would be created and managed.

6.1.12 The NPPF (2023) states that to minimise impacts on biodiversity, planning policies should promote the preservation, restoration, and re-creation of priority habitats. Therefore, a BNG assessment will be undertaken for the Site to ensure that habitats lost in the proposals are recreated and a net gain in biodiversity is achieved for the Site.

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# APPENDICES

# Appendix A:
## Relevant Legislation

### Great Crested Newts

Great crested newts *Triturus cristatus* are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (and as amended), which affords the species protection under Section 9. The species is also listed on Schedule 2 of the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019. In combination, this makes it an offence to:

- intentionally kill, injure, or take (capture etc.) a great crested newt;
- possess a great crested newt;
- intentionally or recklessly damage, destroy, obstruct access to any structure or place used by great crested newt for shelter or protection, or disturb any animal occupying such a structure or place; and
- sell, offer for sale, possess, or transport for the purpose of sale (live or dead animal, part, or derivative) or advertise for buying or selling such things.

Great crested newts are also listed on the UKBAP as a Priority Species and are listed as a species of principal importance for biodiversity in England & Wales under Section 41 of the Natural Environment & Rural Communities Act (2006).

### Reptiles

All common UK reptile species (adder *Vipera berus*, grass snake *Natrix helvetica*, common lizard *Zootoca vivipara* and slow worm *Anguis fragilis*) are protected through part of Section 9 (1 and 5) of the Wildlife & Countryside Act 1981 (as amended). This prohibits:

- Intentional or reckless injuring or killing;
- Selling, offering, or exposing for sale, or having in possession or transporting for the purpose of sale, any live or dead wild animal or any part of, or anything derived from, such an animal; or
- Publishing or causing to be published any advertisement likely to be understood as conveying buying or selling, or intending to buy or sell, any of those things.

### Birds

All birds, their nests and eggs are afforded protection under the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. It is an offence to:

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

Schedule 1 birds (including barn owl) cannot be intentionally or recklessly disturbed when nesting and there are increased penalties for doing so. Licences can be issued to visit the nests of such birds for conservation, scientific or photographic purposes but not to allow disturbance during a development even in circumstances where that development is fully authorised by consents such as a valid planning permission.

### Bats

All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. All British bats are also included on Schedule 2 of The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019 as European Protected Species. It is an offence to:

intentionally or recklessly kill, injure, or capture bats;

deliberately or recklessly disturb bats (whether in a roost or not); and

damage, destroy or obstruct access to bat roosts.

A roost is defined as 'any structure or place which [a bat] uses for shelter or protection.' As bats tend to reuse the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of survey.

A licence will therefore be required by those who carry out any operation that would otherwise result in offences being committed.

The following bat species are listed as being of principal importance for the conservation of biodiversity in England, (commonly referred to as UKBAP Priority species): barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, noctule *Nyctalus noctula*, soprano *pipistrelle Pipistrellus pygmaeus*, brown long-eared *Plecotus auritus*, greater horseshoe *Rhinolophus ferrumequinum* and lesser horseshoe *Rhinolophus hipposideros*.

## Badgers

Badgers are protected under the Protection of Badgers Act 1992. This act is based on the need to protect badgers from baiting and deliberate harm or injury. The act makes it an offence to:

Wilfully kill, injure, take, possess, or cruelly ill-treat a badger, or attempt to do so; and

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 routes.

A sett is defined as "any structure or place that displays signs indicating current use by a badger."

# Appendix B:
## Photographs

**All photographs were taken in May 2023**

**Photograph 1:** Example of scattered scrub found around the boundaries of the Site.

**Photograph 2:** Poor semi-improved grassland margins and former runway for disused airfield.

**Photograph 3:** Example of ruderal vegetation found on Site.

**Photograph 4:** Wet ditch (D1) present across the centre of the Site.

**Photograph 5:** Extent of arable fields which dominated the Site.

**Photograph 6:** An example of a Species-rich Hedgerow with Trees and field margin.

**Photograph 7:** Dry ditch/River Beane (D2) through the centre of the Site.

**Photograph 8:** Broadleaved plantation woodland on the south-eastern boundary.

**Photograph 9:** Young sycamore trees adjacent to the south-eastern boundary of Field 2 (F2).

**Photograph 10:** Mature ash tree adjacent to the eastern boundary within the species-rich hedgerow.

**Photograph 11:** Large pond (P1) present adjacent to the southeast boundary of the Site.

# Appendix C: GCN HSI Results

| ARGUK GCN HSI Calculator | | | | | | |
|---|---|---|---|---|---|---|
| | Pond Name | *Example* | Pond 1 | Pond 2 | Ditch 1 | Ditch 2 |
| | Grid Ref | *SK123456* | | | | |
| SI No | SI Description | *SI Value* | SI Value | SI Value | SI Value | SI Value |
| 1 | Geographic location | *1.00* | 1 | 1 | 1 | 1 |
| 2 | Pond area | *0.50* | 0.8 | 0.6 | 0.8 | 0.8 |
| 3 | Pond permanence | *0.90* | 0.9 | 0.9 | 1 | 0.1 |
| 4 | Water quality | *1.00* | 0.67 | 0.33 | 0.33 | 0.01 |
| 5 | Shade | *1.00* | 1 | 0.2 | 1 | 1 |
| 6 | Water fowl effect | *1.00* | 0.01 | 0.67 | 1 | 1 |
| 7 | Fish presence | *1.00* | 0.67 | 0.67 | 1 | 1 |
| 8 | Pond Density | *0.65* | 0.8 | 0.8 | 0.8 | 0.8 |
| 9 | Terrestrial habitat | *1.00* | 0.67 | 0.67 | 0.01 | 0.01 |
| 10 | Macropyhyte cover | *0.90* | 0.5 | 0.3 | 0.3 | 0.3 |
| **HSI Score** | | ***0.88*** | ***0.49*** | ***0.55*** | ***0.48*** | ***0.27*** |
| Pond suitability (see below) | | *Excellent* | Below average | Average | Average | Below average |

