



Tillbridge Solar

PEI Report Volume II Appendix 9-4: Survey Report for Breeding Birds

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1. Introduction

1.1 Background

- 1.1.1 AECOM (on behalf of the Applicant) undertook a Preliminary Ecological Appraisal (PEA) (Ref 7-1 and **PEI Report Volume I Appendix 9-2**) for the Tillbridge Solar scheme (hereafter referred to as 'the Scheme'). The PEA identified that the habitat within the Scheme Boundary (the Site) was suitable to support birds during the breeding season and that surveys were required to determine the presence and assemblages of protected or notable¹ breeding bird species within the Scheme Boundary. However, at the time of survey there was no access to the Cable Route Corridor. Therefore, AECOM was instructed to undertake surveys of breeding birds within the Principal Site and an appropriate survey buffer (the survey area) to record the species, distribution and numbers of breeding bird territories. Further surveys of any land within the Scheme Boundary not subject to surveys in 2022, will be surveyed, as necessary, in 2023.
- 1.1.2 Breeding territory locations for bird species that are included on Annex 1 of the EU Birds Directive, or listed on Schedule 1 of the WCA, is not included within this report. This information is confidential and therefore a separate figure will be provided to key stakeholders with a legitimate need to view the information.

1.2 The Scheme

- 1.2.1 The Scheme comprises the construction, operation (including maintenance) and decommissioning of ground mounted solar photovoltaic (PV) panel arrays to generate electricity, a Battery Energy Storage System (BESS) and infrastructure to export and import electricity to the national electricity transmission network.

1.3 Site description

- 1.3.1 The Site is located approximately 5km to the east of Gainsborough, Lincolnshire, within the administrative district of West Lindsey. The Cable Route Corridor tracks south of the Principal Site, to the east of Willingham by Stow before tracking west towards the River Trent and to the south of Gate Burton. The Cable Route Corridor crosses into Nottinghamshire (within the administrative district of Bassetlaw) before connecting to the National Grid Substation.
- 1.3.2 The Site is dominated by arable fields. There are numerous mature trees and hedges within the Scheme Boundary, with woodlands and small wooded copses. The Principal Site is surrounded by mainly arable fields.

1.4 Scope of the report

- 1.4.1 The objective of the surveys for breeding birds, reported in this document, is to determine the presence, assemblage and distribution of breeding bird

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

species, within the Principal Site and relevant zones of influence to determine any potential impacts of the Scheme on breeding birds. The breeding bird assemblage of the Cable Route Corridor has not been defined at this stage and further data will be presented in the Environmental Statement (ES).

1.4.2 This report includes the following information:

- Relevant legislation and policy;
- Methodologies for desk and field-based assessments undertaken in 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 breeding bird populations recorded during the assessments; and
- Conclusions.

1.4.3 This report is a technical appendix to accompany **PEI Report Volume I Chapter 9: Ecology and Nature Conservation**. Where survey information is not complete, this report will be updated accordingly and presented with the final ES, submitted as part of the Development Consent Order application.

2. Legislation and Guidance

2.1 Legislative Context

Wildlife and Countryside Act

2.1.1 The legislative provisions for the protection of all wild birds in the UK are contained primarily in Sections 1-7 of the Wildlife and Countryside Act (WCA) 1981 (as amended) (Ref 7-2). 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.

2.1.2 When breeding, all birds, their nest, eggs and nestlings are afforded protection under the Wildlife and Countryside Act 1981, as updated by the 'Countryside Right of Way Act 2000' (Ref 7-3). Therefore, during the bird breeding season (typically March-August inclusive) 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 eggs of any wild bird.

2.1.3 Additionally, special penalties exist for offences related to species listed on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) (Ref 7-2), for which there are additional offences for disturbing these birds at their nest, or their dependent young. Schedule 1 birds cannot be intentionally or recklessly disturbed when nesting and there are increased penalties for doing so. No licences are available for disturbance during a development even in circumstances where that development is fully authorised by consents such as a valid planning permission.

Directive of the Conservation of Wild Birds

2.1.4 A number of bird species recorded within the UK (including those that are resident, overwintering and migratory) are protected under European legislation under the Directive of the Conservation of Wild Birds (EU Birds Directive) (Ref 7-4), 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.

2.1.5 This Directive is reflected in English law by the Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 7-5). Although the UK is no longer a member state of the European Union, the 2019 amendments to the Conservation of Habitats and Species Regulations 2017 (Ref 7-6) make it clear that provisions regarding the protection and designation of Special Protection Areas (SPAs) are maintained. Species listed on Annex 1 are those for which the UK Government takes special conservation measures including the designation of land as SPAs to ensure the survival and reproduction of these species throughout their distributions. These sites are automatically

included within the National Site Network; a network of core breeding and resting sites that are protected for rare and threatened species.

Priority species

- 2.1.6 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 7-7). 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.
- 2.1.7 The Joint Nature Conservation Committee (JNCC) UK Biodiversity Action Plan (UKBAP) (Ref 7-8) 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 7-9). 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 Local Biodiversity Action Plan

- 2.2.1 The Scheme is located in Lincolnshire and Nottinghamshire. The Lincolnshire Biodiversity Action Plan (3rd edition) (Ref 7-10) and Nottinghamshire Biodiversity Action Plan (Ref 7-11) 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 action plans provide context to inform identification of threatened or uncommon species within the district and, or county. The plans also identify priorities for conservation and enhancement but confers no particular legislative or policy protection to the species identified, however in some cases this is provided through related legislation and local planning policy.
- 2.2.2 The Lincolnshire BAP (Lincs BAP) lists 17 priority bird species and the Nottinghamshire BAP lists three priority bird species. These species are presented in Table 2-1. However, owing to the surveys being undertaken within the Principal Site only in 2022 (see limitations), no further reference to the Nottinghamshire BAP is made within this report as the Principal Site is within Lincolnshire only. This report will be updated for the ES submission, when breeding bird data are available for the Cable Route Corridor and include reference to the Nottinghamshire BAP, where necessary.

Table 2-1: Priority bird species listed in the Lincolnshire and Nottinghamshire Biodiveristy Action Plans

Common Name	Scientific name	Lincolnshire LBAP Action Plan	Nottinghamshire LBAP Action Plan
Barn Owl	<i>Tyto alba</i>	-	✓
Bullfinch	<i>Pyrrhula pyrrhula</i>	✓	-
Corn Bunting	<i>Emberiza calandra</i>	✓	-
Curlew	<i>Numenius arquata</i>	✓	-
Grey Partridge	<i>Perdix perdix</i>	✓	-
Lapwing	<i>Vanellus vanellus</i>	✓	-
Linnet	<i>Linaria cannabina</i>	✓	-
Nightjar	<i>Caprimulgus europaeus</i>	✓	✓
Redshank	<i>Tringa totanus</i>	✓	-
Reed Bunting	<i>Emberiza schoeniclus</i>	✓	-
Skylark	<i>Alauda arvensis</i>	✓	-
Snipe	<i>Gallinago gallinago</i>	✓	-
Starling	<i>Sturnus vulgaris</i>	✓	-
Tree Sparrow	<i>Passer montanus</i>	✓	-
Turtle Dove	<i>Streptopelia turtur</i>	✓	-
Willow Tit	<i>Poecile montanus</i>	✓	✓
Yellow Wagtail	<i>Motacilla flava</i>	✓	-
Yellowhammer	<i>Emberiza citrinella</i>	✓	-

2.3 Birds of conservation concern

2.3.1 The Birds of Conservation Concern (BoCC) (Ref 7-12) 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).

2.3.2 The criteria for birds being included in the BoCC lists are as follows:

Red List

- Are globally threatened (Critically Endangered, Endangered and Vulnerable, but not Near Threatened) under International Union for Conservation of Nature and Natural Resources (IUCN) guidelines;
- Have shown a historical population decline between 1800 and 1995 and have not recovered;
- Have suffered a severe non-breeding population decline of more than 50%; and
- Whose UK range in the non-breeding season has declined by more than 50% between respective breeding and non-breeding atlases.

Amber List

- Those that are threatened in Europe (Critically Endangered, Endangered and Vulnerable, but not Near Threatened as per IUCN Red List Guidelines);
- Those that were previously red-listed for historical population decline, followed by an increase of at least 100% over 25 years or the longer-term period;
- Those that have suffered a moderate non-breeding population decline of between 25% and 50%;
- Whose UK range in the non-breeding season has declined by more than 50% between respective breeding and non-breeding atlases;
- Non-breeding rarities (UK population <900 non-breeding individuals);
- Non-breeding localisation whereby more than 50% of the UK population was found at ten or fewer sites in the non-breeding season; and
- Non-breeding international importance whereby the UK holds at least 20% of the European population in the non-breeding (WI) season of a particular species.

Green List

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

2.3.3 The BoCC lists confer no legal status, however, where any BoCC Red or Amber-listed species are present at a site, their conservation status should be taken into account when determining the likely impacts (and significance) of proposed plans and projects and in determining the level of mitigation that may be required when birds are to be affected by plans or projects.

3. Methods

3.1 Desk Study

- 3.1.1 A desk study was undertaken in July 2022 through the Greater Lincolnshire Nature Partnership (GLNP) and the Nottinghamshire Biological and Geological Record Centre (NBGRC) to obtain records of protected and notable bird species within a 2 km radius of the Site (which includes both the Principal Site and the Cable Route Corridor).
- 3.1.2 Only records up to ten years old from the request date 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 for the Principal Site included all habitat within the Principal 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 breeding birds within the area immediately surrounding the Scheme and includes areas contiguous with the Scheme, 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 (such as those listed on Schedule 1 of the WCA) and therefore where any such species were recorded beyond the 50m survey buffer (up to 200m from the Scheme), these were also recorded. However, the 50m survey buffer is sufficient to determine the likely impacts of the Scheme on the majority of breeding bird species occurring or likely to occur in the area.

