



Tween Bridge Solar Farm

A Nationally Significant Infrastructure Project in the Energy Sector

Preliminary Environmental Information Report

Technical Appendix 7.12 – Outline Non-Breeding Bird Mitigation Strategy

March 2025



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Non-Breeding Bird Mitigation



**Tween Bridge
March 2025**



**Tyler
Grange**

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Introduction

- 1.1. This report has been produced by Tyler Grange Group Ltd (TG) on behalf of RWE Renewables in relation to 'Tween Bridge' solar farm. It has been produced to summarise the proposed mitigation strategy for the project in relation to non-breeding birds. This is informed by the data obtained from the 'Year 1' of the non-breeding bird surveys, completed between 2022 – 2023 and Year 2' non-breeding bird surveys, completed between 2023-2024, presented within Technical Appendix 7.3 of the Preliminary Environmental Information Report (PEIR) submitted.
- 1.2. Natural England (NE) was consulted on an earlier iteration of this strategy (DAS A010619 / 441464 and UDS-A017176) via their Discretionary Advice Service (DAS); the strategy has responded to NE's comments.
- 1.3. The non-breeding bird survey data is appended to this report (**Appendix 1**). These data comprise the locations of birds recorded within the survey area (Draft Order Limits [DOL] + 600m buffer around) which are listed as a qualifying feature under the Humber Estuary Special Protection Area (SPA). **Figure 1 and 2** below also summarise peak counts of each qualifying species recorded within the DOL and are a direct extract from Table 3.1 and 3.3 respectively of Technical Appendix 7.3 of the PEIR, which is also included at **Appendix 1**.

Table 3.1: Qualifying interests of the Humber Estuary SPA and Ramsar site recorded within the Draft Order Limits.

Target Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=14)
Greylag goose	September 2022	7	7	3	6	5
	March 2023	12	8			
Pink-footed goose	September 2022	497	330	3	340	73
	October 2022	523	360			
Teal	October 2022	2	2	4	6	2
	December 2022	3	3			
	January 2023	10	6			
	March 2023	7	4			
Little egret	November 2022	1	1	2	1	<1
	March 2023	1	1			
Lapwing	September 2022	813	390	12	125	107
	October 2022	48	25			
	November 2022	31	31			



	December 2022	302	78			
	January 2023	224	112			
	February 2023	54	32			
	March 2023	79	32			
Golden plover	September 2022	212	117			
	January 2023	12	11	5	51	18
	February 2023	32	21			
Curlew	March 2023	2	2	1	2	<1
Green sandpiper	September 2022	2	1			
	October 2022	1	1	5	1	<1
	December 2022	2	1			
	February 2023	1	1			
Marsh harrier	September 2022	4	1			
	October 2022	2	2	5	2	<1
	December 2022	1	1			
	March 2023	1	1			
Hen harrier	December 2022	1	1	1	1	<1

Figure 1 – Summary of Year 1 of non-breeding bird survey



Table 3.3: Qualifying interests of the Humber Estuary SPA and Ramsar site recorded within the Draft Order Limits.

Target Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=16)
Greylag goose	October 2023	402	210	7	93	40
	November 2023	157	157			
	December 2023	12	12			
	February 2024	41	27			
	March 2024	2	2			
	April 2024	21	9			
Pink-footed goose	October 2023	3374	3,133 ¹⁷	4	1,227	307
	November 2023	4	4			
	February 2024	1,530	1,530			
Teal	October 2023	2	2	4	0	2
	December 2023	3	3			
	January 2024	10	0			
	March 2024	7	4			
Wigeon	October 2023	0	0	1	0	<1



Oystercatcher	March 2024	4	2	2	2	<1
Lapwing	October 2023	261	220	10	117	73
	November 2023	481	371			
	December 2023	97	53			
	January 2024	155	79			
	February 2024	147	147			
	March 2024	8	4			
	April 2024	19	4			
Golden plover	November 2023	22	22	3	108	20
	January 2024	302	84			
Dunlin	October 2023	0	0	3	15	3
	November 2023	40	27			
Green sandpiper	December 2023	1	1	2	1	<1
	February 2024	1	1			
Curlew	March 2024	2	2	3	3	<1
	April 2024	6	2			
Marsh harrier	September 2023	1	1	5	1	<1
	November 2023	3	1			
	April 2024	2	1			

Figure 2 – Summary of Year 2 of non-breeding bird survey

- 1.4. It is considered that given the low numbers recorded (i.e. below significance threshold of 1% of SPA population – see Table 1 below) and general absence of suitable habitat, the following species do not require any specific mitigation: curlew, marsh harrier, hen harrier and teal.
- 1.5. Given the numbers of lapwing and pink-footed geese recorded within the DOL survey area, the site is functionally linked to the SPA for these species (see Table 1. below). Although the number of golden plover recorded within the DOL indicates that the site is not functionally linked to the SPA for this species, given the number recorded in the wider survey area, which would result in more than 1% threshold of the SPA population, those habitats are functionally linked to the SPA, and mitigation has been provided for this species too.
- 1.6. In addition to the above, greylag geese were recorded during the surveys. These were infrequently recorded in Year 1, but numbers increased in Year 2. However, this species are not associated with the Humber Estuary SPA and the populations located in England are widely regarded as non-native feral species, with truly wild species only found in Scotland¹.

¹ <https://www.wildlifetrusts.org/wildlife-explorer/birds/waterfowl/greylag-geese>



Species	Peak Count	1% threshold of Humber Estuary SPA (taken from latest 5 year peak mean) ²	Peak count as % of SPA population	Frequency	Commentary	Functionally Linked?
Golden plover	84	211.60	0.39	8 of 30 daytime visits and 4 of 7 nocturnal visits.	Less regular in Year 2 as opposed to Year 1. Nocturnal surveys identified small numbers of golden plover, with the exception of a peak count of a flock of 78 birds in January 2024.	NO – not significant against SPA threshold, or regular. Higher numbers located in the wider survey area.
Lapwing	371	159.51	2.33	22 of 30 daytime visits and all nocturnal visits.	Similar numbers in both years, with notable concentrations in the far south of the DRAFT ORDER LIMITS and in the far northeast but only in Year 1.	YES
Pink-footed goose	3133	233.3	13.43	7 of 30 daytime visits but 0 nocturnal visits.	Use of site unpredictable and not confined to repeat areas over both years. Year 1 birds were most regularly recorded in the centre of the Draft Order Limits and off-site to the north – in Year 2 this changed to the open areas of land in the east of the DRAFT ORDER LIMITS.	YES – infrequent but large numbers recorded

Table 1. - Species functionally linked to Humber Estuary SPA

- 1.7. Golden plover, lapwing and pink-footed goose have been noted as present in areas which would currently be subject to solar panel installations during the lifetime of the development. To this end, a mitigation response has been proposed tailored to these species. As detailed in **Appendix 1**, these species were recorded in the following habitats:

² <https://app.bto.org/webs-reporting/numbers.jsp> - accessed 03/12/2024



- Cereal;
- Oilseed rape;
- Stubble;
- Tilled;
- Rough grassland (only lapwing);
- Pasture (grazed – only golden plover).

Mitigation Strategy

- 1.8. The general approach to the mitigation response has been to target areas which are currently used by the qualifying species of note. The overall objective is to turn what is currently agricultural land, with no specific objectives of benefitting non-breeding birds, into land which is secured long-term for the lifetime of the development specifically for the benefit of lapwing, golden plover and pink-footed goose. There is research, as detailed within REP7-011 of the Cleve Hill Solar Park Habitat Regulations Assessment, that there is no competition between these species as *'golden plover and lapwing feed on surface invertebrates, whereas brent goose feeds on vegetation, meaning there is no competition for foraging resources between these species'* (Paragraph 4.28 of the HRA). Whilst brent goose is not relevant here, pink-footed geese have differing foraging/habitat requirements to lapwing and golden plover, so the same principles are considered valid.
- 1.9. At present, the land is intensively farmed for crops, which will result in a high nutrient content and inhibit the biodiversity of the soil in terms of invertebrate populations for lapwing and golden plover in particular. The approach of the mitigation response is, therefore, to turn existing areas of sub-optimal cropland into permanent pasture sensitively managed for lapwing, golden plover and pink-footed goose in particular, but which will undoubtedly have benefits for other non-breeding bird species and biodiversity in general. **Table 1** below summarises the principles of the mitigation strategy proposed.
- 1.10. Scrapes are also proposed to provide additional optimal habitat for waders as part of the mitigation design.
- 1.11. In addition, it is proposed to maintain and secure areas in arable production in order to provide the optimal habitat requirements for pink footed geese. The exact areas will be determined following consultation with Natural England and landowners, with full detail to be provided in the ES.

Habitat Intervention and Rationale	Management and Rationale
Reversion of existing agricultural land into a tussocky meadow grassland. An example grass mixture is Emorsgate EM1 or EM2. This	The management of the grassland can be achieved in a number of ways, set out below.



<p>will provide suitable breeding habitat for ground-nesting farmland birds and foraging/roosting/loafing habitat for non-breeding birds (primarily pink-footed geese, lapwing and golden plover). Subject to topography, consideration will also be given to the creation of shallow scrapes (in consultation with engineering/attenuation requirements) in these areas which can be designed to function as either a permanently marshy grassland (Emorsgate EM8), or ephemeral pools. Both of these habitats will be suitable as mitigation for both breeding and non-breeding birds.</p> <p>It would also be preferable to work with the topography of the land and create ground which is not completely flat. This will introduce a natural variation in the cutting height of the grass, leaving some areas longer and some areas possibly scalped, creating grounds of bare ground which will ultimately allow new grass growth to develop.</p> <p>These interventions would introduce more botanically diverse grassland and provide the wetland mosaics in strategic locations, particularly along the central canal corridor.</p>	<p><u>Traditional Hay Management</u></p> <p>This would comprise bi-annual cuts, with the first cut to 15cm undertaken in late summer after the core breeding season for ground-nesting farmland birds. The arisings would need to be removed from the area following the cut to allow new growth. A second cut should then be taken to 5cm in Autumn (no later than September), at the time when non-breeding birds will be arriving on passage, and kept like this until the beginning of March. This can be achieved with low intensity grazing (see below), or infrequent cuts/topping, and arisings removed.</p> <p>From March and during the breeding season, approximately 50% of the grassland should be less than 5cm in height to benefit early-season nesters such as skylark and lapwing, and approximately 25% of the grassland should be cut between 5cm and 15cm, and the remainder left long.</p>
<p>Providing arable land on rotation for the duration of the proposals, to ensure that foraging opportunities for pink footed geese is secured and provided, in addition to grassland areas.</p>	<p>The main principles to be implemented as part of the rotational arable management for the benefit of pink footed geese will include:</p> <ul style="list-style-type: none"> ○ Use sugar beet where possible. ○ Use other appropriate crops on rotation when sugar beet is not being grown, such as winter cereal crops, oil seed rape, post-harvest cereal stubbles, potatoes³. ○ Post-harvest, the fields should be left until the spring before ploughing to maximise the foraging resource, with the geese foraging on roots chopped into

³ <https://www.rspb.org.uk/birds-and-wildlife/pink-footed-geese>



	<p>fragments by the harvester, as well as unharvested roots.</p> <ul style="list-style-type: none"> ○ Avoidance of deep ploughing. ○ Incorporation of a ley crop within the management rotation. ○ Inclusion of permanent grass margins to the fields measuring a minimum 2 metres.
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Table 2 – Summary of mitigation measures and management strategy

- 1.13. In Natural England’s recent comments, they state that ‘*The addition of manure subject to a reasonable agricultural cycle*’ would be beneficial. However, it is understood that this is not normal farming practice for this area, due to the area mainly comprising arable with no livestock that create manure. Therefore this is not currently proposed.
- 1.14. The locations proposed for the mitigation response have, where possible, been chosen to align with recorded locations of the relevant species (**Appendix 1**). **Drawing 16413/P07a** attached to this report shows and numbers the parcels detailed for the mitigation responses outlined above. It should be noted that the red line boundary shown on the appended drawing relates to the extent of the Draft Order Limits presented as part of the non-statutory consultation, and is subject to change prior to statutory consultation and the ‘fix’ of the Order Limits.
- 1.15. **Table 3** below summarises the current baseline/use of these parcels and their hectareage.

Mitigation Parcel	Total (ha)	Area	Total Area (ha) with 150m buffer to solar arrays	Current baseline
1	7.32		1.64	Rough grassland set on edge of adjacent SPA, noted to be used by lapwing (peak counts of 45 and 8 birds) and graylag geese (2 birds). Lapwing also recorded in adjacent fields in larger numbers (112 and 32 birds).
3	6.95		1.8	Not noted to be used by target species during Year 1 of surveys, but adjacent to plots of similar habitat where golden plover were regularly recorded.
4	19.35		2.91	Directly adjacent to plots used by lapwing and golden plover.



5	33	6.87	Peak count of 360 pink-footed geese recorded within plot, and directly adjacent to other fields where pink-footed geese, golden plover and lapwing were recorded.
7	6.39	0.58	Forms one continuous parcel with parcel 8, albeit separated by a hedge and ditch. Had pink-footed geese recorded present.
8	5.38	1.68	Forms a continuous parcel with parcel 7, albeit separated by a hedge and ditch.
11	16.75	16.7	Arable land located in proximity to parcels 12 and 13, providing a large connected area over 77ha that would not be 'encompassed' by solar development, so would retain attractiveness to over-wintering birds in particular. The field compartments are relatively open, further increasing attractiveness as a mitigation area. The fact that they are prone to flooding is also attractive as it would naturally lend itself to the creation of scrapes suitable for the wading birds of target. Pink-footed geese recorded using fields in close proximity that comprise similar habitats.
12	31.94	20.21	Arable land located in proximity to parcels 12 and 13, providing a large connected area over 77ha that would not be 'encompassed' by solar development and are relatively open. These compartments are located in one connected area and would allow the birds to move around between seasons and within seasons, depending on the specific ground conditions. Pink-footed geese recorded using fields in close proximity that comprise similar habitats.
13	28.47	24.77	Arable land located in proximity to parcels 12 and 13, providing a large connected area over 77ha that would not be 'encompassed' by solar development and are relatively open. These compartments are located in one connected area and would allow the birds to move around between seasons and within seasons, depending on the specific ground conditions. Golden plover recorded utilising these fields and pink-footed geese recorded using fields in close proximity that comprise similar habitats.
Total	c.149.37ha	77.16	

Table 3 – Summary of baseline use of mitigation parcels by qualifying bird species, and hectareage.

1.21. Table 3 provides the total area of each potential mitigation parcel, as well as the area of land within the parcel that will be located beyond 150m from any solar arrays, in line with Natural



England's comments. It can be seen from looking at the table that over 77ha of potential mitigation land can be provided that is located over 150m from any solar arrays, although the exact areas that will be provided for mitigation will be confirmed following completion of the consultation process, with final detail provided within the ES.

- 1.22. However, it must be noted that during the non-breeding bird surveys, some bird species, including pink-footed geese, were recorded utilising habitats that are located in close proximity to barriers, such as tree lines and hedgerows, which would affect open vistas, indicating that birds will utilise habitat to forage within 150m of existing barriers. This took place in a number of locations including in the southeast of the DOL within fields that have hedgerows and tree lines as boundaries creating vistas less than 150m in places (see Appendix 1).
- 1.23. In addition, research has demonstrated that pink-footed geese, which '*are suggested to be one of the most disturbance sensitive goose species with generally long (although variable) escape flight distances*'⁴, forage within habitat that is located within 50m of built structures.
- 1.24. Therefore, although over 77ha of core mitigation land can be provided, there is an additional 72.21 ha of land that will be available and managed for the benefit of non-breeding birds within 150m of solar arrays that can contribute to the overall mitigation strategy.
- 1.25. Bird Days calculations have been completed to inform the extent of mitigation land required and can be seen in Appendix 2. From these calculations, it can be seen that the maximum extent of non-breeding bird mitigation land required for pink-footed geese, lapwing and golden plover are:
 - Pink-footed geese – 27.19
 - Lapwing – 21.95
 - Golden plover - 16.82
 - **Total: 65.96**
- 1.26. Based on the above figures, it can be seen that there is more than sufficient land within the Draft Order Limits to provide the required non-breeding bird mitigation. Some of this mitigation land proposed will also be utilised as part of the breeding bird mitigation for species such as skylark. Breeding bird surveys are to continue in 2025 to include land not previously surveyed and the final mitigation package will be determined following completion of these surveys, confirmation of the final Draft Order Limits boundary and consultation with Natural England and other relevant bodies.
- 1.27. Further to the above, in line with Natural England's recent comments (December 2024), additional management is proposed within Parcel 1 due to its proximity to Humber Estuary SPA/Ramsar/SSSI and Thorne & Hatfield Moors SPA/Thorne Moor SAC/SSSI. A wet grassland scheme will be implemented with ditch raising and water level management in

⁴ Jesper Kyed Larsen* and Jesper Madsen. Effects of wind turbines and other physical elements on field utilization by pink-footed geese (*Anser brachyrhynchus*): A landscape perspective. Landscape Ecology 15: 755–764, 2000.



this location. Suitable removal of tree cover at the edge of the moors will be undertaken to improve suitability of this area for wading birds.

- 1.28. No management of habitats is proposed within the SPA or SAC, only within the land parcel located outside of designated site boundaries.
- 1.29. Appropriate management of the northern and southern margins of parcel 1 will also be undertaken to benefit the adjacent SAC, with management to be agreed with Natural England.
- 1.30. Additional land parcels within the DOL will be assessed for their potential as non-breeding bird mitigation land and full details of the mitigation proposals will be included as part of the ES to ensure that the most suitable options are provided.



Plans

16413/P07a – Mitigation Land with Buffers



Appendices



Appendix 1: Non-Breeding bird Surveys



Tween Bridge NSIP Solar Farm
on behalf of Pegasus Planning Ltd.
Technical Appendix 7.3: Non-Breeding Bird Survey Report



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V2	18/09/2024	Additional Year 2 data added	Z Hinchcliffe <i>MRes Bsc (Hons.)</i>	T. Goater <i>MSc BSc (Hons) MCIEM</i>

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ANNEXES

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Annex 2: Humber Estuary Waterbird Assemblage

Annex 3: Desk Study Records

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Annex 5: Target Species Recorded Within the Draft Order Limits 2022/23

Annex 6: Target Species Recorded Within the Wider Survey Area 2022/23

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Annex 10 - Secondary Species Recorded Within the Draft Order Limits and Wider Survey Area 2023/24

Annex 11 – Vantage Point Survey Data 2023/24

1 INTRODUCTION

1.1 Project Background

- 1.1.1 Avian Ecology Ltd. was commissioned by Pegasus Planning Ltd. to undertake non-breeding bird surveys in the 2022/2023 and 2023/2024 (Autumn, Winter and Spring) periods in relation to a proposed renewable energy generating project ('The Scheme'); consisting of ground-mounted solar photovoltaic ('PV') arrays, together with on-site energy storage and associated infrastructure. The Scheme is located on land to the east of the town of Thorne and to the west of the town of Crowle (the 'Draft Order Limits'), South Yorkshire at approx. central OS grid reference: SE 72436 11486).
- 1.1.2 The follow report presents the detailed methodologies and findings of surveys undertaken between September 2022 and March 2023 and September 2023 and April 2024.
- 1.1.3 The objectives of this report are to:
- Identify the presence of notable non-breeding bird species within the Draft Order Limits, and on adjacent land; and,
 - Assess the potential importance of the non-breeding bird assemblages which the Draft Order Limits and adjacent land supports.
- 1.1.4 Only common bird species names are referred to within the main text of this report.
- 1.1.5 **Annex 1** provides a summary of all bird species recorded during the surveys. Both common and species names are provided, together with a summary of their conservation status as relevant.

1.2 Draft Order Limits Overview

- 1.2.1 The Draft Order Limits (see **Figure 1**) encompasses a series of connected agricultural land parcels, predominately under arable management. Fields are bound by a series of watercourses as well as hedgerows, fences, and tree lines. A broadleaved woodland plantation copse is present as well as a number of ponds.
- 1.2.2 The Tween Bridge Wind Farm is located within the Draft Order Limits, and consists of twenty-two operational wind turbines. The Stainforth and Kneadby Canal also intersects the centre of the Draft Order Limits spanning from west to east.
- 1.2.3 The Draft Order Limits does not form part of any Internationally designated site comprising part of the National Site Network, designated for non-breeding (i.e. wintering and passage) ornithological interests. A small area of the Draft Order Limits includes part of the Thorne Moors Special Area of Conservation (SAC) designated for non-ornithological interests.
- 1.2.4 The Thorne, Crowle and Goole Moors Site of Special Scientific Interest (SSSI) also coincides with the boundary of the SAC and lists the site as being important for non-breeding birds but no further species specific information is provided within the citation. Whooper swan, pink-footed goose, hen harrier and short-eared owl are however listed as non-breeding visitors to the Humberhead Peatlands National Nature Reserve (NNR), located to the north of the Draft Order Limits, and which includes the Thorne, Goole, Crowle and Hatfield Moors Site of Special Scientific Interest (SSSI).
- 1.2.5 European sites designated for non-breeding ornithological interests located within 10km of the Draft Order Limits are summarised in **Table 1.1** and illustrated in **Figure 1**. There are no additional sites located within 20km of the Draft Order Limits, designated for non-breeding pink-footed goose and

which may have the potential for functional linkage based on the species' upper-range foraging distance (NatureScot 2016)¹.