Categorisation of HSI Score by Lee Brady

| HIS Score | Pond Suitability |
|---|---|
| < 0.50 | Poor |
| 0.50 - 0.59 | Below average |
| 0.60 - 0.69 | Average |
| 0.70 - 0.79 | Good |
| > 0.80 | Excellent |

Based on ARGUK advice note 5 - Great Crested Newt Habitat Suitability Index

# TECHNICAL REPORT

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

### SUMMARY

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

### RESULTS

**Date sample received at Laboratory:** 08/06/2023
**Date Reported:** 19/06/2023
**Matters Affecting Results:** None

| Lab Sample No. | Site Name | O/S Reference | SIC | DC | IC | Result | Positive Replicates |
|---|---|---|---|---|---|---|---|
| 3385 | Cottered - 001 | - | Pass | Pass | Pass | Negative | 0 |

If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

**Reported by:** Chelsea Warner **Approved by:** Jackson Young

# Appendix E: Preliminary Bat Roost Assessment Results

| Tree ref. | Species | Features | Estimated height (m) | Description | Roost potential | Further action required if removed |
|---|---|---|---|---|---|---|
| 1 | Oak | Lifted bark | 16 | Multi-stemmed oak. Lifted bark, holes in branches but neither look like they go far. | PRF-I | Supervised soft-fell |
| 2 | Ash | Deadwood, lifted bark, cavities | 12 | Decay at base. Lifted bark. Dead limb looks ready to fall. Not safe to climb. Hollow stem but downward facing so will fill with water, not suitable for bats. | PRF-I | Supervised soft-fell |
| 3 | Ash | Age | 16 | Multi-stemmed ash. No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 4 | Oak | Deadwood, lifted bark | 13 | Lifted bark, dead limb with holes. No features seem to go far into the tree. | PRF-I | Supervised soft-fell |
| 5 | Oak | Holes | 15 | Holes in western branch. Do not look like they go far. Tree of a size and age suitable for bats. | PRF-I | Supervised soft-fell |
| 6 | Field maple | Cavities | 13 | Multi-stemmed field maple. Cavity in western stem at around 2m. Cavities on eastern stems 2-3m | PRF-I | Climbing or emergence/re-entry surveys |
| 7 | Ash | Ivy | 14 | Multi-stemmed ash. Ivy covered. No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 8 | Ash | Ivy | 15 | Multi-stemmed ash. Ivy covered. No obvious feature but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 9 | Oak and ash | Age | 15 | Group of nine ash and two oak none with obvious features but of a size and age where features may be present | PRF-I | Supervised soft-fell |
| 10 | Ash | Ivy | 18 | No obvious features but of a size and age where features may be present. Ivy covered, fallen limbs | PRF-I | Supervised soft-fell |
| 11 | Ash | Age | 17 | No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 12 | Ash | Age | 17 | Two multi-stemmed ash. No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 13 | Oak | Age | 14 | No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 14 | Oak | Age | 15 | No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 15 | Field maple | Age | 12 | No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 16 | Ash | Age | 15 | No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 17 | Ash | Age | 15 | No obvious features but of a size and age where features may be present. Not visible on all sides, within dense tree line | PRF-I | Supervised soft-fell |
| 18 | Ash | Age | 10 | No obvious features but of a size and age where features may be present. Bird box present | PRF-I | Supervised soft-fell |
| 19 | Field maple | Age | 12 | Multi-stemmed. Ivy covered. No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 20 | Oak | Deadwood, lifted bark, cavities | 18 | Lifted bark, split limbs, crevices at the base of broken off limbs | PRF-I | Climbing or emergence/re-entry surveys |
| 21 | Oak | Lifted bark | 16 | Two stemmed. Lifted bark. No other obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |

| Tree ref. | Species | Features | Estimated height (m) | Description | Roost potential | Further action required if removed |
|---|---|---|---|---|---|---|
| 22 | Oak | Age | 16 | No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 23 | Oak and ash | Age | 17 | Oak and ash very close together. No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 24 | Ash | Age | 14 | No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 25 | Ash | Cavity | 14 | Large cavity in main trunk | PRF-I | Climbing or emergence/re-entry surveys |
| 26 | Ash | Cavity | 15 | Large cavity in main trunk | PRF-I | Climbing or emergence/re-entry surveys |
| 27 | Oak | Age | 14 | Two stemmed. No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 28 | Field maple | Age | 15 | Group of multi-stemmed field maple. No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 29 | Oak | Ivy | 15 | No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 30 | Oak | Age | 16 | No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 31 | Oak | Age | 16 | Multi-stemmed. No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 32 | Beech and oak | Age | 16 | Woodland edge. No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 33 | Poplar | Age | 18 | No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 34 | Poplar | Crevices, holes | 20 | Several crevices/holes in bark | PRF-I | Climbing or emergence/re-entry surveys |
| 35 | Unknown | Crevices, holes | 5 | Crevices and holes throughout | PRF-I | Climbing or emergence/re-entry surveys |
| 36 | Unknown | Crevices, holes | 4 | Rotted throughout, holes and crevices throughout | PRF-I | Climbing or emergence/re-entry surveys |
| 37 | Poplar | Crevices, holes | 22 | Crevices and holes in bark throughout | PRF-I | Climbing or emergence/re-entry surveys |
| 38 | Poplar | Age | 22 | No obvious features but of a size and age where features may be present. | PRF-I | Supervised soft-fell |
| 39 | Poplar | Age | 22 | No obvious features but of a size and age suitable for roosting bats. | PRF-I | Supervised soft-fell |
| 40 | Poplar | Age | 22 | No obvious features but of a size and age suitable for roosting bats. | PRF-I | Supervised soft-fell |
| 41 | Poplar | Age | 22 | No obvious features but of a size and age suitable for roosting bats. | PRF-I | Supervised soft-fell |
| 42 | Poplar | Crevices | 22 | Crevices within bark | PRF-I | Climbing or emergence/re-entry surveys |
| 43 | Poplar | Crevices | 22 | Crevices in bark and holes throughout | PRF-I | Climbing or emergence/re-entry surveys |
| 44 | Poplar | Crevices, holes | 22 | Multiple crevices in bark throughout and woodpecker hole | PRF-M | Climbing or emergence/re-entry surveys |
| 45 | Poplar | Hole | 22 | Hole where limb has broken off on NE | PRF-I | Climbing or emergence/re-entry surveys |