Territory mapping survey – general breeding bird assemblage

- 3.2.2 The survey involved walking over the Principal Site, where access permitted, or viewing land within the Scheme boundary from a suitable viewing point for evidence of breeding birds, following the standard territory mapping methodology as detailed in '*Bird Monitoring Methods*' (Gilbert *et al.*, 1998) (Ref 7-14) and '*Bird Census Techniques*' (Bibby *et al.*, 2000) (Ref 7-13). This method is based on the principle 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.
- 3.2.3 Five survey visits, were undertaken between mid-April and end-July 2022, as included in Table 3-1. Given, the size of the survey area for the Principal Site each survey visit took up to nine days to complete.

Table 3-1: Survey dates for each site visit

Visit number	Survey Dates
1	13 th 14 th April 2022; 19 th to 22 nd April 2022; 26 th to 28 th April 2022
2	29 th April 2022; 4 th to 6 th May 2022; 10 th to 13 th May 2022

Visit number	Survey Dates
3	17 th to 20 th May 2022; 24 th to 27 th May 2022; 7 th to 10 th June 2022
4	14 th to 17 th June 2022; 28 th June to 1 st July 2022
5	12 th to 14 th July 2022; 26 th to 29 th July 2022

- 3.2.4 Survey routes followed the length of all hedgerows, fence-lines and field margins (including paths, tracks and roads). Deviations into areas of set-aside, stubble fields, scrub, woodland and other uncultivated habitats were made, where possible. The routes did not include ploughed or cultivated fields, due to the possibility of trampling and damaging crops. Fields containing livestock were avoided for safety reasons.
- 3.2.5 Regular stopping points were included along the survey route to record any species that may be passing through the survey area. Survey routes were mapped, and the direction walked alternated on each visit, to ensure that all areas were covered at various times of day across the duration of the survey. Surveys were undertaken early in the morning, commencing just after sunrise and finishing before midday. Each survey was undertaken during appropriate weather conditions for survey when the weather was dry, warm and with little to no wind.
- 3.2.6 On each visit, the survey route was walked at a slow pace with start and finish times noted. All birds seen and heard were recorded directly onto paper maps and then later digitised onto a 1:10,000 scale Ordnance Survey base map of the survey area. All bird species were recorded and mapped across the entire survey area. Specific codes were used to record bird behaviour, including singing, calling, flights and movements between areas, carrying food, nest building, aggressive encounters and other bird behaviour.
- 3.2.7 The expected outcome from the surveys 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 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 has closely packed territories, the mapping of simultaneously singing birds becomes essential. Territory boundaries are assumed to be between such birds.
- 3.2.8 Territory mapping methods produce analysis maps of non-overlapping ellipses encircling clusters of records thought to relate to separate pairs of breeding birds. These ellipses may not show the entire extent of the pairs' actual breeding territory which may be significantly larger; however, they are likely to show those areas in which the pair is most active.
- 3.2.9 On completion of the surveys, analysis maps were produced for each species, consisting of all registrations recorded during surveys. From these species maps, the number of territories was calculated by identifying the number of clusters present.

- 3.2.10 For late-arriving (to the UK) trans-Saharan migrants, e.g. Spotted Flycatcher *Muscicapa striata*, for which fewer potential contacts are possible, only one registration is required to form a territory cluster. A number of species are not territorial and are dealt with appropriately, e.g. Linnet *Linaria cannabina*, where data represent aggregations or loose colonies.
- 3.2.11 Standard registration mapping techniques were also used to record non-breeding species.
- 3.2.12 The following definitions were used to identify the breeding territory status of each species recorded:
- Confirmed: includes species for which territories were positively identified as a result of the number of registrations recorded; the location of an active nest; or the presence of recently fledged young / downy young;
 - Probable: includes a species pair observed in suitable nesting habitat during surveys; or agitated behaviour / anxiety calls from adults (suggesting the presence of a nest or young nearby). Behaviour was observed on insufficient occasions to confirm the presence of a territory;
 - Possible: includes species observed during surveys in suitable nesting habitat; or a singing male present (or breeding calls heard) in suitable breeding habitat; or
 - Non-breeding: species-specific information was used to determine fly-over species, or species suspected to be summering non-breeder.
- 3.2.13 For non-passerines, including waterbirds, e.g., wildfowl, waders and birds of prey, the behaviour or number of individuals including the sex ratio, present in suitable breeding habitat, was used to determine the potential presence of likely breeding territories and/or estimated number of breeding individuals. This was made with reference to the specific species group methodologies presented in 'Bird Monitoring Methods' (Gilbert *et al.*, 1998) (Ref 7-14).

3.3 Assessment of ornithological importance

- 3.3.1 The assessment of the ornithological importance of the Scheme during the breeding 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 2 of this report. These include:
- Species listed on Annex 1 of the EU Birds Directive (Ref 7-4);
 - Species listed on Schedule 1 of the WCA, 1981 (as amended) (Ref 7-2);
 - Priority bird species in the UK (Ref 7-7) or Lincolnshire (Ref 7-10); and
 - Species included in the Birds of Conservation Concern (BoCC) Red and Amber Lists (Ref 7-12).

Species abundance

- 3.3.2 In addition to evaluating a site based on its populations of breeding 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 breeding population for certain species. National estimates for breeding birds are published in a paper:

'Population estimates of birds in Great Britain and the United Kingdom' (Ref 7-15). The BTO Bird Atlas 2007-2011 (Balmer *et. al.*, 2013) (Ref 7-16) was also reviewed for species information on a national level.

- 3.3.3 Information on populations of any nationally rare species was sourced from the most recently published paper by the Rare Breeding Birds Panel (RBBP) (Ref 7-17)
- 3.3.4 County-level estimates on the breeding bird populations of the majority of species in Lincolnshire were also obtained from county avifauna reports, where this information was available.

Species diversity

- 3.3.5 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.
- 3.3.6 Table 3-2 presents the breeding species diversity criteria as outlined in Fuller (1980) (Ref 7-18), which provided a method for assessing the ornithological interest of sites for conservation during the bird breeding season, based on the number of species present.

Table 3-2: Breeding species diversity criteria (Fuller, 1980)

Local	County	Regional	National
25-49	50-69	70-84	85+

- 3.3.7 It should be noted that Fuller's analysis was developed in the 1970s and, since then, species diversity has declined significantly. As a result, Fuller's thresholds are, in most circumstances, too high for today's breeding bird populations. However, it is not considered that the differences would be sufficient to increase the geographical scale at which the assemblages are considered to have value.
- 3.3.8 Local Wildlife Sites (LWS) (or County Wildlife Sites (CWS) are among the most important places for wildlife in Lincolnshire and Nottinghamshire, together with legally protected land such as Sites of Special Scientific Interest (SSSIs).
- 3.3.9 In Lincolnshire, CWS are selected for their habitats and subsequently has 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 Principal Site, e.g. farmland passerines.

Importance of the breeding bird population

- 3.3.10 To support a focussed assessment of the population of breeding birds within the Scheme, their biodiversity value has been 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*' (CIEEM, 2018) (hereafter referred to as the CIEEM Guidelines) (Ref 7-19); and professional judgement
- 3.3.11 The CIEEM guidelines use 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. This assessment criteria, set out in Table 3-3, has been used in conjunction with

species rarity, abundance and diversity within the survey area to assess the biodiversity importance of the breeding bird populations recorded during the field surveys.

Table 3-3: 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> <ol style="list-style-type: none"> a. the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; b. the population forms a critical part² of a wider population at this scale; or c. the species is at a critical phase³ of its life cycle at this scale.
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 NERC 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> <ol style="list-style-type: none"> a. the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; b. the population forms a critical part of a wider population at this scale; or c. the species is at a critical phase of its life cycle at this scale.
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 level⁵ where:</p> <ol style="list-style-type: none"> a. the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; b. the population forms a critical part of a wider population at this scale; or c. the species is at a critical phase of its life cycle at this scale.
County or Unitary Authority or District	<p>Populations of species of value at a County (Lincolnshire and Nottinghamshire) level or District (West Lindsey and Bassetlaw).</p> <p>Resident or regularly occurring populations of species which may be considered of value at a County (or District)⁶ level where:</p> <ol style="list-style-type: none"> a. the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale; b. the population forms a critical part of a wider population at this scale; or, c. the species is at a critical phase of its life cycle at this scale.

Importance of ornithological features Descriptors and examples of criteria

Local	Species populations of value in a local (<i>i.e.</i> within ~ 2 km of the site) context. 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.
Site**	Habitats and associated species that is of value in the context of the site only. Populations of common and widespread species.

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.

⁴ Species 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); 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.

⁵ A geographical area for Regional importance has not been defined. A feature is of Regional importance when it is of greater geographical importance than within the county of Lincolnshire or Nottinghamshire but does not reach the threshold to be of National importance.

⁶ Such species include those at county level (Lincolnshire and Nottinghamshire) including unitary authority area *i.e.* District level (*i.e.* West Lindsey and Bassetlaw); as listed on the LBAPs.

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

3.4 Assumptions and limitations

Desk study

- 3.4.1 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 the desk study was 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 of 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

- 3.4.2 Access into private land parcels within the Cable Route Corridor was not granted in time to undertake surveys of breeding birds in 2022, along with a section of the northwest corner of the Principal Site. However, survey data for breeding birds along the Cable Route Corridor and the northwest corner of the Principal Site will be sought, with further surveys undertaken as required. An assessment of breeding bird species across the Cable Route Corridor and full Principal Site will be undertaken for the final ES.

4. Results

4.1 Desk study

- 4.1.1 Records of 99 bird species were returned from GLNP and NBGRC from within 2 km of the Scheme Boundary and within the last ten years. A list of the 99 species recorded during the desk study is included in Annex A.

