

# Cottam Solar Project

## Environmental Statement

### Appendix 9.8: Breeding Bird Survey Report

Prepared by: Clarkson & Woods Ltd.  
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**BREEDING BIRD SURVEY REPORT**  
**COTTAM SOLAR PROJECT**

carried out by



commissioned by

**COTTAM SOLAR PROJECT LTD.**

**SEPTEMBER 2022**



# BREEDING BIRD SURVEY REPORT

## COTTAM SOLAR PROJECT

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The information, data and advice which has been prepared and provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions. This report and its contents remain the property of Clarkson and Woods Ltd. until payment has been made in full.



# 1 INTRODUCTION

## 1.1 Overview

- 1.1.1 Clarkson and Woods Ltd. was commissioned by Cottam Solar Project Ltd to complete breeding bird surveys for the Cottam Solar Project. The Scheme broadly comprised four Sites: Cottam 1, Cottam 2, Cottam 3a and Cottam 3b. These are referred to hereafter either collectively as 'the Sites' or, where appropriate, using the individual abbreviated Site references (C1, C2 etc.). The Scheme comprises of the construction and operation of a Nationally Significant Infrastructure Project-scale solar park, including solar energy production and storage components.
- 1.1.2 Breeding bird survey visits were carried out in Summer 2021 and Spring/Summer 2022 following good practice survey guidelines and methodology set out within Section 2 below.
- 1.1.3 Unless the client indicates to the contrary, information on the presence of species will be passed to the county biological records centre to augment their records for the area.

## 1.2 Report Aims and Limitations

- 1.2.1 The surveys were required to ascertain a baseline of the breeding bird assemblage across a Survey Area chosen to encompass all long-term development zones within the Scheme. This report details the methods and results of the surveys and provides a brief overview of the potential impacts that could result from the proposals so as to inform the layout of the Scheme.
- 1.2.2 This information will be used within the eventual Cottam Solar Project Environmental Statement to inform the ecological evaluation of the habitats used by breeding birds throughout the nesting season and to characterise the impacts on them considered likely to result from the Scheme.
- 1.2.3 While the installation of below-ground electrical cabling will be required beyond the boundaries of the Survey Area in order to connect the disparate land parcels, both to one another and to the National Grid, ecological baseline information for this cable route element will be presented within a separate document.

## 1.3 Description of the Survey Area

- 1.3.1 Due to refinement of the Scheme extent and design following the completion of the breeding bird surveys, the final Survey Area covers a larger area than the red line boundary of the proposed solar and battery elements of the Scheme (but not including the cable route or 'external' construction access routes). All areas within the extent of the solar and battery elements have been subject to survey for breeding birds. The total Survey Area measures approximately 1,260ha hectares (ha).
- 1.3.2 The Sites are spread over an approximately 17km area stretching between the settlements of Coates and Thorpe in the Fallows (Cottam 1), Corringham (Cottam 2) and Blyton (Cottam 3a and 3b) as shown in Figure 1 below. For the purposes of this document Cottam 1 was further split into three distinct zones namely Cottam 1 North, Cottam 1 South and Cottam 1 West, as shown in Figure 1.
- 1.3.3 The Sites predominantly comprise large, open and generally flat arable fields characterised by cereal crops (e.g. winter- and spring-sown cereal, flax, oilseed rape and legumes) plus maize and some fallow fields (Cottam 1 North) bounded by a network of managed hedgerows, ditches of varying size and narrow field margins, where present.
- 1.3.4 These habitats are typical of the surrounding landscape which is dominated by arable farmland interspersed with small settlements and farmsteads linked by minor and private single track roads. The wider landscape is mostly flat but becomes more undulating north of Cottam 3a and rises to the east of Site at the 'Lincoln Cliff', a significant north-south escarpment, approx. 4-5km away.
- 1.3.5 While no woodland is present within the Scheme boundary, several small stands of woodland are present within the extent of Cottam 1.
- 1.3.6 Standing water is generally absent from the Sites and the surroundings but with occasional ponds. The River Trent is located approximately 5km west of the Sites as it flows north towards the Humber Estuary, which is situated approx. 25km north of Cottam 3a whilst the River Till forms the boundary and traverses Cottam 1 south



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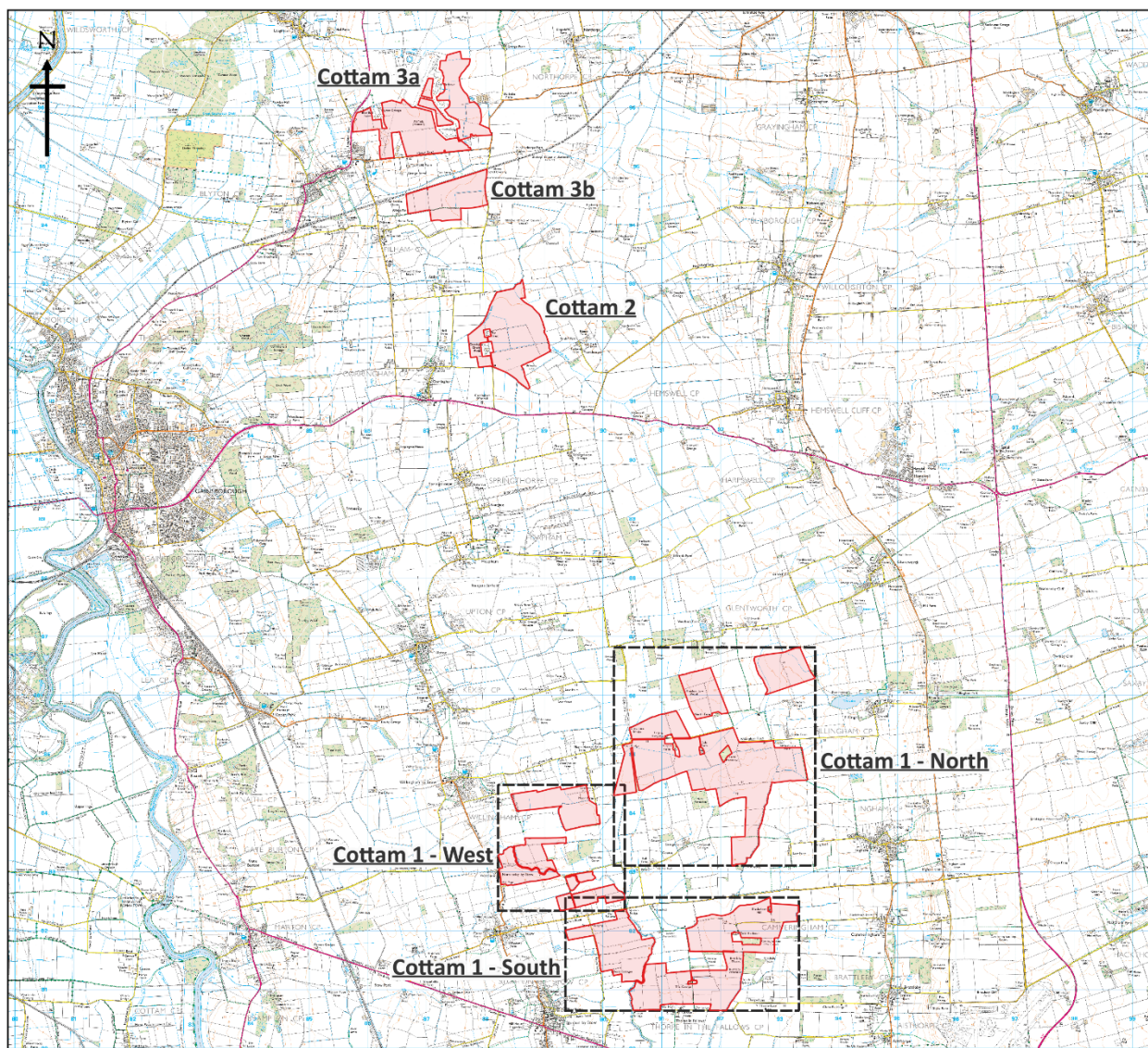
and Cottam 1 west respectively. Flowing water occurs sparsely, centred on the minor River Till (in the case of Cottam 1, and Cottam 2 via the Corringham and Yarthorpe Becks) and River Eau (around Cottam 3a and 3b via the Northorpe Beck), and their various feeder streams and managed agricultural drainage ditches which regularly dry out.

#### **1.4 Quality Assurance**



- 1.4.1 This report has been prepared in accordance with the relevant British Standard: *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*<sup>1</sup>. It has been prepared by experienced ecologists employed by Clarkson and Woods who are members of the Chartered Institute of Ecology and Environmental Management (CIEEM). The report has also been subject to a two-stage quality assurance review by appropriately experienced ecologists who are full members of CIEEM.

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<sup>1</sup> The British Standards Institution (2013). *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*. BSI Standards Ltd.



**Key:**

-  Site red line boundaries
-  Site bounding box



Project  
**Cottam Solar Project**

Title  
**Figure 1 - Cottam sites**

Date  
**03/10/2022**

Scale  0 1 2 3 4 km

**Figure 1: Location of Cottam 1 - Cottam 3**



## 2 SURVEY METHODOLOGIES

### 2.1 Desk Study

- 2.1.1 The Lincolnshire Environmental Records Centre (LERC) was consulted for records of bird species within 2km of the Site.

#### *Legislation*

- 2.1.2 Statutory legislation relating to the protection of wild birds within the UK includes the Wildlife and Countryside Act 1981 (as amended).

- 2.1.3 All sites statutorily designated for their bird conservation interest within proximity of the application Site (30km for International sites, 5km for National sites and 2km for Local sites) were identified using the Natural England/Defra web-based MAGIC database (<https://magic.defra.gov.uk/>) and cross-checked against data received from Lincolnshire Environmental Record Centre (LERC).

#### *Local Conservation Strategies*

- 2.1.4 Relevant Local Authority plans and strategies with a biodiversity focus were consulted for aspects relevant to birds and their breeding habitats, including priority species listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006).

#### *Landscape-scale Conservation Strategies, Initiatives and Records*

- 2.1.5 Bird conservation strategies used to monitor population trends and determine target areas for conservation, were identified to aid assessment and mitigation recommendations for breeding birds at risk of impact from the Scheme. For example, the Bird Conservation Targeting Project (BCTP) has been informed by historic datasets and is used to advise targeted mitigation measures, e.g. agri-environmental schemes, at a site level.

- 2.1.6 The Birds of Conservation Concern (BoCC) list was also consulted, which provides categorisation of bird species according to their conservation status based on the assessment criteria. It considers both temporal and spatial trends across their distribution ranges and incorporates the use of a simple traffic light system with red, amber or green categories used to illustrate those birds most at risk. Red-listed species of high conservation concern are most at risk, reducing onto amber and green.

- 2.1.7 Local county bird group data was also consulted to identify any local conservation concerns and disparities between national and local trends<sup>2</sup>.

- 2.1.8 Where relevant, Ordnance Survey maps (1:25,000) and online aerial images of the Site were examined online to assess habitat connectivity (e.g. [REDACTED]).

### 2.2 Field Survey

- 2.2.1 All individual fields were mapped and surveyed with the individual Sites split into four or less areas to enable surveyors to complete surveys within the target timeframe.

- 2.2.2 Within each of the four Sites the entire area of farmed habitats was surveyed within each respective proposed red-line boundary, following transect routes through the fields and adjacent to boundary habitats. Where areas of woodland were located within a redline boundary, only the woodland periphery was walked and birds recorded. All Site boundaries (i.e. hedgerow, ditches, rivers etc.) were walked during each survey at a distance of no more than 50m from the boundary feature.

#### *Breeding Bird Survey Methodology*

- 2.2.3 To provide a reasonable level of accuracy for determining the breeding status of bird species and relative use of each habitat recorded across the Survey Area during the breeding season, each Site was surveyed

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<sup>2</sup> Casey, C., Clarkson, J.R., Espin, P. and Hyde, P.A. (20210) *The Birds of Lincolnshire*. Lincolnshire Bird Club: Louth





for breeding bird activity a total of six visits. Surveys were carried out in two survey seasons, with four visits occurring between May and July 2021 and the final two visits between April and May 2022.

- 2.2.4 All surveys were conducted in accordance with good practice guidelines<sup>3</sup>. Daytime surveys commenced within approx. 60 minutes following sunrise with a target of being completed within approx. three to five hours to record the peak of breeding bird activity. All surveys were only carried out in favourable weather conditions avoiding strong winds (Beaufort 5 and above), persistent rain more than a light drizzle, or where visibility was compromised by low cloud/foggy conditions. Detailed weather conditions of each survey have been included within **Error! Reference source not found.**Appendix C.
- 2.2.5 The field methodology broadly followed BTO Common Birds Census guidance and Bird Survey Guidelines. Each Site was divided into sections measuring approximately 60-80ha, each containing a transect route aiming to reach within approx. 50m of all points on each survey section. Each transect was walked by an experienced bird surveyor once per survey visit. Surveyors would periodically stop to scan habitats of particular interest, such as trees, field margins or ditches, as well as opportunistically throughout each field. In some instances, this distance was increased (e.g. within large fields such as those >20 hectares) but not more than 100m to ensure that birds were observed and heard, which also allowed for the increased distances at which ground nesting birds, such as skylark, are likely to be disturbed and recorded.
- 2.2.6 The standard methodology was modified to account for the large area of the Sites to ensure focus on the activity of conservation priority species, i.e. amber- and red-listed BoCC and Schedule 1 species. Therefore, rather than individual registrations being made, the eight most common and widespread species were tallied and summarised within a separate table, including presence, abundance and breeding status. This included woodpigeon, herring gull, blackbird, blue tit, chaffinch, great tit, robin and wren (NB, the BoCC protection status of wren changed from green to amber during completion of surveys – see limitations).
- 2.2.7 For some Sites, a survey visit comprised transects which were completed across more than one day due to surveyor availability, weather, and to ensure that all surveys were completed during periods of optimal bird activity. Where split across days, the surveys were completed on consecutive days wherever possible or as soon as both weather and surveyor capacity allowed. Table C1 included within Appendix C details all survey dates.
- 2.2.8 The location and activity/behaviour of birds was recorded on large-scale survey maps following standard BTO Common Bird Census (CBC) codes. Particular attention was paid to birds exhibiting breeding behaviour, for instance birds in full song, exhibiting antagonistic behaviour/calling, carrying nest material, carrying food, and returning to nesting sites. Individual maps were created for each survey visit (Figure 2 below provides an example), with data recorded onto QGIS mapping software to illustrate distribution/territories of particular species. Data recorded within QGIS was exported for use and interpretation in table form.

#### *Nocturnal Bird Survey Methodology*

- 2.2.9 The early morning surveys were complemented by a single dusk survey at each Site during August 2021 to include sufficient survey effort for nocturnal species or those more vocal at night or early evening, in particular quails *Coturnix coturnix* and owls. The presence and activity of these species was also recorded on an ad hoc basis or where found on other surveys.
- 2.2.10 During dusk surveys, the surveys were carried out in optimal conditions for quail calls to be audible and visibility/daylight sufficient to record birds in flight. These surveys took place across each land parcel, commencing approx. one hour before sunset and continuing until approx. one hour after sunset. Routes were not predetermined but established by each surveyor, to ensure adequate coverage across open field habitats and field margins, plus other features potentially used by sheltering and foraging owls (e.g. mature trees, buildings).

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<sup>3</sup> Bird Survey & Assessment Steering Group. (2022). *Bird Survey Guidelines for assessing ecological impacts, v.0.1.0*. [online] [Accessed: 05/07/2022]



### *Survey Dates and Surveyors*

- 2.2.11 All surveys were carried out by surveyors with prior experience of Breeding Bird Surveys. To ensure quality assurance, all in-house surveyors had been formerly shadowed by experienced in-house ornithologists whilst external sub-contractors shared documented evidence of professional experience for approval prior to surveys and their competence assessed by Clarkson and Woods with respect to the CIEEM Competencies for Species Survey (CSS). All ecologists employed by Clarkson and Woods are registered members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow the Institute's Code of Professional Conduct when undertaking ecological work. The total number of surveyors within the team extended to 15 surveyors throughout the entire season.

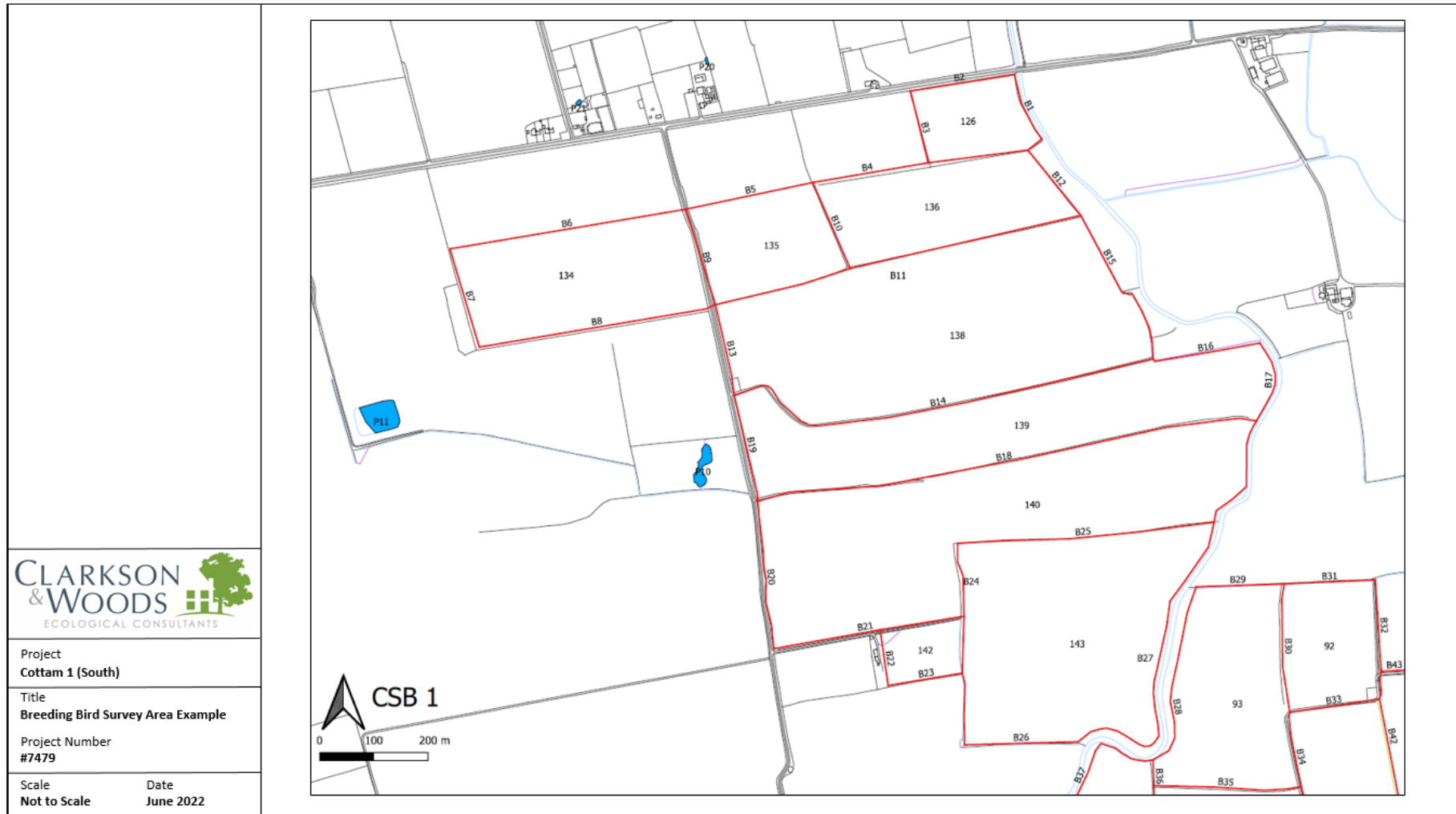


Figure 2: Example Breeding Bird Survey Area Map – Cottam 1 (South)



## 2.3 Data Analysis

- 2.3.1 To enable the identification of the location and estimation of the number breeding territories, the following steps were taken:
- i. In the field; each surveyor followed a standardised approach, as described above, to ensure consistency across surveys and so that records relating to the same individuals were recorded as such to avoid duplication;
  - ii. Mapping; all bird registrations were mapped using QGIS software including their behaviour, abundance and confirmed evidence of nesting with data. Where relevant, this information was collated from each visit and considered together to estimate minimum and maximum number of breeding territories for some species.
  - iii. Data interpretation; field results were analysed to determine the breeding status of recorded species which included the following categories: unconfirmed, possible, probable and confirmed in accordance with the following BTO categories<sup>4</sup>. The territory-mapping approach set out within the BTO Common Bird Census instructions<sup>5</sup> was also consulted and professional expertise by contributing ecologists exercised where needed.
- 2.3.2 For (ii) above, the estimation of territory numbers was carried out for the species considered to be at most risk of impact from development, i.e. their breeding ecology includes open field habitat. For all other species (iii), any wader or waterfowl flushed from suitable breeding habitat was considered to be at least possibly breeding. The survey scope did not set out to identify nests or to confirm nesting for each species (although this was recorded where observed), but to infer their breeding status from collated data and the suitability and context of surrounding habitats.
- 2.3.3 To enable assessment of impacts, the species have also been categorised based on their principal ecological requirements and habitat use recorded on Site during the breeding season, as follows:
- Open habitats including use of open, arable, fallow or grassland/pasture fields;
  - Boundary habitats including hedgerow/scrub, arable margins etc. and species that rely on such boundary habitats in combination with adjacent farmland (e.g. yellowhammers utilising field margins and arable fields);
  - Waterbodies, such as ponds, rivers, and ditches where species are largely reliant on aquatic or marginal vegetation during the breeding season;
  - Mature trees and buildings; and
  - Woodlands;
- 2.3.4 For species associated with more than one category of habitat (e.g. common quail which aggregate in open habitat however breed close to field margins) these were allocated to the habitat category considered to have the greatest risk of impacts to ensure appropriate ecological assessment.
- 2.3.5 The field reference numbers included within the species descriptions below refer to the overall field numbering system of the Survey Area.

## 2.4 Ecological Assessment

- 2.4.1 To enable assessment within the Environmental Statement of the impacts of the Scheme on any given breeding bird species, and to measure the significance of impacts resulting from loss or change to their breeding habitats, the 'importance' of each species was defined. This was done through consideration of their conservation status and value, together with the survey results and an application of professional judgment based on local knowledge.

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<sup>4</sup> BTO (2022) *Breeding Evidence* [Online] Available at:

[REDACTED] [Accessed: 20/07/2022]

<sup>5</sup> Marchant (1983) *Common Bird Census Instructions*. [online] Available at: [REDACTED] [Accessed 05/09/2022]



- 
- 2.4.2 The conservation status of any given species was established by their categorisation on the Birds of Conservation Concern (BoCC) list, local county bird group records (where available) and if afforded any enhanced legal protection.
- 2.4.3 The conservation value of each species was determined by applying the criteria provided within the CIEEM guidelines for Ecological Impact Assessment (2018)<sup>6</sup> and the Criteria for Nature Conservation Evaluation described by Ratcliffe (1977)<sup>7</sup> (Appendix B refers). This enabled the conservation value of any species to be established and considered within a geographical context. This ensures appropriate assessment of potential cumulative impacts of the Scheme at a landscape scale, given that some species are recognised as district level importance or above.
- 2.4.4 The results of the breeding bird surveys provided local context information which, combined with professional judgement and local knowledge, enabled reassessment of each species values based on local knowledge.
- 2.4.5 If further information was required to determine the true importance of a species or habitat present the importance of the feature is marked as 'unknown'.

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<sup>6</sup> CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*, Sept 2018. Chartered Institute of Ecology and Environmental Management. [REDACTED]

<sup>7</sup> Ratcliffe, D.A. (1977). *A Nature Conservation Review*, Cambridge University Press



### **3 LIMITATIONS**

#### **3.1 Desk Study**

3.1.1 The data search was obtained in 2021 providing an up-to-date record of the bird species, complemented by the results of field surveys completed in 2021 and 2022. The dataset will only provide those records where information exists and should not be relied upon as a complete dataset.

#### **3.2 Field Survey**

3.2.1 The initial breeding bird surveys were started in May 2021, preventing a complete season's worth of visits from being completed within the same year. Additional visits were completed between late March and May 2022 to provide a full dataset. Although this resulted in visits being completed over two separate years, the survey results are considered to be representative of breeding bird activity as annual crop rotations will typically influence bird diversity, abundance and productivity in any given year. Surveys completed over two separate years will also mitigate for some of the annual variations for each species.

3.2.2 The surveys are intended as a series of 'snapshots' of bird activity recorded on the Site, but cannot take into account species that occur at other times of the day and at other times. At the same time a lack of signs of any particular species does not confirm its absence, merely that there was no indication of its presence during this survey.

3.2.3 Weather conditions were optimal for the majority of surveys, with the rare occurrence of rain for short periods, and are considered unlikely to have dissuaded bird activity or reduced the overall picture of the bird community within the Site.

#### **3.3 Data Analysis**

3.3.1 The identification of territories does present some ambiguity where field results vary between visits, e.g. where territory sizes range over a large area or where species were only seen on few occasions. Therefore, an estimated minimum number of territories has been included for species associated with open field habitats.

3.3.2 The conservation status of some species changed during the survey period, namely barn swallow *Hirundo rustica* and wren *Troglodytes troglodytes*. Data collected for wren will not be representative of abundance and distribution across Site as they were not recorded by all surveyors in accordance with the modified methodology to enable completion of surveys within the optimal time period. Where affected, this limitation has been highlighted within the Field Results section for affected species.



## 4 RESULTS

### 4.1 Desk Study

#### **Legislation, Local Plans and Policies**

##### *National Wild Bird Legislation*

- 4.1.1 The Wildlife and Countryside Act 1981 is the principal legislation relating to the protection of all wild birds within the UK. In addition to the legal protection this affords, Schedule 1 species (their nests, eggs and dependant young) have additional protection during their breeding season – refer to Appendix A for detailed information.
- 4.1.2 Section 41 of the Natural Environment and Rural Communities Act (2006) in England requires all statutory authorities to produce a list of protected habitats and species, both at a national and county level. These lists continue to be revised and modified from those originally produced as UK BAPs (Biodiversity Action Plans) and detail lists of habitats and species of principal importance for conservation action (i.e. SPI or Species of Principal Importance).
- 4.1.3 Table 1 below includes habitats and species present within the Lincolnshire Biodiversity Action Plan (2011)<sup>8</sup> with bird species associated with these habitats given additional weight within the ecological evaluation.

**Table 1: Relevant Local BAP Priority Habitats and Species**

Broad habitat type	Habitat	Species
Farmland and grassland	Arable field margins	Farmland birds
	Grazing marsh	
	Lowland calcareous grassland	
	Lowland neutral grassland	
	Lowland meadow	
	Lowland dry acid grassland	
	Parkland and wood pasture	
Waterbodies	Ponds, lakes and reservoirs	
	Rivers, canals, drains	
Boundaries	Hedgerows and hedgerow trees	
Trees and woodlands	Lowland mixed deciduous woodland	
	Mixed ash-dominated woodland	
	Oak-birch woodland	
	Planted coniferous woodland	
	Wet (broadleaved) woodland	

##### *Designated Sites*

- 4.1.4 Taken from the local environmental data searches, the following table includes details of the designated sites with bird habitats considered to be a qualifying feature. This includes internationally designated sites situated within 30km of the Scheme, nationally designated sites found within a  $\leq 5$ km distance and locally designated sites where present within  $\leq 2$ km.

<sup>8</sup> Lincolnshire Biodiversity Partnership (2011) *Lincolnshire Biodiversity Action Plan 2011-2020 (3<sup>rd</sup> Edition)* [online]. Available at: <http://www.southkesteven.gov.uk/CHttpHandler.ashx?id=7371&p=0> [Accessed 24/11/2021]



**Table 2: Summary of Designated Sites for Nature Conservation of Relevance to Breeding Birds**

Protected Site Name	Site	Distance and Direction from Site	Reason for Designation
<b>Internationally Designated Sites (≤30km)</b>			
Humber Estuary SPA	Scheme	24km	Second largest coastal plain estuary in the UK (approx. 37,000ha) supporting important breeding populations of bittern, marsh harrier, avocet and little tern during summer as well as important number of overwintering geese, ducks and waders.
<b>Nationally Designated Sites (≤5km)</b>			
Laughton Forest East LWS (component of Laughton Woods and Scotton Common SSSI)	Cottam 3	1.8km	Heathland and acid peatland within Laughton Forest and an important Site for breeding birds such as nightjar and Schedule 1 listed woodlark.