| Tree ref. | Species | Features | Estimated height (m) | Description | Roost potential | Further action required if removed |
|---|---|---|---|---|---|---|
| 46 | Poplar | Cavity, hole | 22 | Large cavity in trunk, woodpecker hole | PRF-M | Climbing or emergence/re-entry surveys |
| 47 | Poplar | Ivy | 22 | Ivy covered. No obvious features but of a size and age suitable for roosting bats. | PRF-I | Supervised soft-fell |
| 48 | Unknown | Lifted bark, hole | 6 | Lifted bark, woodpecker hole | PRF-M | Supervised soft-fell |
| 49 | Poplar | Ivy | 22 | Ivy covered. No obvious features but of a size and age suitable for roosting bats. | PRF-I | Supervised soft-fell |
| 50 | Poplar | Ivy | 22 | Ivy covered. No obvious features but of a size and age suitable for roosting bats. | PRF-I | Supervised soft-fell |
| 51 | Poplar | Cavity | 22 | Large cavity in trunk | PRF-I | Climbing or emergence/re-entry surveys |
| 52 | Poplar | Lifted bark, crevice, cavity | 22 | Lifted bark, crevices in bark, cavity in trunk | PRF-M | Climbing or emergence/re-entry surveys |
| 53 | Poplar | Lifted bark, crevice, holes | 22 | Crevices in bark. Lifted bark. Holes throughout. | PRF-M | Climbing or emergence/re-entry surveys |
| 54 | Ash oak beech | Age | 20 | Woodland edge. No obvious features but of a size and age suitable for roosting bats. | PRF-I | Supervised soft-fell |

# Appendix F: Confidential Badger Survey Results

Due to the sensitive nature of badger data, the results are confidential. Those with a legitimate need for the information may request it from RPS.

# Appendix G: Wintering Bird Survey Results




Notes
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## Legend

Site Boundary

**Red-listed Species - Number of birds:**

- 1 - 10
- 11 - 20
- 51 - 150

**Annex 1 Species - Number of birds:**

- 1
- 2 - 3
- 4 - 6

**Abbriviations:**

CB - Corn Bunting
FF - Fieldfare
GP - Golden Plover
KT - Red Kite
LI - Linnet
M. - Mistle Thrush
S. - Skylark
SG - Starling
Y. - Yellowhammer

| Rev | Description | By | CB | Date |
|---|---|---|---|---|
| | | | | |
| | | | | |

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Project: Beane Solar Farm

Title: Wintering Bird Survey: Red-Listed and Annex 1 Species - October 2023

| Status | Drawn By | PM/Checked By |
|---|---|---|
| Draft | PJ | NH |
| **Project Number** | **Scale @ A3** | **Date Created** |
| **794-NI-P&E-NI2747** | 1:6,000 | 27/09/24 |
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## Legend

Site Boundary

**Red-listed Species - Number of birds:**

- 1 - 10
- 11 - 20
- 21 - 50
- 51 - 150

**Annex 1 Species - Number of birds:**

- 1

**Abbriviations:**

CB - Corn Bunting
FF - Fieldfare
KT - Red Kite
LI - Linnet
S. - Skylark
SG - Starling

| Rev | Description | By | CB | Date |
|---|---|---|---|---|
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Client: Renewable Energy Systems Ltd

Project: Beane Solar Farm

Title: Wintering Bird Survey: Red-Listed and Annex 1 Species - November 2023

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## Legend

Site Boundary

**Red-listed Species - Number of birds:**

- 1 - 10
- 21 - 50

**Annex 1 Species - Number of birds:**

- 1

**Abbriviations:**

FF - Fieldfare
GR - Greenfinch
KT - Red Kite
S. - Skylark
Y. - Yellowhammer

| Rev | Description | By | CB | Date |
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Project: Beane Solar Farm

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## Legend

Site Boundary

**Red-listed Species - Number of birds:**

- 1 - 10
- 11 - 20

**Annex 1 Species - Number of birds:**

- 1

**Abbriviations:**

CB - Corn Bunting

FF - Fieldfare

KT - Red Kite

S. - Skylark

| Rev | Description | By | CB | Date |
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Title: Wintering Bird Survey: Red-Listed and Annex 1 Species - January 2024

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## Legend

Site Boundary

**Red-listed Species - Number of birds:**

- 1 - 10

**Annex 1 Species - Number of birds:**

- 1
- 2 - 3

**Abbriviations:**

CB - Corn Bunting

KT - Red Kite

P. - Grey Partridge

S. - Skylark

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Title: Wintering Bird Survey: Red-Listed and Annex 1 Species - Feburary 2024