4.2 Field survey

- 4.2.1 A total of 83 species (including species listed on Schedule 1 of the WCA (Ref 7-2) and Annex 1 of the EU Birds Directive (Ref 7-4)) were recorded during surveys of breeding birds within the Principal Site between April and July 2022.
- 4.2.2 Of the 83 species recorded within the survey area, territories of 48 species were confirmed and territories of a further seven species were considered to be probable or possible within the survey area, resulting in a breeding bird assemblage of 55 species. Records relating to the remaining 28 species were of non-breeding species.
- 4.2.3 A summary of the breeding and conservation status of the 83 species recorded during the survey, with the numbers of territories identified (or thought likely in the case of probable and possible records) is provided in Table 4-1.
- 4.2.4 For species that are widespread throughout the survey area (e.g. Blue Tit *Cyanistes caeruleus*), common within Lincolnshire and the UK and not of conservation concern (i.e. not listed on one or more of the lists of conservation concern as detailed in this report), the number of breeding territories of these species (including probable or possible) have not been calculated and these are referred to in Table 4-1 as being present (P).
- 4.2.5 Breeding territory information for records of 'possible' breeders was also not calculated, due to the low number of registrations of birds; however, an estimation of the possible number of territories is included in parentheses in Table 4-1.

Table 4-1: Breeding status, number of territories and conservation status of birds recorded within the Principal Site survey area in 2022

Species (English name) and scientific name	Conservation status (where applicable)	Breeding Territory Status	Number of territories of breeding species (where applicable)
Canada Goose <i>Branta canadensis</i>	-	Non-breeding	0
Greylag Goose <i>Anser anser</i>	BoCC Amber	Non-breeding	0
Mute Swan <i>Cygnus olor</i>	BoCC Amber	Non-breeding	0
Whooper Swan <i>Cygnus cygnus</i>	Annex 1, WCA Sch. 1, BoCC Amber	Non-breeding	0
Gadwall <i>Mareca strepera</i>	BoCC Amber	Non-breeding	0
Mallard <i>Anas platyrhynchos</i>	BoCC Amber	Confirmed	2
Tufted Duck <i>Aythya fuligula</i>	-	Non-breeding	0
Red-legged Partridge <i>Alectoris rufa</i>	-	Confirmed	P
Grey Partridge <i>Perdix perdix</i>	Priority Species, BoCC Red, Lincs BAP	Confirmed	12
Quail <i>Coturnix coturnix</i>	WCA Sch. 1, BoCC Amber	Confirmed	1
Pheasant <i>Phasianus colchicus</i>	-	Confirmed	P
Grey Heron <i>Ardea cinerea</i>	-	Non-breeding	0
Sparrowhawk <i>Accipiter nisus</i>	BoCC Amber	Non-breeding	0
Marsh Harrier <i>Circus aeruginosus</i>	Annex 1, WCA Sch. 1, BoCC Amber	Non-breeding	0
Red Kite <i>Milvus milvus</i>	Annex 1, WCA Sch. 1	Non-breeding	0
Buzzard <i>Buteo buteo</i>	-	Confirmed	4
Moorhen <i>Gallinula chloropus</i>	BoCC Amber	Confirmed	1
Lapwing <i>Vanellus vanellus</i>	Priority Species, BoCC Red, Lincs BAP	Confirmed	4

Species (English name) and scientific name	Conservation status (where applicable)	Breeding Territory Status	Number of territories of breeding species (where applicable)
Golden Plover <i>Pluvialis apricaria</i>	Annex 1	Non-breeding	0
Dotterel <i>Charadrius morinellus</i>	WCA Sch. 1, BoCC Red	Non-breeding	0
Curlew <i>Numenius arquata</i>	Priority Species, BoCC Red, Lincs BAP	Possible	(1)
Snipe <i>Gallinago gallinago</i>	BoCC Amber, Lincs BAP	Non-breeding	0
Black-headed Gull <i>Chroicocephalus ridibundus</i>	BoCC Amber	Non-breeding	0
Common Gull <i>Larus canus</i>	BoCC Amber	Non-breeding	0
Herring Gull <i>Larus argentatus</i>	Priority Species, BoCC Red	Non-breeding	0
Yellow-legged Gull <i>Larus michahellis</i>	BoCC Amber	Non-breeding	0
Lesser Black-backed Gull <i>Larus fuscus</i>	BoCC Amber	Non-breeding	0
Stock Dove <i>Columba oenas</i>	BoCC Amber	Confirmed	9
Wood Pigeon <i>Columba palumbus</i>	BoCC Amber	Confirmed	1
Collared Dove <i>Streptopelia decaocto</i>	-	Confirmed	2
Cuckoo <i>Cuculus canorus</i>	Priority Species, BoCC Red	Possible	(1)
Barn Owl <i>Tyto alba</i>	WCA Sch. 1	Probable	(1)
Little Owl <i>Athene noctua</i>	-	Confirmed	1
Swift <i>Apus apus</i>	BoCC Red	Non-breeding	0
Great Spotted Woodpecker <i>Dendrocopus major</i>	-	Confirmed	1
Green Woodpecker <i>Picus viridus</i>	-	Possible	(1)
Hobby <i>Falco subbuteo</i>	WCA Sch. 1	Probable	(1)
Kestrel <i>Falco tinnunculus</i>	BoCC Amber	Confirmed	2

Species (English name) and scientific name	Conservation status (where applicable)	Breeding Territory Status	Number of territories of breeding species (where applicable)
Peregrine <i>Falco peregrinus</i>	Annex 1, WCA Sch. 1	Non-breeding	0
Jay <i>Garrulus glandarius</i>	-	Probable	(1)
Magpie <i>Pica pica</i>	-	Confirmed	P
Jackdaw <i>Coloeus monedula</i>	-	Confirmed	P
Rook <i>Corvus frugilegus</i>	BoCC Amber	Confirmed	12
Carrion Crow <i>Corvus corone</i>	-	Confirmed	P
Coal Tit <i>Periparus ater</i>	-	Confirmed	1
Blue Tit <i>Cyanistes caeruleus</i>	-	Confirmed	P
Great Tit <i>Parus major</i>	-	Confirmed	P
Skylark <i>Alauda arvensis</i>	Priority Species, BoCC Red, Lincs BAP	Confirmed	148
Sand Martin <i>Riparia riparia</i>	-	Non-breeding	0
Swallow <i>Hirundo rustica</i>	-	Confirmed	3
House Martin <i>Delichon urbicum</i>	BoCC Red	Non-breeding	0
Long-tailed Tit <i>Aegithalos caudatus</i>	-	Confirmed	6
Willow Warbler <i>Phylloscopus trochilus</i>	BoCC Amber	Confirmed	8
Chiffchaff <i>Phylloscopus collybita</i>	-	Confirmed	15
Sedge Warbler <i>Acrocephalus schoenobaenus</i>	BoCC Amber	Non-breeding	0
Reed Warbler <i>Acrocephalus scirpaceus</i>	-	Non-breeding	0
Blackcap <i>Sylvia atricapilla</i>	-	Confirmed	P
Lesser Whitethroat <i>Sylvia curruca</i>	-	Confirmed	2

Species (English name) and scientific name	Conservation status (where applicable)	Breeding Territory Status	Number of territories of breeding species (where applicable)
Whitethroat <i>Sylvia communis</i>	BoCC Amber	Confirmed	48
Goldcrest <i>Regulus regulus</i>	-	Confirmed	2
Wren <i>Troglodytes troglodytes</i>	BoCC Amber	Confirmed	47
Treecreeper <i>Certhia familiaris</i>	-	Probable	(1)
Starling <i>Sturnus vulgaris</i>	Priority Species, BoCC Red, Lincs BAP	Non-breeding	0
Blackbird <i>Turdus merula</i>	-	Confirmed	P
Song Thrush <i>Turdus philomelos</i>	Priority Species, BoCC Amber	Confirmed	8
Mistle Thrush <i>Turdus viscivorus</i>	BoCC Red	Confirmed	2
Spotted Flycatcher <i>Muscicapa striata</i>	Priority Species, BoCC Red	Non-breeding	0
Robin <i>Erithacus rubecula</i>	-	Confirmed	P
Wheatear <i>Oenanthe oenanthe</i>	BoCC Amber	Non-breeding	0
House Sparrow <i>Passer domesticus</i>	Priority Species, BoCC Red	Confirmed	10
Tree Sparrow <i>Passer montanus</i>	Priority Species, BoCC Red, Lincs BAP	Confirmed	9
Dunnock <i>Prunella modularis</i>	Priority Species, BoCC Amber	Confirmed	27
Yellow Wagtail <i>Motacilla flava</i>	Priority Species, BoCC Red, Lincs BAP	Confirmed	18
Pied Wagtail <i>Motacilla alba</i>	-	Confirmed	P
Meadow Pipit <i>Anthus pratensis</i>	BoCC Amber	Confirmed	12
Chaffinch <i>Fringilla coelebs</i>	-	Confirmed	P
Bullfinch <i>Pyrrhula pyrrhula</i>	Priority Species, BoCC Amber, Lincs BAP	Confirmed	1
Greenfinch <i>Chloris chloris</i>	BoCC Red	Confirmed	3

Species (English name) and scientific name	Conservation status (where applicable)	Breeding Territory Status	Number of territories of breeding species (where applicable)
Linnet <i>Linaria cannabina</i>	Priority Species, BoCC Red, Lincs BAP	Confirmed	23
Goldfinch <i>Carduelis carduelis</i>	-	Confirmed	P
Corn Bunting <i>Emberiza calandra</i>	Priority Species, BoCC Red, Lincs BAP	Non-breeding	0
Yellowhammer <i>Emberiza citrinella</i>	Priority Species, BoCC Red, Lincs BAP	Confirmed	51
Reed Bunting <i>Emberiza schoeniclus</i>	Priority Species, BoCC Amber, Lincs BAP	Confirmed	33
Total number of species			83
Breeding assemblage			55

5. Evaluation

5.1 Desk study

5.1.1 Records of 99 bird species, including specially protected or notable bird species were returned from the last ten years of the request date and from within 2 km of the Site through GLNP and NBGRC.

