

EDF Renewables Ireland

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# Kellystown Wind Farm Ornithology Surveys: Year 2 Baseline Report

APPENDIX A8.2

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RECEIVED: 04/12/2024

**Project reference:** P00013336

**Date of issue:** November 2024

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## Revision and Amendment Register

Version Number	Date	Section(s)	Page(s)	Summary of Changes	Approved by
1.0	13/03/2024	All	All	First Draft	BG
1.1	13/03/2024	All	All	Internal Review	MRO
1.2	20/03/2024	All	All	Internal Amendments	BG
1.3	06/09/24	All	All	Amends I	MR
1.4	10/09/24	All	All	Final	MR
2.0	01/11/24	All	All	2 <sup>nd</sup> Draft following Client Review	MR

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## Executive Summary

Kellystown Wind Farm ('the Proposed Development') is located approximately 2.7 km west of Clogherhead and adjacent west of Kellystown townland. This Year 2 Baseline Ornithology Report follows the Year One Baseline Ornithology Report, produced by Woodrow.

Ornithology surveys were undertaken from September 2022 to September 2023 to determine the ornithological baseline and to inform an assessment of potential effects arising from the proposed development. The survey scope was determined with reference to current NatureScot guidance (SNH, 2017), and the 'target species' included those which are listed on Annex 1 of the Birds' Directive, listed as birds conservation concern, or are species which have the potential to be significantly impacted by the proposed Development.

The survey scope included Vantage Point Surveys, Breeding Bird Surveys, Breeding Raptor Surveys and Winter Walkover Surveys. A total of 442 flights were recorded during Vantage Point Surveys, the majority of which were by buzzard, with 224 flights recorded. The next most frequent species recorded were common gull, sparrowhawk and peregrine, each of which was recorded on between 30-45 occasions. Black-headed gull, herring gull, lesser black-backed gull, grey heron and kestrel were each recorded with greater than 10 flights.

Few target species were recorded breeding within the Development Site during the Breeding Bird Survey, with three snipe territories and a single stock dove territory recorded. A single Annex I raptor species was also recorded breeding during the Breeding Raptor Surveys (details of which are contained within the accompanying Confidential Annex), along with buzzard and long-eared owl.

Five target species were recorded during Winter Walkover Surveys. Of these, snipe was most frequently recorded, with records during visits 2-4. Woodcock and stock dove (red-listed birds of conservation concern), and black-headed gull and common gull (amber-listed birds of conservation concern), were also recorded.

A number of target species were recorded during the Wintering Waterbird Surveys, however the majority of species records were very distant to the Development Site. Eight target species were recorded during the Wintering Waterbird Surveys with flocks of lapwing and curlew (red-listed birds of conservation concern) and little egret (Annex I) in addition to six further amber-listed birds of conservation concern recorded.

## 1. Introduction

### 1.1 Background

APEM Ltd was commissioned by EDF Energy Ireland to undertake the ornithological aspects of the Environmental Impact Assessment (EIA) for Kellystown Wind Farm. Woodrow Sustainable Solutions (hereafter 'Woodrow', part of the APEM Group) managed all ornithology surveys for the project, and authored the Year 1 Baseline Report. Kellystown Wind Farm (the Development Site) is located approximately 9 km inland from Clogher Head, 2.5 km west of Kellystown in County Louth. The Site Boundary is shown in Figure 8.2.1. This report outlines the survey methods and results for the second year of ornithology surveys undertaken and should be read in conjunction with the Year One Baseline Report, produced by Woodrow.

Species names used in this report follow common names as defined by BirdWatch Ireland. A list of scientific names, as well as details of relevant legislation and conservation status of all bird species mentioned in this report is provided in Appendix 1.

### 1.2 Site Description

The Site is located approximately 2.5 km west of Kellystown, Co. Louth, with a central grid reference of O 08203 83616. Habitats within the Site include large areas of grassland, scrub, woodland and arable farmland. A single waterbody, Drumshallon Lough, is located within the centre of the Site, while there are several minor watercourses present. Gallstown Quarry is located immediately to the north of the Site.

The wider area surrounding the Site comprised similar habitats as those within the Site, with a mosaic of arable land, grassland, scrub and woodland.

### 1.3 Background and Scope

Ornithology surveys were undertaken to determine the ornithological baseline and to inform an impact assessment on ornithological receptors arising from the Proposed Development. The main potential risks to birds arising from wind farms are direct habitat loss, disturbance and displacement, collision risk, and barrier effects (SNH, 2017).

A number of guidance documents have been produced relating to the assessment of impacts on birds from onshore wind farms. The key guidance used to inform the scope of surveys and reporting was published by NatureScot (SNH, 2017) and is considered best practice for wind farm developments in Ireland. NatureScot guidance recommends that surveys should focus on a suite of 'target species' which are of higher importance (due to legislative protection or conservation status) and are more susceptible to potential impacts from wind farms.

Target species for the project were determined with reference to guidance, qualifying species of designated sites with potential connectivity to the Site (SNH, 2016) and Irish legislation and conservation status. The target species selected for surveys are outlined in each survey methodology.

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**Legend**

- ▭ Proposed Development Site Boundary
- ▭ Breeding Bird Survey Area and Winter Walkover
- ▭ Breeding Raptor Survey Area (Goshawk and Barn Owl) - 1km Viable Area Buffer
- ▭ Breeding Raptor Survey Area and Hen Harrier Roost Survey Area - 2km Viable Area Buffer
- ▭ Wintering Waterbird Survey Area - 5km Viable Area Buffer



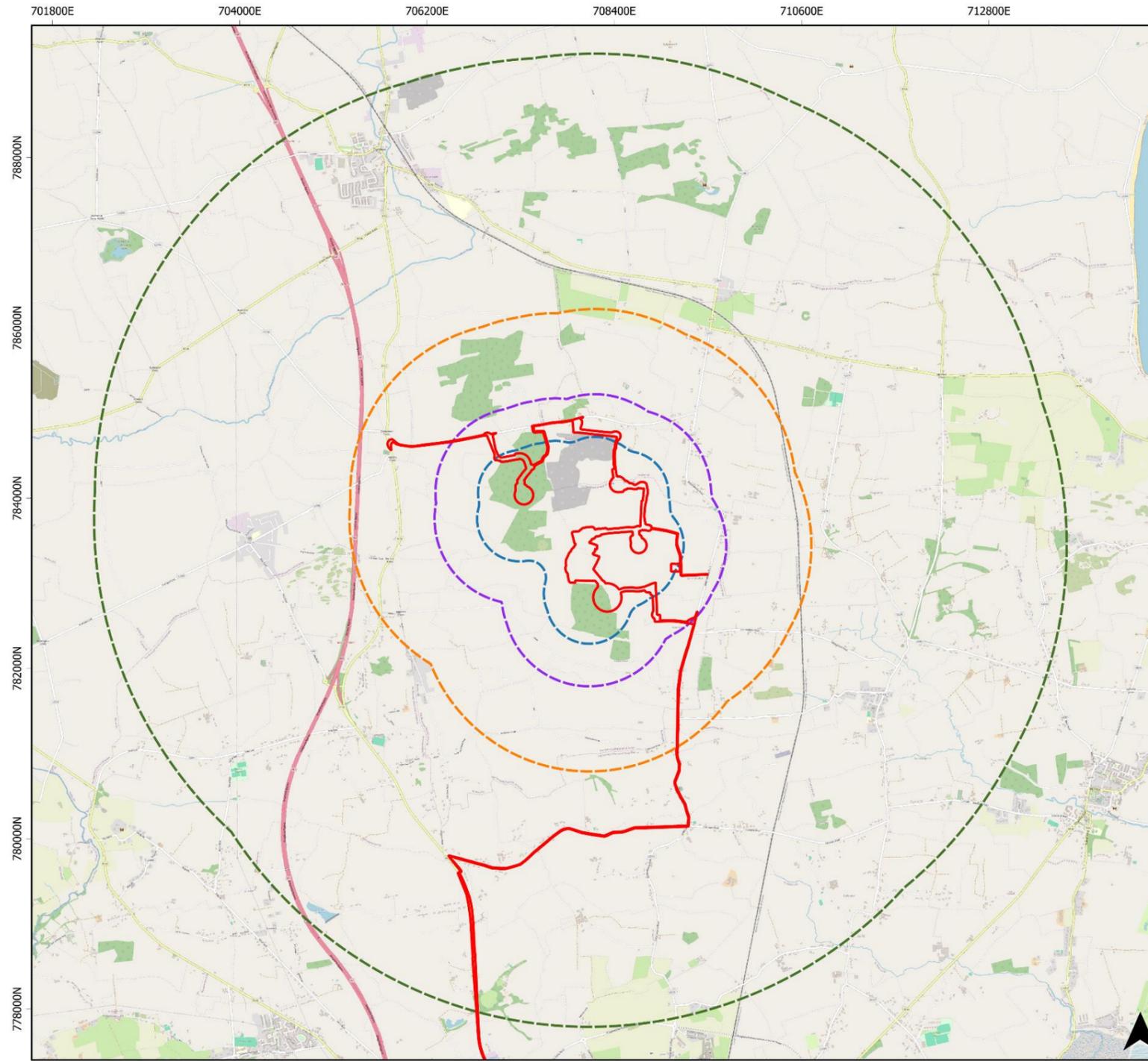
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**Figure 8.2.1. Site Boundary and Ornithology Survey Areas**

## 1.4 Nearby Sites Designated for Ornithological Features

A desk-study has been undertaken to identify statutory designated sites designated for ornithological features with potential connectivity to the Site. The desk-study searched for:

- Internationally important sites - Special Protection Areas (SPAs) and Ramsar sites within 20 km<sup>1</sup> of the nearest turbine location;
- Nationally important sites – Natural Heritage Areas (NHAs) within 20 km of the nearest turbine location; and
- Nature Reserves within 10 km of the nearest turbine location.

During the desk-study seven designated sites were identified. Details of statutory sites are provided in Table 1 below. SPAs in relation to the Site are shown in Figure 8.2.2.

**Table 1. Statutory sites with potential connectivity to the Site**

Designated Site Name	Designation	Qualifying Features	Distance nearest turbine location
Boyne Estuary	SPA	<ul style="list-style-type: none"> <li>• Shelduck (non-breeding)</li> <li>• Oystercatcher (non-breeding)</li> <li>• Golden plover (non-breeding)</li> <li>• Grey plover (non-breeding)</li> <li>• Lapwing (non-breeding)</li> <li>• Knot (non-breeding)</li> <li>• Sanderling (non-breeding)</li> <li>• Black-tailed godwit (non-breeding)</li> <li>• Redshank (non-breeding)</li> <li>• Turnstone (non-breeding)</li> <li>• Little tern (non-breeding)</li> </ul>	6.5 km south-east
River Boyne and River Blackwater	SPA	<ul style="list-style-type: none"> <li>• Kingfisher (breeding)</li> </ul>	7.6 km south-west
North-West Irish Sea	SPA	The North West Irish Sea SPA is designated as an important resource for foraging birds during the breeding season which are associated with nearby SPA breeding colonies. The SPA is also an important foraging and roosting resource for a number of species during the non-breeding season.	7.7 km west

<sup>1</sup> 20 km is the zone of potential connectivity for statutory designated sites with non-breeding swan and goose interests, whilst other non-breeding wildfowl and waders are limited to 15 km. This has, therefore, been used as the basis for the area of search.

		<ul style="list-style-type: none"> <li>• Red-throated diver (non-breeding season)</li> <li>• Great-northern diver (non-breeding season)</li> <li>• Fulmar(breeding and non-breeding seasons)</li> <li>• Manx shearwater (breeding season)</li> <li>• Cormorant (breeding season)</li> <li>• Shag (breeding season)</li> <li>• Common scoter (non-breeding season)</li> <li>• Little gull (non-breeding season)</li> <li>• Black-headed gull (non-breeding season)</li> <li>• Common gull (non-breeding season)</li> <li>• Lesser black-backed gull (breeding season)</li> <li>• Herring gull (breeding and non-breeding seasons)</li> <li>• Great black-backed gull (non-breeding season)</li> <li>• Kittiwake (breeding season)</li> <li>• Roseate tern (breeding season)Common tern (breeding season)</li> <li>• Arctic tern (breeding season)Little tern (breeding season)</li> <li>• Guillemot (breeding season)</li> <li>• Razorbill (breeding season)Puffin (breeding season)</li> </ul>	<p style="color: red; transform: rotate(-15deg); font-weight: bold;">RECEIVED: 04/12/2024</p>
Dundalk Bay	SPA	<ul style="list-style-type: none"> <li>• Great crested grebe (non-breeding)</li> <li>• Greylag goose (non-breeding)</li> <li>• Light-bellied brent goose (non-breeding)</li> <li>• Shelduck (non-breeding)</li> <li>• Teal (non-breeding)</li> <li>• Mallard (non-breeding)</li> <li>• Pintail (non-breeding)</li> <li>• Common scoter (non-breeding)</li> <li>• Red-breasted merganser (non-breeding)</li> <li>• Oystercatcher (non-breeding)</li> <li>• Ringed plover (non-breeding)</li> <li>• Golden plover (non-breeding)</li> <li>• Grey plover (non-breeding)</li> <li>• Lapwing (non-breeding)</li> <li>• Knot (non-breeding)</li> <li>• Dunlin (non-breeding)</li> <li>• Black-tailed godwit (non-breeding)</li> <li>• Bar-tailed godwit (non-breeding)</li> </ul>	8.3 km north-east

		<ul style="list-style-type: none"> <li>• Curlew (non-breeding)</li> <li>• Redshank (non-breeding)</li> <li>• Black-headed gull (non-breeding)</li> <li>• Common gull (non-breeding)</li> <li>• Herring gull (non-breeding)</li> </ul>	
	Ramsar	<ul style="list-style-type: none"> <li>• Northern pintail (non-breeding)</li> <li>• Northern shoveler (non-breeding)</li> <li>• Teal (non-breeding)</li> <li>• Wigeon (non-breeding)</li> <li>• Greater white-fronted goose (non-breeding)</li> <li>• Greylag goose (non-breeding)</li> <li>• Tufted duck (non-breeding)</li> <li>• Greater scaup (non-breeding)</li> <li>• Light-bellied brent goose (non-breeding)</li> <li>• Goldeneye (non-breeding)</li> <li>• Knot (non-breeding)</li> <li>• Whooper swan (non-breeding)</li> <li>• Mute swan (non-breeding)</li> <li>• Little egret</li> <li>• Snipe (non-breeding)</li> <li>• Black-throated diver (non-breeding)</li> <li>• Great northern diver (non-breeding)</li> <li>• Red-throated diver (non-breeding)</li> <li>• Oystercatcher (non-breeding)</li> <li>• Bar-tailed godwit (non-breeding)</li> <li>• Black-tailed godwit (non-breeding)</li> <li>• Curlew (non-breeding)</li> <li>• Cormorant (non-breeding)</li> <li>• Ruff (non-breeding)</li> <li>• Golden plover (non-breeding)</li> <li>• Slavonian grebe (non-breeding)</li> <li>• Great crested grebe (non-breeding)</li> <li>• Little grebe (non-breeding)</li> <li>• Shelduck (non-breeding)</li> <li>• Sandwich tern (breeding)</li> <li>• Redshank (non-breeding)</li> <li>• Lapwing (non-breeding)</li> </ul>	8.3 km north-east
Stabannan-Braganstown	SPA	<ul style="list-style-type: none"> <li>• Greylag goose (non-breeding)</li> </ul>	9.4 km north-west
River Nanny Estuary and Shore	SPA	<ul style="list-style-type: none"> <li>• Oystercatcher (non-breeding)</li> <li>• Ringed plover (non-breeding)</li> <li>• Golden plover (non-breeding)</li> <li>• Knot (non-breeding)</li> <li>• Sanderling (non-breeding)</li> <li>• Herring gull (non-breeding)</li> </ul>	12.3 km south-east

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**Special Protection Areas (SPA) within the 20 km buffer of site infrastructure**

**Legend**

-  Proposed Development Site Boundary
-  500 m Viable Survey Area Buffer
-  20 km Viable Survey Area Buffer
-  Special Protection Areas (SPA)



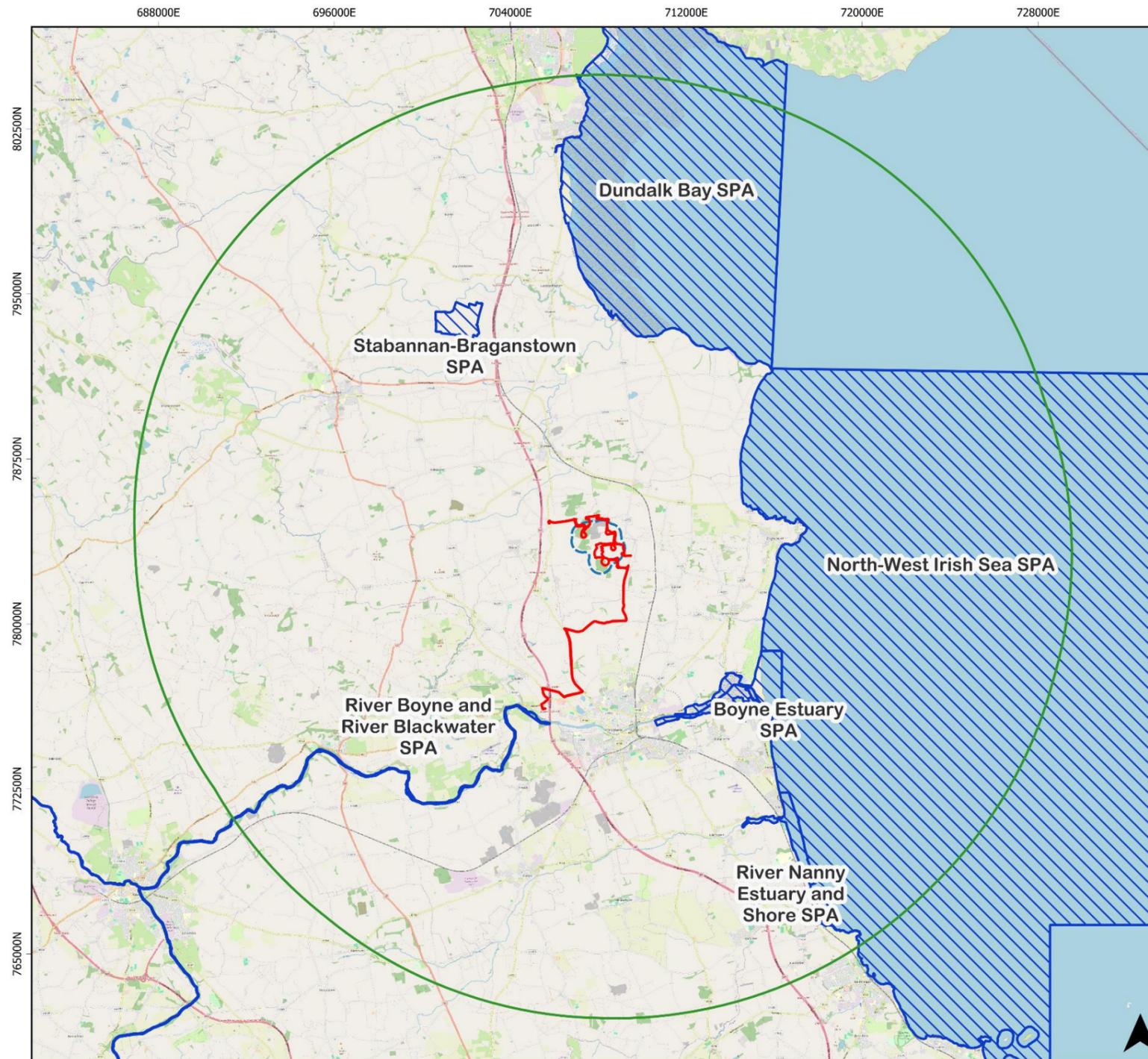
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**Figure 8.2.2. Special Protection Areas within 20 km of site infrastructure**

## 2. Methods

Ornithology Survey Areas were determined in relation to a 'viable area'. This was provided to Woodrow prior to commencement of Year 1 surveys, and was considered to cover all areas where turbines could be located. Ornithology Survey Areas were determined by buffering this viable area.

