

Gate Burton Energy Park

Preliminary Environmental Information Report

Volume 3: Appendix 8-C: Wintering Bird Survey Report

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Gate Burton Energy Park Limited

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Introduction

1.1 Background

- 1.1.1 AECOM (on behalf of Gate Burton Energy Park Limited) undertook a survey of wintering birds for the proposed Gate Burton Energy Park (hereafter referred to as the 'Scheme'). As part of the Preliminary Ecological Appraisal, a review of Ordnance Survey (OS) mapping of the Scheme identified that the habitat within the Scheme boundary (the Site) was suitable to support birds during the non-breeding (wintering) season and that surveys were required to determine the presence and any assemblages of protected or notable¹ wintering bird species within the DCO Site. Therefore, AECOM was instructed to undertake surveys of wintering birds within the DCO Site and an appropriate survey buffer (the survey area) to record the species, distributions and numbers of wintering birds within the survey area.

1.2 The Scheme

- 1.2.1 Gate Burton Energy Park is a proposed new solar farm and battery storage project which will generate renewable energy for exporting to the National Grid. The Scheme is anticipated to have a generation capacity of 500 megawatts, comparable to providing over 160,000 homes with clean energy power. The Scheme is the subject of a Development Consent Order (DCO) application and will be located within the Site (also referred to as the DCO Site) (Figure 1 Appendix A).
- 1.2.2 The Scheme will comprise the following infrastructure:
- The Solar and Energy Storage Site, which includes:
 - Solar photovoltaic (PV) array works area (including panels and mounting structures to form the PV tables); inverters, transformers, and switchgear, which form the Power Conversion Stations; and medium voltage distribution cables, secondary access tracks, and ancillary works;
 - Battery energy storage system (BESS) compound(s);
 - On-site substations (for transformers, switchgear and metering equipment);
 - Landscape works area; and
 - The Grid Connection Route, which will be an approximately 6km buried cable (with a working width of 30m to 40 m) to connect the Solar and Energy Park Site with the National Grid at the Cottam Substation; and
 - an off-site electrical compound comprising of a substation and control building.

¹ A notable species is a species with a conservation designation but no legal protection

- 1.2.3 The Solar and Energy Storage Site will be fenced and protected via security measures such as CCTV and emergency lighting. Internal access tracks, habitat management and drainage will also be included.

1.3 Site Description

- 1.3.1 The Scheme is located to the east of Gate Burton, Lincolnshire. The location of the Scheme is shown in Figure 1 (Appendix A). The DCO Site covers an area of approximately 1,400 hectares (ha).
- 1.3.2 The Solar and Energy Storage Park Site (as defined in Section 1.2) covers an approximate area of 700ha and is dominated by arable fields with game crop strips and a few *Miscanthus* (Silvergrass) fields in the east of the Solar and Energy Storage Site. There are numerous mature trees and hedges within the DCO Site, with woodlands and small wooded copses. The Solar and Energy Storage Park Site is surrounded by mainly arable and improved grassland livestock fields.
- 1.3.3 The Grid Connection Route (as defined in Section 1.2) covers an area of approximately 700ha and is dominated by arable fields. There are hedgerows and watercourses within the Grid Connection Route and the River Trent is crossed by the Grid Connection Route.
- 1.3.4 The Ordnance Survey (OS) central grid reference for the Solar and Energy Storage Site is SK 84904 83646.

1.4 Scope of the Report

- 1.4.1 The objective of the wintering bird survey, reported in this document, is to determine the presence and any assemblages of wintering bird species, including notable species, within the Site and identify any potential impacts of the Scheme on wintering birds.
- 1.4.2 This report includes the following information:
- Relevant legislation and policy;
 - Methods for desk and field-based assessments undertaken between 2021 and 2022;
 - Limitations to the surveys undertaken and any assumptions made as a result of incomplete data;
 - Survey results;
 - The approach for determining the nature conservation importance of wintering bird populations recorded during the assessments; and
 - Conclusions and recommendations.
- 1.4.3 This report is a technical appendix to accompany the **PEI Report Volume 1, Chapter 8: Ecology and Nature Conservation** of the Preliminary Environmental Information Report (PEIR), reporting on and evaluating the baseline wintering bird data collected as of March 2022.

Legislation and Planning Policy

2.1 Legislation

Directive of the Conservation of Wild Birds

- 2.1.1 A number of bird species recorded within the UK (including those that are resident, overwintering and migratory) are protected under European legislation through the Directive of the Conservation of Wild Birds (Ref 7-1), which lists 193 species, or sub-species, of birds in Annex 1 which are:
- In danger of extinction;
 - Are rare, or have restricted local distribution;
 - Are vulnerable to specific changes in their habitat; or
 - Require particular attention for reasons of the specific nature of habitat.
- 2.1.2 These species are afforded enhanced legal protection and EU member states have a responsibility to maintain the populations of these species at a level that corresponds to their ecological, scientific and cultural requirements (Article 2). This Directive is transposed into English law through the Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 7-2). As such, the requirements of the EC Birds Directive (Ref 7-1) are still applicable despite the UK no longer being a member state of the European Union. Species listed on Annex 1 of the Wild Birds Directive are those for which the UK Government are also required to take special measures, including the designation of Special Protection Areas, to ensure the survival and reproduction of these species throughout their area of distribution. These sites are then automatically included within the Natura 2000, which is a network of core breeding and resting sites that are protected for rare and threatened species.

Wildlife and Countryside Act

- 2.1.3 The legislative provisions for the protection of wild birds in the UK are contained primarily in Sections 1-7 of the Wildlife and Countryside Act (WCA) 1981 (as amended) (Ref 7-3). Under the WCA, a wild bird is defined as any bird of a species that occurs in a wild state as a resident or a visitor to the European Territory of any member state.
- 2.1.4 Reference is not made in this report to species afforded special protection under Schedule 1 of the Wildlife and Countryside Act (1981) as the protection measures in this Act only apply to bird species within the breeding season.

Priority Species

- 2.1.5 In addition to the above legislation, 49 bird species are listed as being Species of Principal Importance for conservation in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (Ref 7-4). These species are of material consideration during the planning process.