4.1.5 Numerous other nationally designated sites were recorded within 5km of Cottam 3 and additional Local Wildlife Sites returned from within 2km of both Cottam 1 and Cottam 3, however none were specifically recognised for their importance to breeding birds.

**Conservation Strategies, Landscape Initiatives and Bird Records**

*Bird Conservation Strategies*

4.1.6 The status of Birds of Conservation Concern (BoCC) Red List for Birds has been included within results tables where appropriate.

*Landscape-level Initiatives*

4.1.7 The UK Farmland Bird Indicator list<sup>9</sup>, prepared annually by RPSB and BTO and used as a proxy to assess the overall biodiversity status of agricultural landscapes, was also consulted to identify the key species largely reliant on farmed landscapes and agricultural practices. These species have been highlighted within results tables where relevant.

4.1.8 Table 3 below also provides reference to the location of target areas of landscape-scale initiatives in relation to the Site, which may be used to inform the suitability of proposed mitigation within any given land parcel. The data is taken from RSPB's Bird Conservation Targeting Project (BTCP) (accessible on Defra's interactive Magic mapping portal and includes a sub-set of all data and based on the following species) and informed by the breeding distribution of farmland birds and with relevance at a local level.

<sup>9</sup> RSPB (2021) *The Farmland Bird Indicator* [online]. Available at: [redacted] [Accessed 24/11/2021]





**Table 3: Farmland Priority Species featured in Targeted Bird Conservation Initiatives (within 5km of Site)**

Species	Distance between target area and Site		
	Cottam 1	Cottam 2	Cottam 3
Corn bunting <i>Emberiza calandra</i>	Site	4km	<2.5km
Curlew <i>Numenius arquata</i>	<1.5km	Site	<1.5km
Grey partridge <i>Perdix perdix</i>	Site	Site	Site
Lapwing <i>Vanellus vanellus</i>	Site	Site	Site
Redshank <i>Tringa totanus</i>	Site	4km	<3.75km
Snipe <i>Gallinago gallinago</i>	3.5km	-	4.1km
Tree sparrow <i>Passer montanus</i>	Site	Site	Site
Turtle dove <i>Streptopelia turtur</i>	Site	<3km	<3km
Yellow wagtail <i>Motacilla flava</i>	Site	<0.15km	Site

#### **Local Bird Records**

4.1.9 The bird records obtained from the records centre were interrogated for the presence of protected and notable bird species. Numerous records were returned, therefore Table E1, Appendix E only includes red-listed BoCC or Schedule 1 species that were not recorded during surveys, despite suitable habitat being present, but included in the data search or only with a peak count of 10 or less (across two or more land parcels) during survey visits.

4.1.10 Full data tables can be accessed within the PEA Report prepared for the Scheme.<sup>10</sup>

#### **4.2 Field Survey Results: Breeding Bird Surveys**

4.2.1 The results of the field surveys are discussed in the paragraphs below for each species in turn, with species organised by sub-heading according to their habitat associations, further subdivided by their conservation status. Appendix D should be referred to for relevant detailed distribution mapping and results tables.

4.2.2 Table 4, below, provides an accessible overview of each recorded species' conservation status and distribution across the Survey Area among the different survey events. This is discussed in more detail in the subsequent paragraphs, which describe the findings according to species group.

<sup>10</sup> Clarkson and Woods Ltd (2021) *Preliminary Ecological Appraisal: Cottam Solar Project*; Blackford, Somerset



**Table 4: Frequency, Peak Count and Overall Breeding Status of All Species Recorded Across All Visits – Cottam**

The following abbreviations refer to the breeding status of each species, in accordance with BTO good practice guidance<sup>11</sup>.

Any variations from this approach are described separately within the relevant species section.

**Co.** – confirmed breeding (e.g. nest located, fledglings or adults seen with food for young); **Pr.** – probable breeding (e.g. pair observed in breeding season, repeated territorial behaviour, nest building etc.); **Po.** – possible breeding (e.g. evidence indicates bird species could be but less conclusive than that obtained for probable breeders); **Un.** (or non-breeding) – not considered likely to breed on Site (e.g. flying over, summer non-breeder).

\* values included for rook, wren and woodpigeon are not complete – refer to specific species sections below.

+ Peak counts for Cottam 1 relate to peak numbers recorded at any one sub-site (Cottam 1 North, South or West)

Species	Conservation Status	Cottam 1 (combined Sites)+			Cottam 2			Cottam 3a			Cottam 3b		
		No. of surveys species found (/6)	Peak count* on any single visit	Breeding status	No. of surveys species found (/6)	Peak count* on any single visit	Breeding status	No. of surveys species found (/6)	Peak count* on any single visit	Breeding status	No. of surveys species found (/6)	Peak count* on any single visit	Breeding status
<b>Birds predominantly associated with open arable/grassland fields</b>													
Curllew	Red BoCC, S41, UKFBI	5/6	2	Po.	0/6	-	-	0/6	-	-	0/6	-	-
Lapwing	Red BoCC, S41, UKFBI	6/6	11	Pr.	1/6	1	Po.	3/6	1	Pr.	1/6	1	Un.
Meadow pipit	Amber BoCC	6/6	25	Co.	1/6	1	Po.	5/6	11	Pr.	6/6	3	Pr.
Oystercatcher	Amber BoCC	1/6	1	Un.	0/6	-	-	1/6	1	Un.	0/6	-	-
Quail	Amber BoCC, Sch1	1/6	1	Po.	1/6	1	Po.	1/6	1	Po.	1/6	1	Po.
Skylark	Red BoCC, S41, UKFBI	6/6	200	Co.	6/6	67	Pr.	6/6	93	Pr.	6/6	38	Pr.
Yellow wagtail	Red BoCC, S41, UKFBI	6/6	34	Co.	6/6	19	Co.	6/6	21	Pr.	5/6	6	Pr.
<b>Birds predominantly associated with arable field margins and hedgerows/scrub boundaries</b>													
Bullfinch	Amber BoCC, S41	5/6	2	Pr.	1/6	1	Po.	0/6	-	-	1/6	1	Un.
Common whitethroat	Amber BoCC, UKFBI	6/6	51	Co.	6/6	39	Co.	6/6	20	Pr.	6/6	10	Co.
Cuckoo	Red BoCC S41	1/6	2	Po.	1/6	1	Po.	0/6	-	-	1/6	1	Po.
Dunnock	Amber BoCC, S41	6/6	11	Co.	5/6	3	Pr.	6/6	8	Pr.	3/6	5	Po.
Goldfinch	UKFBI	6/6	21	Pr.	6/6	10	Pr.	6/6	7	Pr.	4/6	1	Pr.
Greenfinch	Red BoCC, UKFBI	6/6	1	Po.	0/6	-	-	2/6	1	Pr.	0/6	-	-
Grey partridge	Red BoCC, S41	6/6	29	Pr.	6/6	8	Pr.	6/6	12	Pr.	6/6	4	Pr.
Linnet	Red BoCC, S41, UKFBI	6/6	39	Co.	6/6	3	Co.	6/6	16	Co.	6/6	11	Co.
Tree sparrow	Red BoCC, S41, UKFBI	6/6	6	Pr.	6/6	10	Pr.	2/6	2	Pr.	5/6	11	Pr.
Turtle dove	Red BoCC, S41, UKFBI	0/6	-	-	0/6	-	-	1/6	1	Po.	2/6	1	Po.
* Wren	Amber BoCC	5/6	17	Pr.	4/6	6	Po.	3/6	13	Po.	Refer to species		
Yellowhammer	Red BoCC, S41, UKFBI	6/6	54	Co.	6/6	16	Co.	6/6	20	Co.	6/6	19	Co.
<b>Birds predominantly associated with ditches, plus near/within waterbodies and associated habitats (e.g. reeds, burrows)</b>													
Gadwall	Amber BoCC	4/6	2	Po.	0/6	-	-	0/6	-	-	0/6	-	-
Grasshopper warbler	Red BoCC	1/6	6	Po.	0/6	-	-	0/6	-	-	0/6	-	-
Greylag goose	Amber BoCC	6/6	8	Co.	0/6	-	-	2/6	1	Un.	2/6	1	Un.

<sup>11</sup> BTO (2022) *Breeding Evidence (Breeding Evidence Codes)* [online]. Available at [redacted] [Accessed 16/09/2022]



Species	Conservation Status	Cottam 1 (combined Sites)+			Cottam 2			Cottam 3a			Cottam 3b		
		No. of surveys species found (/6)	Peak count* on any single visit	Breeding status	No. of surveys species found (/6)	Peak count* on any single visit	Breeding status	No. of surveys species found (/6)	Peak count* on any single visit	Breeding status	No. of surveys species found (/6)	Peak count* on any single visit	Breeding status
Mallard	Amber BoCC,	6/6	11	Co.	5/6	6	Co.	4/6	2	Pr.	0/6	-	-
Moorhen	Amber BoCC	3/6	2	Pr.	2/6	1	Co.	0/6	-	-	0/6	-	-
Reed bunting	Amber BoCC UKFBI	6/6	42	Co.	6/6	9	Pr.	6/6	15	Pr.	6/6	4	Po.
Sedge warbler	Amber BoCC	5/6	9	Pr.	0/6	-	-	0/6	-	-	0/6	-	-
Shelduck	Amber BoCC	1/6	1	Un.	0/6	-	-	0/6	-	-	0/6	-	-
<b>Birds predominantly associated with mature trees/woodland</b>													
Hobby	Sch1	3/6	1	Pr.	1/6	1	Un.	1/6	1	Un.	0/6	-	-
Jackdaw	UKFBI	6/6	3	Pr.	3/6	2	Po.	1/6	2	Un.	1/6	1	Un.
Kestrel	Amber BoCC, UKFBI	7/6	5	Pr.	5/6	4	Co.	3/6	2	Pr.	4/6	1	Po.
Mistle thrush	Red BoCC	5/6	6	Pr.	0/6	-	-	1/6	2	Po.	0/6	-	-
* Rook	Amber BoCC, UKFBI	6/6	7	Co.	1/6	1	Un.	4/6	7	Po.	4/6	4	Po.
Song thrush	Amber BoCC, S41	6/6	10	Pr.	3/6	2	Po.	6/6	3	Pr.	4/6	2	Pr.
Sparrowhawk	Amber BoCC	4/6	1	Pr.	0/6	-	-	0/6	-	-	1/6	1	Un.
Stock dove	Amber BoCC, UKFBI	7/6	7	Co.	5/6	2	Pr.	4/6	3	Po.	6/6	6	Pr.
Tawny owl	Amber BoCC	2/6	2	Pr.	0/6	-	-	0/6	-	-	0/6	-	-
Willow warbler	Amber BoCC, S41	6/6	15	Pr.	0/6	-	-	5/6	2	Pr.	3/6	2	Pr.
* Woodpigeon	Amber BoCC, UKFBI	3/6	7	Co.	1/6	12	Po.	2/6	4	Po.	1/6	1	Po.
<b>Birds predominantly associated with buildings/infrastructure</b>													
Barn owl	Sch1	5/6	5	Co.	4/6	2	Co.	1/6	1	Po.	0/6	-	-
House martin	Red BoCC	1/6	1	Po.	1/6	2	Po.	1/6	1	Un.	0/6	-	-
House sparrow	Red BoCC, S41	6/6	6	Pr.	2/6	1	Pr.	4/6	3	Pr.	1/6	1	Po.
Peregrine	Sch1	1/6	4	Po.	0/6	-	-	1/6	1	Po.	0/6	-	-
Starling	Red BoCC, S41, UKFBI	4/6	15	Pr.	2/6	2	Co.	3/6	3	Pr.	0/6	-	-
Swift	Red BoCC	4/6	5	Co.	1/6	1	Po.	2/6	2	Po.	0/6	-	-
<b>Other Conservation Species which typically breed in other habitats e.g. marshland, extensive reedbeds, uplands etc</b>													
Black-headed gull	Amber BoCC	0/6	-	-	0/6	-	-	3/6	8	Un.	0/6	-	-
Common gull	Amber BoCC	1/6	6	Un.	0/6	-	-	1/6	6	Un.	0/6	-	-
Great Black-backed gull	Amber BoCC	1/6	1	Un.	0/6	-	-	0/6	-	-	0/6	-	-
Lesser black-backed gull	Amber BoCC	6/6	16	Un.	0/6	-	-	4/6	3	Un.	1/6	1	Un.
Marsh harrier	Amber BoCC, Sch1	1/6	1	Un.	0/6	-	-	0/6	-	-	0/6	-	-
Osprey	Amber BoCC, Sch1	1/6	2	Un.	0/6	-	-	0/6	-	-	0/6	-	-
Short-eared owl	Amber BoCC	1/6	1	Un.	0/6	-	-	0/6	-	-	0/6	-	-
Wheatear	Amber BoCC	1/6	2	Un.	0/6	-	-	1/6	1	Un.	0/6	-	-



## Breeding Birds Typically Associated with Open Arable/Grassland Habitats

**Table 5: Estimated Minimum Number of Breeding Territories (across the Survey Area) for Species Associated with Open Field Habitats**

Species	Conservation Status*	Total no. individuals across all visits (peak count/ single visit)	Estimated min. no. breeding territories/ singing males for quails
Common quail <i>Coturnix coturnix</i>	Amber BoCC, Sch. 1	4 (1)	4
Curlew <i>Numenius arquata</i>	Red BoCC, S41	8 (2)	2
Lapwing <i>Vanellus vanellus</i>	Red BoCC, S41, UKFBI	95 (11)	15
Skylark <i>Alauda arvensis</i>	Red BoCC, S41, UKFBI	2490 (200)	246
Yellow wagtail <i>Motacilla flava</i>	Red BoCC, S41, UKFBI	413 (34)	70

### Schedule 1 Species

#### Common Quail

- 4.2.3 Common quail was recorded within Cottam 1, Cottam 3a and Cottam 3b, plus another record approx. 75m outside the redline boundary of Cottam 2 with suitable breeding habitat within this Site
- 4.2.4 The single record at Cottam 1 (north) was recorded in a field managed as fallow with the male singing during late morning in early June (02/06/21).
- 4.2.5 At Cottam 2, a singing male was recorded in open field immediately adjacent to Field H9 in mid-May (15/05/21), immediately adjacent to the redline boundary.
- 4.2.6 At Cottam 3, singing males were recorded at the north-western corner of Field K7 (wheat) at Cottam 3a on 26/05/2021 and, during the same month, within open arable field approx. 1km south at Cottam 3b (on 17/05/2021).
- 4.2.7 Although recorded on separate dates, it is possible that the records relate to separate individuals as males are known to aggregate within the same area or 'communal pairing place' until a mate is found. Alternatively, and given that the records were a couple weeks apart, it may have been the same male still in search of a breeding partner or attempting a successive breeding attempt having successfully paired in mid-June.
- 4.2.8 An estimate of four breeding territories are considered to be present across the Survey Area as indicated by the survey data.

#### *Red-listed Birds of Conservation Concern*

#### Curlew

- 4.2.9 Curlew were recorded at Cottam 1 only within the northern and southern areas of this Site with a total of seven records. Figure 5, below, shows the distribution of curlew observations over the surveys.
- 4.2.10 At Cottam (north), two records of curlew were made approx. 2.5km apart on the same visit (visit five) by two separate surveyors; one was from a single calling individual from within a wet ditch (Ditch 4) and another with two individuals approx. 150m south of the redline boundary (south of the boundary of Field C28).
- 4.2.11 At Cottam (south), five records were made during four visits, including birds returning to similar locations in successive years thereby breeding was considered to be possible but unconfirmed. Curlew remain faithful to their breeding sites (where habitat condition remains suitable) with offspring often also establishing



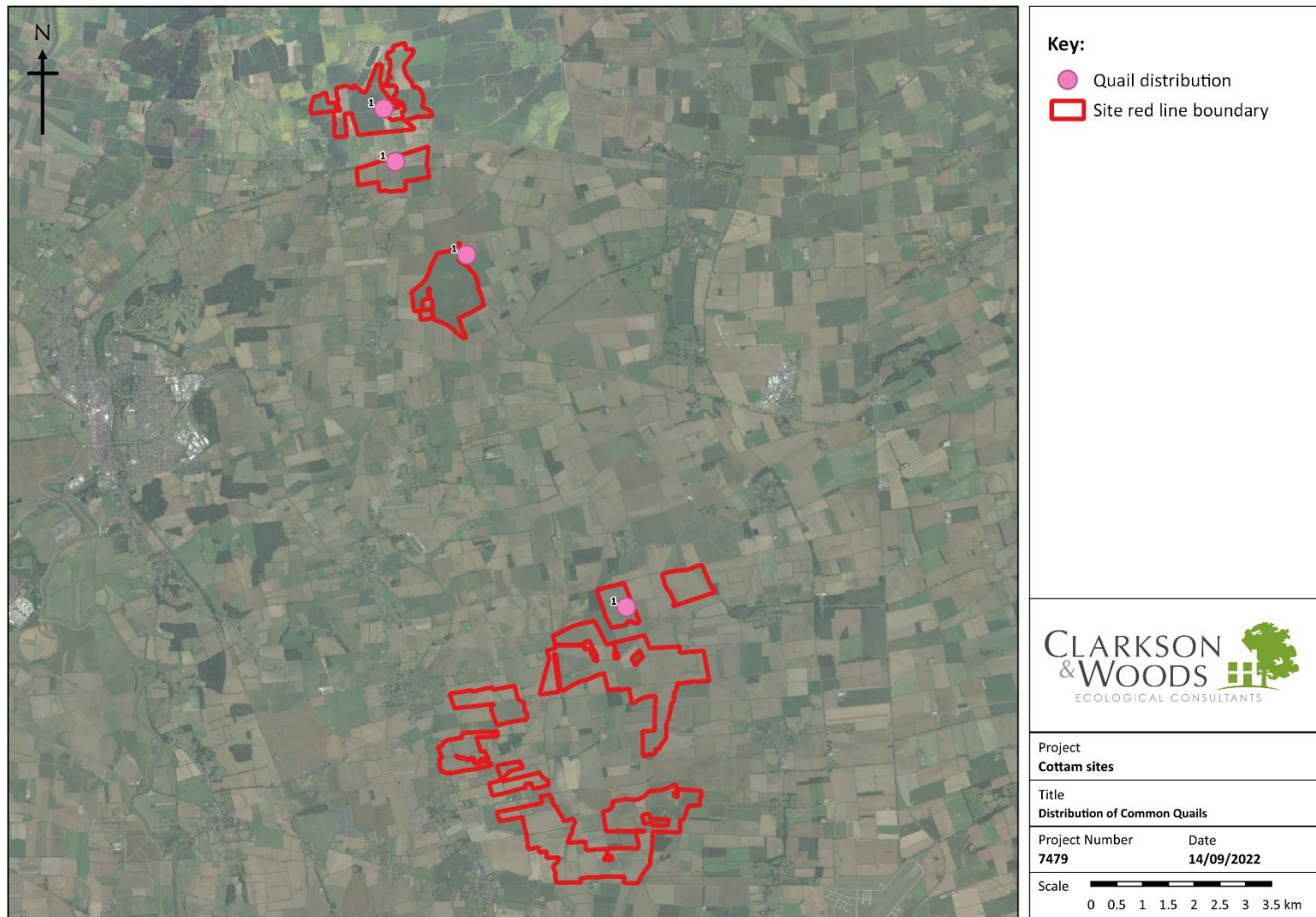
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nesting sites nearby. These observations occurred within approx. 200 – 700m of one another, with the closest pair of these within or adjacent to the same field of improved grassland, derived from successive years (Field D16, Cottam 1 (south)). The other records related to an individual travelling north-east from this area and one from a calling individual 125m east of the River Till. One observation was made just off Site.

- 4.2.12 Curlew are listed as Near Threatened on the IUCN red-list due to concerning global reductions in breeding populations (20-30%) and the most profound declines during the last three decades. Their historical breeding range typically included meadows, marshland and arable fields but with notable contraction within the UK thought to include upland moorland and farmland on moorland edge. However, they have also been known to breed within arable and silage/grass ley<sup>12</sup>. They require invertebrate-rich grassland with a longer sward that also allows the nest to be hidden whilst maintaining visibility and a good food resource for foraging young.

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<sup>12</sup> RPSB (2022) *Curlew Conservation* [online]. Available at: [REDACTED]  
[REDACTED] [Accessed 01/07/2022]



**Figure 4: Distribution of Common Quail across the Survey Area**

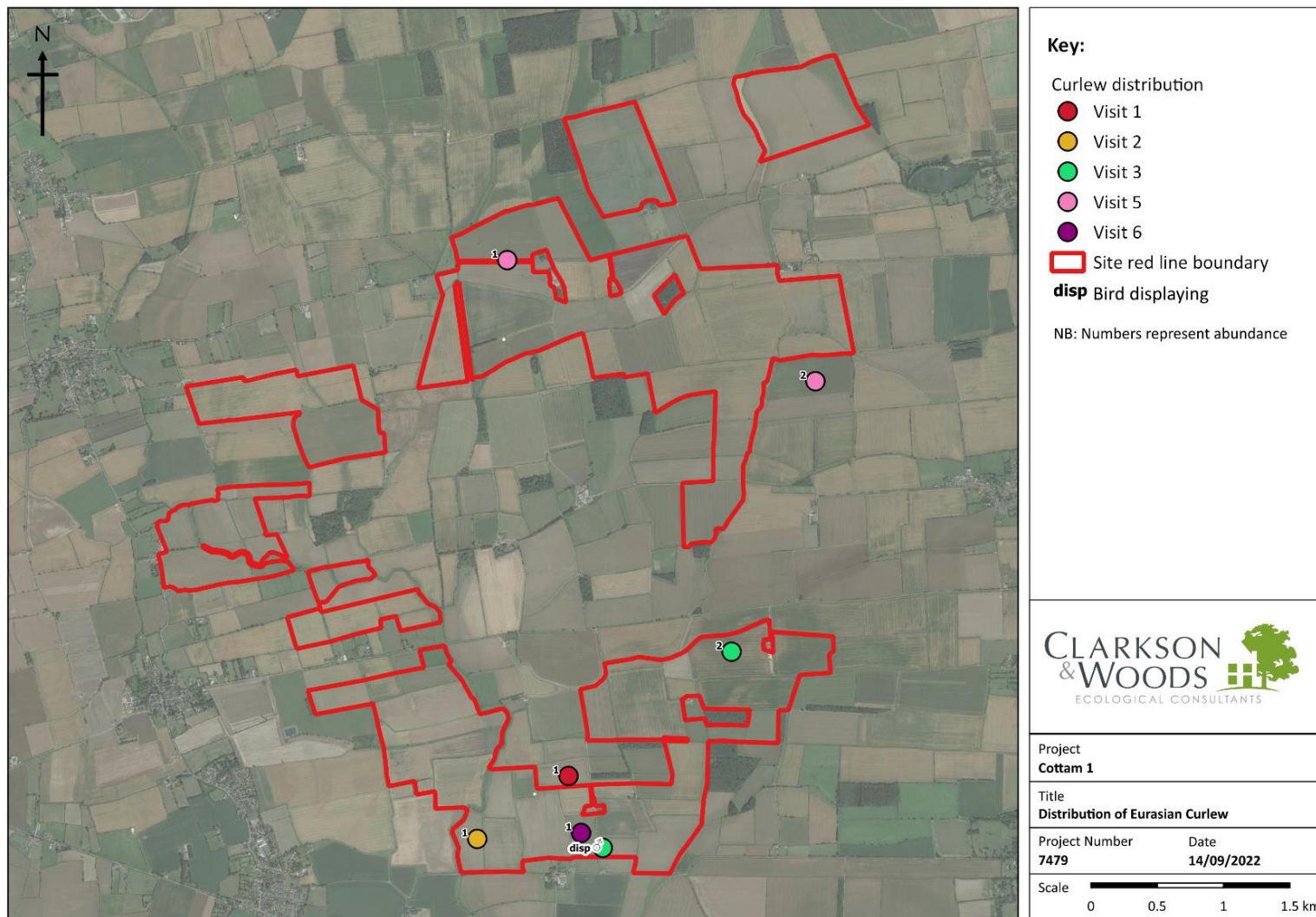


Figure 5: Distribution of Curlew across Cottam 1, including location of possible single breeding territory at Cottam 1 South (indicated by 'disp' for displaying bird)

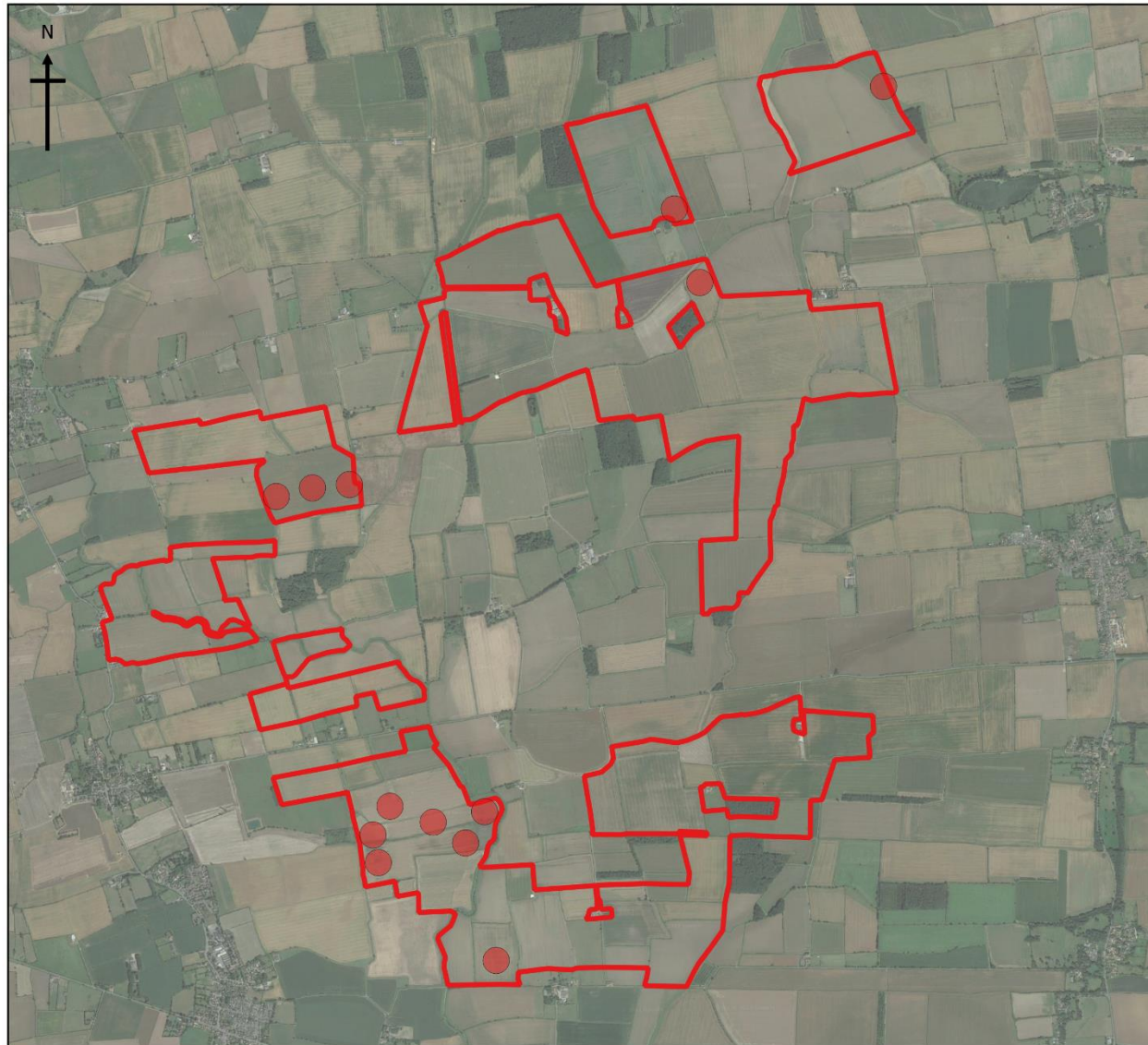


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### Lapwing

- 4.2.13 Lapwing were recorded across the Survey Area within arable fields, grassland and fallow habitats. Their distribution was largely concentrated at Cottam 1, across each of the zones, where they were recorded on all visits.
- 4.2.14 At Cottam 1 (north), their distribution was generally concentrated within the central section and northern parcels which were also considered to contain approximately 4 breeding territories. Observations included alarm calling in addition to aggressive behaviour. The peak number of lapwing across Cottam 1 was recorded at Cottam 1 (north) with a total of 11 individuals on a single visit.
- 4.2.15 Within Cottam 1 (west), some observations were made close to the River Till but with repeated records within Field G4 across both seasons (managed as arable during 2021). A small number of likely territories were estimated to occur here.
- 4.2.16 Within Cottam 1 (south), activity was concentrated within the western half of this sub-site within arable fields adjacent to improved grassland. This area contained the greatest number of likely lapwing territories.
- 4.2.17 Figure 6 overleaf details the distribution of the 13 estimated breeding territories At Cottam 1. However, it should be borne in mind that territory numbers are difficult to accurately estimate due to the semi-colonial nesting strategy of lapwing which impedes the identification of discrete territories.
- 4.2.18 At Cottam 2 a single lapwing was only recorded once in mid-June, but within an arable field in close proximity to grassland belt and nearby pond (Field H6).
- 4.2.19 At Cottam 3a, three records of lapwing were made during three visits and situated between approx. 75m – 300m from one another and within arable fields, but with areas of rough grassland and ponds nearby. This includes two lapwings flying over an arable field (Field K9) in early June and another record within the same field the following year. Consequently, it is thought that this may indicate the presence of a possible breeding territory at the Site. A separate record was also made in late May from within Field K17.
- 4.2.20 Five individuals were seen flying overhead at Cottam 3b during mid-May 2021, although none were seen interacting with the Site on any occasion.