### 2.1 Vantage Point Surveys

Year 2 Vantage Point Surveys (VPS) were carried out between September 2022 and September 2023 (inclusive) from four Vantage Point (VP) locations. The Vantage Points were selected to provide coverage of the viable area and a surrounding 500 m buffer (the VP Survey Area) in line with NatureScot (SNH, 2017) guidance.

VPS were undertaken to record the flight activity of target bird species following NatureScot (SNH, 2017) guidance. VPS survey dates, times and weather conditions are detailed in Appendix 2. In line with guidance, at least 72 hours of survey was completed from each VP locations, as follows:

- VP1 -72 hours of survey;
- VP2 - 72 hours of survey;
- VP3 -72 hours of survey; and
- VP4 -75 hours of survey.

VPs were selected using viewshed analysis, undertaken using Geographic Information Systems (GIS) and were 'ground-truthed' in the field to ensure that views were accurate. The VP locations and their respective viewsheds are shown in Figure 8.2.3. VPs used in Year 2 surveys were the same as those used during Year 1.

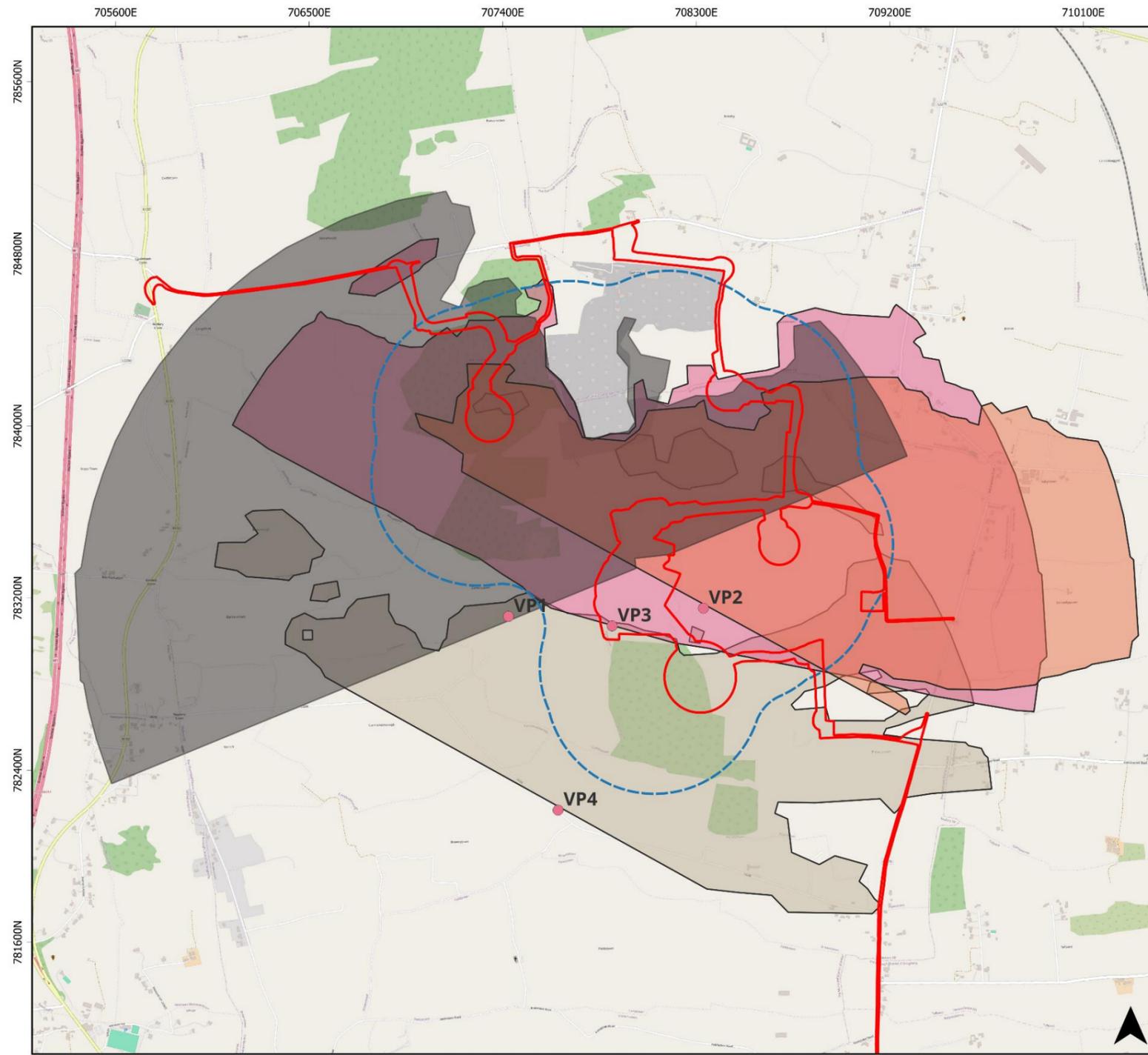
In line with NatureScot guidance (SNH, 2017), VPS focused on 'target species'. These are species which are afforded a higher level of legislative protection, are of particular conservation concern, or are at particular risk from onshore wind developments. The flight lines of all target species observed during the VPS were recorded on large-scale maps in the field. Target species during VPS were as follows:

- All waterbird species;
- All raptor species;
- Any species listed on Annex I of the EU Birds Directive;
- Any species listed as Red or Amber of the BoCCI 2020-26 (Gilbert *et al.*, 2021), where collision risk presents potential for population level effects; and,
- Species with potential connectivity to nearby designated sites.

Each recorded flight path was numbered and cross-referenced, with the following data recorded:

- Time on detection;
- Bird species, age and sex (where age and sex was determinable);
- Number of birds;
- Behaviour where applicable (e.g. foraging, commuting, display etc);
- Duration of flight within the VP viewshed; and
- Flight height range and flight duration.

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P0013336

**Vantage Point Locations and Viewsheds**

**Legend**

- Proposed Development Site Boundary
- 500m Viable Area Buffer
- Vantage Point Locations

**Viewsheds 16.5m**

- VP1 Viewshed
- VP2 Viewshed
- VP3 Viewshed
- VP4 Viewshed

**Note:**  
Viewshed analysis was calculated using a surface offset of 16.5m. The viewshed polygon shows the visible area from each Vantage Point location at 16.5m above ground



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**Figure 8.2.3. Vantage Point Locations and Viewsheds**

## 2.2 Breeding Bird Surveys

A Breeding Bird Survey (BBS) was undertaken between April and June 2023. The BBS Survey Area covered the viable turbine area. In line with NatureScot (2017) guidance, the survey combined elements of the O'Brien and Smith (1992) method (designed to census lowland breeding waders) and Brown and Shepherd (designed to survey moorland species) with three survey visits completed.

Target species during surveys were non-passerine species of conservation concern breeding within open habitats. NatureScot guidance (SNH, 2017) states that survey of woodland and farmland passerines, especially in commercial coniferous forest or intensive agricultural land, is generally not required. All species were recorded during surveys, however passerine species are generally not subject to significant effects from wind farm developments and therefore were not considered target species during the BBS. The BBS Survey Area is shown in Figure 8.2.3, survey dates and weather conditions are included in Appendix 2.

### *Crepuscular/Dusk Surveys*

To supplement the Breeding Bird and Breeding Raptor Surveys, additional dusk visits were undertaken to record crepuscular or nocturnal species which are difficult to detect during standard surveys. Surveys were carried out on calm, dry nights and covered woodland habitat in the viable turbine area to identify roding woodcock (territorial males), breeding long-eared owls, breeding snipe. Surveys were conducted using species-specific methods detailed in Gilbert *et al.* (1998).

Survey dates and weather conditions are included in Appendix 2.

### *Breeding Bird Territory Analysis*

Following completion of all BBS visits, all registrations of non-passerine species of conservation concern from the field maps were digitised using GIS to determine the number and distribution of likely territories present within the Survey Area.

The method used to determine territories was informed by Bibby (2000) and Gilbert *et al.* (1998) with an element of professional judgement. A precautionary approach was followed, with a bird deemed to be holding a territory if breeding behaviour (e.g. singing, alarm-calling, adults carrying food, etc.) was observed, or if pairs of birds were observed in suitable habitat, during just one of the BBS visits.

## 2.3 Breeding Raptor Surveys

Breeding Raptor Surveys were undertaken between March and August 2023 inclusive, with reference to the methods detailed in Hardey *et al.* (2013). The Breeding Raptor Survey Area

covered a 2 km buffer of the viable turbine area (1 km for goshawk and owls other than short-eared owl), with surveyors covering all areas of habitat suitable for breeding raptors.

Surveys involved completing a series of short watches over areas of suitable breeding habitat from suitable ad-hoc VP locations, and walkover surveys to identify any evidence of breeding. Although the surveys focused on recording target raptor species (Annex I species, raptors listed on Birds of Conservation Concern Ireland), however other raptors species observed were also recorded. The Breeding Raptor Survey Area is shown in Figure 8.2.3. Survey dates and weather conditions are included in Appendix 2.

## 2.4 Winter Walkover Surveys

A Winter Walkover Survey (WWS) was undertaken between October 2022 and February 2023. The Winter Walkover Survey Area covered the viable turbine area and a 500m buffer, as shown on Figure 8.2.3. Visits followed the 'look-see' methods outlined in Bibby *et al.* (2000), with all parcels of suitable habitat covered. Three survey visits were completed, with survey dates and weather conditions included in Appendix 2.

Target species during surveys were non-passerine species of conservation concern present within open habitats. NatureScot (2017) guidance states that survey of woodland and farmland passerines, especially in commercial coniferous forest or intensive agricultural land, is generally not required. All species of conservation concern were recorded during surveys, however passerine species are generally not subject to significant effects from wind farm developments (as stated in NatureScot guidance) and therefore were not considered target species during the WWS. WWS were undertaken to record species, such as woodcock and snipe, that which are difficult to detect during VPS.

## 2.5 Wintering Waterbird Surveys

Wintering Waterbird Surveys were undertaken in the wider area between October 2022 and March 2023. The Wintering Waterbird Survey Area covered a 5 km buffer of the viable turbine area and surveys were based upon methodology employed by iWeBS (Irish Wetland Bird Surveys) Target species during these surveys were waterbirds of conservation concern. Survey dates and weather conditions are included in Appendix 2.

## 2.6 Hen Harrier Roost Surveys

As a precautionary measure Hen Harrier Roost Surveys were conducted due to availability of potentially suitable roosting habitat in the vicinity of the Site, as described by Clarke and Watson (1990) and in the Irish Hen Harrier Winter Roost Survey guidelines (O'Donoghue, 2019). Surveys were undertaken between October 2022 and January 2023 in line with guidance by Hardey *et al.* (2012). The Survey Area covered the viable turbine area and a 2 km

buffer in line with NatureScot guidance and is shown on Figure 8.2.3. Survey dates and weather conditions are included in Appendix 2.

## 2.7 Survey Limitations

Access was limited to the Site and publicly accessible lands. As far as possible, surveys were timed to coincide with suitable weather conditions, particularly during the breeding season, however periods of poor weather (e.g. rain, strong winds and reduced visibility) were occasionally encountered during the surveys, which was unavoidable due to the number of surveys required and the frequent, inclement weather encountered on the Site, and Survey Areas, throughout the surveys.

As the majority of surveys were completed in optimal weather conditions it is considered that a small number of surveys undertaken in poor weather conditions are not a constraint. Furthermore, it is considered that surveying in a variety of conditions will be more representative of the baseline conditions and associated levels of bird activity within the Survey Areas. As such, sub-optimal weather is not considered to represent a constraint to the robustness of the data collected.

The viable area and Survey Areas used for the Year 2 surveys were based on the indicative proposed turbine locations provided by EDF to Woodrow at the commencement of Year 1 surveys. As the extent of the Site is larger than originally anticipated, some baseline surveys do not cover the full extent of the Site and appropriate survey buffers outlined in NatureScot (2017) guidance. Despite this, it is considered that the survey data collected is suitably robust to inform an assessment.

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### 3. Survey Results

#### 3.1 Vantage Point Surveys

##### 3.1.1.1 Target Species Flights

A total of 442 flights by 16 identified target species were recorded during VPS. Buzzard was the species recorded most frequently with a total of 224 flights, followed by peregrine (43 flights) and sparrowhawk (40 flights). A summary of all target species flights recorded during the VPS, broken down by species, is provided in **Table 2**. Full details of target species flights are presented in Appendix 4 and flight lines are shown in Figure 8.2.4 to Figure 8.2.20, confidential species are presented separately within the Confidential Annex.

Flight activity for all species was low, other than buzzard, peregrine, sparrowhawk and common gull. Buzzard was regularly recorded during surveys, hunting over the Survey Area. Peregrine was also regularly recorded during surveys. As flights of other species were recorded rarely, there was limited evidence of areas favoured by these species.

15 unidentified gull species flights were also recorded with a max count of 100 individuals.

**Table 2. Summary of Target Species Flights Recorded During Year 2 VPS**

Species*	Conservation Status*	Number of flights	No. of birds per flight
Mallard	Amber, SPA	7	1-4
Swift	Red	4	1-2
Lapwing	Red	3	1-13
Golden Plover	Red; Ann1; Ann1	4	6-80
Black-headed Gull	Amber, SPA	10	2-120
Common Gull	Amber, SPA	39	1-51
Herring Gull	Amber, SPA	23	1-12
Lesser Black-backed Gull	Amber	13	1-2
Great black-backed gull	Green	1	1
Cormorant	Amber	2	1
Grey Heron	Green, SPA	2	1-2
Little Egret	Green; Ann1	1	1
Sparrowhawk	Green	40	1-2
Buzzard	Green	224	1-3
Kestrel	Red	10	1
Peregrine	Green; Ann1	43	1-3
Gull species***		15	1-100
Unidentified raptor species***		1	1
<b>Total</b>		<b>442</b>	

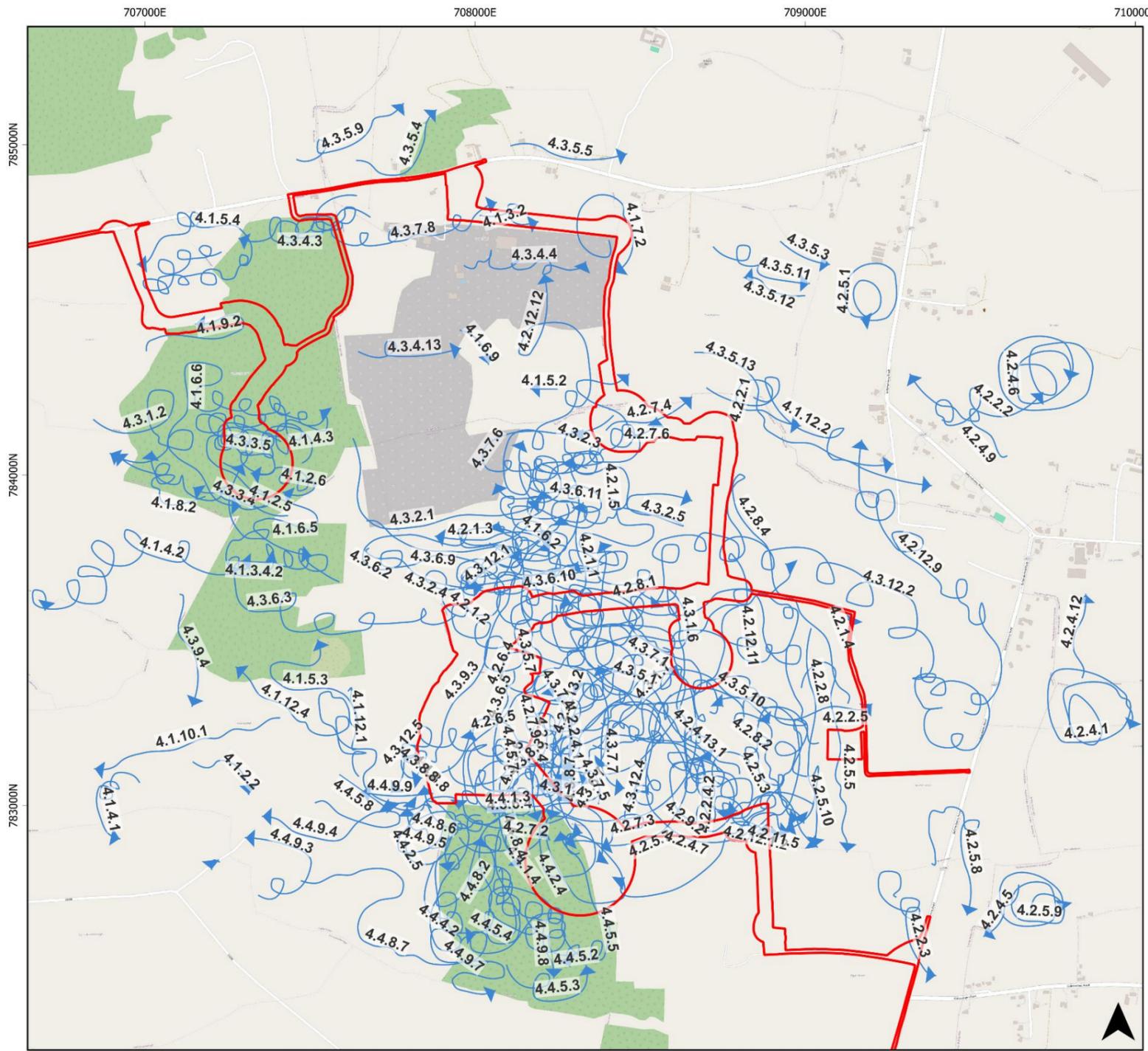
Species*	Conservation Status*	Number of flights	No. of birds per flight
<p>*Species listed in taxonomic order in accordance with the Irish List.                      ** Ann1: listed on Annex I of the Bird’s Directive, Red/Amber/Green: Birds of Conservation Concern in Ireland Classification, SPA: species is a designated feature of a nearby SPA and has potential connectivity to the Site.                      ***Records which could not be identified to species level.</p>			

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3.1.1.2 *Incidental Records*

Lapwing, black-headed gull, herring gull, common gull, peregrine, buzzard, sparrowhawk and lesser black-backed gull were all recorded incidentally during the VPS. This included observations outside of the designated survey time periods or registrations of flights which were beyond VP viewsheds. These flights have not been included in Table 2, however have been used to provide context to species activity.

During VPS, common gull, grey heron, sparrowhawk, buzzard, kestrel and peregrine were all recorded perched or feeding on the ground whilst moorhen and little grebe were recorded present on waterbodies. As these records did not relate to birds in flight, they were not included within Table 2.



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**Flight Activity Survey Breeding Season**  
**(March 2023 to September 2023):**  
**Buzzard**

**Legend**

- ▭ Proposed Development Site Boundary
- ➔ Buzzard Flight Lines

Note:  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.