Section 41 of the NERC Act 2006 requires the Secretary of State to publish a list of habitats and species which are of Principal Importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act. The Section 41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act, to have regard to the conservation of biodiversity in England when carrying out their normal functions.

- 2.1.6 The Joint Nature Conservation Committee (JNCC) UK Biodiversity Action Plan (UKBAP) (Ref 7-5) was launched in 1994 and identified UK BAP priority species of conservation concern that are the most threatened in the UK and requiring action under the UKBAP and for which action plans have been published. However, the work undertaken for the UKBAP is now focussed at a country level, rather than UK level, and the UKBAP has subsequently been succeeded by the UK Post-2010 Biodiversity Framework (July 2012) (Ref 7-6). However, the UK list of priority species remains an important reference source and has been used to help draw up statutory lists of priority species in England, Scotland, Wales and Northern Ireland. For the purpose of this assessment, the UK BAP is still used as one of the criteria to assist in assigning national value to any given ecological receptor.

2.2 National and Local Planning Policy

- 2.2.1 National and local planning policy relevant to nature conservation is provided in detail in the Preliminary Ecological Appraisal for the Scheme and included in **PEI Report Volume 3: Appendix 8-B**.

2.3 Local Biodiversity Action Plan Species

- 2.3.1 The Scheme is located within the counties of Lincolnshire and Nottinghamshire (see section 1.3 of this report). The Lincolnshire Biodiversity Action Plan (3rd edition) (Ref 7-7) and Nottinghamshire Biodiversity Action Plan (Ref 7-8) provide the local nature conservation strategy for identifying threats to species within each of the counties and set out the action plans necessary to conserve them. These Local Biodiversity Action Plans (LBAPs) provide context to inform the identification of threatened and, or uncommon species within the relevant districts and, or counties. These LBAPs also identify priorities for conservation and enhancement but confer no particular legislative or policy protection to the species identified, however in some cases this is provided through related legislation and local planning policy.

Table 0-1: Priority bird species listed in the Lincolnshire and Nottinghamshire LBAPs

Common name	Scientific name	Lincolnshire LBAP	Nottinghamshire LBAP
Skylark	<i>Alauda arvensis</i>	✓	-
Tree Pipit	<i>Anthus trivialis</i>	✓	-

Common name	Scientific name	Lincolnshire LBAP	Nottinghamshire LBAP
Scaup	<i>Aythya marila</i>	✓	-
Bittern	<i>Botaurus stellaris</i>	✓	-
Dark-bellied Brent Goose	<i>Branta bernicla</i>	✓	-
Nightjar	<i>Caprimulgus europaeus</i>	✓	✓
Lesser Redpoll	<i>Acanthis cabaret</i>	✓	-
Linnet	<i>Linaria cannabina</i>	✓	-
Twite	<i>Linaria flavirostris</i>	✓	-
Hawfinch	<i>Coccothraustes coccothraustes</i>	✓	-
Cuckoo	<i>Cuculus canorus</i>	✓	-
Bewick's Swan	<i>Cygnus columbianus bewickii</i>	✓	-
Lesser-spotted Woodpecker	<i>Dryobates minor</i>	✓	-
Corn Bunting	<i>Emberiza calandra</i>	✓	-
Yellowhammer	<i>Emberiza citrinella</i>	✓	-
Reed Bunting	<i>Emberiza schoeniclus</i>	✓	-
Herring Gull	<i>Larus argentatus</i>	✓	-
Black-tailed Godwit	<i>Limosa limosa</i>	✓	-
Grasshopper Warbler	<i>Locustella naevia</i>	✓	-
Woodlark	<i>Lullula arborea</i>	✓	-
Yellow Wagtail	<i>Motacilla flava</i>	✓	-
Spotted Flycatcher	<i>Muscicapa striata</i>	✓	-
Curlew	<i>Numenius arquata</i>	✓	-
House Sparrow	<i>Passer domesticus</i>	✓	-
Tree Sparrow	<i>Passer montanus</i>	✓	-
Grey Partridge	<i>Perdix perdix</i>	✓	-

Common name	Scientific name	Lincolnshire LBAP	Nottinghamshire LBAP
Wood Warbler	<i>Phylloscopus sibilatrix</i>	✓	-
Willow Tit	<i>Poecile montanus</i>	✓	✓
Marsh Tit	<i>Poecile palustris</i>	✓	-
Dunnock	<i>Prunella modularis</i>	✓	-
Bullfinch	<i>Pyrrhula pyrrhula</i>	✓	-
Arctic Skua	<i>Stercorarius parasiticus</i>	✓	-
Turtle Dove	<i>Streptopelia turtur</i>	✓	-
Starling	<i>Sturnus vulgaris</i>	✓	-
Song Thrush	<i>Turdus philomelos</i>	✓	-
Ring Ouzel	<i>Turdus torquatus</i>	✓	-
Barn Owl	<i>Tyto alba</i>		✓
Lapwing	<i>Vanellus vanellus</i>	✓	-

2.4 Birds of conservation concern

2.4.1 The Birds of Conservation Concern (BoCC) (Ref 7-9) is an assessment of the conservation status of all regularly occurring British birds. The lists (Red, Amber and Green), that indicate the level of conservation importance for each species, are derived from quantitative assessments from standardised criteria. The assessment is based on the most up-to-date evidence available and criteria include conservation status at global and European levels and, within the UK: historical decline, trends in population and range, rarity, localised distribution and international importance. The lists are drawn together by the UK's leading bird conservation organisations, including the Royal Society for the Protection of Birds (RSPB) and British Trust for Ornithology (BTO).

2.4.2 The criteria for birds being included in the BoCC lists are as follows.

Red List:

- Globally threatened;
- Historical population decline in UK during 1800–1995; and
- Severe (at least 50%) decline in UK breeding population over last 25 years, or longer-term period (the entire period used for assessments since

the first BoCC review, starting in 1969). Severe (at least 50%) contraction of UK breeding range over last 25 years, or the longer-term period.