**Key:**

-  Indicative Lapwing breeding territory
-  Scheme boundary


NB: Territories are indicative of the estimated number of breeding territories across Site only, not the actual location/full extent of each marked territory.



Project  
**Cottam Solar Project**

Title  
**Estimated number of Lapwing breeding territories**

Project number    Date  
**7479**                    **11/10/2022**

Scale   
0    0.45    0.9    1.35 km

**Figure 6: Estimated Number of Breeding Lapwing Territories across Cottam 1**



### Skylark

- 4.2.21 Skylark were confirmed to be breeding at Cottam 1 (i.e. at least one nest found) and also considered to be breeding across the rest of the Survey Area (e.g. numerous birds carrying food at Cottam 3b). The distribution of estimated territories can be seen in Figures D7-9 in Appendix D. The peak number of territories (relative to area) was recorded at Cottam 1 with an estimated 159 breeding territories. Cottam 2 hosted an estimated 29 territories, Cottam 3a hosted an estimated 39 territories and Cottam 3b an estimated 16 territories. Taken together, the survey area supported approximately 243 skylark territories.
- 4.2.22 Although the peak number of breeding territories within the survey data were recorded at Cottam 1, the average indicative skylark breeding territory size across the survey area was largely consistent at approx. 4.5ha which is considered to be within normal ranges for predominantly winter-sown cereal agriculture.
- 4.2.23 Two thirds of skylarks within the UK breed within lowland farmland, with almost half of these associated with cereal fields<sup>13</sup>. Therefore, skylarks are vulnerable to land change which affects the open field systems and habitat structure they require for nesting. These requirements include access to ground amongst vegetation typically approx. 20 – 50cm in height and significant distances (100-200m and above) from tall structures (including trees and hedgerows).
- 4.2.24 Variations in skylark distribution across the Survey Area will undoubtedly be influenced by the timing of cropping and annual crop rotations. Skylark are not typically associated with nesting in pasture or managed grassland, and this territory distribution pattern was well represented across the Survey Area. Skylark will, however, forage within grassland habitats, as invertebrate abundance is usually sufficient.

### Yellow Wagtail

- 4.2.25 Yellow wagtail were recorded across the Survey Area and confirmed breeding with an estimated minimum 70 breeding territories. Despite typically being found around grazing animals and having a preference for damp pasture and meadows, habitat use by yellow wagtail has changed (or at least the species has adapted to changing agricultural practices) with the species increasingly utilising arable lowland landscapes. Across the Survey Area, overall low numbers of individuals were found within fields of improved grassland (likely foraging) with a clear association of breeding territories with arable habitats. Dense grass growth (e.g. ley grass) would prevent ease of access to open ground, whereas frequent livestock disturbance within grazed pasture could compromise breeding attempts or, conversely, reduce sufficient cover where vegetation is cut or tightly grazed.
- 4.2.26 For the estimated distribution of observed likely territories, please refer to Figures D12-12 in Appendix D. Breeding was confirmed at Cottam 1 with territory numbers notably less across Cottam 1 (west) with an estimated four territories and records largely absent within improved grassland across this Site. Grassland with rapid growth may have inhibited the ease of access yellow wagtail needs. The majority of records were from open field habitats, but with local variations and numerous records from within boundary habitats with increased likelihood of invertebrate resources, such as margins in close proximity to the River Till (Field D11, Field D12 at Cottam 1 (south) and a wet ditch between Fields B1 and B2 at Cottam 1 (north)). Records from within boundaries will relate to singing males holding territories (rather than nesting individuals). Approximately 40 territories were recorded within the Cottam 1 Survey Area.
- 4.2.27 At Cottam 2, birds were seen carrying food and considered to be breeding on Site. Their activity was generally site-wide but with greater abundance along boundaries with grassland margins, as well as across an areas with both pond and small fields. Approximately 12 territories were recorded here.
- 4.2.28 Yellow wagtail were recorded throughout Cottam 3a, with approximately 14 territories, although records were scarce within large arable fields situated within the south-eastern corner, despite the ditch boundaries providing a likely source of terrestrial invertebrates. This species was also recorded at Cottam 3b across four visits with probable breeding over three territories. Activity was concentrated within the central section of Site (predominantly arable).

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<sup>13</sup> RSPB (2022) *Skylark on Arable* [online] Available at: [REDACTED] [Accessed 20/04/2022]



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### *Amber-listed Birds of Conservation Concern*

#### Meadow Pipit

- 4.2.29 Meadow pipit were recorded across the Survey Area, although only a single record at Cottam 2 only and confirmed breeding at Cottam 1.
- 4.2.30 Their distribution had a clear association with fields managed as grassland and adjacent arable habitat; fields managed as fallow (e.g. Field A1 – Field A4, Cottam 1 (north)); and within field margins adjacent to ditches/river habitat. These will have all provided the more structurally diverse vegetation required for nest creation and foraging for invertebrates.
- 4.2.31 At Cottam 3a, meadow pipit were recorded on four visits across arable and grassland habitats, in addition to pockets of unmanaged grassland present within fields. Records at Cottam 3b included all visits and with a concentration of activity within the single field of grassland.

#### Oystercatcher

- 4.2.32 Oystercatcher were recorded on two occasions; once at Cottam 1 (south) in mid-May and at Cottam 3a a week later (28/05/2021). Both individuals were seen flying overhead travelling in a south-east and easterly direction respectively.
- 4.2.33 Oystercatchers are present within breeding areas between February – July with chicks fledging before the end of June. The species predominantly breeds at coastal habitats but will also breed in farmland habitats where good supplies of earthworms are available. They tend to nest within short (preferably damp) grassland or arable habitats (vegetation ~<5cm).

### **Breeding Birds Typically Associated with Arable Field Margins or Hedgerows/scrub**

### *Red-listed Birds of Conservation Concern*

#### Cuckoo

- 4.2.34 A single cuckoo was recorded flying overhead at Cottam 2 on 14/06/21, plus a singing male at Cottam 3b on 17/05/2021. Their main brood hosts, dunnoek and meadow pipit, were also recorded at these Sites. Two singing males, possibly the same bird, were also recorded at Cottam 1 (north) in mid-May 2022.

#### Greenfinch

- 4.2.35 Greenfinch were recorded at Cottam 1 and Cottam 3a only within boundary hedgerow.
- 4.2.36 At Cottam 3a two singing males were recorded in field boundaries with trees situated to the west of Site (Fields K4 and K5) and recorded on separate visits. Five records were made across five visits in the southern end of Cottam 1 (west) and northern corner of Cottam 1 (south). This included within arable field, boundaries and margins adjacent to the River Till and some in close proximity to residential properties/gardens. A single record was also made at Cottam (north) adjacent to the main farmstead and hedgerow bounding an arable field (i.e. the southern boundary of Field C9).

#### Grey Partridge

- 4.2.37 Estimated territory locations for grey partridge can be seen on Figures D4-D6 in Appendix D. Grey partridge were recorded across the Survey Area on all visits and regardless of field size with the highest densities were recorded across Cottam 1 (combined). Across the Survey Area, this included a peak count of 74 birds on a single visit (Visit 2) with lower numbers coinciding with later visits when adults may have been incubating their young.
- 4.2.38 It has been communicated by the landowner that Cottam 1 and wider area had been managed specifically for this species, including employment of predator control. An estimated 65 breeding territories were recorded across the Survey Area with approx. 70% of these recorded across Cottam 1.
- 4.2.39 At Cottam 2, grey partridge were recorded across Site with some subtle increases in density where grassland or field margins were also present. Cottam 3a and 3b also had grey partridge records site-wide, but without the numbers recorded at Cottam 1.



4.2.40 Grey partridge records included foraging/commuting individuals from within fields, but with a large proportion of records from birds in close proximity to the field edge or flying towards such areas or cover. Grey partridge nest amongst tussocky vegetation with good sources of invertebrates, seeds and vegetative shoots in close proximity within cropped fields and field edge. Distribution across each Site is also likely to have been influenced by crop type and management at the time of survey, especially where margins or areas of fallow land or conservation measures (e.g. field corners or flower mix) were present.

#### Linnet

4.2.41 Linnets were recorded and confirmed breeding across the entire Survey Area with a peak count of 39 individuals at C1 (south) in early May 2021. The distribution of linnets was generally Site-wide with individuals very mobile during survey visits. Generally speaking, linnet distribution was more frequent across arable habitats and their margins, compared with grassland, and within fields of unmanaged/fallow land and their boundaries. The provision of weed seeds in these areas is likely to have affected their distribution. It may also account for the peak counts at Cottam 1 (north) where several fields were bounded by ditches with wide, grass margins and some fields managed on fallow rotations.

4.2.42 The abundance of linnets was also high at Cottam 1 (south) where distribution patterns mirror those described above.

4.2.43 Linnets were recorded within fields across Cottam 3a but flocks most frequently recorded within weed/seed rich areas present between the managed arable fields, e.g. surrounding disused agricultural buildings to the south, access tracks and farmstead/buildings to the north. This pattern of distribution was similar at Cottam 3b, with birds singing/calling from boundaries and recorded across the Site.

#### Tree Sparrow

4.2.44 Tree sparrow records can be seen on Figures D13-D14 in Appendix D. Tree sparrow were recorded calling and singing across the Survey Area on repeated visits with the highest density (based on area) at Cottam 2. Tree sparrows nest within natural tree holes/features in addition to hedgerows as a lesser extent, therefore can be vulnerable to loss of breeding habitats, even if only small areas or potentially even individual standard trees.

4.2.45 Tree sparrow were recorded across Cottam 1 Site. This included at Cottam 1 (south) with records adjacent to three farmsteads and nearby boundaries (e.g. the southern boundaries of D15 and D28, as well as the eastern boundary of D30) and the northern boundary of D8 with nearby copse of trees. A tree sparrow carrying nesting material was also seen within the central farmstead (the western boundary of D18) in 2022.

4.2.46 To the west (Cottam 1 (west)), tree sparrow were recorded at four distinct locations on repeated visits. These records were associated with trees or dense managed hedgerow (e.g. the southern boundaries of G1 and F2, and the eastern boundaries of F3 and F6). At the southern boundary of F2 records were made on two visits with a total of two birds recorded on the second visit and considered likely to be a nesting site.

4.2.47 At C1 (north) tree sparrow records formed three core clusters with additional single records recorded further afield. Each of the clusters were situated around farmsteads and nearby hedgerows (e.g. boundaries east of Fields C12 and C4, and to the west of C29 and C10) and on the southern boundary of A3. Birds were recorded within these clusters across at least three to four repeat visits and considered to be nesting nearby. A maximum of eight birds were recorded on any single visit (in Field C5 during April 2022).

4.2.48 Tree sparrow records at Cottam 2 extended across Site although concentrated to the eastern boundary (e.g. the boundaries of Fields H9 and H11) and the boundaries immediately east of the farmstead (e.g. the boundaries of Field H4). Some tree sparrows were associated with standard trees and others throughout the boundary habitats more generally. An individual was seen carrying food within the southern boundary of Field H11 and considered to be confirmed breeding.

4.2.49 At Cottam 3a records of calling tree sparrow were made from two separate locations, both on the periphery of the land-parcel/redline boundary (i.e. the eastern edge of Field K4 and P13).



4.2.50 At Cottam 3b tree sparrow activity was concentrated within hedgerows containing substantial mature standard trees and situated centrally within the Site.

#### Turtle Dove

4.2.51 Turtle dove were recorded on three separate occasions at Cottam 3a and Cottam 3b during June and early July 2022.

4.2.52 At Cottam 3a, three records were made across separate visits. The earliest record (16/06/2021) was of a singing individual just off-site, in a field to the south surrounded by tall hedgerows. Two days later, another record was made in the field immediately south of this field. Then, during a dusk survey visit on 01/07/2021, an individual was recorded foraging within a fallow field (Field K12), approximately 250m northwest of the first record.

4.2.53 At Cottam 3b, turtle dove was recorded on two separate occasions in June. The earliest record was of an individual flying over the Site on 07/06/2022. Then, on 18/06/22, another individual was recorded singing and moving between areas of mature scrub and lines of trees adjacent to the railway. This record is approx. 500m west of an individual recorded south of Cottam 3a on the same day (18/06/2021, refer above).

4.2.54 It is considered most probable that all these records relate to a single territory, with the nest likely to be off Site between Cottam 3a and 3b.

#### Yellowhammer

4.2.55 Yellowhammers were confirmed breeding and recorded across the Survey Area across all visits and clearly associated with boundary habitats during the breeding season. Population declines have resulted in yellowhammer becoming a red-listed farmland bird species with the species needing a mosaic of habitats during breeding when they feed on grain and invertebrates, in addition to areas of seed-bearing crops over winter to maintain winter populations.

4.2.56 At Cottam 3a records were made from a range of boundary habitat including lines of trees adjacent to ditches as well as hedgerows. Yellowhammer presence was markedly limited through the central section of Site (north-to south) which corresponds to large fields lacking boundaries and regular human and vehicle disturbance/activity from associated with the racetrack. At Cottam 3b, yellowhammer were recorded within a range of different hedgerow types, including those without margins or ditches. An estimated minimum of at least eight breeding territories were recorded.

4.2.57 At Cottam 2, the density of yellowhammer sightings varied across Site and were largely in very low numbers across central sections of Site, despite the presence of suitable habitat. Abundance was greater in Site boundary habitat with an estimated 6 – 8 breeding territories at this Site

4.2.58 Yellowhammer were present across Cottam 1 and associated with all boundary types although generally less frequently or absent along the main river and woodland edges, and greatest territory density than other Sites.

#### *Amber-listed Birds of Conservation Concern*

#### Bullfinch

4.2.59 Bullfinch were recorded at Cottam 1, Cottam 2 and Cottam 3b only with only single records at Cottam 2 and Cottam 3. All records were generally associated with lines of trees and woodland or field ditches (rather than short hedgerows). These boundary features provide suitable foraging and nesting habitats and their general loss, and associated availability of buds, seeds and fruits, is a contributing factor to the bullfinch population declines.

4.2.60 A single record of a male displaying alarm call was recorded at Cottam 2 whereas a single bullfinch was recorded flying overhead at Cottam 3b

4.2.61 Bullfinch were recorded on five of the visits at Cottam 1 (north) and on at least three visits at the other two land parcels of this Site. This included evidence of probable breeding, with pairs confirmed at Cottam 1 (south) and Cottam 1 (north) with the exception of fields to the far north. At least six territories



were estimated across Cottam 1, which accounts for the distance bullfinches are known to travel from nests for food (estimated approx. 1km).

#### Common whitethroat

- 4.2.62 Common whitethroat were recorded across the Survey Area on all visits with the earliest record made at 19/04/2022 at Cottam (west), including singing males. Whitethroat were considered to be breeding (recorded carrying food or juveniles) across the Survey Area, with the exception of Cottam 3a.
- 4.2.63 Their distribution was generally site-wide with a strong association with boundaries, as expected. The exception was where arable fields were large and lacked hedgerow or suitable scrubby vegetation, hedgerows were in poor condition or boundaries comprised open, frequently managed ditches or grassland banks. For example, at Cottam 1 records were sparse in close proximity to woodland and open ditches. The peak count on any single visit was 45 individuals at Cottam 1 (south) during mid-June 2021.
- 4.2.64 At Cottam 3a, no activity was recorded in close proximity to the racetrack or open ditches to the north. Common whitethroat were recorded at Cottam 3b which contained suitable breeding habitats.

#### Dunnock

- 4.2.65 Dunnock were recorded across the majority of visits with their distribution consistent within hedgerow boundaries of varying composition and conditions. Generally speaking, records were sparser or even absent adjacent to open ditches.
- 4.2.66 Dunnock were most abundant at Cottam 1 (north), but with few records adjacent to the main river and open ditches. Breeding was confirmed (juvenile and family) at this Site.
- 4.2.67 At Cottam 2, dunnock were only recorded in the southern sections of this Site despite the boundary habitats comparable to those in the north. The smaller field size and presence of grazed grassland and associated invertebrates within the southern area may have influenced their restricted distribution.
- 4.2.68 Dunnock were recorded across visits at Cottam 3, but less frequently at Cottam 3b (only three visits). Their abundance was greater within the western parcel of Cottam 3b where fields were relatively small in size and separated by a number of hedgerow boundaries and a small grassland field. Fewer records of dunnock were recorded across Cottam 3b on a total of three occasions.

#### *Other Species*

##### Goldfinch

- 4.2.69 Goldfinch were recorded as probable breeders across Site with a peak count of 19 individuals at Cottam 1 (north). Their distribution was concentrated within boundaries but evidently also foraging within field margins and unmanaged areas across all visits. Although goldfinch are a green-listed BoCC species and have experienced increases in population numbers, they are one of a number of more common species included on the UKFBI list due to their use of open farmland for feeding during the breeding season, despite nesting in boundary/ hedgerows/ vegetated habitats.

##### Wren

- 4.2.70 Wren have been included within this category rather than amber-listed category because they were listed as a green-listed BoCC up until Dec 2021. Consequently, the modified methodology included for the presence of this species to be summarised rather than all recorded. The abundance included within Table 4 (above) is not a complete record.
- 4.2.71 Wren were recorded across the Survey Area but not frequently. Their occurrence at Cottam 1 was occasional to frequent with this species generally recorded at all other sites only on a rare to occasional basis. Generally speaking, they were found (and recorded singing) from taller hedgerows present across the Survey Area.



## **Breeding Predominantly Associated with Ditches, Waterbodies and Associated Habitats**

### *Amber-listed Birds of Conservation Concern*

#### Gadwall

- 4.2.72 Gadwall were recorded at Cottam 1 only, all in close proximity to the River Till where it either traverses through Site or forms the boundary of Cottam 1 (south) and Cottam 1 (west).
- 4.2.73 At Cottam 1 (south), gadwall were recorded across a total of four visits in repeated years at similar locations. This included single and small groups of gadwall either present within or flying towards the river, including a pair recorded during late May (27/04/2022) to the west of Field D9 managed as improved grassland during 2021.
- 4.2.74 At Cottam 1 (west), a total of six birds were recorded across four visits in close proximity to the River Till (i.e. the north boundary of Field E1) on consecutive visits in mid-May, then a female recorded at the same location in mid-June. Another gadwall record was also made at the same location the following year with gadwall considered to probable breeders on Site.

#### Grasshopper Warbler

- 4.2.75 Grasshopper warbler were recorded on a single visit during mid-May at Cottam 1 (north), with 6 individuals recorded together. Their typical breeding habitat is often just off the ground in rough grass or nettles, even in more open areas, but generally more dense habitats including scrub, reed-beds, gravel pits and new forestry plantation. Although suitable habitat may be found on Site, these individuals are more likely to have only been passing through, with only an estimated 50 pairs known to breed within the county.

#### Greylag Goose

- 4.2.76 With the exception of Cottam 2, greylag geese were recorded across the Survey Area, mostly flying overhead, with a peak group number of 16 individuals travelling south-westerly across Cottam 1 (north) during late May. A nest was also confirmed adjacent to a ditch at Cottam 1 (north).
- 4.2.77 The majority of records at Cottam (west) and Cottam (south) were in close proximity of the River Till. At Cottam 1 (south) the majority of records were within the south-western corner of Site around the main river with small numbers also recorded in-field, including improved grassland (Field D10). Greylag geese were recorded frequently across Cottam 1(north) including the overall peak count and breeding attempt. An adult bird was flushed from incubating six eggs alongside a main ditch at Coates (north) (Field C9).
- 4.2.78 Greylag geese were also recorded travelling overhead at Cottam 3a and 3b, with a peak number of three.
- 4.2.79 Although most records were of commuting birds, some were considered to be foraging in suitable habitat across the Survey Area and confirmed breeding. This included amongst felled branches adjacent to a ditch, rather than a typical location on islands situated within waterbodies where sufficiently large.

#### Mallard

- 4.2.80 Mallard were recorded across the Survey Area with the exception of Cottam 3b and no pairs noted at Cottam 3a.
- 4.2.81 Mallards were most frequently recorded at Cottam 1 and Cottam 2, potentially influenced by supplementary game birds, and their distribution generally associated with wet ditches, rivers and ponds. Pairs of mallard were confirmed across Cottam 1 and all visits, plus males calling from locations near to Pond 4 (Cottam 1 (north)) and nest of mallard eggs recorded within a farm building at Cottam 1 (south).
- 4.2.82 At Cottam 2, distribution was generally associated with wet ditches running through the centre of Cottam 2 and eastern boundary. Some chicks were also seen at this location.

#### Moorhen

- 4.2.83 Moorhen were recorded at Cottam 1 and Cottam 2 only, including confirmed breeding at Cottam 2 with a family recorded at Pond 2 during May and June.



4.2.84 Seven moorhen were recorded across Cottam 1 with only a single record at Cottam 1 (south). However, this individual was displaying alarm calls from its location on the River Till (western corner of Field D10)). At Cottam 1 (west) moorhen were recorded on the River Till on two occasions and season (2021 and 2022) and probable breeders although not confirmed. Three records were made at Cottam 1 (north) from within a large wet ditch (the western boundary of C2) and another on a pond beyond the northern redline boundary.

#### Reed bunting

4.2.85 Reed bunting are included on the UK Farmland Bird Indicator list with population numbers suffering approx. 30% reduction over recent decades (1970 – 2007)<sup>14</sup> despite some indication of improvement more recently. As expected, individuals were most often associated with field boundaries but also recorded foraging within field and boundary habitats adjacent to hedgerows, including those without ditches. For example, birds were recorded amongst fallow fields at Cottam 1 (north) and considered likely to provide a good source of seeds and invertebrates, as well as within pockets of grassland habitat at Cottam 2.

4.2.86 Reed bunting were considered likely breeding at Cottam 1 where records were the most abundant. Singing males, pairs and birds carrying food were all recorded. Their distribution was concentrated around boundary habitats but extended into fields, potentially foraging excursions but also nesting where crops provide suitable habitat, such as oilseed rape. Reed bunting distribution was largely consistent across all Sites but with increased frequency at wet ditches/watercourses rather than hedgerows alone.

4.2.87 At Cottam 2, reed bunting were recorded across the Site, mostly associated with wet ditch habitats surrounding arable fields, but also within areas of grassland present between some fields and a good source of invertebrates and seeds for foraging birds.

4.2.88 Reed bunting were much less abundant at Cottam 3a and with distribution mostly associated with wet, open ditch surrounding arable and improved grassland fields east of the racetrack and occasionally within hedgerow to the west. This included a pair of reed bunting within Field K16.

4.2.89 At Cottam 3b, reed bunting were recorded across Site most frequently adjacent to wet ditches but also at those seasonally-wet with suitable vegetated margins. Singing males were recorded marking territories at three distinct locations over two seasons (2021 and 2022); firstly at first ditch from the west, another at the intersect between Field J3 and J6; and also along the ditches forming the northern boundary.

#### Shelduck

4.2.90 Two shelduck were recorded on a single visit travelling across Cottam 1 (south) and considered likely commuting to other habitats off-site.

#### Sedge Warbler

4.2.91 Sedge warbler were recorded at Cottam 1 only with activity concentrated along the River Till and wet ditches within the northern Site.

4.2.92 Within Cottam 1 (north), singing males were recorded from two separate wet ditches to the far north. At the ditch between Fields B3 and B4, a pair were recorded on a single visit and three singing males recorded from within the ditch between Fields B1 and B2, approx. 500m to the west. Although this results in five separate records, they were all recorded by the same surveyor on the same day and it is therefore considered more likely that fewer individuals were present.

4.2.93 A single sedge warbler was recorded within Field C4 at Cottam 1 (north) which was bounded by a wet ditch to the south. Further ditches with containing hedgerow and occasional scrubby habitat were also recorded nearby.

4.2.94 Across three visits from late April onwards, singing males were recorded at six distinct locations along the River Till bounding the south-western corner of C1 (south) (west of Field D10) only. They were recorded

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<sup>14</sup> RPSB (2022) *Reed bunting in brief*. [online] [redacted] [Accessed: 13/09/2022]





along a length of approx. 1.6km with potentially another two individuals holding territories along the wet ditch along the eastern edge of Field D10.

- 4.2.95 Further north along the River Till within Cottam 1 (west), two males were recorded at the same location (Field E5) on two separate visits in separate years and are considered to be single sedge warbler territory.

### ***Breeding Birds Predominantly Associated with Mature Trees/Woodlands***

#### *Schedule 1 Species*

##### Hobby

- 4.2.96 Hobby was recorded across all Sites, which included single sightings at each land parcel on different dates in early June. All birds were recorded flying overhead, likely foraging, including two individuals recorded at Cottam 1 (west) and another at Cottam (south), plus one at Cottam 2 and a single individual at Cottam 3a. No signs of breeding were noted.

#### *Red-listed Birds of Conservation Concern*

##### Mistle thrush

- 4.2.97 Mistle thrush were recorded displaying breeding behaviour at Cottam 1 and Cottam 3a only. Despite the low density of hedgerows across the Site, two individuals were recorded singing within Site boundary habitats at Cottam 3a near to suitable nesting habitats within areas of scrub.
- 4.2.98 At Cottam 1 the majority of records were from within Cottam 1 (north) within areas of woodland and occasionally hedgerow. With a variable range of territory size (between approx. 1 – 10ha) it is possible that 5 – 8 breeding pairs may have been present on Site; however only three birds were recorded singing/calling on any single visit. Single records of mistle thrush were also recorded within suitable nesting habitats bounding Cottam 1 (west) and Cottam 1 (south).

#### *Amber-listed Birds of Conservation Concern*

##### Kestrel

- 4.2.99 Kestrel were recorded across the Survey Area which included confirmed breeding with juveniles noted at Cottam 2. The species have experienced steep declines in 1970s and are included on the UKFBI list as the availability of their dietary requirements (small mammals, insects and earthworms) can be comprised where land is farmed intensively.
- 4.2.100 At Cottam 1 kestrel records were recorded on the majority of visits and mostly from individuals moving through Site. The records were from within close proximity to field boundaries, woodland and the river corridor which all provide foraging resources, including voles. Breeding was not recorded at this Site, although a pair were recorded at Cottam 1 (north) on two occasions and it is considered probable that they breed on Site.
- 4.2.101 At Cottam 2, kestrels were recorded across frequently with repeated records of adults carrying food and a juvenile recorded near to trees and tall hedgerow.
- 4.2.102 Eight records of kestrel were made across Cottam 3 across Site, including 2021 and 2022. The birds were most often seen in close proximity to mature hedgerow trees with a calling adult at Cottam 3a.