Table 1.1: Ornithological designated sites for nature conservation (non-breeding qualifying interests).
SPA: Special Protection Areas. SSSI: Site of Special Scientific Interest (SSSI). NNR: National Nature Reserve.

Designation	Distance	Ornithological Interests
Humber Estuary Ramsar site	6.15km east	<u>Qualifying Features:</u> Bar-tailed godwit (Wintering); Black-tailed godwit (Wintering and Passage); Dunlin (Wintering and Passage); Golden plover (Wintering and Passage); Knot (Wintering and Passage); Redshank (Wintering and Passage); Shelduck (Wintering); and, Waterbird assemblage (Wintering).
Humber Estuary SPA/SPA (Marine Components GB)	7.44km north-east	<u>Qualifying Features:</u> Avocet (Non-breeding); Bar-tailed godwit (Non-breeding); Bittern (Non-breeding); Black-tailed godwit (Non-breeding); Dunlin (Non-breeding); Golden plover (Non-breeding); Hen harrier (Non-breeding); Knot (Non-breeding); Redshank (Non-breeding); Ruff (Non-breeding); Shelduck (Non-breeding); and, Waterbird assemblage (Non-breeding) ² .

2 METHODOLOGY

2.1 Desk Study

- 2.1.1 A desk study was undertaken to identify any existing ornithological records within a 2km radius of the Draft Order Limits. Records were requested from the Doncaster Local Records Centre (DLRC) and Greater Lincolnshire Nature Partnership (GLNP).
- 2.1.2 For the purposes of this report, the search was refined to species listed as qualifying interest of the International sites listed in **Table 1.1**, Amber List, Red List, NERC S41, Birds of Conservation Concern

¹ <https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> (accessed 17th September 2024)

² With reference to Natural England Conservation Advice for Marine Protected Areas: Humber Estuary SPA, the waterfowl assemblage of the Humber consists of over 135,000 waterbirds, including all internationally important regularly occurring migratory species, the Annex I wintering species and species occurring at levels of more than 1% of national populations or whose populations exceed 2,000 individuals. See **Annex 2**.

(BoCCs) Amber and Red List species (as per Stanbury *et al.*, 2021³), Doncaster⁴ and Lincolnshire⁵ Local Biodiversity Action Plan, Annex 1⁶ and/or Schedule 1⁷ species only and which may use the Draft Order Limits for winter foraging.

2.1.3 Furthermore, the search was restricted to only those records for the last 10 years (since 2013), to ensure the most up to date information is considered, and less relevant historic records discounted.

2.1.4 The results of the desk study are summarised in **Section 3.1**, with further details presented in **Annex 3**.

2.2 Non-Breeding Bird Surveys

Year 1

2.2.1 Non-breeding bird surveys were undertaken between September 2022 and March 2023.

2.2.2 Survey were carried out within all suitable habitats within the Draft Order Limits, and all suitable fields within a 600m buffer (the Wider Survey Area) of the Draft Order Limits, as shown in **Figure 1**. The combination of the Draft Order Limits and Wider Survey Area will be termed 'Survey Area' hereafter.

2.2.3 A total of 14 walkover survey visits (two per month) were completed adopting the 'look-see' methodology (Gilbert *et al.* 1998⁸). During each survey visit surveyors observed each field within the Study Area, walking the boundaries and stopping at intervals and scanning the fields for Target Species (as detailed below in 2.2.5), with binoculars.

2.2.4 All Target Species heard or seen were recorded onto field maps. The number of Secondary Species (as detailed below in 2.2.6) was tallied during the survey, although no attempt to map these species was made.

2.2.5 Target Species consisted of all species comprising non-breeding (i.e. passage and wintering) qualifying interests of the Humber Estuary SPA and Ramsar site (see **Table 1.1**), all other wetland species including all swans, geese, ducks, waders, herons and grebes (excluding feral species) and Annex 1/Schedule 1 raptors and all owls.

2.2.6 Secondary Species also recorded consisted of non-Annex 1/Schedule 1 raptors, gulls, notable flocks of non-wetland species, feral species (Canada goose and Egyptian goose), BoCC Amber and Red and Lincolnshire/Doncaster Biodiversity Action Plan species^{9,10}.

2.2.7 All gull species were also recorded as secondary species, due to the widespread nature of such species, separation distance from the Humber Estuary SPA and the generalist nature of their feeding habits.

³ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 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**, pp. 723-747.

⁴ <https://dmbcwebstolive01.blob.core.windows.net/media/Default/Planning/Documents/Natural%20Environment/Biodiversity/Species/Species%20Audit.pdf> (Accessed 4th July 2023).

⁵ <http://www.southkesteven.gov.uk/CHttpHandler.ashx?id=7371&p=0> (accessed 4th July 2023)

⁶ Annex 1 – Species listed on Annex of the Birds Directive - https://environment.ec.europa.eu/topics/nature-and-biodiversity/birds-directive_en.

⁷ Schedule 1 – Species listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended) - <https://www.rspb.org.uk/birds-and-wildlife/advice/wildlife-and-the-law/wildlife-and-countryside-act/schedules/>.

⁸ Gilbert G, Gibbons D.W. and Evans J. (1998) *Bird Monitoring Methods*. RSPB Sandy.

⁹ <http://www.southkesteven.gov.uk/CHttpHandler.ashx?id=7371&p=0>

¹⁰ <https://www.doncaster.gov.uk/services/environmental/doncaster-biodiversity-action-plan>

- 2.2.8 Suitable habitats for Target Species surveyed within the Survey Area included arable/pasture fields and associated boundary features. Habitats such as woodland and scrubland were considered unsuitable for Target Species and thus were omitted from the survey.
- 2.2.9 Many fields featured adjacent drainage ditches. Several observations were made of Target Species within these ditches and were recorded as associated with the closest field.
- 2.2.10 A total of 42 standing waterbodies were located within the Survey Area ranging from small ponds that are expected to dry annually and larger ponds (P33 and P35 adjacent to Fields 38 and 39). Fields shielded from the Draft Order Limits by significant visual barriers including woodland, main roads and housing developments or otherwise considered unsuitable for Target Species (Fields 179, 199, 206, 208-209, 212-214, 293-296, 300-302, 420, 452, 461, 533-537 and 543-544) were also omitted from the 'Wider Survey Area'.
- 2.2.11 Habitats and fields within the Wider Survey Area were surveyed from within the Draft Order Limits, public rights of way (PROWs) and access tracks where possible. Access to all areas of the Draft Order Limits was possible throughout the survey period.
- 2.2.12 Surveys were primarily undertaken during daylight hours.
- 2.2.13 Due to the foraging habits of Target Species associated with estuarine habitats, birds may also forage at night, dependent on tidal times. From December 2022 to March 2023, one of the two visits per month was therefore carried out at night with the aid of Pulsar night vision equipment. Further details are provided below.
- 2.2.14 All field surveys were undertaken by C. Gomersall (CG), T. Jones (TJ), A. Hulme (AH) and G. Taylor (GT), all suitably competent and experienced ornithologists.
- 2.2.15 Detailed survey effort is presented in **Annex 4**.

Year 2

- 2.2.16 A second year of non-breeding bird surveys were undertaken between September 2023 and April 2024.
- 2.2.17 Survey were carried out within all suitable habitats within the Survey Area, as shown in **Figure 1**.
- 2.2.18 A total of 16 walkover survey visits (two visits per month) were completed adopting the 'look-see' methodology (Gilbert *et al.* 1998⁸). During each survey visit surveyors observed each field within the Study Area, walking the boundaries and stopping at intervals and scanning the fields for Target Species, with binoculars.

Nocturnal Bird Survey

- 2.2.19 During year 1, Nocturnal Bird Surveys were carried out in tandem with other Non-breeding Bird Surveys, however in Year 2, Nocturnal Bird Surveys were carried out separately from Non-breeding Bird Surveys and carried out monthly between September 2023 and March 2024. Survey were carried out within all suitable habitats within the Draft Order Limits, and all suitable fields within the Wider Survey Area, as shown in **Figure 1**.
- 2.2.20 A total of seven Nocturnal walkover survey visits were completed adopting an adapted version of the 'look-see' methodology (Gilbert *et al.* 1998⁸). During each survey visit surveyors observed each field within the Study Area, walking the boundaries and stopping at intervals and scanning the fields for Target Species, with thermal imaging cameras and recording vocalisations of birds where possible.

2.2.21 Surveys were carried out using Pulsar Lexion thermal imaging cameras used to aid detection of species and where possible record the birds to species level. Where individual birds were unidentifiable due to distance or small size of the species, surveyors used knowledge of behaviour and suitable habitat for these species to make an informed estimate of a species group e.g., *Calidris wader* (sanderling or dunlin).

2.2.22 Survey effort with detailed survey conditions are presented in **Annex 4**.

Vantage Point (VP) Flight Activity Surveys

2.2.1 Between September 2023 and March 2024 (not carried out during the April 2024 passage period), VP flight activity surveys were undertaken from six VP locations:

- VP1 – SE 72180 11755;
- VP2 – SE 70377 08799;
- VP3 – SE 72059 09720;
- VP4 – SE 75858 10057;
- VP5 – SE 74195 12713; and,
- VP6 – SE 71099 15154.

2.2.2 **Figure 8** shows the VP locations used and their viewshed coverage which appropriately covered the Draft Order Limits.

2.2.3 The VP flight activity surveys followed the NatureScot guidance (SNH, 2017¹¹) which although is intended for wind farm developments, is considered appropriate to use for the Scheme, in the absence of guidance specific to solar farm developments. Surveys were carried out over a 3hr period and flights and activity of Target Species were recorded onto basemaps. Any activity by Secondary Species was also recorded every 15 minutes, but detailed flights of these species were not recorded.

2.2.4 All surveys were undertaken during daylight hours, and throughout the survey period surveys were timed to cover the full range of low and high tide times which are likely to influence bird use of nearby terrestrial habitats, such as within the Survey Area.

2.2.5 Field surveys were undertaken by G. Taylor, a suitably qualified and experienced ornithologist.

2.2.6 Survey effort for VP flight activity surveys and a breakdown of survey conditions are presented in **Appendix 4**. A summary of VP survey effort is presented below in **Table 2.1**.

Table 3.2: VP Flight Activity Survey Effort (hrs).

VP	2023				2024			Total
	September	October	November	December	January	February	March	
1	3	3	3	3	3	3	3	21
2	3	3	3	3	3	3	3	21
3	3	3	3	3	3	3	3	21

¹¹ SNH (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms. March 2017. V2.

4	3	3	3	3	3	3	3	21
5	3	3	3	3	3	3	3	21
6	3	3	3	3	3	3	3	21

Survey Area

- 2.2.7 For ease of interpreting the survey results, fields within the Survey Area were numbered 1-570. Fields within the Draft Order Limits and within the Wider Survey Area are defined in **Table 2.1** and illustrated on **Figures 2-7**.

Table 2.1: Field allocations for Draft Order Limits and Wider Survey Area.

Land Parcel	Field Number Range
The Draft Order Limits	1 – 13, 15-57, 60-122, 124-127, 129-130, 132-142, 173-176, 192, 219, 253, 280-284, 288-290, 392-393, 399, 402, 407-413, 424-426, 437, 497-500, 521, 563-564 and 570.
Wider Survey Area	14, 58-59, 123, 128, 131, 143-172, 177-191, 193-218, 220-252, 254-279, 285-287, 291-391, 394-398, 400-401, 403-406, 414-423, 427-436, 438-496, 501-520, 522-562 and 565-569. Excluding unsuitable fields detailed in Section 2.2 above.

Field Survey Limitations

- 2.2.8 In response to scheme design, the Draft Order Limits boundary has evolved over time. As such, a c.25ha area beyond the southern boundary of the Survey Area was not subject to survey in 2022/23. This area consists of intensively managed agricultural land which is consistent with the majority of the Study Area. This area was surveyed in 2023/24, so was surveyed throughout the Year 2 survey period. It is therefore considered, that this combined with the relatively small extent of the area is not a limitation to the survey and subsequent assessment.
- 2.2.9 Access was permitted to all other parts of the Draft Order Limits during all surveys. All fields considered suitable for Target Species within the Wider Survey Area were visible from the Draft Order Limits and/or PROWs.
- 2.2.10 Nocturnal surveys were aided by Pulsar nightvision scopes however, it is appreciated that identification to species level is not always possible, so observers used knowledge of likely species and their behaviour to identify species as best as possible.
- 2.2.11 No significant limitations in the field survey data in informing the design and assessment of The Scheme are therefore identified.

Assessing Importance

- 2.2.12 For the purposes of this report, the importance of the Survey Area (Draft Order Limits and Wider Survey Area) to qualifying species of the nearby Humber Estuary SPA is assessed using functional linkage, based on current Natural England guidance (2021¹²).

¹² Bowland Ecology (2021). *Identification of Functionally Linked Land supporting SPA waterbirds in the North West of England. NERC361*. Natural England

- 2.2.13 ‘Functionally linked land’ is the term used to describe areas of land (or sea) occurring outside a designated site, which is considered important (or necessary) in supporting the qualifying features of a European site (i.e. SPA, SAC and/or Ramsar site).
- 2.2.14 A report published by Natural England (2021)¹⁵ mapped potential areas of Functionally Linked Land used by water birds comprising qualifying features of European sites in the northwest of England, and defined thresholds for the identification of such.
- 2.2.15 The definition of Functionally Linked Land within the report, developed and agreed with Natural England and RSPB, is ‘*areas of land occurring within 20km¹³ of an SPA, that are regularly used by significant number of qualifying bird species*’, with:
- a ‘significant number’ of birds defined as 0.5% of the Great British (GB) population, or 1,000 individuals; and,
 - ‘regular’ defined, with reference to Stroud *et al.* (2001)¹⁴, as when a threshold is met in two thirds of the season for which adequate data is available.
- 2.2.16 The definition of qualifying bird species includes both non-breeding qualifying species and assemblage species.
- 2.2.17 For the purposes of this report, for those species which comprise part of the qualifying assemblage (so are not individually a qualifying species), at least one of the following three thresholds would need to be reached to appraise the specific study area as being potentially functionally linked to the SPA for that species:
- 1% of each and every listed species that make up the assemblage;
 - 1%, or more, of the designated species’ GB population; or,
 - Cumulatively over 2,000 birds of those species listed on the waterbird assemblage.
- 2.2.18 The Humber Estuary SPA /Ramsar site non-breeding qualifying features are identified as those listed in **Table 1.1**.
- 2.2.19 For the purposes of this report, the waterbird assemblage is identified with reference to Natural England Conservation Advice¹⁵ and the British Trust for Ornithology’s (BTO) Wetland Bird Survey (WeBS) report for the Humber Estuary¹⁶, and is summarised in **Annex 2**. Additionally, although black-headed gull is listed as a species on the waterbird assemblage, due to the nomadic and widespread nature of the species, it is omitted from the list due to it being unclear whether those birds using the Survey Area are associated with the Humber Estuary SPA and Ramsar site.

¹³ With reference to pink-footed goose and graylag goose, which are known to commute such distances daily between foraging and roosting sites - <https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> .

¹⁴ Stroud, D.A., Chambers, D., Cook, S., Buxton, N., Fraser, B., Clement, P., Lewis, P., McLean, I., Baker, H. & Whitehead, S. (eds). 2001. *The UK SPA network: its scope and content*. JNCC, Peterborough, p56.

¹⁵ Natural England Conservation Advice - <https://publications.naturalengland.org.uk/publication/3060748> (Accessed 16/08/2024)

¹⁶ Austin, G.E., Calbrade, N.A., Birtles, G.A., Peck, K., Shaw, J.M. Wotton, S.R., Balmer, D.E. and Frost, T.M. (2023). Waterbirds in the UK 2021/22: The Wetland Bird Survey and Goose & Swan Monitoring Programme. BTO/RSPB/JNCC/NatureScot. Thetford. Available at: <https://www.bto.org/our-science/projects/wetland-bird-survey/data>.

3 RESULTS

3.1 Desk Study Results

- 3.1.1 **Annex 3** provides details of relevant recent historical ornithological records returned from the DBRC and GLNP.
- 3.1.2 In summary relevant records included wetland species, such as pink-footed goose, white-fronted goose, whooper swan, greylag goose, redshank and oystercatcher.
- 3.1.3 The most frequent records referred to those observations of birds within Crowle Moor and Thorne Moor within the Thorne & Hatfield Moors SPA to the immediate north east of the Draft Order Limits.
- 3.1.4 These records informed the identification of Target Species for survey and recording and the approach to surveys, including the requirement for nocturnal surveys.

3.2 Non-Breeding Bird Surveys – Year 1 (2022/23)

The Draft Order Limits

- 3.2.1 Of the 154 fields within the Draft Order Limits, a total of 22 Target Species were recorded in 71 of these at least once during the survey period.
- 3.2.2 Target Species recorded comprised: whooper swan, mute swan, greylag goose, pink-footed goose, mallard, shoveler, teal, grey heron, little egret, little grebe, lapwing, golden plover, grey plover, green sandpiper, curlew, snipe, woodcock, osprey, red kite, hen harrier, marsh harrier, peregrine, barn owl and little owl.
- 3.2.3 Species recorded more than ten times throughout the survey period were: grey heron (14 observations), lapwing (37 observations on 12 surveys), mallard (30 observations), mute swan (11 observations), pink-footed goose (15 observations, of which most were in flight only and only 5 were observations on the ground), recorded using the Draft Order Limits on three surveys) and woodcock (22 observations on four surveys). Activity was generally confined to small flocks and/or single birds, with larger flocks mentioned below.
- 3.2.4 Generally Target Species were recorded in low numbers across the Draft Order Limits throughout the survey period. Full details of their occurrences are detailed in **Annex 5**. Target Species listed as SPA Qualifying Interest are detailed below.
- 3.2.5 Species forming qualifying interests of the Humber Estuary SPA and Ramsar site, recorded within the Draft Order Limits included: greylag goose, pink-footed goose, teal, little egret, lapwing, golden plover, grey plover, curlew, green sandpiper, marsh harrier and hen harrier. The distributions of such species recorded over the survey period are illustrated in **Figures 9-19**
- 3.2.6 Greylag goose was recorded four times over three surveys with a peak count of seven birds in field 175 in September.
- 3.2.7 Pink-footed geese were recorded in the highest numbers, both within the Draft Order Limits and flying over it. Flocks were suspected to be roosting within the Hatfield Moors SSSI, approximately 500m east of the Draft Order Limits.
- 3.2.8 Pink-footed goose flocks recorded within the Draft Order Limits included 360 in field 31 (west of Medge Hall), 330 in field 42 (south west of the Draft Order Limit), 156 in field 11 (south east of the Draft Order Limit), and 135 in field 43 (south west of the Draft Order Limit).

- 3.2.9 Smaller flocks (<100 birds) were also recorded in fields 29 (south west of Medge Hall), 61 (south west of the Draft Order Limit) and 497 (north east of the Draft Order Limit).
- 3.2.10 Fields where pink-footed goose use was recorded comprised cropped habitats with arable stubble and oilseed rape, with birds predominantly recorded in the autumn period between September 2022 to November 2022 (i.e. passage).
- 3.2.11 Teal were recorded on five of the 14 survey visits (<2/3) in very small numbers, with a peak count of 6 birds recorded in January 2023. Teal were generally associated with field boundary ditches and areas of flood water/temporary pools.
- 3.2.12 Little egret was recorded twice within the Draft Order Limits with single birds recorded in November 2022 and March 2023. Observations refer to birds associated with field boundary ditches.
- 3.2.13 Lapwing were recorded within the Draft Order Limits on 11 of the 14 survey visits (>2/3) with the two largest flocks recorded being 390 birds in field 498 (north east of the Draft Order Limit) and 260 birds in field 65 (south west of the Draft Order Limit) both in September 2022. Additional lapwing flock numbers only exceeded 100 birds once more within the Draft Order Limits over the course of surveys with a flock of 112 birds observed in field 106 (north of the Draft Order Limit) during a nocturnal survey in January 2023. Flocks were typically recorded over cereal, stubble, oilseed rape crops and recently tilled fields.
- 3.2.14 Golden plover were recorded within the Draft Order Limits on five of the 14 survey visits (<2/3) but observations only one survey saw flock sizes exceed 100 individuals (a peak count of 117 birds in September 2022). Flocks typically occurred on fields cropped with arable stubble or fields recently tilled. One field (field 103) was cropped with cereal and one (field 120) was cropped with oil seed rape.
- 3.2.15 Grey plover was recorded once in flight over field 137 with a flock of 17 birds observed. The habitats found within the Draft Order Limits are not considered suitable for this exclusively estuarine species.
- 3.2.16 Curlew were recorded once within the Draft Order Limit, during a survey visit in March 2023, with two birds observed within field 15 (south east of the Draft Order Limit).
- 3.2.17 Green sandpiper was recorded six times across five surveys with all observations referring to single birds associated with field boundary ditches or flooded sections of fields.
- 3.2.18 Marsh harrier was recorded within the Draft Order Limits on six of the 14 survey visits (<2/3), generally in flight and hunting. Marsh harrier, although listed as a qualifying feature of the Humber Estuary SPA is only listed as a breeding species.
- 3.2.19 Hen harrier was recorded once within the Draft Order Limits, in flight in over field 118 in December, presumed foraging. The single observation does not suggest that the Draft Order Limits is regularly used by the species.
- 3.2.20 Secondary Species recorded comprised the following:
- Grey partridge;
 - Cormorant;
 - Moorhen;
 - Black-headed gull;
 - Common gull;
 - Herring gull;
 - Lesser black-backed gull;
 - Great black-backed gull;
 - Caspian gull;
 - Yellow-legged gull;

- Sparrowhawk;
- Buzzard;
- Kestrel;
- Woodpigeon;
- Stock dove;
- Skylark;
- Fieldfare;
- Redwing;
- Mistle thrush;
- Starling;
- Meadow pipit;
- Yellow wagtail;
- Linnet; and,
- Yellowhammer.

