West Burton Solar Project

Environmental Statement

Appendix 9.9: Overwintering Birds Survey Report

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West Burton
SOLAR PROJECT

WINTERING BIRDS SURVEY REPORT

WEST BURTON SOLAR PROJECT

carried out by

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commissioned by

WEST BURTON SOLAR PROJECT LTD.

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WINTERING BIRDS SURVEY REPORT

WEST BURTON SOLAR PROJECT

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1 INTRODUCTION

1.1.1 Clarkson and Woods Ltd. was commissioned by West Burton Solar Project Ltd to carry out wintering bird surveys for the West Burton Solar Project. The Scheme broadly comprised three Sites known as West Burton 1-3; referred to hereafter as 'the Sites', or individually as given above. All Sites are situated in the West Lindsey District of Central Lincolnshire. Proposals comprise the development of an NSIP-scale solar park, containing solar energy production and storage components.

1.1.2 A series of wintering bird surveys were carried out by Clarkson and Woods Ltd between November 2021 and April 2022. Surveys followed a scope agreed through consultation with Natural England via a Discretionary Advice Service dialogue, as well as Lincolnshire Wildlife Trust, and followed survey methodology aligned with the British Trust for Ornithology (BTO) Common Bird Census.

1.1.3 Unless the client indicates to the contrary, information on the presence of species collected during the surveys will be passed to the county biological records centre to augment their records for the area. This is in line with the CIEEM code of professional conduct[1].

1.2 Aims and Limitations

1.2.1 Given the size of the Scheme and the proposed changes to land use, wintering bird surveys were recommended to ascertain the level of use of the Sites by wintering birds, and thereby the importance of the Site's habitats/ features to wintering birds in the context of the wider landscape.

1.2.2 This report details the methods and results of the surveys and provides an overview of the potential impacts that could result from the proposals, to inform the layout of the Scheme.

1.2.3 This information will be used within the eventual West Burton Solar Project Environmental Statement to inform the ecological evaluation of the habitats used by wintering birds, and to characterise the impacts considered likely to result on them from the Scheme.

1.2.4 While the installation of below-ground electrical cabling will be required beyond the boundaries of the Site in order to connect the disparate land parcels, both to one another and to the National Grid, relevant and proportionate 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 these surveys, the Survey Area covers a slightly larger area than the red line boundary of the Scheme (not including the cable route or 'external' construction access routes). However, the extent of the solar and battery elements are entirely contained within the Survey Area and so will have been fully subject to survey. It is therefore considered that the chosen Survey Area is appropriate for deriving a baseline for the Scheme. The Survey Area measures approximately 900hectares (ha).

1.3.2 All Sites are located within the West Lindsey District of Lincolnshire and are situated within 8km of each other, close to the settlements of Broxholme (West Burton 1), Ingleby (West Burton 2) and Brampton (West Burton 3). The Sites are shown in **Figure 1**.

1.3.3 The Sites predominantly comprise large, open and generally flat arable fields, characterised by winter-sown cereal crops; with some fields of permanent pasture (West Burton 2). These fields are bounded by a network of managed hedgerows and ditches, with narrow field margins (where present).

1.3.4 These Sites' habitats are very much typical of the surrounding landscapes, which are dominated by arable farmland and occasional pasture grassland that is interspersed with small settlements and farmsteads linked by minor and single-track roads. The surrounding landscape is mostly flat, but to the east of the Sites at the 'Lincoln Cliff' (3km east of West Burton 1), lies a significant north-south escarpment. The River Trent is located west of the Sites and is located 1.4km from West Burton 3 at its closest point as it flows north towards the Humber Estuary.

[1] Code of Professional Conduct. CIEEM, January 2019.

1.3.5 Whilst no woodland is present within the Sites, several small stands of managed and unmanaged woodland are present adjacent to the Sites and in the surrounding landscape, often the result of historical game management. Standing water is generally absent from the Sites and the surroundings following the in-filling of traditional livestock drinking ponds, save for a very small number of agricultural pools/pits, decoy ponds or managed recreational fisheries. Flowing water occurs occasionally in proximity to the Sites, with the River Till running adjacent to the eastern boundary of West Burton 2 and 0.4km west of West Burton 1; and the River Trent running 1.4km west of West Burton 3. Various feeder streams for the above watercourses are managed as agricultural drainage ditches within or adjacent to the Sites which regularly dry out.

1.4 Quality Assurance

1.4.1 All ecologists employed directly by Clarkson and Woods are members or pending members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow the Institute's Code of Professional Conduct[2] when undertaking ecological work.

1.4.2 This report has been prepared in accordance with the relevant British Standard: *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*[3]. It has been prepared by an experienced ecologist who is a member of CIEEM. The report has also been subject to a two-stage quality assurance review by appropriately experienced ecologists who are full members of CIEEM.

1.5 Assessment Scope / Consultation

1.5.1 The following statutory bodies were consulted to agree the appropriate scope of wintering bird surveys for the project.

- **Natural England** – Advisor assigned at onset of consultation. Paid-for Discretionary Advice Service available outside of statutory consultation process.
- **Lincolnshire Wildlife Trust** – A principal adviser to West Lindsey District Council on ecological matters.
- **Nottinghamshire Wildlife Trust** – A principal adviser to Bassetlaw District Council on ecological matters.

1.5.2 No concerns were raised by these statutory bodies regarding the scope of surveys discussed.

[2] CIEEM (February 2022). *Code of Professional Conduct*. [redacted]
[3] The British Standards Institution (2013*). BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*. BSI Standards Ltd.

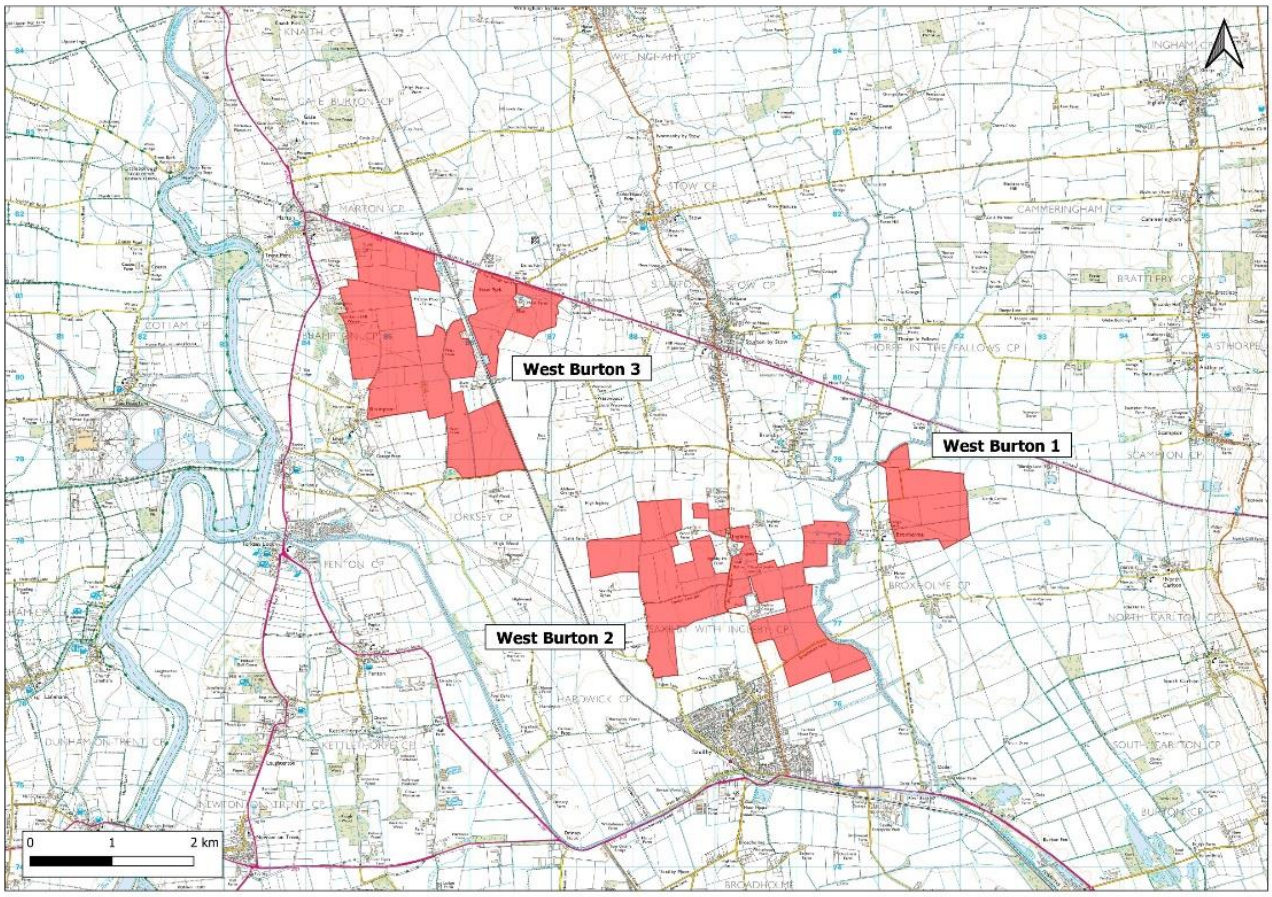

Figure 1: Locations of the Proposed Development Sites West Burton 1-3

2 METHODOLOGY

2.1 Desk Study

Designated Sites

2.1.1 Statutory designated sites focused on wintering birds within the 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/).