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## Legend

Site Boundary

**Red-listed Species - Number of birds:**

- 1 - 10
- 21 - 50

**Abbreviations:**

CB - Corn Bunting
LI - Linnet
P. - Grey Partridge
S. - Skylark
Y. - Yellowhammer

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Project: Beane Solar Farm

Title: Wintering Bird Survey: Red-Listed and Annex 1 Species - March 2024

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## Legend

Site Boundary

**Amber-listed Species - Number of birds:**

- 1 - 10
- 11 - 50
- 251 - 650

**Abbriviations:**

D. - Dunnock
K. - Kestrel
MP - Meadow Pipit
RE - Redwing
RO - Rook
SD - Stock Dove
ST - Song Thrush
WP - Woodpigeon
WR - Wren

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Project: Beane Solar Farm

Title: Wintering Bird Survey: Amber-Listed Species - October 2023

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## Legend

Site Boundary

**Amber-listed Species - Number of birds:**

- 1 - 10
- 11 - 50
- 51 - 150
- 151 - 250
- 251 - 650

**Abbriviations:**

MH - Moorhen
MP - Meadow Pipit
RO - Rook
ST - Song Thrush
WP - Woodpigeon
WR - Wren

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Title: Wintering Bird Survey: Amber-Listed Species - November 2023

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## Legend

Site Boundary

**Amber-listed Species - Number of birds:**

- 1 - 10
- 11 - 50

**Abbriviations:**

BF - Bullfinch
K. - Kestrel
MP - Meadow Pipit
RE - Redwing
ST - Song Thrush
WP - Woodpigeon
WR - Wren

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Project: Beane Solar Farm

Title: Wintering Bird Survey: Amber-Listed Species - December 2023

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## Legend

Site Boundary

**Amber-listed Species - Number of birds:**

- 1 - 10
- 11 - 50

**Abbriviations:**

MP - Meadow Pipit
RE - Redwing
RO - Rook
ST - Song Thrush
WP - Woodpigeon
WR - Wren

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Project: Beane Solar Farm

Title: Wintering Bird Survey: Amber-Listed Species - January 2024

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## Legend

Site Boundary

**Amber-listed Species - Number of birds:**

- 1 - 10
- 11 - 50

**Abbriviations:**

MA - Mallard

RO - Rook

ST - Song Thrush

WP - Woodpigeon

WR - Wren

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Project: Beane Solar Farm

Title: Wintering Bird Survey: Amber-Listed Species - Feburary 2024

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## Legend

Site Boundary

**Amber-listed Species - Number of birds:**

- 1 - 10
- 11 - 50
- 151 - 250

**Abbriviations:**

MA - Mallard
MP - Meadow Pipit
RO - Rook
SD - Stock Dove
ST - Song Thrush
T. - Teal
WP - Woodpigeon
WR - Wren

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Project: Beane Solar Farm

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# Appendix H: Farmland Bird Mitigation Strategy

# BEANE SOLAR FARM

## Farmland Bird Mitigation Strategy

794-NI-P&E-NI2747
Beane Solar: Farmland Bird Mitigation Strategy
Rev 4
October 2024

rpsgroup.com

## Quality Management

| Version | Status | Authored by | Reviewed by | Approved by | Review date |
|---|---|---|---|---|---|
| 1 | For review | Nikki Hulse | Katy Thomas | - | February 2024 |
| 2 | For review | Nikki Hulse | Katy Thomas | Katy Thomas | March 2024 |
| 3 | For issue | Nikki Hulse | Lloyd Richards | Lloyd Richards | August 2024 |

## Approval for issue

| | |
|---|---|
| Lloyd Richards | August 2024 |



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# Contents



## Figures

# 1 INTRODUCTION

## 1.1 Purpose and Scope of this Report

1.1.1 RPS was commissioned by Renewable Energy Systems (RES) Group Ltd. to produce a Farmland Bird Mitigation Strategy in support of a planning application for the proposed solar farm and associated energy storage facility at Cottered Airfield, Lodge Farm, Cottered, Buntingford (hereafter referred to as the 'Site').

1.1.2 An Ecological Assessment (EA) for the Site was produced by RPS, informed by surveys undertaken in 2023 and 2024. The 2023 breeding bird survey identified the presence of up to 48 skylark *Alauda arvensis* territories; although skylarks may use solar farm sites for foraging, they are less likely to nest within the solar arrays given that they are a species which prefers to nest in open fields. Therefore, these territories could potentially be lost as a result of the proposed development. Corn bunting *Emberiza calandra,* grey partridge *Perdix perdix,* Linnet *Linaria cannabina,* yellowhammer *Emberiza citronella*, and yellow wagtail *Motacilla flava* were also recorded within the Site boundary. A second season of breeding bird surveys was undertaken to further understand how these farmland bird species were using the Site on a multi-annual basis.

1.1.3 The second season of breeding bird surveys identified 20 skylark territories, with similar numbers of corn bunting, grey partridge, linnet, yellowhammer, and yellow wagtail as the previous year.

1.1.4 This document provides the necessary details of a mitigation strategy for skylark and other farmland bird species which will be adopted to compensate for the loss of any skylark territories and provide enhancement for the farmland bird community. This document includes details of the following:

- Purpose and conservation objectives for farmland birds;
- Methodologies for skylark plots and farmland bird habitat management;
- Locations for skylark plots and farmland bird habitat management; and
- Persons responsible for implementing the proposed mitigation.