Amber List:

- Species with unfavourable conservation status in Europe (SPEC = Species of European Conservation Concern);
- Historical population decline during 1800–1995, but recovering; population size has more than doubled over last 25 years;
- Moderate (25-49%) decline in UK breeding population over last 25 years, or the longer-term period;
- Moderate (25-49%) contraction of UK breeding range over last 25 years, or the longer-term period;
- Moderate (25-49%) decline in UK non-breeding population over last 25 years, or the longer-term period;
- Rare breeder; 1–300 breeding pairs in UK;
- Rare non-breeders; less than 900 individuals;
- Localised; at least 50% of UK breeding or non-breeding population in 10 or fewer sites, but not applied to rare breeders or non-breeders; and Internationally important; at least 20% of European breeding or non-breeding population in UK (NW European and East Atlantic Flyway populations used for non-breeding wildfowl and waders respectively).

Green List:

- Species that occur regularly in the UK but do not qualify under any of the above criteria.

2.4.3 Although the BoCC lists confer no legal status in themselves, they are useful in evaluating the conservation significance of bird assemblages, and for assessing the potential significance of impacts and informing appropriate levels of mitigation with respect to bird populations.

Methods

3.1 Desk Study

- 3.1.1 A desk study was undertaken in September 2021 through Lincolnshire Environmental Records Centre (LERC) and the Nottinghamshire Biological and Geological Record Centre (NBGRC) to obtain records of protected and notable bird species within a 2km radius of the DCO Site.
- 3.1.2 Only records up to ten years old were considered within the assessment, as any records older than ten years are unlikely to be still representative of bird species in the local area.

3.2 Field Survey

Survey Area

- 3.2.1 The survey area included all habitat within the DCO Site and a 50m survey buffer. Standardised survey buffers for assessing the impacts of development on bird populations do not exist, however, the survey area used provides information on the wintering birds within the area immediately surrounding the Scheme and includes areas contiguous with the DCO Site, where birds may potentially be adversely affected. Depending on the sensitivity of the species, birds occurring outside of the survey area may also be adversely affected. The survey area is sufficient to determine the likely impacts of the Scheme on the wintering bird species occurring or likely to occur in the area.
- 3.2.2 Modifications to the Scheme extent through the survey period resulted in minor modifications to the survey area used during the course of the wintering bird survey and therefore, the methods that were used reflected the extent of access at the time. However, the survey covered the DCO Site and provides an accurate representation of the baseline wintering bird community presence within the DCO Site and allows determination of the presence of any protected or sensitive ornithological receptors.

Walkover Survey

- 3.2.3 The walkover surveys were based on a transect methodology such as that detailed in Bibby *et al.* (2000) (Ref 7-10) and Gilbert *et al.* (1998) (Ref 7-11).
- 3.2.4 Fixed routes were walked around the Solar and Energy Storage Site and Public Rights of Way (PRoW) within the Grid Connection Route, surveying the habitat for wintering birds. Regular stopping points were included within the route to allow survey of birds that were audible or visible within any inaccessible areas.
- 3.2.5 Surveys for wintering birds were undertaken between October 2021 and March 2022, with a total of six survey visits taking place. Owing to the size of the DCO Site, each survey was split over four to five days. The survey dates were:
- Visit 1 – 12 to 15 October 2021;
 - Visit 2 – 22 to 26 November 2021;
 - Visit 3 – 13 to 17 December 2021;
 - Visit 4 – 11 to 14¹ January 2022;
 - Visit 5 – 7 to 10 February 2022; and
 - Visit 6 – 1 to 4 March 2022.
- 3.2.6 All surveys were undertaken during appropriate weather conditions for detecting birds. These were dry conditions with winds of 15mph or less.
- 3.2.7 The survey routes were walked by surveyors using suitable optical equipment to observe bird behaviour. Regular stopping points were included along the

routes to record any species that may be passing through the survey area. Survey routes were mapped, and the direction walked alternated on each survey visit, to ensure that all areas were covered at various times of day across the duration of the survey. Surveys were undertaken during a range of daylight hours, between sunrise and sunset.

- 3.2.8 On each survey visit, the route was walked at a slow pace with start and finish times noted. All birds seen and heard were recorded directly onto base maps of the survey area, using mobile mappers loaded in Collector software and stored onto Samsung Galaxy Tablets. Registrations of birds were recorded using standard British Trust for Ornithology (BTO) two letter species codes.
- 3.2.9 All bird species were recorded and mapped across the whole survey area.

3.3 Assessment of Ornithological Importance

- 3.3.1 The assessment of the ornithological importance of the survey area during the non-breeding (winter) season was made by evaluating any species afforded special statutory protection or those included on one, or more, of the lists of species of conservation interest, as detailed in Section 0 of this report. These include:

- Species listed on Annex 1 of the EU Birds Directive (Ref 7-1);
- Priority bird species in the UK;
- Species listed as priority species or additional species of interest on the Lincolnshire or Nottinghamshire BAP (Table 0-1); and
- Species included in the Birds of Conservation Concern (BoCC) Red or Amber Lists (Ref 7-9).

Species Abundance

- 3.3.2 In addition to evaluating a site based on its populations of wintering birds in relation to legal status, rarity and biodiversity importance, consideration has to be given to the value of the survey area for the population of individual species that it supports. This can be done by comparing the population present within the survey area with the national and county wintering population for certain species. National estimates for non-breeding birds are published in a paper: '*Population estimates of birds in Great Britain and the United Kingdom*' (Ref 7-14). The BTO Bird Atlas 2007-2011 (Ref 7-15) was also reviewed for species information on a national level.
- 3.3.3 County-level estimates on the wintering bird populations of the majority of species in Lincolnshire and Nottinghamshire were also obtained from county avifauna reports, where this information was available.

Species Diversity

- 3.3.4 The number of species recorded in an area is a simple measure of diversity that can indicate its importance at each season of the year.

- 3.3.5 Local Wildlife Sites (LWS) (or County Wildlife Sites (CWS)) are amongst the most important places for wildlife in Lincolnshire and Nottinghamshire, together with legally protected land such as Sites of Special Scientific Interest (SSSIs).
- 3.3.6 In Lincolnshire, CWSs are selected for their habitats and subsequently have no specific criteria for birds. Therefore, species diversity in Lincolnshire has been measured using professional judgement, considering species presence within distinct habitat types within the Site, e.g. farmland passerines, with reference to GLNP '*Local Wildlife Site Guidelines for Greater Lincolnshire*' (Ref 7-17).
- 3.3.7 In Nottinghamshire, an individual CWS can be selected for birds if it meets the criteria within the '*Guidelines for the selection of Local Wildlife Sites in Nottinghamshire*' (Ref 7-18). These guidelines are as follows:
- Any site that has a regular wintering bird assemblage with a score that is equal to or exceeds the Threshold Value for the site's habitat; or
 - Any site that regularly supports 0.5% or more of the UK wintering population of a water bird or wading bird species.