2.1.2 Non-statutory designated sites focussed on wintering birds within 2km of the application Site were identified using from data searches from Lincolnshire Environmental Record Centre.

Local Conservation Strategies

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

Landscape-scale Conservation Strategies, Initiatives and Records

2.1.4 The Birds of Conservation Concern (BoCC) Red List[4] was also consulted. This provides a 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 risk levels. Red-listed species of high conservation concern are most at risk, reducing to amber and then green.

2.1.5 The Lincolnshire Environmental Records Centre (LERC) was consulted for records of bird species within 2km of West Burton 1 - 3.

2.1.6 Local county bird group data[5] were also consulted, where accessible, to identify any local conservation concerns and disparities between national and local trends.

General

2.1.7 Where relevant, Ordnance Survey maps (1:25,000) and online aerial images of the Site were examined online to assess habitat connectivity [redacted]

2.1.8 The data presented within this report constitutes a summary of the data obtained from the local records centre. Should additional detail be required on any of the records described within this report Clarkson and Woods Ltd. should be contacted.

2.2 Field Surveys

2.2.1 Each of the Sites was surveyed on six separate occasions between November and early April, as detailed in **Table 1** below.

2.2.2 All surveys were only carried out in favourable weather conditions, avoiding strong winds (excess of Beaufort 4/moderate breeze), rain more than a light drizzle, or where visibility was compromised by low cloud/foggy conditions. Detailed weather conditions of each survey have also been included within **Table 1**.

2.2.3 Surveys typically commenced in the morning, approximately 1hr after sunrise, and were completed within 4 hours. Strict limits on the survey timings were not imposed due to the behaviour of wintering birds being less constrained by time of day, as opposed to breeding birds.

2.2.4 During each visit, surveys covered the entirety of the red line boundary shown in **Figure 1** above. Given the size of the Sites, they were subdivided into separate survey sections measuring approximately 60-80ha to enable coverage by multiple surveyors in a single visit. These separate areas were indicated on a key plan for each Site to ensure no doubling up of survey effort between surveyors.

[4] Birds of Conservation Concern 5 (Stanbury et. Al, 2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds 114: 723-747.*

[5] Casey, C. et al. (2021). *The Birds of Lincolnshire*. Lincolnshire Bird Club. Louth

2.2.5 The surveys broadly followed British Trust for Ornithology (BTO) Common Birds Census guidelines, where experienced bird surveyors systematically walked through the Site, ensuring that the majority of locations were visited to within 50m. 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, the observation distance was increased above 50m (e.g., within large fields >20 hectares), but not above 100m. This allowed for the increased distances at which ground nesting birds, such as skylark, are likely to be disturbed and recorded.

2.2.6 The location and behaviour of all birds and flocks of birds seen or heard was noted on A3 Ordnance Survey maps at 1:10,000 resolution. Standard BTO Common Birds Census symbology and species codes were used to create a survey map for each individual visit. All surveyors were equipped with binoculars to aid identification.

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.

Personnel

2.2.8 The following surveyors conducted wintering bird surveys across the survey period. All surveyors are highly experienced bird surveyors able to identify all British species by sight and sound.

- Adèle Remazeilles MSc ACIEEM
- Amy Trewick ACIEEM
- Brian Hedley MSc MCIEEM CEnv
- Harry Fox BSc MCIEEM
- Heather Parris BSc ACIEEM
- James Gilbert MCIEEM CENV
- James Latham BSc (Hons) MCIEEM
- Joel Wright MSc MCIEEM
- John McLoughlin BSc
- Lance Degnan BSc
- Mark Baker BSc MCIEEM
- Mike Hockey BSc (Hons) ACIEEM
- Richard Anderton MSc MCIEEM
- Steve Miller (affiliate member of CIEEM)

Table 1: Survey Dates, Weather Conditions & Surveyor Details

Site Name	Local Site Name	Survey Visit No.	Date	Weather Conditions (Cloud 0-8, Wind 1-12, Precipitation, Temperature °C)	Surveyors (Initials)
West Burton 1	Broxholme	1	11/11/2021	Cloud 7-8, Wind 0, Dry, 10-12°C	HP, MH
		2	12/12/2021	Cloud 7-8, Wind 1-2, Dry, 10-13°C	LD
		3	13/01/2022	Cloud 0, Wind 2, Dry, 1-6°C	JG
		4	25/01/2022	Cloud 8, Wind 2, Dry, 1-3°C	BH
		5	01/03/2022	Cloud 3-8, Wind 3, Dry, 9°C	LD
		6	28/03/2022	Cloud 8, Wind 0, Dry, 5-10°C	LD
West Burton 2	Ingleby	1	09/11/2021	Cloud 4, Wind 2-3, Dry 11-14°C	BH, HP, JG, MH
		2	15/12/2022	Cloud 1, Wind 1-2, Dry, 11-13°C	JG, JM, LD, MH
		3	13/01/2022	Cloud 0, Wind 0-1, Dry, 1-8°C	JL, JM, LD, RA
		4	03/02/2022	Cloud 3-8, Wind 3-4, Dry, 8-10°C	BH, JM, LD
		5	24/02/2022	Cloud 3, Wind 5-6, Dry, 6°C	AR, HF, JL, LD
		6	29/03/2022	Cloud 8, Wind 0, Dry, 6°C	AR, LD
			02/04/2022	Clou 2-8, Wind 1-2, Dry, 0-8°C	JM, LD
West Burton 3	Bellwood	1	18/11/2021	Cloud 1-4, Wind 2-3, Dry, 10-14°C	AR, HF, MB
		2	08/12/2021	Cloud 6-8, Wind 2-3, Dry, 4-6°C	BH
			09/12/2021	Cloud 8; Wind 1-2; Dry, 3-6°C	AT, LD
		3	11/01/2022	Cloud 7, Wind 2, Dry, 9°C	JG, RA
			12/01/2022	Cloud 8, Wind 1-2, Dry, 9°C	JL
		4	28/01/2022	Cloud 6-8, Wind 2, Dry, 2-8°C	JM, LD
		5	25/02/2022	Cloud 1, Wind 0, Dry, 6	JL, JM, LD
		6	23/03/2022	Cloud 5-1, Wind 1, Dry, 5-10°C	JG, JM
			24/03/2022	Cloud 3-6, Wind 1, Dry, 4-13°C	MB
	Brampton	1	10/11/2021	Cloud 6-8, Wind 1-2, Occasional drizzle, 8-10°C	AT, BH
		2	07/12/2021	Cloud 8, Wind 2-3, Dry, 2-4°C	AT, LD
		3	12/01/2022	Cloud 3, Wind 3, Dry, 0-8°C	JG, RA
		4	26/01/2022	Cloud 2, Wind 2, Dry, 1-9°C	JM, LD
		5	03/03/2022	Cloud 8, Wind 1-2, Dry, 10°C	LD, RA
		6	22/03/2022	Cloud 0-1, Wind 1, Dry, 8-14°C	JM, MB

2.3 Data Interpretation

2.3.1 Data were digitised using QGIS software, to allow interpretation of the distribution of different species and to create distribution maps for species of interest.

2.3.2 Data were collated for interpretation in tables within Microsoft Excel, allowing the number of individuals of each species to be enumerated for each Site/ survey visit, and for different habitats within the Sites.

2.3.3 Species not of conservation concern/ non-notable species were not enumerated as they would not be included as Important Ecological Features in the impact assessment. A list of these species is provided.

2.3.4 To enable assessment of impacts, each species was categorised based on its primary ecology requirements and habitat use recorded on Site during the wintering season, as follows:

- Open habitats, including use of open, arable, fallow or grassland/pasture fields;
- Boundary habitats, including hedgerow/scrub, arable margins etc. *This includes species that rely on such boundary habitats in combination with adjacent farmland (e.g. yellowhammers utilising field margins and the open arable fields);*
- Waterbodies, such as ponds, rivers, and ditches; and
- Woodlands and mature trees.

2.3.5 It is acknowledged that many species are associated with more than one category of habitat. Such species were allocated to the habitat considered to have the greatest risk of being adversely impacted, to ensure appropriate ecological assessment.

2.4 Ecological Assessment

2.4.1 To enable assessment of the Scheme within the associated Environmental Statement on any given wintering bird species, and to measure scale of impacts resulting from loss or change to their habitats, the ecological importance of each species was defined. This was achieved through consideration of the species' national and local conservation status; conservation value in a geographical context; results of the completed surveys (local scale context); and application of professional judgment (which may increase or decrease the ecological importance, based on local knowledge).