5.1.2 Of these 99 bird species:

- 24 species are listed on either Annex 1 of the EU Birds Directive (Ref 7-4) or on Schedule 1 of the WCA, 1981 (as amended) (Ref 7-2);
- 14 species are listed as a Priority Species in the UK (Ref 7-7);
- 20 species are included on the BoCC Red List (Ref 7-12);
- 40 species are included on the BoCC Amber List (Ref 7-12);
- Nine species are listed as Lincolnshire Biodiversity Action Plan species (Ref 7-10); and
- One species is listed as Nottinghamshire Biodiversity Action Plan species (Ref 7-11).

5.1.3 The majority of the 24 species recorded within 2km of the Site (Arctic Tern *Sterna paradisaea*, Bittern *Botaurus stellaris*, Black Tern *Chlidonias niger*, Goshawk *Accipiter gentilis*, Great White Egret *Ardea alba*, Hen Harrier *Circus cyaneus*, Hobby, Honey-buzzard *Pernis apivorus*, Kingfisher *Alcedo atthis*, Little Egret *Egretta garzetta*, Marsh Harrier *Circus aeruginosus*, Mediterranean Gull *Ichthyophaga melanocephalus*, Merlin *Falco columbarius*, Montagu's Harrier *Circus pygargus*, Osprey *Pandion haliaetus*, Peregrine *Falco peregrinus*, Quail, Red Kite, Redwing *Turdus iliacus*, Ruff *Calidris pugnax*, Scaup *Aythya marila*, Short-eared Owl *Asio flammeus*, Whimbrel *Numenius phaeopus* and Whooper Swan) and listed on Annex 1 of the EU Birds Directive (Ref 7-4) or Schedule 1 of the WCA (Ref 7-2) are unlikely to breed on the Site, owing to a lack of suitable habitat to support these species (further confirmed by surveys undertaken in 2022). Quail, Marsh Harrier and Montagu's Harrier are all species that occasionally nest within arable farmland, albeit rarely, although Quail was the only species recorded during surveys undertaken in 2022.

5.2 Field survey

5.2.1 A breeding assemblage of 55 species was confirmed within the Principal Site during surveys for breeding birds in 2022.

5.2.2 From the breeding assemblage of 55 species, recorded during field surveys:

- No species are listed on Annex 1 of the EU Birds Directive (Ref 7-4);
- Three species are listed on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) (Ref 7-2);
- Fourteen species are listed as a Priority Species in the UK (Ref 7-7);

- Twelve species are included on the BoCC Red List (Ref 7-12);
- Fifteen species are included on the BoCC Amber List (Ref 7-12); and
- Ten species are listed as Lincolnshire Biodiversity Action Plan species (Ref 7-10).

Specially protected species

- 5.2.3 Non-breeding species, included on Annex 1 of the EU Birds Directive (Ref 7-4) or Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) (Ref 7-2), included Whooper Swan, Marsh Harrier, Red Kite, Golden Plover, Dotterel and Peregrine. All of these species were recorded as passage migrants and on single occasions. Whooper Swan, Golden Plover are rare breeders in the UK, confined to upland areas and mostly in Scotland. Whilst habitat does exist within the Principal Site that could support Marsh Harrier (arable), Red Kite (mature trees and woodland) and Peregrine (pylons), no evidence of breeding behaviour was recorded from these species during surveys undertaken in 2022.
- 5.2.4 Species recorded within the survey area, included on Annex 1 of the EU Birds Directive or Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended), and with territories confirmed or thought probable / possible included: Quail, Barn Owl and Hobby.
- 5.2.5 Quail, Hobby and Barn Owl were recorded within the Principal Site. Quail was recorded singing on a single date in June 2022 from an arable field along the north-east boundary of the Principal Site. Given, the secretive nature of the species this has been considered as a male holding a breeding territory (as presented in Confidential Figure 1.1). Registrations of Hobby, including of a pair, were made within the centre of the Principal Site throughout May, June and July 2022. Although, a nest site was not located and breeding was not confirmed, this species can be secretive during the breeding season and therefore this species was likely to be holding a breeding territory, with a nest site potentially within one of the larger woodland blocks within the Principal Site (as presented in Confidential Figure 1.1). Barn Owl was recorded on a number of occasions along hedgerows and near to farm buildings in the centre of the Principal Site (as presented in Confidential Figure 1.1) although, no internal inspections were made of these buildings in 2022 to confirm potential nesting sites.

Species of conservation importance

Priority species

- 5.2.6 Fourteen species (Grey Partridge, Lapwing, Curlew, Cuckoo, Skylark, Song Thrush, House Sparrow, Tree Sparrow, Dunnock, Yellow Wagtail, Bullfinch, Linnet, Yellowhammer and Reed Bunting) with breeding territories confirmed or having probable, or possible breeding territories within the Principal Site survey area are listed as Species of Principal Importance prepared under Section 41 of the Natural Environment and Rural Communities Act 2006.

Birds of conservation concern

- 5.2.7 Breeding territories were confirmed, or thought probable, or possible for 12 species (Grey Partridge, Lapwing, Curlew, Cuckoo, Skylark, Mistle Thrush, House Sparrow, Tree Sparrow, Yellow Wagtail, Greenfinch, Linnet and

Yellowhammer) within the Principal Site survey area that are included on the BoCC Red List.

- 5.2.8 Breeding territories were confirmed, or thought probable, or possible for 15 species (Mallard, Quail, Moorhen, Stock Dove, Wood Pigeon, Kestrel, Rook, Willow Warbler, Whitethroat, Wren, Song Thrush, Dunnock, Meadow Pipit, Bullfinch and Reed Bunting) within the Principal Site survey area that are included on the BoCC Amber List.
- 5.2.9 Inclusion on the Birds of Conservation Concern Red or Amber list does not confer any statutory protection. However, the species concerned are all of conservation importance and considered to be under varying levels of threat in a UK context.

Lincolnshire BAP

- 5.2.10 Breeding territories were confirmed, or thought probable, or possible for ten species (Grey Partridge, Lapwing, Curlew, Skylark, Tree Sparrow, Yellow Wagtail, Bullfinch, Linnet, Yellowhammer and Reed Bunting) within the Principal Site survey area for which action plans have been prepared within the Lincolnshire BAP (see 7-10).

5.3 Species abundance

- 5.3.1 In addition to evaluating a site based on its populations of breeding birds in relation to legal status, rarity and conservation value, consideration has to be given to the value of a site for the population of individual species that it supports. This can be done by comparing the population present within the Site with the national and county breeding populations for that species.
- 5.3.2 No species are present within the Principal Site in numbers of national significance, i.e., 1% or more of the UK population, when compared to national population estimates as presented in Woodward *et al.* (Ref 7-15).
- 5.3.3 Current county population estimates for some of the species afforded special statutory protection and, or, of conservation importance are not available. However, whilst the majority of species of conservation importance that were recorded within the Principal Site are declining in the UK, most remain widespread.
- 5.3.4 Curlew was recorded throughout the survey period in the south-west of the Principal Site, with single birds noted on most surveys. A male was 'bubbling' (territorial display song) on the western boundary of the Principal Site at the beginning of May 2022, but no evidence to suggest nesting on the Principal Site was recorded at any point during the surveys. It is possible that the Principal Site forms part of a wider breeding territory (home range), with nesting occurring outside of the Site. This would likely represent a population of importance at a county scale in Lincolnshire. All other species recorded within the survey area are not present in numbers important at a county or district scale in Lincolnshire, with the exception of the population of Skylark (148 territories) which is likely to be of importance at a district scale in West Lindsey.
- 5.3.5 Therefore, the populations of all other species occurring within the Principal Site survey area are considered to be of no more than local importance.

5.4 Species diversity

5.4.1 To measure species diversity, the breeding assemblage (55) recorded in the Principal Site survey area was evaluated against the criteria developed by Fuller (see Table 3-2) and taking into consideration that species diversity has declined significantly since the criteria were developed. The breeding assemblage would regard the value of the Principal Site, as being of county importance for breeding birds.

5.4.2 There are no specific criteria for evaluation of the breeding species assemblage and numbers recorded during surveys, with respect to criteria for selection of Local Wildlife Sites (of County value) in Lincolnshire. Therefore, using professional judgement, the Principal Site and the species (and assemblages) that this area supports is unlikely to qualify as a LWS.

5.5 Species distribution

5.5.1 The locations of territories for species of conservation concern (see Table 4-1) are presented in Figures 1.2 to 1.7 and locations of specially protected species are presented in Confidential Figure 1.1, which will be presented to key stakeholders only. In general, concentrations of species were found within the most suitable habitats to support each individual species' needs (i.e. species reliant on woodland habitat were found within or close to woodland habitat on Principal Site, etc).

5.5.2 A summary of the distribution of Priority Species within the Principal Site is presented below:

- Grey Partridge – recorded within arable and grassland margin habitats throughout the Principal Site (see Figure 1.2).
- Curlew – recorded mostly flying over the Principal Site, with registrations of birds made throughout the survey period, including of a female and 'singing' (bubbling / displaying) male. Furthermore, all registrations were concentrated to the west of Billyard's Farm (see Figure 1.2). However, throughout the survey period it was evident from registrations of Curlew, that this species was using the Principal Site as part of their 'home range'² (with birds recorded foraging within the Principal Site), but no evidence of nesting was recorded within the Principal Site.
- Lapwing – three territories recorded in the east of the Principal Site (see Figure 1.2), within arable habitats.
- Skylark – recorded within arable and grassland habitats throughout the Principal Site, with a slight bias towards the centre of the Principal Site (see Figure 1.3).
- Song Thrush – recorded within scrub and woodland habitats across the Principal Site (see Figure 1.3).
- House Sparrow – recorded close to residential properties adjacent to the Principal Site (see Figure 1.3).
- Tree Sparrow – recorded in the centre of the Principal Site, within hedges, trees and scrub, also close to buildings (see Figure 1.4).
- Dunnock – found throughout the Principal Site in scrub, hedgerows and near woodland (see Figure 1.4).