3.2.21 A summary of results of species identified as qualifying features of the Humber Estuary SPA and Ramsar site which were recorded within the Draft Order Limits is presented below in **Table 3.1**.

3.2.22 The distributions of such species recorded over the survey period, is illustrated in **Figures 9-19**. A full breakdown of all Target Species observations is presented in **Annex 5**. Secondary Species data is presented separately in **Annex 9**.

Table 3.1: Qualifying interests of the Humber Estuary SPA and Ramsar site recorded within the Draft Order Limits.

Target Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=14)
Greylag goose	September 2022	7	7	3	6	5
	March 2023	12	8			
Pink-footed goose	September 2022	497	330	3	340	73
	October 2022	523	360			
Teal	October 2022	2	2	4	6	2
	December 2022	3	3			
	January 2023	10	6			
	March 2023	7	4			
Little egret	November 2022	1	1	2	1	<1
	March 2023	1	1			
Lapwing	September 2022	813	390	12	125	107
	October 2022	48	25			
	November 2022	31	31			

Target Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=14)
	December 2022	302	78			
	January 2023	224	112			
	February 2023	54	32			
	March 2023	79	32			
Golden plover	September 2022	212	117	5	51	18
	January 2023	12	11			
	February 2023	32	21			
Curlew	March 2023	2	2	1	2	<1
Green sandpiper	September 2022	2	1	5	1	<1
	October 2022	1	1			
	December 2022	2	1			
	February 2023	1	1			
Marsh harrier	September 2022	4	1	5	2	<1
	October 2022	2	2			
	December 2022	1	1			
	March 2023	1	1			
Hen harrier	December 2022	1	1	1	1	<1

Wider Survey Area

- 3.2.23 Of the 408 fields within the Wider Survey Area, 24 Target Species were recorded in 113 of these at least once during the survey period.
- 3.2.24 Target species comprised: whooper swan, mute swan, pink-footed goose, greylag goose, mallard, shoveler, teal, grey heron, little egret, common crane, lapwing, golden plover, green sandpiper, snipe, jack snipe, woodcock, osprey, marsh harrier, hen harrier, peregrine, barn owl, little owl and tawny owl.
- 3.2.25 Species recorded more than ten times throughout the survey period were: grey heron (12 observations), lapwing (36 observations), golden plover (18 observations), mute swan (16 observation), mallard (24 observations), greylag goose (11 observations), pink-footed goose (18

observations, of which 16 were observations on the ground) and woodcock (18 observations on four surveys). Activity was generally confined to small flocks and/or single birds, with larger flocks mentioned below.

- 3.2.26 Common crane were recorded in arable stubble in fields 182 and 229 in September 2022 with a family party of three birds, potentially having bred nearby.
- 3.2.27 Generally Target Species were recorded in low numbers across the Wider Survey Area throughout the survey period. Full details of their occurrences are detailed in **Annex 6**. Target Species listed as SPA Qualifying Interest are detailed below.
- 3.2.28 Species associated with the Humber Estuary SPA and Ramsar site recorded within the Wider Survey Area included: greylag goose, pink-footed goose, teal, little egret, lapwing, golden plover, green sandpiper, hen harrier and marsh harrier.
- 3.2.29 Greylag goose was recorded nine times across five surveys with peak counts including 375 birds in field 222 and 150 birds in field 501 in September 2022 and 155 birds in field 443 in February 2023. Otherwise, no other flocks exceeded 50 birds.
- 3.2.30 Pink-footed geese was recorded in the largest numbers, both within the Wider Survey Area and flying over it. Large numbers were recorded flying over the Wider Survey Area with flocks of 3000 over field 291 in September 2022, 752 over field 168 in October 2022 and 320 over field 282 in November 2022. Large flocks (>100 birds) were recorded foraging (and loafing), including within fields 230 (217 birds) in September 2022 and 501 (700 birds) in September 2022. Locations of birds were generally within the south east and north east of the Wider Survey Area and dominated by tilled and arable stubble fields.
- 3.2.31 Smaller flocks (<100 birds) were recorded in fields 216, 222, 225, 243, 384, 443, 507, 508 and 519, mostly in September 2022 and October 2022. Observations in fields 222 (46 and 67 birds) and field 508 (36 and 22 birds) were the only fields within the Wider Survey Area to have multiple observations of pink-footed geese within the same field, during both September visits. Crops generally used by pink-footed geese were arable stubble and occasionally oilseed rape.
- 3.2.32 Teal were recorded on four of the 14 survey visits (<2/3) in very small numbers, with a peak count of 23 birds in January in field 385. Teal were mostly associated with field boundary ditches.
- 3.2.33 Little egret was recorded seven times on five surveys (<2/3) with a peak count of 2 birds in field 369 in October. Other observations referred to single birds associated with field boundary ditches.
- 3.2.34 Lapwing was recorded within the Wider Survey Area on 12 of the 14 survey visits (<2/3) with the two largest flocks recorded being 136 birds in field 185 in October and 260 birds in field 496 in January. Otherwise, lapwing flocks only exceeded 100 birds once more within the Wider Survey Area with a flock of 127 birds observed in field 173 during a nocturnal survey in December.
- 3.2.35 Golden plover was recorded within the Wider Survey Area on nine of the 14 survey visits (<2/3). The peak flock size within the Wider Survey Area was 480 individuals in field 58 in October 2022. Other flocks of golden plover recorded within the Wider Survey Area did not otherwise exceed 100 individuals. Fields in which golden plover were observed were generally cropped with arable stubble, cereal, oil seed rape and tilled fields.
- 3.2.36 Green sandpiper was recorded once in January in field 548. This single bird was associated with a field boundary ditch.

3.2.37 Marsh harrier was recorded within the Wider Survey Area on two of the 14 survey visits observed flying over fields hunting. Marsh harrier, although listed as a qualifying feature of the Humber Estuary SPA is only listed as a breeding species.

3.2.38 Hen harrier was recorded once within the Wider Survey Area, in fields 222-225 in October. The observation was in flight, which would suggest the bird was foraging within the Wider Survey Area. This species was only recorded once which would suggest the Wider Survey Area is not regularly used by hen harrier.

3.2.39 Secondary Species comprised the following:

- Grey partridge;
- Cormorant;
- Egyptian goose;
- Moorhen;
- Black-headed gull;
- Common gull;
- Herring gull;
- Yellow legged gull;
- Great black-backed gull;
- Lesser black-backed gull;
- Woodpigeon;
- Stock dove;
- Rook;
- Skylark;
- Fieldfare;
- Redwing;
- Mistle thrush;
- Starling;
- Meadow pipit;
- Linnet;
- Greenfinch; and,
- Yellowhammer.

3.2.40 A summary of results of species identified as qualifying features of the Humber Estuary SPA and Ramsar site which were recorded within the Wider Survey Area is presented below in **Table 3.2**.

3.2.41 The distributions of such species recorded over the survey period is illustrated in **Figures 9-19**. A full breakdown of all Target Species observations is presented in **Annex 6**. Secondary Species data is presented separately in **Annex 9**.

Table 3.2: Qualifying interests of the Humber Estuary SPA and Ramsar site recorded within the Wider Survey Area.

Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=14)
Greylag goose	September 2022	525	375	5	154	55
	November 2022	19	19			
	February 2023	155	155			

Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=14)
	March 2023	71	34			
Pink-footed goose	September 2022	1,227	700	6	218	94
	October 2022	56	42			
	February 2023	30	21			
Teal	January 2023	23	23	2	22	3
	February 2023	5	3			
	March 2023	17	9			
Little egret	September 2022	1	1	5	1	<1
	October 2022	3	2			
	November 2022	2	1			
	December 2022	1	1			
	January 2023	1	1			
Lapwing	September 2022	148	53	11	74	58
	October 2022	173	136			
	November 2022	2	1			
	December 2022	384	127			
	January 2023	91	27			
	February 2023	16	6			
Golden plover	September 2022	365	365	10	105	75
	October 2022	546	480			
	November 2022	41	21			
	December 2022	57	37			
	January 2023	1	1			
	March 2023	38	38			
Green sandpiper	January 2023	1	1	1	1	<1

Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=14)
Hen harrier	October 2022	1	1	2	1	<1
	December 2022	1	1			
Marsh harrier	September 2022	3	2	2	3	<1
	December 2022	2	2			

3.3 Non-Breeding Bird Surveys – Year 2 (2023/24)

The Draft Order Limits

- 3.3.1 Of the 154 fields within the Draft Order Limits, 20 Target Species were recorded in 57 of these at least once during the survey period.
- 3.3.2 Target Species recorded comprised: mute swan, greylag goose, pink-footed goose, mallard, goosander, wigeon, teal, grey heron, little egret, oystercatcher, lapwing, golden plover, dunlin, green sandpiper, curlew, snipe, jack snipe, marsh harrier, merlin and peregrine.
- 3.3.3 Species recorded more than ten times throughout the survey period were: greylag goose (11 observations on six surveys), lapwing (27 observations on 10 surveys), mallard (49 observations on 12 surveys) and pink-footed goose (10 observations on four surveys). Activity was confined generally to small flocks and/or single birds, with larger flocks mentioned below.
- 3.3.4 Generally Target Species were recorded in low numbers across the Draft Order Limits throughout the survey period. Full details of their occurrences are detailed in **Annex 7**. Target Species listed as SPA Qualifying Interest are detailed below.
- 3.3.5 Species forming qualifying interests of the Humber Estuary SPA and Ramsar site, recorded within the Draft Order Limits included: greylag goose, pink-footed goose, teal, wigeon, little egret, oystercatcher, lapwing, golden plover, dunlin, green sandpiper and curlew. Additionally, marsh harrier was recorded but this is only listed as a qualifying breeding species. The distributions of such Qualifying species recorded over the survey period are illustrated in **Figures 20-31**.
- 3.3.6 Pink-footed geese were recorded in the highest numbers, both within the Draft Order Limits and flying over it. Flocks were suspected to be roosting within the Hatfield Moors SSSI, approximately 500m east of the Draft Order Limits. Grounded flocks within the Draft Order Limits included three flocks exceeding 1000 birds: 1600 birds present in field 16 and 1440 birds in field 17 both in October 2023 and 1530 birds in field 11 in February 2024. All three flocks were located in the south eastern part of the Draft Order Limits north of the M180. Other fields in which pink-footed geese were recorded included fields 2, 8 and 18 in the south eastern part of the Draft Order Limits in October 2023 and fields 130 and 137 also in October 2023 located adjacent to Thorne Moors SPA.
- 3.3.7 Fields where pink-footed goose use was recorded comprised cropped habitats with arable stubble and oilseed rape, with birds predominantly recorded in the autumn period between September 2023 and October 2023 (i.e. passage).

- 3.3.8 Teal were recorded on four of the 16 survey visits (<2/3) and in very small numbers, with a peak count of 12 birds recorded in January 2024. Teal were generally associated with field boundary ditches and areas of flood water/temporary pools.
- 3.3.9 Wigeon was recorded once (<2/3) with a flock of six birds on arable stubble in field 18 (south eastern part of the Draft Order Limits) in October 2023. Birds were associated with a flooded field.
- 3.3.10 Little egret was recorded twice (<2/3) as single birds associated with field boundary ditches in field 113 in October and field 96 in March.
- 3.3.11 Oystercatcher was recorded twice in March 2024 (<2/3) with two pairs recorded in field 18 (south eastern part of the Draft Order Limits). Based on the timing of these observations, these were likely to have been passage or locally breeding birds.
- 3.3.12 Lapwing were recorded within the Draft Order Limits 27 times on 10 of the 16 survey visits (>2/3) with the two largest flocks recorded being of 371 birds (November 2023) and 147 (February 2024) both in field 18 (south eastern part of the Draft Order Limits). A further three observations were recorded in field 18 (ranging from 36-79 birds) throughout the survey period. No other flocks exceeded 50 birds within the Draft Order Limits. Flocks were typically recorded over cereal, stubble and recently tilled fields.
- 3.3.13 Golden plover were recorded within the Draft Order Limits on three of the 16 survey visits (<2/3) but observations did not exceed 100 individuals, on any occasion. Flocks typically occurred on fields cropped with arable stubble or fields recently tilled. Peak flock counts referred to 84 birds in January 2024 in field 436 (located in the north west of the Draft Order Limits), with an additional 152 birds (across five flocks) also recorded on the same January survey. Flocks were generally located to the north east and north western parts of the Draft Order Limits.
- 3.3.14 Dunlin was recorded three times (<2/3) associated with flooded fields. All three flocks were recorded in field 18 (south eastern part of the Draft Order Limits) comprising 27 birds, 13 birds and 6 birds. Birds were recorded in October and November and were considered passage birds.
- 3.3.15 Green sandpiper was recorded twice (<2/3) as single birds in December in field 37 and in February in field 66.
- 3.3.16 Curlew was recorded five times on three (<2/3) of the 16 surveys within the Draft Order Limit, during March and April 2024. These observations referred to singles and pairs of birds in fields 11, 15, 16 and 18 (in the south eastern part of the Draft Order Limit).
- 3.3.17 Marsh harrier was recorded within the Draft Order Limits on five of the 16 survey visits (<2/3), generally in flight and hunting. Marsh harrier, although listed as a qualifying feature of the Humber Estuary SPA is only listed as a breeding species.
- 3.3.18 Secondary Species recorded comprised the following:
- Grey partridge;
 - Canada goose;
 - Egyptian goose;
 - Cormorant;
 - Black-headed gull;
 - Common gull;
 - Herring gull;
 - Lesser black-backed gull;
 - Great black-backed gull;
 - Caspian gull;
 - Yellow-legged gull;
 - Buzzard;

- Kestrel;
- Skylark;
- Fieldfare;
- Redwing;
- Starling;
- Meadow pipit;
- Yellow wagtail;
- Brambling;
- Linnet; and,
- Yellowhammer.

3.3.19 A summary of results of species identified as qualifying features of the Humber Estuary SPA and Ramsar site which were recorded within the Draft Order Limits is presented below in **Table 3.3**.

3.3.20 The distributions of such species recorded over the survey period, is illustrated in **Figures 20-31**. A full breakdown of all Target Species observations is presented in **Annex 7**. Secondary Species data is presented separately in **Annex 10**.

Table 3.3: Qualifying interests of the Humber Estuary SPA and Ramsar site recorded within the Draft Order Limits.

Target Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=16)
Greylag goose	October 2023	402	210	7	93	40
	November 2023	157	157			
	December 2023	12	12			
	February 2024	41	27			
	March 2024	2	2			
	April 2024	21	9			
Pink-footed goose	October 2023	3374	3,133 ¹⁷	4	1,227	307
	November 2023	4	4			
	February 2024	1,530	1,530			
Teal	October 2023	2	2	4	6	2
	December 2023	3	3			
	January 2024	10	6			
	March 2024	7	4			
Wigeon	October 2023	6	6	1	6	<1

¹⁷ Single large flock spread across four fields (1,600, 1,400, 84 and 9 birds) showing large flock of 3,133 birds.

Target Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=16)
Oystercatcher	March 2024	4	2	2	2	<1
Lapwing	October 2023	261	220	10	117	73
	November 2023	481	371			
	December 2023	97	53			
	January 2024	155	79			
	February 2024	147	147			
	March 2024	8	4			
	April 2024	19	4			
Golden plover	November 2023	22	22	3	108	20
	January 2024	302	84			
Dunlin	October 2023	6	6	3	15	3
	November 2023	40	27			
Green sandpiper	December 2023	1	1	2	1	<1
	February 2024	1	1			
Curlew	March 2024	2	2	3	3	<1
	April 2024	6	2			
Marsh harrier	September 2023	1	1	5	1	<1
	November 2023	3	1			
	April 2024	2	1			

Wider Survey Area

- 3.3.21 Of the 408 fields within the Wider Survey Area, 16 Target Species were recorded in 81 of these at least once during the survey period.
- 3.3.22 Target Species comprised: mute swan, pink-footed goose, greylag goose, mallard, gadwall, teal, tufted duck, grey heron, little egret, lapwing, golden plover, green sandpiper, snipe, marsh harrier, peregrine and hobby.

- 3.3.23 Generally Target Species were recorded in low numbers across the Wider Survey Area throughout the survey period. Full details of their occurrences are detailed in **Annex 8**. Target Species listed as SPA Qualifying Interest are detailed below.
- 3.3.24 Species associated with the Humber Estuary SPA and Ramsar recorded within the Wider Survey Area included: greylag goose, pink-footed goose, teal, little egret, lapwing, golden plover and green sandpiper. Each qualifying SPA Target Species is assessed below to ascertain whether a significant number of birds associated with the Humber Estuary used the Wider Survey Area.
- 3.3.25 Greylag geese were recorded nine times across five of the 16 surveys (<2/3) . Peak counts included 184 birds in field 566 (located in the south-central section of the Wider Survey Area) in October 2023 and two flocks exceeding 50 birds in fields 160 (64 birds) in December 2023 and 229 (51 birds) in December 2023 located in the central eastern section of the Wider Survey Area. Other observations mostly referred to singles or pairs of birds.
- 3.3.26 Pink-footed geese were recorded in the largest numbers, both within the Wider Survey Area and flying over it. Large numbers were recorded within the Wider Survey Area with flocks of 1,120 recorded in field 519 (located immediately adjacent to Thorne and Hatfield Moors SPA at the north east corner of the Wider Survey Area) in October 2023 and slightly smaller flocks of 620 in field 168 (located in the south eastern section of the Wider Survey Area) in November 2023, 668 in field 229 (located in the central section of the Wider Survey Area) in December 2023, 480 in field 196 (located in the southern section of the Wider Survey Area) in October 2023 and 476 in field 160 (located in the eastern section of the Wider Survey Area) in December 2023. Crops generally used by pink-footed geese were arable stubble and occasionally oilseed rape, root, maize and unstocked pasture.
- 3.3.27 Teal was recorded on 13 of the 16 survey visits (>2/3) but in very small numbers, with a peak count of 18 birds in December in field 387 (located close to the centre of the Wider Survey Area near to Rose House Farm). Teal were mostly associated with field boundary ditches.
- 3.3.28 Little egret was recorded ten times in the Wider Survey Area, mostly involving single birds associated with field boundary ditches. However a flock of six birds were present in the horse paddock in field 288 in November. A flock of four birds was also recorded in the same field in December.
- 3.3.29 Lapwing were recorded within the Wider Survey Area on 14 of the 16 survey visits (>2/3) with the two largest flocks recorded being of 257 birds in field 292 (located within the southern section of the Wider Survey Area) in November 2023 and 220 birds in field 281 (located within the southern section of the Wider Survey Area) in October 2023). Otherwise, lapwing flocks only exceeded 100 birds once more within the Wider Survey Area with a flock of 129 birds observed in field 291 during November.
- 3.3.30 Golden plover was recorded within the Wider Survey Area on three of the 16 survey visits (<2/3). The peak flock size within the Wider Survey Area was 82 individuals in field 291 (located in the southern section of the Wider Survey Area). All other flocks of golden plover which were recorded within the Wider Survey Area did not exceed 20 individuals. Fields were generally cropped with arable stubble and tilled fields.
- 3.3.31 Green sandpiper was recorded once (<2/3) in field 182 in March 2024. The bird was present in a tilled field.
- 3.3.32 Marsh harrier was recorded within the Wider Survey Area on seven of the 16 survey visits (<2/3) with birds typically being observed flying over fields hunting. Marsh harrier, although listed as a qualifying feature of the Humber Estuary SPA is only listed as a breeding species.
- 3.3.33 Secondary Species comprised the following:
- Grey partridge;
 - Canada goose;

- Black-headed gull;
- Common gull;
- Herring gull;
- Caspian gull;
- Yellow legged gull;
- Great black-backed gull;
- Lesser black-backed gull;
- Buzzard;
- Sparrowhawk;
- Kestrel
- Skylark;
- Fieldfare;
- Mistle thrush;
- Starling;
- Meadow pipit;
- Linnet; and,
- Yellowhammer.

3.3.34 A summary of results of species identified as qualifying features of the Humber Estuary SPA and Ramsar site which were recorded within the Wider Survey Area is presented below in **Table 3.4**.

3.3.35 The distributions of such species recorded over the survey period, is illustrated in **Figures 20-31**. A full breakdown of all Target Species observations is presented in **Annex 8**. Secondary Species data is presented separately in **Annex 10**.

Table 3.4: Qualifying interests of the Humber Estuary SPA and Ramsar site recorded within the Wider Survey Area.

Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=16)
Greylag goose	October 2023	222	184	5	69	22
	December 2023	115	64			
	March 2024	9	3			
	April 2024	1	1			
Pink-footed goose	October 2023	2,076	1,120	6	675	253
	November 2023	620	620			
	December 2023	1,338	668			
	January 2024	14	14			
	February 2024	1	1			
Teal	September 2023	3	3	13	6	5
	October 2023	4	4			

Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=16)
	November 2023	8	5			
	December 2023	24	18			
	January 2024	11	8			
	February 2024	12	9			
	March 2024	17	6			
	April 2024	3	2			
Little egret	September 2023	2	2	7	3	1
	October 2023	3	2			
	November 2023	8	6			
	December 2023	8	4			
Lapwing	September 2023	32	32	13	73	59
	October 2023	82	48			
	November 2023	528	257			
	December 2023	60	48			
	January 2024	132	43			
	February 2024	78	66			
	March 2024	4	2			
Golden plover	October 2023	3	3	3	35	7
	November 2023	102	82			
	January 2024	1	1			
Green sandpiper	March 2024	1	1	1	1	<1
Marsh harrier	September 2023	3	1	7	2	<1
	October 2023	3	1			
	November 2023	4	1			
	January 2024	1	1			

Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=16)
	February 2024	1	1			
	April 2024	1	1			

3.4 Nocturnal Bird Surveys – 2023/24

The Draft Order Limits

- 3.4.1 Of the 154 fields within the Draft Order Limits, 13 Target Species were recorded in 66 of these at least once during the survey period.
- 3.4.2 Target species recorded comprised: greylag goose, mallard, gadwall, wigeon, grey heron, lapwing, golden plover, snipe, jack snipe, woodcock, barn owl, tawny owl and little owl.
- 3.4.3 Species forming qualifying interests of the Humber Estuary SPA and Ramsar site, recorded within the Draft Order Limits included greylag goose, wigeon, lapwing and golden plover.
- 3.4.4 Activity was confined generally to small flocks and/or single birds, with only larger flocks discussed below.
- 3.4.5 Three species were recorded as flocks over 50 birds with lapwing reaching 111 birds in field 11 (south eastern side of the Draft Order Limit) in November, 100 birds in field 17 (south eastern side of the Draft Order Limit) in February and 63 birds in field 54 (south western side of the Draft Order Limit) in October. Golden plover reached 78 birds in field 114 (north western side of the Draft Order Limit) in January and greylag goose reached 76 birds also in field 18 in March.
- 3.4.6 Secondary Species recorded comprised the following:
- Grey partridge;
 - Moorhen;
 - Black-headed gull;
 - Skylark; and,
 - Fieldfare.
- 3.4.7 A summary of results of species identified as qualifying features of the Humber Estuary SPA and Ramsar site which were recorded within the Wider Survey Area is presented below in **Table 3.5**.
- 3.4.8 The distributions of such species recorded over the survey period, is illustrated in **Figures 20-31**.

Table 3.5: Qualifying interests of the Humber Estuary SPA and Ramsar site recorded within the Draft Order Limits during Nocturnal Bird Surveys.

Target Species	Month	Total	Peak	Number of Surveys Recorded	Mean	
					Within Surveys Recorded	Across Survey Period (n=7)
Greylag goose	November 2023	36	36	2	59	17
	March 2024	82	76			
Wigeon	February 2024	42	42	1	42	6
Lapwing	September 2023	5	5	7	80	80
	October 2023	71	63			
	November 2023	144	111			
	December 2023	78	23			
	January 2024	65	11			
	February 2024	167	100			
	March 2024	48	19			
Golden plover	November 2023	1	1	4	19	14
	December 2023	2	2			
	January 2024	85	78			
	March 2024	7	6			

3.5 Vantage Point Flight Activity Survey Results

- 3.5.1 Over the six surveys undertaken from each of the six vantage points between September 2023 and March 2024, species associated with the Humber Estuary SPA and Ramsar site included golden plover, pink-footed goose lapwing and marsh harrier. Additional Target Species comprised common crane.
- 3.5.2 Flocks that exceeded 100 birds included pink-footed goose (eight flocks of between 107 and 220 birds between September 2023 and November 2023) and lapwing (six flocks of between 130 and 310 birds in October 2023, January 2024 and February 2024). Observations generally involved flocks flying over the Draft Order Limits, with the exception of two flocks of lapwing (127 birds in October 2023 and 156 birds in January 2024) seen to land and/or be present feeding on the ground throughout the survey.
- 3.5.3 Birds recorded during the vantage point flight activity surveys both on the ground and in flight are summarised in **Table 3.6**. Full survey effort is shown in **Annex 4** with the details of each flight observation shown in **Annex 11**.

Table 3.6: Vantage point flight activity survey results

Vantage Point	Species	No. Observations	No. Birds	On Ground?	Fields
1	Pink-footed goose	4	223	No	Flew over the Draft Order Limits and study area in flocks of up to 148 birds
	Golden plover	1	23	No	Flew over the Draft Order Limits
	Marsh harrier	5	5	No	Hunting over fields
2	Pink-footed goose	5	143	No	Flew over the Draft Order Limits in flocks of up to 47 birds
	Lapwing	3	384	No	Flew over the Draft Order Limits in
	Marsh harrier	4	4	No	Hunting over fields
3	Pink-footed goose	7	376	No	Flew over the Draft Order Limits in flocks of up to 141 birds
	Common crane	1	2	No	Flew from the adjacent Hatfield Moors SSSI
	Lapwing	1	2	No	Flew over the Draft Order Limits
	Marsh harrier	2	2	No	Hunting over fields.
4	Pink-footed goose	304	11	Yes/No	Flew over the Draft Order Limits in flocks of up to 107 birds and birds foraging on the ground of up to 7 birds.
	Lapwing	855	7	Yes/No	Flew over the Draft Order Limits in flocks of up to 310 birds and birds foraging on the ground of up to 127 birds.
	Marsh harrier	3	3	No	Hunting over fields
5	Pink-footed goose	9	607	No	Flew over the Draft Order Limits in flocks of up to 220 birds
	Marsh harrier	4	4	No	Hunting over fields
6	Pink-footed goose	15	611	No	Flew over the Draft Order Limits in flocks of up to 140 birds
	Marsh harrier	4	4	No	Hunting over fields

3.6 Assessment of Importance (Functional Linkage)

3.6.1 Table 3.7 below provide information regarding the potential functional linkage for qualifying species and overall waterbird assemblages for designated sites in the wider area surrounding The Scheme.

3.6.2 Whilst use of the Survey Area by qualifying interests of the Humber Estuary SPA and Ramsar site is identified through the survey results, Natural England (2021¹⁵) does not recognise it as being functionally linked land for any of the species associated with these designated sites.

Table 3.7: Qualifying interests of the Humber Estuary SPA and Ramsar Site recorded within the Survey Area between September 2022 to March 2023 and September 2023 to April 2024.

Species	Month recorded (If month not stated then species not present)	Peak count	% of GB population	Significant numbers criteria met ¹⁸ ? (Yes/No)
Greylag goose (GB population – 230,000 wintering birds ¹⁹)	September	375	0.16%	No
	October	210	0.09%	No
	November	157	0.07%	No
	December	64	0.03%	No
	February	155	0.06%	No
	March	34	0.02%	No
	April	9	<0.01%	No
Pink-footed goose (GB population – 510,000 wintering birds)	September	700	0.13%	No
	October	3,133	0.61%	Yes
	November	620	0.12%	No
	December	668	0.13%	No
	January	14	<0.01%	No
	February	1,530	<0.30%	Yes
Teal (GB population – 430,000 non-breeding birds)	September	3	<0.01%	No
	October	2	<0.01%	No
	November	5	<0.01%	No
	December	18	<0.01%	No
	January	23	<0.01%	No
	February	9	<0.01%	No
	March	21	<0.01%	No
	April	2	<0.01%	No
Wigeon (GB population – 450,000 non-breeding birds)	October	6	<0.01%	No
	February	42	<0.01%	No
Little egret (GB population – 12,000 non-breeding birds)	September	2	0.02%	No
	October	2	0.02%	No
	November	6	0.05%	No
	December	4	0.03%	No
	January	1	<0.01%	No

¹⁸ Methodology for assessing significance is provided within paragraph 2.2.15

¹⁹ Population numbers sourced from: <https://www.bto.org/understanding-birds/birdfacts/>

Species	Month recorded (If month not stated then species not present)	Peak count	% of GB population	Significant numbers criteria met ¹⁸ ? (Yes/No)
	March	1	<0.01%	No
Oystercatcher GB population – 305,000 non-breeding birds	March	2	<0.01%	No
Lapwing GB population – 620,000 non-breeding birds	September	544	0.08%	No
	October	220	0.04%	No
	November	371	0.05%	No
	December	549	0.09%	No
	January	346	0.06%	No
	February	147	0.02%	No
	March	64	0.01%	No
	April	4	<0.01%	No
Golden plover GB population – 400,000 non-breeding birds	September	380	0.09%	No
	October	546	0.14%	No
	November	82	0.02%	No
	December	69	0.02%	No
	January	84	0.02%	No
	March	38	<0.01%	No
Dunlin GB population – 350,000 non-breeding birds	October	6	<0.01%	No
	November	27	<0.01%	No
Green sandpiper GB population – 290 wintering birds	September	1	0.34%	No
	October	1	0.34%	No
	December	1	0.34%	No
	February	1	0.34%	No
	March	1	0.34%	No
Curlew GB population – 120,000 non-breeding birds	March	2	<0.01%	No
	April	2	<0.01%	No
Hen harrier GB population – 2000 non-breeding birds	October	1 (hunting)	0.05%	No
	December	1 (hunting)	0.05%	No

3.6.3 **Table 3.8** presents the maximum counts of assemblage species recorded during each month within the Survey Area.

Table 3.8: Total Wetland Bird Assemblages Recorded.

Month recorded	Year	Wetland Species Assemblage Count – Draft Order Limits	Wetland Species Assemblage Count – Wider Survey Area	Total Wetland Species Assemblage Count	Significant numbers criteria met ²⁰ ?
September	2022	1,531	2,266	3,797	Yes
	2023	37	4	41	No
October	2022	576	779	1,355	No
	2023	2,390	4,051	6,441	Yes
November	2022	32	64	96	No
	2023	1,266	708	1,973	No
December	2022	309	443	752	No
	2023	1,545	113	1,658	No
January	2023	246	117	363	No
	2024	158	467	625	No
February	2023	87	206	293	No
	2024	91	1,719	1,800	No
March	2023	102	126	228	No
	2024	31	23	54	No
April	2024	4	49	53	No

3.6.4 Whilst several species have met the threshold of significance numbers for Functional Linkage, both the following criteria would need to be met

- a ‘significant number’ of birds defined as 0.5% of the Great British (GB) population, or 1,000 individuals; and,
- ‘regular’ defined, with reference to Stroud *et al.* (2001)²¹, as when a threshold is met in two thirds of the season for which adequate data is available.

3.6.5 The cumulative monthly waterbird assemblage counts did not exceed any of the three criteria in which significant numbers occurred within the Survey Area except in September 2022 when 3,797 individuals were recorded and in October 2023 when 6,441 individuals of the waterbird assemblage were recorded including a minimum of 3,133 pink-footed geese. All observations of birds listed on the waterbird assemblage included within the assessment were of grounded birds and those observations of overflying birds associated with the adjacent SSSI were not included.

3.6.6 It is believed that these observations of larger flocks of waterbird assemblage species are linked with passage and foraging geese associated with the adjacent SSSI. Several surveys, including vantage point surveys and nocturnal surveys saw overflying pink-footed geese landing and likely roosting within the Thorne Moors and

²⁰ Methodology for assessing significance is provided within paragraph 2.2.17.

²¹ Stroud, D.A., Chambers, D., Cook, S., Buxton, N., Fraser, B., Clement, P., Lewis, P., McLean, I., Baker, H. & Whitehead, S. (eds). 2001. *The UK SPA network: its scope and content*. JNCC, Peterborough, p56.

- 3.6.7 The only species to occur for more than two thirds of the surveys were teal and lapwing, however neither of these species ever exceeded the threshold of 0.5% of their GB population or more than 1000 birds.
- 3.6.8 For the Waterbird Assemblage to be considered Functionally Linked, the following criteria must be met.:
- 1% of each and every listed species that make up the assemblage;
 - 1%, or more, of the designated species' GB population; or,
 - Cumulatively over 2,000 birds of those species listed on the waterbird assemblage.
- 3.6.9 In September 2022 and October 2023, numbers exceeded 2000 birds, however similarly to those species listed as individual Qualifying Species, this only occurred on two out of the total 30 surveys (14 surveys in Year 1 and 16 surveys in Year 2).

ANNEX 1: BIRD SPECIES SUMMARY

Table A1.1 provides a list of bird species recorded during the breeding bird surveys. Both common and species names are presented along with a summary of each species conservation status using the following abbreviations:

- Annex 1 – European Birds Directive Annex I species.
- S1 – Schedule 1 of the Wildlife & Countryside Act 1981 (as amended)
- BoCC – Birds of Conservation Concern as listed by leading bird conservation organisations in the UK, including the RSPB and BTO. Red and Amber categories are given (Eaton *et al.*, 2015);
- NERC S41 - species listed as rare and most threatened on the NERC Act (2006);
- LBAP1 – Doncaster Local Biodiversity Action Plan Species; and,
- LBAP2 – Lincolnshire Local Biodiversity Action Plan.

Table A1.1: Summary of bird species.

Common name	Species name	Conservation status
Mute swan	<i>Cygnus olor</i>	BoCC – Amber.
Whooper swan	<i>Cygnus cygnus</i>	S1, Annex 1, BoCC – Amber, LBAP1.
Bewick's swan	<i>Cygnus columbianus bewickii</i>	S1, Annex 1, NERC S41, BoCC – Red.
Pink-footed goose	<i>Anser brachyrhynchos</i>	BoCC – Amber, LBAP1.
White-fronted goose	<i>Anser albifrons</i>	Annex 1, BoCC – Red, LBAP1.
Greylag goose	<i>Anser anser</i>	BoCC – Amber, LBAP1.
Brent goose	<i>Branta bernicla</i>	BoCC – Amber, NERC S41, LBAP1.
Canada goose	<i>Branta canadensis</i>	-
Shelduck	<i>Tadorna tadorna</i>	BoCC – Amber, LBAP1.
Wigeon	<i>Mareca penelope</i>	BoCC – Amber, LBAP1.
Gadwall	<i>Mareca strepera</i>	BoCC – Amber, LBAP1.
Teal	<i>Anas crecca</i>	BoCC – Amber, LBAP1.
Mallard	<i>Anas platyrhynchos</i>	BoCC – Amber.
Grey partridge	<i>Perdix perdix</i>	BoCC – Red, NERC S41, LBAP1, LBAP2.
Pheasant	<i>Phasianus colchicus</i>	-
Little egret	<i>Egretta garzetta</i>	Annex 1.
Grey heron	<i>Ardea cinerea</i>	-
Marsh harrier	<i>Circus aeruginosus</i>	Annex 1, S1, BoCC – Amber, LBAP1.
Moorhen	<i>Gallinula chloropus</i>	-
Golden plover	<i>Pluvialis apricaria</i>	Annex 1.
Oystercatcher	<i>Haematopus ostralegus</i>	BoCC – Amber.

Common name	Species name	Conservation status
Lapwing	<i>Vanellus vanellus</i>	BoCC – Red, NERC S41, LBAP1, LBAP2.
Curlew	<i>Numenius arquata</i>	BoCC – Red, NERC S41, LBAP2.
Common sandpiper	<i>Actitis hypoleucos</i>	BoCC – Amber.
Green sandpiper	<i>Tringa ochropus</i>	S1, BoCC – Amber, LBAP1.
Redshank	<i>Tringa totanus</i>	BoCC – Amber, LBAP2.
Snipe	<i>Gallinago gallinago</i>	BoCC – Amber, LBAP1, LBAP2.
Black-headed gull	<i>Chroicocephalus ridibundus</i>	BoCC – Amber, LBAP1.
Common gull	<i>Larus canus</i>	BoCC – Amber, LBAP1.
Lesser black-backed gull	<i>Larus fuscus</i>	BoCC – Amber, LBAP1.
Herring gull	<i>Larus argentatus</i>	BoCC – Red, NERC S41, LBAP1.
Great black-backed gull	<i>Larus marinus</i>	BoCC – Amber.
Stock dove	<i>Columba oenas</i>	BoCC – Amber, LBAP1.
Woodpigeon	<i>Columba palumbus</i>	-
Barn owl	<i>Tyto alba</i>	S1, LBAP1, LBAP2.
Nightjar	<i>Caprimulgus europaeus</i>	Annex 1, BoCC – Amber, NERC S41, LBAP1.
Swift	<i>Apus apus</i>	-
Kestrel	<i>Falco tinnunculus</i>	BoCC – Amber, LBAP1.
Rook	<i>Corvus frugilegus</i>	-
Merlin	<i>Falco columbarius</i>	Annex 1, S1, BoCC – Red, LBAP1.
Carrion crow	<i>Corvus corone</i>	-
Blue tit	<i>Cyanistes caeruleus</i>	-
Great tit	<i>Parus major</i>	-
Coal tit	<i>Pariparus ater</i>	-
Willow tit	<i>Poecile montanus</i>	BoCC – Red, NERC S41, LBAP1.
Skylark	<i>Alauda arvensis</i>	BoCC – Red, NERC S41, LBAP2.
Sand martin	<i>Riparia riparia</i>	LBAP1.
Swallow	<i>Hirundo rustica</i>	LBAP1.
Long-tailed tit	<i>Aegithalos caudatus</i>	-
Chiffchaff	<i>Phylloscopus collybita</i>	-
Willow warbler	<i>Phylloscopus trochilus</i>	BoCC – Amber, LBAP1.

Common name	Species name	Conservation status
Blackcap	<i>Sylvia atricapilla</i>	-
Lesser whitethroat	<i>Curucca curucca</i>	-
Whitethroat	<i>Curucca communis</i>	-
Nuthatch	<i>Sitta europaea</i>	LBAP1.
Treecreeper	<i>Certhia familiaris</i>	-
Wren	<i>Troglodytes troglodytes</i>	-
Starling	<i>Sturnus vulgaris</i>	BoCC – Red, NERC S41, LBAP1, LBAP2.
Blackbird	<i>Turdus merula</i>	-
Fieldfare	<i>Turdus pilaris</i>	S1, BoCC – Red, LBAP1.
Song thrush	<i>Turdus philomelos</i>	BoCC – Red, NERC S41, LBAP1, LBAP2.
Mistle thrush	<i>Turdus viscivorus</i>	BoCC – Red, LBAP1.
Robin	<i>Erithacus rubecula</i>	-
Redstart	<i>Phoenicurus phoenicurus</i>	BoCC – Amber, LBAP1.
Dunnock	<i>Prunella modularis</i>	BoCC – Amber, NERC S41, LBAP1.
House sparrow	<i>Passer domesticus</i>	BoCC – Red, NERC S41, LBAP1, LBAP2.
Yellow wagtail	<i>Motacilla flava flavissima</i>	BoCC – Red, NERC S41, LBAP1, LBAP2.
Tree pipit	<i>Anthus trivialis</i>	BoCC – Red, NERC S41, LBAP1.
Meadow pipit	<i>Anthus pratensis</i>	BoCC – Amber, LBAP1.
Chaffinch	<i>Fringilla coelebs</i>	-
Linnet	<i>Linaria cannabina</i>	BoCC – Red, NERC S41, LBAP1, LBAP2.
Goldfinch	<i>Carduelis carduelis</i>	-
Yellowhammer	<i>Emberiza citrinella</i>	BoCC – Red, NERC S41, LBAP, LBAP2.
Reed bunting	<i>Emberiza schoeniclus</i>	BoCC – Amber, NERC S41, LBAP1, LBAP2.
Corn bunting	<i>Emberiza calandra</i>	BoCC – Red, NERC S41, LBAP1, LBAP2.

ANNEX 2: HUMBER ESTUARY SPA WATERBIRD ASSEMBLAGE

With reference to Natural England Conservation Advice for Marine Protected Areas: Humber Estuary SPA, the waterfowl assemblage of the Humber consists of over 135,000 waterbirds, including all internationally important regularly occurring migratory species, the Annex I wintering species and species occurring at levels of more than 1% of national populations or whose populations exceed 2,000 individuals.

Species are therefore identified and summarised below, with reference to Austin *et al.* (2023).

Species	Assemblage Thresholds Met
Brent Goose	Population exceeds 2,000 individuals Population exceeds international important threshold
Greylag Goose	Population exceeds national important threshold
Pink-footed Goose	Population exceeds 2,000 individuals Population exceeds international important threshold
Shelduck	Population exceeds 2,000 individuals Population exceeds international important threshold
Shoveler	Population exceeds national important threshold
Wigeon	Population exceeds 2,000 individuals
Teal	Population exceeds 2,000 individuals Population exceeds international important threshold
Goldeneye	Population exceeds national important threshold
Oystercatcher	Population exceeds 2,000 individuals Population exceeds national important threshold
Avocet	Population exceeds 2,000 individuals Population exceeds international important threshold
Lapwing	Population exceeds 2,000 individuals Population exceeds national important threshold
Golden Plover	Population exceeds 2,000 individuals Population exceeds international important threshold
Grey Plover	Population exceeds 2,000 individuals Population exceeds international important threshold
Ringed Plover	Population exceeds international important threshold
Curlew	Population exceeds 2,000 individuals Population exceeds national important threshold
Bar-tailed Godwit	Population exceeds international important threshold
Black-tailed Godwit	Population exceeds 2,000 individuals Population exceeds international important threshold
Knot	Population exceeds 2,000 individuals Population exceeds international important threshold
Ruff	Population exceeds national important threshold
Sanderling	Population exceeds national important threshold
Dunlin	Population exceeds 2,000 individuals

Species	Assemblage Thresholds Met
	Population exceeds international important threshold
Green Sandpiper	Population exceeds national important threshold
Redshank	Population exceeds 2,000 individuals Population exceeds international important threshold
Greenshank	Population exceeds national important threshold
Black-headed Gull	Population exceeds 2,000 individuals
Little Egret	Population exceeds national important threshold

ANNEX 3: DESK STUDY RESULTS

Table A3.1 provides a list of the species returned from the desk study from DLRC and GLNP.