##### Song thrush

- 4.2.103 Song thrush was recorded across with the Survey Area with records all visits and frequently recorded within suitable nesting habitats, including woodland and copses, species-rich hedgerows with trees or gardens/farmsteads with mature trees. For example, at Cottam 2 only three records were recorded but within species-rich hedgerow with trees and song thrush were recorded at Cottam 3a and 3b where they were associated with tall trees and hedgerows. Numerous records were made across Cottam 1 with song thrush distribution strongly associated with woodlands and tall hedgerows bounding arable fields.



#### Sparrowhawk

- 4.2.104 Records of sparrowhawk were restricted to Cottam 1 and a single recorded at Cottam 3a. The birds were mobile and likely foraging across the Survey Area or possibly nesting within nearby woodland suitable for breeding.

#### Stock dove

- 4.2.105 Stock dove were recorded across the Survey Area with records associated with a range of habitats. This included individuals recorded within woodland and other field boundaries, in addition to birds foraging within arable and grassland fields. A peak count, on any single occasion of 20 birds was recorded at Cottam 1 (south). Stock dove were recorded calling across numerous visits at Cottam 1 with individuals considered likely to be breeding nearby and confirmed at Cottam 1 (west within an agricultural barn).
- 4.2.106 Although recorded at Cottam 2, Cottam 3a and Cottam 3b, stock dove were only recorded singing on repeated visits at Cottam 2 and Cottam 3a, therefore considered less likely to have been breeding at Cottam 3a.

#### Tawny owl

- 4.2.107 Tawny owl were recorded at Cottam 1. They were recorded at Cottam 1 (south and north) with a total of three individuals across two visits. Each record was from an individual calling from woodland adjacent to the redline boundary and considered to be possible breeding territories.

#### Willow Warbler

- 4.2.108 Willow warbler were recorded at Cottam 1, Cottam 3a and Cottam 3b only. Their distribution was not confined to woodlands and included hedgerow boundaries, small wooded belts, line of trees and scrub also.
- 4.2.109 For example, at Cottam 3a a single individual was recorded on each survey visit (across two survey seasons) with the exception of Visit 4. Singing males were recorded amongst woodland and areas of scrub over two consecutive years. At Cottam 3b records of willow warbler were clustered adjacent to a residential garden, amongst tall hedgerow and scrub running adjacent to the railway bounding the north of Site. The peak count during a single visit was recorded at Cottam 1 (north) across areas of woodland and hedgerow associated with arable fields.

#### *Other Species*

#### Jackdaw

- 4.2.110 Jackdaw were recorded across the Survey Area, but with few records at Cottam 3a and Cottam 3b. They were generally associated with farmsteads and boundary habitats, including in-field hedgerow boundaries, open ditches and margins and woodland belts. Some birds were recorded calling and considered to be probable breeders at Cottam 1, but with no nests were confirmed. A peak count of 30 jackdaws was recorded in pasture immediately adjacent Cottam 1 (west) and likely foraging on invertebrates.

#### Rook

- 4.2.111 Rooks were recorded across the Survey Area with a single record of five birds at Cottam 2. Although common and widespread, they are included as a UKFBI and mainly feed on soil invertebrates as well as being known to scavenge. Where present, large flocks were recorded, including a peak count of 65 birds at Cottam 3a despite no rookery; however late cultivation (e.g. Field K6 was cultivated as maize in May) provided open access to soils and invertebrate resources. Large flocks (~50 birds) were also recorded at Cottam 3b within fields of improved grassland.
- 4.2.112 The greatest numbers were recorded at Cottam 1 with a peak count of approx. 250 birds within a field of improved grassland (Field C17) and similar numbers within a rookery situated in an adjacent block of woodland. These counts recorded on the same day and considered to relate to the same birds. Another rookery was also confirmed within a woodland immediately adjacent to the Site boundary of Cottam 1 (south).



### Woodpigeon

- 4.2.113 Woodpigeon were recorded frequently across the Survey Area and noted breeding within hedgerows at Cottam 1.

The numbers included within Table 4 exclude these summary records only and flocks were recorded across each Site with a peak count of almost 100 birds at Cottam 1 (north) and flocks of approx. 50 birds repeatedly records at all other Sites. These flocks were comprised of individuals foraging within fields, predominantly arable and fallow areas.

### ***Breeding Birds Predominantly Associated with Buildings/Infrastructure***

#### *Schedule 1*

### Barn owl

- 4.2.114 Barn owl were recorded across the Survey Area, most frequently at Cottam 1 where they were confirmed breeders. During building inspections seven buildings were found to contain barn owl pellets with adult birds recorded emerging from two of these buildings. Another adult was also seen to emerge from a building outside of the red-line boundary and barn owl nest confirmed within a mature tree within a boundary at Cottam 1 (west). A total of 44 records of barn owl were recorded during all survey visits, often carrying food, with their activity concentrated within the south-west corner of Cottam 1 (south), Cottam (west) throughout much of Cottam 1 (north).
- 4.2.115 Numerous records were also made at Cottam 2 with a calling individual and two records of birds seen to be carrying food in close proximity to the main farmstead.
- 4.2.116 The majority of foraging activity was from birds in close proximity to field boundaries and the most likely locations of supporting small mammals.
- 4.2.117 Barn owl were at Cottam 3a only with a total of three birds recorded foraging across all visits.

### Peregrine

- 4.2.118 Four peregrine records were made at Cottam 1 (north) and a single peregrine recorded at Cottam 3a. This includes an individual calling from an electricity pylon during June 2021 which is considered to be a possible nesting site, but not confirmed.

#### *Red-listed Birds of Conservation Concern*

### House martin

- 4.2.119 House martins have been included within this section due to their use of buildings for nesting; however farmland provides a valuable foraging resource and location for sources for nesting building materials.
- 4.2.120 This species was recorded in low numbers across the Survey Area with no more than two birds recorded on any single visit and considered likely to be foraging or commuting to nearby suitable feeding grounds.
- 4.2.121 No nests were recorded however some recorded buildings were considered to offer suitable nesting habitats.

### House sparrow

- 4.2.122 House sparrow were recorded across Site and most frequently at Cottam 1 (north).
- 4.2.123 Overall, their distribution was generally associated with farmsteads and residential buildings with abundance much higher adjacent to residences, e.g. residential buildings and gardens bounding the north-western boundary of Cottam 3a. A group of house sparrow were also recorded foraging within H24 despite its distance of approx. >500m from buildings.

### Starling

- 4.2.124 As a UKFBI and red-listed priority species, farmland provides important sources of soil invertebrates which starling feed on year-round, in addition to suitable breeding locations where present in trees although more commonly in buildings.



4.2.125 Starling were recorded at Cottam 1 (north), Cottam 2 and Cottam 3a only. At Cottam 1 (north) they were only recorded foraging across Site with a peak count of 15 individuals at Cottam 1 (north). Juveniles were recorded at Cottam 2 at Field H2 which was managed as short grassland at the time of survey and source of invertebrates.

4.2.126 Although their preferred foraging habitat is amongst short grassland and other habitats with a good provision of soil invertebrates, starling were also recorded within arable fields and likely to utilise these where soil invertebrates are easily accessible.

#### Swift

4.2.127 Swift were recorded commuting and foraging across the Survey Area. They were recorded from mid-May onwards with a peak count of six individuals on any single visit. Two individuals were also seen mating on the wing at Cottam 1 (south).

4.2.128 Although not confirmed to be nesting on Site, farmland habitats will provide some foraging resources for the species during their breeding season and therefore recorded as possible breeding within Table 4.

#### **Other Species Recorded on Site, but typically breed in other habitats**

##### *Schedule 1 Species*

#### Marsh harrier

4.2.129 A single marsh harrier was recorded commuting south over Cottam 1 (north) and considered to be either simply commuting or foraging opportunistically.

##### *Amber Birds of Conservation Concern*

#### Black headed-gull

4.2.130 A total of 8 black headed-gull were recorded at Cottam 3a on a single visit and considered to be foraging opportunistically.

#### Common gull

4.2.131 Common gull were recorded on two occasions, one at Cottam 3a where the birds were foraging within a recently cultivated field, and another record at Cottam 1 (north) where they were considered likely to have been commuting or foraging opportunistically.

#### Lesser black-backed gull

4.2.132 Lesser black-backed gull were recorded across Site and across all visits overall Survey Area. As with the other gulls included within this section, the majority were flying overhead but with some potentially foraging opportunistically on-site and breeding off-site. This includes a group of 16 individuals recorded at Cottam 1.

#### Great black-backed gull

4.2.133 A single record was made at Cottam 1 (north) with the bird possibly foraging opportunistically. No further records were made.

#### Short-eared owl

4.2.134 A short-eared owl was recorded in mid-May west of Cottam 1 (south) beyond the redline adjacent to the River Till. Although tending to breed within northern Britain, they have been known to breed within lowland habitats, including Lincolnshire although in decreasing numbers since the 1980s and only rarely with an average of one pair/year between 2013 – 2017<sup>15</sup>

<sup>15</sup> Casey, C., Clarkson, J.R., Espin, P. and Hyde, P.A. (20210) *The Birds of Lincolnshire*. Lincolnshire Bird Club: Louth



### Osprey

- 4.2.135 Two osprey were recorded in mid-April at Cottam 1 (west) with the birds seen to be flying overhead. They are a scarce migrant to the county with some immature birds recorded in summer, but none known to breed within the county<sup>15</sup>.

### Wheatear

- 4.2.136 Wheatear were recorded at Cottam 1 (west) and Cottam 3a only with a total of three individuals. Two were recorded on the same visit and are considered most likely to be the same bird or establishing pair. The single record at Cottam 3a was made approx. three weeks later.
- 4.2.137 All records were made during a 21-day period with wheatear known to hold territories within suitable habitat across several weeks within Lincolnshire, however no confirmed breeding during the previous century<sup>16</sup>. These records are therefore considered most likely to relate to migrating individuals.

### **Species excluded from the Standard Methodology Approach**

- 4.2.138 As detailed within the methodology, the eight most common and widespread species recorded during scoping surveys were excluded from the main field results maps (i.e. individual registrations) and tallied within a separate table. Where possible, this included an overview of their presence, abundance and breeding status. The eight species originally included were blackbird, blue tit, chaffinch, great tit, herring gull, robin, woodpigeon and wren; however the conservation status of woodpigeon and wren increased during the survey period therefore these species are included above. All remaining species have a brief overview included below.
- 4.2.139 Blackbird were generally only recorded in low numbers, excluding Cottam 3a where they were noted more often and considered to be probable breeder with frequent singing.
- 4.2.140 Both blue tit and great tit were recorded occasionally, sometimes only rarely such as at Cottam 1. They showed a preference for taller hedgerows with great tit recorded breeding at Cottam 1 and blue tit at Cottam 2 and Cottam 3a.
- 4.2.141 Chaffinch were the most abundant passerine within this category and recorded most frequently within hedgerows. They were also found to be breeding within Cottam 2.
- 4.2.142 Herring gull were recorded on rare occasions at Cottam 1, most frequently commuting/flying overview, but possibly taking opportunity to forage within fields. No notable foraging was recorded across the Survey Area however.
- 4.2.143 Robin were only recorded on rare occasions although considered to be probable breeders where recorded, but in low numbers only.

### **Green-listed and Least Concern Species of Conservation Concern**

- 4.2.144 As described within the Introduction, the primary aim of this report was to ascertain a baseline of breeding bird populations and assemblages for the Survey Area. However, conservation priority species, including Schedule 1 species (in accordance with the Wildlife and Countryside Act, 1981) and amber- and red-listed species (taken from the latest Birds of Conservation Concern BoCC List prepared by the BTO and conservation partners) have been prioritised to ensure focus around the species more vulnerable to the potential impacts of the proposed development.
- 4.2.145 Table 6 included overleaf collates all other species with the results combined for the entire Survey Area. This includes the total abundance of each species across all visits, their peak count on any single visit and the number of visits during which each species was recorded. The latter has informed the assumed breeding categories where information on the species breeding status was recorded during survey visits.

**Table 6: Common and Widespread Bird Species Recorded at Cottam, Lincs**

<sup>16</sup> Casey, C., Clarkson, J.R., Espin, P. and Hyde, P.A. (20210) The Birds of Lincolnshire. Lincolnshire Bird Club: Louth



Species	Conservation Status	No. of surveys species found (/6)	Peak count on any single visit	Total no. of species across all surveys	Assumed breeding status (across all surveys)
Barn swallow	Green BoCC	6/6	10	106	Confirmed
Blackbird	Green BoCC	6/6	17	122	Probable
Blackcap	Green BoCC	6/6	14	147	Probable
Blue tit	Green BoCC	5/6	6	40	Confirmed
Buzzard	Green BoCC	6/6	7	93	Confirmed
Canada goose	Least Concern	4/6	3	8	Possible
Carion crow	Green BoCC	6/6	10	79	Confirmed
Chaffinch	Green BoCC	5/6	31	211	Confirmed
Chiffchaff	Green BoCC	6/6	13	117	Confirmed
Coal tit	Green BoCC	1/6	2	2	Possible
Collared dove	Green BoCC	6/6	4	17	Possible
Cormorant	Green BoCC	3/6	2	4	Unlikely
Feral pigeon	Green BoCC	4/6	2	8	Confirmed
Garden warbler	Green BoCC	6/6	1	1	Probable
Goldcrest	Green BoCC	5/6	3	11	Probable
Great spotted woodpecker	Green BoCC	6/6	7	42	Probable
Great tit	Green BoCC	4/6	6	22	Confirmed
Green woodpecker	Green BoCC	6/6	4	20	Probable
Jay	Green BoCC	4/6	2	7	Probable
Little egret	Green BoCC	1/6	1	1	Unlikely
Little owl	Least Concern	1/6	1	1	Possible
Long-tailed tit	Green BoCC	6/6	5	32	Probable
Magpie	Green BoCC	6/6	8	48	Probable
Mute swan	Green BoCC	3/6	1	4	Possible
Nuthatch	Green BoCC	2/6	1	2	Possible
Pied wagtail	Green BoCC	6/6	7	66	Confirmed
Red kite	Green BoCC	4/6	1	7	Possible
Red-legged partridge	Introduced	6/6	12	129	Probable
Robin	Green BoCC	5/6	12	67	Probable
Treecreeper	Green BoCC	3/6	2	6	Possible



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### **Overview of Potential Impacts**

- 4.2.146 The species considered to be at most risk of impacts are those associated with open habitats and which require open sightlines, or which have a strong dependency on the provision and management of arable crops (including arable field margins). Construction of the solar arrays will result in the loss of open sightlines and the cessation of arable management, which may result in the exclusion of species with such dependencies. This includes skylark, yellow wagtail and waders (curlew, golden plover, lapwing, snipe and woodcock).
- 4.2.147 Species like grey partridge are associated with arable systems but may take advantage of grassland habitats and the cover afforded by the panels within the new solar farms. The cessation of predator control may be a greater factor in their continued success.
- 4.2.148 Other species like linnet, meadow pipit, reed bunting and yellowhammer may also have reduced foraging opportunities, although are expected to utilise the newly created grassland habitats amongst the arrays, which will provide a source of seeds and invertebrates.
- 4.2.149 **Table 7**, overleaf, summarises the potential impacts and opportunities for mitigation and compensation for each broad species group which may occur or be available as a result of the proposed Scheme.



**Table 7: Summary of Species of Conservation Priority Recorded on Site and Overview of the Impacts of Habitat Change/Loss**

Overview of Species Requirements (by Category)	Characterisation of Unmitigated Impacts	Potential avoidance and mitigation measures	Potential compensation and enhancement measures	Potential habitat management considerations
<b>Predominantly associated with open/arable landscapes</b>				
<p>All species largely insectivorous, including soil invertebrates for waders, and essential food source for young. Some species also supplementary feed on leaves and seeds of crops as an important part of the adult's diet (e.g. skylark)</p>	<p>Impacts of habitat loss/change</p> <p><u>All species:</u></p> <ul style="list-style-type: none"> <li>▪ Loss of farmland habitats and provision of suitable nesting and foraging habitats;</li> <li>▪ Fragmentation of open field habitat (with wide visibility/ sightlines) resulting in them either becoming unusable or reducing suitability of breeding habitats;</li> </ul> <p><u>Specific species considerations:</u></p> <ul style="list-style-type: none"> <li>▪ Curlew and lapwing remain site faithful, returning to sites where they have been bred before (and were raised);</li> <li>▪ Within lowland farmland, lapwing have an affinity with arable and early pasture (nest from early April).</li> </ul>	<p>Avoidance and mitigation:</p> <ul style="list-style-type: none"> <li>▪ Avoid construction within Site where affected species exhibit site fidelity (esp. lapwing and curlew) or ensure nearby sites remain suitable year-on-year;</li> <li>▪ Avoid development at likely quail communal pairing places;</li> <li>▪ Avoid introduction of predator perches in close proximity to mitigation habitats.</li> </ul>	<p>Compensation and enhancement:</p> <ul style="list-style-type: none"> <li>▪ Creation replacement suitable habitat off-site where not possible to mitigate within the redline boundary or introduction of panels negates value of open field;</li> <li>▪ Inclusion of water bodies and wet areas for soil feeders (e.g. curlew, lapwing), but also to increase provision of invertebrates (yellow wagtail);</li> <li>▪ Include diverse range of habitats and sward structure to provide suitable nesting habitat and nearby foraging areas to accommodate their needs (e.g. lapwing feed their young within 200 – 300m of nest and lapwing will nest on open ground or short swards with occasional tussock, whereas skylark and curlew approx. 20 – 40cm);</li> <li>▪ Cultivated fields farmed (sensitively) with spring-sown crop or set-aside would provide open habitat and preferred conditions for number of affected species.</li> </ul>	<p>Habitat management considerations:</p> <ul style="list-style-type: none"> <li>▪ Rotational management of compensation habitats would be necessary to meet the requirements of all species (e.g. bare ground – diverse sward structure but vegetation no more than 40/50cm);</li> <li>▪ Within lowland farmland, lapwing favour tilled land or spring-sown crops with good sightlines;</li> <li>▪ Extensively grazed grassland could increase sward diversity and invertebrate resources;</li> </ul> <p>Retain appropriate access within undeveloped margins to ensure sward managed appropriately and ease of access by foraging species.</p>





Overview of Species Requirements (by Category)	Characterisation of Unmitigated Impacts	Potential avoidance and mitigation measures	Potential compensation and enhancement measures	Potential habitat management considerations
<b>Species typically associated with arable field margins and hedgerow/scrub habitats</b>				
<p>A mix of granivores and insectivores (or both during their breeding seasons) within this category, with the granivores more reliant on farmed habitats year-round and typically nesting within field margins (e.g. yellowhammer, grey partridge).</p>	<p>Impacts of habitat loss/change</p> <p><u>All species:</u></p> <ul style="list-style-type: none"> <li>▪ Loss of suitable nesting habitat where hedgerow/trees/margins impacted or removed;</li> <li>▪ Loss of foraging habitats from within fields most profound for species utilising farmed landscapes and adjacent habitats, e.g. e.g. yellowhammer, grey partridge;</li> <li>▪ Possible loss of seed resource over winter, e.g. where stubble retained or emerging crops foraging resources (e.g. yellowhammer and grey partridge respectively)</li> </ul> <p><u>Specific species considerations:</u></p> <ul style="list-style-type: none"> <li>▪ Potential impact and subsequent loss of breeding site affecting entire colonies where species exhibits site fidelity, e.g. tree sparrow.</li> </ul>	<p>Avoidance and mitigation:</p> <ul style="list-style-type: none"> <li>▪ Avoid loss of boundary habitat and protect with appropriately undeveloped margins;</li> <li>▪ Revise proposed boundary route where construction would impact habitat feature (e.g. hedge, trees) known to be used by species exhibiting site fidelity (e.g. tree sparrow);</li> <li>▪ Retention of undeveloped grassland margins to provide suitable nesting habitat (e.g. grey partridge, yellowhammer)</li> </ul>	<p>Compensation and enhancement:</p> <ul style="list-style-type: none"> <li>▪ Creation of species-rich hedgerow or woodland belt, or in-fill planting, to increase provision of nesting sites and foraging resources;</li> <li>▪ Creation of tall hedgerows to increase nesting suitability;</li> <li>▪ Inclusion of occasional pockets of scrub to increase habitat diversity and suitable nesting sites (e.g. turtle dove, common whitethroat);</li> <li>▪ Enhance margins with species-rich grassland planting to increase habitat diversity, suitable nesting habitats etc;</li> <li>▪ Continued cultivation of some areas as arable (spring sown crops, managed extensively) to enable retention of stubble following harvest to supporting wintering populations (e.g. tree sparrow, yellowhammer);</li> <li>▪ Create areas of annual wildbird seed cover for grainivores, such as greenfinch, linnets, yellowhammers</li> </ul>	<p>Habitat management considerations:</p> <ul style="list-style-type: none"> <li>▪ Retain sufficiently wide margins to enable vehicle access and long-term management;</li> <li>▪ Allow management to include occasional presence of seed-bearing plants (e.g. thistles etc) within margins as these provide valuable foraging resource for birds such as linnets;</li> <li>▪ Include diverse range of arable habitats on rotation (e.g. cultivated, fallow, cover crops) to provide suitable nesting habitat in close proximity to seeds, shoots, leaves (e.g. grey partridge).</li> </ul>



Overview of Species Requirements (by Category)	Characterisation of Unmitigated Impacts	Potential avoidance and mitigation measures	Potential compensation and enhancement measures	Potential habitat management considerations
<b>Species typically breeding in/near to waterbodies and associated habitats (e.g. reeds, burrows)</b>				
<p>A group that can be broadly categorised into two sub-groups: those which nest and feed within waterbodies (wildfowl) and others nesting within adjacent habitats and mostly feeding on terrestrial habitats (passerines)</p>	<p>Impacts of habitat loss/change <u>All species:</u></p> <ul style="list-style-type: none"> <li>▪ Retention of waterbodies would negate loss of wildfowl breeding habitats;</li> <li>▪ Habitat loss and fragmentation may occur should watercourses be impacted, such as creation of access routes/culverting;</li> <li>▪ Installation of PV array may result in loss of foraging grounds, e.g. greylag geese;</li> <li>▪ Pollution of watercourses/bodies during construction and loss of foraging resources;</li> <li>▪ Loss of foraging habitats from within fields most pronounced for species utilising lowland farmland (e.g. reed bunting)</li> </ul>	<p>Avoidance and mitigation:</p> <ul style="list-style-type: none"> <li>▪ Retention and appropriate management of waterbodies/courses to retain breeding habitats;</li> <li>▪ Permanent addition of sufficiently wide undeveloped margins adjacent to watercourse to avoid long-term impacts;</li> <li>▪ Implementation of pollution prevention measures survey construction</li> </ul>	<p>Compensation and enhancement:</p> <ul style="list-style-type: none"> <li>▪ Pond creation has the potential to increase foraging grounds, potentially breeding if waterbodies;</li> <li>▪ Retention of grassland adjacent to suitable waterbodies will retain foraging grounds for greylag geese;</li> <li>▪ Enhancement measures to improve current ponds and condition of waterbodies;</li> <li>▪ Retention of undeveloped margins managed as arable margins or species-rich grassland to provide suitable nesting and foraging resources (e.g. reed bunting, sedge warbler);</li> <li>▪ Provision of areas of adjacent fallow or oilseed rape would continue to provide foraging habitat for reed bunting (and other priority species)</li> </ul>	<p>Habitat management considerations:</p> <ul style="list-style-type: none"> <li>▪ Retain sufficiently wide margins to enable vehicle access and long-term management;</li> <li>▪ Allow management to include occasional presence of seed-bearing plants (e.g. thistles etc) within margins as these provide valuable foraging resource for birds such as linnets;</li> <li>▪ Include diverse range of arable habitats on rotation (e.g. cultivated, fallow, cover crops) to provide suitable nesting habitat in close proximity to seeds, shoots, leaves (e.g. grey partridge).</li> </ul>



Overview of Species Requirements (by Category)	Characterisation of Unmitigated Impacts	Potential avoidance and mitigation measures	Potential compensation and enhancement measures	Potential habitat management considerations
<b>Birds typically breeding in mature trees/woodland</b>				
<p>A group with a broad ecological requirements during their breeding despite similarities across nesting habitat, including insectivores, granivores, scavengers and birds of prey.</p>	<p>Impacts of habitat loss/change <u>All species:</u></p> <ul style="list-style-type: none"> <li>▪ Loss of nesting habitat where woodland, wooded belts or mature trees impacted;</li> <li>▪ Loss of foraging habitat where farmland habitats lost, esp. species taking soil invertebrates (e.g. jackdaw, rook, song thrush). Also arable margins where managed as long vegetation that create sources of small mammals (e.g. kestrel);</li> <li>▪ Unlawful activity would occur where breeding Schedule 1 species are impacted during construction or operation of the proposal, including disturbance whilst building a nest or rearing young.</li> </ul>	<p>Avoidance and mitigation:</p> <ul style="list-style-type: none"> <li>▪ Retention of woodland habitat, lines of trees and mature trees will negate loss of nesting habitats;</li> <li>▪ Appropriate buffers to standard trees and woodland to ensure their longevity ;</li> <li>▪ Appropriate management and habitat creation to mitigate for the loss of an overall reduction in the loss of suitable foraging habitats;</li> <li>▪ Timing of works or preconstruction surveys to avoid impacts or determine presence of breeding birds respectively;</li> <li>▪ Implementation of working method statements to ensure works carried out in compliance with current environmental law;</li> </ul>	<p>Compensation and enhancement:</p> <ul style="list-style-type: none"> <li>▪ Creation woodland belts and standard trees planting to pre-empt future loss current mature trees;</li> <li>▪ Retention of undeveloped margins managed as arable margins or species-rich grassland to provide diverse foraging habitat;</li> <li>▪ Creation new woodland or shelter belt to increase area of suitable habitat across Site;</li> <li>▪ Provision of artificial nesting boxes may increase availability of nesting sites for some species (e.g. kestrel, tawny owl);</li> <li>▪ Creation of wetland habitats, including grassland subject to occasional flooding, will compensate for loss of foraging habitat.</li> </ul>	<p>Habitat management considerations:</p> <ul style="list-style-type: none"> <li>▪ Creation of development, grassland margins including variation in sward height and some managed as tussocky grassland to increase abundance of small mammals;</li> <li>▪ Revision of woodland management to improve diversity and overall condition across Site, increasing foraging and nesting opportunities;</li> </ul>



Overview of Species Requirements (by Category)	Characterisation of Unmitigated Impacts	Potential avoidance and mitigation measures	Potential compensation and enhancement measures	Potential habitat management considerations
<b>Birds typically breeding in buildings/infrastructure</b>				
<p>Species with a range of foraging requirements (including insectivores, small mammals and seed-eaters) but all making use of buildings within rural or residential settings.</p>	<p>Impacts of habitat loss/change <u>All species:</u></p> <ul style="list-style-type: none"> <li>▪ Reduced nesting opportunities where suitable nesting habitat lost or impacted;</li> <li>▪ Loss of foraging habitat where arable margins/uncultivated habitat lost;</li> <li>▪ Loss of potential foraging habitat from within arable field and short, grazed grassland providing ease of access to soil invertebrates.</li> <li>▪ Unlawful activity would occur where breeding Schedule 1 species are impacted during construction or operation of the proposal, including disturbance whilst building a nest or rearing young.</li> </ul>	<p>Avoidance and mitigation:</p> <ul style="list-style-type: none"> <li>▪ Retention of buildings or infrastructure confirmed as nesting locations (e.g. peregrine show attachment to nesting sites);</li> <li>▪ woodland habitat, lines of trees and mature trees will negate loss of nesting habitats;</li> <li>▪ Appropriate buffers to standard trees and woodland to ensure their longevity ;</li> <li>▪ Appropriate management and habitat creation to mitigate for the loss of an overall reduction in the loss of suitable foraging habitats;</li> <li>▪ Timing of works or preconstruction surveys to avoid impacts or determine presence of breeding birds respectively;</li> <li>▪ Implementation of working method statements to ensure works carried out in compliance with current environmental law;</li> </ul>	<p>Compensation and enhancement:</p> <ul style="list-style-type: none"> <li>▪ Retention of undeveloped margins managed as arable margins or species-rich grassland to provide diverse foraging habitat, including invertebrates and small mammals;</li> <li>▪ Reversion of arable to grassland within the arrays will also create foraging opportunities</li> <li>▪ Provision of artificial nesting boxes may increase availability of nesting sites for some species (e.g. house sparrow, starling, swift);</li> <li>▪ Creation of wetland habitats and waterbodies with some exposed earth banks or open scrapes would provide nest building materials sources for house martins (and swallows) and increase provision invertebrates;</li> <li>▪ Continued cultivation of some areas as arable (spring sown crops, managed extensively) to enable retention of stubble or create areas of annual wild bird seed cover for seed eaters (e.g. house sparrows)</li> </ul>	<p>Habitat management considerations:</p> <ul style="list-style-type: none"> <li>▪ Creation of diverse grassland margins including variation in sward height and some managed as tussocky grassland to increase abundance of small mammals.</li> </ul>



## 5 ECOLOGICAL EVALUATION

5.1.1 **Table 8** below provides the status of each notable bird species recorded and also the importance of the Survey Area. The valuation of the feature reflects the rarity and conservation status of each species as well as its relative abundance and activity levels on Site described within this document.