1.1.5 This document includes outline proposals for ecological mitigation and enhancement for farmland birds. Following approved planning consent a final mitigation strategy would be produced, providing detailed information on the agreed ecological mitigation measures.

## 1.2 Site Description

1.2.1 The Site is located adjacent to the A507 at Cottered Village, approximately 6 km to the northeast of Stevenage and 5 km to the west of Buntingford. The National Grid coordinates for the centre of the Site are TL307292. The Site is surrounded by arable fields subject to crop rotation.

## 1.3 Proposed Development

1.3.1 The proposals involve the development of a 49.9 MW ground-mounted solar farm. The works will comprise the installation of approximately 80 hectares (ha) of Photovoltaic (PV) panels which will be supported atop steel or aluminium frame tables which are driven or pushed into the ground, inverter and energy storage compound enclosures, access tracks, electrical infrastructure, and associated landscaping.

# 2 ECOLOGY OF FARMLAND BIRDS

2.1.1 Farmland birds are indicators of good quality, appropriately managed arable farmland and have been well monitored. Many farmland bird populations have declined due to the changing farming practices, causing the loss of foraging and nesting habitats (Agricology 2024).

2.1.2 During the breeding season, the availability of invertebrate prey is a key factor in nest site selection and breeding success. Foraging areas such as field margins and undrilled or wide spaced rows support a higher density of prey items. Access to areas where levels of invertebrate prey are consistent throughout the breeding season has been shown to be a core driver in breeding locations at the site level (Puttmanns et al., 2022).

2.1.3 Factors other than dietary requirements have been proven to affect the population density of farmland birds, with vegetation height and size of the site as two key indicators as to whether a location is suitable for breeding (Rahman *et al.,* 2012).

2.1.4 A mosaic of habitats, including arable, grassland and non-cropped areas, helps farmland birds flourish.

### **Corn bunting** *Emberiza calandra*

2.1.5 The corn bunting is a sparrow-sized, streaky brown bird associated with hedgerows and farmland that feeds on seeds and invertebrates. They are similar to skylark, but with a thicker bill and no crest. In the winter, it will join mixed flocks of buntings, finches, and sparrows to feed on seeds on farmland (BTO, 2024).

2.1.6 Male corn buntings are often seen perched on top of bushes singing loudly. The female builds her grass nest in rough grassy margins or arable crops and incubates the eggs by herself, usually not laying eggs until late May or into June. From laying to fledging, the nesting period lasts approximately 23 days (BTO 2024).

### **Grey partridge** *Perdix perdix*

2.1.7 The grey partridge has an orange face and a black horseshoe-shaped patch on its underparts. It is grey-brown above with a grey chest and orange-brown stripes down its flanks. It feeds on seeds, leaves and small invertebrates. When disturbed, it prefers to run instead of fly but will fly low to the ground if necessary (BTO, 2024).

2.1.8 Grey partridges breed in open scrub and farmland, close to hedges or other vegetation, laying approximately 14-15 eggs on the ground in a grass-lined scrape (BTO, 2024).

### **Linnet** *Linaria cannabina*

2.1.9 Linnets have a streaky brown appearance. Males have more distinctive plumage than females, with a grey head and pink patches on the forehead and chest. They also have a very melodious song. Linnets form big flocks during the winter months, sometimes mixing with other finches, and feeding on seeds (Wildlife Trusts, 2024).

2.1.10 Linnets require scattered bushes or scrub for nesting and seeds in the surrounding landscape for food. They lay between 4-5 eggs, with the nesting period lasting approximately 27 days (BTO, 2024).

### **Skylark** *Alauda arvensis*

2.1.11 The skylark is a medium-sized species typically associated with farmland and open countryside. Skylarks begin to establish territories as early as February, with the main nesting period between mid-April and early July (BTO, 2024).

2.1.12 Skylarks are capable of producing up to four broods due to this extended breeding season, typically laying three or four eggs per clutch. From laying to fledging, the nesting period lasts

approximately 26 days. Nests are located on the ground amongst short vegetation, in a shallow depression lined with grass (BTO, 2024).

2.1.13 Skylark is best described as a generalist in terms of diet; during the winter skylarks form groups and are frequently found foraging in set-aside land or stubble for grain (Gillings *et al*., 2005). Studies have shown that large cereal stubble fields (<4.3 ha) with no or very low boundary features are the optimal habitat for winter foraging particularly for grains (Geiger *et al.,* 2013), whilst winter cereal crops provide sustenance via cereal leaves (Donald *et al.,* 2001).

### **Yellowhammer** *Emberiza citrinella*

2.1.14 The yellowhammer is a sparrow-sized, bright yellow bird of woodland edges, hedgerows, heath, and farmland that feeds on seeds and invertebrates. In the winter, it will join mixed flocks of other bunting species, finches, and sparrows to feed on seeds on farmland (Wildlife, Trusts 2024).

2.1.15 Male yellowhammers are unmistakable with a bright yellow head and underparts, brown back streaked with black, and a chestnut rump. In flight, it shows white outer tail feathers. (RSPB 2024). The female builds a cup-shaped nest from grass and moss, laying between two and six eggs (Wildlife Trusts 2024).

### **Yellow wagtail** *Motacilla flava*

2.1.16 The yellow wagtail is a summer visitor, breeding primarily in southern and eastern Britain. They are olive-green above and yellow below, with a yellow face. Males are brighter than females. Yellow wagtails have much shorter tails than the other two species of breeding wagtail in the UK (Wildlife Trusts, 2024).

2.1.17 The yellow wagtail likes damp marshes, meadows, and farmland, and spends much of its time running about on the ground. The yellow wagtail nests on the ground or in long grass, using plants, grasses and stems to build a cup shape which they line with fur. They can have up to two broods, each with five or six eggs. The nesting period lasts approximately 28 days (Wildlife Trusts, 2024).