0 0.3 0.6 0.9 km

Scale: 1: 15000 Date: 07/11/2024 Drawn by: GW

Coordinate System:  
IRENET95 / Irish Transverse  
Mercator

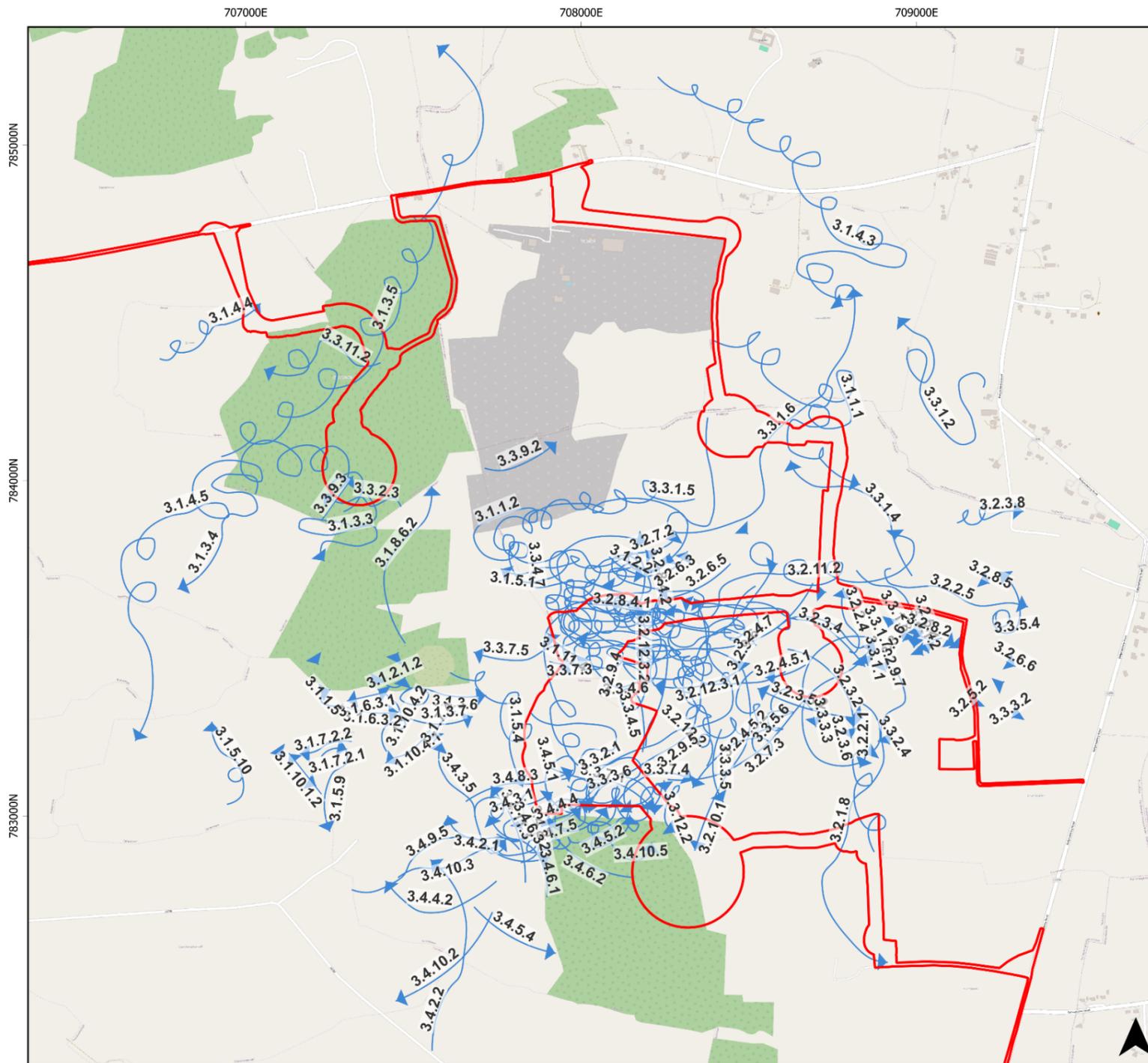


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**Figure 8.2.4. Flight Activity Survey – Breeding Season: Buzzard**





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**Flight Activity Survey Non-Breeding Season (September 2022 to February 2023): Buzzard**

**Legend**

- Proposed Development Site Boundary
- Buzzard Flight Lines

Note:  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



Scale: 1: 15000      Date: 07/11/2024      Drawn by: GW

Coordinate System:  
IRENET95 / Irish Transverse  
Mercator

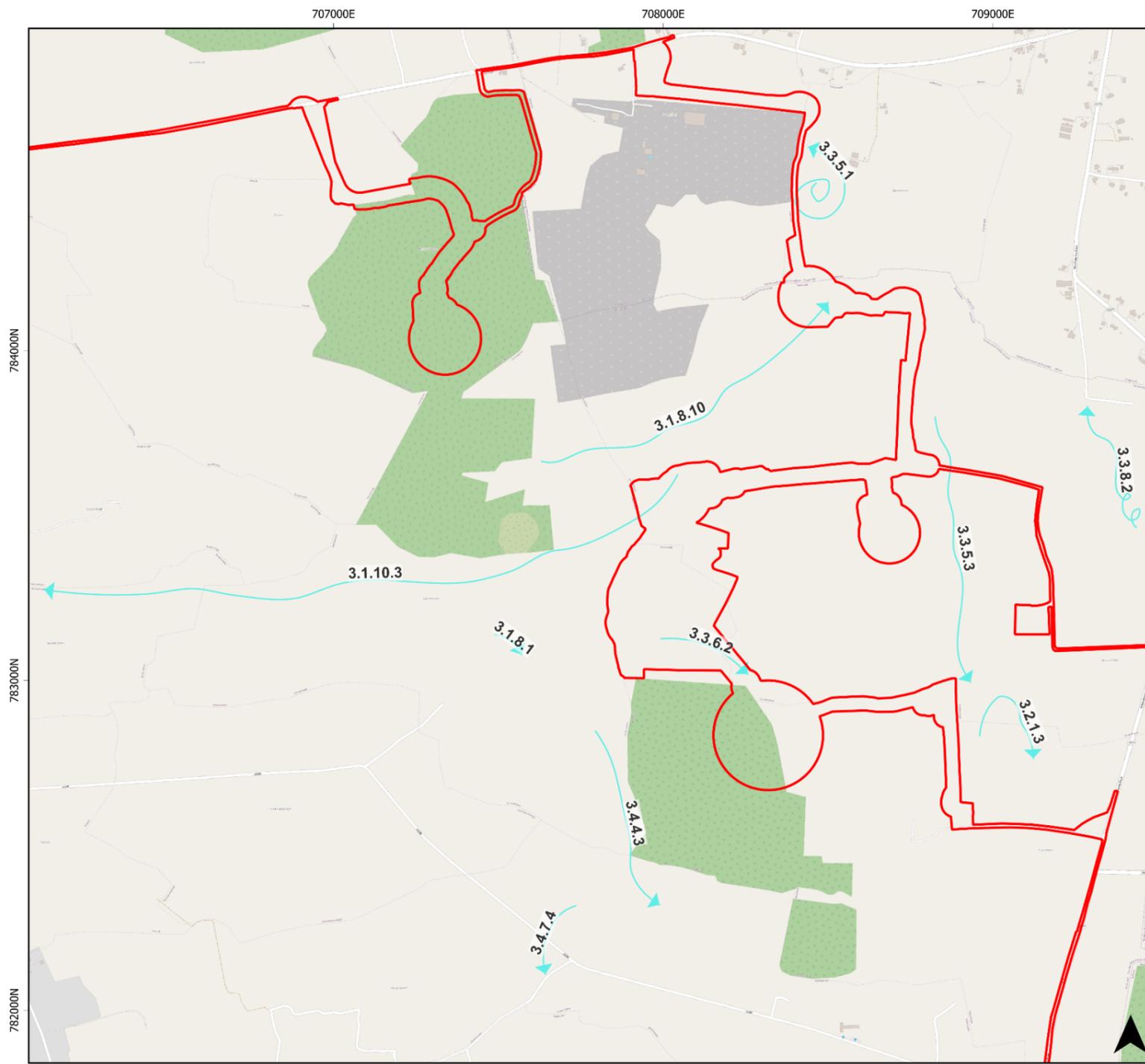


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**Figure 8.2.5. Flight Activity Survey – Non-breeding Season: Buzzard**





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**Flight Activity Survey Non-Breeding Season (September 2022 to February 2023): Black-headed gull**

**Legend**

- Proposed Development Site Boundary
- Black-headed gull Flight Lines

**Note:**  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



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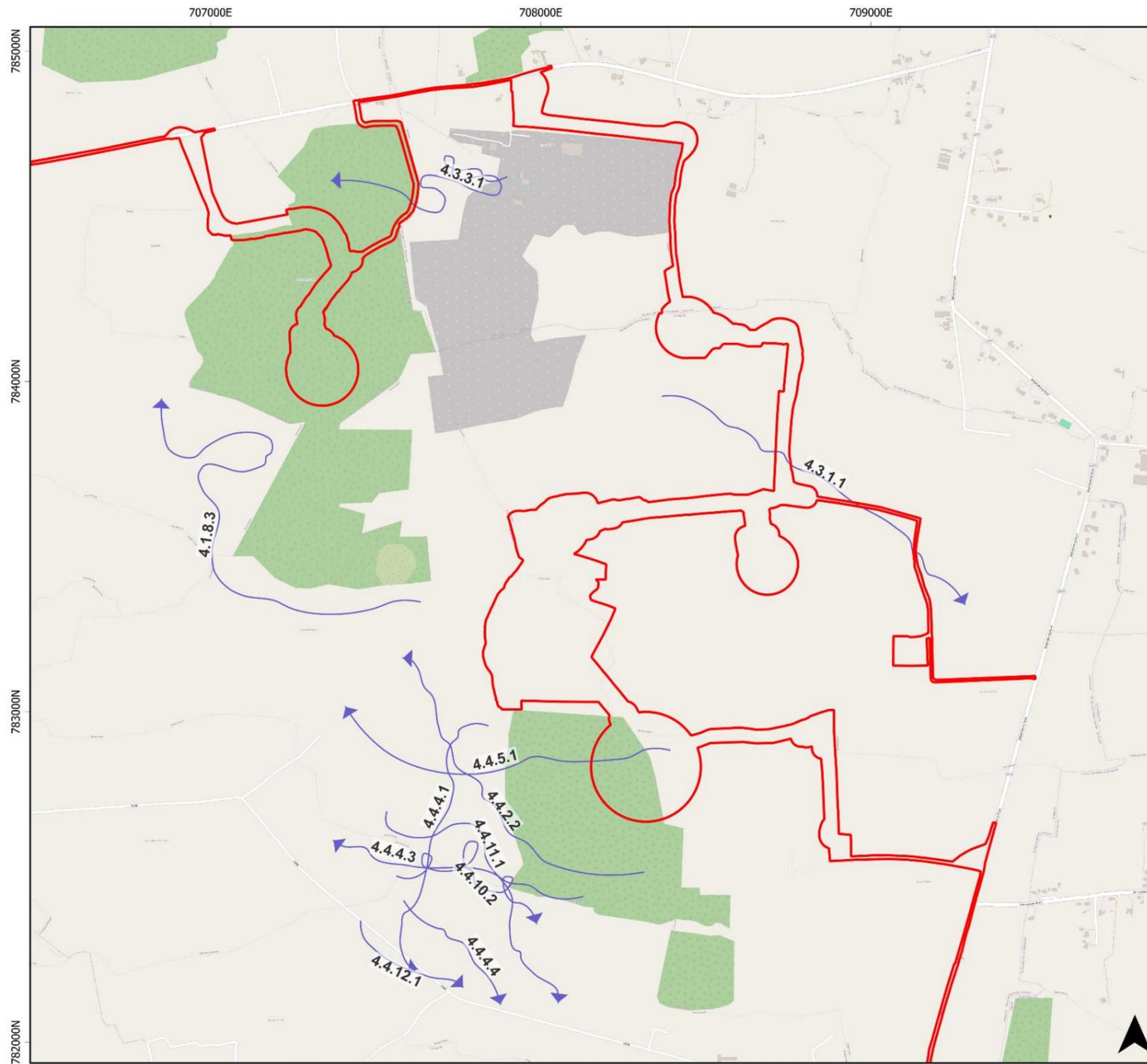
**Figure 8.2.6. Flight Activity Survey – Non-breeding Season: Black-headed gull**

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**Flight Activity Survey Breeding Season**  
**(March 2023 to September 2023):**  
**Common Gull**

**Legend**

- Proposed Development Site Boundary
- Common gull Flight Lines



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**Note:**  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



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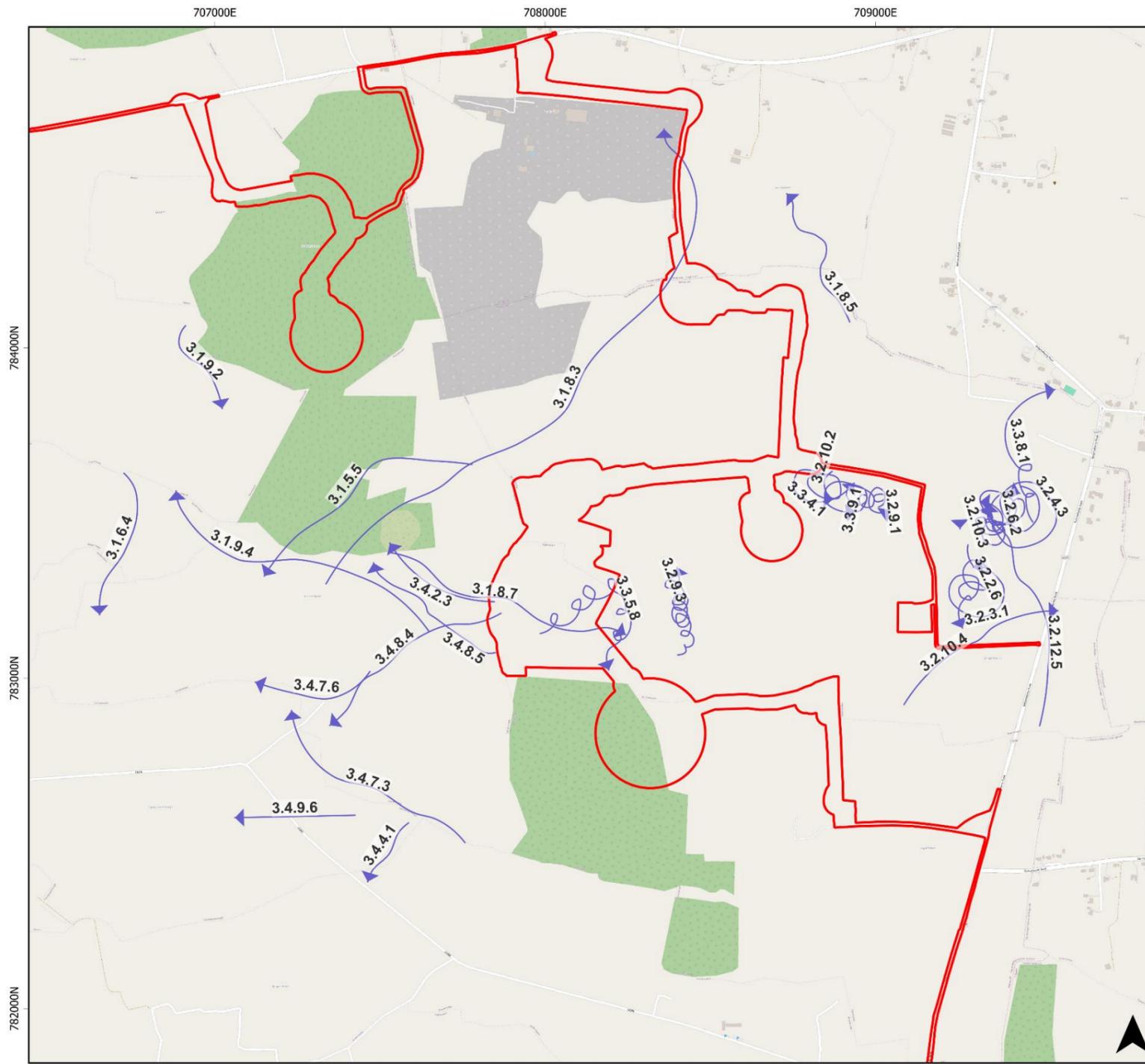
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**Figure 8.2.7. Flight Activity Survey – Breeding Season: Common gull**



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**Flight Activity Survey Non-Breeding Season (September 2022 to February 2023): Common gull**

**Legend**

- ▭ Proposed Development Site Boundary
- ➔ Common gull Flight Lines

**Note:**  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



Scale: 1: 16000      Date: 07/11/2024      Drawn by: GW

Coordinate System:  
IRENET95 / Irish Transverse  
Mercator

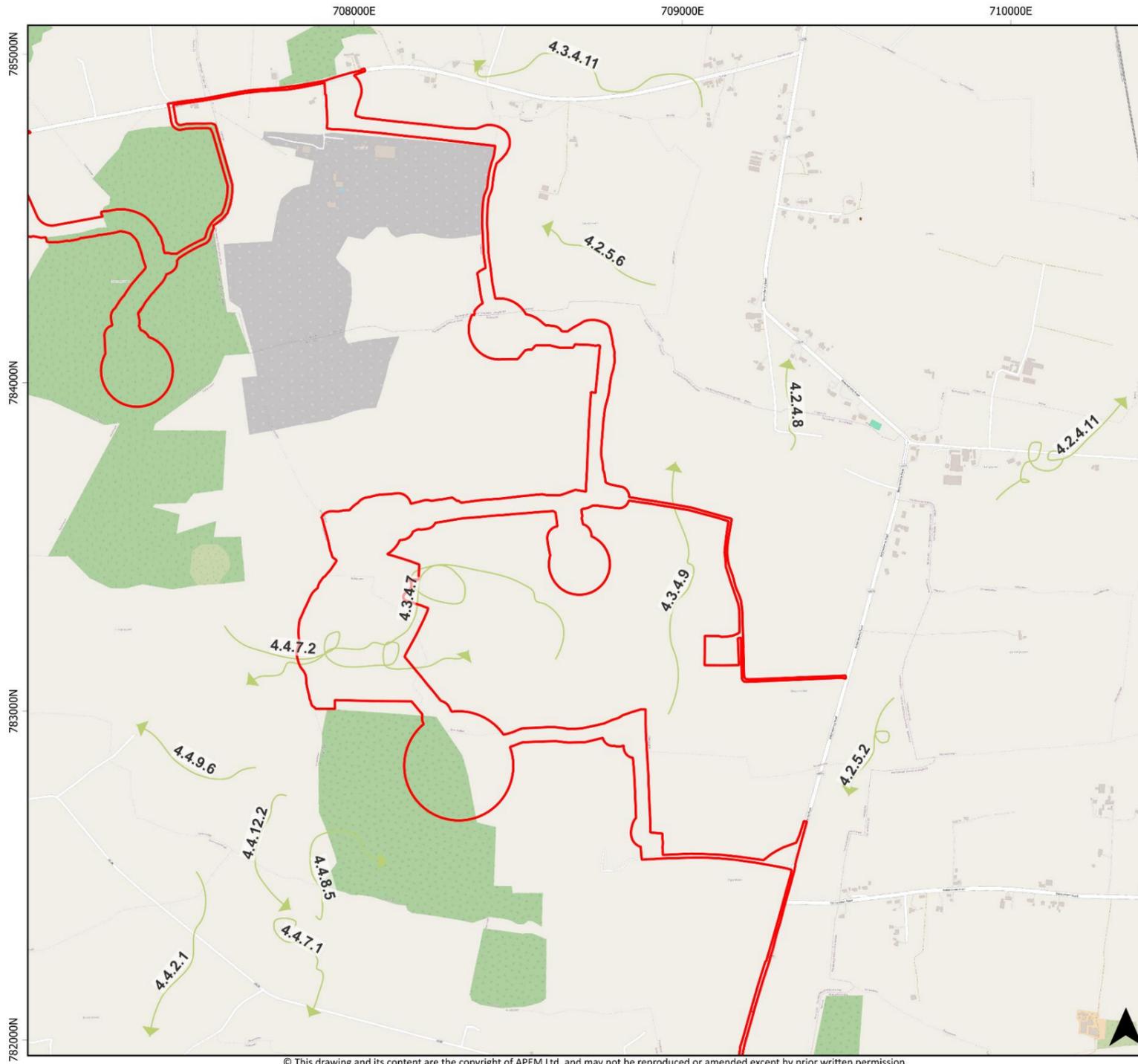


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**Figure 8.2.8. Flight Activity Survey – Non-breeding Season: Common gull**





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**Flight Activity Survey Breeding Season**  
**(March 2023 to September 2023):**  
**Herring gull**