Importance of the Wintering Bird Population

- 3.3.8 To support a focussed assessment of the population of wintering birds within the Site, their biodiversity value was defined with reference to the geographical level at which it matters. The frames of reference used in this report were made using the values presented in the '*Guidelines for Ecological Impact Assessment in the United Kingdom: Terrestrial, Freshwater, Coastal and Marine*' (Ref 7-19) (hereafter referred to as the CIEEM Guidelines); and professional judgement.
- 3.3.9 The evaluation uses a framework linked to a geographical scale at which the receptor has been valued (i.e. international, national, regional, county, local or site) and this method represents best practice guidance. These assessment criteria, set out in Table 0-1, have been used in conjunction with species rarity, abundance and diversity within the survey area to assess the biodiversity importance of the wintering bird populations recorded during the field surveys.

Table 0-1: Importance of Ornithological Features

Importance of Ornithological Features	Descriptors and Examples of Criteria
International or European	<p>Resident or regularly occurring populations of species which may be considered of value at an international or European level¹ where:</p> <p>The loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale;</p> <p>The population forms a critical part² of a wider population at this scale; or</p> <p>The species is at a critical phase³ of its life cycle at this scale.</p>

Importance of Ornithological Features

Descriptors and Examples of Criteria

UK or National	<p>Areas of habitats with priority species identified in the UK Post-2010 Biodiversity Framework <i>i.e.</i> UK Biodiversity Action Plan (BAP), including those published in accordance with Section 41 of the Natural Environment and Rural Communities Act (2006) and those considered to be of principal importance for the conservation of biodiversity.</p> <p>Resident or regularly occurring populations of species which may be considered of value at a UK or a national level⁴ where:</p> <p>The loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale;</p> <p>The population forms a critical part of a wider population at this scale; or</p> <p>The species is at a critical phase of its life cycle at this scale.</p>
Regional	<p>Populations of species of value at a regional level (<i>i.e.</i> East Midlands).</p> <p>Resident or regularly occurring populations of species which may be considered of value at a regional level where:</p> <p>The loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale;</p> <p>The population forms a critical part of a wider population at this scale; or</p> <p>The species is at a critical phase of its life cycle at this scale.</p>
County or Unitary Authority or District	<p>Populations of species of value at a County (<i>i.e.</i> Lincolnshire and Nottinghamshire) level or District (<i>e.g.</i> West Lindsey and Bassetlaw).</p> <p>Resident or regularly occurring populations of species which may be considered of value at a County (or District)⁵ level where:</p> <p>The loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale;</p> <p>The population forms a critical part of a wider population at this scale; or,</p> <p>The species is at a critical phase of its life cycle at this scale.</p>
Local	<p>Species populations of value in a local (<i>i.e.</i> within ~ 2km of the DCO Site) context.</p> <p>Populations and, or communities of species considered to appreciably enrich the habitat resource within the local context (such as veteran trees), including features of value for migration, dispersal or genetic exchange.</p>
Site**	<p>Habitats and associated species that are of value in the context of the site only.</p> <p>Populations of common and widespread</p>

¹ Such species include those listed within the Directive 2009/147/EC on the Conservation of Wild Birds (*i.e.* EC Birds Directive) (codified version of Council Directive 79/409/EEC as amended)

² Such populations include sub-populations that are essential to maintenance of metapopulation dynamics, *e.g.* critical emigration and, or immigration links between otherwise discrete populations.

³ Seasonal activity or behaviour upon which survival or reproduction depends.

Importance of Ornithological Features

Descriptors and Examples of Criteria

⁴Species which may be considered at the UK or national level mean: birds which receive legal protection on the basis of their conservation interest (those listed within the Wildlife and Countryside Act 1981 (as amended) Schedule 1 (applicable to the breeding season only)); species listed for their principal importance for biodiversity (in accordance with the Natural Environment and Communities Act 2006 Section 41 England), priority species listed within the UK Post 2010 Biodiversity Framework (*i.e.* UK Biodiversity Action Plan (UKBAP)), or species listed within the Red Data Book.

⁵Such species include those at county level (*i.e.* Lincolnshire and Nottinghamshire) including unitary authority area *i.e.* District level (*i.e.* West Lindsey and Bassetlaw); as listed on the LBAPs; and listed as a county designated site.

*As well as assigning importance there is also a need to identify all legally protected species that could be affected by the proposed scheme in order that measures can be taken to ensure that adherence to the relevant legislation is observed. This may include the adoption of mitigation and appropriate licensing which are acceptable to Natural England.

** Site is not included in the CIEEM guidelines but is included within this report.

3.4 Assumptions and Limitations

Desk Study

- 3.4.1 The information collected from the desk study represents only those records submitted to records centres and is therefore not considered to be a definitive list of protected and priority bird species identified within the desk study area. If records have not been provided, this does not confirm absence of wintering birds from within the DCO Site.
- 3.4.2 The aim of a desk study is to help characterise the baseline context of the Scheme and provide valuable background information that would not be captured by site surveys alone. Information obtained during the course of a desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular species does not necessarily mean that the species does not occur in the study area. Likewise, the presence of records for particular species does not automatically mean that these still occur within the area of interest or are relevant in the context of the Scheme.

Field Survey

Solar and Energy Storage Park Site

- 3.4.3 Data for the wintering bird was collected on mobile mappers, using Collector software stored onto Samsung Galaxy Tablets (see Section 3.2.8). After collection of this data in the field, these data are synced to a central server ready for processing. Despite data syncing from the device after each survey visit, interrogation of the datasets to evaluate the wintering bird data contained within this report identified that some of the datasets had not fully synced and that data recorded in October 2021 (all data) and December 2021 (20% of the data) had been lost.