## 2.2 Conservation Status

2.2.1 Across the UK, corn bunting has experienced a substantial decline in breeding populations by 83%, grey partridge 92%, yellowhammer 62%, and yellow wagtail 69%, since 1967. Since 1995, linnet have declined by 20%, and skylark have declined by 15% (BTO 2024). This is largely thought to be due to changing farming practices including a move to autumn sown cereals (resulting in spring growth that is too dense for nesting), few winter stubble fields, an increase in pesticide use, increased grazing pressures and early cutting of grass (often for silage). As a result, the farmland birds identified in this document are included as red-listed Birds of Conservation Concern (BoCC)[1] and are Species of Principal Importance[2] within England.

[1] Birds of Conservation Concern 5

[2] Under Section 41 of the Natural Environment and Rural Communities Act 2006

## 2.3 Legislation, Policy, and Guidance

2.3.1 Relevant legislation, policy guidance and both local and national Biodiversity Action Plans (BAPs) are referred to throughout this report where appropriate. Their context and application are explained in the relevant sections of this report.

2.3.2 The relevant articles of legislation are:

- The EC Birds Directive (Directive 2009/147/EC);
- The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019;
- The Wildlife and Countryside Act 1981 (as amended);
- Countryside and Rights of Way (CRoW) Act 2000;
- The Natural Environment and Rural Communities (NERC) Act 2006;
- The National Planning Policy Framework (NPPF) 2023;
- The UK Biodiversity Framework 2024; and
- Hertfordshire Biodiversity Action Plan (BAP).

2.3.3 All birds, their nests and eggs are afforded protection under the Wildlife and Countryside Act 1981 (as amended), as updated by the CRoW Act 2000. It is an offence to:

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

2.3.4 Additionally, birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 cannot be intentionally or recklessly disturbed when nesting and there are increased penalties for doing so. Licences can be issued to visit the nests of such birds for conservation, scientific or photographic purposes but not to allow disturbance during development even in circumstances where that development is fully authorised by consents such as approved planning permission.

## 2.4 Habitat Requirements

2.4.1 The farmland bird species targeted in this strategy are widespread, resident species in the UK, with the exception of yellow wagtail which is a summer visitor (BTO 2024).

2.4.2 Lowland cereal crops are considered to be the most important habitat for these species in the UK in terms of the overall number of breeding pairs supported, however, population density in these areas is lower due to a shorter breeding season as a result of harvesting (Donald and Vickery, 2000).

2.4.3 The presence of field margins is considered integral to the habitat requirements for farmland bird species, as studies have shown that margins are preferred above all other habitats for foraging purposes, particularly during the breeding season. Availability of suitable invertebrate prey items, site size and low or no boundary features are the primary factors influencing the presence or absence of skylark and other farmland birds in lowland habitats. Studies have also shown that the presence of skylark plots and additional tramlines in winter cereals increased the number of breeding territories (Schmidt *et al.*, 2017), highlighting the value of such conservation measures.

2.4.4 Limited research has been undertaken on the effects of PV solar panels on birds in the UK, however, in a study by Montag et al. (2016) 'The Effects of Solar Farms on Local Biodiversity: A Comparative Study', greater diversity and abundance of birds of conservation

concern utilise solar arrays when compared with control plots, indicating that solar farms may be able to provide an important resource for declining species such as skylark. The study concluded that while skylarks rarely utilise solar sites for nesting, they do incorporate solar sites into their territorial boundaries for foraging. There is little research beyond Montag et al. (2016) into bird use of solar farms; however, there is some evidence to suggest that ground nesting species including skylark and corn bunting will continue to nest, as well as forage, in solar farms over multiple years, which demonstrates the use of grassland on solar sites by a wide variety of species (including those of conservation concern).

## 2.5 Distribution on Site

### 2023

2.5.1 A total of five breeding bird surveys were undertaken across the Site during optimal conditions in spring and early summer 2023 by an experienced RPS ornithologist.

2.5.2 The surveys identified a total of 45 skylark territories across the Site, distributed within the large open arable fields in the northernmost section of the Site. Birds within the Site were mostly recorded singing or calling overhead.

2.5.3 Eleven territories were recorded on the edge boundaries of the Site. It is assumed these individuals were nesting in adjacent fields and crossing into the Site as the outer limits of their territory (and therefore are only likely using the Site for foraging).

2.5.4 The Site was therefore considered to be of county-level importance.

2.5.5 At the time of the survey undertaken in 2023, the fields were arable with a maize crop.

2.5.6 The locations of skylark territories identified across the Site are shown in Figure 2.1.

### 2024

2.5.7 The 2023 results prompted a second season of breeding bird surveys in 2024 to determine whether the number of skylark territories was a constant or particularly high in 2023 and whether the presence of corn bunting was a constant.

2.5.8 The Site was re-surveyed in 2024 which included the proposed mitigation areas to assess whether they would be suitable for the targeted species or whether they were already at carrying capacity and therefore, unsuitable.

2.5.9 A total of six breeding bird surveys were undertaken across the Site during optimal conditions in spring and early summer 2024 by an experienced RPS ornithologist.

2.5.10 These surveys followed the Bird Survey Guidelines (Bird Survey and Assessment Steering Group, 2024) to include a later survey in July to capture the later nesting corn bunting.

2.5.11 A total of 20 skylark territories were identified as part of the 2024 surveys; half the numbers recorded in 2023. One corn bunting, one yellow wagtail, and six yellowhammer territories were also identified, with other individuals using the Site for foraging.