**Legend**

- Proposed Development Site Boundary
- Herring gull Flight Lines

**Note:**  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



Scale: 1: 16000      Date: 07/11/2024      Drawn by: GW

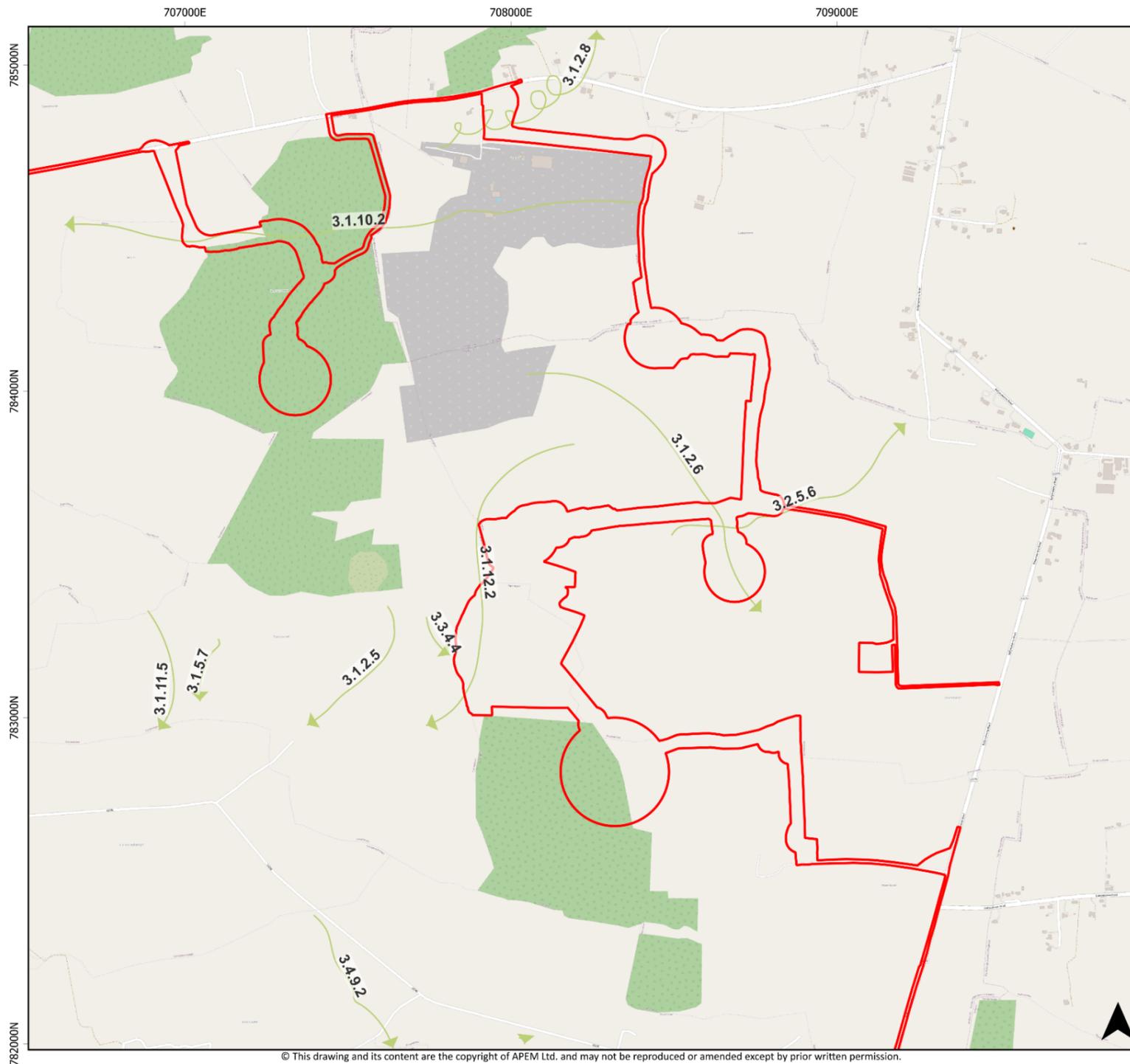
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**Figure 8.2.9. Flight Activity Survey – Breeding Season: Herring gull**



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**Flight Activity Survey Non-Breeding Season (September 2022 to February 2023): Herring gull**

**Legend**

- Proposed Development Site Boundary
- Herring gull

**Note:**  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



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**Figure 8.2.10. Flight Activity Survey – Non-breeding Season: Herring gull**

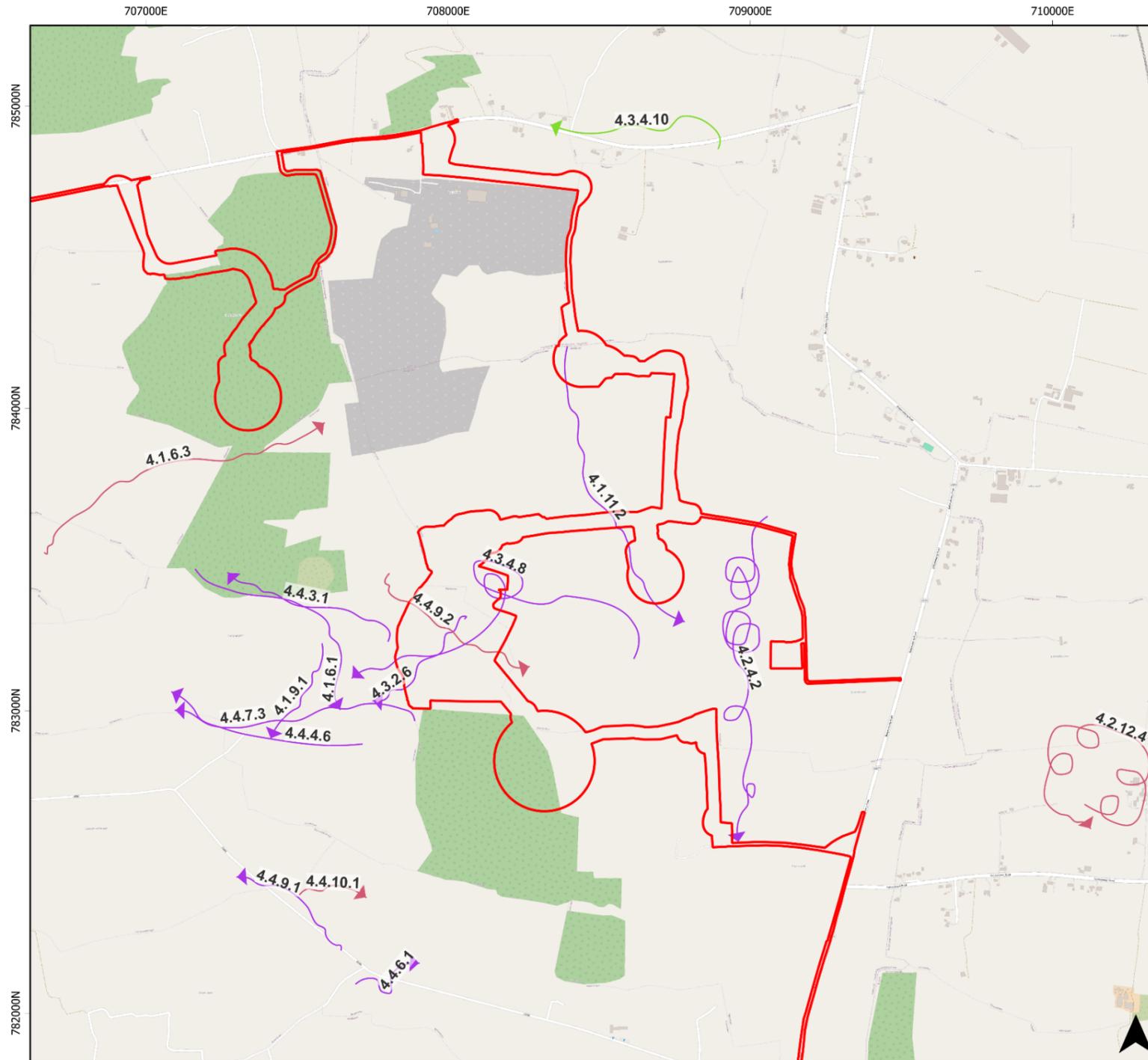
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**Flight Activity Survey Breeding Season  
(March 2023 to September 2023): Other  
target Gull Species**

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**Legend**

- Proposed Development Site Boundary
- Great black-backed gull Flight Lines
- Lesser black-backed gull Flight Lines
- Unidentified Gull Sp. Flight Lines



**Note:**  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



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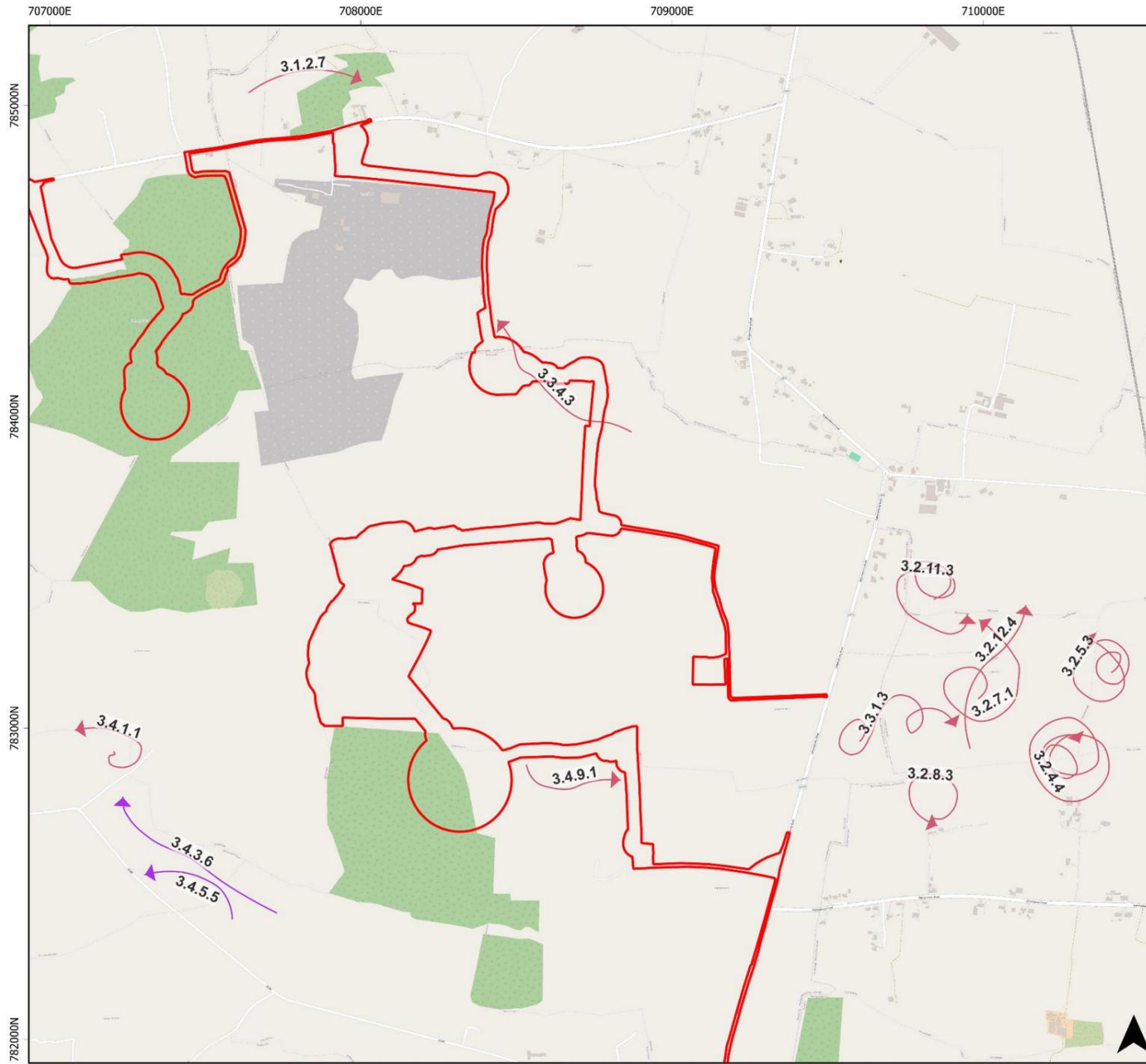
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**Figure 8.2.11. Flight Activity Survey – Breeding Season: Other target gull species**



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**Flight Activity Survey Non-Breeding Season (September 2022 to February 2023): Other target Gull species**

**Legend**

- Proposed Development Site Boundary
- Lesser black-backed gull Flight Lines
- Unidentified Gull Sp. Flight Lines

Note:  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



Scale: 1: 17000      Date: 07/11/2024      Drawn by: GW

Coordinate System:  
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Mercator

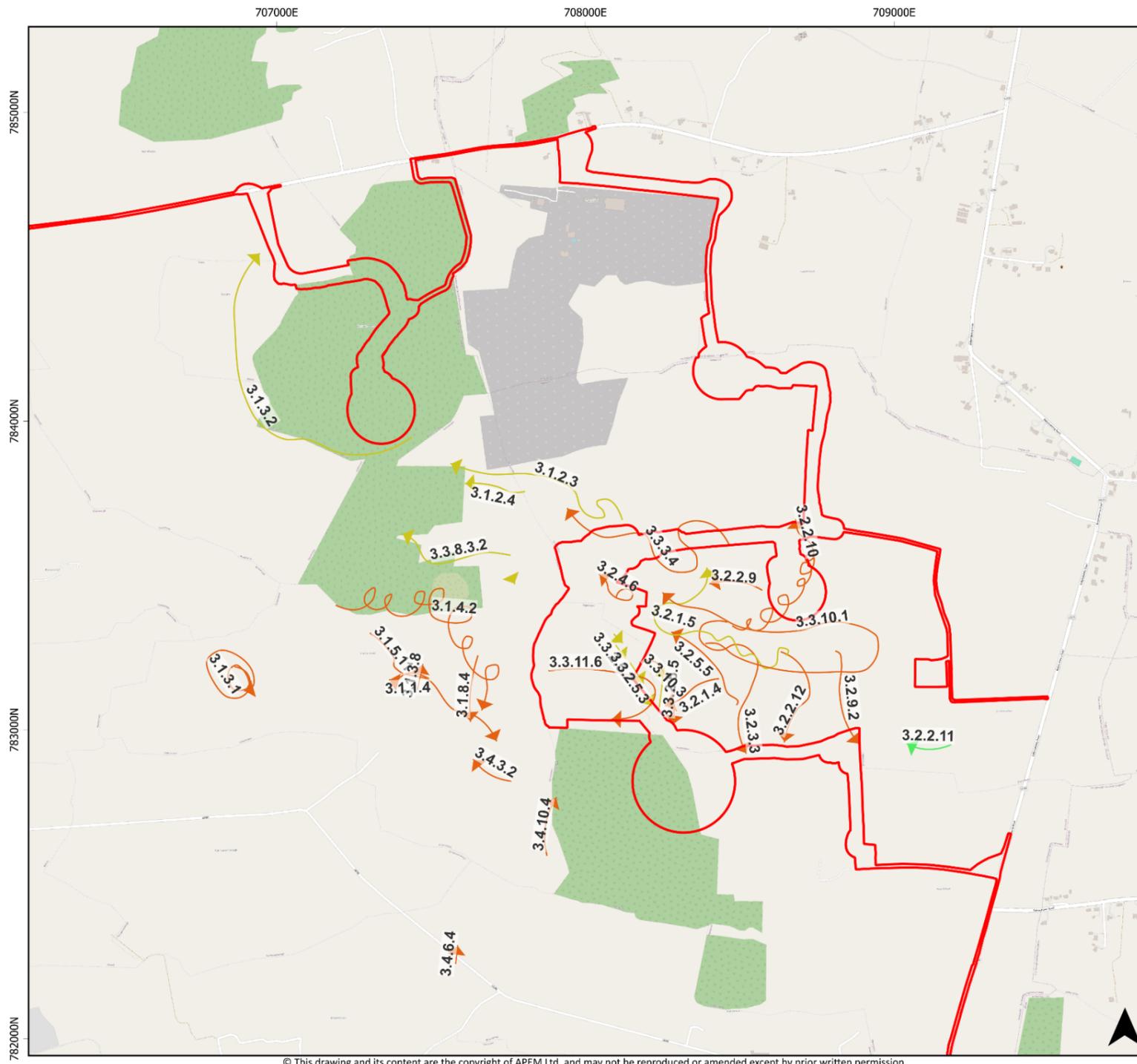


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**Figure 8.2.12. Flight Activity Survey – Non-breeding Season: Other target gull species**





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**Flight Activity Survey Non-Breeding Season (September 2022 to February 2023): Other target Raptor species**

**Legend**

- Proposed Development Site Boundary
- Kestrel Flight Lines
- Sparrowhawk Flight Lines
- Unidentified bird of prey Flight Lines

**Note:**  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



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**Figure 8.2.13. Flight Activity Survey – Non-breeding Season: Other target raptor species**



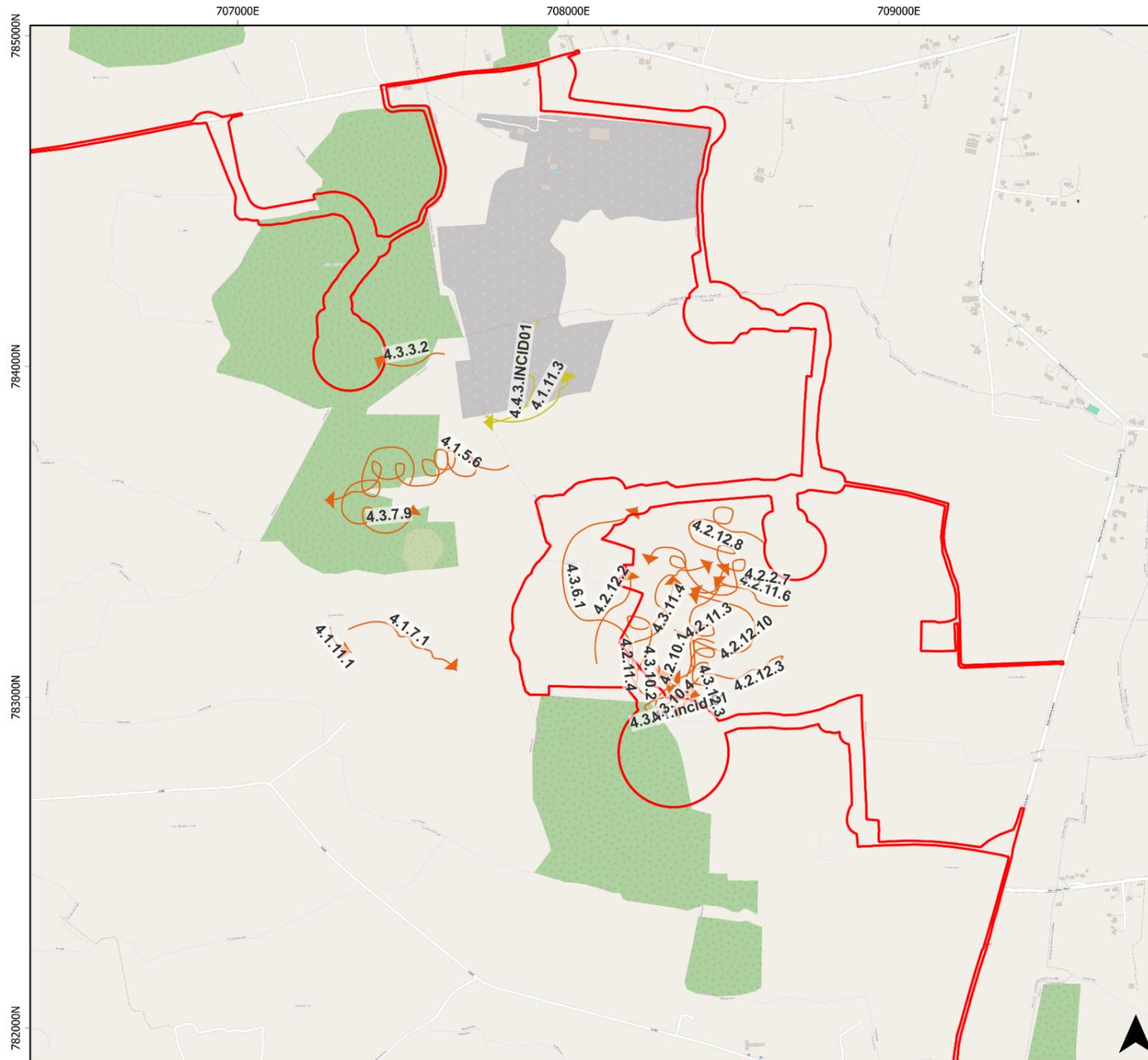
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**Flight Activity Survey Breeding Season**  
**(March 2023 to September 2023): Other**  
**target Gull Species**