Table A3.1: Desk study results provided by GLNP and DLRC.

Common name	No. of records	Source	Most recent record
Barn owl	22	GLNP	2022
	2	DLRC	2015
Bittern	3	GLNP	2021
Black Tern	1	DLRC	2018
Black stork	2	GLNP	2014
Black-headed gull	15	DLRC	2020
Black-necked grebe	1	GLNP	2018
Bullfinch	14	GLNP	2021
	15	DLRC	2018
Cetti's warbler	27	GLNP	2022
	7	DLRC	2021
Common gull	7	DLRC	2018
Corn bunting	4	GLNP	2021
	3	DLRC	2018
Common crane	1	DLRC	2019
Cuckoo	35	GLNP	2022
	3	DLRC	2021
Curlew	7	GLNP	2021
	6	DLRC	2018
Dunnock	1	GLNP	2021
	9	DLRC	2018
Fieldfare	25	GLNP	2022
	16	DLRC	2020
Gadwall	9	GLNP	2017
	16	DLRC	2018
Garganey	3	GLNP	2015
Golden oriole	1	GLNP	2018

Common name	No. of records	Source	Most recent record
Goldeneye	1	DLRC	2018
Golden plover	7	DLRC	2018
Goosander	11	DLRC	2021
Grasshopper warbler	7	GLNP	2020
Great white egret	1	DLRC	2018
Green sandpiper	2	GLNP	2014
	4	DLRC	2018
Greenland white-fronted goose	1	GLNP	2017
Greenfinch	5	DLRC	2018
Grey partridge	10	GLNP	2022
Grey wagtail	2	DLRC	2020
Greylag goose	34	GLNP	2022
	11	DLRC	2018
Hawfinch	1	DLRC	2014
Hen harrier	10	GLNP	2020
Herring gull	4	DLRC	2020
Hobby	25	GLNP	2022
Honey buzzard	2	GLNP	2015
House sparrow	15	GLNP	2021
	3	DLRC	2019
Kestrel	30	DLRC	2020
Kingfisher	2	GLNP	2021
Lapwing	14	GLNP	2022
	17	DLRC	2020
Lesser black-backed gull	2	DLRC	2018
Lesser redpoll	24	GLNP	2021
	14	DLRC	2018
Linnet	27	GLNP	2022
	9	DLRC	2021

Common name	No. of records	Source	Most recent record
Little egret	1	GLNP	2022
	1	DLRC	2021
Little ringed plover	2	DLRC	2018
Mallard	20	DLRC	2019
Marsh harrier	37	GLNP	2022
	10	DLRC	2018
Meadow pipit	16	DLRC	2018
Merlin	1	GLNP	2020
	5	DLRC	2018
Mistle thrush	6	DLRC	2020
Mute swan	6	DLRC	2021
Nightjar	21	GLNP	2017
	81	DLRC	2021
Oystercatcher	1	DLRC	2019
Peregrine	2	GLNP	2014
Pink-footed goose	13	DLRC	2018
Pochard	4	DLRC	2018
Quail	1	GLNP	2013
Red kite	1	GLNP	2014
Red-necked grebe	2	DLRC	2012
Redshank	7	DLRC	2018
Redwing	21	GLNP	2021
	13	DLRC	2018
Reed bunting	43	GLNP	2022
	11	DLRC	2018
Ring ouzel	4	GLNP	2015
Ringed plover	1	DLRC	2018
Rook	2	DLRC	2020
Shelduck	7	DLRC	2018
Short-eared owl	1	DLRC	2012
Shoveler	13	DLRC	2018

Common name	No. of records	Source	Most recent record
Skylark	27	GLNP	2021
	9	DLRC	2018
Snipe	10	GLNP	2021
	11	DLRC	2018
Song thrush	24	GLNP	2022
	9	DLRC	2018
Sparrowhawk	9	DLRC	2018
Spotted flycatcher	4	GLNP	2021
Starling	23	GLNP	2022
	11	DLRC	2018
Stock dove	3	DLRC	2018
Swift	32	GLNP	2020
Teal	20	DLRC	2018
Tree pipit	23	GLNP	2022
	3	DLRC	2014
Tree sparrow	20	GLNP	2020
	1	DLRC	2018
Tufted duck	12	DLRC	2018
Turtle dove	14	GLNP	2020
Water pipit	2	DLRC	2021
Whitethroat	2	DLRC	2018
Whooper swan	6	GLNP	2022
	9	DLRC	2021
Wigeon	6	DLRC	2018
Willow tit	8	DLRC	2018
Willow warbler	2	DLRC	2018
Woodcock	4	DLRC	2018
Woodlark	6	GLNP	2015
Woodpigeon	10	DLRC	2020
Wren	10	DLRC	2018

Common name	No. of records	Source	Most recent record
Yellow wagtail	2	GLNP	2014
Yellowhammer	44	GLNP	2022
	12	DLRC	2018
Yellow-legged gull	1	DLRC	2018

ANNEX 4: NON-BREEDING BIRD SURVEY EFFORT

Table 4.1: Survey Conditions Criteria

Wind Speed		W-Direction	Rain		Cloud Cover		Cloud Height	
Calm	0	Use 16 point Compass	None	0	In eighths e.g.	3/8	<150m	0
Light air	1		Drizzle/Mist	1			150-500m	1
Light breeze	2	N	Light showers	2			>500m	2
Mod. breeze	4	NE	Heavy showers	4				
Fresh breeze	5	ENE	Heavy showers	4				
Strong breeze	6	E						
Mod. gale	7	Etc	Visibility		Snow		Frost	
Fresh gale	8		Poor	0	None	0	None	0
Strong gale	9		< 1km	1	On site	1	Ground	1
Whole gale	10		>1km	2	High ground	2	All day	2
Storm	11							

Table 4.2: Non-Breeding Bird Survey Effort 2022/23

Date	Surveyor	Start Time (24 hrs)	End time (24 hrs)	Wind Speed	Wind Direction	Rain	Cloud Height	Cloud Cover	Visibility	Frost	Snow	Notes
19/09/2022	CG/TJ	06:45	14:45	1	WNW	1	2	8	2	0	0	Light showers
20/09/2022	CG/TJ	06:45	14:45	1	W	0	2	6	2	0	0	
21/09/2022	CG/TJ	07:00	15:00	2	S	0	2	6	2	0	0	
22/09/2022	CG/TJ	07:00	12:45	2	S	0	2	4	2	0	0	
26/09/2022	CG/TJ	06:30	14:30	3	NW	0	2	6	2	0	0	
27/09/2022	CG/TJ	07:00	14:00	2	W	0	2	6	2	0	0	
28/09/2022	CG/TJ	07:00	14:00	2	NW	1	2	6	2	0	0	Light showers
29/09/2022	CG/TJ	07:00	14:00	1	N	0-2	2	6	2	0	0	Showers
30/09/2022	CG/TJ	10:00	18:00	3-4	S	2-4	2	8	2	0	0	Heavy showers and heavy rain.
13/10/2022	GT	09:00	14:00	0	-	0	-	-	2	0	0	
14/10/2022	GT	09:00	14:00	2	SW	0	2	1	2	0	0	
15/10/2022	GT	09:00	14:00	4	SW	0	2	3	2	0	0	
19/10/2022	GT	09:00	14:00	3	E	0	2	4	2	0	0	
21/10/2022	GT	09:00	14:00	4	E	2	2	8	2	0	0	Showers
25/10/2022	GT	09:00	14:00	3	SW	0	2	3	2	0	0	
26/10/2022	GT	09:00	14:00	5	SW	0	2	5	2	0	0	
27/10/2022	GT	09:00	14:00	2	S	1	2	8	2	0	0	Showers
28/10/2022	GT	09:00	14:00	3	S	2	2	7	2	0	0	Heavy showers
30/10/2022	GT	09:00	14:00	4	SW	0	2	7	2	0	0	
11/11/2022	GT	09:00	14:00	6	SW	0	2	6	1	0	0	
13/11/2022	GT	09:00	14:00	0	-	0	2	8	1	0	0	Fog
14/11/2022	GT	09:00	14:00	0	-	0	2	8	1	0	0	Fog
17/11/2022	GT	09:00	14:00	4	SW	3	2	8	1	0	0	Heavy rain
20/11/2022	GT	09:00	14:00	3	SW	0	2	8	1	0	0	
24/11/2022	GT	09:00	14:00	3	SE	0	2	8	2	0	0	

26/11/2022	GT	09:00	14:00	4	S	0	2	4	2	0	0	
27/11/2022	GT	09:00	14:00	4	S	0	2	8	2	0	0	
28/11/2022	GT	09:00	14:00	2	S	0	2	8	2	0	0	Misty
29/11/2022	GT	09:00	14:00	1	S	0	2	8	2	0	0	Misty
07/12/2022	GT/AH	17:00	00:00	2	SW	0	-	0	2	1	0	
08/12/2022	GT/AH	17:00	00:00	2	NW	0	2	7	2	0	0	
09/12/2022	GT/AH	17:00	01:30	0	-	0	-	0	1	1	0	Foggy
15/12/2022	GT	09:00	16:00	2	NW	0	-	0	2	1	0	
16/12/2022	GT	09:00	16:00	1	S	0	2	4	2	1	0	
19/12/2022	GT	09:00	16:00	5	SW	0	2	7	2	0	0	
29/12/2022	GT	09:00	16:00	6	SW	2	2	4	2	0	0	Heavy showers
12/01/2023	GT	09:00	16:00	5	SW	0	2	8	2	0	0	
13/01/2023	GT	09:00	16:00	3	N	0	2	1	2	1	0	
18/01/2023	GT	09:00	16:00	2	N	0	2	2	2	1	0	
20/01/2023	GT	09:00	16:00	3	W	0	-	0	2	0	0	
24/01/2023	GT	17:00	23:00	0	-	0	-	0	2	0	0	
25/01/2023	GT	17:00	00:00	3	NW	0	-	0	2	0	0	
27/01/2023	GT	17:00	23:00	3	SW	0	2	8	2	0	0	
30/01/2023	GT	17:00	00:00	3	W	0	2	5	2	0	0	
10/02/2023	GT	10:00	15:30	3	S	0	2	8	2	0	0	
14/02/2023	GT	09:45	15:15	0	N/A	0	2	8	2	0	0	Foggy
15/02/2023	GT	09:00	15:30	1	SW	0	2	5	2	0	0	
20/02/2023	GT	09:00	12:45	4	W	0	2	8	2	0	0	
22/02/2023	GT	18:00	23:45	2	N	3	2	8	2	0	0	
23/02/2023	GT	20:15	23:30	2	N	0	2	8	2	0	0	
26/02/2023	GT	18:30	22:45	4	NE	0	2	4	2	0	0	
27/02/2023	GT	18:00	23:00	4	NE	0	2	4	2	0	0	
05/03/2023	GT	09:00	13:00	2	W	0	2	8	2	0	0	
07/03/2023	GT	10:00	17:00	4	N	0	2	1	1	0	0	
09/03/2023	GT	09:00	15:30	3	E	0	2	8	2	0	1	Sleet
10/03/2023	GT	09:00	13:45	6	N	0	2	8	2	0	1	Flurry

29/03/2023	GT	11:00	17:30	3	SW	2	2	8	2	0	0	
31/03/2023	GT	09:15	16:15	3	NE	4	2	8	1	0	0	
01/04/2023	GT	10:00	16:30	2	NE	0	2	8	2	0	0	
02/04/2023	GT	09:30	13:45	1	E	0	2	4	2	0	0	

Table 4.3: Non-Breeding Bird Survey Effort 2023/24

Start Date	End Date	Surveyor	Start Time (24 hrs)	End time (24 hrs)	Wind Speed	Wind Direction	Rain	Cloud Height	Cloud Cover	Visibility	Frost	Snow	Notes
13/09/2023	18/09/2023	GT	N/R	N/R	4/4/2/3/4	NE/NE/SW/E/E	3/0/2/0/0	8/6/8/8/3	2/2/2/2/2	2/2/2/2/2	0/0/0/0/0	0/0/0/0/0	
25/09/2023	29/09/2023	GT	N/R	N/R	4/3/3/6/4	SW/SW/S/SW/W	0/0/0/0/0	2/4/5/8/3	2/2/2/2/2	2/2/2/2/2	0/0/0/0/0	0/0/0/0/0	
01/10/2023	06/10/2023	GT	N/R	N/R	4/5/4/3/5	S/W/SW/SW/SW	3/0/0/0/4	8/3/8/8/8	2/2/2/2/2	2/2/2/2/1	0/0/0/0/0	0/0/0/0/0	
23/10/2023	27/10/2023	GT	N/R	N/R	1/2/1/4/1	NE/NE/SE/SE/SE	0/4/0/3/0	8/8/8/8/3	0/1/2/2/2	0/2/2/2/2	0/0/0/0/0	0/0/0/0/0	
05/11/2023	09/11/2023	GT	N/R	N/R	4/3/5/3/2	NW/W/W/SE/SW	3/2/0/3/0	8/8/8/8/3	2/2/2/1/2	2/2/2/2/2	0/0/0/0/0	0/0/0/0/0	
24/11/2023	30/11/2023	GT	N/R	N/R	7/5/2/2/4	NW/W/NW/NW/NW	0/4/0/0/2	8/8/1/1/5	2/1/2/2/2	2/1/2/2/2	0/0/0/2/0	0/0/0/0/0	
08/12/2023	14/12/2023	GT	N/R	N/R	3/3/1/3/4	SW/W/SW/N/SW	0/0/0/0/0	8/6/8/5/8	2/2/1/2/2	2/2/1/2/2	0/0/0/0/0	0/0/0/0/0	Misty
20/12/2023	29/12/2023	GT	N/R	N/R	5/5/2/4/5	W/N/W/SE/SW	0/0/0/2/0	7/5/3/8/6	2/2/2/2/2	2/2/2/2/2	0/0/0/0/0	0/0/0/0/0	
05/01/2024	11/01/2024	GT	N/R	N/R	1/3/3/4	NE/E/E/NW	1/0/0/0	8/5/6/4	1/2/2/2	2/2/2/2	0/0/0/0	0/0/0/0	
16/01/2024	20/01/2024	GT	N/R	N/R	4/1/2/4	SW/W/W/SW	0/0/0/0	8/0/0/8	1/-/-/2	1/2/2/2	2/2/2/0	1/0/0/0	Light snow flurries
05/02/2024	09/02/2024	GT	N/R	N/R	4/3/1/6/1	W/W/E/E/SW	0/0/0/2/0	8/8/2/8/8	2/2/2/2/2	2/2/2/2/2	0/0/0/0/0	0/0/0/0/0	
19/02/2024	24/02/2024	GT	N/R	N/R	4/5/4/2	W/SW/W/SW	0/3/0/0	7/8/4/2	2/1/2/2	2/2/2/2	0/0/0/0	0/0/0/0	
03/03/2024	08/03/2024	GT	N/R	N/R	2/3/4/4/5	SW/E/SE/E/E	0/0/1/1/0	3/5/8/8/3	2/2/1/2/2	2/2/1/2/2	0/0/0/0/0	0/0/0/0/0	
25/03/2024	31/03/2024	GT	N/R	N/R	3/3/4/5/4	NE/E/S/SE/SE	0/0/0/0/0	6/3/1/3/4	2/2/2/2/2	2/2/2/2/2	0/0/0/0/0	0/0/0/0/0	

Table 4.4: Nocturnal Bird Survey Effort 2023/24

Date	Surveyor	Start Time (24 hrs)	End time (24 hrs)	Wind Speed	Wind Direction	Rain	Cloud Height	Cloud Cover	Visibility	Frost	Snow	Notes
28/09/2023	GT	19:30	23:30	6	SW	0	2	2	-	0	0	
29/09/2023	GT	19:30	00:30	2	W	1	8	2	-	0	0	
30/09/2023	GT	19:15	22:45	1	W	0	0	-	2	0	0	
10/10/2023	GT	N/R	N/R	2	SW	0	2	2	0	0	0	
11/10/2023	GT	N/R	N/R	4	SW	0	9	2	0	0	0	
12/10/2023	GT	N/R	N/R	4	SW	0	8	2	0	0	0	
13/11/2023	GT	N/R	N/R	5	S	0	5	2	2	0	0	
14/11/2023	GT	N/R	N/R	3	W	0	3	2	2	0	0	
15/11/2023	GT	N/R	N/R	5	W	0	8	2	2	0	0	
16/11/2023	GT	N/R	N/R	2	SE	0	8	2	2	0	0	
17/11/2023	GT	N/R	N/R	2	SW	0	8	2	2	0	0	
11/12/2023	GT	N/R	N/R	3	W	0	8	2	1	0	0	
12/12/2023	GT	N/R	N/R	1	SW	1	8	1	0	0	0	Foggy
13/12/2023	GT	N/R	N/R	3	N	0	0	0	2	0	0	
16/01/2024	GT	N/R	N/R	4	SW	0	2	2	2	2	1	Light snow flurries
17/01/2024	GT	N/R	N/R	1	W	0	0	-	2	2	0	
18/01/2024	GT	N/R	N/R	2	W	0	0	-	2	2	0	
06/02/2024	GT	N/R	N/R	4	W	0	8	2	2	0	0	
07/02/2024	GT	N/R	N/R	2	E	0	2	2	2	0	0	
13/02/2024	GT	N/R	N/R	4	SW	0	7	2	2	0	0	
11/03/2024	GT	N/R	N/R	4	NE	1	8	1	2	0	0	
12/03/2024	GT	N/R	N/R	3	SE	0	3	2	2	0	0	
13/03/2024	GT	N/R	N/R	5	SW	0	6	2	2	0	0	

Table 4.5: Vantage Point Survey Effort 2023/24

Start Date	Vantage Point	Surveyor	Start Time (24 hrs)	End time (24 hrs)	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Height	Cloud Cover	Visibility	Frost	Snow
27/09/2023	1	GT	12:40	15:40	3	4/4/4	SE/SE/SE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
23/09/2023	2	GT	15:00	18:00	3	2/1/1	SW/SW/SW	0/0/0	6/6/6	2/2/2	2/2/2	0/0/0	0/0/0
30/09/2023	3	GT	12:00	15:00	3	3/3/3	SW/SW/SW	0/3/4	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
25/09/2023	4	GT	16:00	19:00	3	3/2/1	SW/SW/SW	0/0/0	7/6/7	2/2/2	2/2/2	0/0/0	0/0/0
29/09/2023	5	GT	13:40	16:40	3	4/4/3	W/W/W	0/0/0	2/3/2	2/2/2	2/2/2	0/0/0	0/0/0
28/09/2023	6	GT	15:30	18:30	3	4/4/4	SW/SW/SW	0/0/0	8/7/8	2/2/2	2/2/2	0/0/0	0/0/0
15/10/2023	1	GT	10:30	13:30	3	2/3/3	W/W/W	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
16/10/2023	2	GT	13:10	16:10	3	0/0/1	-/-/E	0/0/0	7/3/3	2/2/2	2/2/2	0/0/0	0/0/0
26/10/2023	3	GT	08:30	11:30	3	1/2/2	SE/SE/SE	0/1/4	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
15/10/2023	4	GT	14:05	17:05	3	1/1/1	W/W/W	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
30/10/2023	5	GT	12:05	15:05	3	4/3/3	E/E/E	0/1/1	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
13/10/2023	6	GT	15:30	18:30	3	1/1/1	NW/NW/NW	3/0/0	8/4/0	2/2/2	2/2/2	0/0/0	0/0/0
14/11/2023	1	GT	13:00	16:00	3	2/3/3	W/W/SW	0/2/0	6/8/7	2/2/2	2/2/2	0/0/0	0/0/0
05/11/2023	2	GT	08:55	11:55	3	2/2/2	SE/SE/SE	0/0/0	4/2/2	2/2/2	2/2/2	0/0/0	0/0/0
27/11/2023	3	GT	10:00	13:00	3	4/4/4	NW/NW/NW	4/3/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
27/11/2023	4	GT	13:10	16:10	3	4/3/3	NW/NW/NW	0/0/0	8/6/6	2/2/2	2/2/2	0/0/0	0/0/0
23/11/2023	5	GT	10:50	13:50	3	5/5/5	SW/SW/SW	1/1/1	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
16/11/2023	6	GT	13:10	16:10	3	0/0/1	0/0/E	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
24/12/2023	1	GT	08:40	11:40	3	5/5/5	SW/SW/SW	0/0/0	8/6/6	2/2/2	2/2/2	0/0/0	0/0/0
26/12/2023	2	GT	08:40	11:40	3	2/3/3	W/W/W	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
18/12/2023	3	GT	13:00	16:00	3	4/5/5	SW/SW/SW	0/0/0	6/6/8	2/2/2	2/2/2	0/0/0	0/0/0
18/12/2023	4	GT	09:45	12:45	3	3/3/3	SW/SW/SW	0/0/0	6/8/7	2/2/2	2/2/2	0/0/0	0/0/0
24/12/2023	5	GT	12:05	15:05	3	6/6/6	W/W/W	0/0/0	5/6/4	2/2/2	2/2/2	0/0/0	0/0/0
03/12/2023	6	GT	13:00	16:00	3	3/3/3	N/N/N	0/0/0	4/5/4	2/2/2	2/2/2	0/0/0	0/0/0
14/01/2024	1	GT	13:00	15:00	3	2/2/2	NW/NW/NW	0/0/0	7/6/7	2/2/2	2/2/2	0/0/0	0/0/0
14/01/2024	2	GT	09:45	12:45	3	2/2/2	NW/NW/NW	0/0/0	1/3/6	2/2/2	2/2/2	1/0/0	0/0/0