² A home range is an area within which an animal spends its time and encompasses resources a species needs to survive and reproduce

- Yellow Wagtail – an even distribution of this species, throughout the Principal Site, associated with arable habitats (see Figure 1.4).
- Bullfinch – a single territory associated with scrub and woodland within the centre of the Principal Site (see Figure 1.3).
- Linnet – a mobile species, found throughout the Principal Site, mostly associated with hedgerows and scrub (see Figure 1.2).
- Yellowhammer – found throughout the Principal Site, associated with hedgerows and scrub (see Figure 1.4).
- Reed Bunting – found throughout the Principal Site, mostly associated with hedgerows and scrub near watercourses (see Figure 1.2).

5.6 Evaluation of key habitat types for breeding 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 5-1: Key ornithological features of habitat within the survey area

Broad habitat type	Key ornithological features
Waterbodies (ponds and agricultural reservoirs)	Supports species associated with wetland features, such as Mallard (and other waterfowl).
Arable farmland	The predominant habitat type occurring across the Principal Site. Supports a number of notable breeding species of conservation concern, including ground-nesting species such as Skylark, Lapwing and Grey Partridge.
Scrub / hedgerows	Scrub and hedgerows across the Principal Site. Supports breeding species of conservation concern, such as Yellowhammer and Linnet.
Mature trees / woodland	Parcels of woodland and individual trees scattered throughout the Principal Site. Supports species such as Song Thrush, as well as species often found in scrub / hedgerows.

6. Conclusions

- 6.1.1 A breeding bird assemblage of 55 species was recorded within the Principal Site in 2022. From the breeding assemblage of 55 bird species, 29 species meet at least one of a range of criteria relating to conservation importance (see Table 4-1), as detailed in section 2 of this report.
- 6.1.2 No species are present within the Principal Site in numbers of national significance, i.e., 1% or more of the UK population.
- 6.1.3 Three species listed as specially protected, owing to inclusion on Schedule 1 of the Wildlife and Countryside Act, were holding territory within the Principal Site. The design of the Scheme and construction methods will need to consider the presence of these species, as detailed in **PEI Report Volume I Chapter 9: Ecology and Nature Conservation**.
- 6.1.4 The breeding species diversity for the Principal Site is of county importance.
- 6.1.5 Whilst not nesting within the Principal Site, a pair of Curlew would likely represent a population of county importance. All other species populations are of no more than local importance, apart from Skylark, for which the Principal Site is likely to support a population of up to district importance.

7. References

- Ref 7-1 AECOM, 2021. Tillbridge Solar Farm Ecological Appraisal.
- Ref 7-2 HMSO. (1981). Wildlife & Countryside Act 1981 (as amended).
<https://www.legislation.gov.uk/ukpga/1981/69>
- Ref 7-3 HMSO (2000). Countryside and Rights of Way Act 2000. HMSO, London.
- Ref 7-4 EC (2009). Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version). EC, Brussels.
- Ref 7-5 HMSO (2018). Conservation of Habitats and Species Regulations 2017 (as amended). HMSO, London.
- Ref 7-6 HMSO. (2019). The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.
<https://www.legislation.gov.uk/ukdsi/2019/9780111179512/contents>.
- Ref 7-7 Anon. (2006). The Natural Environment and Rural Communities Act. HMSO, London.
- Ref 7-8 Anon. (2008). UK Biodiversity Action Plan.
- Ref 7-9 JNCC, UK Post-2010 Biodiversity Framework, 2012, available at
<http://jncc.defra.gov.uk/page-6189> (Accessed July 2020)
- Ref 7-10 Lincolnshire Biodiversity Action Plan. (2012-2020) 3rd edition.
<http://www.southkesteven.gov.uk/CHttpHandler.ashx?id=7371&p=0>
- Ref 7-11 Nottinghamshire Biodiversity Action Group (2008) Local Biodiversity Action Plan.
<https://nottsbag.org.uk/lbap/lbap-introduction-and-sections-1-to-6/>
- Ref 7-12 Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). Birds of Conservation Concern 5. *British Birds* 114: 723-747.
- Ref 7-13 Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S.H. (2000). *Bird Census Techniques: 2nd edition*. Academic Press, London.
- Ref 7-14 Gilbert G., Gibbons D.W., and Evans J. (1998) *Bird Monitoring Methods: A manual of techniques for key UK species*. RSPB, Bedfordshire
- Ref 7-15 Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D.A. & Noble, D. (2020). Population estimates of birds in Great Britain and the United Kingdom. *British Birds* 113: 69-104
- Ref 7-16 Balmer, D., Gillings, G., Caffrey, B., Swann, B., Downie, I. and Fuller, R., (2013). *Bird Atlas 2007-11: The Breeding and Wintering Birds of Britain and Ireland*. BTO.
- Ref 7-17 Eaton M. and the Rare Breeding Birds Panel (2020) Rare breeding birds in the United Kingdom in 2018. *British Birds* 113, 727-804.

Ref 7-18 Fuller, R.J. (1980). A Method for Assessing the Ornithological Interest of Sites for Conservation. *Biological Conservation* 17, 229-239

Ref 7-19 CIEEM (2018). Guidelines for Ecological Impact Assessment in the United Kingdom: Terrestrial, Freshwater, Coastal and Marine.

8. Annexes

Annex A: Data search records from within 2km of the Site

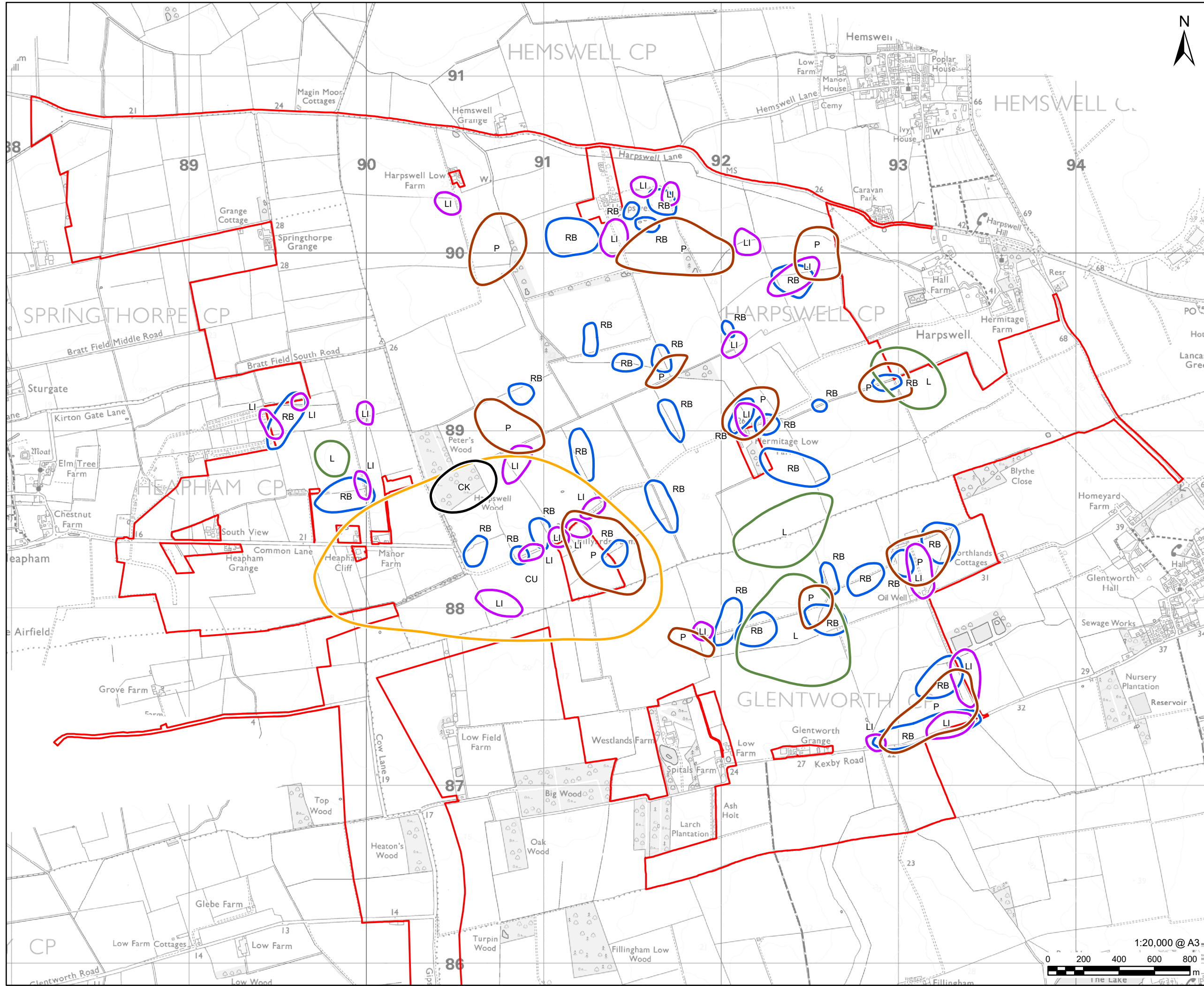
Common Name	Scientific Name	Year of most recent record	Conservation Designation
Arctic Tern	<i>Sterna paradisaea</i>	2018	BoCC Amber, Annex 1
Barn Owl	<i>Tyto alba</i>	2020	Sch 1 WCA, Notts BAP
Barn Swallow	<i>Hirundo rustica</i>	2019	-
Bittern	<i>Botaurus stellaris</i>	2014	BoCC Amber, Annex 1, Priority Species, Sch 1 WCA
Black Redstart	<i>Phoenicurus ochruros</i>	2016	BoCC Amber, Sch 1 WCA
Black-tailed Godwit	<i>Limosa limosa</i>	2018	BoCC Red, Priority Species, Sch 1 WCA
Black Tern	<i>Chlidonias niger</i>	2018	Annex 1
Blue Tit	<i>Cyanistes caeruleus</i>	2013	-
Brambling	<i>Fringilla montifringilla</i>	2019	Sch 1 WCA
Buzzard	<i>Buteo buteo</i>	2016	-
Canada Goose	<i>Branta canadensis</i>	2014	-
Caspian Gull	<i>Larus cachinnans</i>	2018	BoCC Amber
Cattle Egret	<i>Bubulcus ibis</i>	2018	BoCC Amber
Cetti's Warbler	<i>Cettia cetti</i>	2017	Sch 1 WCA
Chiffchaff	<i>Phylloscopus collybita</i>	2019	-
Common Gull	<i>Larus canus</i>	2019	BoCC Amber
Common Sandpiper	<i>Actitis hypoleucos</i>	2019	BoCC Amber
Common Scoter	<i>Melanitta nigra</i>	2018	BoCC Red, Priority Species, Sch 1 WCA
Coot	<i>Fulica atra</i>	2019	-
Cormorant	<i>Phalacrocorax carbo</i>	2019	-
Corncrake	<i>Crex crex</i>	2015	BoCC Red, Annex 1, Sch 1 WCA
Crossbill	<i>Loxia curvirostra</i>	2018	Sch 1 WCA
Cuckoo	<i>Cuculus canorus</i>	2013	BoCC Red, Priority Species
Curlew	<i>Numenius arquata</i>	2018	BoCC Red, Priority Species, Lincs BAP
Eurasian Teal	<i>Anas crecca</i>	2015	BoCC Amber
Eurasian Wigeon	<i>Mareca penelope</i>	2019	BoCC Amber
Fieldfare	<i>Turdus pilaris</i>	2020	Sch 1 WCA, BoCC Red
Gadwall	<i>Mareca strepera</i>	2019	BoCC Amber
Goldfinch	<i>Carduelis carduelis</i>	2019	-
Goshawk	<i>Accipiter gentilis</i>	2014	Annex 1, Sch 1 WCA
Grasshopper Warbler	<i>Locustella naevia</i>	2017	BoCC Red, Priority Species
Great Black-backed Gull	<i>Larus marinus</i>	2015	BoCC Amber
Great Crested Grebe	<i>Podiceps cristatus</i>	2019	-