- 3.4.4 The weather conditions between October and December 2021 were relatively mild for the winter period, with no prolonged or sudden spells of cold weather (where the temperature dropped below 0°C) that would trigger sudden movements of birds (that move around in response to weather conditions) and therefore influence the species and peak counts of birds recorded on the DCO Site.
- 3.4.5 Therefore, the peak counts of all species recorded during the survey period does reflect the number of individuals that would be expected to be recorded on a site of this size and within predominantly arable farmland habitat. Furthermore, reviewing these data with the field, surveyors did not identify the presence of any additional species or species (such as Golden Plover) occurring in numbers on site greater than that reported here.
- 3.4.6 Therefore, it is considered that sufficient representatives of all habitat types have been covered within the entirety of the survey period (on a minimum of four survey visits), to allow for a comprehensive assessment of bird species and assemblages present. However, a precautionary approach has been taken forward in this report and mitigation will be appropriately designed in consideration of the number of species and likely assemblages present.

Grid Connection Route

- 3.4.7 As detailed in Sections 3.4.3 to 3.4.6 of this report, data collected within the Grid Connection Route in December 2021 has been lost. However, surveys were undertaken within representative habitat types (within accessible areas, see below) during October and November 2021 and between January and March 2022.
- 3.4.8 The majority of the Grid Connection Route could be accessed during all survey visits, with any inaccessible areas scanned from adjacent accessible land; as such the survey areas could be viewed sufficiently to make accurate counts of the bird species present. Considering the habitats present within inaccessible areas (arable farmland, improved grassland separated by treelines and hedgerows) and the species recorded within and adjacent to such areas (within accessible areas), any inaccessible areas of the Grid Connection Route are deemed unlikely to be of significant value to wintering birds and it is considered that sufficient information has been gathered during the assessment to provide a representative sample of the wintering bird population present within the DCO Site.

Results

4.1 Desk Study

- 4.1.1 Records of 66 specially protected or notable bird species (see Section 2 of this report) were returned from the last ten years of the request date and from within 2km of the DCO Site.

4.2 Field Survey

- 4.2.1 The following sections present the wintering bird data collected for the whole Scheme and then broken down into the respective Scheme areas (Solar and Energy Storage Park Site and Grid Connection Route, see Section 1.2 of this report). Species lists in Table 0-1 are listed in taxonomic order, as defined by the British Ornithologists Union (BOU) British List.
- 4.2.2 A total of 66 species were recorded within the survey area during the wintering bird surveys undertaken for the whole Scheme in 2021/2022.
- 4.2.3 The 66 species, along with their respective peak counts and conservation status are presented in Table 0-1.

Table 0-1: Peak count data and conservation status of wintering birds recorded within the DCO Site between October 2021 and March 2022

Species	Scientific name	Conservation status	Peak Count within the Energy Park Site (see Section 1.2)	Peak Count within the Grid Connection Route (see Section 1.2)	Summed Peak count
Greylag Goose	<i>Anser anser</i>	BoCC Amber	2	3	5
Pink-footed Goose	<i>Anser brachyrhynchus</i>	BoCC Amber	57	0	57
Mute Swan	<i>Cygnus olor</i>	-	0	3	3
Wigeon	<i>Mareca penelope</i>	BoCC Amber	0	19	19
Mallard	<i>Anas platyrhynchos</i>	BoCC Amber	11	33	44
Reg-legged Partridge	<i>Alectoris rufa</i>	-	2	22	24
Grey Partridge	<i>Perdix perdix</i>	BoCC Red, Priority species, Lincs BAP	19	0	19
Pheasant	<i>Phasianus colchicus</i>	-	21	3	24
Grey Heron	<i>Ardea cinerea</i>	-	1	1	2
Little Egret	<i>Egretta garzetta</i>	Annex 1	1	1	2

Species	Scientific name	Conservation status	Peak Count within the Energy Park Site (see Section 1.2)	Peak Count within the Grid Connection Route (see Section 1.2)	Summed Peak count
Cormorant	<i>Phalacrocorax carbo</i>	-	0	2	2
Sparrowhawk	<i>Accipiter nisus</i>	BoCC Amber	1	0	1
Buzzard	<i>Buteo buteo</i>	-	4	2	6
Moorhen	<i>Gallinula chloropus</i>	BoCC Amber	0	1	1
Coot	<i>Fulica atra</i>	-	1	0	1
Lapwing	<i>Vanellus vanellus</i>	Priority Species, BoCC Red, Lincs BAP	1	0	1
Golden Plover	<i>Pluvialis apricaria</i>	Annex 1	2	0	2
Snipe	<i>Gallinago gallinago</i>	BoCC Amber	1	0	1
Common Sandpiper	<i>Actitis hypoleucos</i>	BoCC Amber	0	3	3
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	BoCC Amber	12	28	40
Common Gull	<i>Larus canus</i>	BoCC Amber	1	0	1

Species	Scientific name	Conservation status	Peak Count within the Energy Park Site (see Section 1.2)	Peak Count within the Grid Connection Route (see Section 1.2)	Summed Peak count
Herring Gull	<i>Larus argentatus</i>	Priority Species, BoCC Red, Lincs BAP	10	0	10
Lesser Black-backed Gull	<i>Larus fuscus</i>	BoCC Amber	0	1	1
Stock Dove	<i>Columba oenas</i>	BoCC Amber	12	2	14
Woodpigeon	<i>Columba palumbus</i>	BoCC Amber	289	53	342
Collared Dove	<i>Streptopelia decaocto</i>	-	4	0	4
Barn Owl	<i>Tyto alba</i>	WCA 1, Notts BAP	2	0	2
Kingfisher	<i>Alcedo atthis</i>	Annex 1, WCA 1	1	1	1
Great Spotted Woodpecker	<i>Dendrocopos major</i>	-	3	0	3
Green Woodpecker	<i>Picus viridis</i>	-	1	0	1
Kestrel	<i>Falco tinnunculus</i>	BoCC Amber	4	2	6
Jay	<i>Garrulus glandarius</i>	-	5	1	6