31/01/2024	3	GT	11:00	14:00	3	4/4/4	SW/SW/SW	0/0/0	8/7/7	2/2/2	2/2/2	0/0/0	0/0/0
20/01/2024	4	GT	12:45	15:45	3	4/4/4	SW/SW/SW	0/1/4	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
22/01/2024	5	GT	09:20	12:20	3	5/5/5	SW/SW/SW	0/0/0	2/2/3	2/2/2	2/2/2	0/0/0	0/0/0
30/01/2024	6	GT	10:50	13:50	3	3/3/3	NW/NW/NW	0/0/0	6/5/6	2/2/2	2/2/2	0/0/0	0/0/0
26/02/2024	1	GT	12:50	15:50	3	4/4/4	N/N/N	0/0/2	2/6/8	2/2/2	2/2/2	0/0/0	0/0/0
26/02/2024	2	GT	09:40	12:40	3	4/5/4	N/N/N	3/2/0	5/3/6	2/2/2	2/2/2	0/0/0	0/0/0
23/02/2024	3	GT	10:45	13:45	3	4/4/4	W/SW/SW	0/0/0	4/2/3	2/2/2	2/2/2	0/0/0	0/0/0
11/02/2024	4	GT	10:20	13:20	3	2/2/3	W/W/W	0/0/0	7/5/5	2/2/2	2/2/2	0/0/0	0/0/0
11/02/2024	5	GT	13:35	16:35	3	3/4/4	W/NW/NW	0/0/0	1/1/5	2/2/2	2/2/2	0/0/0	0/0/0
19/02/2024	6	GT	12:00	15:00	3	5/5/6	W/W/W	0/0/0	4/5/2	2/2/2	2/2/2	0/0/0	0/0/0
22/03/2024	1	GT	11:55	14:55	3	5/5/6	W/W/W	0/0/0	4/4/8	2/2/2	2/2/2	0/0/0	0/0/0
31/03/2024	2	GT	11:30	14:30	3	4/4/4	SE/SE/SE	0/0/0	4/4/3	2/2/2	2/2/2	0/0/0	0/0/0
26/03/2024	3	GT	15:30	18:30	3	4/4/4	NE/NE/NE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
22/03/2024	4	GT	08:45	11:45	3	4/4/5	W/W/W	0/0/0	6/6/4	2/2/2	2/2/2	0/0/0	0/0/0
12/03/2024	5	GT	15:00	18:00	3	3/3/4	SW/SW/SW	0/0/0	6/7/8	2/2/2	2/2/2	0/0/0	0/0/0
27/03/2024	6	GT	11:20	14:20	3	5/5/5	S/SW/SW	0/0/2	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0

Field No	Species	Survey Visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
12	Pink-footed goose	(22)	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Lapwing	-	-	-	-	-	-	-	-	-	-	-	20	-	-
	Curlew	-	-	-	-	-	-	-	-	-	-	-	-	2	-
16	Mallard	-	-	-	-	-	-	-	-	-	-	-	1	4	-
17	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	2	-
	Lapwing	-	-	-	-	-	-	-	-	-	-	-	-	2	-
18	Mute swan	-	-	-	-	9	-	-	-	-	-	-	-	-	-
	Mallard	-	-	-	-	-	-	-	-	-	-	-	1	-	2
	Lapwing	-	-	-	23	31	-	2	19	64	-	-	-	-	-
	Golden plover	-	-	-	-	-	-	-	-	11	-	-	-	-	-
	Snipe	-	-	-	-	-	-	10	-	-	-	-	-	-	-
	Marsh harrier	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-
20	Barn owl	-	-	-	-	-	-	1	-	-	-	-	-	-	-
	Mallard	92	-	-	-	-	-	-	-	-	-	-	-	-	-
	Grey heron	-	-	-	-	-	1	-	-	-	-	-	-	-	-
21	Lapwing	-	26	-	-	-	-	-	-	-	-	-	-	-	-
22	Woodcock	-	-	-	-	-	2	-	-	-	-	-	-	-	-
24	Lapwing	94	24	-	-	-	-	-	-	-	-	-	-	-	-
26	Barn owl	-	-	-	-	-	-	1	-	-	-	-	-	-	-

Field No	Species	Survey Visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
	Woodcock	-	-	-	-	-	-	-	-	-	2	-	-	-	-
	Marsh harrier	-	-	-	-	-	-	-	1	-	-	-	-	-	-
61	Pink-footed goose	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mallard	-	2	-	-	-	-	-	-	-	-	-	-	-	-
	Grey heron	1	-	-	-	-	-	-	-	-	-	-	-	-	-
63	Green sandpiper	-	1	-	-	-	-	-	-	-	-	-	-	-	-
64	Little egret	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-
65	Grey heron	3	-	-	-	-	-	-	-	-	17	-	-	-	-
	Lapwing	260	-	-	-	-	-	-	-	-	-	-	-	-	-
	Red kite	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-
69	Lapwing	-	-	-	-	-	-	14	-	-	-	-	-	-	-
70	Barn owl	-	-	-	-	-	-	-	-	-	-	-	1	-	-
73	Golden plover	-	12	-	-	-	-	-	-	-	-	-	-	-	-
	Marsh harrier	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)
74	Grey heron	-	1	-	-	-	-	-	-	-	-	-	-	-	-
75	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	Snipe	-	-	-	-	-	-	1	-	-	-	-	-	-	-
76	Teal	-	-	-	-	-	-	-	-	-	4	-	-	-	-
	Snipe	-	-	-	-	-	-	-	-	-	1	-	-	-	-

Field No	Species	Survey Visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
	Grey heron	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	2	-	-	-	-	-	-	-
103	Lapwing	-	-	-	-	-	-	-	1	-	-	-	-	-	-
	Golden plover	-	-	-	-	-	-	-	1	-	-	-	-	-	-
104	Mallard	-	-	-	9	-	-	-	-	-	-	-	-	-	-
	Teal	-	-	-	-	-	-	3	-	-	-	-	-	4	-
105	Pink-footed goose	(36)	-	-	-	-	-	-	-	-	-	-	-	-	-
	Grey heron	-	-	3	-	-	-	-	-	-	-	-	-	-	-
106	Greylag goose	-	-	-	-	-	-	-	-	-	-	-	-	-	8
	Mallard	-	-	12	-	-	-	-	-	-	27	-	-	-	3
	Teal	-	-	2	-	-	-	-	-	-	6	-	-	-	-
	Shoveler	-	-	-	-	-	-	-	-	-	2	-	-	-	-
	Grey heron	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	Lapwing	-	-	-	-	-	-	-	-	-	112	-	32	-	-
113	Pink-footed goose	-	(1)	-	-	-	-	-	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	5	-	-	3	-	-	-	-
114	Grey heron	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	2	-	-	9	-	-	-	-

Field No	Species	Survey Visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	4	-	-
121	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
129	Green sandpiper	-	-	1	-	-	-	-	-	-	-	-	-	-	-
130	Lapwing	-	-	25	-	-	-	-	-	-	-	-	-	-	-
132	Grey heron	-	-	-	2	-	-	-	-	-	-	-	-	-	-
135	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
136	Pink-footed goose	-	-	(209)	-	-	-	-	-	-	-	-	-	-	-
	Snipe	-	-	-	-	-	-	-	-	-	-	-	1	-	-
137	Grey plover	(17)	-	-	-	-	-	-	-	-	-	-	-	-	-
	Snipe	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-
	Marsh harrier	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-
175	Greylag goose	7	-	-	-	-	-	-	-	-	-	-	-	-	-
252	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	2	-
275	Lapwing	-	-	-	-	-	-	-	-	-	-	-	-	-	2
282	Whooper swan	-	-	-	-	-	-	-	-	-	-	-	-	8	-
	Pink-footed goose	-	-	-	-	-	-	(320)	-	-	-	-	-	-	-
	Lapwing	-	-	-	-	-	-	-	16	-	-	-	-	-	-
284	Lapwing	-	-	-	-	-	-	-	-	-	-	-	-	14	2

Field No	Species	Survey Visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
285	Woodcock	-	-	-	-	-	-	-	-	-	-	-	4	-	-
288	Lapwing	-	-	-	-	-	-	-	-	-	9	-	-	13	-
290	Mallard	-	8	-	-	-	-	-	-	-	-	-	-	-	-
	Lapwing	-	-	-	-	-	-	-	-	-	-	-	2	-	9
	Woodcock	-	-	-	-	-	-	2	-	-	-	-	2	-	-
497	Pink-footed goose	32	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lapwing	-	-	-	-	-	-	78	77	-	32	-	-	-	-
	Golden plover	-	-	-	-	-	-	-	11	-	-	-	-	-	-
	Barn owl	-	-	-	-	-	-	1	-	-	-	-	-	-	-
498	Mallard	-	-	-	-	-	-	-	-	-	-	-	1	-	-
	Lapwing	-	390	-	-	-	-	-	-	-	7	-	-	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
	Osprey	1	-	-	-	-	-	-	-	-	-	-	-	-	-
<p>Species associated with the Humber Estuary SPA recorded in bold</p> <p>'-' means that the species was not recorded during that visit.</p> <p>Those in brackets were recorded in flight only.</p>															

Field N ^o	Species	Survey Visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
	Mallard	16	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hen harrier	-	-	(1)	-	-	-	-	-	-	-	-	-	-	-
	Tawny owl	-	-	-	-	-	1	-	-	-	-	-	-	-	-
223	Hen harrier	-	-	(1)	-	-	-	-	-	-	-	-	-	-	-
224	Hen harrier	-	-	(1)	-	-	-	-	-	-	-	-	-	-	-
	Pink-footed goose	-	-	-	(19)	-	-	-	-	-	-	-	-	-	-
	Mallard	-	-	2	-	-	-	-	-	-	-	-	-	-	-
225	Pink-footed goose	-	-	42	-	-	-	-	-	-	-	-	-	-	-
	Hen harrier	-	-	(1)	-	-	-	-	-	-	-	-	-	-	-
226	Pink-footed goose	-	-	-	(73)	-	-	-	-	-	-	-	-	-	-
	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	1	2
229	Common crane	3	-	-	-	-	-	-	-	-	-	-	-	-	-
	Snipe	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hen harrier	-	-	(1)	-	-	-	-	-	-	-	-	-	-	-
230	Pink-footed goose	-	-	-	(16)	-	-	-	-	-	-	-	-	-	-
238	Little egret	-	-	-	-	-	-	-	-	1	-	-	-	-	-

Field N°	Species	Survey Visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
293	Common crane	-	-	(2)	-	-	-	-	-	-	-	-	-	-	-
304	Little egret	-	-	-	-	1	-	-	-	-	-	-	-	-	-
309	Lapwing	-	-	-	-	1	-	-	-	-	-	-	-	-	-
319	Greylag goose	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	3	-
323	Lapwing	-	-	-	-	-	-	-	-	-	14	-	-	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
325	Woodcock	-	-	-	-	-	-	-	-	-	5	-	-	-	-
340	Barn owl	-	-	-	-	-	-	-	-	-	-	-	1	-	-
358	Grey heron	-	-	2	-	-	-	-	-	-	-	-	-	-	-
361	Woodcock	-	-	-	-	-	-	1	-	-	-	-	-	-	-
363	Barn owl	-	-	-	-	-	-	-	-	-	1	-	-	-	-
366	Barn owl	-	-	-	-	-	-	(1)	-	-	-	-	-	-	-
	Golden plover	-	38	-	-	-	-	-	-	-	-	-	-	-	-
367	Golden plover	-	23	-	-	-	-	-	-	-	-	-	-	-	-
368	Mute swan	-	-	-	-	-	-	-	-	-	-	7	-	-	-
	Mallard	4	-	-	-	-	-	-	-	-	-	-	-	-	-
	Golden plover	-	-	-	-	8	-	-	-	-	-	-	-	-	-
	Snipe	-	-	-	-	-	-	1	-	-	-	-	-	-	-

Field N ^o	Species	Survey Visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
	Mallard	-	-	-	-	-	5	-	-	-	-	-	-	10	-
	Teal	-	-	-	-	-	-	-	-	-	-	-	-	9	-
	Grey heron	-	-	-	-	-	-	-	-	-	-	1	-	-	-
	Little egret	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Lapwing	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Golden plover	25	43	-	-	21	-	-	-	-	-	-	-	-	-
	Jack snipe	-	-	-	-	-	-	1	-	-	-	-	-	-	-
385	Mallard	-	-	-	-	-	-	-	-	21	-	-	-	-	-
	Teal	-	-	-	-	-	-	-	-	23	-	-	-	-	-
386	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	3	-
	Teal	-	-	-	-	-	-	-	-	-	-	-	-	8	-
387	Mallard	-	16	-	-	-	-	-	22	-	18	17	12	-	-
	Teal	-	-	-	-	-	-	-	-	-	-	3	2	-	-
	Grey heron	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Golden plover	-	-	-	-	-	12	-	-	-	-	-	-	-	-
388	Mallard	-	9	-	-	-	-	31	-	-	-	-	-	-	-
390	Golden plover	-	-	-	-	-	-	20	-	-	-	-	-	-	-
	Little owl	-	-	-	-	-	-	1	1	-	-	1	-	-	-
391	Mute swan	-	-	-	-	-	-	-	-	9	-	11	-	2	-

Field N ^o	Species	Survey Visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
398	Mallard	-	-	-	-	-	-	-	42	-	-	-	-	-	-
	Grey heron	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	1	-	-	-	-	-	-	-
416	Golden plover	-	-	-	-	-	-	-	37	-	-	-	-	-	-
417	Lapwing	-	-	-	-	-	-	-	-	-	-	-	6	-	-
428	Barn owl	-	-	-	-	-	-	(1)	-	-	-	-	-	-	-
429	Woodcock	-	-	-	-	-	-	-	-	-	2	-	1	-	-
431	Pink-footed goose	(190)	(216)	-	-	-	-	-	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
436	Snipe	-	-	-	-	-	-	-	-	-	1	-	1	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	2	-	-
	Marsh harrier	-	(2)	-	-	-	-	-	-	-	-	-	-	-	-
443	Pink-footed goose	-	-	2	-	-	-	-	-	-	-	21	-	-	-
	Greylag goose	-	-	-	-	-	-	-	-	-	-	155	-	-	34
	Lapwing	-	-	-	-	-	-	71	-	-	-	-	-	-	-
444	Greylag goose	-	-	-	-	-	-	-	-	-	-	-	-	34	-
450	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	Snipe	-	-	-	-	-	-	-	-	-	2	-	-	-	-

Field N ^o	Species	Survey Visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
	Mallard	30	-	-	-	-	-	-	-	-	-	-	-	-	-
504	Greylag goose	-	-	-	-	-	-	-	-	-	-	-	-	2	-
	Grey heron	-	-	-	-	-	-	-	1	-	-	-	-	-	-
	Lapwing	-	-	-	-	-	-	-	-	-	-	-	6	-	-
505	Lapwing	-	-	-	-	-	-	1	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	1	-	-	-	-	-	-	-
506	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
507	Pink-footed goose	13	-	-	-	-	-	-	-	-	-	-	-	-	-
508	Pink-footed goose	36	22	-	-	-	-	-	-	-	-	-	-	-	-
509	Osprey	1	-	-	-	-	-	-	-	-	-	-	-	-	-
511	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	1
512	Woodcock	-	-	-	-	-	-	-	-	-	1	-	-	-	-
514	Lapwing	-	53	-	-	-	-	-	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	2	-	-	-	-	-	-	-
515	Mute swan	-	-	-	-	-	-	-	-	-	-	-	-	2	-
	Lapwing	-	-	-	-	-	-	-	-	-	14	-	-	-	-
516	Woodcock	-	-	-	-	-	-	1	-	-	-	-	1	-	-
	Barn owl	-	-	-	-	-	-	(1)	-	-	-	-	-	-	-

Field N ^o	Species	Survey Visits														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023		
518	Pink-footed goose	-	(1)	-	-	-	-	-	-	-	-	-	-	-	-	
519	Pink-footed goose	-	49	-	-	-	-	-	-	-	-	-	-	-	-	
521	Mute swan	-	-	-	1	-	-	-	-	2	-	-	-	-	-	
	Greylag goose	-	-	-	-	-	-	-	-	-	-	-	2	2	-	
	Mallard	-	-	-	-	-	-	-	-	-	64	-	-	-	-	
	Grey heron	-	-	1	-	-	-	-	-	1	-	-	-	-	-	
	Lapwing	-	-	-	-	-	-	45	8	-	-	-	-	-	-	
	Green sandpiper	-	-	-	-	1	1	-	-	1	-	-	-	-	-	
	Snipe	-	-	-	-	-	-	3	-	-	-	-	-	-	-	
	Jack snipe	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
	Tawny owl	-	-	-	-	-	-	-	-	-	1	-	-	-	-	
523	Tawny owl	-	-	-	-	-	-	-	-	-	-	1	-	-	-	
545	Woodcock	-	-	-	-	-	-	-	-	-	-	4	-	-	-	
546	Lapwing	-	-	-	-	-	-	7	-	-	1	-	-	-	-	
548	Green sandpiper	-	-	-	-	-	-	-	1	-	-	-	-	-	-	
550	Marsh harrier	-	-	-	-	-	-	-	(2)	-	-	-	-	-	-	

Field N ^o	Species	Survey Visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
553	Common crane	-	-	-	-	-	-	-	-	-	-	-	-	2	-

Species associated with the Humber Estuary SPA recorded in **bold**

'-' means that the species was not recorded during that visit.

Those in brackets were recorded in flight only.

ANNEX 7 – TARGET SPECIES RECORDED WITHIN THE DRAFT ORDER LIMITS – 2023/24

Table A7: Target Species Recorded within the Draft Order Limits – 2023/24

Field No	Species	Survey Visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023		Oct 2023		Nov 2023		Dec 2023		Jan 2024		Feb 2024		Mar 2024		April 2024	
2	Pink-footed goose	-	-	-	56	-	-	-	-	-	-	-	-	-	-	-	-
	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1
	Peregrine	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
4	Mute swan	-	-	-	-	-	-	-	-	-	-	-	3	1	-	-	-
	Greylag goose	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	9
	Mallard	-	-	-	-	-	-	-	-	-	4	-	-	-	-	10	-
8	Pink-footed goose	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-	-
	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	2
	Lapwing	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	4
10	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	3
11	Pink-footed goose	-	-	-	84	-	-	-	-	-	-	-	1,530	-	-	-	-
	Greylag goose	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-
	Mallard	(12)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	Curlew	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2
12	Lapwing	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-
	Curlew	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-

Field No	Species	Survey Visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023		Oct 2023		Nov 2023		Dec 2023		Jan 2024		Feb 2024		Mar 2024		April 2024	
13	Mallard	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-
	Lapwing	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-
15	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	Lapwing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	Curlew	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
16	Pink-footed goose	-	-	-	1600	-	-	-	-	-	-	-	-	-	-	-	-
	Greylag goose	-	-	-	135	-	-	12	-	-	-	-	-	-	-	-	-
	Mallard	-	-	-	-	-	-	11	-	-	-	-	4	-	2	6	-
	Lapwing	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	-
	Curlew	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
17	Pink-footed goose	-	-	-	1440	-	-	-	-	-	-	-	-	-	-	-	-
	Greylag goose	-	-	-	210	-	-	-	-	-	-	-	27	-	-	-	-
	Mallard	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
	Marsh harrier	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
18	Mute swan	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
	Pink-footed goose	-	-	-	9	4	-	-	-	-	-	-	-	-	-	-	-
	Greylag goose	-	-	-	-	157	-	-	-	-	-	-	14	-	-	-	-
	Mallard	-	-	-	4	29	-	15	125	-	-	3	6	-	-	-	-

Field No	Species	Survey Visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023		Oct 2023		Nov 2023		Dec 2023		Jan 2024		Feb 2024		Mar 2024		April 2024	
	Golden plover	-	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-
	Snipe	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
136	Mallard	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-
137	Pink-footed goose	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
138	Mallard	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
	Golden plover	-	-	-	-	-	-	-	-	-	38	-	-	-	-	-	-
173	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
253	Mute swan	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2
	Mallard	-	-	33	-	-	-	-	-	-	-	-	-	-	5	-	-
280	Mallard	-	-	-	-	-	-	-	-	-	-	6	-	-	2	-	-
	Lapwing	-	-	-	-	-	32	-	-	-	-	-	-	-	-	-	-
281	Lapwing	-	-	220	-	-	-	-	-	-	39	-	-	-	-	-	-
282	Lapwing	-	-	3	41	53	5	-	-	-	-	-	-	-	-	-	-
	Golden plover	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-	-
288	Little egret	-	-	-	-	6	-	4	1	-	-	-	-	-	-	-	-
	Lapwing	-	-	-	-	-	-	-	-	6	11	12	66	29	2	-	-
	Golden plover	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
289	Greylag goose	-	-	-	57	-	-	-	-	-	-	-	-	-	-	-	-
	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-

Field No	Species	Survey Visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023		Oct 2023		Nov 2023		Dec 2023		Jan 2024		Feb 2024		Mar 2024		April 2024	
290	Greylag goose	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
	Lapwing	-	-	-	-	-	-	-	-	-	-	1	-	4	2	-	1
402	Golden plover	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-
437	Grey heron	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	Peregrine	-	-	-	-	-	-	-	(1)	-	-	-	-	-	-	-	-
497	Mallard	-	-	(8)	-	-	-	-	-	-	-	-	-	-	-	-	-
498	Golden plover	-	-	-	-	-	22	-	-	-	-	-	-	-	-	-	-
499	Mallard	-	-	-	-	-	(1)	-	-	-	-	-	-	-	-	-	-
563	Lapwing	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-
	Golden plover	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-

Species associated with the Humber Estuary SPA recorded in **bold**

'-' means that the species was not recorded during that visit.