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**Legend**

- ▭ Proposed Development Site Boundary
- Kestrel Flight Lines
- Sparrowhawk Flight Lines



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**Note:**  
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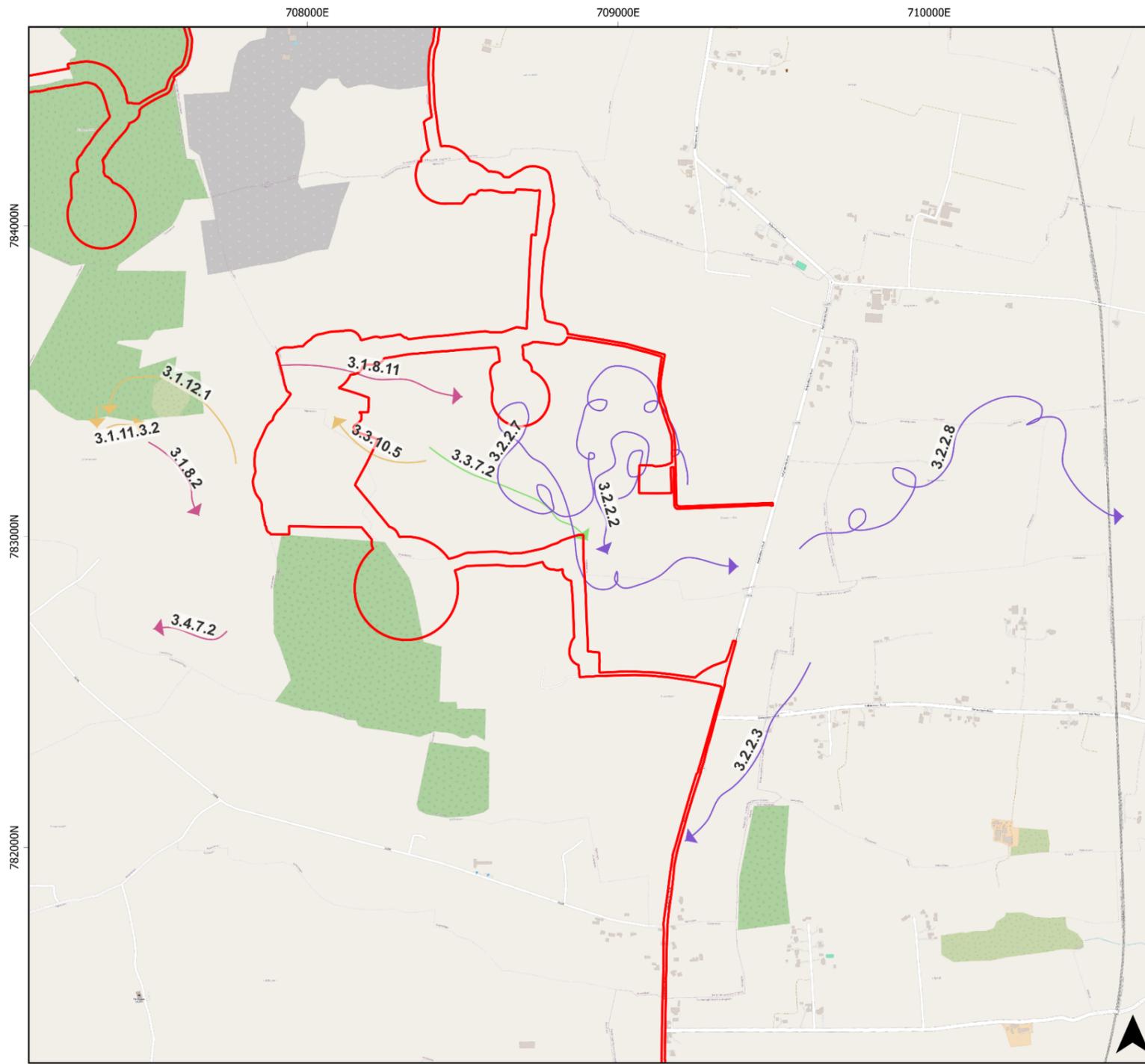
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**Figure 8.2.14. Flight Activity Survey – Breeding Season: Other target raptor species**



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**Flight Activity Survey Non-Breeding Season (September 2022 to February 2023): Target Wader species**

**Legend**

- Proposed Development Site Boundary
- Golden plover Flight Lines
- Grey heron Flight Lines
- Lapwing Flight Lines
- Little egret Flight Lines

**Note:**  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



Scale: 1: 17000      Date: 07/11/2024      Drawn by: GW

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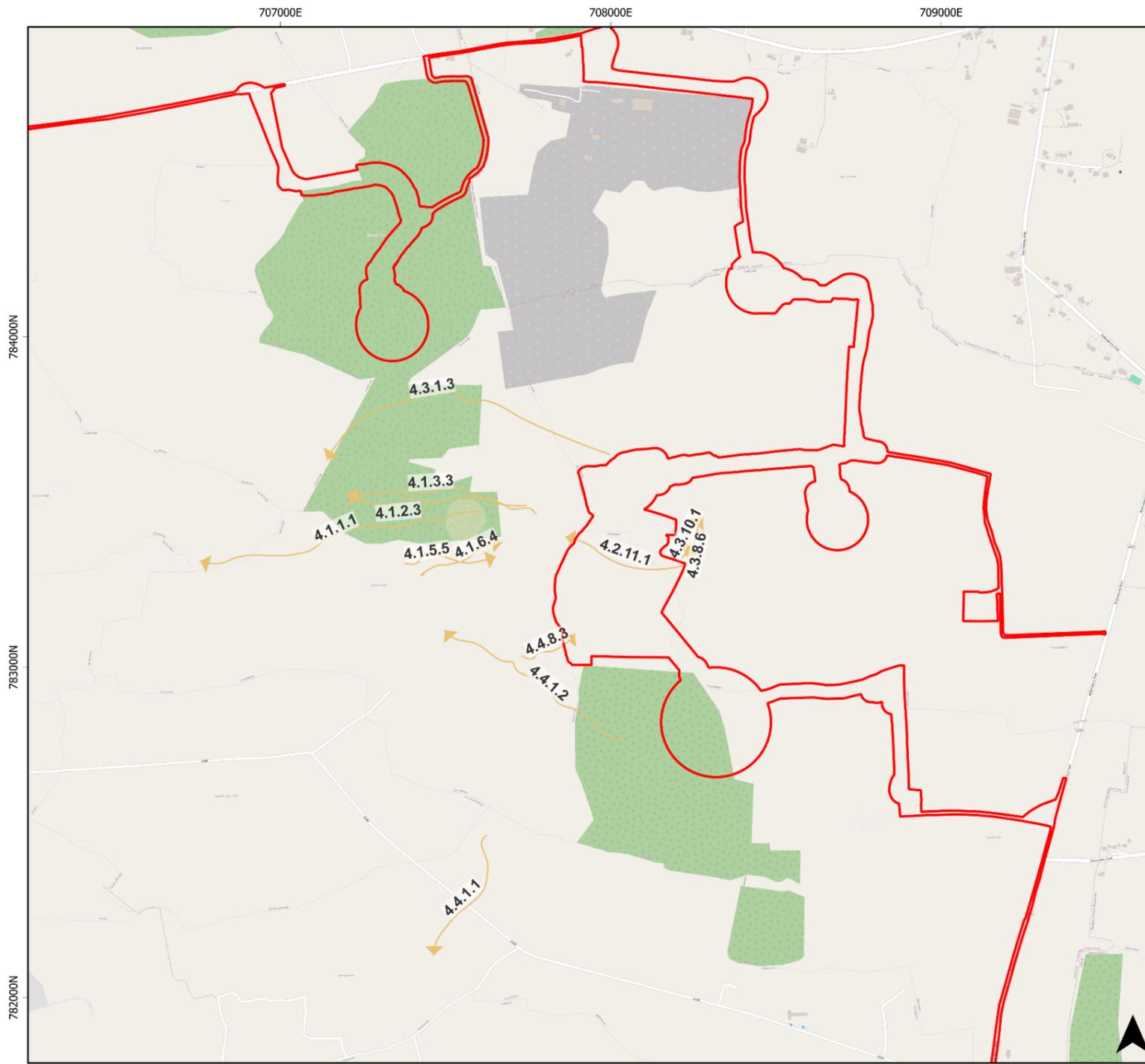


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**Figure 8.2.15. Flight Activity Survey – Non-breeding Season: Target wader species**





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**Flight Activity Survey Breeding Season  
(March 2023 to September 2023): Target  
Wader Species**

**Legend**

- Proposed Development Site Boundary
- Grey heron Flight Line

**Note:**  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



Scale: 1: 16000      Date: 07/11/2024      Drawn by: GW

Coordinate System:  
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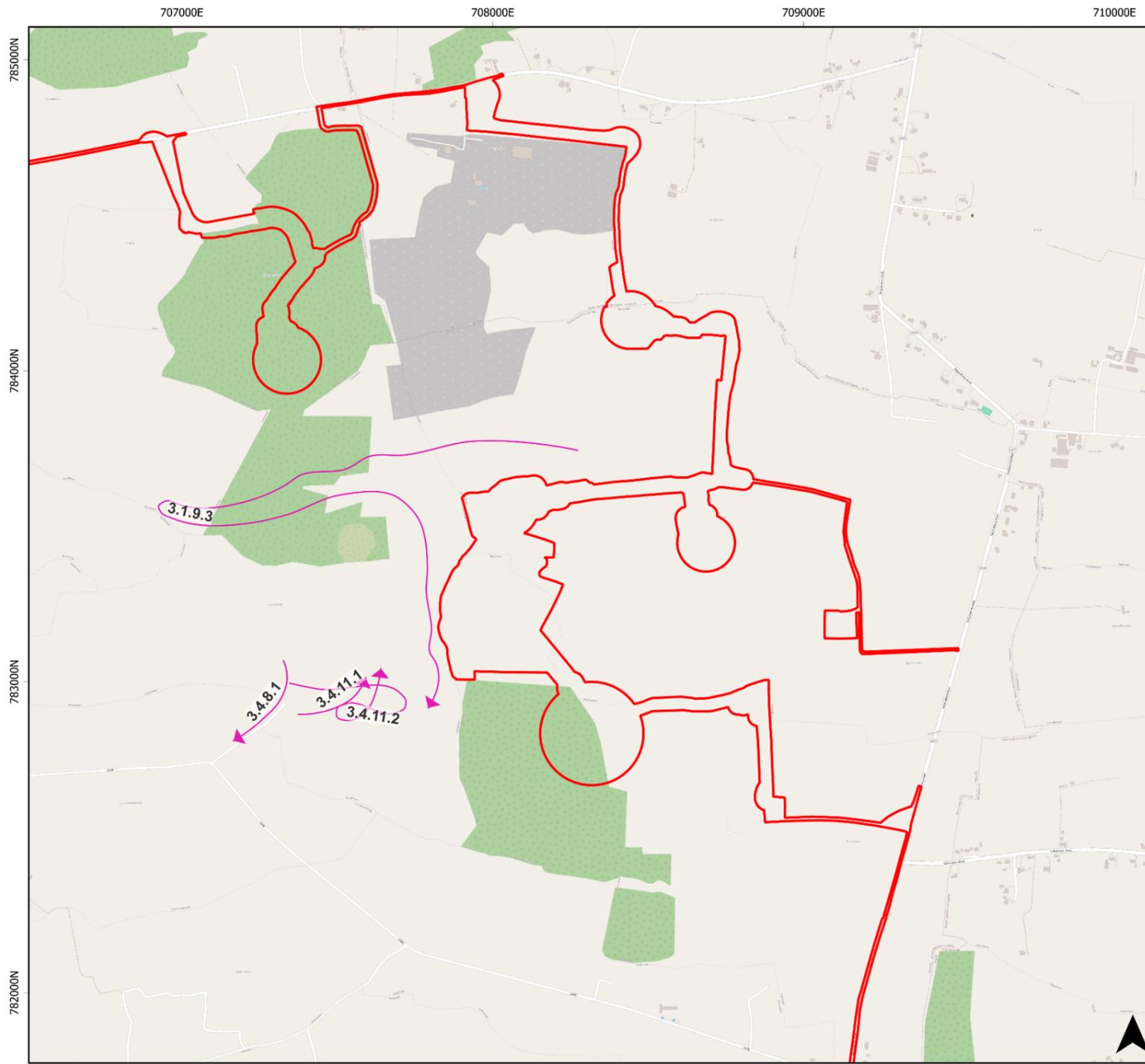


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**Figure 8.2.16. Flight Activity Survey – Breeding Season: Target wader species**





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**Flight Activity Survey Non-Breeding Season (September 2022 to February 2023): Other target species**

**Legend**

- Proposed Development Site Boundary
- Mallard Flight Lines

**Note:**  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



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**Figure 8.2.17. Flight Activity Survey – Non-breeding Season: Other target species**

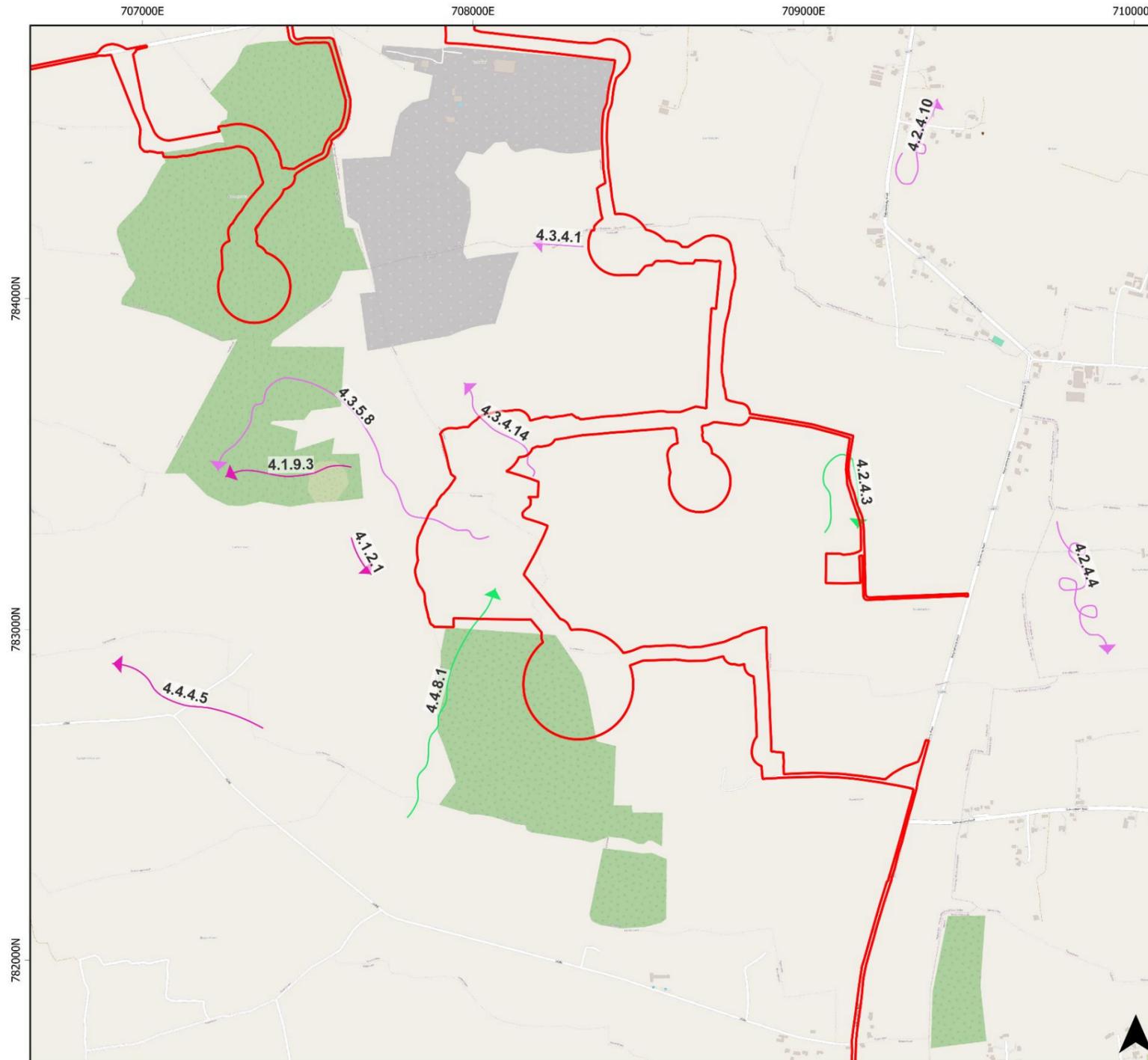
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**Flight Activity Survey Breeding Season  
(March 2023 to September 2023): Other  
target species**

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**Legend**

- Proposed Development Site Boundary
- Cormorant
- Mallard
- Swift



**Note:**  
Each flight line has been labelled with a unique ID number to allow for cross referencing with data presented in the report.



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**Figure 8.2.18. Flight Activity Survey – Breeding Season: Other target species**

### 3.2 Breeding Bird Surveys

Following analysis of data collected during the BBS, and any data recorded during other surveys which was indicative of breeding, territory analysis was undertaken. Two non-passerine species of conservation concern: snipe and stock dove were recorded breeding within the BBS Area.

Three probable snipe territories were recorded during BBS, with three individuals recorded drumming within the BBS Survey Area. A single probable stock dove territory was also recorded during BBS. Territory locations are displayed on Figure 8.2.19.

Further snipe and stock dove were also recorded during the BBS, however were not recorded exhibiting any indicative breeding behaviour and therefore were not considered to be breeding within the Survey Area.

**Table 3. Summary of Target Species Recorded During Year 2 BBS**

Species	Conservation Status*	Number of Territories
Stock dove	Red	1
Snipe	Red	3
Long-eared owl		

\* Annex I: listed on Annex I of the Bird's Directive, Red/Amber/Green: Birds of Conservation Concern in Ireland Classification

Eight further target species were recorded during the BBS, however there was no evidence of breeding within the Survey Area. Woodcock was recorded during a single dusk BBS visit but was not considered to be breeding within the Survey Area. Wigeon, teal, mallard, little grebe, common gull, herring gull and lesser black-backed gull were also recorded during BBS, however these species did not breed within the Survey Area.