**Table 8. Ecological Evaluation for Notable Breeding Bird Species**

Species	Conservation Status	County and UK Population Status	Abundance and Distribution within the Survey Area	Ecological Evaluation
<b>Birds predominantly associated with open arable/grassland fields</b>				
Curlew	<b>Red BoCC, S41</b> , UK Farmland Bird Indicator (UKFBI)	Lincolnshire breeding population likely to be 10 – 50 pairs. UK breeding population estimate is 58,500.	Total of seven records, all within Cottam 1 of mostly foraging birds. 1 record of possible but unconfirmed breeding at Cottam 1 South.	District
Lapwing	<b>Red BoCC, S41</b> , UKFBI	Lincolnshire breeding population estimate of 2,400 pairs. UK breeding population estimate 98,000 pairs.	Recorded in low numbers at each Site, with increased records at Cottam 1. 13 probable breeding territories at Cottam 1 and 1 probable breeding territory at Cottam 3a.	District
Meadow pipit	<b>Amber BoCC</b>	Lincolnshire breeding population estimate of 20,000 pairs. UK breeding population estimate 2.5 million pairs.	Recorded at all sites with a peak count of 25 individuals on a single visit at Cottam 1. Confirmed breeding at Cottam 1, probable breeding at Cottam 3a and 3b and possible breeding at Cottam 2.	Local
Oystercatcher	<b>Amber BoCC</b>	Lincolnshire breeding population estimate of 700 pairs. UK breeding population estimate 96,000 pairs.	Total of 2 records individuals flying over Site, at Cottam 1 and Cottam 3a. Not considered likely to breed on Site.	Local
Quail	<b>Amber BoCC, Sch1</b>	Lincolnshire breeding population estimate of 19 pairs. UK breeding population estimate 355 pairs.	Common quail was recorded within Cottam 1, Cottam 3a and Cottam 3b, plus another record approx. 75m outside the redline boundary of Cottam 2 with possible breeding at each Site	Local
Skylark	<b>Red BoCC, S41</b> , UKFBI	Lincolnshire breeding population estimate of 70,000 pairs. UK breeding population estimate 1.6 million pairs.	Confirmed breeding at Cottam 1 (estimated 159 breeding territories), Cottam 2 (estimated 29 breeding territories), Cottam 3a (estimated 39 breeding territories) and Cottam 3b (estimated 16 breeding territories).	District
Yellow wagtail	<b>Red BoCC, S41</b> , UKFBI	Lincolnshire breeding population estimate of 2,700 pairs. UK breeding population estimate 20,000 pairs.	Confirmed breeding at all Sites with an estimated minimum 70 breeding territories across all Sites.	District
<b>Birds predominantly associated with arable field margins and hedgerows/scrub boundaries</b>				
Bullfinch	<b>Amber BoCC, S41</b>	Lincolnshire breeding population estimate of 4,800 pairs. UK breeding population estimate 265,000 pairs.	Bullfinch were recorded in low numbers at Cottam 1, Cottam 2 and Cottam 3b only with single records at Cottam 2 and Cottam 3b. Bullfinch were probable breeding at Cottam 1 and possible breeding at Cottam 2 and Cottam 3b.	Local



Species	Conservation Status	County and UK Population Status	Abundance and Distribution within the Survey Area	Ecological Evaluation
Common whitethroat	Amber BoCC, UKFBI	Lincolnshire breeding population estimate of 53,000 pairs. UK breeding population estimate 1.1 million pairs.	Common whitethroat were recorded frequently at each Site with confirmed breeding at Cottam 1, Cottam 2 and Cottam 3b and probable breeding at Cottam 3a.	Local
Cuckoo	Red BoCC S41	Lincolnshire breeding population estimate of 200 pairs. UK breeding population estimate 18,000 pairs.	Cuckoo were recorded in very low numbers at Cottam 1, Cottam 2 and Cottam 3b and these sites were assigned possible breeding status for this species.	Site
Dunnock	Amber BoCC S41	Lincolnshire breeding population estimate of 100,000 pairs. UK breeding population estimate 2.5 million pairs.	Recorded at each Site, peak count per visit of 11 at Cottam 1. Confirmed breeding at Cottam 1, probable breeding at Cottam 2 and Cottam 3a and possible breeding at 3b.	Local
Goldfinch	UKFBI	Lincolnshire breeding population estimate of 43,000 pairs. UK breeding population estimate 1.7 million pairs.	Recorded at each Site, with a peak count per visit of 21 at Cottam 1. Probable breeding at each Site.	Site
Greenfinch	Red BoCC, UKFBI	Lincolnshire breeding population estimate of 16,000 pairs. UK breeding population estimate 785,000 pairs.	Recorded in low numbers at Cottam 1 and Cottam 3a with a peak count per visit of 1 individual. Possible breeding at Cottam 1 and probable breeding at Cottam 3a	Local
Grey partridge	Red BoCC S41	Lincolnshire breeding population estimate of 4,000 pairs. UK breeding population estimate 37,000 pairs.	Recorded at each Site and during each survey visit with a peak count per visit of 29 at Cottam 1. Probable breeding at each Site.	District
Linnet	Red BoCC, S41, UKFBI	Lincolnshire breeding population estimate of 30,000 pairs. UK breeding population estimate 560,000 pairs.	Recorded at each Site and during each survey visit with a peak count per visit of 39 at Cottam 1. Confirmed breeding at each Site.	Local
Tree sparrow	Red BoCC, S41, UKFBI	Lincolnshire breeding population estimate of 18,000 pairs. UK breeding population estimate 245,000 pairs.	Recorded at each Site with peak count per visit of 11 at Cottam 3b. Probable breeding at each Site.	District
Turtle dove	Red BoCC, S41, UKFBI	Lincolnshire breeding population estimate of 37 pairs. UK breeding population estimate 3,600 pairs.	Recorded in low numbers at Cottam 3a and 3b with a peak count per visit of 1. Likely breeding close to (but off site) at Cottam 3a and 3b, although used for foraging	County
*Wren	Amber BoCC	Lincolnshire breeding population estimate of 278,000 pairs. UK breeding population estimate 11 million pairs.	Recorded at each Site with a peak count per visit of 17 at Cottam 1. Probable breeding at Cottam 1, possible breeding at Cottam 2, 3a, 3b.	Site
Yellowhammer	Red BoCC, S41, UKFBI	Lincolnshire breeding population estimate of 39,000 pairs. UK breeding population estimate 700,000 pairs.	Recorded at each Site and during each visit, with a peak count per visit of 54 at Cottam 1. Confirmed breeding at each Site.	District



Species	Conservation Status	County and UK Population Status	Abundance and Distribution within the Survey Area	Ecological Evaluation
<b>Birds predominantly associated with ditches, plus near/within waterbodies and associated habitats (e.g. reeds, burrows)</b>				
Gadwall	Amber BoCC	Lincolnshire breeding population estimate of 200 pairs. UK breeding population estimate 2,225 pairs.	Recorded in small numbers at Cottam 1 only along the River Till. Probable breeders at Cottam 1.	Site
Grasshopper Warbler	Red BoCC	Lincolnshire breeding population estimate of 50 pairs. UK breeding population estimate 12,000 pairs.	Recorded in low numbers at Cottam 1 only. Possible breeders but far more likely just moving through.	Site
Greylag goose	Amber BoCC	Lincolnshire breeding population estimate of 2,000 pairs. UK breeding population estimate 47,000 pairs.	Recorded at each Site except Cottam 2. Only recorded flying overhead at Cottam 3a and 3b. Confirmed breeding at Cottam 1 and unlikely to breed at Cottam 3a and 3b.	Local
Mallard	Amber BoCC,	Lincolnshire breeding population estimate of 6,000 pairs. UK breeding population estimate 103,000 pairs.	Recorded at Cottam 1, 2 and 3a with a peak count per visit of 11. Confirmed breeding at Cottam 1 and 2 and probable breeding at Cottam 3a.	Site
Moorhen	Amber BoCC	Lincolnshire breeding population estimate of 7,000 pairs. UK breeding population estimate 210,000 pairs.	Recorded at Cottam 1 and 2 with a peak count per visit of 2 at Cottam 1. Confirmed breeding at Cottam 2 and probable breeding at Cottam 1.	Site
Reed bunting	Amber BoCC UKFBI	Lincolnshire breeding population estimate of 32,000 pairs. UK breeding population estimate 275,000 pairs.	Recorded at each Site with a peak count per visit of 42 at Cottam 1. Confirmed breeding at Cottam 1, probable breeding at Cottam 2 and 3a and possible breeding at Cottam 3b.	Local
Sedge warbler	Amber BoCC	Lincolnshire breeding population estimate of 18,000 pairs. UK breeding population estimate 240,000 pairs.	Recorded at Cottam 1 only with a peak count per visit of 9. Probable breeding at Cottam 1.	Local
Shelduck	Amber BoCC	Lincolnshire breeding population estimate of 700 pairs. UK breeding population estimate 7,900 pairs.	Recorded at Cottam 1 only with a peak count per visit of 1. Unlikely to be breeding at Cottam 1.	Site
<b>Birds predominantly associated with mature trees/woodland</b>				
Hobby	Sch1	Lincolnshire breeding population estimate of 69 pairs. UK breeding population estimate 2,050 pairs.	Recorded at Cottam 1, 2 and 3a with a peak count per visit of 1 at each of the above Sites. Unlikely to breed at the Sites.	Local
Jackdaw	UKFBI	Lincolnshire breeding population estimate of 28,000 pairs. UK breeding population estimate 1.6 million pairs.	Recorded at each of the Sites with a peak count per visit of 3 at Cottam 1. Probable breeding at Cottam 1, possible breeding at Cottam 2 and unlikely to breed at Cottam 3a and 3b.	Local
Kestrel	Amber BoCC, UKFBI	Lincolnshire breeding population estimate of 1,000 pairs. UK breeding population estimate 31,000 pairs.	Recorded at each of the Sites with a peak count per visit of 5 at Cottam 1. Confirmed breeding at Cottam 2, probable breeding at Cottam 1 and Cottam 3a and possible breeding at Cottam 3b.	Local



Species	Conservation Status	County and UK Population Status	Abundance and Distribution within the Survey Area	Ecological Evaluation
Mistle thrush	Red BoCC	Lincolnshire breeding population estimate of 3,000 pairs. UK breeding population estimate 165,000 pairs.	Recorded at Cottam 1 and 3a with a peak count per visit of 6 at Cottam 1. Probable breeding at Cottam 1 and possible breeding at Cottam 3a.	Local
* Rook	Amber BoCC, UKFBI	Lincolnshire breeding population estimate of 38,000 pairs. UK breeding population estimate 980,000 pairs.	Recorded at each Site with a peak count per visit of 7 at Cottam 1 and 3a. Confirmed breeding at Cottam 1, possible breeding at Cottam 3a and 3b and unlikely to breed at Cottam 2.	Local
Song thrush	Amber BoCC, S41	Lincolnshire breeding population estimate of 38,000 pairs. UK breeding population estimate 1.3 million pairs.	Recorded at each of the Sites with a peak count per visit of 10. Probable breeding at Cottam 1, 3a and 3b and possible breeding at Cottam 2.	Local
Sparrowhawk	Amber BoCC	Lincolnshire breeding population estimate of 1,500 pairs. UK breeding population estimate 31,000 pairs.	Recorded at Cottam 1 and Cottam 3b with a peak per visit of 1 at the above Sites. Probable breeding at Cottam 1 and unlikely to breed at Cottam 3b.	Local
Stock dove	Amber BoCC, UKFBI	Lincolnshire breeding population estimate of 11,000 pairs. UK breeding population estimate 320,000 pairs.	Recorded at each Site with a peak count per visit of 7 at Cottam 1. Confirmed breeding at Cottam 1, probable breeding at Cottam 2 and 3b and possible breeding at Cottam 3a.	Local
Tawny owl	Amber BoCC	Lincolnshire breeding population unknown, but common and widespread resident. UK breeding population estimate 50,000 pairs.	Recorded at Cottam 1 only with a peak count per visit of 2. Probable breeding at Cottam 1.	Site
Willow warbler	Amber BoCC, S41	Lincolnshire breeding population estimate of 14,000 pairs. UK breeding population estimate 2.3 million pairs.	Recorded at Cottam 1, 3a and 3b with a peak count per visit of 15 at Cottam 1. Probable breeding at Cottam 1, 3a and 3b.	Local
* Woodpigeon	Amber BoCC, UKFBI	Lincolnshire breeding population estimate of 78,000 pairs. UK breeding population estimate 5.2 million pairs.	Recorded at each Site with a peak count per visit of 12 at Cottam 2. Confirmed breeding at Cottam 1, possible breeding at Cottam 2, 3a and 3b.	Local
<b>Birds predominantly associated with buildings/infrastructure</b>				
Barn owl	Sch1	Lincolnshire breeding population estimate of 1,200 pairs. UK breeding population estimate 9,000 pairs.	Recorded at Cottam 1, 2 and 3a with a peak count per visit of 5 at Cottam 1. Confirmed breeding at Cottam 1 and 2 and possible breeding at Cottam 3a.	District
House martin	Red BoCC	Lincolnshire breeding population estimate of 11,000 pairs. UK breeding population estimate 480,000 pairs.	Recorded at Cottam 1, 2 and 3a with a peak count per visit of 2 at Cottam 2. Possible breeding at Cottam 1 and 2 and unlikely to breed at Cottam 3a.	Local
House sparrow	Red BoCC, S41	Lincolnshire breeding population estimate of 130,000 pairs. UK breeding population estimate 5.3 million pairs.	Recorded at each of the Sites with a peak count per visit of 6 at Cottam 1. Probable breeding at Cottam 1, 2 and 3a and possible breeding at Cottam 3b.	Site





Species	Conservation Status	County and UK Population Status	Abundance and Distribution within the Survey Area	Ecological Evaluation
Peregrine	Sch1	Lincolnshire breeding population estimate of 22 pairs. UK breeding population estimate 1,750 pairs.	Recorded at Cottam 1 and 3a with a peak count per visit of 4 at Cottam 1. Possible breeding at Cottam 1 and 3a but not likely given absence of tall structures.	Local
Starling	Red BoCC, S41, UKFBI	Lincolnshire breeding population estimate of 30,000 pairs. UK breeding population estimate 1.8 million pairs.	Recorded at Cottam 1, 2 and 3a with a peak count per visit of 15 at Cottam 1. Confirmed breeding at Cottam 2 and probable breeding at Cottam 1 and 3a.	Site
Swift	Red BoCC	Lincolnshire breeding population unknown, possibly in region of 3,000 pairs. UK breeding population estimate 59,000 pairs.	Recorded at Cottam 1, 2 and 3a with a peak count per visit of 5 at Cottam 1. Confirmed breeding within buildings adjacent to Cottam 1 and possibly buildings adjacent to Cottam 2 and 3a.	Site
<b>Other Conservation Species Recorded on Site, but typically breed in other habitats e.g. marshland, extensive reedbeds, uplands etc</b>				
Black-headed gull	Amber BoCC	Lincolnshire breeding population unknown, estimated 3,000 pairs in 1980s. UK breeding population estimate 140,000 pairs.	Recorded at Cottam 3a with a peak count per visit of 8. Unlikely to breed at Cottam 2.	Site
Common gull	Amber BoCC	Not thought to breed in Lincolnshire, those few that summer are thought to be juvenile birds. UK breeding population estimate 49,000 pairs.	Recorded at Cottam 1 and Cottam 3a with a peak count per visit of 6 at each of the above sites. Unlikely to breed at any of the Sites.	Site
Great Black-backed gull	Amber BoCC	Not thought to breed in Lincolnshire. UK breeding population estimate 15,000 pairs.	Recorded at Cottam 1 with a peak count per visit of 1. Unlikely to breed at Cottam 1.	Site
Lesser black-backed gull	Amber BoCC	Lincolnshire breeding population estimate of 100 pairs. UK breeding population estimate 110,000 pairs.	Recorded at Cottam 1, 3a and 3b with a peak count per visit of 16 at Cottam 1. Unlikely to breed at any of the Sites.	Site
Marsh harrier	Amber BoCC, Sch1	Lincolnshire breeding population estimate of 45 pairs. UK breeding population estimate 642.5 pairs.	Recorded at Cottam 1 only with a peak count per visit of 1. Unlikely to breed at Cottam 1.	Local
Osprey	Amber BoCC, Sch1	Not thought to breed in Lincolnshire, individuals in summer are thought to be juveniles. UK breeding population estimate 240 pairs.	Recorded moving through at Cottam 1 only, with a peak count per visit of 2. Unlikely to breed at Cottam 1.	Local
Short-eared owl	Amber BoCC	Lincolnshire breeding population estimate of 1 – 10 pairs. UK breeding population estimate 1,410 pairs.	Recorded at Cottam 1 only, with a peak count per visit of 1. Unlikely to breed at Cottam 1 although used for hunting.	District
Wheatear	Amber BoCC	No evidence of breeding in Lincolnshire in last 120 years. Widespread migrant in spring.	Recorded at Cottam 1 and Cottam 3a in low numbers. Likely passing through and not breeding.	Site





## APPENDIX A: WILDLIFE LEGISLATION & SPECIES INFORMATION

### BIRDS

All British birds, their nests and eggs (with certain exceptions) are protected under the Wildlife & Countryside Act 1981 (as amended) which makes it an offence to: intentionally kill, injure or take a wild bird; intentionally take, damage or destroy nests which are in use or being built; intentionally take or destroy birds' eggs; or possess live or dead wild birds or eggs. A number of species receive additional protection through inclusion on Schedule 1 of the Wildlife and Countryside Act; for these it is also an offence to intentionally or recklessly disturb birds while nest building, or at a nest containing eggs or young, or to disturb the dependant young of such a bird. Penalties for offences against bird species include fines of up to £5,000 and/or up to six months in prison.

General licences for control of some bird species are issued by Natural England and Natural Resources Wales in order to prevent damage or disease, or to preserve public health or public safety, but it is not possible to obtain a licence for control of birds or removal of eggs/nests for development purposes. Consequently if nesting birds are present on a development site when works are programmed to start it is usually necessary to delay works, at least in the areas supporting nests, until any chicks have fledged and left the nest. It is usually possible, once chicks have hatched, for an experienced ecologist to predict approximately when they are likely to fledge, in order to inform programming of works on site.

### PLANNING POLICY IN RELATION TO BIODIVERSITY – ENGLAND

The National Planning Policy Framework (NPPF), issued in March 2012, has superseded Planning Policy Statement 9: Biodiversity and Geological Conservation (August 2005). Additional guidance can be found online at <http://planningguidance.planningportal.gov.uk/blog/guidance/>. Further guidance is also available within the Government Circular ODPM 06/2005 on Biodiversity and Geological conservation although it should be noted that this document is currently being updated by DEFRA. The NPPF simplifies and collates a number of previous planning documents and outlines the government's objective towards biodiversity.

The NPPF identifies ways in which the planning system should contribute to and enhance the natural and local environment (Paragraph 109), including:

- protecting and enhancing valued landscapes, geological conservation interests and soils;
- recognising the wider benefits of ecosystem services;
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

It also emphasises the importance of conserving biodiversity and areas covered by landscape designations (Paragraph 115):

Great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The conservation of wildlife and cultural heritage are important considerations in all these areas, and should be given great weight in National Parks and the Broads.

When determining planning applications, the NPPF states that local planning authorities should aim to conserve and enhance biodiversity (Paragraph 118) by applying principles including:

- if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest;
- development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;
- opportunities to incorporate biodiversity in and around developments should be encouraged;
- planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and
- the following wildlife sites should be given the same protection as European sites: potential Special Protection Areas and possible Special Areas of Conservation; listed or proposed Ramsar sites; and sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.



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The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them".

## ECOLOGICAL ENHANCEMENTS

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them".

In England, the National Planning Policy Framework (NPPF), issued in July 2018, states that the planning system should contribute to and enhance the natural and local environment by: "protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan; *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*". It also states that "*development whose primary objective is to conserve or enhance biodiversity should be supported*".



## APPENDIX B: ECOLOGICAL EVALUATION CRITERIA

It is important to appreciate that the level of protection given to a particular species or habitat through national or international legislation does not necessarily relate to the evaluated level of importance of that receptor to nature conservation. Whilst species may be widespread or common nationally, but of scarce occurrence in a particular county (for example, it might be at the limit of its geographical range), a species may also be considered to be rare nationally or internationally but be abundant within particular areas.

The Ratcliffe Criteria (Ratcliffe, 1977) provide a long established and widely accepted method of determining the nature conservation value of a particular site and have been used to aid the evaluation of the habitats associated with the Survey Area. The attributes of the Ratcliffe Criteria are described below.

Ratcliffe Criteria for Nature Conservation Evaluation	
Criteria	Description
Size	Large, continuous areas of habitat are considered to be of greater importance than small or fragmented areas.
Diversity	Species and habitat diversity, including variations in topography and wetness, increase the wildlife value.
Naturalness	This reflects man's intervention or management of the habitat. Most habitats of this survey are semi-natural. Naturalness indicates the amount of modification of the land by man. Generally a less modified area results in an increase in the nature conservation value.
Rarity	The scarceness of a habitat, and the presence of rare/uncommon species, relates to its importance and priority for nature conservation. Rarity is related to the frequency of occurrence at national or county level.
Fragility	Fragile habitats are those where changes due to man's intervention, environmental factors or natural succession can directly threaten it. Scrub invasion, agricultural improvement, fire and changes in hydrological regime are the most common threats.
Typicalness	This relates to the quality of the habitat in terms of how good an example it is of a recognised type.
Position in an ecological/geographical unit	The relationship of a site to adjacent areas of nature conservation value. It is important to recognise the important and characteristic formations, communities and species of a district.
Recorded history	The extent to which a site has been used for scientific study and research is a factor of some importance.
Potential wildlife value	The likely quality of the habitat for birds, mammals, reptiles, amphibians and invertebrates if it is managed for wildlife. If appropriate habitat management is undertaken, it is possible for an increase in the diversity and nature conservation value of an area.
Intrinsic appeal	The knowledge of the distribution and numbers of popular groups of species such as birds, is greater than for obscure groups. Similarly, colourful wild flowers and rare orchids arouse more enthusiasm than liverworts. It is pragmatic to give more weight to some groups than to others.
Criteria are based on Ratcliffe, D.A. (1977). A Nature Conservation Review, Cambridge University Press	

Following the CIEEM Guidelines for Ecological Impact Assessment in the UK, when determining the biodiversity value of natural features found on or in proximity to the site the following characteristics will be considered:

- Animal or plant species which are rare or uncommon, either internationally, nationally or more locally;
- Endemic or locally distinct sub-populations of a species;
- Habitat diversity, connectivity and/ or other synergistic associations (e.g. networks of hedges);
- Priority Biodiversity Action Plan (BAP) habitat or species;
- Notably large populations or concentrations of animals considered uncommon or threatened in a wider context; plant communities that are considered to be typical of valued natural/ semi-natural vegetation types;
- Species at the edge of their range; and
- Species-rich assemblages of plants or animals.

The criteria described by Ratcliffe and CIEEM will then be used to ascribe a value to each receptor according to its value in a geographic context. This is described in the table overleaf.