Species	Scientific name	Conservation status	Peak Count within the Energy Park Site (see Section 1.2)	Peak Count within the Grid Connection Route (see Section 1.2)	Summed Peak count
Magpie	<i>Pica pica</i>	-	7	4	11
Jackdaw	<i>Coloeus monedula</i>	-	80	20	80
Rook	<i>Corvus frugilegus</i>	BoCC Amber	133	66	199
Carrion Crow	<i>Corvus corone</i>	-	54	13	67
Coal Tit	<i>Periparus ater</i>	-	1	0	1
Blue Tit	<i>Cyanistes caeruleus</i>	-	22	5	27
Great Tit	<i>Parus major</i>	-	17	1	18
Skylark	<i>Alauda arvensis</i>	Priority Species, BoCC Red, Lincs BAP	44	4	48
Long-tailed Tit	<i>Aegithalos caudatus</i>	-	11	1	12
Chiffchaff	<i>Phylloscopus collybita</i>	-	1	0	1
Goldcrest	<i>Regulus regulus</i>	-	0	1	1

Species	Scientific name	Conservation status	Peak Count within the Energy Park Site (see Section 1.2)	Peak Count within the Grid Connection Route (see Section 1.2)	Summed Peak count
Wren	<i>Troglodytes troglodytes</i>	BoCC Amber	27	5	32
Nuthatch	<i>Sitta europaea</i>	-	1	0	1
Treecreeper	<i>Certhia familiaris</i>	-	1	1	2
Starling	<i>Sturnus vulgaris</i>	Priority Species, BoCC Red, Lincs BAP	1080	48	1028
Blackbird	<i>Turdus merula</i>	-	29	6	35
Fieldfare	<i>Turdus pilaris</i>	BoCC Red, WCA 1	85	7	92
Redwing	<i>Turdus iliacus</i>	BoCC Amber, WCA 1	118	5	123
Song Thrush	<i>Turdus philomelos</i>	Priority Species, BoCC Amber, Lincs BAP	4	1	5
Mistle Thrush	<i>Turdus viscivorus</i>	BoCC Red	0	2	2
Robin	<i>Erithacus rubecula</i>	-	23	6	29

Species	Scientific name	Conservation status	Peak Count within the Energy Park Site (see Section 1.2)	Peak Count within the Grid Connection Route (see Section 1.2)	Summed Peak count
House Sparrow	<i>Passer domesticus</i>	BoCC Red, Priority Species, Lincs BAP	18	0	18
Tree Sparrow	<i>Passer montanus</i>	BoCC Red, Priority Species, Lincs BAP	2	0	2
Dunnock	<i>Prunella modularis</i>	Priority Species, BoCC Amber, Lincs BAP	8	2	10
Grey Wagtail	<i>Motacilla cinerea</i>	BoCC Amber	1	0	1
Pied Wagtail	<i>Motacilla alba</i>	-	5	6	11
Meadow Pipit	<i>Anthus pratensis</i>	BoCC Amber	3	2	5
Chaffinch	<i>Fringilla coelebs</i>	-	80	5	85
Bullfinch	<i>Pyrrhula pyrrhula</i>	Priority Species, BoCC Amber, Lincs BAP	4	1	5
Greenfinch	<i>Chloris chloris</i>	BoCC Red	13	0	13

Species	Scientific name	Conservation status	Peak Count within the Energy Park Site (see Section 1.2)	Peak Count within the Grid Connection Route (see Section 1.2)	Summed Peak count
Linnet	<i>Linaria cannabina</i>	Priority Species, BoCC Red, Lincs BAP	6	30	36
Goldfinch	<i>Carduelis carduelis</i>	-	35	11	46
Yellowhammer	<i>Emberiza citrinella</i>	Priority Species, BoCC Red, Lincs BAP	26	2	28
Reed Bunting	<i>Emberiza schoeniclus</i>	Priority Species, BoCC Amber, Lincs BAP	5	1	6
Total Number of Species:			58	46	66

Evaluation

5.1 Desk Study

5.1.1 Records of 66 specially protected or notable species were returned from the desk study. Of these 66 species:

- 13 are listed on Annex 1 of the EU Birds Directive (Ref 7-1);
- 23 are listed as Priority Species (Ref 7-4);
- 26 species are included on the BoCC Red List (Ref 7-9); and
- 20 species are included on the BoCC Amber List (Ref 7-9).

5.2 Field Survey

5.2.1 A total of 66 bird species were recorded during the wintering bird surveys for the Scheme. Of these 66 bird species, 39 species (see Table 0-1) met at least one of a range of criteria relating to conservation importance, as listed in Section 0 of this report.

5.2.2 Three species (Little Egret, Golden Plover and Kingfisher) listed on Annex I of the EU Birds Directive (2009) were recorded within the survey area. Single Little Egrets were recorded flying over the DCO Site and Kingfisher was recorded infrequently along the River Trent. Whilst the peak count of Golden Plover was just two birds on the Solar and Energy Storage Park Site, this species was observed in larger numbers in the wider area, outside of the survey area and it is likely that (given the open, arable farmland).

5.2.3 A total of 13 priority species were recorded within the survey area. These were: Grey Partridge, Lapwing, Herring Gull, Skylark, Starling, Song Thrush, House Sparrow, Tree Sparrow, Dunnock, Bullfinch, Linnet, Yellowhammer and Reed Bunting.

5.2.4 Twelve species, included on the BoCC Red List and 23 species, included on the BoCC Amber list, were recorded within the survey area. The remaining species are all included on the Green list and are of least conservation concern.

5.2.5 Thirteen species, listed as Lincolnshire Biodiversity Action Plan species, were recorded within the survey area.

5.2.6 One species, listed as Nottinghamshire Biodiversity Action Plan species, was recorded within the survey area.

5.3 Species Abundance

5.3.1 In addition to evaluating a site based on its populations of wintering birds in relation to legal status, rarity and conservation value, consideration has to be given to the value of the site for the population of individual species that it

supports. This can be done by comparing the population present on site with the national and county wintering population for certain species.