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**Legend**

- Proposed Development Site Boundary
- Breeding Bird Survey Area - 500m Viable Area Buffer
- SD Stock Dove
- SN Snipe

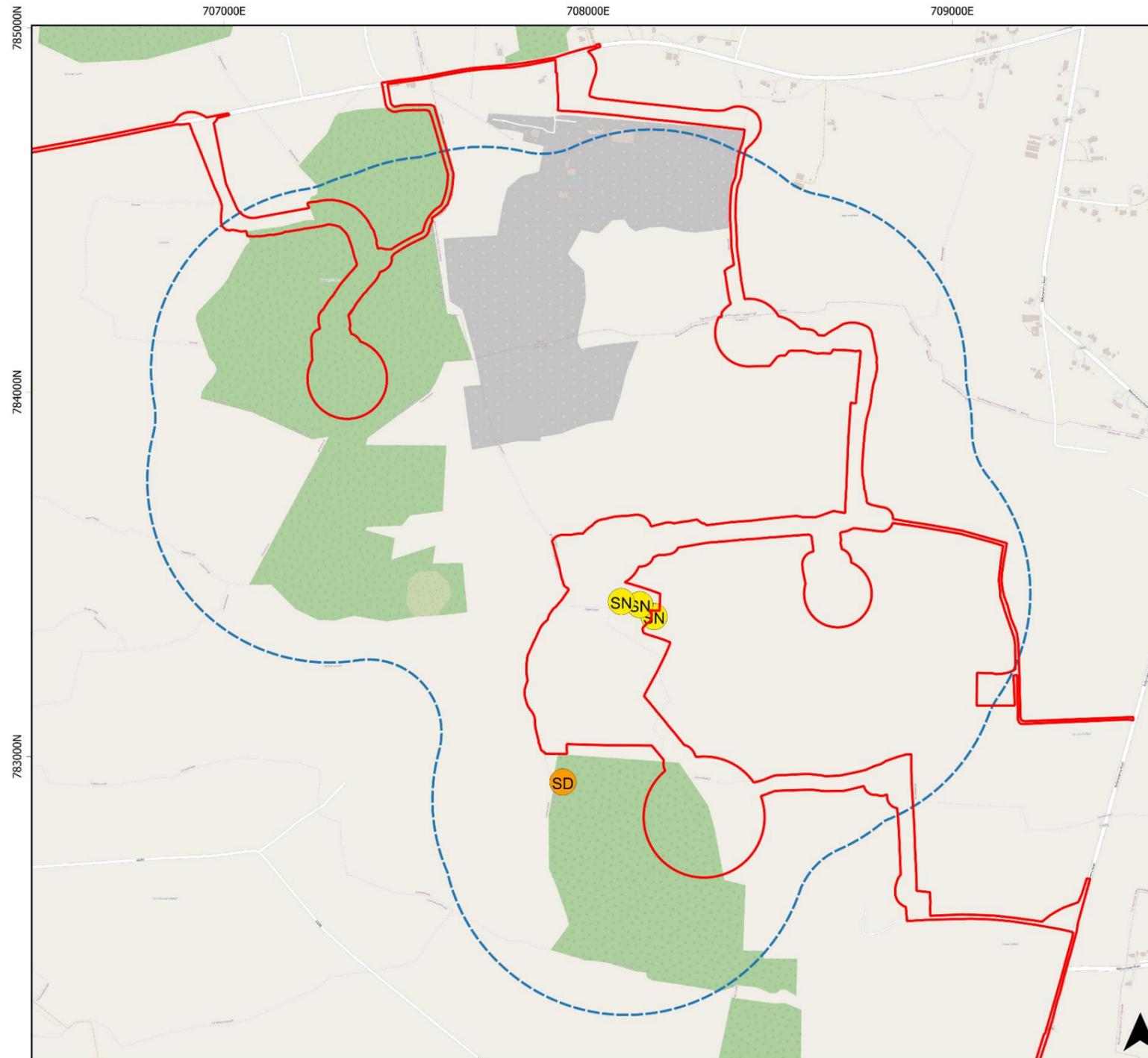


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**Figure 8.2.19. Breeding Bird Territories**

### 3.3 Breeding Raptor Surveys

#### *Target Species*

Two target raptor species were recorded during the breeding raptor surveys. Of these, only a single species was confirmed to have bred within the Breeding Raptor Survey Area. Details of this species are provided within the Confidential Annex.

Kestrel was recorded during Breeding Raptor Surveys, with a single individual recorded during one survey visit. However, there was no behaviour indicative of breeding, and therefore this species was not considered to have bred within the Survey Area.

#### *Secondary Species*

Buzzard was the only secondary species observed during the Breeding Raptor Surveys, with at least one likely territory within the Site. A single, confirmed, long-eared owl territory was recorded during a dusk BBS visit, with begging chicks heard.

### 3.4 Winter Walkover Surveys

A total of three red-listed, and two amber-listed, non-passerine species were recorded within the Winter Walkover Survey Area during the WWS. Snipe was the most frequently recorded red-listed species, with records during four survey visits. Common gull was the most frequently recorded amber-listed species, with a total of 14 records across three visits. Records of all non-passerine species of conservation concern are presented within Table 4, and are shown on Figure 8.2.20. All records are presented, including birds in flights, as well as those foraging or loading within the Survey Area.

### 3.5 Wintering Waterbird Surveys

**A Single Annex I species (little egret) was recorded during the 2022/23 Wintering Waterbird Surveys, with one individual recorded during Visit 1. A single red-listed species, curlew, was also recorded, with 13 individuals foraging to the east of the Site. Six amber listed species were recorded during the surveys; mute swan (n=6), mallard (n=3), teal (n=25), black-headed gull (n=296), common gull (n=872) and herring gull (n=54). Records**

of all target species are presented in Table 5 and are shown on

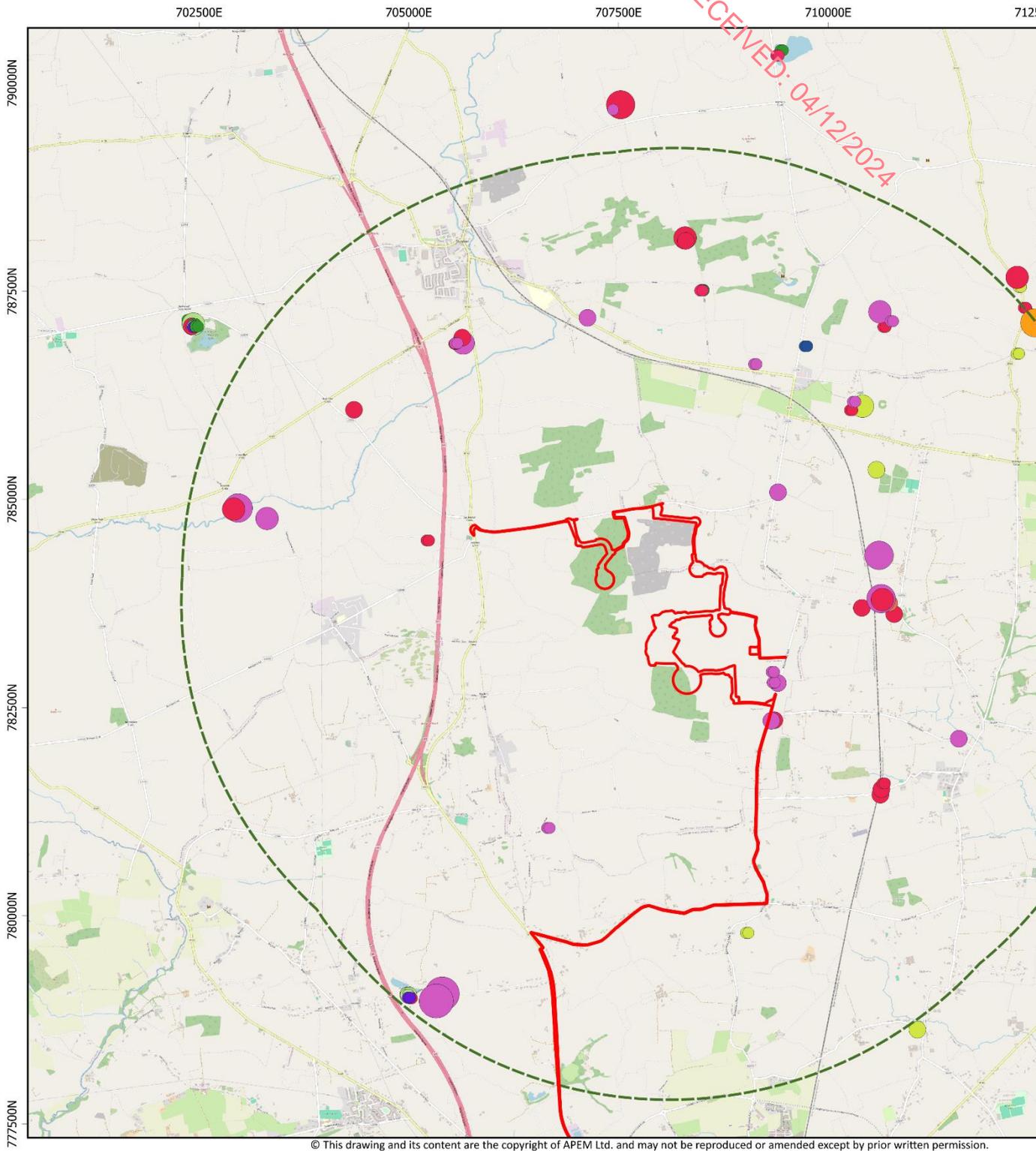


Figure 8.2.21. All records are presented, including birds in flights, as well as those foraging or loading within the Survey Area.

Whooper swan (red-listed and Annex 1) and shoveler (red-listed) were recorded incidentally, outside of the Wintering Waterbird Survey Area. Further mute swan, little grebe, mallard, teal and black-headed gull were also recorded incidentally beyond the Survey Area.

### 3.6 Hen Harrier Roost Surveys

No hen harrier roosts, or individual birds, were recorded during Hen Harrier Roost Surveys.

**Table 4. Summary of Target Species Recorded During Year 2 Winter Walkover Surveys**

Species	Conservation status*	Counts During Visit			Total Count	Description
		1	2	3		
Stock dove	Red	0	0	2	2	Two individual stock doves were recorded in the south-east of the Survey Area.
Woodcock	Red	0	0	1	1	A single woodcock was flushed from the centre of the Survey Area during visit 3.
Snipe	Red, SPA	1	2	3	6	Snipe were more frequently recorded in the east of the Survey Area, with small numbers of individuals flushed during visits 1,2 and 3.
Black-headed gull	Amber, SPA	0	4	0	4	Black-headed gull was only recorded during visit 2, with both records of birds in flight. Two individuals were recorded in the east of the Survey Area, with two further individuals recorded in the south-east of the Survey Area.
Common gull	Amber, SPA	0	6	8	14	All common gull records were of small flocks of birds in flight in the south-east of the Survey Area.

\* Annex I: listed on Annex I of the Bird's Directive, Red/Amber/Green: Birds of Conservation Concern in Ireland Classification. SPA: species is a designated feature of a nearby SPA and has potential connectivity to the Site.

**Table 5. Summary of Target Species Recorded During Year 2 Wintering Waterbird Surveys**

Species	Conservation status*	Peak Count	Peak Count Month	Total Count	Description
Mute swan	Amber, SPA	2	Nov, Dec 22, Jan 23	6	Two mute swans were recorded during three consecutive months, swimming on a pond in the north of the Survey Area.
Mallard	Amber, SPA	2	Feb 23	3	Mallard was recorded on two occasions (Dec 22, Feb 23), in the same location, swimming on a pond in the north of the Survey Area, outside the Site.
Teal	Amber, SPA	18	Dec 22	25	Teal were recorded on three consecutive months, in the same locations, on a pond in the south west of the Survey Area, outside the Site.
Little grebe	Green, SPA	2	Nov 22	3	Little grebe were recorded on Barnattin Reservoir, in the south west of the Survey Area, during November, December and February

Lapwing	Red, SPA	70	Jan 23	108	Seventy lapwing were recorded flying to the east of the Site. A further 38 were recorded foraging east of the Site. Both records were outwith the Survey Area.
Curlew	Red, SPA	13	Dec 22	13	Thirteen curlew were recorded foraging in the east of the Survey Area, outside of the Site.
Black-headed gull	Amber, SPA	50	Mar 23	296	Black-headed gull were recorded during all survey months. Distribution was spread across the Survey Area, however there were no records within the Site, with the nearest record over 1 km from the closest turbine. Flocks of larger than 10 individuals were recorded on 11 occasions.
Common gull	Amber, SPA	200	Mar 23	872	Common gull were recorded during all survey months after October 2022. Distribution was spread across the Survey Area, however there were no records within the Site. Large aggregations were recorded between November and March.
Herring gull	Amber, SPA	35	Oct 22	54	Herring gull were recorded on four separate occasions, all outside of the Site. The largest aggregations were to the north-east of the Survey Area, with 35 individuals recorded loafing and 14 foraging both during the October visit.
Little egret	Green, Ann1, SPA	1	Oct 22	1	A single little egret was recorded loafing in a field in the north of the Survey Area, outside of the Site.
*Annex I: listed on Annex I of the Bird's Directive, Red/Amber/Green: Birds of Conservation Concern in Ireland Classification, SPA: species is a designated feature of a nearby SPA and has potential connectivity to the Site.					

**Kellystown Wind Farm**  
P0013336

**Winter Walkover Survey Results**

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**Legend**

- Proposed Development Site Boundary
- Winter Walkover Survey Area - 500m Viable Area Buffer
- BH Black-headed gull
- CM Common Gull
- SD Stock Dove
- SN Snipe
- WK Woodcock

Note:  
Records of birds in flight have been excluded from this figure.

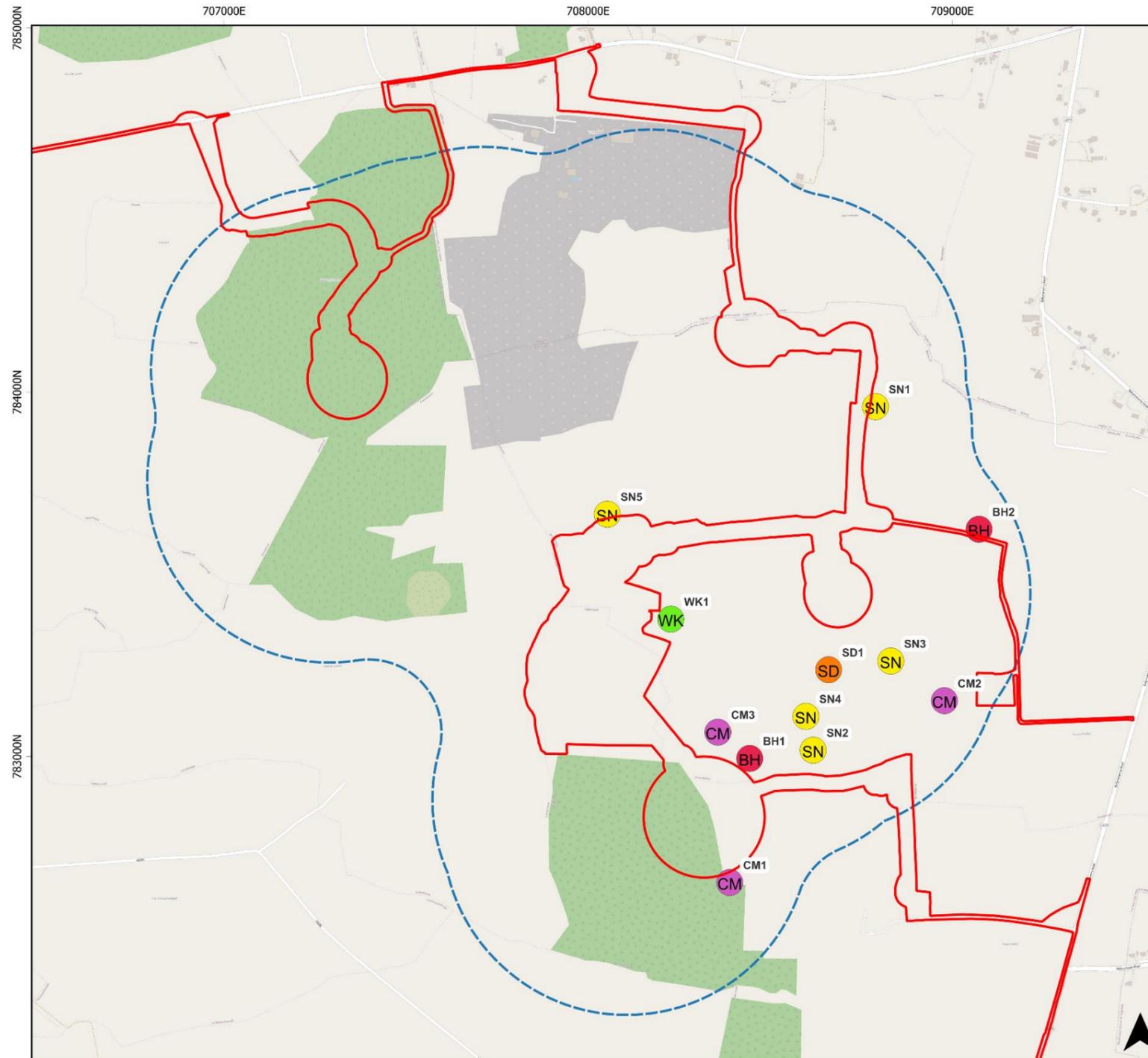


Scale: 1: 15000      Date: 08/11/2024      Drawn by: GW

Coordinate System:  
IRENET95 / Irish Transverse  
Mercator



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**Figure 8.2.20. Winter Walkover Survey Results**

Wintering Waterbird Survey Results

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Legend

- Proposed Development Site Boundary
- Wintering Waterbird Survey Area
- Black-headed gull
- Common gull
- Curlew
- Little Egret
- Herring gull
- Lapwing
- Little Grebe
- Mallard
- Mute Swan
- Teal

Abundance of Target Species

- 1 - 10
- 11 - 25
- 26 - 50
- 51 - 100
- 101 - 200

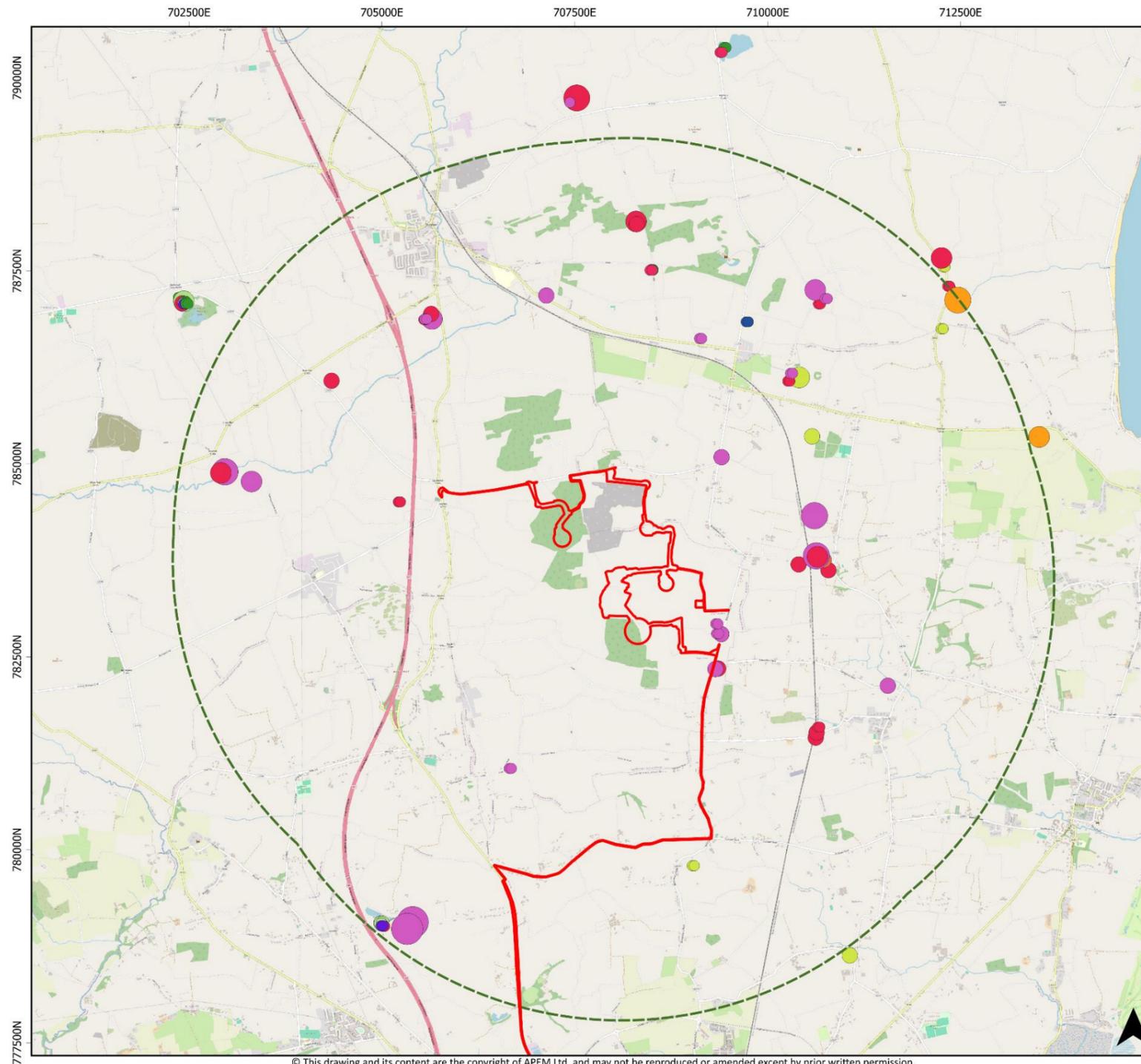


Scale: 1: 68000      Date: 07/11/2024      Drawn by: GW

Coordinate System:  
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Figure 8.2.21. Wintering Waterbird Survey Results

## 4. Summary of Key Findings

A total of 442 flights were recorded during 2022/23 Vantage Point Surveys, the majority of which were of buzzard, with 2254 flights recorded. The next most frequent species recorded were common gull, sparrowhawk and peregrine, each of which was recorded on between 30-45 occasions. Black-headed gull, herring gull, lesser black-backed gull, grey heron and kestrel were each recorded with greater than 10 flights.