Level of Value	Ecological Features
International	<p>A habitat or species cited as a reason for the designation or proposed designation of a World Heritage Site, Biosphere Reserve, Biogenetic Reserve, Ramsar Site, Special Protection Area (SPA) or Special Area of Conservation (SAC).</p> <p>A large extent of habitat that is listed as a Priority Habitat Type in Annex 1 of the EC Habitats Directive in good condition with typical species diversity.</p> <p>A large and viable population of a regularly occurring species that is rare within an international context.</p>
National	<p>A habitat or species cited as a reason for the designation or proposed designation of a National Nature Reserve (NNR), Marine Nature Reserve (MNR), National Park, Site of Special Scientific Interest (SSSI) or Area of Special Scientific Interest (ASSI).</p> <p>Any area of habitat listed as a Priority Habitat Type in Annex 1 of the EC Habitats Directive that has potential to support typical species diversity.</p> <p>A large extent of habitat listed as a Priority Habitat in the UK BAP in good condition that supports an abundance of typical species.</p> <p>A large and viable population of a regularly occurring species that is scarce within an international context.</p> <p>A very large and viable population of a regularly occurring species that is listed as a Priority Species in the UK BAP.</p> <p>A large and viable population of a regularly occurring rare species that occurs in 15 or fewer 10km squares of the National Grid (e.g. a species that is listed in UK Red Data Books).</p> <p>A bird species with a British breeding population of &lt;1,000 pairs.</p>
Regional	<p>A large extent of habitat listed as a Priority Habitat in the UK BAP that supports typical species diversity and is in good condition.</p> <p>A large and viable population of a regularly occurring species that is listed as a Priority Species in the UK BAP.</p> <p>A large and viable population of a regularly occurring plant species that is known to occur in 16 to 100 10km squares of National Grid (Stewart, Preston and Pearman 1994).</p> <p>A large and viable population of a regularly occurring insect species (Nationally Notable categories Na and Nb) that is known to occur in 16 to 100 10km squares of the National Grid [Ball, 1986].</p> <p>A bird species with a British breeding population of 1,000 to 10,000 pairs.</p>
County	<p>A habitat or species cited as a reason for the designation or proposed designation of a Local Site (known locally as a County Wildlife Site (CWS), Site of Importance for Nature Conservation (SINC), Ecology Database Site (EDS) etc.), a Local Nature Reserve (LNR), a Nature Reserve (owned or managed by: The Wildlife Trusts, The Woodland Trust or equivalent body etc) or an Ancient Woodland.</p> <p>A habitat listed as a Priority Habitat in the UK BAP which is large in extent and supports typical species diversity.</p> <p>A medium and viable population of a regularly occurring species that is listed as a Priority Species in the UK BAP.</p> <p>A viable population of a regularly occurring species listed in a County Red Data Book, County Flora or found in less than 10% of 1km squares of the National Grid within the count.</p> <p>A small population of a plant species that is known to occur in 16 to 100 10km squares of National Grid.</p> <p>A small population of an insect species (Nationally Notable categories Na and Nb) that is known to occur in 16 to 100 10km squares of the National Grid.</p> <p>A bird species with a British breeding population of 10,000 to 100,000 pair</p>
District	<p>A habitat or species cited as a reason for the designation or proposed designation of a Local Site (known locally as a Local Wildlife Site (LWS), Site of Importance for Nature Conservation (SINC), Ecology Database Site (EDS) etc.), a Local Nature Reserve (LNR), a Nature Reserve (owned or managed by: The Wildlife Trusts, The Woodland Trust or equivalent body etc) or an Ancient Woodland.</p> <p>A habitat listed as a Priority Habitat in the UK BAP which is small in extent, supports typical species diversity or is in an unfavourable condition.</p> <p>A small and viable population of a species that is listed in the UK BAP or LBAP.</p> <p>A bird species with a British breeding population of 100,000 to 500,000 pairs.</p>
Local	<p>A habitat or species cited as a reason for the designation or proposed designation of a site which is officially listed e.g. on a Parish Register.</p> <p>A semi-natural habitat that is listed in the UK BAP or LBAP, which is either small in extent and/or is in an unfavourable condition.</p> <p>A species which occurs occasionally that is listed in the UK BAP or LBAP.</p> <p>A bird species with a British breeding population of &gt;500,000 pairs.</p>
Site	<p>An artificial habitat or habitat that has readily established e.g. amenity grassland.</p> <p>A species which is common and not listed on the UK BAP or LBAP e.g. Badger.</p>
Negligible	<p>A habitat or species common within the Application Site, offering little benefit to British wildlife and biodiversity.</p>





## APPENDIX C: SURVEYS AND ASSESSMENT METHODOLOGY ADDENDUM

Table C1: Dates, Weather Conditions and Surveyors undertaking Breeding Bird Surveys

Site Name	Local Site Name	Survey Visit No.	Date	Weather Conditions (Cloud 0-8; Wind 1-12; Precipitation mm, Temperature °C)	Surveyors
C1	Coates North	1	25/05/2021	Cloud 3, Wind 1, Prec. 2 (light showers to start), Temp. 8-13	JG
			26/05/2021	Cloud 3, Wind 1, Prec. 3 (persistent light rain), Temp. 8-12	MB, JG
			27/05/2021	Cloud 8, Wind 2, Prec. 0, Temp. 10-13	AR
			28/05/2021	Cloud 8, Wind 1, Prec. 0, Temp. 15	MB, LD
		2	02/06/2021	Cloud 1, Wind 1, Prec. 0, Temp. 11	BH, HF, HP, JG, JL
		3	09/06/2021	Cloud 2, Wind 2, Prec. 0, Temp. 13-18	MH
			10/06/2021	Cloud 8, Wind 1, Prec. 0, Temp. 12-19	AR, MB, MH
			11/06/2021	Cloud 7, Wind 2, Prec. 0, Temp. 17	MH
		4	18/06/2021	Cloud 7, Wind 1, Prec. 1 (light rain at end), Temp. 15	JM, RA
			21/06/2021	Cloud 3, Wind 1, Prec. 0.5, Temp. 13	AT, JG, RA
		Dusk	29/06/2021	Cloud 2, Wind 3, Prec. 1, Temp. 16	JG, JL, HF, MB, JW
		5	22/04/2022	Cloud 8, Wind 3, Prec. 0, Temp. 10	PE, JL, LD, RA
		6	16/05/2022	Cloud 7, Wind 2, Prec. 1 (light rain), Temp 12	BH
			17/05/2022	Cloud 1, Wind 2, Prec. 0, Temp 12	JG, BH, RA, JM
		Coates West	1	17/05/2021	Cloud 8, Wind 0, Prec. 0, Temp. 8-14
	18/05/2021			Cloud , Wind , Prec. , Temp. 8-15	LD
	24/05/2021			Cloud 3, Wind 3, Prec. 1, Temp. 8-11	JG
	2		01/06/2021	Cloud 1, Wind 1, Prec. 0, Temp. 15	BH, JG
	3		08/06/2021	Cloud 3, Wind 1, Prec. 0, Temp. 17	LD
			09/06/2021	Cloud 2, Wind 1, Prec. 0, Temp. 18	JG, LD
	4		15/06/2021	Cloud 5, Wind 1, Prec. 0, Temp. 15	HF, RA
	Dusk		29/06/2021	Cloud 6, Wind 2, Prec. 0, Temp. 16	LD, RA
			30/06/2021	Cloud 3, Wind 0, Prec. 0, Temp. 14	LD
	5		19/04/2022	Cloud 3, Wind 1, Prec.0, Temp. 8-12	SM, LD
	6		16/05/2022	Cloud 8, Wind 1, Prec. 0, Temp 13	RA, PE
	Coates South		1	18/05/2021	Cloud 3, Wind 1, Prec. 0.5, Temp. 4
		21/05/2021		Cloud 7, Wind 2, Prec. 1, Temp. 11	AR, MB
		25/05/2021		Cloud 7, Wind 2, Prec. 1 (occasional light showers), Temp. 10	AR, HM, MH
		2	01/06/2021	Cloud 1, Wind 1, Prec. 0, Temp. 16	BH
			03/06/2021	Cloud 4, Wind 1, Prec. 0, Temp. 17	HF, HP, JG, JL
3		08/06/2021	Cloud 3, Wind 0, Prec. 0, Temp. 18	LD	
		11/06/2021	Cloud 5, Wind 1, Prec. 0, Temp. 19	AR, MB, SM	
		12/06/2021	Cloud 4, Wind 1, Prec. 0, Temp. 17	SM	
4		15/06/2021	Cloud 5, Wind 1, Prec. 0, Temp. 16	RA	
		22/06/2021	Cloud 3, Wind 2, Prec. 0, Temp. 13	AT, BH, JG, JL	





Site Name	Local Site Name	Survey Visit No.	Date	Weather Conditions (Cloud 0-8; Wind 1-12; Precipitation mm, Temperature °C)	Surveyors
		Dusk	30/06/2021	Cloud 1, Wind 1, Prec. 0, Temp 14	JL, JG, MB, HF
		5	27/04/2022	Cloud 8, Wind 3, Prec.0, Temp. 7-10	RA, LD, JG, PE
		6	18/05/2022	Cloud 2, Wind 2, Prec. 0, Temp 10	BH, JG, RA, JM
C2	Corringham	1	15/05/2021	Cloud 5, Wind 1, Prec. 0, Temp. 21	BH
			16/05/2021	Cloud 4, Wind 1, Prec. 0, Temp. 21	BH
		2	24/05/2021	Cloud 4, Wind 1, Prec. 0, Temp. 10	LD
			25/05/2021	Cloud 4, Wind 1, Prec. 0.5 (light rain at start), Temp. 11	LD
		3	03/06/2021	Cloud 3, Wind 1, Prec. 0, Temp. 17	SM
			04/06/2021	Cloud 6, Wind 1, Prec. 0, Temp. 15	SM
		4	14/06/2021	Cloud 6, Wind 1, Prec. 0, Temp. 18	LD, JM
		Dusk	01/07/2021	Cloud 7, Wind 1, Prec. 0, Temp. 17	LD
		5	20/04/2022	Cloud 1, Wind 1, Prec. 0, Temp. 7-18	JL, SM
6	12/05/2022	Cloud 4, Wind 1, Prec. 0, Temp. 7-13	MH, AR		
C3a	Blyton	1	19/05/2021	Cloud 3, Wind 1, Prec. 0, Temp. 8-10	HP, HF
		2	26/05/2021	Cloud 5, Wind 1, Prec. 5, Temp. 11	AR, HM
			28/05/2021	Cloud 8, Wind 1, Prec. 0, Temp. 15	MH
		3	08/06/2021	Cloud 1, Wind 1, Prec. 0, Temp. 18	MB, AR
		4	16/06/2021	Cloud 1, Wind 1, Prec. 0, Temp. 21	HF, JG
		Dusk	01/07/2021	Cloud 6, Wind 1, Prec. 0, Temp. 17	JL, HF
		5	25/04/2022	Cloud 8, Wind 2, Prec. 0, Temp. 6-10	PE, LD
6	09/05/2022	Cloud 1, Wind 1, Prec. 0, Temp. 8	RA, JG		
C3b	Blyton 2	1	17/05/2021	Cloud 4, Wind 2, Prec. 0, Temp 9-10	BH
		2	26/05/2021	Cloud 8, Wind 3, Prec. 4 (heavy showers at end), Temp. 7-9	MH
			28/05/2021	Cloud 8, Wind 1, Prec. 0, Temp. 15	MH
		3	08/06/2021	Cloud 1, Wind 1, Prec. 0, Temp. 18	MB, AR
		4	16/06/2021	Cloud 1, Wind 1, Prec. 0, Temp. 21	HF, JG
		Dusk	01/07/2021	Cloud 6, Wind 1, Prec. 0, Temp 17	RA
		5	25/04/2022	Cloud 8, Wind 2, Prec. 0, Temp. 6-10	PE
		6	09/05/2022	Cloud 1, Wind 1, Prec. 0, Temp. 8	LD



## APPENDIX D: FIELD SURVEY RESULTS

**Table D1: Total Abundance of Species Recorded on Survey Visits and Breeding Status – Cottam 1 (north)**

Species	Conservation Status	Visit 1	Visit 2	Visit 3	Visit 4	Dusk	Visit 5	Visit 6	Breeding Status (during surveys)
<b>Birds predominantly associated with open arable/grassland fields</b>									
Curllew	Red BoCC, S41, UKFBI						2		Unlikely
Lapwing	Red BoCC, S41, UKFBI	1	8	4	2	3	7	11	Probable
Meadow pipit	Amber BoCC	19	13	25	10		19	23	Probable
Quail	Amber BoCC, Sch1		1						Possible
Skylark	Red BoCC, S41, UKFBI	133	141	108	91		129	200	Probable
Yellow wagtail	Red BoCC, S41, UKFBI	9	26	21	34	1	8	18	Confirmed
<b>Birds typically breeding in field margins and fields boundaries (e.g. hedgerows/scrub)</b>									
Bullfinch	Amber BoCC S41	3	1	1	1			3	Probable
Common whitethroat	Amber BoCC, UKFBI	40	37	31	21		5	51	Confirmed
Cuckoo	Red BoCC S41							2	Possible
Duncock	Amber BoCC S41	9	6	11	4		5	10	Probable
Goldfinch	UKFBI	19	14	21	9		15	15	Confirmed
Greenfinch	Red BoCC, UKFBI							1	Possible
Grey partridge	Red BoCC S41	23	29	16	10	8	22	21	Probable
Linnet	Red BoCC, S41, UKFBI	22	20	26	15		15	38	Confirmed
Tree sparrow	Red BoCC, S41, UKFBI	4	3	3	1		6	1	Probable
Wren	Amber BoCC		1				17	11	Probable
Yellowhammer	Red BoCC, S41, UKFBI	35	39	43	33	2	35	41	Confirmed
<b>Birds typically breeding in/near to waterbodies and associated habitats (e.g. reeds, burrows)</b>									
Grasshopper warbler	Red BoCC							6	Unlikely
Greylag goose	Amber BoCC	4		1	1		8	4	Confirmed
Mallard	Amber BoCC	7	6	6	1		11	3	Probable
Moorhen	Amber BoCC		2					1	Probable
Reed bunting	Amber BoCC, UKFBI	27	42	29	41	1	28	37	Confirmed
Sedge warbler	Amber BoCC				1			5	Possible
<b>Birds typically breeding in mature trees/woodland</b>									
Jackdaw	UKFBI	2	2	1	1		2	1	Probable
Kestrel	Amber BoCC, UKFBI	1	1	4	5	2		5	Probable
Mistle thrush	Red BoCC	2	1	6	2				Probable
Rook	Amber BoCC, UKFBI	3	2	7	1				Confirmed
Song thrush	Amber BoCC, S41	7	10	7	8	1	3	9	Probable



Species	Conservation Status	Visit 1	Visit 2	Visit 3	Visit 4	Dusk	Visit 5	Visit 6	Breeding Status (during surveys)
Sparrowhawk	Amber BoCC							1	Possible
Stock dove	Amber BoCC, UKFBI	4	7	2	1		4	4	Probable
Tawny owl	Amber BoCC					2			Possible
Woodpigeon	Amber BoCC, UKFBI		3				7	5	Probable
Willow warbler	Amber BoCC, S41	5	6	3	2		7	15	Probable
<b>Birds typically breeding in buildings</b>									
Barn owl	Sch1		1	1	5	5	1	2	Confirmed
House sparrow	Red BoCC, S41	3	4	4	6		3	3	Probable
Peregrine	Sch1						4		Possible
Starling	Red BoCC, S41, UKFBI	1		3	3		2		Probable
Swift	Red BoCC	1		2	1				Possible
<b>Birds typically breeding in non-agricultural landscapes, e.g. marshland, extensive reedbeds, uplands...</b>									
Common gull	Amber BoCC		6						Unlikely
Lesser black-backed gulls	Amber BoCC	16		3					Unlikely
Great black-backed gull	Amber BoCC		1						Unlikely
Marsh harrier	Amber BoCC, Sch1		1						Unlikely



**Table D2: Total Abundance of Species Recorded on Survey Visits and Breeding Status – Cottam 1 (south)**

Species	Conservation Status	Visit 1	Visit 2	Visit 3	Visit 4	Dusk	Visit 5	Visit 6	Breeding Status (during surveys)
<b>Birds predominantly associated with open arable/grassland fields</b>									
Curlew	Red BoCC, S41, UKFBI	1	1	2				1	Probable
Lapwing	Red BoCC, S41, UKFBI	10	8	5	9	4	4	6	Probable
Meadow pipit	Amber BoCC	12	6	8	5		3	6	Probable
Oystercatcher	Amber BoCC	1							Unlikely
Skylark	Red BoCC, S41, UKFBI	79	90	103	78		76	119	Confirmed
Yellow wagtail	Red BoCC, S41, UKFBI	8	25	24	24	2	10	5	Confirmed
<b>Birds typically breeding in field margins and fields boundaries (e.g. hedgerows/scrub)</b>									
Bullfinch	Amber BoCC S41	4	3	1	2				Probable
Common whitethroat	Amber BoCC, UKFBI	45	32	37	25		23	34	Confirmed
Duncock	Amber BoCC S41	8	6	8	4		7	8	Probable
Goldfinch	UKFBI	11	11	11	14		17	13	Confirmed
Greenfinch	Red BoCC, UKFBI	1	1		1				Possible
Grey partridge	Red BoCC S41	13	27	13	9	9	16	5	Probable
Linnet	Red BoCC, S41, UKFBI	20	18	39	32		26	26	Confirmed
Tree sparrow	Red BoCC, S41, UKFBI	1		2	2			2	Probable
Wren	Amber BoCC				8		9	14	Probable
Yellowhammer	Red BoCC, S41, UKFBI	42	43	54	52		33	31	Confirmed
<b>Birds typically breeding in/near to waterbodies and associated habitats (e.g. reeds, burrows)</b>									
Gadwall	Amber BoCC	1		1			2	1	Possible
Greylag goose	Amber BoCC	3	2				5		Possible
Mallard	Amber BoCC	9	2	4	4		4	1	Confirmed
Moorhen	Amber BoCC		1						Probable
Reed bunting	Amber BoCC, UKFBI	32	26	20	46		13	16	Confirmed
Shelduck	Amber BoCC						1		Unlikely
Sedge warbler	Amber BoCC		9	1	1		1	1	Probable
<b>Birds typically breeding in mature trees/woodland</b>									
Hobby	Sch1						1		Unlikely
Jackdaw	UKFBI			1			1		
Kestrel	Amber BoCC, UKFBI	1	1	4	4		3	5	Possible
Mistle thrush	Red BoCC	1							Possible



Species	Conservation Status	Visit 1	Visit 2	Visit 3	Visit 4	Dusk	Visit 5	Visit 6	Breeding Status (during surveys)
Rook	Amber BoCC, UKFBI	2		1	1		1	2	Confirmed
Song thrush	Amber BoCC S41	8	7	2	5		3	6	Probable
Sparrowhawk	Amber BoCC				1		1	1	Possible
Stock dove	Amber BoCC, UKFBI	2	1	3	3		4	6	Probable
Tawny owl	Amber BoCC					1			Possible
Woodpigeon	Amber BoCC, UKFBI						3	7	Probable
Willow warbler	Amber BoCC, S41	3	1	6	3		9	7	Probable
<b>Birds typically breeding in buildings</b>									
Barn owl	Sch1		3	1	2	7	1		Confirmed
House martin	Red BoCC	1							Possible
House sparrow	Red BoCC, S41	1		3	3			1	Probable
Swift	Red BoCC	5			3			1	Possible
<b>Birds typically breeding in non-agricultural landscapes, e.g. marshland, extensive reedbeds, uplands...</b>									
Lesser black-backed gull	Amber BoCC	2	3				2	2	



**Table D3: Total Abundance of Species Recorded on Survey Visits and Breeding Status – Cottam 1 (west)**

Species	Conservation Status	Visit 1	Visit 2	Visit 3	Visit 4	Dusk	Visit 5	Visit 6	Breeding Status (during surveys)
<b>Birds predominantly associated with open arable/grassland fields</b>									
Lapwing	Red BoCC, S41, UKFBI	4	1	2	1		8	3	Probable
Meadow pipit	Amber BoCC	4	6	8	3	7	5	4	Confirmed
Skylark	Red BoCC, S41, UKFBI	36	45	70	28	7	46	34	Probable
Yellow wagtail	Red BoCC, S41, UKFBI	1	1	6	5	2		7	Confirmed
<b>Birds typically breeding in field margins and fields boundaries (e.g. hedgerows/scrub)</b>									
Bullfinch	Amber BoCC S41	1	2	2					Possible
Common whitethroat	Amber BoCC, UKFBI	19	16	33	21		4	31	Confirmed
Duncock	Amber BoCC S41	2	6	3	3		5	6	Probable
Goldfinch	UKFBI	1	11	6	2			4	Confirmed
Greenfinch	Red BoCC, UKFBI			1	1		1		Possible
Grey partridge	Red BoCC S41	9	5	15	2	6	7	3	Probable
Linnet	Red BoCC, S41, UKFBI	13	7	7	4	10	23	5	Confirmed
Tree sparrow	Red BoCC, S41, UKFBI	1		2	2			1	Possible
Wren	Amber BoCC	2					8	14	Probable
Yellowhammer	Red BoCC, S41, UKFBI	21	18	17	12	3	15	15	Confirmed
<b>Birds typically breeding in/near to waterbodies and associated habitats (e.g. reeds, burrows)</b>									
Gadwall	Amber BoCC	2		1			1	1	Possible
Greylag goose	Amber BoCC	1	1				1	1	Possible
Mallard	Amber BoCC		1	2	2		1	2	Probable
Moorhen	Amber BoCC						1	1	Probable
Reed bunting	Amber BoCC, UKFBI	10	16	12	7		2	11	Confirmed
Sedge warbler	Amber BoCC			1	1				Possible
<b>Birds typically breeding in mature trees/woodland</b>									
Hobby	Sch1			1				1	Unlikely
Jackdaw	UKFBI	1	2	3	1		3	1	Probable
Kestrel	Amber BoCC, UKFBI	2	1	2	1		2	1	Possible
Mistle Thrush	Red BoCC							1	Possible
Rook	Amber BoCC, UKFBI	1	1						Possible
Song thrush	Amber BoCC, S41	2	8	1	2		7	1	Probable
Sparrowhawk	Amber BoCC			1				1	Possible
Stock dove	Amber BoCC, UKFBI	2	2	3		1	3	2	Confirmed



Species	Conservation Status	Visit 1	Visit 2	Visit 3	Visit 4	Dusk	Visit 5	Visit 6	Breeding Status (during surveys)
Woodpigeon	Amber BoCC, UKFBI			3			5	6	Probable
Willow warbler	Amber BoCC, S41	3	1				2	1	Probable
<b>Birds typically breeding in buildings</b>									
Barn owl	Sch1		1	2	2	9	1		Confirmed
House sparrow	Red BoCC, S41			2	1			1	Possible
<b>Birds typically breeding in non-agricultural landscapes, e.g. marshland, extensive reedbeds, uplands...</b>									
Lesser black-backed gull	Amber BoCC				1			1	Unlikely
Osprey	Amber BoCC							2	Unlikely
Wheatear	Amber BoCC							2	Unlikely



**Table D4: Total Abundance of Species Recorded on Survey Visits and Breeding Status – Cottam 2**

Species	Conservation Status	Visit 1	Visit 2	Visit 3	Visit 4	Dusk	Visit 5	Visit 6	Breeding Status (during surveys)
<b>Birds predominantly associated with open arable/grassland fields</b>									
Lapwing	Red BoCC, S41, UKFBI			1					Possible
Meadow pipit	Amber BoCC			1					Possible
Quail	Amber BoCC, Sch1	1							Possible
Skylark	Red BoCC, S41, UKFBI	67	59	47	39	9	60	34	Probable
Yellow wagtail	Red BoCC, S41, UKFBI	13	16	5	19	2	15	9	Confirmed
<b>Birds typically breeding in field margins and fields boundaries (e.g. hedgerows/scrub)</b>									
Bullfinch	Amber BoCC S41		1						Possible
Common whitethroat	Amber BoCC, UKFBI	32	22	39	19		1	24	Confirmed
Cuckoo	Red BoCC S41				1				Possible
Dunnock	Amber BoCC S41	2	2	2			3	1	Probable
Goldfinch	UKFBI	1	2	10	3		4	3	Probable
Grey partridge	Red BoCC S41	6	5	6	4		8	5	Probable
Linnet	Red BoCC, S41, UKFBI	14	7	13	7		12	12	Confirmed
Tree sparrow	Red BoCC, 41, UKFBI	10	10	6	6		3	3	Probable
Wren	Amber BoCC		5	1			5	6	Possible
Yellowhammer	Red BoCC, S41, UKFBI	16	10	7	11	2	13	10	Confirmed
<b>Birds typically breeding in/near to waterbodies and associated habitats (e.g. reeds, burrows)</b>									
Mallard	Amber BoCC	4	4	1			5	6	Confirmed
Moorhen	Amber BoCC		1		1	1			Probable
Reed bunting	Amber BoCC, UKFBI	9	7	5	9	1	7	6	
<b>Birds typically breeding in mature trees/woodland</b>									
Hobby	Sch1			1					Unlikely
Jackdaw	UKFBI	1	2					2	Possible
Kestrel	Amber BoCC, UKFBI	2	2	1	4		1		Confirmed
Rook	Amber BoCC, UKFBI						1		Unlikely
Song thrush	Amber BoCC S41		2	1			1		Possible
Stock dove	Amber BoCC, UKFBI	1	2		2		1	2	Probable
Woodpigeon	Amber BoCC, UKFBI							12	Possible
<b>Birds typically breeding in buildings</b>									
Barn owl	Sch1, NboCC, S41	1	2		1	3		1	Confirmed
House martin	Red BoCC							2	Possible





Species	Conservation Status	Visit 1	Visit 2	Visit 3	Visit 4	Dusk	Visit 5	Visit 6	Breeding Status (during surveys)
House sparrow	<b>Red BoCC, S41</b>						1	1	Probable
Starling	<b>Red BoCC, S41, UKFBI</b>			1				2	Confirmed
Swift	<b>Red BoCC</b>							1	Possible



**Table D5: Species Recorded on each Survey Visit, Abundance and Breeding Status – Cottam 3a**

Species	Conservation Status	Visit 1	Visit 2	Visit 3	Visit 4	Dusk	Visit 5	Visit 6	Breeding Status (during surveys)
<b>Birds predominantly associated with open arable/grassland fields</b>									
Lapwing	Red BoCC, S41, UKFBI			1			1	1	Probable
Meadow pipit	Amber BoCC		11	1	4		1	2	Probable
Oystercatcher	Amber BoCC		1						Unlikely
Quail	Amber BoCC, Sch1		1						Possible
Skylark	Red BoCC, S41, UKFBI	65	73	57	66		90	93	Probable
Yellow wagtail	Red BoCC, S41, UKFBI	11	10	19	21		8	11	Probable
<b>Birds typically breeding in field margins and fields boundaries (e.g. hedgerows/scrub)</b>									
Common whitethroat	Amber BoCC, UKFBI	20	20	15	11		11	20	Probable
Cuckoo	Red BoCC S41								
Dunnock	Amber BoCC S41	1	6	1	5		2	8	Probable
Goldfinch	UKFBI	3	7	7	1		4	3	Probable
Greenfinch	Red BoCC, UKFBI	1	1						Probable
Grey partridge	Red BoCC S41	10	6	3	6	3	12	9	Probable
Linnet	Red BoCC, S41, UKFBI	11	13	10	12		12	16	Confirmed
Turtle dove	Red BoCC, S41, UKFBI				1	1			Possible
Tree sparrow	Red BoCC, S41, UKFBI			2				1	Probable
Wren	Amber BoCC	3					8	13	Possible
Yellowhammer	Red BoCC, S41, UKFBI	14	19	19	9		20	15	Confirmed
<b>Birds typically breeding in/near to waterbodies and associated habitats (e.g. reeds, burrows)</b>									
Greylag goose	Amber BoCC	1		1					Unlikely
Mallard	Amber BoCC	2	1	1			1		Probable
Reed bunting	Amber BoCC, UKFBI	2	6	6	3		15	14	Probable
<b>Birds typically breeding in mature trees/woodland</b>									
Hobby	Sch1				1				Unlikely
Jackdaw	UKFBI						2		Unlikely
Kestrel	Amber BoCC, UKFBI		1				2	1	Probable
Mistle thrush	Red BoCC		2						Possible
Rook	Amber BoCC, UKFBI		7	2	2		2		Possible
Song thrush	Amber BoCC, S41	1	1	3	1		2	3	Probable
Stock dove	Amber BoCC, UKFBI	1	3				2	1	Probable
Woodpigeon	Amber BoCC, UKFBI						4	2	Possible



Species	Conservation Status	Visit 1	Visit 2	Visit 3	Visit 4	Dusk	Visit 5	Visit 6	Breeding Status (during surveys)
Willow warbler	Amber BoCC, S41	1	1	1			2	1	Possible
<b>Birds typically breeding in buildings</b>									
Barn owl	Sch1, NBoCC, S41					3	1		Possible
House martin	Red BoCC				1				Unlikely
House sparrow	Red BoCC, S41	1	3		1			1	Probable
Starling	Red BoCC, S41, UKFBI		1		1			1	Possible
Swift	Red BoCC	2		1					Possible
<b>Birds typically breeding in non-agricultural landscapes, e.g. marshland, extensive reedbeds, uplands...</b>									
Black-headed gull	Amber BoCC				5				Unlikely
Common gull	Amber BoCC	6							Unlikely
Lesser black-backed gull	Amber BoCC		5			1		1	Unlikely
Wheatear	Amber BoCC							1	Unlikely



Table D6: Species Recorded on each Survey Visit, Abundance and Breeding Status – Cottam 3b

Species	Conservation Status	Visit 1	Visit 2	Visit 3	Visit 4	Dusk	Visit 5	Visit 6	Breeding Status (during surveys)
<b>Birds predominantly associated with open arable/grassland fields</b>									
Lapwing	Red BoCC, S41, UKFBI	1							Unlikely
Meadow pipit	Amber BoCC	2	3	2	2		2	3	Probable
Quail	Amber BoCC, Sch1	1							Possible
Skylark	Red BoCC, S41, UKFBI	16	12	38	33		20	35	Probable
Yellow wagtail	Red BoCC, S41, UKFBI	6		1	5		3	2	Probable
<b>Birds typically breeding in field margins and fields boundaries (e.g. hedgerows/scrub)</b>									
Bullfinch	Amber BoCC, S41				1				Unlikely
Common whitethroat	Amber BoCC, UKFBI	8	9	3	9		5	10	Confirmed
Cuckoo	Red BoCC S41	1							Possible
Dunnock	Amber BoCC S41	4	2				5		Possible
Goldfinch	UKFBI	1	1	1	1				Probable
Grey partridge	Red BoCC S41	4	2	3	3		2	3	Probable
Linnet	Red BoCC, S41, UKFBI	6	6	6	6		11	6	Confirmed
Turtle dove	Red BoCC, UKFBI			1	3				Possible
Tree sparrow	Red BoCC, UKFBI	2		11	1		2	2	Probable
Yellowhammer	Red BoCC, UKFBI	16	6	18	19		18	15	Confirmed
<b>Birds typically breeding in/near to waterbodies and associated habitats (e.g. reeds, burrows)</b>									
Greylag goose	Amber BoCC		1				1		Unlikely
Reed bunting	Amber BoCC, UKFBI	2	1	3	1		4	2	Possible
<b>Birds typically breeding in mature trees/woodland</b>									
Jackdaw	UKFBI	1							Unlikely
Kestrel	Amber BoCC, UKFBI	1		1			1	1	Possible
Rook	Amber BoCC, UKFBI	4	4	2			1		Possible
Song thrush	Amber BoCC, S41	2			1		1	1	Probable
Sparrowhawk	Amber BoCC			1					Unlikely
Stock dove	Amber BoCC, UKFBI	2	1	6	3		3	1	Probable
Woodpigeon	Amber BoCC, UKFBI							1	Possible
Willow warbler	Amber BoCC, S41	2			2		1		Probable
<b>Birds typically breeding in buildings/infrastructure</b>									
House sparrow	Red BoCC, S41	1							Possible
<b>Birds typically breeding in non-agricultural landscapes, e.g. marshland, extensive reedbeds, uplands...</b>									
Lesser black-backed gull	Amber BoCC		2						Unlikely