- 5.3.2 No peak counts of any species form a significant proportion (*i.e.* 1% or more) of the national wintering population estimates as detailed in Woodward *et al.* (2020) (Ref 7-14).
- 5.3.3 The peak count of Starling on the Solar and Energy Storage Park Site was 1,080 birds recorded just outside of the DCO Site boundary in December 2021 and January 2022. Whilst no population estimate for wintering Starling is proved in the Birds of Lincolnshire (Ref 7-20), the peak count of Starling is likely to be that approaching (or exceeding) 1% of the county level. These birds were recorded in farmland and improved grassland areas to the immediate north of the DCO Site and therefore the Scheme will not impact Starling utilising this area.
- 5.3.4 The numbers of individuals of the other species recorded were all relatively low and did not represent significant proportions (*i.e.* 1 % or more) of the county populations in Lincolnshire or Nottinghamshire. Therefore, the majority of species populations occurring within the DCO Site are considered to be of no more than local importance.

5.4 Species Diversity

- 5.4.1 Professional judgement was used to evaluate the number of species recorded within the survey area and in each discrete habitat type to assess species diversity.
- 5.4.2 The number of species recorded across the survey area was 66 and would place the importance of the species diversity occurring within the DCO Site as being of county importance.
- 5.4.3 Evaluation was also made of the species assemblage and numbers recorded during surveys of the Scheme that are located in Nottinghamshire (the Grid Connection Route), with respect to criteria for selection of County Wildlife Sites (as detailed in Section 3.3.7 of this report). None of the criterion for selection are met by the DCO Site.
- 5.4.4 In Lincolnshire, there is no specific criteria for birds, with regards to CWS selection, and none of the criteria is likely to be met when individually evaluating each discrete habitat by the species it supports.

5.5 Species Distribution

- 5.5.1 The location of Annex 1 species, Priority species and/or BoCC red and amber-listed bird species, (see Table 0-1) is presented in Figure 2 (Appendix A). In general, concentrations of species were found within the most suitable habitats to support each individual species' needs (*i.e.* species reliant on waterbodies were found on the DCO Site close to water, species that require woodland habitat, were found within woodland habitat on the DCO Site.).

5.6 Evaluation of key habitat types for wintering birds

5.6.1 A summary of the broad habitat types present in the survey area and their key ornithological features, are presented in Table 5-1.

Table 0-1: Key Ornithological Features of habitat within the Survey Area

Broad Habitat Type	Key Ornithological Features
Small waterbodies / ponds	Supports species associated with wetland features, such as Mallard (and other waterfowl) and gulls.
Arable farmland	The predominant habitat type occurring within the Scheme boundary and wider landscape beyond the survey area. Supports seed-eating passerines, including Skylark, Yellowhammer and Linnet, found throughout.
Scrub / hedgerows	Frequently occurring habitat within the DCO Site of varying quality. Supports species such as Yellowhammer, Dunnock, Song Thrush and Bullfinch.
Mature trees / woodland	Parcels of woodland and individual trees scattered within the DCO Site. Supports species such as Green Woodpecker, as well as species often found in scrub / hedgerows. Individual species of conservation interest, but limited species abundance and diversity.
Game cover crops	Occasional habitat feature occurring within the Site Supports flocks of farmland seed-eating passerines, such as Linnet, Yellowhammer, Reed Bunting and Dunnock.

Conclusions

- 6.1.1 A total of 66 bird species were recorded during wintering bird surveys for the Scheme. Of these 66 bird species, 39 species meet at least one of a range of criteria relating to conservation importance (see Table 0-1), as detailed in Section 2 of this report.
- 6.1.2 With the exception of Starling, species populations are of local importance within the DCO Site. However, species diversity are of county importance, based on the number of species recorded.
- 6.1.3 The majority of ecological data is valid only for short periods due to the inherently transient nature of the subject (CIEEM, 2019²). On this basis, it is recommended that the surveys for wintering birds will need repeating in two years (*i.e.* in 2023/2024) in the absence of construction starting.

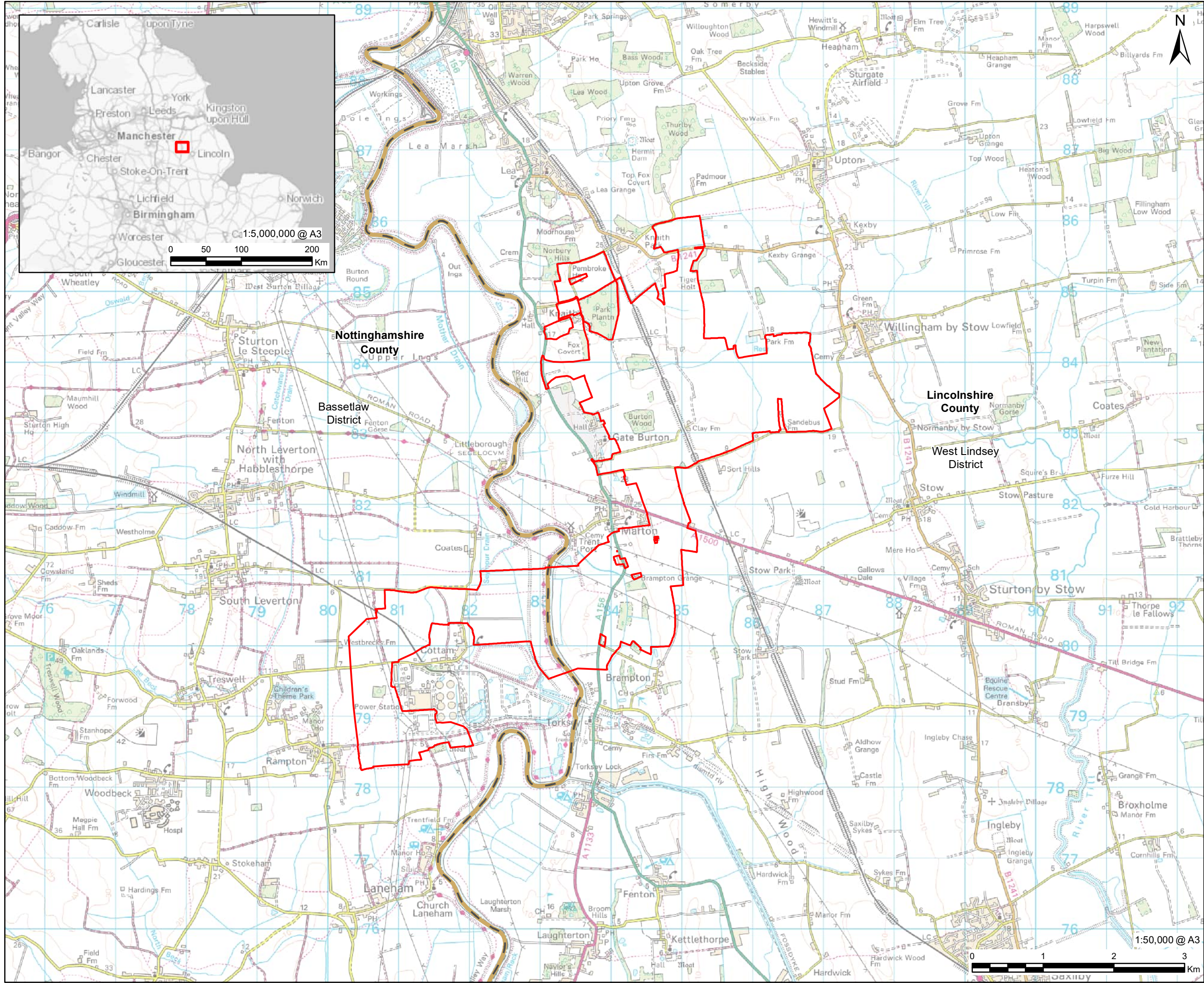
² CIEEM: Advice Note on the lifespan of ecological surveys and reports <https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf> (Accessed January 2022)