Two target species were recorded breeding within the Survey Area during the BBS, with three snipe territories and a single stock dove territory identified.

A single Annex I raptor species was recorded breeding within the Site and is discussed further in the Confidential Annex. Kestrel was recorded during Breeding Raptor Surveys however was not considered to breed within the Survey Area. Territories for buzzard and long-eared owl (secondary species) were also identified.

Five target species were recorded during Winter Walkover Surveys. Snipe was the most frequently recorded red-listed species with records during visits 2-4. Red-listed woodcock and stock dove were also recorded during surveys. Amber-listed species recorded were black-headed gull and common gull.

Eight target species were recorded during the Wintering Waterbird Surveys. Little egret (Annex I) and curlew (red-listed) were recorded along with six amber-listed species; mute swan, mallard, teal, black-headed gull, common gull and herring gull.

## Reference List

Bibby, C., Burgess, N.D., Hill, D., & Mustoe, S. (2000) *Bird Census Techniques – Second Edition*. Academic Press, London, England

Brown, A. F. and Shepherd, K. B. (1993) *A method for censusing upland breeding waders*. *Bird Study*, 40, pp. 189-195.

Clarke, R. and Watson, D., 1990. The Hen Harrier *Circus cyaneus* winter roost survey in Britain and Ireland. *Bird Study*, 37(2), pp.84-100.

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

Gilbert, G., Stanbury, A. & Lewis, L. (2021) *Birds of Conservation Concern in Ireland 2020-2026*. *Irish Birds* 9: 523-544.

O'Brien, M.G. & Smith, K.W. (1992). *Changes in the status of waders breeding on wet lowland grasslands in England and Wales between 1982 and 1989*. *Bird Study* 89: 165-176

Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013). *Raptors: a field guide to survey and monitoring, 3rd edition*. The Stationery Office, Edinburgh.

Irish Rare Birds Committee (IRBC). The Irish List (2019) Available at: <http://www.irbc.ie/topbar/categories.php> (Accessed 11/03/24)

SNH (2016) *Assessing Connectivity with Special Protection Areas (SPAs)*. Version 3.

SNH (2017). *Recommended bird survey methods to inform impact assessment of onshore wind farms*, Version 2.

Appendix 1 Species List

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Species Name	BTO Code	Scientific Name	Conservation Status/Legal Protection
Mallard	MA	<i>Anas platyrhynchos</i>	Amber
Swift	SI	<i>Apus apus</i>	Red
Stock Dove	SD	<i>Columba oenas</i>	Red
Collared Dove	CD	<i>Streptopelia decaocto</i>	Green
Little Grebe	LG	<i>Tachybaptus ruficollis</i>	Green
Lapwing	L.	<i>Vanellus vanellus</i>	Red
Golden Plover	GP	<i>Pluvialis apricaria</i>	Red; Ann1;
Woodcock	WK	<i>Scolopax rusticola</i>	Red
Snipe	SN	<i>Gallinago gallinago</i>	Red
Black-headed Gull	BH	<i>Chroicocephalus ridibundus</i>	Amber
Common Gull	CM	<i>Larus canus</i>	Amber
Great Black-backed Gull	GB	<i>Larus marinus</i>	Green
Herring Gull	HG	<i>Larus argentatus</i>	Amber
Lesser Black-backed Gull	LB	<i>Larus fuscus</i>	Amber
Cormorant	CA	<i>Phalacrocorax carbo</i>	Amber
Grey Heron	H.	<i>Ardea cinerea</i>	Green
Little Egret	ET	<i>Egretta garzetta</i>	Green; Ann1
Sparrowhawk	SH	<i>Accipiter nisus</i>	Green
Buzzard	BZ	<i>Buteo buteo</i>	Green
Long-eared Owl	LE	<i>Asio otus</i>	Green
Kestrel	K.	<i>Falco tinnunculus</i>	Red
Peregrine	PE	<i>Falco peregrinus</i>	Green; Ann1
Mallard	MA	<i>Anas platyrhynchos</i>	Amber
Swift	SI	<i>Apus apus</i>	Red
Stock Dove	SD	<i>Columba oenas</i>	Red
Collared Dove	CD	<i>Streptopelia decaocto</i>	Green
Little Grebe	LG	<i>Tachybaptus ruficollis</i>	Green
Lapwing	L.	<i>Vanellus vanellus</i>	Red
Golden Plover	GP	<i>Pluvialis apricaria</i>	Red; Ann1;
Woodcock	WK	<i>Scolopax rusticola</i>	Red
Snipe	SN	<i>Gallinago gallinago</i>	Red
Black-headed Gull	BH	<i>Chroicocephalus ridibundus</i>	Amber
Common Gull	CM	<i>Larus canus</i>	Amber
Great Black-backed Gull	GB	<i>Larus marinus</i>	Green
Herring Gull	HG	<i>Larus argentatus</i>	Amber
Lesser Black-backed Gull	LB	<i>Larus fuscus</i>	Amber
Cormorant	CA	<i>Phalacrocorax carbo</i>	Amber

Grey Heron	H.	<i>Ardea cinerea</i>	Green
Little Egret	ET	<i>Egretta garzetta</i>	Green; Ann1
Sparrowhawk	SH	<i>Accipiter nisus</i>	Green
Buzzard	BZ	<i>Buteo buteo</i>	Green
Long-eared Owl	LE	<i>Asio otus</i>	Green
Kingfisher	KF	<i>Alcedo atthis</i>	Amber; Ann1
Kestrel	K.	<i>Falco tinnunculus</i>	Red
Peregrine	PE	<i>Falco peregrinus</i>	Green; Ann1
* Annex I: listed on Annex I of the Bird's Directive, Red/Amber/Green: Birds of Conservation Concern in Ireland Classification			

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Appendix 2 Weather Data

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Table 6. Survey times and weather conditions during VPS

Survey	Date	Time	Temperature (Celsius)	Wind (Beaufort scale and direction)	Visibility	Precipitation	Cloud Cover (oktas)
VP 1							
1	21/09/2022	10:00-13:00	15-17	BF2-3 SW	Good	None	2-3
2	06/10/2022	09:45-12:45	13-15	BF3-4 SW	Mod-Good	Light showers	6-8
3	11/10/2022	13:45-16:45	13	BF1-2 SW	Good	None	5-7
4	14/10/2022	13:15-16:15	13	BF2-3 SW	Good	None	3-5
5	09/11/2022	09:00-12:00	9-11	BF1-3 SW	Good	None	1-2
6	14/11/2022	09:00-12:00	10-11	BF0-1 S-SW	Good	None	6-8
7	05/12/2022	09:30-12:30	7-8	BF4 NE	Good	Showers	5-8
8	13/12/2022	09:30-12:30	-3-0	BF0 NW	Good	None	3-5
9	06/01/2023	09:15-12:15	6-7	BF1-2 SW	Good	None	5-7
10	17/01/2023	09:15-12:15	-2-2	BF1-2 W	Good	None	2-3
11	15/02/2023	11:00-14:00	9-10	BF2-3 SW	Good	None	5-7
12	15/02/2023	14:30-17:30	9-10	BF1-2 SW	Good	None	8
13	21/03/2023	14:00-17:00	10	BF3-4 S	Good	Light and heavy rain	8
14	10/04/2023	12:15-15:15	8-9	BF2-3 SW	Good	Showers	5-7
15	11/04/2023	11:00-14:00	8	BF1-3 SE	Good	Light rain to heavy showers	8
16	02/05/2023	13:15-16:15	13-14	BF2 E	Good	None	5-8
17	12/05/2023	10:00-13:00	13-15	BF2 NE	Good	None	3-5
18	07/06/2023	08:45-11:45	14-15	BF3-4 E-NE	Good	None	8



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Survey	Date	Time	Temperature (Celsius)	Wind (Beaufort scale and direction)	Visibility	Precipitation	Cloud Cover (oktas)
19	12/06/2023	12:45-15:45	20	BF0-1 E	Good	Light and heavy showers	6-8
20	03/07/2023	14:00-17:00	12-16	BF4-5 W	Poor-Good	Showers, one heavy	4-8
21	14/07/2023	08:30-11:30	13-14	BF4-5 SE	Good-Poor	Light to heavy rain	4-5
22	09/08/2023	13:00-16:00	20-21	BF1 SW	Good	None	8
23	22/08/2023	16:45-19:45	17-18	BF3 SW	Good	None	6-7
24	05/09/2023	14:00-17:00	21	BF4 NE	Good	None	2-4
<b>VP 2</b>							
1	23/09/2022	09:30-12:30	12-15	BF2-3 NW	Good	None	2-5
2	11/10/2022	10:15-13:15	10-12	BF1 SW	Good	None	5-7
3	13/10/2022	14:15-17:15	13	BF1-2 SW	Good	Light showers	5-7
4	11/11/2022	09:00-12:00	15	BF5 SW	Good	None	6-8
5	14/11/2022	12:30-15:30	11	BF1 SW-SE	Good	None	4-5
6	25/11/2022	12:00-15:00	10	BF3-4 SW	Good	Light shower	3-6
7	05/12/2022	13:00-16:00	7-8	BF4 NE	Good	Showers	6-8
8	07/12/2022	09:30-12:30	2-4	BF1 NW	Good	None	1-5
9	06/01/2023	12:45-15:45	7-8	BF2 SW	Good	None	7-8
10	09/01/2023	13:00-16:00	7	BF5 SW-W	Good	Light showers	3-6
11	08/02/2023	13:30-16:30	9	BF3 SW	Good	None	8
12	10/02/2023	10:30-13:30	9	BF1-2 SW	Mod-Good	Drizzle	8
13	21/03/2023	09:30-12:30	10-11	BF3 SW	Good	Light rain	5-8
14	06/04/2023	12:30-15:30	9-10	BF2-3 NW	Good	None	3-5
15	13/04/2023	12:15-15:15	8-9	BF3-5 W	Good	Light shower	4-6
16	16/05/2023	13:45-16:45	15	BF3 NW	Good	None	5-6



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Survey	Date	Time	Temperature (Celsius)	Wind (Beaufort scale and direction)	Visibility	Precipitation	Cloud Cover (oktas)
17	23/05/2023	11:45-14:45	15	BF3 NW	Mod-Good	None	6
18	06/06/2023	09:15-12:15	17-18	BF2-3 SE	Good	None	3-7
19	07/06/2023	12:15-15:15	14-15	BF3 NE	Good	None	6-8
20	03/07/2023	10:30-13:30	13-14	BF3-4 W	Good	None	4-6
21	21/07/2023	13:45-16:45	16	BF2 W	Good	Light showers	7-8
22	08/08/2023	10:15-13:15	15-16	BF1 NW	Good	None	7-8
23	09/08/2023	09:30-12:30	18-19	BF1 SW	Good	None	7-8
24	04/09/2023	09:30-12:30	15-18	BF1 NE	Good	None	1-3
<b>VP 3</b>							
1	21/09/2022	13:30-16:30	17-18	BF2-3 SW	Good	None	6-8
2	06/10/2022	13:15-16:15	14-15	BF3-5 SW	Mod-Good	Light rain	6-8
3	10/10/2022	13:15-16:15	12	BF3-4 NW	Good	None	2-5
4	09/11/2022	12:30-15:30	11-12	BF3-5 SW	Good	Short period of drizzle	4-7
5	11/11/2022	12:30-15:30	15-16	BF5 SW	Good	None	8
6	07/12/2022	13:00-16:00	3-4	BF1 NW	Good	None	5-7
7	09/12/2022	13:30-16:30	1-2	BF1 W	Good	None	1
8	09/01/2023	09:30-12:30	6-7	BF3-5 SW	Good	None	3
9	16/01/2023	12:15-15:15	3	BF1 W	Good	None	2-5
10	07/02/2023	13:00-16:00	8	BF0-1 SW	Good	None	6-8
11	10/02/2023	14:00-17:00	10	BF3-4 SW	Good	None	8
12	02/03/2023	13:45-16:45	7	BF1-2 NE	Good	Light shower	4-8
13	22/03/2023	14:45-17:45	8-10	BF2-4 SW/S	Good	Showers	6-8
14	07/04/2023	12:30-15:30	11-13	BF2-3 SE	Good	None	4-5



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Survey	Date	Time	Temperature (Celsius)	Wind (Beaufort scale and direction)	Visibility	Precipitation	Cloud Cover (oktas)
15	13/04/2023	08:45-11:45	5-8	BF4 W	Good	None	3-4
16	16/05/2023	10:15-13:15	14	BF3-4 NW	Good	None	6-7
17	23/05/2023	15:15-18:15	17	BF3 NW	Good	None	6-7
18	06/06/2023	12:45-15:45	18	BF3 SE/E	Good	None	8
19	13/06/2023	12:45-15:45	21	BF2 E	Good	None	2-3
20	27/07/2023	10:15-13:15	17-18	BF3 W	Good	Drizzle	7-8
21	27/07/2023	13:45-16:45	18-19	BF3 SW	Good	None	5-7
22	08/08/2023	13:45-16:45	18	BF1 NWW	Good	None	4-6
23	10/08/2023	09:00-12:00	17-19	BF2-3 SE	Mod-Good	None	5-8
24	04/09/2023	13:00-16:00	18-19	BF1-2 E	Good	None	1
<b>VP 4</b>							
1	18/09/2022	09:00-12:00	10-14	BF0-2 NW	Good	None	2-3
2	16/10/2022	08:15-11:15	6-8	BF1-3 SW	Good	None	1-4
3	23/10/2022	12:45-15:45	13	BF3 SE	Mod-Good	None	5-8
4	06/11/2022	07:30-10:30	9-10	BF1-3 S	Good	None	1-4
5	06/11/2022	10:45-13:45	10-12	BF2-3 S	Good	None	3-5
6	11/12/2022	09:45-12:45	-1-0	BF0 NW	Good	None	1-3
7	13/12/2022	13:00-16:00	-2-0	BF0 NW	Good	None	4
8	08/01/2023	08:00-11:00	4-5	BF1-3 SW	Good	None	4-8
9	15/01/2023	08:15-11:15	3-4	BF2 W	Good	None	3-7
10	05/02/2023	08:00-11:00	0-5	BF0-1 SW	Good	None	1-2
11	12/02/2023	08:30-11:30	7-9	BF0-1 SE	Good	None	7-8
12	05/03/2023	08:30-11:30	4-7	BF0-2 W	Good	None	3-5



Survey	Date	Time	Temperature (Celsius)	Wind (Beaufort scale and direction)	Visibility	Precipitation	Cloud Cover (oktas)
13	19/03/2023	07:30-10:30	3-6	BF1 SW	Good	None	3-7
14	02/04/2023	08:00-11:00	6-10	BF1 NW-NE	Good	None	6-7
15	16/04/2023	08:15-11:15	11-13	BF1 SW	Mod-Good	Drizzle	8
16	14/05/2023	07:45-10:45	10	BF2-4 S-SW	Mod-Good	Drizzle, heavy shower	8
17	28/05/2023	07:15-10:15	10-12	BF2-4 NE	Good	None	3-5
18	18/06/2023	07:00-10:00	16-19	BF1 S-SE	Poor-Good	None	8
19	25/06/2023	10:00-13:00	16-18	BF2 SW	Good	First half hour	5-8
20	09/07/2023	07:45-10:45	14-18	BF2-3 ESE	Good	Heavy shower	4-8
21	16/07/2023	07:45-10:45	13-14	BF4 SW	Good	None	3-7
22	16/07/2023	07:45-10:45	13-14	BF4 SW	Good	None	3-7
23	20/08/2023	08:15-11:15	15-18	BF4 SW	Good	None	3-6
24	27/08/2023	10:00-13:00	13	BF2 SW	Good	Light showers	7-8
25	10/09/2023	08:45-11:45	18-20	BF0-1 NE	Poor-Mod	None	-

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**Table 7. Survey times and weather conditions during Breeding Bird Surveys**

Survey	Date	Time	Temperature (Celsius)	Wind (Beaufort scale and direction)	Precipitation	Cloud Cover (oktas)
1	06/04/2023	08:45-11:45	8	BF2 NW	Dry	4
	07/04/2023	09:00-12:00	10	BF1 SE	Dry	4
	10/04/2023	08:45-11:45	8	BF2 SW	Showers	7
	11/04/2023	07:30-10:30	7	BF1 SE	Dry	8
2	24/05/2023	12:15-18:15	14	BF2 -	Dry	8
	25/05/2023	10:00-15:15	13	BF2 N	Dry	1
3	12/06/2023	09:15-12:15	20	BF0 -	Showers	8
	13/06/2023	09:00-12:00	21	BF2 E	Dry	6
	14/06/2023	09:00-12:00	18	BF2 E	Dry	1
	15/06/2023	08:45-11:45	19	BF1 E	Dry	3

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**Table 8. Survey times and weather conditions during Crepuscular/Dusk Surveys**

Date	Time	Temperature (Celsius)	Wind (Beaufort scale and direction)	Precipitation	Cloud Cover (oktas)
02/03/2023	17:15-18:45	5	BF1 NE	Light shower	8
15/03/2023	17:45-19:15	7	BF1 SE	Light rain	8
22/03/2023	18:15-19:45	7-8	BF3 SW	Showers	8
23/03/2023	18:15-19:45	7-8	BF3-4 S	Showers	4-8
17/04/2023	20:00-21:30	9-10	BF1 E	Dry	8
20/04/2023	20:00-21:30	8-9	BF1 NE	Dry	1
02/05/2023	20:00-21:30	9	BF1 SE	Dry	8
23/05/2023	21:00-22:30	11	BF0-1 NW	Dry	3
22/06/2023	21:30-23:00	15-16	BF1 SE	Dry	7
29/06/2023	21:30-23:00	15-16	BF1 SW	Dry	8
04/07/2023	21:30-23:00	12-13	BF2 NW	Light drizzle	8
25/07/2023	20:45-22:45	15-14	BF1 SW	Dry	6
26/07/2023	20:45-22:45	15-16	BF1 SSW	Some drizzle	8
21/08/2023	20:15-21:45	16-17	BF1-2 SW	Heavy shower	5-7
22/08/2023	20:15-21:45	16-15	BF2 SW	Dry	7

**Table 9. Survey times and weather conditions during Breeding Raptor Surveys**

Survey	Date	Time	Temperature (Celsius)	Wind (Beaufort scale and direction)	Precipitation	Cloud Cover (oktas)
1	19/03/2023	11:00-14:00	6-9	BF1-2 SW	Dry	8
	26/03/2023	09:00-12:00	6-7	BF2 NE	Dry	8
2	02/04/2023	11:30-14:30	10	BF1 NE	Dry	5
	09/04/2023	11:15-14:15	10-11	BF3-4 SSE	Dry	8
3	14/05/2023	11:15-14:15	11-12	BF4 NW	Some rain	-
	28/05/2023	10:45-13:45	12-15	BF4 NE	Dry	4
4	11/06/2023	10:30-13:30	20-21	BF1 E	Dry	6
	18/06/2023	10:30-13:30	18-19	BF2 SE	Dry	6
5	09/07/2023	11:15-14:15	17-20	BF3 SSE	Heavy rain from 13:00	5-8
	16/07/2023	11:15-14:15	14-17	BF2 SW	One heavy shower	6
6	20/08/2023	11:45-14:45	19-20	BF3-4 SW	Dry	3-5
	27/08/2023	13:30-16:30	13-15	BF2 SW	Light showers	7-8