2.4.2 The national conservation status of any given species was established by their categorisation on the Birds of Conservation Concern (BoCC) Red List and whether they are a Species of Principal Importance under the NERC Act. Their local conservation status was determined through their listing on the Local BAP, local bird group data, and consideration of local records.

2.4.3 The ecological importance of each species was determined by applying the criteria provided within the CIEEM guidelines for Ecological Impact Assessment (2018)[6]. This enabled the ecological importance of each species to be established and considered within a geographical context. This ensures the appropriate assessment of potential cumulative impacts of the proposals at a landscape scale.

2.4.4 The results of the wintering bird surveys provided local contextual information which, combined with professional judgement and local knowledge, enabled reassessment of each species' importance where appropriate.

2.5 Limitations

Desk Study

2.5.1 The data search was obtained in 2021 and does not include records made subsequently. The dataset only provides records where information exists and should not be relied upon as a complete listing of all wintering bird species which may occur in the area.

[6] 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.

Field Surveys

2.5.2 It is possible that the presence of certain species has been missed due to their being present in low numbers, or due their cryptic nature. However, the survey methodology ensures that all land is visited to within 50m and so the likelihood of under-recording species is reduced.

2.5.3 The surveys offer only 'snapshots' of wintering birds' usage of the Sites, and it is possible that over the course of the winter period the abundance and species of birds using the Sites varies slightly from that recorded by the surveys. However, six separate visits have been conducted, spread across the full winter period, which allows for a representative baseline to be established.

2.5.4 On a small number of occasions the presence of mist made survey conditions suboptimal. In these cases, the surveyors waited until the mist had cleared before proceeding. As such this is not considered a major constraint.

2.5.5 Wind levels were high on 24th February during Visit 5 at West Burton 2. This may have reduced bird activity, with birds more likely to sit sight. However, the survey methodology – visiting each location to within 50m – means the majority of birds should have been recorded.

Data Analysis

2.5.6 Data were collated for analysis for each Site i.e., WB1, WB and WB3. However, surveys of these Sites were sometimes spread across different dates for the same survey 'visit'. As such, the peak count of birds recorded at each Site within a single survey visit may have been inflated slightly due to the same birds having moved to different areas of the Site between dates. This is acknowledged as a limitation, but in the event that numbers of birds have been slightly inflated, this will only serve to elevate their importance and so the assessment will be more precautionary. As such there is no risk of undervaluing the Sites' importance to wintering birds.

3 RESULTS

3.1 Desk Study Information

Designated Sites

Humber Estuary Special Protection Area (SPA)

3.1.1 This site is situated approximately 28km from West Burton 3 and 32km from West Burton 1 and 2. It is the second largest coastal plain estuary in the UK (covering over 37,600ha) and supports important numbers of geese, ducks and waders during the winter, as well as important breeding populations of bittern, marsh harrier, avocet and little tern during the summer.

Torksey Marsh LWS

3.1.2 This site is listed as supporting a range of bird species and is located ~0.7km south of West Burton 3.

Local Policy

3.1.3 Farmland birds are listed on the Lincolnshire Biodiversity Action Plan (BAP). This covers the following species which overwinter in the UK: barn owl *Tyto alba*, bullfinch *Pyrrhula pyrrhula*, corn bunting *Miliaria calandra*, curlew *Numenius arquata*, grey partridge *Perdix perdix*, lapwing *Vanellus vanellus*, linnet *Carduelis cannabina*, redshank *Tringa totanus*, reed bunting *Emberiza scheoeniclus*, skylark *Alauda arvensis*, snipe *Gallinago gallinago*, starling *Sturnus vulgaris*, tree sparrow *Passer montanus* and yellowhammer *Emberiza citrinella*.

Local Records

3.1.4 Various species were recorded by the data search within 2km of the Sites, including passerines, raptors, waders and wildfowl. The vast majority of records pertained to locations >250m outside the red line boundary (or undetermined). Most records were made since the year 2000. A broad summary of the findings for each Site is shown below.

3.1.5 For **West Burton1**, 30 bird species of conservation importance which overwinter in the UK were recorded by the data search. Kingfisher *Alcedo atthis* and skylark *Alauda arvensis* were recorded within 250m of the Site, in 2009 and 2016 respectively.

3.1.6 For **West Burton 2**, 31 bird species of conservation importance which overwinter in the UK were recorded by the data search. Records of birds within 250m include the following; all records date from 1970 unless otherwise shown: barn owl *Tyto alba* (2009), bullfinch *Pyrrhula pyrrhula*, grey partridge *Perdix perdix*, house sparrow *Passer domesticus*, kingfisher (2009), lapwing *Vanellus vanellus* (2016), linnet *Linaria cannabina*, reed bunting *Emberiza schoeniclus* (2016), skylark, song thrush *Turdus philomelos*, starling *Sturnus vulgaris*, tree sparrow *Passer montanus*, yellowhammer *Emberiza citrinella*

3.1.7 For **West Burton 3**, 42 bird species of conservation importance which overwinter in the UK were recorded by the data search. House sparrow, song thrush and starling were recorded within 250m of the Site in 2009.

3.2 Field Survey Results

3.2.1 A summary of the notable species recorded by the surveys is shown in **Table 3** overleaf, which gives the number of visits (out of six) in which each species was recorded at each Site, as well as the peak count of each species within a single visit at each Site.

3.2.2 **Table 4** shows a list of the additional non-notable species recorded by the surveys.

3.2.3 **Tables 5** to **7** show the number of birds of each species recorded per Site by survey visit. To aid assessment of the impacts of the proposed development, each species has been categorised into the principal habitat type they are associated with during the winter season.

3.2.4 The conservation status of each species given in these tables is denoted according to the abbreviations given in **Table 2** below.

Table 2: Key to Conservation Status Abbreviations

Abbreviation	Meaning

S41	Species of Principal Importance under NERC Act 2006
Sch1	Schedule 1 species under the Wildlife & Countryside Act 1981 (as amended)
Red BoCC	'Red listed' species according to BTO/RSPB Birds of Conservation Concern 5 (2021)
Amber BoCC	'Amber listed' species according to BTO/RSPB Birds of Conservation Concern 5 (2021)
UKFBI	UK Farmland Bird Indicator
LBAP	Listed under the Lincolnshire Biodiversity Action Plan 2011-2020 (3rd Edition)
PJ	Included on the basis of professional judgement due to numbers observed

Species Diversity

All Sites

3.2.5 Across all Sites, a total of 78 species were recorded. Of these, 46 were species of conservation concern/ notable species, comprising 16 red-listed and 24 amber-listed species (national status).

3.2.6 Of the red and amber-listed species, 15 were also 'Species of Principal Importance' (SPIs). These species are listed under Section 41 of the NERC Act 2006 and so are capable of being material considerations within the planning process.

3.2.7 A total of 11 species were either listed under the Lincolnshire BAP.

3.2.8 In addition, 7 species were also listed under Schedule 1 of the Wildlife & Countryside Act 1981 (as amended). This confers special protection when breeding. Whilst this designation is not directly relevant to wintering birds, the designation is given to species which, in the main, are nationally scarce and therefore notable. Furthermore, some of these species are residents and therefore may also be present during the breeding season.

West Burton 1

3.2.9 Across all visits at West Burton 1, a total of 42 different species were recorded. Of these, 24 were species of conservation concern/ notable, comprising 10 red-listed species; 12 amber-listed species; and 10 SPIs. **Table 5** shows the number of each species recorded during each visit.

West Burton 2

3.2.10 Across all visits at West Burton 2, a total of 68 different species were recorded. Of these, 40 were species of conservation concern/ notable, comprising 14 red-listed species; 22 amber-listed species; and 14 SPIs. **Table 6** shows the number of each species recorded during each visit.

West Burton 3

3.2.11 Across all visits at West Burton 3, a total of 66 different species were recorded. Of these, 37 were species of conservation concern/ notable, comprising 10 red-listed species; 22 amber-listed species; and 11 SPIs. **Table 7** shows the number of each species recorded during each visit.