Common Name	Scientific Name	Year of most recent record	Conservation Designation
Great Spotted Woodpecker	<i>Dendrocopos major</i>	2019	-
Great Tit	<i>Parus major</i>	2013	-
Great White Egret	<i>Ardea alba</i>	2019	Annex 1, BoCC Amber
Green Sandpiper	<i>Tringa ochropus</i>	2020	BoCC Amber
Green Woodpecker	<i>Picus viridis</i>	2015	-
Grey Heron	<i>Ardea cinerea</i>	2019	-
Grey Partridge	<i>Perdix perdix</i>	2017	BoCC Red, Priority Species, Lincs BAP
Grey Plover	<i>Pluvialis squatarola</i>	2018	BoCC Amber
Greylag Goose	<i>Anser anser</i>	2020	BoCC Amber
Hen Harrier	<i>Circus cyaneus</i>	2019	BoCC Red, Annex 1
Hobby	<i>Falco subbuteo</i>	2020	Sch 1 WCA
Honey-buzzard	<i>Pernis apivorus</i>	2015	BoCC Amber, Annex 1
House Martin	<i>Delichon urbicum</i>	2019	BoCC Red
Jay	<i>Garrulus glandarius</i>	2019	-
Kestrel	<i>Falco tinnunculus</i>	2019	BoCC Amber
Kingfisher	<i>Alcedo atthis</i>	2018	Annex 1, Sch 1 WCA
Lapwing	<i>Vanellus vanellus</i>	2016	BoCC Red, Priority species, Lincs BAP
Lesser Black-backed Gull	<i>Larus fuscus</i>	2019	BoCC Amber
Lesser Whitethroat	<i>Sylvia curruca</i>	2019	-
Little Egret	<i>Egretta garzetta</i>	2020	Annex 1
Little Grebe	<i>Tachybaptus ruficollis</i>	2015	-
Little Owl	<i>Athene noctua</i>	2016	-
Long-tailed Tit	<i>Aegithalos caudatus</i>	2019	-
Mallard	<i>Anas platyrhynchos</i>	2015	BoCC Amber
Marsh Harrier	<i>Circus aeruginosus</i>	2019	BoCC Amber, Annex 1
Meadow Pipit	<i>Anthus pratensis</i>	2019	BoCC Amber
Mediterranean Gull	<i>Ichthyaetus melanocephalus</i>	2012	BoCC Amber, Annex 1, Sch 1 WCA
Merlin	<i>Falco columbarius</i>	2020	Annex 1, Sch WCA 1
Montagu's Harrier	<i>Circus pygargus</i>	2013	BoCC Red, Annex 1
Mute Swan	<i>Cygnus olor</i>	2019	-
Osprey	<i>Pandion haliaetus</i>	2018	BoCC Amber, Annex 1, Sch 1 WCA
Oystercatcher	<i>Haematopus ostralegus</i>	2017	BoCC Amber
Peregrine Falcon	<i>Falco peregrinus</i>	2020	Annex 1, Sch 1 WCA
Pied Wagtail	<i>Motacilla alba</i>	2015	-
Pink-footed Goose	<i>Anser brachyrhynchus</i>	2015	BoCC Amber
Pintail	<i>Anas acuta</i>	2018	BoCC Amber
Quail	<i>Coturnix coturnix</i>	2018	BoCC Amber, Sch 1 WCA
Raven	<i>Corvus corax</i>	2017	-
Red-legged Partridge	<i>Alectoris rufa</i>	2018	-
Red Kite	<i>Milvus milvus</i>	2020	Annex 1, Sch 1 WCA
Redwing	<i>Turdus iliacus</i>	2020	Sch 1 WCA, BoCC Amber
Reed Bunting	<i>Emberiza schoeniclus</i>	2019	BoCC Amber, Priority Species, Lincs BAP

Common Name	Scientific Name	Year of most recent record	Conservation Designation
Ring Ouzel	<i>Turdus torquatus</i>	2019	BoCC Red
Rock Dove	<i>Columba livia</i>	2019	-
Rook	<i>Corvus frugilegus</i>	2019	BoCC Amber
Rose-ringed Parakeet	<i>Psittacula krameri</i>	2019	-
Ruff	<i>Calidris pugnax</i>	2019	BoCC Red, Annex 1, Sch 1 WCA
Sand Martin	<i>Riparia riparia</i>	2019	-
Scaup	<i>Aythya marila</i>	2016	BoCC Red, Priority Species, Sch 1 WCA
Shelduck	<i>Tadorna tadorna</i>	2016	BoCC Amber
Short-eared Owl	<i>Asio flammeus</i>	2018	BoCC Amber, Annex 1
Shoveler	<i>Spatula clypeata</i>	2016	BoCC Amber
Skylark	<i>Alauda arvensis</i>	2019	BoCC Red, Priority species, Lincs BAP
Snipe	<i>Gallinago gallinago</i>	2014	BoCC Amber, Lincs BAP
Sparrowhawk	<i>Accipiter nisus</i>	2013	BoCC Amber
Stock Dove	<i>Columba oenas</i>	2014	BoCC Amber
Tawny Owl	<i>Strix aluco</i>	2015	BoCC Amber
Tree Sparrow	<i>Passer montanus</i>	2015	BoCC Red, Priority Species, Lincs BAP
Tufted Duck	<i>Aythya fuligula</i>	2019	-
Turtle Dove	<i>Streptopelia turtur</i>	2016	BoCC Red, Priority Species, Lincs BAP
Water Rail	<i>Rallus aquaticus</i>	2016	-
Whimbrel	<i>Numenius phaeopus</i>	2014	BoCC Red, Sch 1 WCA
Whinchat	<i>Saxicola rubetra</i>	2018	BoCC Red
Whooper Swan	<i>Cygnus cygnus</i>	2019	BoCC Amber, Annex 1, Sch 1 WCA
Willow Warbler	<i>Phylloscopus trochilus</i>	2019	BoCC Amber
Yellow Wagtail	<i>Motacilla flava</i>	2019	BoCC Amber, Priority Species, Lincs BAP

9. Figures

Figure 1.1 (CONFIDENTIAL) – to be provided to stakeholders separately



LEGEND

- Scheme Boundary
- Breeding Bird Territory
- Grey Partridge, P
- Lapwing, L
- Curlew, CU
- Cuckoo, CK
- Linnet, LI
- Reed Bunting, RB