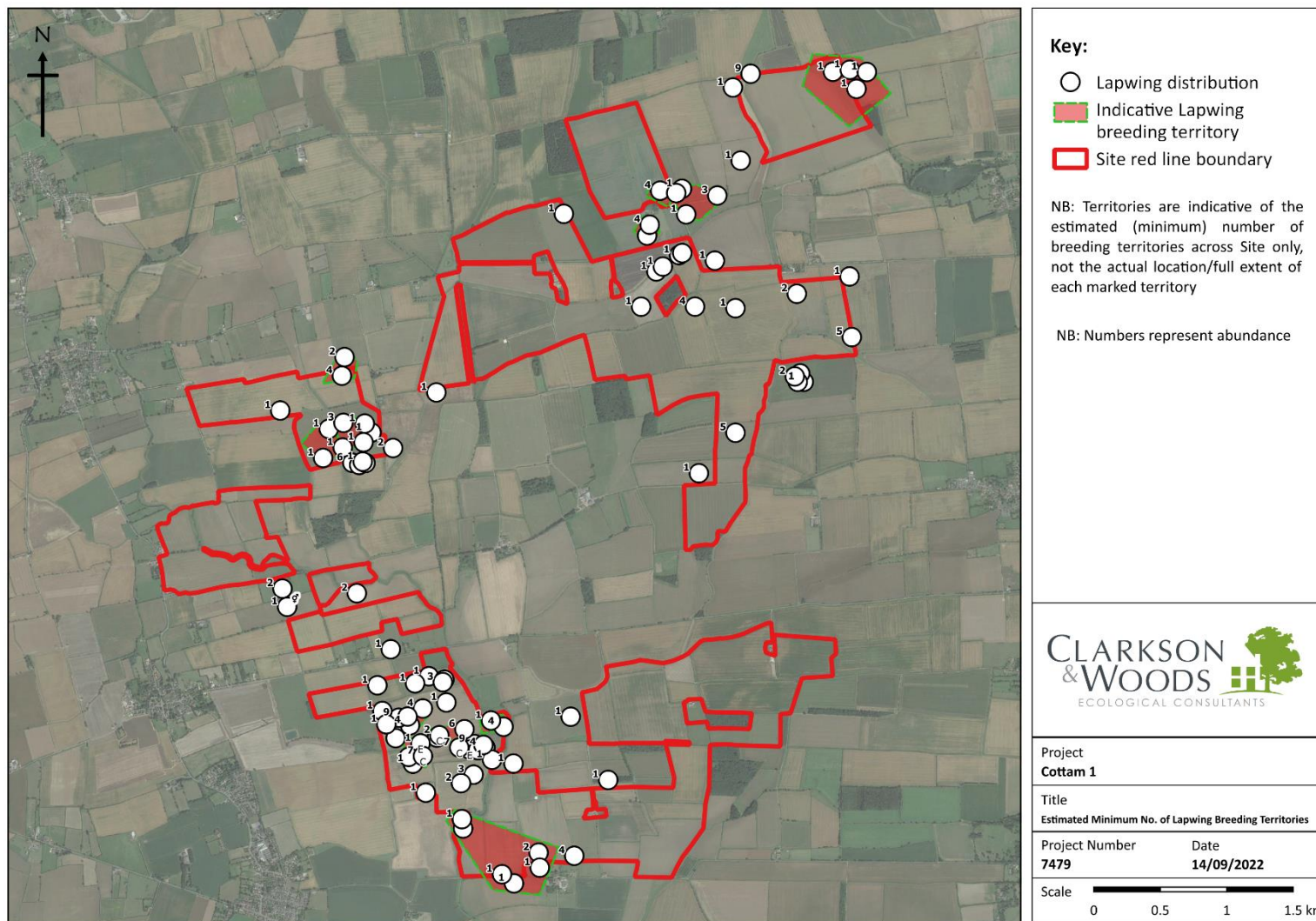
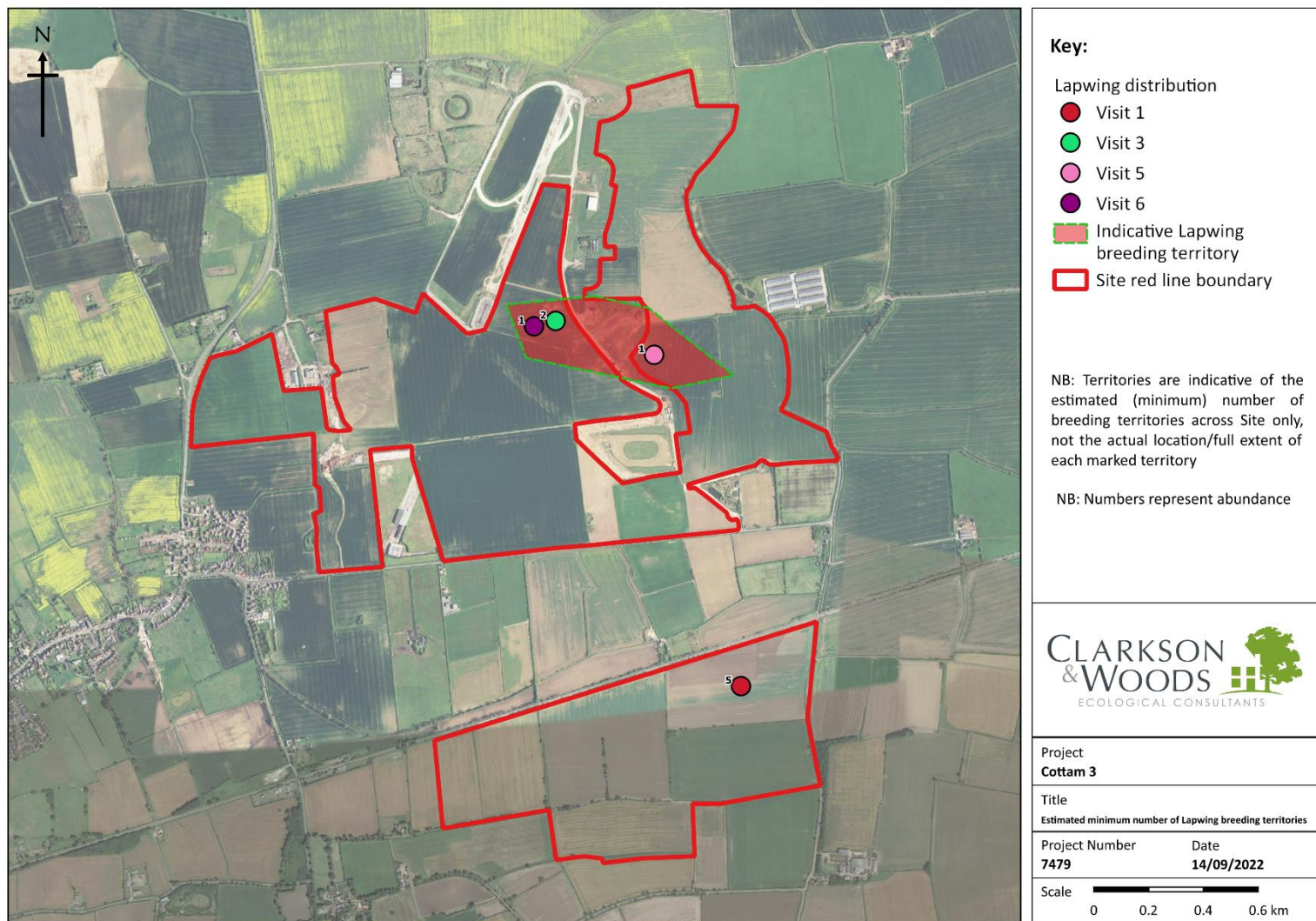


Figure D1: Distribution of Lapwing Across All Visits – Cottam 1



**Figure D2: Distribution of Lapwing Across All Visits – Cottam 2**



**Figure D3: Estimated (Minimum) Number of Lapwing Breeding Territories at Cottam 3a**

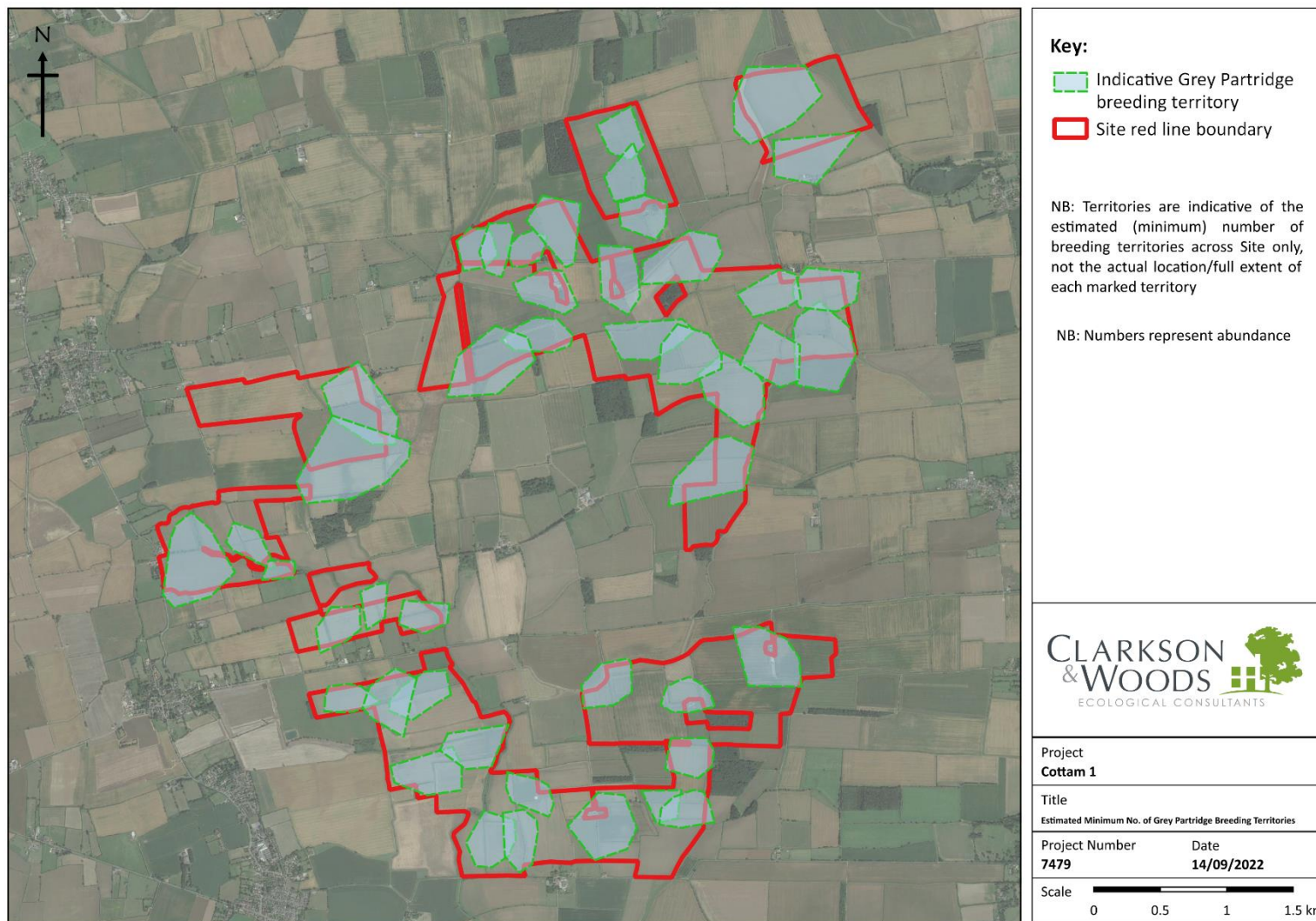


Figure D4: Estimated (Minimum) Number of Grey Partridge Breeding Territories Across Cottam 1



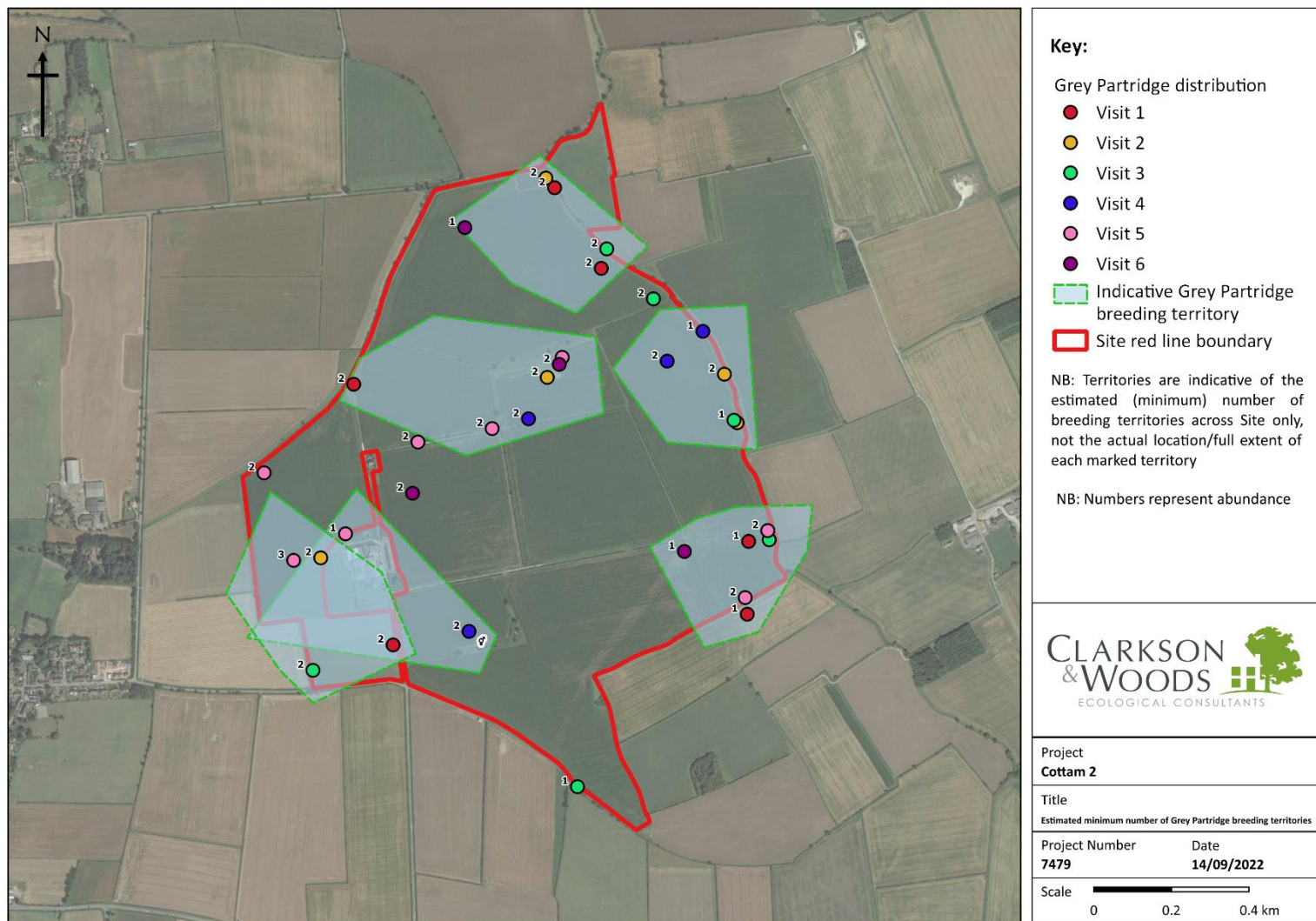
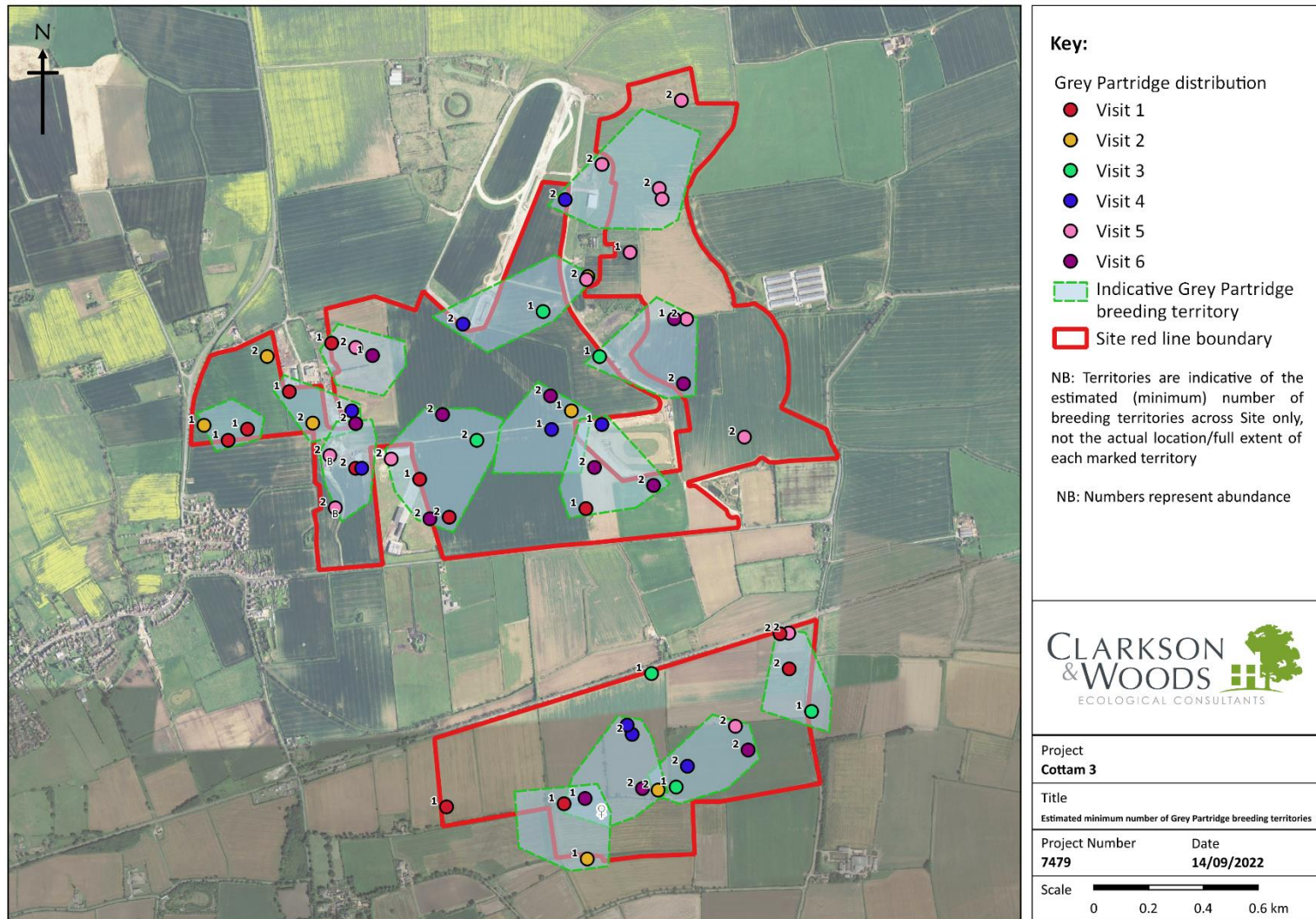


Figure D5: Estimated (Minimum) Number of Grey Partridge Breeding Territories at Cottam 2