2.5.12 Surveys of the proposed mitigation areas show that all species of conservation concern were recorded either within the areas or in very close proximity but not in large numbers giving the potential for enhancement.

2.5.13 The survey results from the 2024 on Site breeding bird surveys are shown in Figure 2.2.

2.5.14 One skylark territory was confirmed in Cromer Heath, no other territories were recorded in the mitigation areas, however, all the targeted species were recorded using the areas.

**Figure 2.1: Skylark territories recorded on Site in 2023**




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## Legend

- Site Boundary
- Skylark Territories
- Edge Territories

| Rev | Description | By | CB | Date |
|---|---|---|---|---|
| | | | | |
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Title: Skylark Territories 2023

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**Figure 2.2: Farmland Bird territories recorded on Site in 2024**




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## Legend

- Site Boundary
- Red List Species Breeding Territory
- Amber List Species Breeding Territory

**Species List:**

| | |
|---|---|
| CB | Corn Bunting (1) |
| P. | Grey Partridge (1) |
| HS | House Sparrow (1) |
| LI | Linnet (1) |
| S. | Skylark (20) |
| Y. | Yellow Wagtail (1) |
| YW | Yellowhammer (6) |
| WH | Whitethroat (1) |
| WP | Wood Pigeon (4) |
| WR | Wren (5) |

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Title: Territory Analysis 2024 - Breeding Birds

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# 3 MITIGATION STRATEGY

## 3.1 Objectives

3.1.1 Farmland bird mitigation would be delivered through arable farmland modification and grassland management. This would include the implementation of skylark plots, which are undrilled patches within arable fields (further described in Section 3.3). The skylark plots would be created in adjacent arable fields within the same land ownership. Grassland will be managed within the Site boundary. Grassland and pasture fields outside the Site boundary which are also under the same ownership, will be managed for skylark and the farmland bird community as set out in Section 3.4 below.

3.1.2 The total area available for farmland bird mitigation is approximately 8 ha within the Site boundary (comprised mainly of areas left free from development under existing pylons and an area left free in the southern-most field – field 4 within this Report) and 16 ha adjacent to the site boundary (shown in Figure 3.1). This area is broken down into parcels of land which are described in section 3.2 below.

3.1.3 These areas are currently intensively farmed or grazed with a lack of features such as undrilled patches, wide field margins or set-aside land. Accordingly, the current value for skylark is limited and these areas could readily be enhanced through skylark plot provision. RSPB guidance notes that:

'winter cereal fields with skylark plots hold more nesting skylarks through the breeding season than conventional cereal fields.'

3.1.4 This strategy is considered to provide a robust approach to mitigate the impacts of the proposed development on skylark and farmland birds.

## 3.2 Areas Covered by the Mitigation Strategy

3.2.1 Five offsite parcels of land are being proposed under the strategy and will comprise a mixture of onsite and offsite mitigation, totalling 28 ha. The onsite areas are referred to as 'Fields,' with the offsite areas referred to by their parcel names and are shown in Figure 3.1. It should be noted that the skylark plots shown in Figures 3.2 to 3.3 are not drawn to scale.

3.2.2 A 25 m wide swathe of grassland spanning the width of the Site, buffering the pylons in Fields 1 and 2, would be left free of solar panels and managed for farmland birds.

3.2.3 Cromer Heath (6.4 ha), off Site, could support approximately six plots with the grassland margin increased in size to a width of 5 m (Figure 3.2).

3.2.4 Bundlescroot (7.5 ha), off Site, could support approximately eight plots and is directly adjacent to the south-eastern Site boundary. The grassland margin would be increased in size to a width of 5 m.

3.2.5 A 5 m grassland border between the fence line and the solar arrays would be managed to benefit skylark.

3.2.6 Lux Grove (1.8 ha) and New Grounds East and West (4.5 ha) are too small for skylark plots and will be managed as grassland for skylark and the farmland bird community (Figure 3.3). Lux Grove is a long narrow strip of grassland, separated from New Grounds East and West by a tall treeline. Whilst the treeline may provide limited opportunities for nesting, the adjacent and surrounding grassland, hedgerows, and arable fields are suitable, and will be beneficial for all farmland birds.

3.2.7 As indicated above, the mitigation areas all comprise arable and pasture fields. These areas are not managed specifically for wildlife and are likely to be currently suboptimal for farmland birds. As

such, through appropriate management measures, these areas can be significantly enhanced for farmland birds.

3.2.8 Consideration has been given to RSPB guidance (RSPB, 2024) which indicates that fields supporting skylark should be more than 5 ha in size (or 10 ha if bounded by trees or woodland), with plots located at least 50 m from field boundaries. New Grounds East and West are below the 5 ha threshold, however, whilst research indicates skylark prefer open fields not enclosed by woodland/trees, smaller fields will also provide supporting foraging habitat and, in some cases, territory density can increase with decreasing field size (Eraud *et al*., 2002).

3.2.9 Based on a possible nesting density of up to 6 skylark territories per ha within more suitable habitats, it is considered the mitigation areas could support an equal number of skylark territories and increase breeding success. Nesting success is also likely to be increased through appropriate targeted grassland management for farmland bird species. As such, the areas included within the mitigation strategy are considered to provide suitable mitigation for the loss of nesting opportunities through solar panel deployment.

## 3.3 Creation of Skylark Plots

3.3.1 Skylark plots will be created following the Countryside Stewardship management practices as set out in AB4: Skylark Plots (https://www.gov.uk/countryside-stewardship-grants/skylark-plots-ab4) and following guidance provided by the RSPB.