NOTES

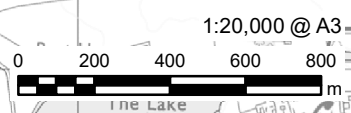
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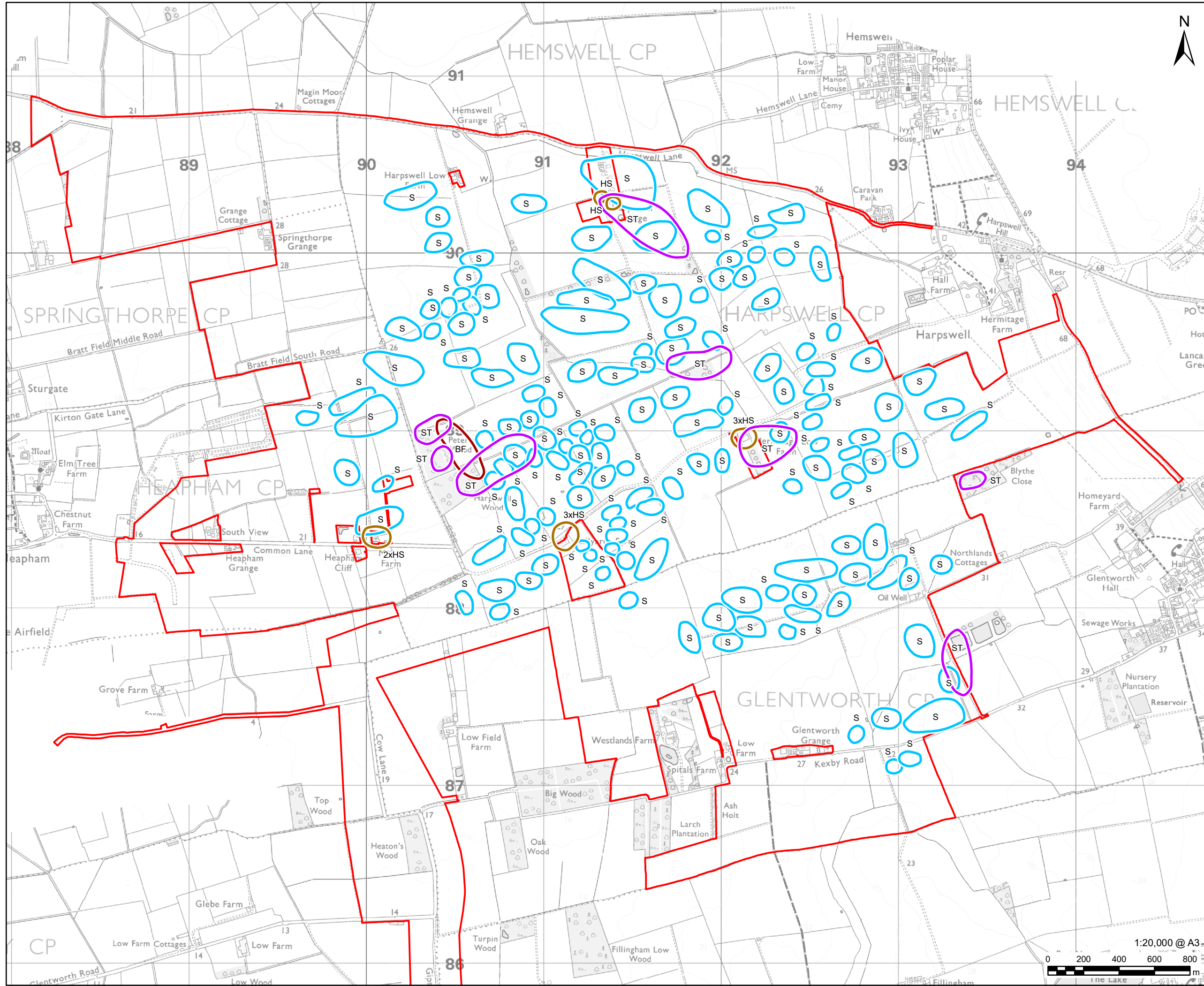
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FIGURE TITLE
Breeding Bird Territory
Priority Species (1/3)

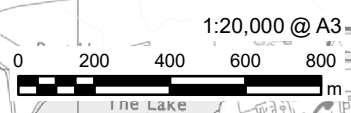
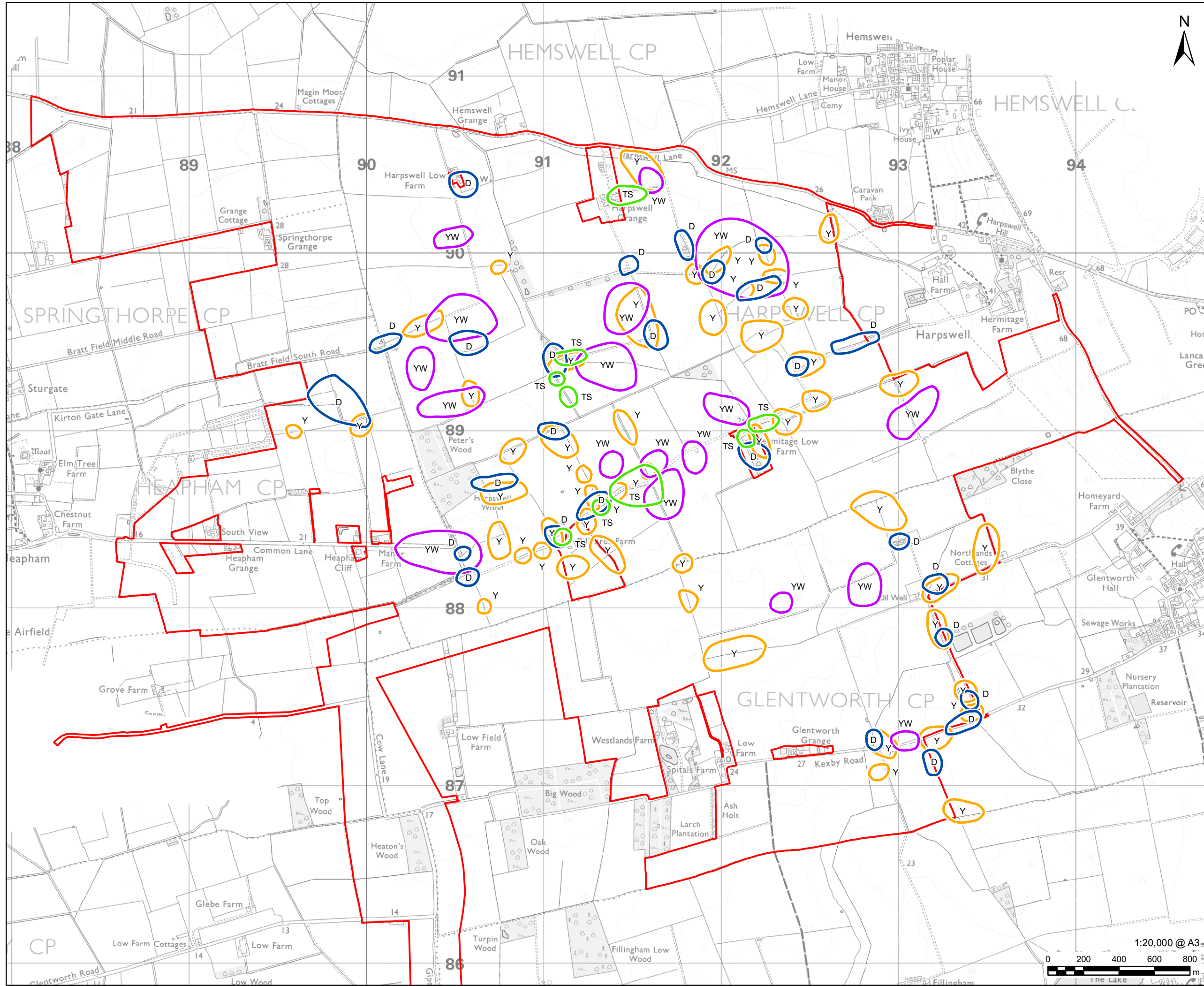
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Figure 1.2