Table 3: Abundance of Each Species of Conservation Concern Recorded Across All Visits

Species	Conservation Status	West Burton 1		West Burton 2		West Burton 3	
		No. of surveys species found (/6)	Peak count* on any single visit	No. of surveys species found (/6)	Peak count* on any single visit	No. of surveys species found (/6)	Peak count* on any single visit
Birds predominantly associated with open arable/grassland fields							
Barn Owl	**Sch1**, LBAP	1	1	1	2	2	1
Black-headed Gull	Amber BoCC	1	2	2	331	2	51
Brent Goose	Amber BoCC, **S41**	0	0	0	0	0	0
Common Gull	Amber BoCC	0	0	0	0	2	60
Curlew	**Red BoCC**, **S41**, UKFBI, LBAP	0	0	0	0	0	0
Fieldfare	**Red BoCC**, **Sch1**	5	184	6	519	5	861
Golden Plover	PJ	2	5	3	53	2	38
Greylag Goose	Amber BoCC	1	3	1	4	4	130
Herring Gull	**Red BoCC**, **S41**	0	0	1	1	0	0
Kestrel	Amber BoCC, UKFBI	5	1	5	5	5	6
Lapwing	**Red BoCC**, **S41**, UKFBI, LBAP	2	1	6	69	0	0
Lesser Black-backed Gull	Amber BoCC	0	0	1	2	1	1
Meadow Pipit	Amber BoCC	5	15	6	24	6	48
Merlin	**Red BoCC**, **Sch1**	1	1	0	0	0	0
Peregrine	**Sch1**	0	0	2	1	0	0
Pink-Footed Goose	Amber BoCC	0	0	0	0	0	0
Red Kite	**Sch1**	0	0	0	0	1	1
Rook	Amber BoCC, UKFBI	0	0	6	162	5	79
Skylark	**Red BoCC**, **S41**, UKFBI, LBAP	6	111	6	131	6	90
Starling	**Red BoCC**, **S41**, UKFBI, LBAP	2	40	6	321	5	559
Stock Dove	Amber BoCC, UKFBI	3	4	6	39	5	19
Woodcock	**Red BoCC**	1	1	2	2	0	0
Woodpigeon	Amber BoCC, UKFBI	4	452	6	1550	6	2780
Birds predominantly associated with arable field margins and hedgerows/scrub boundaries							
Brambling	**Sch1**	0	0	2	5	1	71
Bullfinch	Amber BoCC, **S41**, LBAP	2	1	2	8	5	6
Dunnock	Amber BoCC, **S41**	4	5	6	12	6	6
Greenfinch	**Red BoCC**, UKFBI	0	0	4	31	5	21
Grey Partridge	**Red BoCC**, **S41**, LBAP	6	60	6	52	6	34
House Sparrow	**Red BoCC**, **S41**	0	0	4	19	5	7
Lesser Redpoll	**Red BoCC**, **S41**	0	0	0	0	2	10
Linnet	**Red BoCC**, **S41**, UKFBI, LBAP	4	25	6	256	6	192
Mistle Thrush	**Red BoCC**	2	1	2	5	3	3
Redwing	Amber BoCC, **Sch1**	4	109	6	365	6	3560
Reed Bunting	Amber BoCC, **S41**, UKFBI, LBAP	5	24	6	45	5	17

Species	Conservation Status	West Burton 1		West Burton 2		West Burton 3	
		No. of surveys species found (/6)	Peak count* on any single visit	No. of surveys species found (/6)	Peak count* on any single visit	No. of surveys species found (/6)	Peak count* on any single visit
Song Thrush	Amber BoCC, **S41**	4	8	5	16	6	23
Tree Sparrow	**Red BoCC**, **S41**, UKFBI, LBAP	0	0	1	5	0	0
Wren	Amber BoCC	2	1	5	8	6	12
Yellowhammer	**Red BoCC**, **S41**, UKFBI, LBAP	5	12	6	92	6	63
Birds predominantly associated with ditches, waterbodies and associated habitats							
Green Sandpiper	Amber BoCC	0	0	1	1	1	1
Grey Wagtail	Amber BoCC	0	0	3	2	2	3
Mallard	Amber BoCC	0	0	6	45	2	12
Moorhen	Amber BoCC	0	0	3	4	4	4
Redshank	Amber BoCC, LBAP	0	0	0	0	0	0
Shelduck	Amber BoCC	0	0	0	0	1	2
Snipe	Amber BoCC, LBAP	0	0	6	54	0	0
Teal	Amber BoCC	0	0	2	13	3	40
Wigeon	Amber BoCC	0	0	2	8	0	0
Birds predominantly associated with mature trees/woodland							
Marsh Tit	**Red BoCC**, **S41**	0	0	1	1	0	0
Sparrowhawk	Amber BoCC	0	0	4	3	3	5

Table 4: List of Additional Species (not of Conservation Concern) Recorded by the Surveys across All Sites

Species			
Blackbird	Coot	Jackdaw	Pied Wagtail
Blue Tit	Cormorant	Jay	Raven
Buzzard	Goldcrest	Little Egret	Red-legged Partridge
Canada Goose	Goldfinch	Little Owl	Robin
Carrion Crow	Great-spotted Woodpecker	Long-tailed Tit	Siskin
Chaffinch	Great Tit	Magpie	Stonechat
Chiffchaff	Green Woodpecker	Mute Swan	Treecreeper
Coal Tit	Grey Heron	Nuthatch	
Collared Dove	Feral Pigeon	Pheasant	

Table 5: West Burton 1 - Abundance of Each Species of Conservation Concern Recorded During each Visit (peak in bold)

Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Birds predominantly associated with open arable/grassland fields							
Barn Owl	**Sch1**, LBAP	0	0	0	0	**1**	0
Black-headed Gull	Amber BoCC	0	0	0	**2**	0	0
Fieldfare	**Red BoCC**, **Sch1**	11	**184**	45	51	24	0
Golden Plover	PJ	**5**	0	0	0	0	1
Greylag Goose	Amber BoCC	0	0	0	0	**3**	0
Kestrel	Amber BoCC, UKFBI	**1**	**1**	**1**	**1**	0	**1**
Lapwing	**Red BoCC**, **S41**, UKFBI, LBAP	0	0	**1**	**1**	0	0
Meadow Pipit	Amber BoCC	2	4	4	0	11	**15**
Merlin	**Red BoCC**, **Sch1**	0	**1**	0	0	0	0
Skylark	**Red BoCC**, **S41**, UKFBI, LBAP	49	51	70	**111**	73	41
Starling	**Red BoCC**, **S41**, UKFBI, LBAP	0	**40**	0	0	17	0
Stock Dove	Amber BoCC, UKFBI	0	6	0	**4**	1	0
Woodcock	**Red BoCC**	0		0	**1**	0	0
Woodpigeon	Amber BoCC, UKFBI	0	440	50	0	**452**	1
Birds predominantly associated with arable field margins and hedgerows/scrub boundaries							
Bullfinch	Amber BoCC, **S41**, LBAP	**1**	**1**	0	0	0	0
Dunnock	Amber BoCC, **S41**	0	2	1	**5**	0	0
Grey Partridge	**Red BoCC**, **S41**, LBAP	1	**60**	9	40	12	10
Linnet	**Red BoCC**, **S41**, UKFBI, LBAP	5	**25**	0	0	8	19
Mistle Thrush	**Red BoCC**	0	0	0	0	**1**	**1**
Redwing	Amber BoCC, **Sch1**	0	**109**	4	4	5	0
Reed Bunting	Amber BoCC, **S41**, UKFBI, LBAP	0	2	1	4	4	**24**
Song Thrush	Amber BoCC, **S41**	0	1	0	2	3	**8**
Wren	Amber BoCC	0	**1**	**1**	0	0	0
Yellowhammer	**Red BoCC**, **S41**, UKFBI, LBAP	7	9	1	0	8	**12**

Table 6: West Burton 2 - Abundance of Each Species of Conservation Concern Recorded During each Visit (peak in bold)

Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Birds predominantly associated with open arable/grassland fields							
Barn Owl	**Sch1**, LBAP	0	0	0	0	**2**	0
Black-headed Gull	Amber BoCC	210	**331**	0	0	0	0
Fieldfare	**Red BoCC**, **Sch1**	41	**519**	212	230	449	25
Golden Plover	PJ	45	0	37	0	**53**	0
Greylag Goose	Amber BoCC	0	0	0	0	0	**4**
Herring Gull	**Red BoCC**, **S41**	0	0	0	0	**1**	0
Kestrel	Amber BoCC, UKFBI	1	2	**5**	4	3	0
Lapwing	**Red BoCC**, **S41**, UKFBI, LBAP	46	**69**	3	41	30	2
Lesser Black-backed Gull	Amber BoCC	**2**	0	0	0	0	0
Meadow Pipit	Amber BoCC	11	23	**24**	12	16	21
Peregrine	**Sch1**	**1**	0	**1**	0	0	0
Rook	Amber BoCC, UKFBI	**162**	52	126	142	64	62
Skylark	**Red BoCC**, **S41**, UKFBI, LBAP	**131**	101	112	100	58	75
Starling	**Red BoCC**, **S41**, UKFBI, LBAP	150	127	15	**321**	101	4
Stock Dove	Amber BoCC, UKFBI	8	24	2	**39**	6	6
Woodcock	**Red BoCC**	0	0	0	1	**2**	0
Woodpigeon	Amber BoCC, UKFBI	**1550**	436	235	826	526	35
Birds predominantly associated with arable field margins and hedgerows/scrub boundaries							
Brambling	**Sch1**	0	**5**	0	0	0	2
Bullfinch	Amber BoCC, **S41**, LBAP	0	4	**8**	0	0	0
Dunnock	Amber BoCC, **S41**	6	4	7	**12**	5	3
Greenfinch	**Red BoCC**, UKFBI	0	0	8	**31**	1	1
Grey Partridge	**Red BoCC**, **S41**, LBAP	3	47	**52**	18	11	20
House Sparrow	**Red BoCC**, **S41**	**19**	10	0	3	0	2
Linnet	**Red BoCC**, **S41**, UKFBI, LBAP	**256**	130	34	34	57	40
Marsh Tit							
Mistle Thrush	**Red BoCC**	1	0	0	0	0	**5**
Redwing	Amber BoCC, **Sch1**	4	98	158	**365**	186	47
Reed Bunting	Amber BoCC, **S41**, UKFBI, LBAP	8	**45**	20	24	5	27
Song Thrush	Amber BoCC, **S41**	0	6	**16**	**16**	3	6
Tree Sparrow	**Red BoCC**, **S41**, UKFBI, LBAP	**5**	0	0	0	0	0
Wren	Amber BoCC	0	**8**	3	7	3	5
Yellowhammer	**Red BoCC**, **S41**, UKFBI, LBAP	49	**92**	21	41	4	42
Birds predominantly associated with ditches, waterbodies and associated habitats							
Green Sandpiper	Amber BoCC	0	0	**1**	0	0	0
Grey Wagtail	Amber BoCC	**2**	0	1	0	1	0
Mallard	Amber BoCC,	44	16	41	**45**	7	27
Moorhen	Amber BoCC	1	0	**4**	0	0	1
Snipe	Amber BoCC, LBAP	20	16	17	5	**54**	15
Teal	Amber BoCC	0	0	0	**13**	0	3

Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Wigeon	Amber BoCC	0	0	0	**8**	0	1
Birds predominantly associated with mature trees/woodland							
Marsh Tit	**Red BoCC, S41**	**1**	0	0	0	0	0
Sparrowhawk	Amber BoCC	1	0	1	**3**	0	2

Table 7: West Burton 3 - Abundance of Each Species of Conservation Concern Recorded During each Visit (peak in bold)

Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Birds predominantly associated with open arable/grassland fields							
Barn Owl	**Sch1**, LBAP	0	**1**	0	**1**	0	0
Black-headed Gull	Amber BoCC	0	**51**	0	20	0	0
Common Gull	Amber BoCC	0	0	1	**60**	0	0
Fieldfare	**Red BoCC, Sch1**	171	**861**	243	107	722	0
Golden Plover	PJ	0	**38**	0	0	1	0
Greylag Goose	Amber BoCC	**130**	0	0	70	3	21
Kestrel	Amber BoCC, UKFBI	1	**6**	0	**6**	2	1
Lesser Black-backed Gull	Amber BoCC	**1**	0	0	0	0	0
Meadow Pipit	Amber BoCC	**48**	12	37	31	30	13
Red Kite	**Sch1**	0	0	0	0	**1**	0
Rook	Amber BoCC, UKFBI	46	71	37	39	**79**	0
Skylark	**Red BoCC, S41**, UKFBI, LBAP	65	22	63	25	29	**90**
Starling	**Red BoCC, S41**, UKFBI, LBAP	442	35	236	72	**559**	0
Stock Dove	Amber BoCC, UKFBI	0	8	2	2	**19**	6
Woodpigeon	Amber BoCC, UKFBI	378	1214	1397	720	**2780**	244
Birds predominantly associated with arable field margins and hedgerows/scrub boundaries							
Brambling	**Sch1**	0	**71**	0	0	0	0
Bullfinch	Amber BoCC, **S41**, LBAP	5	5	3	**6**	0	2
Dunnock	Amber BoCC, **S41**	13	11	12	4	6	**18**
Greenfinch	**Red BoCC**, UKFBI	**21**	12	0	7	1	1
Grey Partridge	**Red BoCC, S41**, LBAP	10	12	**34**	18	8	21
House Sparrow	**Red BoCC, S41**	4	3	4	2	0	**7**
Lesser Redpoll	**Red BoCC, S41**	1	0	**10**	0	0	0
Linnet	**Red BoCC, S41**, UKFBI, LBAP	191	**192**	167	26	5	12
Mistle Thrush	**Red BoCC**	2	1	**3**	0	0	0
Redwing	Amber BoCC, **Sch1**	44	**3560**	17	112	97	5
Reed Bunting	Amber BoCC, **S41**, UKFBI, LBAP	**17**	9	3	8	0	13
Song Thrush	Amber BoCC, **S41**	1	20	9	15	**23**	3
Wren	Amber BoCC	8	5	**12**	1	11	5
Yellowhammer	**Red BoCC, S41**, UKFBI, LBAP	**63**	41	45	37	30	42
Birds predominantly associated with ditches, waterbodies and associated habitats							

Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Green Sandpiper	Amber BoCC	0	0	0	**1**	0	0
Grey Wagtail	Amber BoCC	1	**3**	0	0	0	0
Mallard	Amber BoCC	4	0	0	0	0	**12**
Moorhen	Amber BoCC	**4**	1	1	0	0	2
Shelduck	Amber BoCC	0	0	0	0	0	**2**
Teal	Amber BoCC	2	**40**	9	0	0	0
Birds predominantly associated with mature trees/woodland							
Sparrowhawk	Amber BoCC	0	**5**	0	0	2	1

Distribution & Abundance by Habitat Type

3.2.12 The main habitats utilised by wintering birds across all Sites included:

- Open, arable and fallow fields or grassland/pasture fields
- Arable field margins/ hedgerows and scrub
- Ditches, waterbodies and associated habitats
- Mature trees and woodland

3.2.13 Species associated with each of these broad habitat types are discussed in turn in the text below. Species recorded in low numbers on a limited number of survey visits are generally not discussed, as it is unlikely that the Site(s) are of particular importance to these species.

3.2.14 A general summary of the findings across all Sites is given, followed by an assessment of the findings for each specific Site. The distribution of key species is discussed in detail.

3.2.15 It is important to note that many species range widely to forage in the winter and use different locations sporadically. Both the frequency of recording and the abundance of each species must be considered, and this data put into context with regard to local and national populations and the availability of similar habitats in the surrounding landscape.

3.2.16 Where data shows a species to have been recorded rarely or in low numbers, this could imply that the Site(s) are not significant contributors to their survival over the winter. However, the detectability of such species should be considered, as some are elusive/ cryptic and may have been missed by the survey. The rarity of certain species may also mean that recording just a few individuals is significant.

3.2.17 Conversely, where a species was recorded regularly and in significant numbers at a particular Site, this could imply a greater level of importance of the Site to this species. However, again this must be contextualised.

<u>Open, arable and fallow fields or grassland/pasture fields</u>

All Sites

3.2.18 The greatest diversity of notable species (20) was associated primarily with open habitats. These species also constituted the greatest abundance of birds recorded by the surveys.

3.2.19 A total of 11 species associated with open habitats were recorded at all four Sites, with these species tending to be 'core' farmland species, including barn owl, kestrel, skylark, starling, stock dove and woodpigeon. Additional species recorded at all four Sites included black-headed gull, fieldfare, golden plover, greylag goose and meadow pipit. These species are more dependent on arable and grassland habitats over the winter months rather than year-round. In general, species recorded across all four Sites were also recorded consistently across the survey period.

3.2.20 Species recorded in relatively large numbers at a particular Site included: black-headed gull, golden plover, greylag goose, lapwing, rook, starling, stock dove and woodpigeon.

3.2.21 Rarely recorded notable species included: herring gull, merlin and red kite (1 bird on 1 occasion); peregrine (1 bird on 2 occasions); and woodcock (small numbers of birds on 1 or 2 occasions). These species could have been recorded on migratory passage or may range widely in the winter; hence the Site(s) are unlikely to be critical to their survival. However, some of these species are more elusive and may have been missed by the survey on other visits.

West Burton 1

3.2.22 Fieldfare were recorded on each visit except the final survey in late March, by which time most birds are likely to have returned to their breeding grounds. The peak count was 184 birds in December. This species forages both in pasture, arable fields and boundary habitats. The greatest numbers were recorded in the west of the Site.

3.2.23 A single kestrel was recorded on 5/6 visits and is likely a resident bird.

3.2.24 A single lapwing was recorded on Visits 3 and 4. On Visit 3 the bird was in the south of field M2. On Visit 4 the bird was off-site, west of M1.

3.2.25 Meadow pipit were recorded on 5/6 visits in fairly low numbers and were widely distributed.

3.2.26 A single merlin was recorded on one occasion in the northwest of the Site. This is a notable species but based on the survey data is unlikely to use the Site consistently. This species is however fast-flying and elusive and could have been easily missed on other occasions.

3.2.27 Skylark were consistently recorded in modest numbers, peaking at 111 birds in late January. For its size, the Site supported good numbers of skylarks over the winter. The greatest numbers were recorded in the west and southeast.

3.2.28 Woodpigeon were recorded in large flocks of around 450 birds on two non-consecutive visits, and smaller flocks on another two visits, mostly in the Site boundaries at this Site.