Those in brackets were recorded in flight only.

ANNEX 8 - TARGET SPECIES RECORDED WITHIN THE WIDER SURVEY AREA 2022/23

Table A8: Target Species Recorded within the Wider Survey Area – Year 2

Field No	Species	Survey Visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023		Oct 2023		Nov 2023		Dec 2023		Jan 2024		Feb 2024		Mar 2024		April 2024	
14	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-
58	Mute swan	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-
59	Mute swan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	Mallard	-	-	-	47	-	-	-	-	-	-	-	-	-	-	-	2
	Lapwing	-	-	-	48	-	8	-	-	-	-	-	-	-	-	-	-
123	Grey heron	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
128	Little egret	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
	Marsh harrier	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
131	Marsh harrier	-	-	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-
160	Pink-footed goose	-	-	-	-	-	-	-	476	-	-	-	-	-	-	-	-
	Greylag goose	-	-	-	-	-	-	-	64	-	-	-	-	-	-	-	-
165	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
168	Pink-footed goose	-	-	-	-	620	-	-	194	-	-	-	-	-	-	-	-
	Greylag goose	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-
	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-
169	Mute swan	-	-	-	-	-	-	-	-	-	-	3	3	3	3	-	-

Field No	Species	Survey Visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023		Oct 2023		Nov 2023		Dec 2023		Jan 2024		Feb 2024		Mar 2024		April 2024	
	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	2	6	-
	Tufted duck	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
171	Mallard	-	-	-	2	-	-	-	-	-	-	-	-	16	-	-	6
	Gadwall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	Marsh harrier	-	-	-	-	-	-	-	-	(1)	-	-	-	-	-	-	-
172	Pink-footed goose	-	(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
177	Lapwing	-	-	-	-	-	-	-	-	-	27	-	-	-	-	-	-
182	Mute swan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
	Green sandpiper	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
185	Grey heron	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
191	Teal	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-
195	Marsh harrier	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
196	Pink-footed goose	-	-	480	-	-	-	-	-	-	-	-	-	-	-	-	-
207	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
	Teal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
209	Teal	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-
217	Mute swan	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-

Field No	Species	Survey Visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023		Oct 2023		Nov 2023		Dec 2023		Jan 2024		Feb 2024		Mar 2024		April 2024	
	Teal	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	Little egret	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
384	Mallard	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-
	Teal	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
385	Mallard	-	-	-	-	-	-	-	-	8	-	36	-	-	-	1	-
	Teal	-	-	-	-	-	-	-	-	1	2	9	-	-	-	-	-
387	Mallard	49	-	6	57	-	-	-	30	-	-	-	17	5	4	-	2
	Teal	3	-	-	4	-	-	-	18	-	-	-	1	3	6	1	-
389	Teal	-	-	-	-	-	5	-	4	-	-	-	-	-	-	-	-
390	Mallard	-	-	-	-	-	-	-	-	6	2	6	-	-	1	1	-
	Teal	-	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-
397	Mallard	-	31	-	4	-	-	-	-	-	-	-	-	-	-	-	-
398	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
416	Lapwing	-	-	-	-	-	72	-	-	-	-	-	-	-	-	-	-
417	Lapwing	-	-	-	-	-	-	-	-	-	19	-	-	-	-	-	-
419	Little egret	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
436	Marsh harrier	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84
	Golden plover	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
448	Pink-footed goose	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-

Field No	Species	Survey Visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023		Oct 2023		Nov 2023		Dec 2023		Jan 2024		Feb 2024		Mar 2024		April 2024	
545	Greylag goose	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-
548	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
550	Marsh harrier	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
553	Pink-footed goose	-	-	420	-	-	-	-	-	-	-	-	-	-	-	-	-
555	Marsh harrier	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
566	Greylag goose	-	-	-	18 4	-	-	-	-	-	-	-	-	-	-	-	-
	Marsh harrier	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-

Species associated with the Humber Estuary SPA recorded in **bold**

'-' means that the species was not recorded during that visit.

Those in brackets were recorded in flight only.

ANNEX 9 – SECONDARY SPECIES RECORDED WITHIN THE DRAFT ORDER LIMITS AND WIDER SURVEY AREA 2022/2023

Table A9.1: Secondary Species Recorded within the Draft Order Limits and Wider Survey Area

Field	Species	Survey visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023	Feb 2023	Mar 2023							
1	Lesser black-backed gull	-	308	-	-	-	-	-	-	-	-	-	-	-	-
	Black-headed gull	-	400	-	-	-	-	-	-	-	-	-	-	-	-
	Common gull	-	36	-	-	-	-	-	-	-	-	-	-	-	-
	Herring gull	-	23	-	-	-	-	-	-	-	-	-	-	-	-
	Yellow-legged gull	-	11	-	-	-	-	-	-	-	-	-	-	-	-
2	Lesser black-backed gull	-	11	-	-	-	-	-	-	-	-	-	-	-	-
3	Redwing	-	-	-	-	-	-	-	-	-	-	-	-	30	-
4	Buzzard	-	-	-	-	2	1	-	-	-	-	1	-	1	-
	Cormorant	-	-	2	-	-	-	-	-	-	-	-	-	-	-
5	Fieldfare	-	-	-	-	-	-	-	-	-	-	-	-	180	-
	Starling	-	-	-	-	-	-	-	-	-	-	-	-	70	-
7	Yellowhammer	6	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Buzzard	-	-	-	-	-	-	-	-	-	1	-	-	-	-
	Grey partridge	-	-	-	-	-	-	-	-	2	-	-	-	-	-
10	Skylark	-	-	-	-	-	-	-	4	-	-	-	-	-	-
11	Kestrel	-	-	-	1	-	-	-	-	-	-	-	-	-	-
12	Fieldfare	-	-	-	-	8	-	-	-	-	-	-	-	-	-
14	Woodpigeon	40	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Skylark	-	-	-	3	-	-	-	-	-	-	-	-	-	-
17	Skylark	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	Buzzard	-	-	1	1	-	-	-	-	-	-	-	-	-	-
18	Skylark	14	-	-	6	-	-	-	-	-	3	-	-	-	-
	Buzzard	-	-	-	-	-	-	-	-	1	-	-	-	-	-
	Black-headed gull	-	-	-	-	129	-	-	32	47	-	-	-	-	-
	Common gull	-	-	-	-	2	-	-	4	1	-	-	-	-	-
	Fieldfare	-	-	-	-	-	-	-	-	40	-	-	-	-	-

Field	Species	Survey visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022			Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023
73	Black-headed gull	-	-	-	-	-	-	-	-	-	-	284	-	-	-
	Common gull	-	-	-	-	-	-	-	-	-	-	46	-	-	-
	Skylark	-	-	-	2	-	-	-	-	-	-	-	-	-	-
75	Grey partridge	-	12	-	-	-	-	-	-	-	-	-	-	-	-
77	Buzzard	-	-	-	1	-	-	-	-	-	-	-	-	1	-
81	Fieldfare	-	-	-	-	-	-	-	-	-	-	-	-	144	-
	Starling	-	-	-	-	-	-	-	-	-	-	-	-	90	-
	Black-headed gull	-	-	-	58	30	-	-	-	-	-	-	-	-	-
81	Common gull	-	-	-	8	-	-	-	-	-	-	-	-	-	-
82	Fieldfare	-	-	-	-	29	-	-	-	-	-	-	-	-	-
84	Fieldfare	-	-	-	-	-	-	-	-	-	-	-	-	-	161
	Black-headed gull	-	-	-	-	6	-	-	-	-	-	-	-	-	-
	Herring gull	-	-	-	-	4	-	-	-	-	-	-	-	-	-
85	Starling	-	-	-	-	550	-	-	-	-	-	-	-	-	-
86	Buzzard	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Black-headed gull	-	-	-	-	17	-	-	-	-	-	-	-	-	-
	Common gull	-	-	-	-	26	-	-	-	-	-	-	-	-	-
	Herring gull	-	-	-	-	12	-	-	-	-	-	-	-	-	-
	Lesser black-backed gull	-	-	-	-	1	-	-	-	-	-	-	-	-	-
87	Common gull	-	-	8	-	-	-	-	-	12	-	-	-	-	-
	Black-headed gull	-	-	126	-	-	-	-	-	4	-	-	-	-	-
	Fieldfare	-	-	-	-	-	-	-	88	-	-	-	-	-	-
	Redwing	-	-	-	-	-	-	-	220	-	-	-	-	-	-
	Buzzard	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Herring gull	-	-	6	-	-	-	-	-	-	-	-	-	-	-
	Lesser black-backed gull	-	-	21	-	-	-	-	-	-	-	-	-	-	-
87	Yellow-legged gull	-	-	2	-	-	-	-	-	-	-	-	-	-	-
89	Kestrel	-	-	-	-	-	1	-	-	-	-	-	-	-	-
92	Skylark	-	-	-	-	-	-	-	-	-	-	-	1	-	-

Field	Species	Survey visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022			Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023
	Buzzard	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	Lesser black-backed gull	-	282	-	-	-	-	-	-	-	-	-	-	-	-
	Great black-backed gull	-	16	-	-	-	-	-	-	-	-	-	-	-	-
	Herring gull	-	119	-	-	-	-	-	-	-	-	-	-	-	-
	Yellow-legged gull	-	7	-	-	-	-	-	-	-	-	-	-	-	-
	Caspian gull	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	Kestrel	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Reed bunting	-	-	-	-	-	-	-	-	-	-	14	-	22	-
	Corn bunting	-	-	-	-	-	-	-	-	-	-	-	-	1	-
94	Yellowhammer	-	-	-	-	19	-	-	-	-	-	-	-	4	-
	Fieldfare	-	-	-	-	-	-	-	-	-	-	-	-	3	39
	Herring gull	-	-	-	12	-	-	-	-	-	-	-	-	-	-
95	Lesser black-backed gull	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	Yellowhammer	-	-	-	-	-	-	-	-	-	-	31	-	-	-
96	Reed bunting	-	-	-	-	-	-	-	-	-	-	3	-	-	-
97	Yellowhammer	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	Black-headed gull	-	-	-	-	3	63	-	-	-	-	-	-	-	-
	Common gull	-	-	-	-	4	9	-	-	-	-	-	-	-	-
98	Herring gull	-	-	-	-	7	13	-	-	-	-	-	-	-	-
99	Buzzard	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Sparrowhawk	-	-	-	-	-	-	-	-	-	-	1	-	-	-
	Black-headed gull	-	-	-	-	23	-	-	-	-	-	-	-	-	-
	Lesser black-backed gull	-	176	-	-	-	-	-	-	-	-	-	-	-	-
	Great black-backed gull	-	4	-	-	-	-	-	-	-	-	-	-	-	-
	Herring gull	-	51	-	-	-	-	-	-	-	-	-	-	-	-
100	Yellow-legged gull	-	6	-	-	-	-	-	-	-	-	-	-	-	-
	Herring gull	-	-	-	-	-	-	-	-	6	-	-	-	-	-
	Common gull	-	-	-	-	2	-	-	-	6	-	-	-	-	-
101	Black-headed gull	-	-	-	-	37	-	-	-	3	-	-	-	-	-

Field	Species	Survey visits													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
		Sep 2022		Oct 2022			Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023
103	Common gull	-							6						
	Black-headed gull	-							1						
104	Redwing	-												4	
	Fieldfare	-												12	
106	Buzzard	-												1	
	Common gull	-					1		4						
	Black-headed gull	-			17		33								
	Herring gull	-					6								
	Lesser black-backed gull	8													
113	Yellowhammer	-													24
	Skylark	-													2
	Herring gull	-	15												
	Yellow-legged gull	-	2												
	Lesser black-backed gull	-	21												
114	Skylark	-	-	-	-	-	-	-	-	-	-	-	-	-	2
115	Buzzard	-	-	-	-	-	-	-	-	-	-	-	-	1	-
116	Buzzard	-	-	1	-	-	-	-	-	-	-	-	-	-	-
117	Yellowhammer	-	-	-	-	-	-	-	-	-	-	-	-	-	5
	Kestrel	-	-	-	-	-	-	-	-	-	-	-	-	1	-
	Sparrowhawk	-	-	-	-	-	-	-	1	-	-	-	-	-	-
118	Skylark	-	-	-	-	-	-	1	-	-	-	-	-	-	2
	Buzzard	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Kestrel	-	-	1	-	-	-	-	-	-	-	-	-	-	-
119	Buzzard	-	-	-	-	-	-	-	-	-	-	-	-	1	-
	Skylark	-	-	-	-	-	-	-	-	-	1	-	-	-	-
120	Buzzard	-	-	-	-	-	-	-	-	-	-	1	-	1	-
	Skylark	-	-	-	-	-	-	-	-	-	-	-	-	2	-
	Starling	-	-	-	-	-	-	-	-	-	-	105	-	-	-
	Fieldfare	-	-	-	-	-	-	-	-	-	-	30	-	-	-

ANNEX 10 – SECONDARY SPECIES RECORDED WITHIN THE DRAFT ORDER LIMITS AND WIDER SURVEY AREA 2023/24

Table A10.1: Secondary Species Recorded within the Draft Order Limits and Wider Survey Area 2023/24

Field	Species	Survey visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023	Oct 2023	Nov 2023	Dec 2023	Jan 2024	Feb 2024	Mar 2024	Apr 2024								
1	Buzzard	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
2	Grey partridge	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
	Buzzard	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
4	Canada goose	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-
	Buzzard	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
5	Grey partridge	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-
6	Buzzard	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
7	Fieldfare	-	-	-	-	-	74	-	-	-	-	-	-	-	-	-	-
9	Lesser black-backed gull	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
10	Grey partridge	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
	Buzzard	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1
	Fieldfare	-	-	-	-	-	-	110	-	-	-	-	-	-	-	-	-
	Redwing	-	-	-	-	-	-	175	-	-	-	-	-	-	-	-	-
11	Canada goose	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-
	Buzzard	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
	Fieldfare	-	-	-	-	-	-	70	-	-	-	-	-	-	-	-	-
12	Buzzard	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-
	Black-headed gull	-	-	-	172	-	-	-	-	-	-	-	-	-	-	-	-
	Lesser black-backed gull	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-
	Common gull	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-
15	Buzzard	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	Fieldfare	-	-	-	430	-	-	-	-	-	-	-	-	-	-	-	-
16	Black-headed gull	-	-	-	88	-	-	-	-	-	-	-	-	-	-	-	-
	Kestrel	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
17	Canada goose	-	-	-	70	-	-	-	-	-	-	-	-	-	-	-	-
	Buzzard	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-

Field	Species	Survey visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023	Oct 2023	Nov 2023	Dec 2023	Jan 2024	Feb 2024	Mar 2024	Apr 2024								
37	Black-headed gull	-	-	-	-	-	-	27	17	33	-	-	-	-	2	-	-
	Kestrel	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
39	Fieldfare	-	-	-	390	-	-	-	-	-	-	-	-	-	-	-	-
47	Kestrel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)
	Black-headed gull	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37
50	Kestrel	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Black-headed gull	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-
	Great black-backed gull	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
52	Herring gull	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-
	Buzzard	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
	Black-headed gull	-	-	-	-	-	-	60	-	-	-	-	-	-	-	2	-
54	Common gull	-	-	-	-	-	-	4	-	-	-	-	-	-	3	-	-
56	Black-headed gull	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
	Grey partridge	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
	Buzzard	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-
	Black-headed gull	2	-	-	77	22	72	31	-	63	-	-	-	1	-	-	3
	Common gull	-	-	-	6	3	-	2	2	1	6	-	-	-	-	-	-
	Lesser black-backed gull	3	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	Great black-backed gull	13	-	-	4	11	-	-	-	-	-	-	-	-	-	-	-
59	Herring gull	6	-	-	11	4	-	-	-	1	-	-	-	-	-	-	-
	Black-headed gull	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Great black-backed gull	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	Herring gull	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	Black-headed gull	-	-	-	-	-	-	-	-	-	-	-	20	-	-	-	-
64	Buzzard	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
	Buzzard	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
65	Common gull	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
66	Black-headed gull	-	-	-	-	-	-	-	-	-	-	-	6	-	-	2	-
67	Starling	-	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-

Field	Species	Survey visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023	Oct 2023	Nov 2023	Dec 2023	Jan 2024	Feb 2024	Mar 2024	Apr 2024								
	Fieldfare	-	-	-	-	-	-	-	-	-	-	-	64	-	-	-	-
	Redwing	-	-	-	-	-	-	-	-	-	-	-	44	-	-	-	-
69	Buzzard	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
	Buzzard	1	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-
	Kestrel	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
	Starling	-	-	-	-	-	-	-	-	-	-	-	-	80	-	-	-
70	Fieldfare	-	-	-	-	-	-	-	-	-	-	-	-	60	-	-	-
71	Buzzard	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
72	Fieldfare	-	-	-	47	-	-	-	-	-	-	-	-	-	-	-	-
	Black-headed gull	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
	Skylark	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
73	Starling	-	-	-	-	-	-	-	-	80	-	-	-	-	-	-	-
75	Kestrel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
77	Buzzard	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	Buzzard	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
79	Fieldfare	-	-	-	-	-	-	-	-	-	-	-	26	-	-	-	-
80	Fieldfare	-	-	-	-	-	-	-	-	-	82	-	-	-	-	-	-
	Starling	-	-	-	-	-	-	-	-	-	-	275	-	-	-	-	-
81	Fieldfare	-	-	-	-	-	-	-	-	-	-	210	-	-	-	-	-
82	Fieldfare	-	-	-	-	-	-	-	-	-	163	-	-	-	-	-	-
	Sparrowhawk	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-
	Skylark	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-
	Fieldfare	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-	-
	Yellowhammer	-	-	-	-	-	36	-	-	-	-	-	-	-	-	-	-
83	Reed bunting	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-
	Skylark	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-
	Starling	-	-	-	-	-	30	-	-	-	-	-	-	80	-	-	-
	Fieldfare	-	-	-	-	-	-	-	-	-	-	-	-	49	-	-	-
84	Yellowhammer	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-

Field	Species	Survey visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023	Oct 2023	Nov 2023	Dec 2023	Jan 2024	Feb 2024	Mar 2024	Apr 2024								
98	Black-headed gull	-	-	-	-	-	-	29	-	-	-	-	-	-	-	-	-
	Starling	-	-	-	-	-	-	-	-	-	130	-	-	-	-	-	-
	Fieldfare	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-
99	Buzzard	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	Herring gull	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lesser black-backed gull	190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
101	Buzzard	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
103	Buzzard	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	-
	Starling	-	-	-	-	-	-	-	-	-	-	320	-	-	-	-	-
104	Starling	-	-	-	-	-	-	-	-	180	-	-	-	-	-	-	-
	Fieldfare	-	-	-	-	-	-	-	-	-	-	320	-	-	-	-	-
	Redwing	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
	Linnet	-	-	120	-	-	-	-	-	-	-	-	-	-	-	1	-
105	Black-headed gull	-	151	211	132	160	-	-	-	71	-	-	-	-	-	-	-
	Common gull	-	-	-	30	8	-	-	-	43	20	-	-	-	-	-	-
	Herring gull	-	233	144	31	37	-	-	-	-	-	-	-	-	-	-	-
	Great black-backed gull	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-
	Yellow-legged gull	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	Caspian gull	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lesser black-backed gull	-	34	14	4	2	-	-	-	-	-	-	-	-	-	-	-
109	Buzzard	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
112	Buzzard	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
113	Black-headed gull	-	-	-	-	47	84	-	-	36	-	-	-	84	-	-	-
	Common gull	1	-	-	-	47	15	-	-	182	-	-	-	9	-	-	-
	Herring gull	8	-	-	-	27	-	-	-	-	-	-	-	-	-	-	-
	Great black-backed gull	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	Lesser black-backed gull	175	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	Buzzard	-	-	-	-	1	5	2	2	4	-	-	-	1	1	-	-