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- Ref 7-20 Lincolnshire Bird Club (2021). Birds of Lincolnshire.

Appendix A: Figures

Figure 1: DCO Site Location



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Gate Burton Energy Park

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Sunley House
4 Bedford Park
Surrey, CR0 2AP, UK
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LEGEND

- DCO Site
- District Boundary
- County Boundary

NOTES

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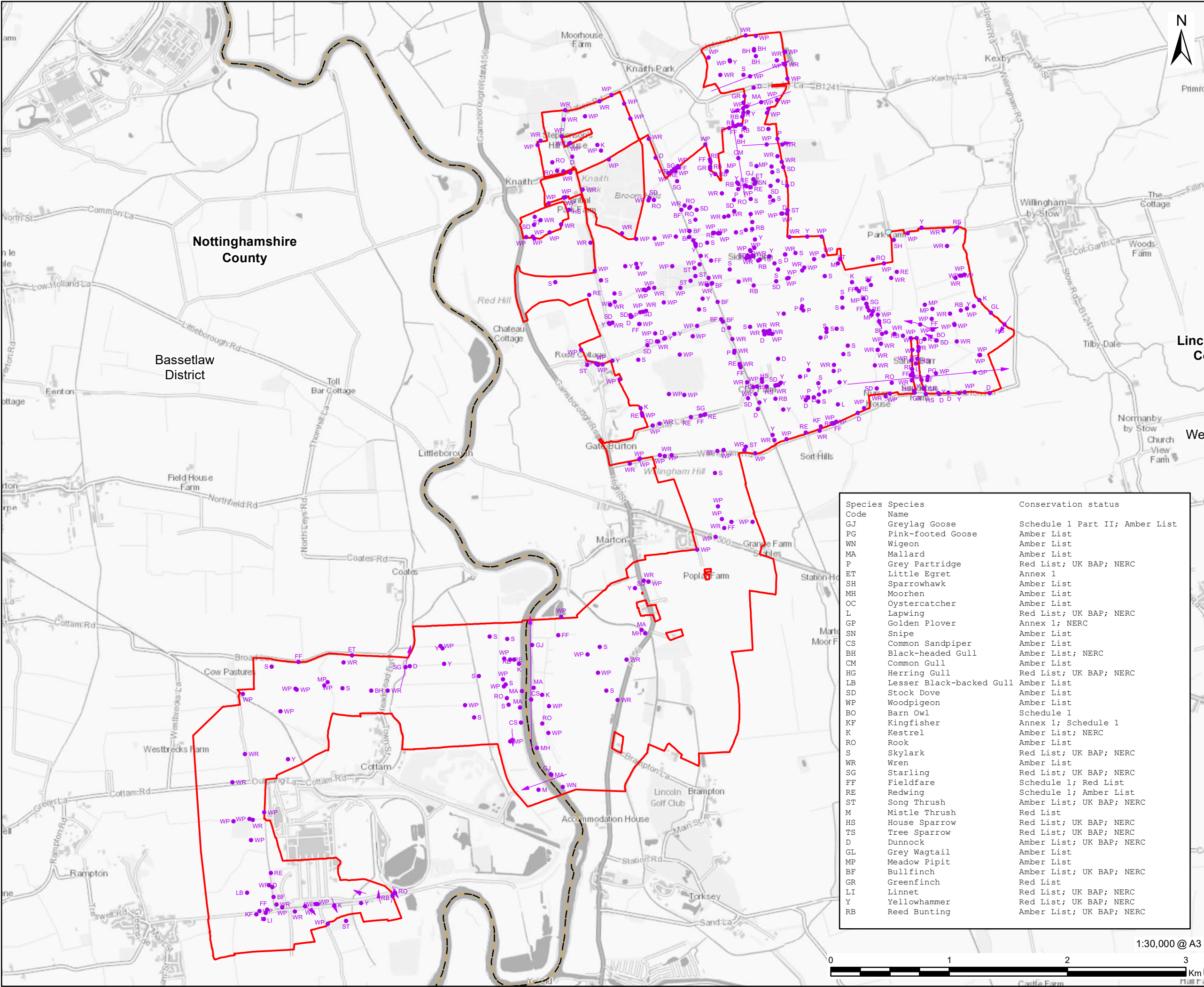
FIGURE TITLE

Site Location

FIGURE NUMBER

Figure 1

Figure 2: Distribution of Species of Conservation Concern



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LEGEND

- DCO Site
- County Boundary
- District Boundary
- Bird Survey Record, Conservation Species
- Flight Path (approximate)

NOTES

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FIGURE TITLE

Distribution of Species of Conservation Concern 2021-22

FIGURE NUMBER

Figure 2