West Burton 2

3.2.29 Black-headed gull were recorded in large flocks in the south and east of the Site on two occasions in the early part of the winter, but not thereafter. This Site may offer an important foraging resource early in the winter to this species.

3.2.30 Fieldfare were recorded on each visit in moderate to high numbers. The peak count was 519 birds in December. These were widespread but the greatest numbers were in the northwest of the Site.

3.2.31 Golden plover were recorded in medium-sized flocks of 37 to 53 birds on 3/6 (alternate) survey visits. This implies that they use the Site over the whole winter period but that the Site forms a portion of their range. These flocks would periodically settle to forage within stubble and pasture fields before taking flight to move around locally throughout the survey visits. They were recorded in the southwest and northeast of the Site (fields N6 and N25).

3.2.32 Kestrel were recorded on 5/6 visits with a peak of 5 birds. The Site therefore supports a small population.

3.2.33 Lapwing were recorded on each survey visit, with a peak of 69 birds in December. As with golden plover, these birds would form flocks and periodically take flight to move around locally, taking advantage of the abundance of stubbles, grassland and cultivated fields in the local area. The numbers recorded are noteworthy as lapwing are a red-listed wader species and SPI. The key part of the Site was the north-eastern fields (N25 and N26), although appreciable numbers were also recorded in the south of the Site in field N23 in November.

3.2.34 Meadow pipit were recorded on each visit in fairly low numbers and were widely distributed.

3.2.35 A single peregrine was recorded on two occasions in the east of the Site and may hold a territory locally.

3.2.36 Rook were recorded on each visit in modest flocks, peaking at 162 birds. The rough centre of the Site supported the majority of birds. The Site supported reasonable numbers of this newly amber-listed species.

3.2.37 Skylark were generally recorded in modest numbers, peaking at 131 birds in November. They were fairly widespread but the greatest numbers were in the west, especially the northwest.

3.2.38 Starling were consistently recorded in modest numbers, peaking at 321 birds in February. They were widespread but the greatest numbers were in the northwest, southwest and east of the Site.

3.2.39 Low to medium numbers of stock dove were recorded across the survey period, with a peak of 39 birds. These were often foraging with woodpigeon, which were present in much greater numbers (peak 1550 birds). Both species were widespread and the Site provided good foraging resources for both species in the winter months.

West Burton 3

3.2.40 Black-headed gull and common gull were recorded in fairly low numbers on two occasions in the south and west of the Site. The Site is unlikely to be of particular importance to these species.

3.2.41 Fieldfare were widespread and recorded on each visit except the final visit in moderate to high numbers. The peak count was 861 birds in December.

3.2.42 Golden plover were only recorded in appreciable numbers on a single occasion in December (38 birds), in the rough middle of the Site, field Q24. They were also recorded in Q27.

3.2.43 A peak of 130 greylag goose was recorded in November, with lower numbers on another 3 visits. They were recorded in the rough middle of the Site. West Burton 3 is the only Site to support appreciable numbers.

3.2.44 Kestrel were recorded on 5/6 visits with a peak of 6 birds. The Site therefore supported a small wintering population.

3.2.45 Meadow pipit were recorded on each visit in modest numbers and were widely distributed.

3.2.46 Rook were recorded on 5/6 visits in smallish flocks, peaking at 79 birds. The greatest numbers were in the south of the Site.

3.2.47 Skylark were consistently recorded in modest numbers (peak 90 birds), with the greatest numbers in the west.

3.2.48 Starling were present across the survey period in high numbers (peak 559 birds), especially in the west of the Site. The numbers of this red-listed SPI are noteworthy.

3.2.49 Low numbers of stock dove were recorded on 5/6 visits and were fairly widely distributed.

3.2.50 Woodpigeon were present across the survey period in high numbers (peak 2780 birds), mainly in the centre and west of the Site. This was the most recorded at any Site.

<u>Arable field margins/ hedgerow and scrub boundaries</u>

All Sites

3.2.51 A reduced number of notable species were associated principally with the boundary habitats (15). These habitats were generally used consistently across all Sites, with just a handful of species being recorded infrequently or restricted to a particular Site. These habitats also supported a high abundance of birds.

3.2.52 Redwing were recorded in particularly high numbers at West Burton 3; and yellowhammer in particularly high numbers at West Burton 2.

3.2.53 Two species were recorded rarely: lesser redpoll (small flocks at West Burton 3 on 2/6 visits) and tree sparrow (5 birds on 1 occasion at West Burton 2). Brambling were also recorded infrequently at two of the three Sites, although in modest numbers at West Burton 3.

West Burton 1

3.2.54 Dunnock were recorded in the middle of the survey period in low numbers.

3.2.55 Grey partridge were present across the survey period in modest numbers, with a peak count of 60 birds. This species was widespread.

3.2.56 Linnet were recorded on 4/6 visits in fairy low numbers (peak 25).

3.2.57 Very low numbers of redwing were recorded, with the exception of 109 birds in December.

3.2.58 Reed bunting were present in low numbers in the main, but a peak of 24 birds was recorded in late March.

3.2.59 Song thrush were present on 4/6 visits, with a peak of 8 birds in late March.

3.2.60 Yellowhammer were present in low numbers in the main, with a peak of 12 birds recorded in late March.

West Burton 2

3.2.61 A peak of 5 brambling were recorded, with this species being present on two occasions. This winter visitor often forms mixed flocks with other finches.

3.2.62 Bullfinch were recorded on two occasions, with a peak of 8 birds in January. These birds are likely to be taking advantage of seasonal berry resources in the hedgerows.

3.2.63 Dunnock were recorded consistently in fairly low numbers.

3.2.64 Greenfinch were recorded in generally low numbers on 4/6 visits, however a peak of 31 birds was recorded in early February. Given this species' recent decline and red-listed status, the peak count of 31 birds is notable, although this species was not present in good numbers across the survey period.

3.2.65 Grey partridge were present across the survey period in modest numbers, with a peak count of 52 birds. They were widespread, but fields N25-N31 were especially well-used.

3.2.66 House sparrow were recorded in fairly low numbers on 4/6 visits, with a peak of 19 birds in November.

3.2.67 Linnet were recorded consistently across the survey period, with numbers dropping off after a peak in November (256 birds). The Site supports good numbers of this red-listed SPI.

3.2.68 Mistle thrush were observed on just 2 occasions, with a peak of 5 birds.

3.2.69 Redwing were recorded consistently in modest numbers (peak 365 birds).

3.2.70 Reed bunting were present in modest numbers across the survey period, with a peak of 45 birds in December.

3.2.71 Song thrush were present on 5/6 visits, with a peak of 16 birds in January and early February. These numbers are relatively high as song thrush are not typically gregarious and were recorded chiefly as individuals or pairs.

3.2.72 Tree sparrow were only present on a single occasion in November in low numbers.

3.2.73 Wren were present across the majority of the winter period in fairly low numbers.

3.2.74 Yellowhammer were present in modest numbers across all visits, with a peak of 92 birds recorded in December.

West Burton 3

3.2.75 A modest flock of 71 brambling were recorded in November only.

3.2.76 Bullfinch were recorded on 5/6 visits, with a peak of 6 birds.

3.2.77 Dunnock were recorded consistently in modest numbers.

3.2.78 Greenfinch were recorded in fairly low numbers on 5/6 visits, with a peak of 21 birds in November.

3.2.79 Grey partridge were present across the survey period in modest numbers, with a peak count of 34 birds. Key fields were Q9, Q14, Q20 and Q27, as well as P5.

3.2.80 House sparrow were recorded in low numbers on 5/6 visits.

3.2.81 Lesser redpoll were recorded on two occasions in fairly low numbers.

3.2.82 Linnet were recorded consistently across the survey period, with numbers dropping off after a peak in December (192 birds). The Site supports good numbers of this red-listed SPI.

3.2.83 Mistle thrush were observed on 3 occasions, with a peak of 3 birds.

3.2.84 Redwing were recorded consistently in fairly low numbers, although a much greater number of birds was observed in December (3650 individuals), which are considered to have been passing through. This number is the greatest recorded across all three Sites.

3.2.85 Reed bunting were present in fairly low numbers on 5/6 visits, with a peak of 17 birds in November.

3.2.86 Song thrush were present on each visit in varying numbers. A peak of 23 birds was recorded in early February. These numbers are relatively high as song thrush are not typically gregarious and were recorded chiefly as individuals or pairs.

3.2.87 Wren were present across the majority of the winter period in fairly low numbers.

3.2.88 Yellowhammer were present in modest numbers across all visits, with a peak of 63 birds recorded in November.

Ditches, waterbodies and associated habitats

All Sites

3.2.89 Just 8 notable species were primarily associated with waterbodies and associated habitats, reflecting the greater degree of specialisation to this habitat type, as well as perhaps the paucity of this habitat across the Sites. The abundance of these species was also generally low, with higher numbers only recorded when a flock of wildfowl or waders was present.

3.2.90 All species were only present at one or two Sites, and most species were not consistently recorded across the survey period. The only species recorded regularly (more than 3/6 visits) were mallard and snipe.