Field	Species	Survey visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023	Oct 2023	Nov 2023	Dec 2023	Jan 2024	Feb 2024	Mar 2024	Apr 2024								
231	Black-headed gull	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-	-
233	Buzzard	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
242	Black-headed gull	-	-	-	-	-	36	-	-	-	-	-	-	-	-	-	-
	Common gull	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-
253	Black-headed gull	-	-	-	-	198	-	-	380	101	-	-	-	-	-	93	11
	Common gull	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-
259	Black-headed gull	-	-	-	-	-	-	125	-	-	-	-	-	-	-	-	-
262	Black-headed gull	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
277	Black-headed gull	-	-	-	-	-	-	95	-	-	-	-	-	-	-	-	-
279	Black-headed gull	-	-	-	-	-	-	-	-	-	-	-	193	-	-	-	-
282	Black-headed gull	-	-	4	219	102	-	58	3	43	-	-	-	2	-	-	-
	Common gull	-	-	-	3	2	-	-	-	-	-	-	-	-	-	-	-
	Herring gull	-	-	4	-	-	-	-	1	-	-	-	-	-	-	-	-
	Lesser black-backed gull	-	-	76	-	-	-	-	-	-	-	-	-	-	-	-	-
287	Buzzard	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
288	Black-headed gull	-	-	-	74	287	-	26	68	41	-	-	-	-	-	-	5
	Common gull	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	Herring gull	-	-	-	7	-	-	-	1	-	-	-	-	-	-	-	-
	Lesser black-backed gull	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-
	Buzzard	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-
290	Black-headed gull	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-
291	Black-headed gull	-	-	-	-	94	-	72	-	-	-	49	-	-	-	-	-
	Herring gull	-	-	-	-	37	-	-	-	-	-	-	-	-	-	-	-
	Buzzard	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
292	Black-headed gull	-	-	-	-	-	7	38	33	46	-	6	-	-	-	-	-
	Lesser black-backed gull	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-	-
	Great black-backed gull	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-
	Buzzard	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-

Field	Species	Survey visits															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Sep 2023	Oct 2023	Nov 2023	Dec 2023	Jan 2024	Feb 2024	Mar 2024	Apr 2024								
	Common gull	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Herring gull	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lesser black-backed gull	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
361	Black-headed gull	-	-	-	-	59	-	-	-	-	-	-	-	-	-	-	18
	Common gull	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	Herring gull	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-
	Lesser black-backed gull	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-
366	Black-headed gull	-	-	-	87	8	-	-	-	-	-	-	-	-	-	-	-
	Common gull	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
	Herring gull	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-
	Great black-backed gull	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-
368	Black-headed gull	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-
	Buzzard	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
370	Black-headed gull	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
	Great black-backed gull	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
371	Black-headed gull	-	-	-	24	-	14	-	-	-	-	-	-	-	-	-	-
	Common gull	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	Great black-backed gull	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
373	Black-headed gull	-	-	-	9	10	-	-	-	-	-	-	-	-	-	17	-
	Common gull	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
384	Common gull	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-
	Herring gull	-	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-
	Buzzard	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
390	Black-headed gull	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
	Common gull	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
	Herring gull	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-
397	Black-headed gull	-	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-
400	Black-headed gull	-	-	-	-	-	27	46	17	-	-	-	4	-	-	-	-
	Common gull	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-

ANNEX 11 – VANTAGE POINT SURVEY DATA 2023/24

Date	VP	Flight/ Perched	Species	Number	Start time	Duration	HT 1 (0-10m)	HT 2 (10-50m)	HT 3 (50m+)
27/09/2023	1	F	Pink-footed goose	148	12:47	65	0	0	65
27/09/2023	1	F	Grey heron	1	13:20	12	12	0	0
27/09/2023	1	F	Marsh harrier	1	14:04	20	20	0	0
23/09/2023	2	F	Marsh harrier	1	15:24	120	120	0	0
23/09/2023	2	F	Pink-footed goose	46	15:47	75	0	0	75
23/09/2023	2	F	Marsh harrier	1	16:06	110	110	0	0
30/09/2023	3	F	Pink-footed goose	27	12:36	110	0	0	110
30/09/2023	3	F	Greylag goose	1	12:56	230	0	230	0
30/09/2023	3	F	Greylag goose	11	13:52	75	0	30	45
25/09/2023	4	F	Pink-footed goose	16	18:52	35	0	15	20
25/09/2023	4	F	Sparrowhawk	1	18:55	20	20	0	0
29/09/2023	5	F	Marsh harrier	1	13:56	110	15	95	0
29/09/2023	5	F	Pink-footed goose	220	14:17	150	30	75	45
29/09/2023	5	F	Pink-footed goose	58	14:30	95	20	30	45
29/09/2023	5	F	Marsh harrier	1	14:40	270	0	270	0
29/09/2023	5	F	Peregrine	1	15:01	170	45	125	0

29/09/2023	5	F	Pink-footed goose	6	15:42	82	22	15	45
29/09/2023	5	F	Pink-footed goose	31	16:04	60	15	15	30
29/09/2023	5	F	Pink-footed goose	7	16:11	50	20	30	0
29/09/2023	5	F	Peregrine	1	16:22	35	0	35	0
28/09/2023	6	F	Pink-footed goose	62	15:44	140	0	0	140
28/09/2023	6	F/P	Grey heron	1	16:37	15	15	0	0
28/09/2023	6	F/P	Grey heron	1	17:02	10	10	0	0
28/09/2023	6	F/P	Grey heron	1	18:01	35	35	0	0
28/09/2023	6	F/P	Grey heron	2	18:03	20	20	0	0
28/09/2023	6	F/P	Grey heron	1	18:08	25	25	0	0
16/10/2023	2	F	Pink-footed goose	37	14:16	120	0	120	0
16/10/2023	2	F	Lapwing	81	14:40	300	45	255	0
26/10/2023	3	F	Pink-footed goose	31	08:42	50	0	0	50
26/10/2023	3	F	Pink-footed goose	6	08:50	35	0	0	35
26/10/2023	3	F	Pink-footed goose	76	09:17	80	0	0	80
26/10/2023	3	F	Pink-footed goose	141	09:43	60	0	0	60
26/10/2023	3	F	Grey heron	1	10:50	25	25	0	0
15/10/2023	4	P	Lapwing	127	14:07	10,800	0	0	0
15/10/2023	4	F/P	Grey heron	1	14:21	20	20	0	0

30/10/2023	5	F	Marsh harrier	1	12:27	80	0	80	0
30/10/2023	5	F	Pink-footed goose	132	12:30	300	0	0	300
30/10/2023	5	F	Pink-footed goose	99	12:59	145	0	0	145
30/10/2023	5	F	Golden plover	9	13:45	75	0	0	75
30/10/2023	5	F	Snipe	1	13:49	135	0	0	135
30/10/2023	5	F	Great white egret	2	14:06	60	0	0	60
13/10/2023	6	P	Grey heron	1	15:30	10,800	0	0	0
13/10/2023	6	F	Pink-footed goose	18	15:36	30	0	0	39
13/10/2023	6	F	Pink-footed goose	14	16:04	150	30	30	90
13/10/2023	6	F	Pink-footed goose	21	16:05	150	30	60	60
13/10/2023	6	F	Grey heron	1	16:20	25	25	0	0
13/10/2023	6	F	Marsh harrier	1	16:30	65	65	0	0
14/11/2023	1	F	Kestrel	1	13:00	75	75	0	0
14/11/2023	1	F	Pink-footed goose	1	13:13	135	0	0	135
14/11/2023	1	F	Pink-footed goose	6	13:29	140	0	0	140
14/11/2023	1	F	Marsh harrier	1	14:48	150	150	0	0
14/11/2023	1	F	Marsh harrier	1	15:11	45	15	30	0
16/11/2023	6	F	Peregrine	1	13:54	40	0	40	0
16/11/2023	6	F	Pink-footed goose	88	14:20	150	0	0	150

16/11/2023	6	F	Pink-footed goose	43	14:22	150	0	0	150
16/11/2023	6	F	Pink-footed goose	3	14:31	60	0	60	0
16/11/2023	6	F	Pink-footed goose	140	14:49	120	0	0	120
16/11/2023	6	F	Pink-footed goose	106	14:57	150	0	0	150
16/11/2023	6	F	Marsh harrier	1	15:23	30	0	30	0
16/11/2023	6	F	Pink-footed goose	26	15:49	100	0	0	100
16/11/2023	6	F	Grey heron	2	16:04	75	75	0	0
05/11/2023	2	F/P	Greylag goose	75	09:04	65	65	0	0
05/11/2023	2	F	Pink-footed goose	3	10:20	85	0	85	0
05/11/2023	2	F	Pink-footed goose	47	10:21	40	0	40	0
05/11/2023	2	F	Marsh harrier	1	10:48	120	0	60	60
05/11/2023	2	F	Pink-footed goose	10	10:57	140	0	0	140
27/11/2023	3	F	Pink-footed goose	83	11:17	90	0	0	90
27/11/2023	4	F	Greylag goose	28	13:11	20	20	0	0
27/11/2023	4	P	Greylag goose	71	13:10	10,800	0	0	0
27/11/2023	4	P	Pink-footed goose	7	13:10	10,800	0	0	0
27/11/2023	4	F	Golden plover	73	13:49	105	45	60	0
27/11/2023	4	F	Pink-footed goose	109	13:51	90	0	0	90
27/11/2023	4	F	Pink-footed goose	9	14:03	60	30	30	0

27/11/2023	4	F	Pink-footed goose	8	14:10	45	0	45	0
27/11/2023	4	F	Golden plover	6	15:01	40	0	0	40
27/11/2023	4	F	Pink-footed goose	33	15:16	150	0	0	150
27/11/2023	4	F	Pink-footed goose	107	15:23	120	0	0	120
27/11/2023	4	F	Lapwing	60	15:29	120	0	0	60
27/11/2023	4	F	Pink-footed goose	11	15:37	135	0	0	135
27/11/2023	4	F	Barn owl	1	16:00	45	45	0	0
23/11/2023	5	F	Whooper swan	4	12:11	75	0	75	0
23/11/2023	5	F	Pink-footed goose	15	12:17	125	0	0	125
23/11/2023	5	F	Pink-footed goose	39	13:09	45	0	45	0
24/12/2023	1	F	Golden plover	23	09:57	45	0	45	0
24/12/2023	1	F	Peregrine	1	10:27	40	40	0	0
24/12/2023	1	F	Pink-footed goose	68	11:08	120	0	0	120
18/12/2023	4	F	Marsh harrier	1	10:31	135	135	0	0
18/12/2023	4	F/P	Pink-footed goose	2	12:01	105	45	60	0
18/12/2023	4	P	Lapwing	12	09:45	10,800	0	0	0
24/12/2023	5	F	Greylag goose	9	14:04	80	0	0	80
03/12/2023	6	F	Grey heron	1	13:56	45	45	0	0
03/12/2023	6	F	Pink-footed goose	90	14:50	120	0	120	0

03/12/2023	6	F	Marsh harrier	1	15:00	210	210	0	0
14/01/2024	1	F	Marsh harrier	1	14:17	180	0	0	180
14/01/2024	2	F	Lapwing	147	11:28	100	0	100	0
14/01/2024	2	F/P	Lapwing	156	11:50	60	60	0	0
14/01/2024	2	F	Little egret	1	12:14	20	20	0	0
14/01/2024	2	F	Marsh harrier	1	12:35	60	60	0	0
31/01/2024	3	F	Common crane	2	12:04	135	0	0	135
22/01/2024	4	F	Marsh harrier	1	09:26	110	0	110	0
22/01/2024	4	F	Pintail	1	09:51	50	0	50	0
22/01/2024	4	F	Marsh harrier	1	10:29	40	0	40	0
22/01/2024	4	F	Lapwing	130	11:06	60	30	30	0
26/02/2024	1	F	Marsh harrier	1	13:12	270	90	180	0
26/02/2024	1	F	Snipe	1	14:30	70	0	0	70
23/02/2024	3	F	Peregrine	1	10:45	180	0	180	0
23/02/2024	3	F	Marsh harrier	1	10:54	170	170	0	0
23/02/2024	3	F	Mute swan	6	11:22	75	75	0	0
23/02/2024	3	F	Marsh harrier	1	11:50	480	0	90	390
23/02/2024	3	F	Lapwing	2	12:23	100	0	100	0
11/02/2024	4	F	Lapwing	180	10:38	330	0	0	330

11/02/2024	4	F	Lapwing	310	11:26	480	0	0	480
11/02/2024	4	F	Pink-footed goose	1	11:36	75	0	75	0
11/02/2024	4	F	Pink-footed goose	1	11:59	90	0	0	90
11/02/2024	4	F	Lapwing	36	12:17	140	50	60	30
11/02/2024	4	F	Golden plover	30	12:25	75	30	30	15
11/02/2024	5	F	Marsh harrier	1	14:06	90	0	90	0
11/02/2024	5	F	Wigeon	6	15:29	45	0	0	45
26/03/2024	3	F	Mute swan	1	16:10	60	60	0	0
26/03/2024	3	F	Grey heron	1	16:54	95	0	0	95
26/03/2024	3	F	Pink-footed goose	12	17:31	160	0	0	160
22/03/2024	4	F	Oystercatcher	2	11:20	90	45	45	0
22/03/2024	4	F	Grey heron	1	11:26	135	0	135	0
12/03/2024	5	F	Gadwall	1	16:11	40	0	40	0
27/03/2024	6	F	Marsh harrier	1	11:52	90	90	0	0

Appendix 2: Bird Days Calculations



Appendix 2: Bird Days

- A2.1. The following tables show the calculations of bird usage metrics for various species across the survey period, along with the required mitigation areas for pink-footed goose, lapwing, and golden plover. Separate tables are provided for Year 1 (2022/2023) and Year 2 (2023/2024) for each species.
- A2.2. The mitigation area calculations follow the methodology outlined in Gillings, S., Fuller, R.J. and Sutherland, W. (2007). Winter field use and habitat selection by Eurasian Golden Plovers *Pluvialis apricaria* and Northern Lapwings *Vanellus vanellus* on arable farmland. *Ibis* 149: 509-520.
- A2.3. For each species, the peak count recorded in each surveyed month is provided, the full survey methodology and results for the year 1 and 2 surveys is included in **Appendix 1**. The peak counts from the monthly surveys within the Draft Order Limits are highlighted in the green rows of the tables. These values represent the highest count recorded for each species across both surveys conducted within that month (**Appendix 1**). By using the peak count from each month, the calculations ensure that the estimates reflect the maximum observed usage of the site during the survey period¹.
- A2.4. The Winter Peak Mean is determined by summing the monthly peak counts and dividing by the total number of surveyed months¹. This provides an estimate of the average peak population observed during the winter period.
- A2.5. To assess site usage, Bird Days per Winter is calculated by multiplying the Winter Peak Mean by the total number of days in the survey period. This metric represents the estimated total number of individual bird days spent at the site over the winter¹. Bird Days per Hectare is then derived by dividing the Bird Days per Winter by the total surveyed area, providing a density-based measure of habitat usage. Finally, the Required Mitigation Area is calculated by dividing the Bird Days supported per hectare by the Bird Days per Winter, indicating the estimated habitat area needed to support the recorded bird population¹.
- A2.6. The Bird Days per Hectare values used in these calculations have been sourced from published studies covering the same species and habitat types, for golden plover and lapwing this is included in Gillings et al (2007)¹, for pink footed geese this was calculated from Jepsen P.U² (1991). These references ensure that the estimates align with established research and provide a reliable basis for determining mitigation requirements.

¹ Gillings, S., Fuller, R.J. and Sutherland, W. (2007). Winter field use and habitat selection by Eurasian Golden Plovers *Pluvialis apricaria* and Northern Lapwings *Vanellus vanellus* on arable farmland. *Ibis* 149: 509-520

² Jepsen P.U.(1991) Crop damage and management of the Pink-footed Goose *Anser brachyrhynchus* in Denmark



Table 4.1. Pink footed goose Year 1 (2022/23)

Pink footed goose Year 1 (2022/23)	
Sep 2022 Peak Count	330
Oct 2022 Peak Count	360
Nov 2022 Peak Count	0
Dec 2022 Peak Count	0
Jan 2023 Peak Count	0
Feb 2023 Peak Count	0
Mar 2023 Peak Count	0
Months surveyed (Sep 2022 to March 2023)	7
Winter Peak Mean (Sum of Monthly Peaks/Number of months)	98.57143
Number of Days in Survey Period	195
Bird Days per Winter (Winter Peak Mean x Number of Days in Survey Period)	19221.43
Bird Days per Hectare for Pink footed goose ³	4290
Required Mitigation Area (Bird Days Supported per Hectare / Bird Days per Winter)	4.480519

Table 4.2. Pink footed goose Year 2 (2023/24)

Pink footed goose Year 2 (2023/24)	
Sep 2023 Peak Count	3133
Oct 2023 Peak Count	0
Nov 2024 Peak Count	4
Dec 2023 Peak Count	0
Jan 2023 Peak Count	0
Feb 2024 Peak Count	1530
Mar 2024 Peak Count	0
Apr 2024 Peak Count	0
Months surveyed (Sep 2022 to March 2023)	8
Winter Peak Mean (Sum of Monthly Peaks/Number of months)	583.375
Number of Days in Survey Period (Days from First Survey Date to Last)	200
Bird Days per Winter (Winter Peak Mean x Number of Days in Survey Period)	116675
Bird Days per Hectare for Pink footed goose ²	4290
Required Mitigation Area (Bird Days Supported per Hectare / Bird Days per Winter)	27.19697

³ Jepsen P.U.(1991) Crop damage and management of the Pink-footed Goose *Anser brachyrhynchus* in Denmark



Table 4.3. Lapwing Year 1 (2022/23)

Lapwing Year 1 (2022/23)	
Sep 2022 Peak Count	53
Oct 2022 Peak Count	136
Nov 2022 Peak Count	1
Dec 2022 Peak Count	127
Jan 2023 Peak Count	27
Feb 2023 Peak Count	6
Mar 2023 Peak Count	0
Months surveyed (Sep 2022 to March 2023)	7
Winter Peak Mean (Sum of Monthly Peaks/Number of months)	50
Number of Days in Survey Period	195
Bird Days per Winter (Winter Peak Mean x Number of Days in Survey Period)	9750
Bird Days per Hectare for Lapwing ⁴	1000
Required Mitigation Area (Bird Days Supported per Hectare / Bird Days per Winter)	9.75

Table 4.4. Lapwing Year 2 (2023/24)

Lapwing Year 2 (2023/24)	
Sep 2023 Peak Count	0
Oct 2023 Peak Count	220
Nov 2024 Peak Count	371
Dec 2023 Peak Count	53
Jan 2023 Peak Count	79
Feb 2024 Peak Count	147
Mar 2024 Peak Count	4
Apr 2024 Peak Count	4
Months surveyed (Sep 2022 to March 2023)	8
Winter Peak Mean=Sum of Monthly Peaks/Number of months	109.75
Number of Days in Survey Period	200
Bird Days per Winter=Winter Peak Mean×Number of Days in Survey Period	21950
Bird Days per Hectare for Lapwing ⁵	1000
Required Mitigation Area (Bird Days Supported per Hectare / Bird Days per Winter)	21.95

⁴ Gillings, S., Fuller, R.J. and Sutherland, W. (2007). Winter field use and habitat selection by Eurasian Golden Plovers *Pluvialis apricaria* and Northern Lapwings *Vanellus vanellus* on arable farmland. *Ibis* 149: 509-520.

⁵ Gillings, S., Fuller, R.J. and Sutherland, W. (2007). Winter field use and habitat selection by Eurasian Golden Plovers *Pluvialis apricaria* and Northern Lapwings *Vanellus vanellus* on arable farmland. *Ibis* 149: 509-520.



Table 4.5. Golden Plover Year 1 (2022/23)

Golden Plover Year 1 (2022/23)	
Sep 2022 Peak Count	365
Oct 2022 Peak Count	480
Nov 2022 Peak Count	21
Dec 2022 Peak Count	37
Jan 2023 Peak Count	1
Feb 2023 Peak Count	0
Mar 2023 Peak Count	38
Months surveyed (Sep 2022 to March 2023)	7
Winter Peak Mean (Sum of Monthly Peaks/Number of months)	134.5714
Number of Days in Survey Period	195
Bird Days per Winter (Winter Peak Mean x Number of Days in Survey Period)	26241.43
Bird Days per Hectare for Golden Plover ⁶	1560
Required Mitigation Area (Bird Days Supported per Hectare / Bird Days per Winter)	16.82143

Table 4.6. Golden Plover Year 2 (2023/24)

Golden Plover Year 2 (2023/24)	
Sep 2023 Peak Count	0
Oct 2023 Peak Count	0
Nov 2024 Peak Count	22
Dec 2023 Peak Count	0
Jan 2023 Peak Count	84
Feb 2024 Peak Count	0
Mar 2024 Peak Count	0
Apr 2024 Peak Count	0
Months surveyed (Sep 2022 to March 2023)	8
Winter Peak Mean=Sum of Monthly Peaks/Number of months	13.25
Number of Days in Survey Period	200
Bird Days per Winter=Winter Peak Mean*Number of Days in Survey Period	2650
Bird Days per Hectare for Golden Plover ⁷	1560
Required Mitigation Area (Bird Days Supported per Hectare / Bird Days per Winter)	1.698718

⁶ Gillings, S., Fuller, R.J. and Sutherland, W. (2007). Winter field use and habitat selection by Eurasian Golden Plovers *Pluvialis apricaria* and Northern Lapwings *Vanellus vanellus* on arable farmland. *Ibis* 149: 509-520.

⁷ Gillings, S., Fuller, R.J. and Sutherland, W. (2007). Winter field use and habitat selection by Eurasian Golden Plovers *Pluvialis apricaria* and Northern Lapwings *Vanellus vanellus* on arable farmland. *Ibis* 149: 509-520.