**Figure D6: Estimated (Minimum) Number of Grey Partridge Breeding Territories – Cottam 3**

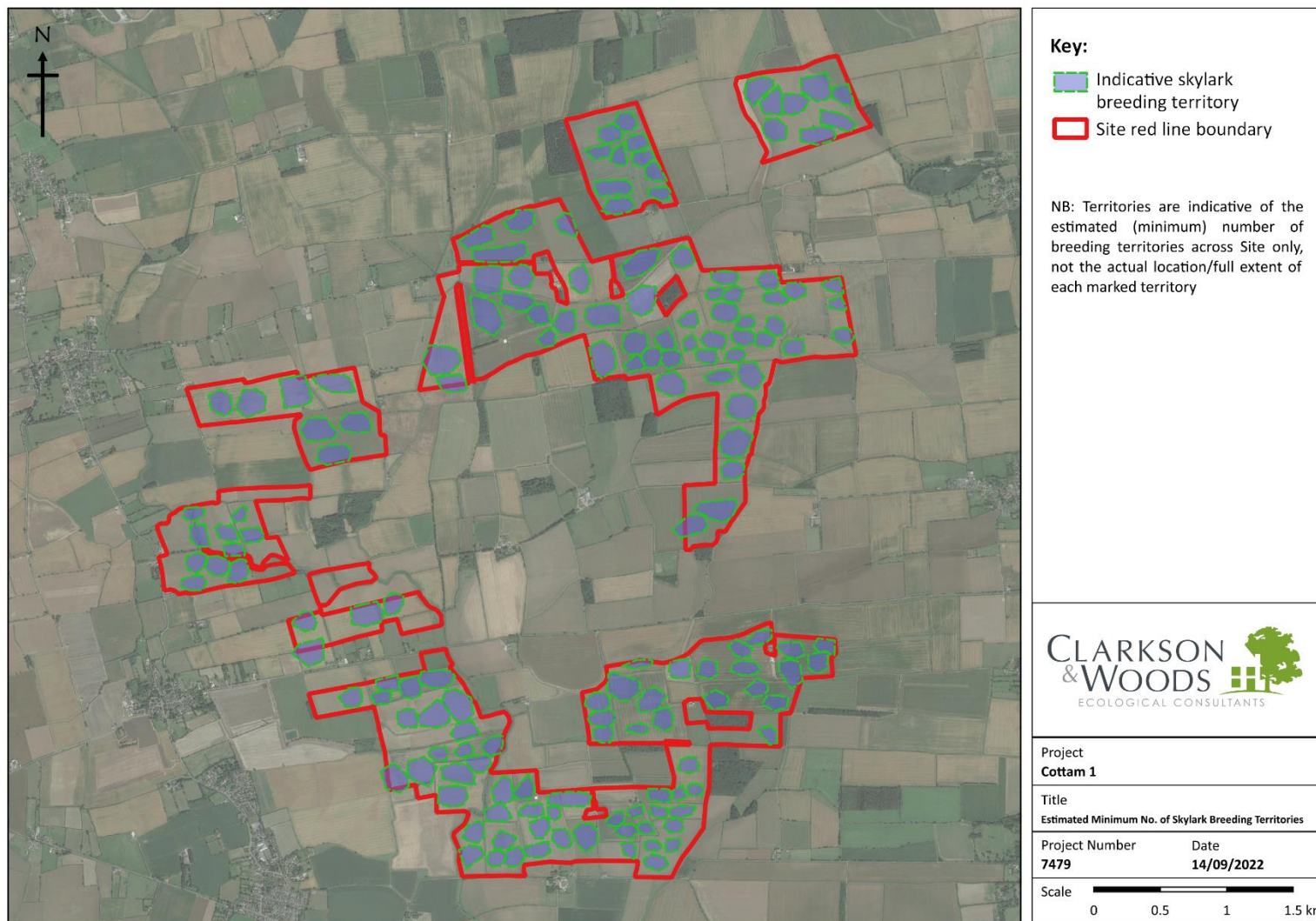


Figure D7: Indicative Skylark Breeding Territories, Cottam 1



Figure D8: Indicative Skylark Breeding Territories – Cottam 2

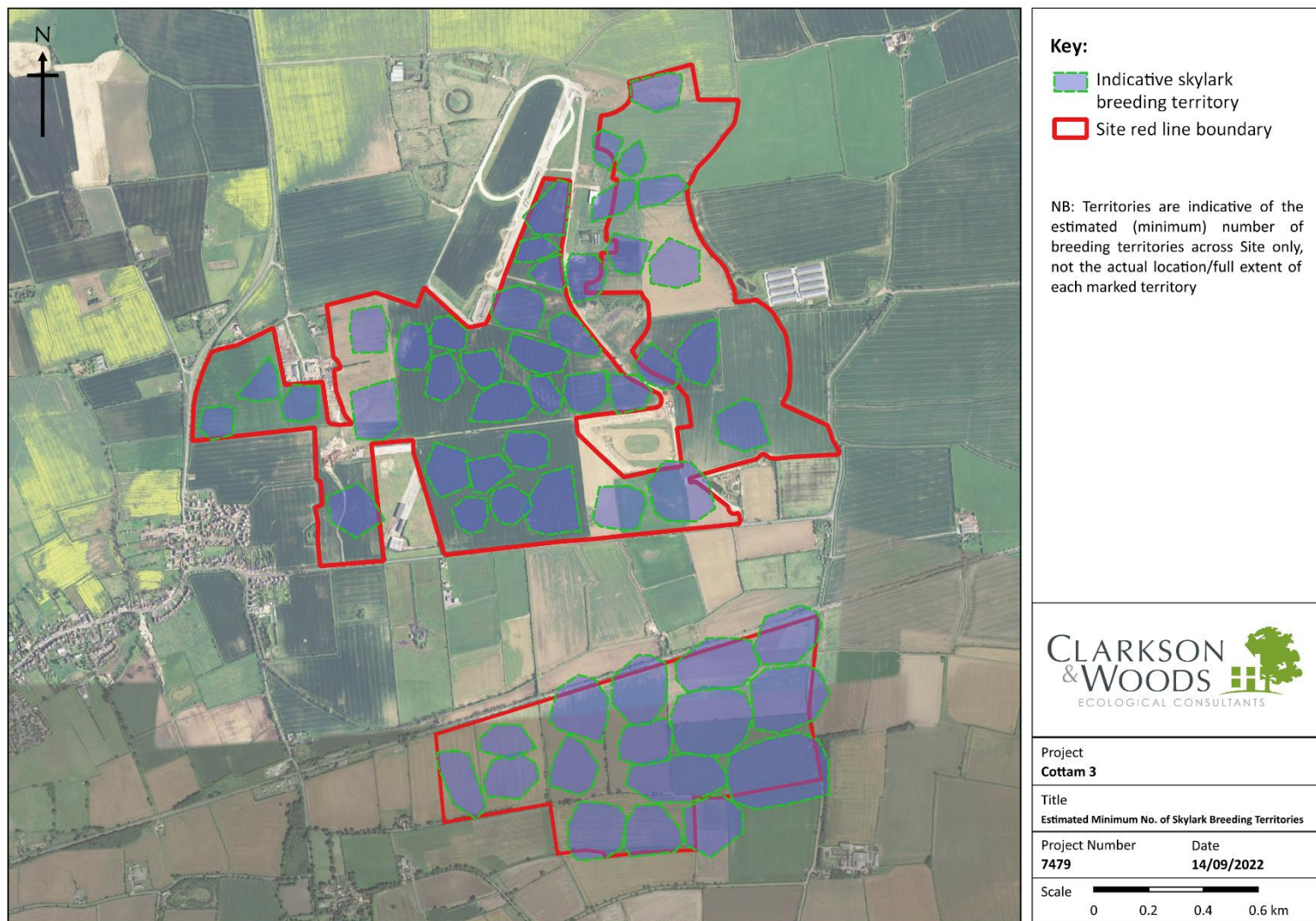


Figure D9: Indicative Skylark Breeding Territories - Cottam 3a and Cottam 3b

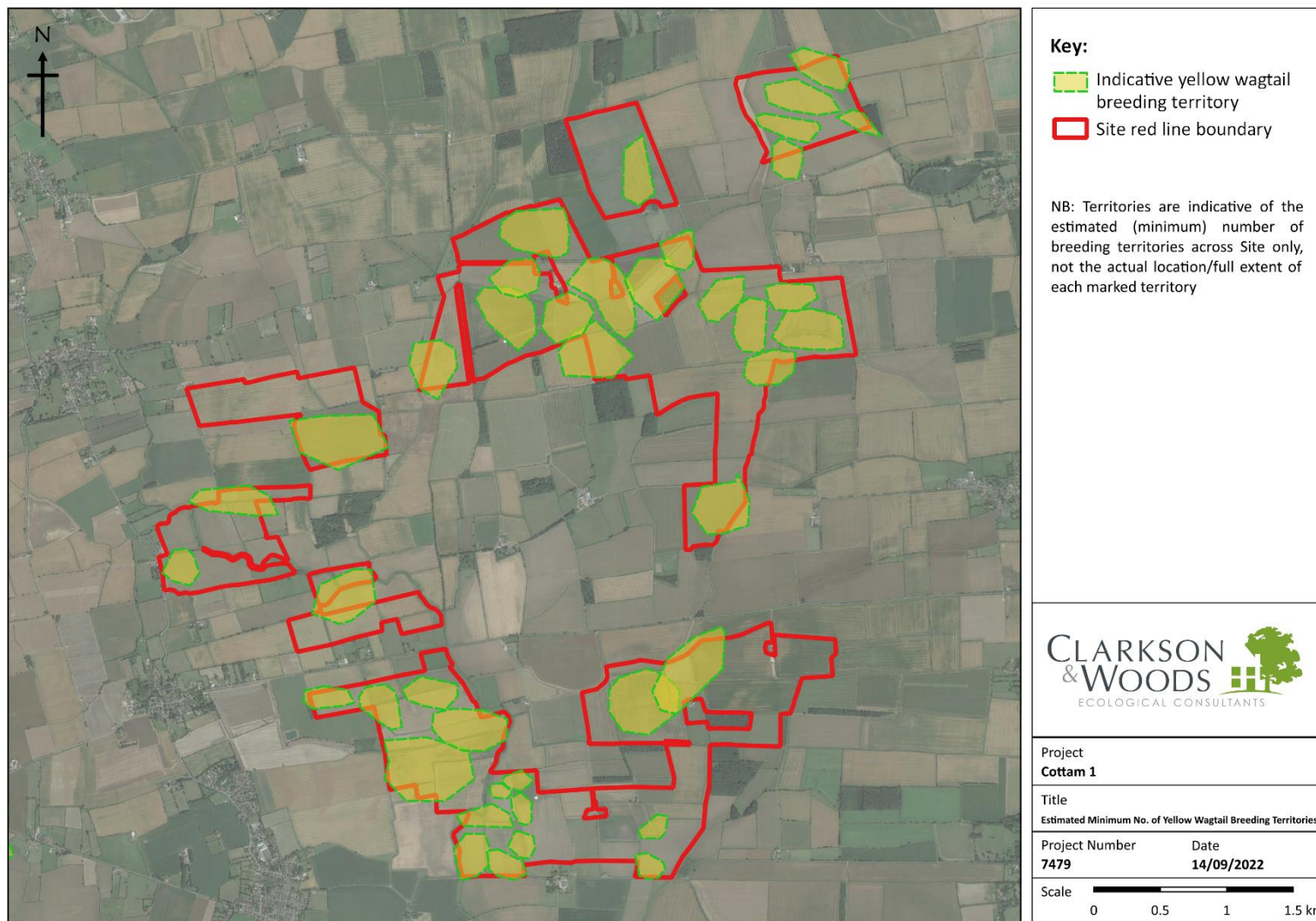


Figure D10 - Indicative Yellow Wagtail Breeding Territories – Cottam 1



Figure D11 - Indicative Yellow Wagtail Breeding Territories – Cottam 2

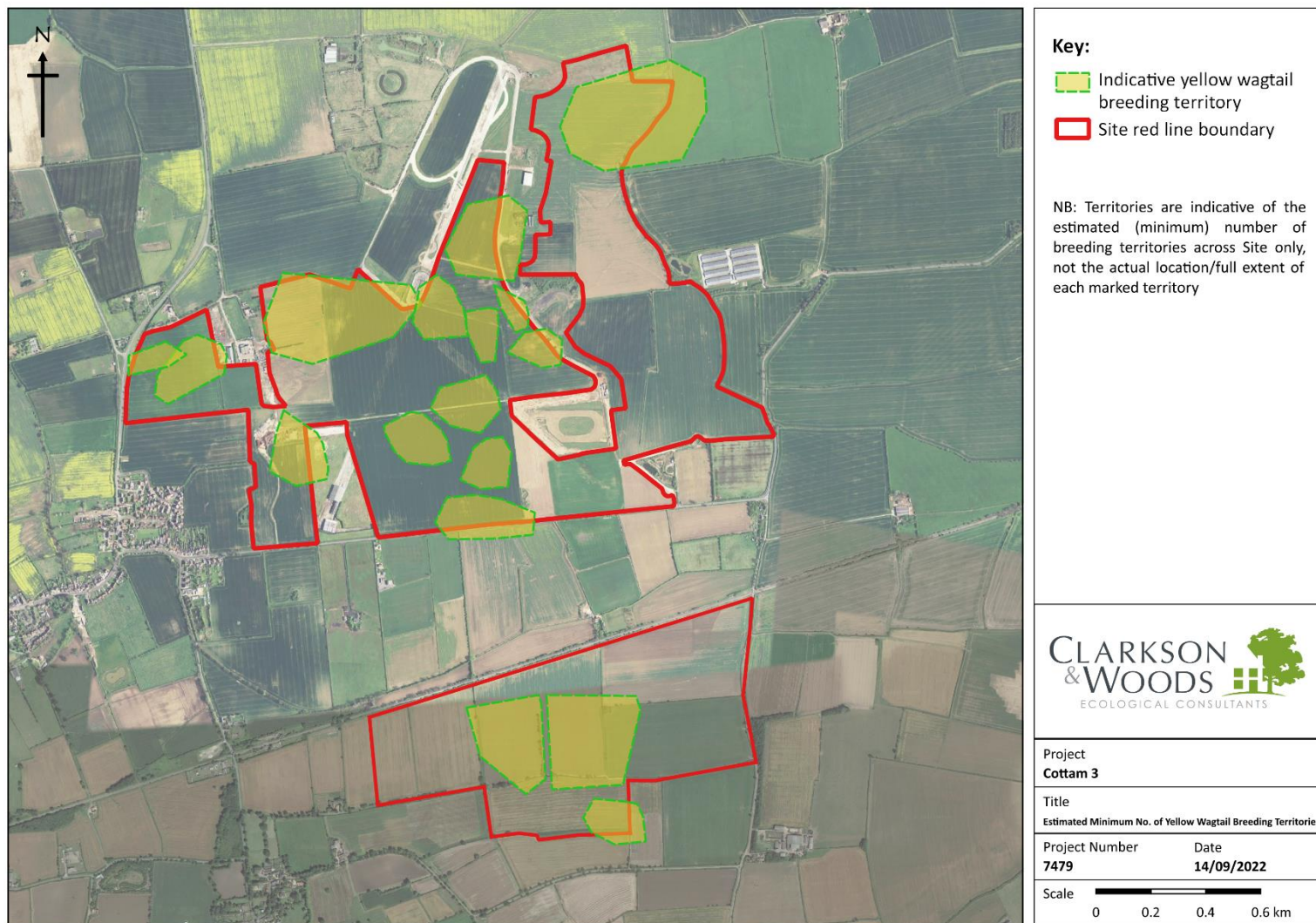


Figure D12 - Indicative Yellow Wagtail Breeding Territories – Cottam 3a and b



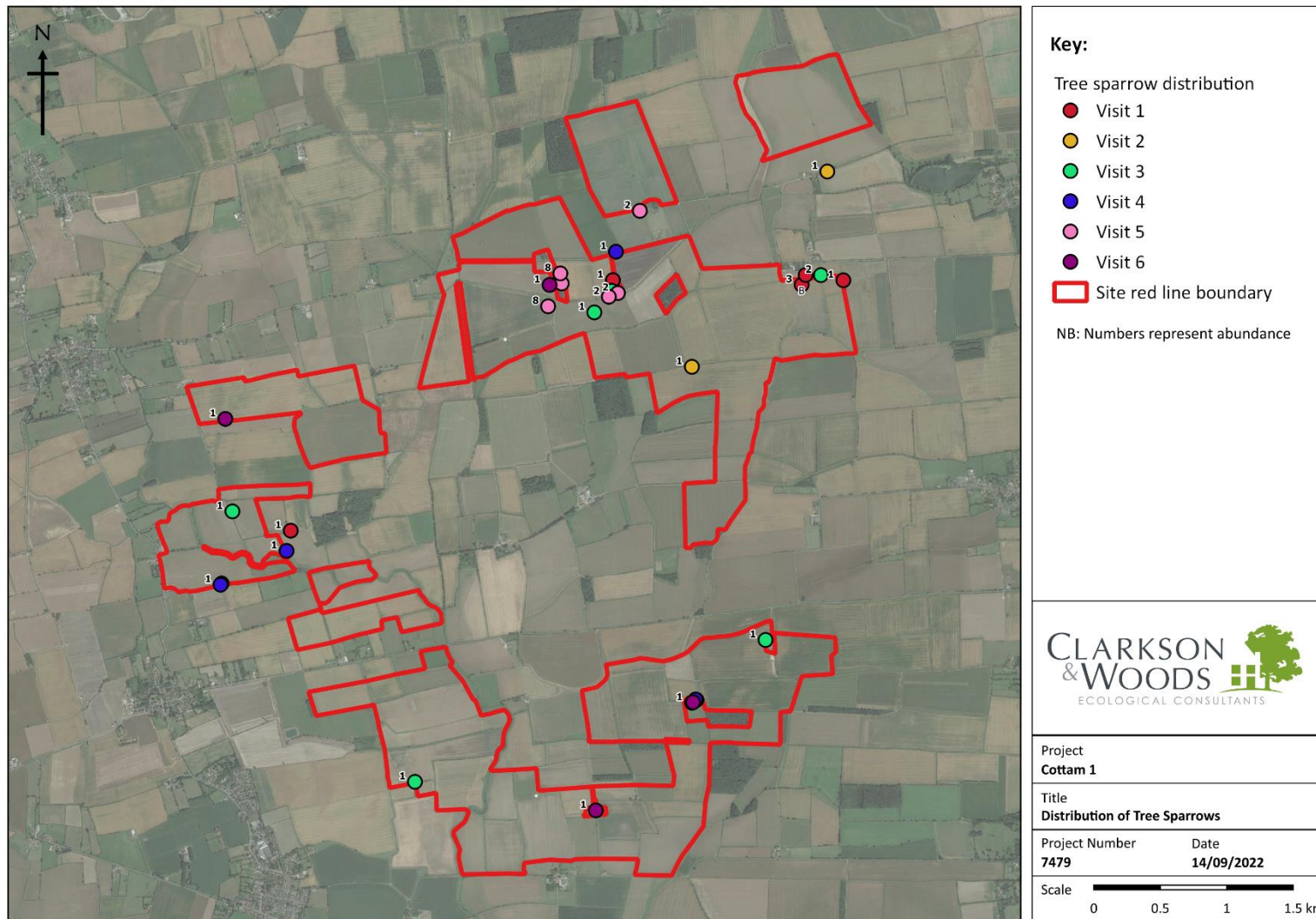


Figure D13: Distribution of Tree Sparrow Across All Visits – Cottam 1

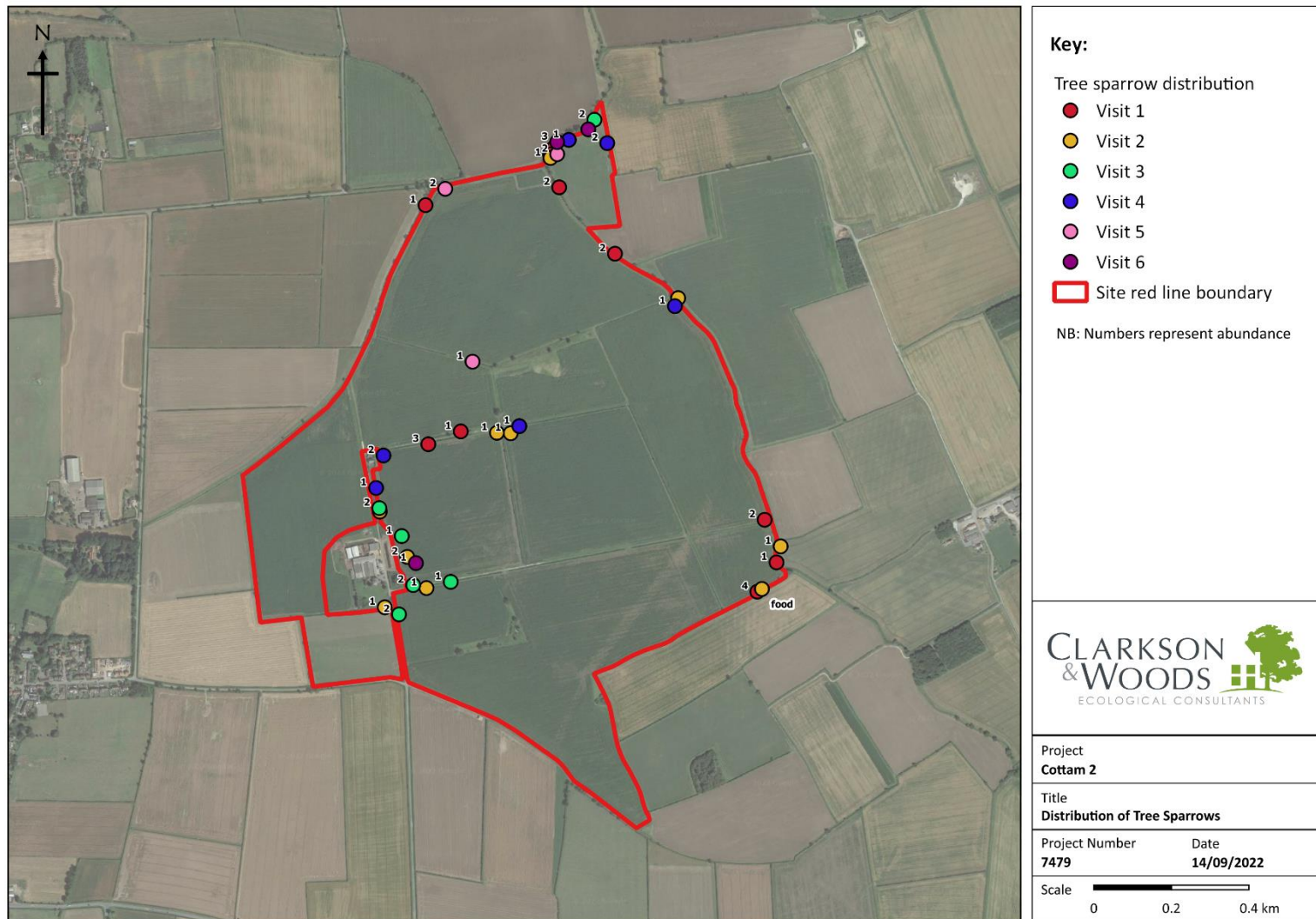


Figure D14: Distribution of Tree Sparrow Across All Visits – Cottam 2

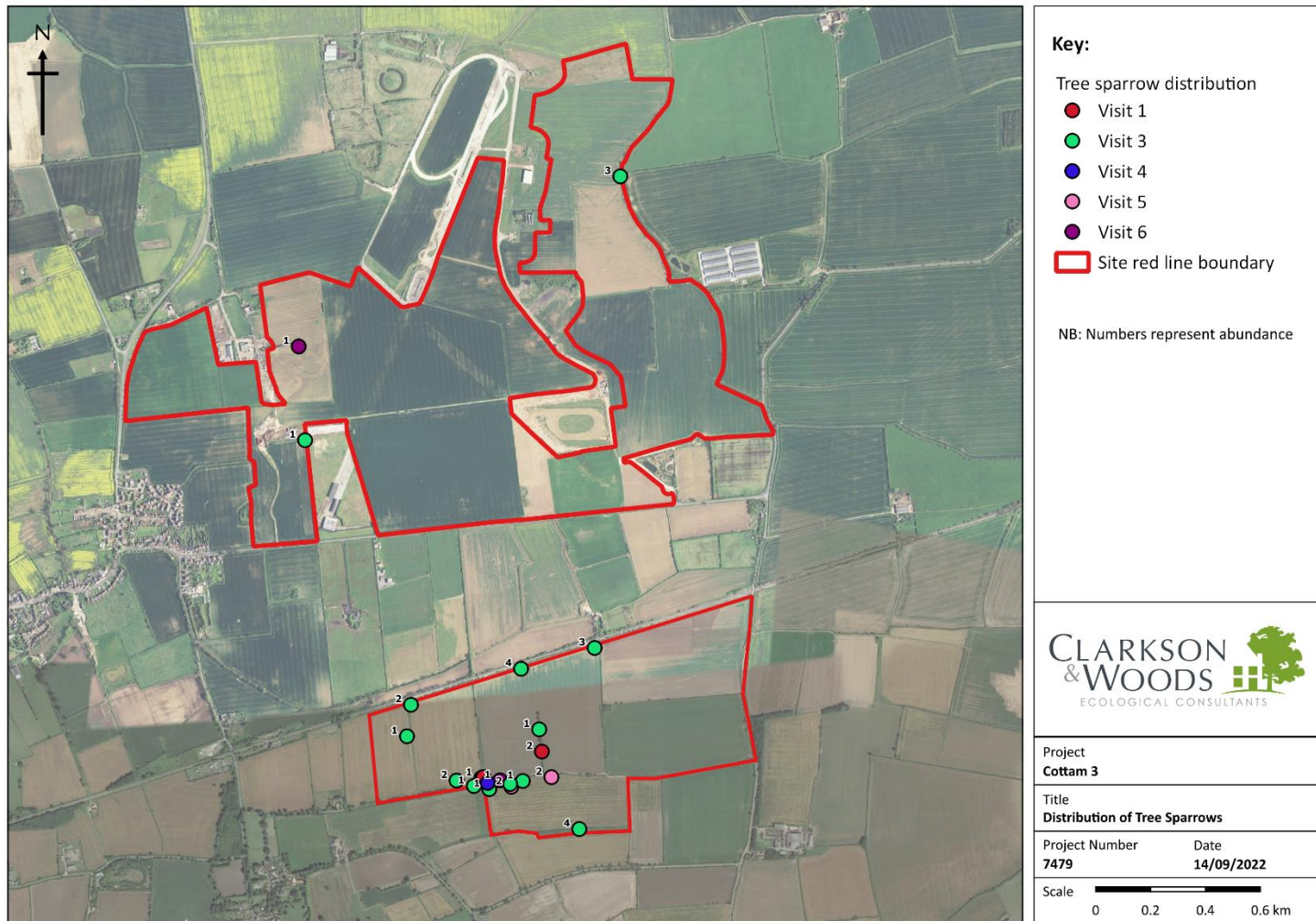


Figure D15: Distribution of Tree Sparrow Across All Visits – Cottam 3a and b

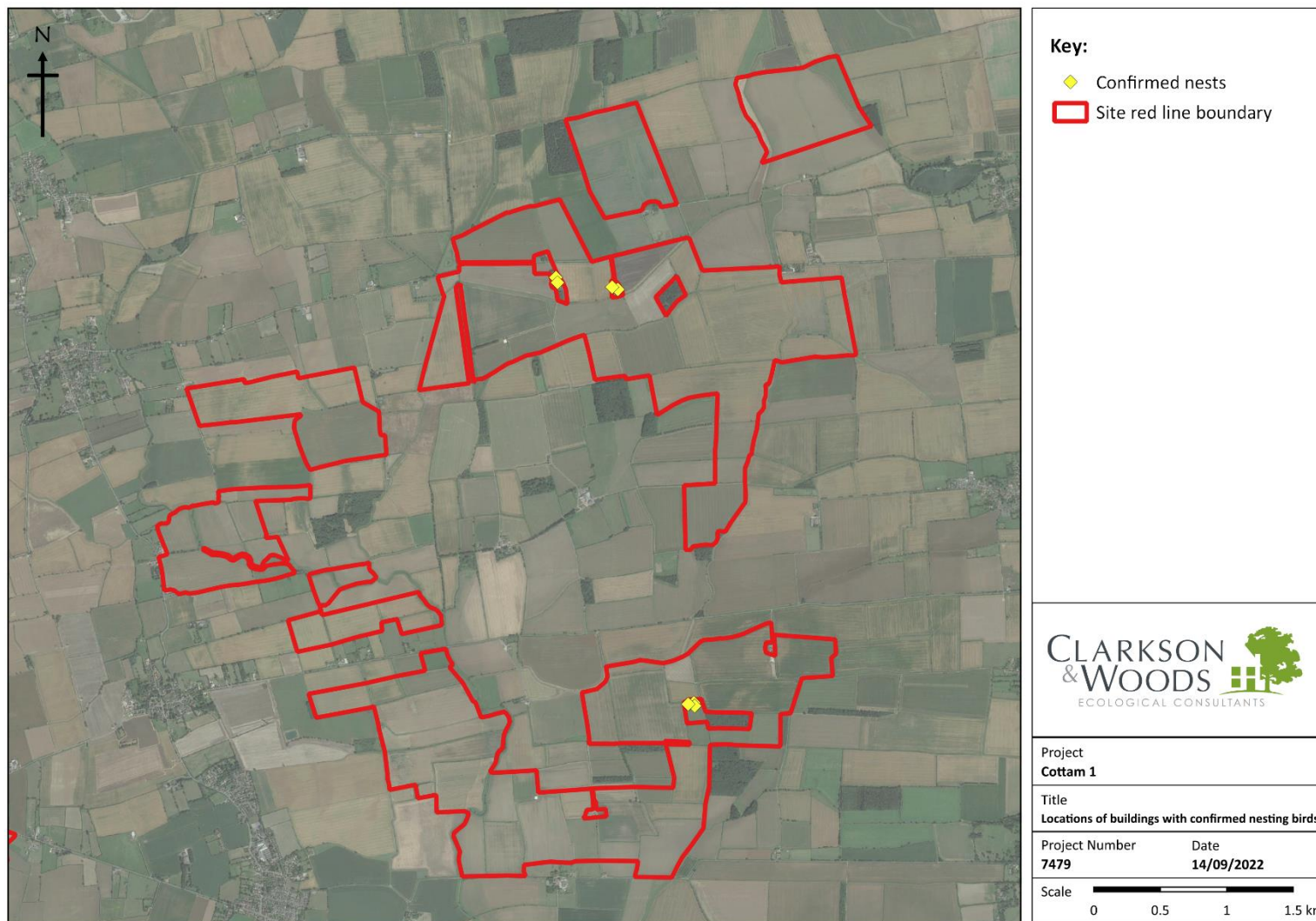


Figure D16: Location of Buildings with Confirmed Nesting Birds, Cottam



## APPENDIX E: DESK STUDY RESULTS

Table E1: Subset of Data Search Results for Protected and Notable Bird Species Records from within 2km of Each Site

Species	Conservation Status*	Cottam 1	Cottam 2	Cottam 3a and b
Barn owl	Sch1, NBoCC	161 records within 2km (>2000). Closest within 250m of Site (2016).	10 records within 2km (>2000). 2 records within red line boundary (2011).	38 records within 2km (>2000). All beyond 250m of Site.
Bullfinch	Amber BoCC, S41	N/A	10 records within 2km (2012). All beyond 250m of Site.	54 records within 2km (>2017). Closest approx. 1.2km W of Site (2018).
Corn bunting	Red BoCC, S41, UKFBI	14 records within 2km (>2000). Exact location unknown.	N/A	N/A
Corn crane	Red BoCC, Sch 1, S41	1 record within 2km (2015). Exact location unknown.	N/A	N/A
Cuckoo	Red BoCC, S41	6 records within 2km (>2000). Exact location unknown.	3 records within 2km (>2000). All beyond 250m of Site.	26 records within 2km (>2000). 1 record within 250m (2003).
Curlew	Amber BoCC	7 records within 2km (>2000). Exact location unknown.	15 records within 2km (>2000). Closest approx. 600m S Site (2006).	N/A
Goshawk	Amber BoCC, S41	N/A	N/A	2 records within 2km (>2000). All beyond 250 of Site.
Grey partridge	Red BoCC, S41	67 records within 2km (>2000). All beyond 250m of Site.	29 records within 2km (>2000). Closest approx. 600m S Site (2006).	41 records within 2km (>2000). Closest approx. 600m NE of Site (2003).
Grasshopper warbler	Red BoCC, S41	5 records within 2km (>2000). Exact location unknown.	N/A	N/A
Hobby	Sch 1	18 records within 2km (>2000). Exact location unknown.	5 records within 2km (>2000). Exact location unknown.	N/A



Species	Conservation Status*	Cottam 1	Cottam 2	Cottam 3a and b
Honey buzzard	Amber BoCC, Sch 1	2 records within 2km (>2000). Exact location unknown.	N/A	N/A
House sparrow	Red BoCC, S41	94 records within 2km (>2000). 2 records within red line boundary (2009).	18 records within 2km (>2000). Closest approx. 600m S Site (2006).	Closest approx. 500m south of Site, 4 breeding individuals (2003).
Kingfisher	Amber BoCC, Sch 1	31 records within 2km (>2000). Exact location unknown.	8 records within 2km (>2000). All beyond 250m.	N/A
Lapwing	Red BoCC, S41, UKFBI	40 records within 2km (>2000). Exact location unknown.	41 records within 2km (>2000). 4 records within red line boundary (2002).	33 records within 2km (>2000). Closest approx. 600m N of Site (2009).
Lesser redpoll	Red BoCC, S41	4 records within 2km (>2000). Exact location unknown.	N/A	N/A
Marsh harrier	Amber BoCC, Sch 1	9 records within 2km (>2000). Exact location unknown.	N/A	N/A
Montagu's harrier	Red BoCC, Sch 1	1 record within 2km (2018). Exact location unknown.	N/A	N/A
Peregrine	Sch1, NBoCC	9 records within 2km (>2000). Exact location unknown.	N/A	N/A
Quail	Amber BoCC, Sch1	2 records within 2km (>2012). Exact location unknown.	N/A	N/A
Red kite	Sch1	6 records within 2km (>2000). Exact location unknown.	17 records within 2km (>2000). Closest 16 records approx. 1.5km NW of Site (2013/14).	N/A
Redshank	Amber BoCC	3 records within 2km (>2000). Exact location unknown.	N/A	N/A
Snipe	Amber BoCC	2 records within 2km (>2000). Exact location unknown.	N/A	N/A



Species	Conservation Status*	Cottam 1	Cottam 2	Cottam 3a and b
Starling	<b>Red BoCC, S41</b> , UKFBI	90 records within 2km (>2000). Closest approx. 525m W of C1 West (2009).	18 records within 2km (>2000). Closest approx. 1.1km W of Site (2003).	34 records within 2km (>2000). Closest approx. 550m N of Site, 2 breeding individuals (2003).
Spotted flycatcher	<b>Red BoCC, S41</b>	85 records within 2km (>2000). Exact location unknown.	N/A	N/A
Swift	<b>Red BoCC</b>	61 records within 2km (>2000). Closest approx. 790m W of Site (2012).	4 records within 2km (>2000). Closest approx. 1km W of Site (2019).	18 records within 2km (>2000). Closest approx. 1.3km SE of Site, 2 breeding individuals (2003).
Tree sparrow	<b>Red BoCC, S41</b>	73 records within 2km (>2000). Exact location unknown.	27 records within 2km (>2000). Closest approx. 1.6km NW of Site (2013).	33 records within 2km (>2000). Closest approx. 600m N of Site, breeding individuals (2003).
Turtle dove	<b>Red BoCC, S41</b>	12 records within 2km (>2000). Exact location unknown.	N/A	N/A
Yellow wagtail	<b>Red BoCC, S41</b>	24 records within 2km (>2000). Exact location unknown.	N/A	12 records within 2km (>2000). Closest approx. 600m N of Site, breeding individuals (2003).

\*All species protected under the W&CA 1981 - Wildlife and Countryside Act 1981 with the following abbreviations included as follows: S41 – Schedule 41 Priority Species/ BoCC – Birds of Conservation Concern/ Sch1 – Schedule 1 on the Wildlife and Countryside Act for which is an offence to intentionally or recklessly disturb and ‘active’ nest/ UKFBI – UK Farmland Bird Indicator species taken from combined population trends (1970 – 2007) and BTO data

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