West Burton 1

3.2.91 No species associated with these habitats were present at this Site.

West Burton 2

3.2.92 A single green sandpiper was present on a single occasion in January on the adjacent river.

3.2.93 A peak of 2 grey wagtail were recorded, with one bird being observed on 3/6 visits foraging in a field in the north of the Site.

3.2.94 Mallard were present on each survey visit in good numbers, with a peak of 45 individuals. They were recorded in the ponds in the Site centre, as well as on the river adjacent.

3.2.95 Moorhen were present in low numbers on 3/6 visits.

3.2.96 Snipe were present on each survey visit in generally fairly low numbers, but a peak of 54 individuals was recorded in late February. They were chiefly recorded in the north-eastern field, but also further fields in the east and central western parts of the Site.

3.2.97 Teal and wigeon were both recorded on 2 visits in low numbers in the central pond. A peak of 13 teal and 8 wigeon were recorded, both in early February. Teal were also recorded in the north-eastern field which contained damp grassland and several ponds.

West Burton 3

3.2.98 A single green sandpiper was present on a single occasion in early February, on the river adjacent to the Site.

3.2.99 A peak of 3 grey wagtail were recorded in the west of the Site, with this species being observed on 2 visits early in the winter.

3.2.100 Mallard were present in low numbers in ditches on just 2 visits.

3.2.101 Moorhen were present in low numbers on 4/6 visits.

3.2.102 Two shelduck were observed on a single occasion in late March.

3.2.103 Teal were observed on three occasions in ponds just outside the Site, with a peak of 40 birds in December. These numbers are the greatest recorded across the Sites.

Mature trees and woodland

All Sites

3.2.104 Woodland was a scarce habitat within the Sites and where present was typically small blocks of plantation. Larger blocks of woodland lay at the Site boundaries but were not surveyed beyond the immediately abutting areas. Mature trees were present in numerous hedgerows but were not of principal importance to the bird species recorded during the wintering surveys. The importance of mature trees will be greater in the breeding season when particular species will use them for nesting and foraging.

3.2.105 The only species associated principally with woodland were marsh tit and sparrowhawk. Marsh tit was recorded at one Site on just one occasion. Sparrowhawk was recorded at two of the three Sites in low numbers.

West Burton 1

3.2.106 No species associated primarily with woodland were recorded at this Site.

West Burton 2

3.2.107 A single marsh tit was recorded in November only within woodland in the centre of the Site. This is a rare and shy species which is likely to be present in low numbers.

3.2.108 Sparrowhawk were recorded on 4/6 survey visits, with a peak count of 3 birds.

West Burton 3

3.2.109 Sparrowhawk were recorded on 3/6 survey visits, with a peak count of 5 birds.

Summary of Distribution of Key Species

3.2.110 Considering all species of conservation concern together, the key areas of each Site are discussed below.

West Burton 1

3.2.111 Several species were widely distributed across the Site, but the western fields were of comparative importance for fieldfare and skylark. The single merlin was also recorded here.

West Burton 2

3.2.112 The north-eastern field was comparatively important to several species, including golden plover, lapwing, linnet, yellowhammer, snipe and teal.

3.2.113 The eastern and southern fields were regularly used by skylark, grey partridge and reed bunting. The large flocks of black-headed gull were also recorded here.

3.2.114 The central fields supported good numbers of rook, stock dove and greenfinch.

3.2.115 The north-west of the Site supported the best numbers of fieldfare, starling, brambling and redwing, as well as good numbers of skylark.

3.2.116 The central ponds also supported mallard, teal and wigeon.

West Burton 3

3.2.117 Fields in the rough centre of the Site supported the best numbers of greylag geese, stock dove and woodpigeon, as well as good numbers of yellowhammer.

3.2.118 The south of the Site was most regularly used by gulls, rook, and linnet and was also used by greenfinch and grey partridge.

3.2.119 Skylark and starling were most prevalent in the west of the Site.

3.2.120 The northwest of the Site was regularly used by redwing and grey partridge, and good numbers of greenfinch used the western boundary.

Non-notable Species/ Species not of Conservation Concern

3.2.121 Additional non-notable species were generally common and widespread residents. The only migratory species recorded was chiffchaff, a summer visitor which is increasingly being recorded in winter.

3.2.122 The majority of species were passerines associated with hedgerows and woodland. Farmland species included goldfinch, pheasant and red-legged partridge, as well as little owl, which nest in burrows and features such as stone walls (where present). The one typically urban species was feral pigeon. Wetland birds comprised Canada goose, coot, cormorant, grey heron, little egret and mute swan. Species not conforming to these broad habitat specifications included raven and stonechat.

3.2.123 The assemblage is fairly typical of the habitats present within the Sites and local area.

Overview of Potential Impacts

3.2.124 The species considered to the 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 gulls, geese and waders (golden plover, lapwing, snipe and woodcock).

3.2.125 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.

3.2.126 Other species like linnet, meadow pipit, reed bunting, skylark 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.

3.2.127 The installation of arrays should have limited impacts on boundary habitats, waterbodies and woodland, which are expected to be retained. As such, species associated with these habitats are unlikely to be affected.

3.2.128 No species associated with nearby designated sites with wintering bird interest were recorded in significant numbers. As such the proposed development is unlikely to have a deleterious impact on these sites.

4 ECOLOGICAL EVALUATION

4.1.1 This section provides an analysis of the value of ecological features (birds) identified as occurring within or in proximity of the Sites. 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.

4.1.2 **Table 8** below provides the status of each notable bird species recorded and also the importance of the Site to each species based on the combined survey results.

4.1.3 The County status is based on information provided by the Lincolnshire Biodiversity Action Plan (2011-2020). The Lincolnshire population estimate comes from The Birds of Lincolnshire (Casey et al. 2021).

4.1.4 A Minimum Population Estimate (MPE) for the whole Scheme has been calculated based on a sum of the peak counts of each species recorded at each Site.

Table 8: Ecological Evaluation

Species	National Status	County status	Abundance and Distribution within the Sites	Ecological Importance
Birds predominantly associated with open arable/grassland fields				
Barn Owl	**Sch1**	LBAP Current Lincolnshire population estimated at 1,200 pairs.	1 or 2 birds at each Site. Likely to have large home ranges. MPE 4 (~0.2% of Lincs population).	Local
Black-headed Gull	**Amber BoCC**	Lincolnshire wintering population at least 45,000 birds, likely much higher.	Large flocks (peak 331) recorded at WB2 on two occasions. MPE 384 (~0.86% of Lincs population).	Local
Common Gull	**Amber BoCC**	Data deficient, but Lincolnshire wintering population at least 10,000 birds.	Smallish flocks at WB3 and WB4 on two occasions. MPE 60 (~0.6% of Lincs population).	Local
Fieldfare	**Red BoCC, Sch1**	Wintering population estimate data deficient.	Recorded throughout the winter at all Sites in reasonable numbers (peak 861 at WB3). MPE 1,564. *But note highly mobile nature and likelihood of double-counting across Sites.*	Local
Golden Plover		Lincolnshire wintering numbers ~47,000 birds.	Recorded at all Sites sporadically, with modest flocks (peak 53 birds). MPE 96 (~0.2% of Lincs population).	Local
Greylag Goose	**Amber BoCC**	Winter abundance in Lincolnshire ~6,000 birds.	Mainly recorded at WB3. MPE 137 (~2.3% of Lincs population).	District

Species	National Status	County status	Abundance and Distribution within the Sites	Ecological Importance
Herring Gull	**Red BoCC, S41**	Data deficient, but Lincolnshire wintering population at least 8,500 birds.	Single bird recorded on one occasion. <0.1% of Lincs wintering population.	Local
Kestrel	**Amber BoCC**, UKFBI	Lincolnshire wintering population data deficient.	Regularly recorded with small populations at each Site (peak 6 birds). MPE 12.	Local
Lapwing	**Red BoCC, S41**, UKFBI	LBAP Data deficient, with winter population variable. Average 21,000 birds in winter from top 10 monitored sites.	Recorded at all Sites except WB3. Appreciable numbers at WB2 where consistently recorded (peak 69). MPE 71 (0.34% of Lincs population).	Local
Lesser Black-backed Gull	**Amber BoCC**	Data deficient, but Lincolnshire wintering population likely around 100 birds.	Recorded rarely in low numbers. MPE 3 (3% of Lincs wintering population).	Local
Meadow Pipit	**Amber BoCC**	Lincolnshire population data deficient, but likely around 20,000 pairs.	Regularly recorded at all Sites in modest numbers (peak 48). MPE 87 (~0.22% of Lincs population).	Local
Merlin	**Red BoCC, Sch1**	Lincolnshire wintering population data deficient.	Single bird at WB1 on one occasion. May be under-recorded.	Local
Peregrine	**Sch1**	Lincolnshire wintering population data deficient.	Single bird at WB2 on two occasions.	Local
Red Kite	**Sch1**	Lincolnshire wintering population data deficient, but count of 25 birds in 2017.	Single bird at WB3 on one occasion. Not likely to be strongly associated with the Site.	Local
Rook	**Amber BoCC**, UKFBI	Lincolnshire population estimate 38,000 pairs.	Modest flocks recorded regularly at WB2-4. MPE 241 (0.32% of Lincs population).	Local
Skylark	**Red BoCC, S41**, UKFBI	LBAP Estimate of around 70,000 pairs in Lincolnshire.	Modest numbers at all Sites (max 131 at WB2); consistently recorded. MPE 332 (0.24% of Lincs population).	Local