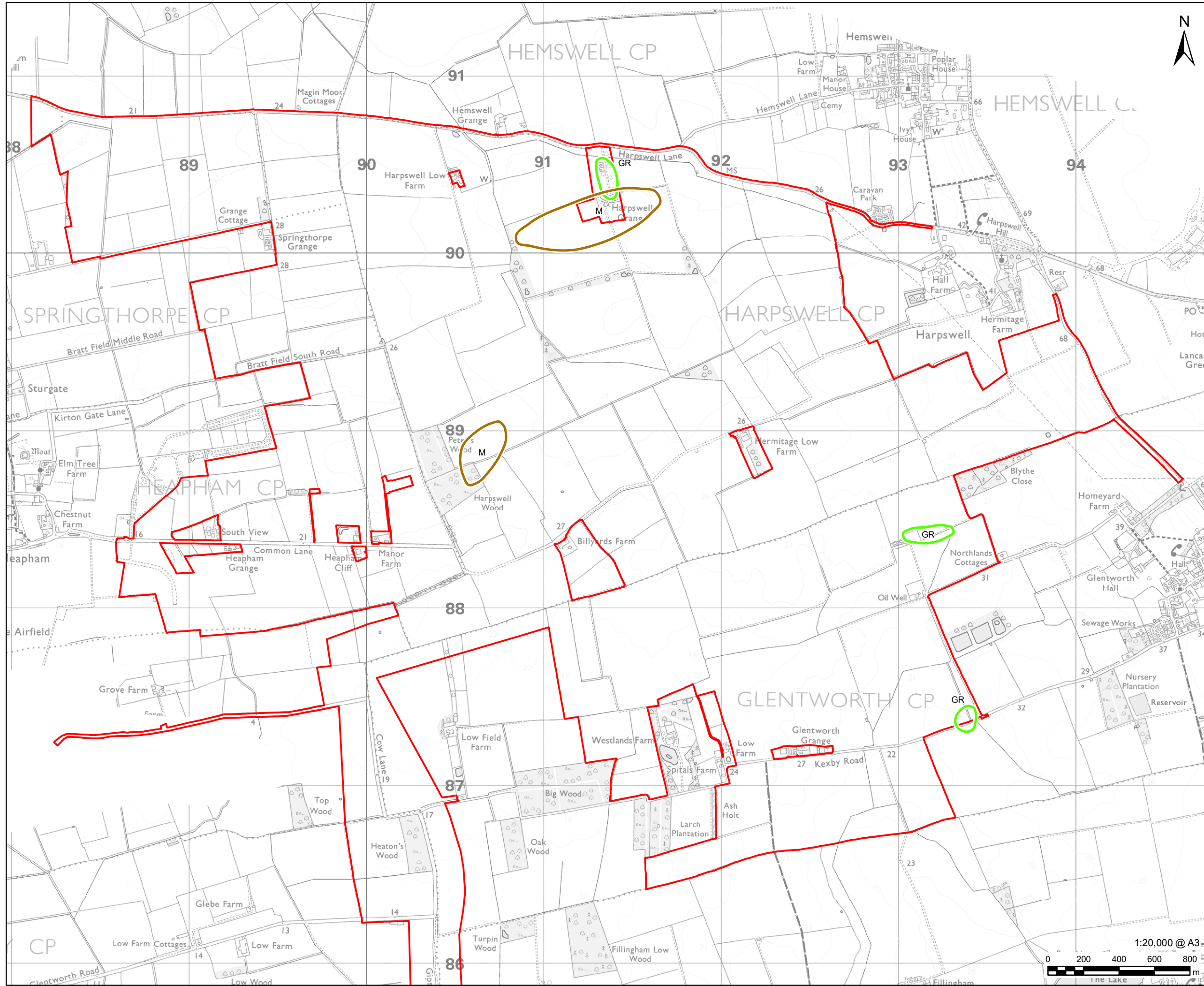
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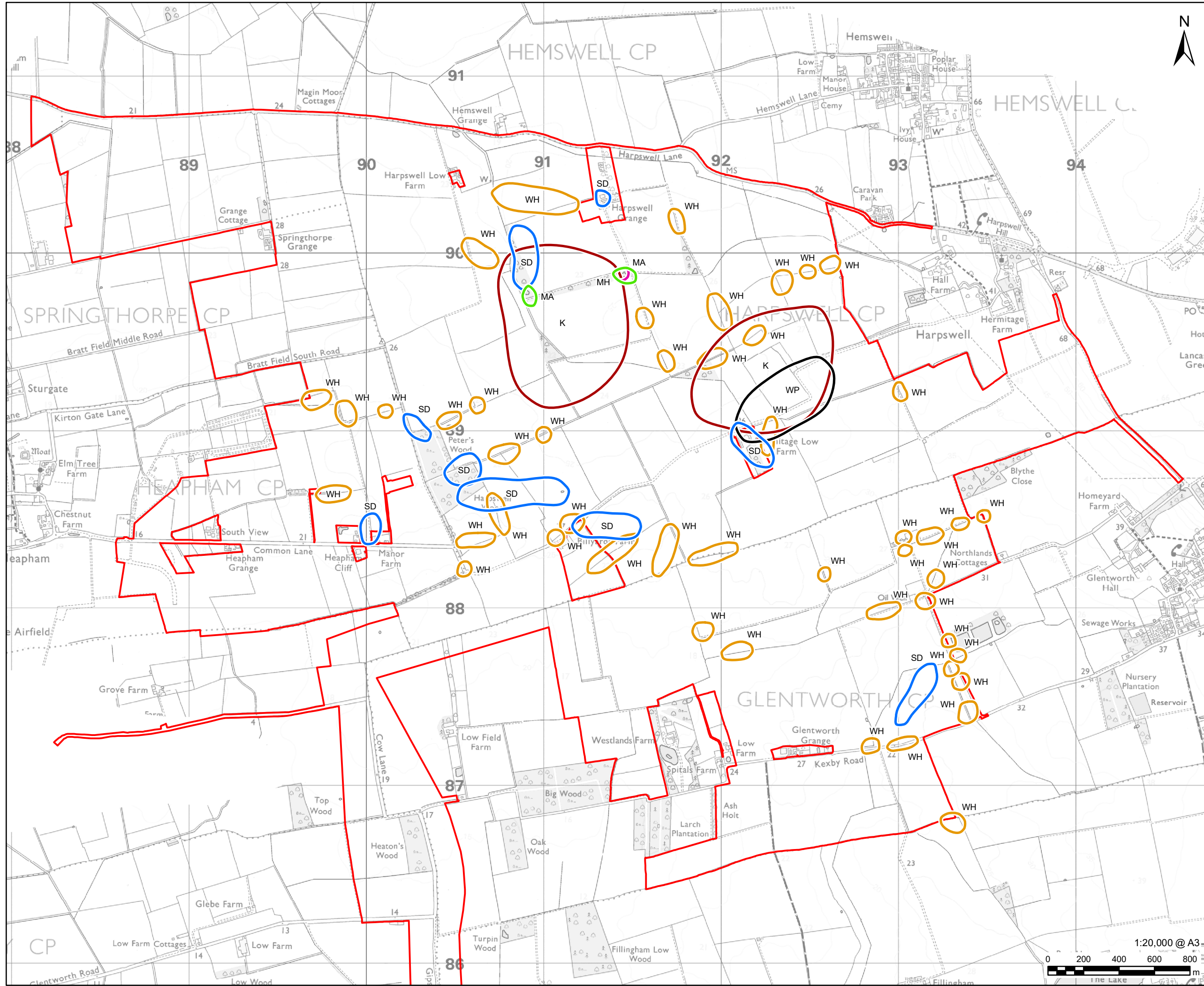
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LEGEND

	Scheme Boundary
	Breeding Bird Territory
	Mallard, MA
	Moorhen, MH
	Stock Dove, SD
	Woodpigeon, WP
	Kestrel, K
	Whitethroat, WH

NOTES

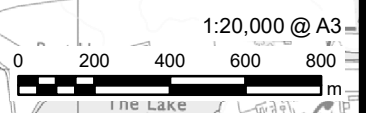
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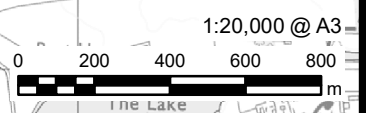
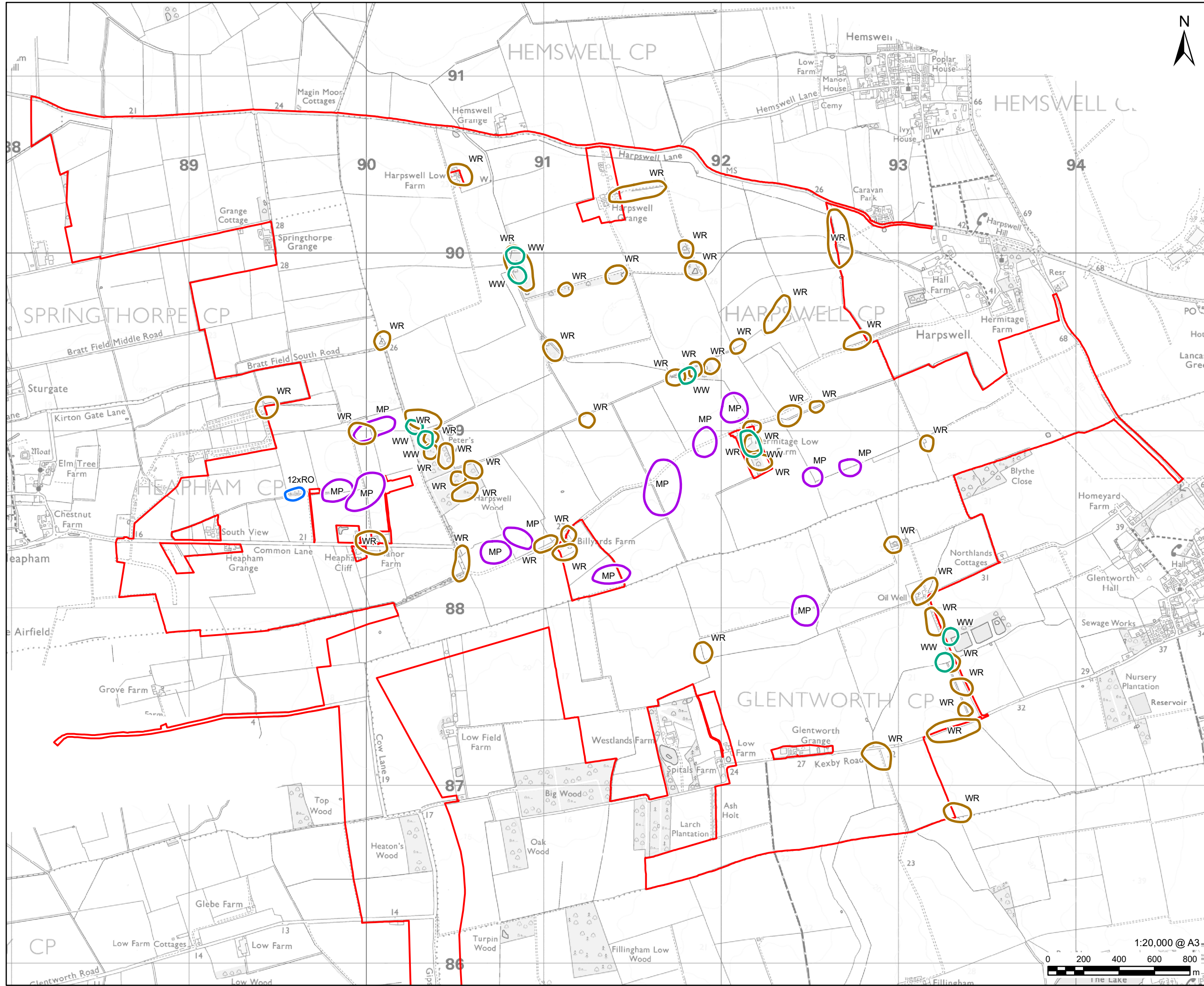
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FIGURE TITLE
Breeding Bird Territory
Amber List Species (1/2)

FIGURE NUMBER
Figure 1.6



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