3.3.2 The provision of skylark plots at a ratio of two plots for each territory lost is an accepted and widely used mitigation strategy for developments that have the potential to impact breeding skylark. Skylark plots also benefit other farmland bird species by increasing foraging opportunities and increasing breeding success.

3.3.3 Skylark plots are undrilled patches within arable fields best suited to fields sown with winter cereals, more than 5 ha in size and with an open aspect. Each plot will be at least 3 metres (m) wide, with an area of between 16 $m^2$ and 24 $m^2$. The plots would be created by either:

- Turning off the drill during sowing to leave an unsown plot; or
- Sowing the crop as normal and spraying with herbicide to create the plot by 31st December.

3.3.4 Plots would be unconnected to any tramlines and no closer than 50 m to field margins.

3.3.5 These areas would provide uncultivated ground which will establish with arable weeds to provide suitable foraging for skylarks, which has been shown to increase breeding success.

3.3.6 In accordance with RSPB guidance, the plots will be managed with the same treatments as the remainder of the field after drilling. There is no requirement to keep the plots weed-free, however spot-treating with herbicide in April will help skylarks to access their nesting sites.

3.3.7 Mechanical weeding of crops containing skylark plots will destroy any nests present and is therefore not recommended.

3.3.8 Hedgerows would be managed around the boundaries of the mitigation areas to ensure that the skyline remains mostly unbroken. Hedgerows would be cut between January and March to ensure that winter foraging opportunities for other species are not lost and impacts to breeding birds utilising the hedgerows are avoided.

## 3.4 Grassland Management

3.4.1 Managing any grassland for its invertebrate interest will be beneficial for skylarks and other farmland birds as their chicks feed almost exclusively on invertebrates during the first few weeks of their lives. The optimum grassland/vegetation height is no more than 50 centimetres (cm) as skylark tend to avoid vegetation that is higher than 50 cm. Where an existing path is present

through the grassland, it should be cut short (with the same route cut each time) to create a variety of edge habitats. This will increase the overall availability of nesting resources.

3.4.2 To compensate for the reduced availability of farmland bird foraging and nesting opportunities due to the solar array, areas of grassland would be managed appropriately. Any grassland cutting (if necessary) would not be undertaken until after May, with subsequent cuts at least seven weeks apart, to allow for any second or third broods to fledge.

3.4.3 Some other measures, including the use of spring cereal or spring break crops and leaving over-wintered stubbles, are also beneficial to skylark and other farmland bird species. Opportunities for using these measures should be sought where possible.

3.4.4 These measures would not only support skylark, yellowhammer, corn bunting, grey partridge, and yellow wagtail but also a broad range of other common farmland and woodland bird species that were also recorded during the 2023 and 2024 breeding bird surveys.

## 3.5 Other Mitigation

3.5.1 As part of the Landscaping plans, a series of hedgerows are to be planted along the eastern boundary of the Site. This includes a species rich hedgerow that would be planted on an earth mound along the eastern boundary of the Site, and a species rich hedgerow along the public right of way (PRoW) through the centre of the Site. These hedgerows would provide areas of cover, alternative nesting sites and additional foraging opportunities, increasing the range of food sources available to farmland bird species throughout the year.

3.5.2 A species rich grassland will be planted beneath the solar arrays which will help increase the reduced foraging opportunities for farmland birds and improve the biodiversity of the Site.

3.5.3 A species rich grassland will be planted in the southern half of Field 4 which will help increase the reduced foraging opportunities for farmland birds and improve the biodiversity of the Site.

## 3.6 Timing of Development Works

3.6.1 It is recommended that any works relating to the proposed development, including hedge removal and vegetation clearance, are undertaken outside of the breeding bird season (March to August inclusive) to avoid the risk of damaging, or destroying active nests or newly fledged on Site. Where groundwork cannot be undertaken outside of the breeding season, works should be subject to a pre-construction nesting bird check and ecological supervision.

3.6.2 If works are to be undertaken within the breeding season (March to August inclusive), a suitably qualified ecologist would undertake a nesting bird check of all areas to be impacted. This includes areas suitable for ground-nesting birds such as the target farmland bird species referred to in this document. If any nests are located, it is recommended that the locations of these are made known to all personnel on Site. A suitable exclusion zone would be set up to safeguard the nest.

## 3.7 Population Monitoring

3.7.1 Due to a lack of data regarding skylark activity in mitigation areas post-development, it is recommended that follow up breeding bird surveys be conducted to establish the number, and locations of territories, and thus the success of the final, detailed mitigation strategy. Available data on the persistence of skylarks within solar arrays and mitigation areas is contradictory, with the sole study conducted by a consultancy and not peer-reviewed (Montag et al., 2016). It is expected this will change as further research is carried out and studies are published.

3.7.2 It is recommended that one annual survey be undertaken in peak breeding season for skylark (early to mid-May) which will record the presence of skylark on Site, along with any evidence of breeding (such as carrying food, nesting materials or faecal sacs) within both the mitigation areas on and off Site and the solar arrays. The surveys would also target other farmland bird species,

such as those referred to in this document. The visits should be undertaken every year for a suggested period of five years to provide a suitable basis for analysis of the population dynamics.

**Figure 3.1: Extent of land available for farmland bird mitigation**




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## Legend

- Site Boundary
- Land Owner Fields
- Field Boundaries

| Rev | Description | By | CB | Date |
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Title: Farmland Bird Mitigation Overview

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**Figure 3.2: Proposed Farmland Bird Mitigation**




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## Legend

- Site Boundary
- 50m Powerline buffer
- Land Owner Fields
- Field Boundaries
- Mitigation Field, 50m Buffer
- Managed Grassland
- Potential Skylark Mitigation Plot

| Rev | Description | By | CB | Date |
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