Species	National Status	County status	Abundance and Distribution within the Sites	Ecological Importance
Starling	**Red BoCC**, **S41**, UKFBI	LBAP Estimate of around 30,000 pairs in Lincolnshire.	Modest numbers at all Sites, especially WB3 (max 559); consistently recorded. MPE 920 (~1.5% of Lincs population).	District
Stock Dove	**Amber BoCC**, UKFBI	Estimate of around 11,000 pairs in Lincolnshire.	Generally low numbers at all Sites. MPE 64 (~0.3% of Lincs population).	Local
Woodcock	**Red BoCC**	Lincolnshire wintering population data deficient.	1 or 2 birds recorded on 1-2 occasions at WB1 and WB2. MPE 3.	Local
Woodpigeon	**Amber BoCC**, UKFBI	Estimate of 78,000 pairs in Lincolnshire.	Consistently recorded at all Sites, with high numbers at WB3 especially (peak 2780). MPE 4,782 (~3.1% of Lincs population). *But note highly mobile nature and likelihood of double-counting across Sites.*	Local
Birds predominantly associated with arable field margins and hedgerows/scrub boundaries				
Brambling	**Sch1**	Lincolnshire population data deficient, but largest flocks in winter rarely above 25 birds. Much higher numbers on passage.	Recorded at WB2 in low numbers on two occasions and a modest flock on one occasion at WB3. MPE 76	Local
Bullfinch	**Amber BoCC**, **S41**	LBAP Estimate of around 4,800 pairs in Lincolnshire (from 2016).	Fairly low numbers at all Sites. MPE 15 (~0.16% of Lincs population).	Local
Dunnock	**Amber BoCC**, **S41**	Lincolnshire population estimate data deficient.	Fairly low to modest numbers at all Sites. MPE 35.	Local
Greenfinch	**Red BoCC**, UKFBI	Estimate of around 18,000 pairs in Lincolnshire (from 2016).	Modest flocks recorded at WB2 and WB3. MPE 52 (~0.14% of Lincs population).	Local
Grey Partridge	**Red BoCC**, **S41**	LBAP Estimate of around 4,000 pairs in Lincolnshire.	Recorded at all Sites, especially WB1 and WB2. MPE 146 (~1.8% of Lincs population).	District

Species	National Status	County status	Abundance and Distribution within the Sites	Ecological Importance
House Sparrow	**Red BoCC**, **S41**	Estimate of around 130,000 birds in Lincolnshire.	Fairly low numbers at WB2 and WB3. MPE 26 (<0.1% of Lincs population).	Local
Lesser Redpoll	**Red BoCC**, **S41**	Wintering population estimate data deficient.	Small flocks at WB3 on two occasions. MPE 10.	Local
Linnet	**Red BoCC**, **S41**, UKFBI	LBAP Estimate of around 30,000 pairs in Lincolnshire from 2016. Largest wintering flocks in recent years average 500 birds in a single flock.	Consistently recorded at all Sites. Greatest numbers at WB2 and WB3 (peak 256). MPE 473 (~0.79% of Lincs population).	District
Mistle Thrush	**Red BoCC**	Lincolnshire population estimate of ~3,000 pairs.	Recorded at all Sites in low numbers. MPE 9 (~0.15% of Lincs population).	Local
Redwing	**Amber BoCC**, **Sch1**	Wintering population estimate data deficient.	Recorded at all Sites in modest numbers, except WB3 where high numbers recorded (peak 3560). MPE 4,034. *But note highly mobile nature and likelihood of double-counting across Sites.*	District
Reed Bunting	**Amber BoCC**, **S41**, UKFBI,	LBAP Lincolnshire population estimate of 32,000 birds in 2016. Largest wintering flocks average 300 in recent years.	Recorded chiefly at WB2 in modest numbers (peak 45), although present at all Sites. MPE 86 (~0.27% of Lincs population).	Local
Song Thrush	**Amber BoCC**, **S41**	Lincolnshire wintering population estimate data deficient.	Recorded at all Sites, especially abundant at WB3 (peak 23). MPE 47.	Local
Tree Sparrow	**Red BoCC**, **S41**, UKFBI	LBAP Estimate of around 18,000 pairs in Lincolnshire.	Low numbers at WB2 only on a single occasion. MPE 5 (<0.1% of Lincs population).	Local
Wren	**Amber BoCC**	Lincolnshire population data deficient but likely well over 200,000 pairs.	Fairly low numbers at all Sites. MPE 21 (<0.1% of Lincs population).	Local

Species	National Status	County status	Abundance and Distribution within the Sites	Ecological Importance
Yellowhammer	**Red BoCC**, **S41**, UKFBI	LBAP Lincolnshire population estimate of 39,000 in 2016. Largest wintering flocks up to 250 in recent years.	Consistently recorded at all Sites. Greatest numbers at WB2 and WB3 (peak 92). MPE 167 (~0.43% of Lincs population).	Local
Birds predominantly associated with ditches, waterbodies and associated habitats				
Green Sandpiper	**Amber BoCC**	Data deficient but likely Lincolnshire wintering population ~200 birds.	Single bird at WB2 and WB3 on one occasion. Not associated with the Site itself. MPE 2 (1% of Lincs population).	Site
Grey Wagtail	**Amber BoCC**	Lincolnshire population data deficient, but likely around 50-100 pairs.	Low numbers (max 3) recorded at WB2 and WB3. Using adjacent river in the main as well as one individual regularly foraging in the same field. MPE 5 (2.5% of Lincs population).	Local
Mallard	**Amber BoCC,**	Estimate of 4,000 birds for Lincolnshire wintering population.	Regularly recorded at WB2 in modest numbers (peak 45) and less often at WB3. In ponds, ditches and adjacent river. MPE 57 (1.4% of Lincs population).	Local
Moorhen	**Amber BoCC**	Lincolnshire population estimate of 7,000 pairs.	Low numbers at WB2 and WB3. MPE 8 (<0.1% of Lincs population).	Site
Shelduck	**Amber BoCC**	Estimate of 7,000 birds for Lincolnshire wintering population.	2 birds on a single occasion in pond at WB3. h the Site itself. <0.1% of Lincs population.	Site
Snipe	**Amber BoCC,**	LBAP Lincolnshire wintering population estimate data deficient.	Consistently recorded at WB2, peak 54 birds. Using damp pasture field with ponds and arable fields. MPE 54.	Local
Teal	**Amber BoCC**	Estimate of 8,600 birds for Lincolnshire wintering population.	Recorded semiregularly in ponds at WB2 in fairly low numbers (peak 13) and WB3 just off-Site. MPE 53 (0.6% of Lincs population).	Local

Species	National Status	County status	Abundance and Distribution within the Sites	Ecological Importance
Wigeon	Amber BoCC	Estimate of 18,000 birds for Lincolnshire wintering population.	Low numbers (peak 8) recorded in pond at WB2 on two occasions. <0.1% of Lincs wintering population.	Local
Birds predominantly associated with mature trees/woodland				
Marsh Tit	**Red BoCC**, **S41**	Lincolnshire population estimate 140 pairs in 2016.	Single bird at WB2 on one occasion. May be under-recorded. ~0.4% of Lincs population.	Local
Sparrowhawk	Amber BoCC	Conservative estimate of 1,500 pairs in Lincolnshire.	Small populations at WB2 and WB3. MPE 8 (0.27% of Lincs population).	Local

5 SUMMARY

5.1.1 In total, 78 bird species were recorded across all Sites by the surveys. Of these, 46 were species of conservation concern/ notable species, comprising 16 red-listed and 24 amber-listed species; with 15 also being Species of Principal Importance. In addition, 7 species were also listed under Schedule 1 of the Wildlife & Countryside Act 1981 (as amended). Furthermore, 11 species were listed under the Lincolnshire BAP.

5.1.2 In combination, the Sites were considered to be of **District importance** to birds associated with boundary habitats; and **Local importance** to birds associated with open habitats, waterbodies and woodland.

5.1.3 The species considered to the 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: gulls, geese and waders (golden plover, lapwing, snipe and woodcock).

5.1.4 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.

5.1.5 Other species like linnet, meadow pipit, reed bunting, skylark and yellowhammer may also have reduced foraging opportunities, although are expected to utilise the newly created grassland habitats amongst the arrays to forage.

5.1.6 The installation of arrays should have limited impacts on boundary habitats, waterbodies and woodland, which are expected to be retained. As such, species associated with these habitats are unlikely to be affected.