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**Table 10. Survey times and weather conditions during Winter Walkover Surveys**

Survey	Date	Time	Temperature (Celsius)	Wind (Beaufort scale and direction)	Precipitation	Cloud Cover (oktas)
1	13/10/2022	09:35-12:35	10	BF1 SW	Dry	4
	14/10/2022	08:45-11:45	12	BF1 SW	Dry	3
2	09/12/2022	10:03-13:00	2	BF1 NW	Dry	1
	21/12/2022	12:00-15:08	7	BF- SW	Dry	3
3	08/02/2023	09:45-12:45	8	BF7 SW	Dry	-
	13/02/2023	13:30-16:30	9	BF1 SE	Dry	4

**Table 11. Survey times and weather conditions during waterbird surveys**

Date	Time	Temperature (Celsius)	Wind (Beaufort scale and direction)	Precipitation	Cloud Cover (oktas)
23/10/2022	09:13-11:31	14	BF2 SE	Frequent heavy showers	7
27/11/2022	11:08-14:10	9	BF3 S	Dry	5
28/11/2022	12:00-15:09	7	BF1 NW	Dry	5
19/12/2022	10:00-13:09	12	BF5 SW	Occasional light showers	8
20/12/2022	12:00-15:14	8	BF5 SW	Dry	5
15/01/2023	11:45-14:45	5	BF2 W	Dry	4
17/01/2023	12:45-15:45	3	BF2 W	Dry	2
05/02/2023	11:30-14:30	6	BF1 SW	Dry	3
17/02/2023	10:30-13:30	10	BF7 SW	Dry	
06/03/2023	10:15-13:15	6	BF1 NW	Frequent light showers	8
13/03/2023	13:34-16:45	8	BF2 NW	Occasional moderate showers	7

Table 12. Survey times and weather conditions during Hen Harrier Roost Surveys

Survey	Date	Time	Temperature (Celsius)	Wind (Beaufort scale and direction)	Precipitation	Hen Harriers Seen
1	18/10/2022	17:00-19:00	12	BF4 E	Dry	None
2	19/10/2022	07:15-09:15	10	BF6 E	Yes	None
3	31/10/2022	06:45-08:45	12-13	BF 2 SE	Dry	None
4	25/11/2022	15:30-17:00	8-9	BF2 SW	Dry	None
5	28/11/2022	15:30-17:01	7	BF1 NW	Dry	None
6	20/12/2022	15:30-17:02	7	BF4 S	Dry	None
7	21/12/2022	15:30-17:03	6	BF3 SW	Dry	None
8	06/01/2023	07:30-09:00	6	BF1 SW	Dry	None
9	16/01/2023	15:45-17:15	2	BF1 W	Dry	None

Appendix 3 Details of Target Species flight lines recorded during Vantage Point Surveys

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Table 13. Details of non-confidential target species flight lines recorded during FAS

Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
Mallard	3.1.9.3	06/01/2023	1	3	10:45	87	80	80			
	3.4.8.1	08/01/2023	4	2	08:15	18	60	60			Direct flight. Lost behind trees
	3.4.11.1	12/02/2023	4	3	08:50	6	10	10			Direct flight. Lost behind hill/scrub
	3.4.11.2	12/02/2023	4	2	09:00	30	10	5-10			Lost behind scrub
	4.1.2.1	10/04/2023	1	1	12:25	5	5	5			Direct flight. Lost behind hill
	4.4.4.5	14/05/2023	4	3	09:05	30	50	50			Direct flight
	4.1.9.3	14/07/2023	1	4	11:05	10	20	15-20			Direct flight. Lost into scrub/trees
Swift	4.3.4.1	16/05/2023	3	2	10:16	15	30	30		Ad	Flying East
	4.3.4.14	16/05/2023	3	1	12:58	40	20	20			Flying over gorse slopes
	4.2.4.10	16/05/2023	2	1	15:32	50	20	20			
	4.3.5.8	23/05/2023	3	1	16:58	100	20	20			Moving west
Lapwing	3.1.8.2	13/12/2022	1	13	09:55	18	30	30			Lost over hill
	3.1.8.11	13/12/2022	1	1	11:55	38	50	50			
	3.4.7.2	13/12/2022	4	1	14:00	17	20	15-20			Lost behind scrub
Golden plover	3.2.2.2	11/10/2022	2	6	11:10	58	40	0-40			
	3.2.2.3	11/10/2022	2	23	11:15	45	50	50			
	3.2.2.7	11/10/2022	2	11	11:55	170	50	2-50			Flew east to join larger flock
	3.2.2.8	11/10/2022	2	80	11:55	60	60	50-60			
Black-headed gull	3.2.1.3	23/09/2022	2	4	10:15	10	50	40-50			Lost behind copse
	3.4.4.3	06/11/2022	4	17	08:30	55	40	30-40			
	3.3.5.1	11/11/2022	3	30	12:35	60	25	15-25			



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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	3.3.5.3	11/11/2022	3	120	13:45	180	40	25-40			
	3.3.6.2	07/12/2022	3	8	14:10	16	50	50			Lost behind trees
	3.1.8.1	13/12/2022	1	2	09:45	9	10	5-10			Lost over hill
	3.1.8.10	13/12/2022	1	3	11:40	45	40	40			
	3.4.7.4	13/12/2022	4	2	14:40	20	30	20-30			Lost over hill
	3.3.8.2	09/01/2023	3	3	09:35	60	30	0-30			Flew from field. Dipped below trees
	3.1.10.3	17/01/2023	1	3	11:50	60	40	30-40			Direct flight
Common gull	3.2.2.6	11/10/2022	2	7	11:50	50	10	8-10			
	3.2.3.1	13/10/2022	2	15	14:15	60	20	5-20			
	3.4.2.3	16/10/2022	4	9	10:15	25	60	50-60			Lost over hill
	3.4.4.1	06/11/2022	4	5	07:45	15	40	40			
	3.1.5.5	09/11/2022	1	5	10:00	41	60	50-60			
	3.3.4.1	09/11/2022	3	12	12:30	60	5	0-5			In harvested potato field.
	3.2.4.3	11/11/2022	2	10	09:55	60	30	15-30			
	3.3.5.8	11/11/2022	3	2	14:30	56	80	40-80			
	3.1.6.4	14/11/2022	1	8	11:50	41	40	30-40			
	3.2.6.2	25/11/2022	2	20	12:05	60	15	0-15			
	3.1.8.3	13/12/2022	1	9	10:00	63	40	40			Lost over quarry
	3.1.8.5	13/12/2022	1	4	10:20	21	40	30-40			Lost over gorse/hill
	3.1.8.7	13/12/2022	1	3	11:00	34	50	50			Lost over hill
	3.4.7.3	13/12/2022	4	5	14:10	40	30	20-30			Lost behind scrub/trees
	3.4.7.6	13/12/2022	4	4	15:50	18	80	80			Lost behind trees
	3.1.9.2	06/01/2023	1	42	10:30	10	20	0-20			Landed in field
	3.1.9.4	06/01/2023	1	15	10:50	60	60	50-60			
	3.2.9.1	06/01/2023	2	3	12:50	60	10	0-10			Foraging in harvested potato field



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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	3.2.9.3	06/01/2023	2	2	14:30	60	40	40			
	3.4.8.4	08/01/2023	4	12	09:40	38	50	30-50			Direct flight
	3.4.8.5	08/01/2023	4	3	10:00	20	50	50			Direct flight
	3.3.8.1	09/01/2023	3	20	09:35	60	30	0-30			Flew from field. Dipped below trees
	3.2.10.2	09/01/2023	2	5	13:05	60	10	0-10			Foraging.
	3.2.10.3	09/01/2023	2	7	13:05	60	10	0-10			
	3.2.10.4	09/01/2023	2	4	15:10	30	40	30-40			Lost behind trees/houses
	3.4.9.6	15/01/2023	4	2	10:50	25	30	20-30			
	3.3.9.1	16/01/2023	3	6	12:15	60	10	0-10			Foraging in harvested potato field
	3.2.12.5	10/02/2023	2	45	13:20	60	30	0-30			
	4.3.1.1	22/03/2023	3	51	14:55	60	50	40-50			
	4.4.2.2	02/04/2023	4	21	09:00	60	50	40-50			
	4.3.3.1	13/04/2023	3	4	09:15	60	50	50			
	4.4.4.1	14/05/2023	4	1	08:00	80	50	40-50			Direct flight, Sub-adult
	4.4.4.3	14/05/2023	4	5	08:20	60	60	40-60			Direct flight
	4.4.4.4	14/05/2023	4	7	08:50	60	50	40-50			Direct flight, Sub-adult
	4.4.5.1	28/05/2023	4	3	07:25	65	50	40-50			Direct flight
	4.1.8.3	03/07/2023	1	2	16:05	60	30	20-30		Ad	
	4.4.10.2	20/08/2023	4	4	09:10	60	50	20-50		Sub-ad + Ad	Circling. Sub-adult and adults
	4.4.11.1	27/08/2023	4	1	10:35	47	40	40		Sub-ad	Direct flight
	4.4.12.1	10/09/2023	4	6	09:20	45	40	40		Ad + Sub-ad	Direct flight



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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
Great black-backed gull	4.3.4.10	16/05/2023	3	1	12:21	185	80	30-80-30			Circling and moving west
Herring gull	3.1.2.5	06/10/2022	1	3	11:40	23	8	5-8		Sub-ads	Lost behind trees/buildings
	3.1.2.6	06/10/2022	1	4	11:45	49	40	40		Sub-ads	Lost behind hill
	3.1.2.8	06/10/2022	1	1	12:40	79	100	70-100			Lost to view in mist
	3.1.5.7	09/11/2022	1	1	10:25	10	40	40		Ad	
	3.3.4.4	09/11/2022	3	2	13:50	5	8	0-8			Landed in field
	3.2.5.6	14/11/2022	2	1	14:30	80	50	40-50			
	3.4.9.2	15/01/2023	4	2	09:40	30	40	30-40			
	3.1.10.2	17/01/2023	1	1	10:40	60	80	80			Direct flight
	3.1.11.5	15/02/2023	1	1	13:55	13	30	30		Ad	Direct flight. Lost behind trees
	3.1.12.2	15/02/2023	1	1	16:05	54	50	50		Ad	
	4.4.2.1	02/04/2023	4	9	08:10	45	40	40			
	4.3.4.9	16/05/2023	3	3	12:08	120	20	20			Flying North
	4.3.4.7	16/05/2023	3	7	12:08	215	100	20-100-50			Flew in over fields, then circled up quite high, then dropping and moving west
	4.3.4.11	16/05/2023	3	2	12:21	185	60	30-60-30			Circling and moving west
	4.2.4.8	16/05/2023	2	1	15:03	60	20	20-30-20		Imm	Flying north
	4.2.4.11	16/05/2023	2	1	15:45	135	60	20-60		Imm	Flying north then began circling upwards and moving east
	4.2.5.2	23/05/2023	2	1	12:40	130	50	20-50		Imm	Flying and circling, heading S
	4.2.5.6	23/05/2023	2	1	14:06	25	10	10		Imm	Flying west low over fields
	4.4.7.1	25/06/2023	4	1	10:00	19	15	10-15		Ad	Probably going to land
4.4.7.2	25/06/2023	4	2	11:20	56	40	30-40		Ad	Circling	



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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	4.4.8.5	09/07/2023	4	1	09:30	29	40	20-40			Lost over trees
	4.4.9.6	16/07/2023	4	1	09:20	30	10	10-20		Sub-ad	Lost below scrub/hill
	4.4.12.2	10/09/2023	4	2	10:00	35	30	30		Ad	Direct flight
Lesser black-backed gull	3.4.3.6	23/10/2022	4	2	15:10	40	50	50			
	3.4.5.5	06/11/2022	4	2	12:50	25	40	40			
	4.3.2.6	07/04/2023	3	1	15:05	30	50	50		Ad	Direct flight
	4.4.3.1	16/04/2023	4	2	09:40	45	60	60			Direct flight
	4.4.4.6	14/05/2023	4	1	09:30	50	40	30-40			Direct flight, adult
	4.3.4.8	16/05/2023	3	2	12:08	215	100	20-100-50			Flew in over fields, then circled up quite high, then dropping and moving west
	4.2.4.2	16/05/2023	2	1	13:55	600	200	30-200+-60		Ad	Gliding S, then circled very high for a while, before continuing
	4.1.6.1	07/06/2023	1	1	09:10	60	20	5-20		Ad	Going low. Lost behind hill
	4.4.6.1	18/06/2023	4	1	08:35	22	40	40			
	4.4.7.3	25/06/2023	4	2	11:30	45	40	30-40		Ad	Direct flight
	4.1.9.1	14/07/2023	1	1	08:50	17	30	25-30		Ad	Direct flight. Lost behind trees
	4.4.9.1	16/07/2023	4	1	07:55	30	30	20-30		Ad	Direct flight. Lost behind trees
	4.1.11.2	22/08/2023	1	1	17:40	60	40	30-40		Ad	Direct flight
3.4.3.6	23/10/2022	4	2	15:10	40	50	50				
Gull sp.	3.4.1.1	18/09/2022	4	1	09:50	30	60	40-60			Lost to view.
	3.3.1.3	21/09/2022	3	2	14:00	32	80	80			Lost to view
	3.1.2.7	06/10/2022	1	1	12:25	14	40	30-40			Lost behind trees
	3.3.4.3	09/11/2022	3	54	13:25	50	20	10-20			Mixture of common gull and black-headed gull.
	3.2.4.4	11/11/2022	2	50	10:00	60	60	30-60			
	3.2.5.3	14/11/2022	2	50	12:45	60	50	40-50			



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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	3.2.7.1	05/12/2022	2	100	13:00	60	50	20-50			Common gull and black-headed gull
	3.2.8.3	07/12/2022	2	10	09:40	60	20	15-20			
	3.4.9.1	15/01/2023	4	4	09:05	20	40	40			Likely common gull.
	3.2.11.3	08/02/2023	2	40	15:20	60	50	40-50			
	3.2.12.4	10/02/2023	2	14	13:05	60	40	30-40			
	4.1.6.3	07/06/2023	1	1	09:40	60	50	50			Immature, likely lesser black-backed gull
	4.4.9.2	16/07/2023	4	2	08:00	42	40	25-40			Direct flight. Lost behind trees
	4.4.10.1	20/08/2023	4	2	08:55	15	15	5-15		Imm	Direct flight, immatures, probably herring gull or lesser black-backed gull
	4.2.12.4	04/09/2023	2	14	10:40	60	50	40-50			
Cormorant	4.2.4.3	16/05/2023	2	1	13:57	30	100	0			Flying south
	4.4.8.1	09/07/2023	4	1	08:10	40	50	40-50			Direct flight, lost over trees
Grey heron	3.3.10.5	07/02/2023	3	1	15:25	14	3	0-3			Landed on flood at bottom of field.
	3.1.11.3 .1	15/02/2023	1	1	12:40	4	10	10			On top of small tree
	3.1.11.3 .2	15/02/2023	1	1	12:45	2	10	5-10			Flew from tree down into scrub
	3.1.12.1	15/02/2023	1	1	15:25	43	25	10-25			Lost into trees/scrub
	4.4.1.1	19/03/2023	4	1	07:55	20	25	25			Direct flight. Lost behind
	4.4.1.2	19/03/2023	4	2	08:20	38	40	20-40			Flying together, descending
	4.1.1.1	21/03/2023	1	1	14:30	49	40	15-40			Lost into scrub/trees
	4.3.1.3	22/03/2023	3	1	15:10	48	40	20-40			Lost into scrub
	4.1.2.3	10/04/2023	1	1	13:15	29	30	15-30			Dropping into scrub/trees.
	4.1.3.3	11/04/2023	1	1	12:45	25	40	20-40			Dropping into scrub/trees.
	4.1.5.5	12/05/2023	1	1	12:45	12	10	5-10			Going low. Lost behind hedge.
	4.1.6.4	07/06/2023	1	1	10:00	11	20	10-20			Direct flight, going low. Lost behind trees



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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	4.4.8.3	09/07/2023	4	1	09:00	12	30	20-30			Lost behind trees
	4.3.10.1	08/08/2023	3	1	14:00	8	10	0-10			Flushed by quad from lake, lost behind scrub, probably landed
	4.2.11.1	09/08/2023	2	2	10:50	21	4	0-4			Flying, landed out of view in corner of field
Little egret	3.3.7.2	09/12/2022	3	1	14:35	42	30	5-30			Probably flew out of drainage ditch
Sparrowhawk	3.1.1.4	21/09/2022	1	1	11:55	5	3	3			Female/immature at close range
	3.2.1.4	23/09/2022	2	1	11:05	8	10	10			Went into copse
	3.3.3.4	10/10/2022	3	1	13:50	58	15	5-15			Went down into scrub very quickly
	3.2.2.9	11/10/2022	2	1	12:25	5	5	5			Lost in scrub
	3.2.2.10	11/10/2022	2	1	12:30	56	80	30-80			Lost to view
	3.2.2.12	11/10/2022	2	1	12:50	20	5	1-5			Landed out of view. Put up c.60 skylark from field
	3.1.3.1	11/10/2022	1	1	14:00	19	30	20-30			Lost behind trees
	3.1.3.8	11/10/2022	1	1	16:15	2	1	1			Flew through hedge
	3.2.3.3	13/10/2022	2	1	14:40	54	3	1-3			Lost over hedge
	3.1.4.2	14/10/2022	1	1	13:50	93	50	10-50			Lost behind hill
	3.4.3.2	23/10/2022	4	1	13:40	5	5	5			Lost in scrub/hill
	3.1.5.11	09/11/2022	1	1	11:35	35	25	20-25			Lost behind hill
	3.2.4.6	11/11/2022	2	1	11:40	20	20	3-20			
	3.2.5.5	14/11/2022	2	1	14:05	10	5	5			
	3.4.6.4	11/12/2022	4	1	11:10	2	3	2-3			Brief view
	3.1.8.4	13/12/2022	1	1	10:10	8	8	5-8			Lost behind hill
	3.2.9.2	06/01/2023	2	1	14:00	12	2	1-2			Along hedgerow
	3.4.10.4	05/02/2023	4	1	09:40	4	4	2-3			Hunting. Went through gap in wall
	3.3.10.1	07/02/2023	3	1	13:30	55	10	2-10			Hunting. Lost in trees/scrub
	3.3.10.3	07/02/2023	3	2	14:15	22	5	5			Carrying food(bird) joined by another sparrowhawk just before flying into copse

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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	3.3.11.6	10/02/2023	3	1	16:20	36	20	15-20	M		Direct flight. Went into trees.
	4.2.2.7	06/04/2023	2	1	14:35	8	2	1.5-2			Lost behind gorse
	4.3.3.2	13/04/2023	3	1	09:55	8	4	3-4			Went into trees
	4.1.5.6	12/05/2023	1	1	12:55	158	100	30-100			Circling before diving into trees. Lost in trees.
	4.3.6.1	06/06/2023	3	1	13:05	69	25	10-25			Direct flight into scrub. Lost in scrub
	4.1.7.1	12/06/2023	1	1	13:15	30	30	30			Direct flight, lost over hill
	4.3.7.9	13/06/2023	3	1	15:40	74	50	20-50			Lost in trees
	4.2.10.1	08/08/2023	2	1	10:30	6	5	5			Direct flight into conifer copse
	4.3.10.4	08/08/2023	3	2	16:50	6	5	5		Ad+Juv	Flying juvenile chasing after adult. Juvenile calling, lost into conifers, calling continued from conifers
	4.2.11.3	09/08/2023	2	1	11:10	20	6	4-6			Flew out of conifers, carrying food, circled once, flew into scrub E of lake
	4.2.11.4	09/08/2023	2	1	11:15	28	6	4-6			Flew towards scrub at lake from conifers
	4.2.11.6	09/08/2023	2	1	11:35	10	1	1			Flying low, went into gorse
	4.3.11.incid.01	10/08/2023	3	2	08:50	5	7	6-7			One flying, another calling, at the conifer copse, calling again at 12:05
	4.3.11.4	10/08/2023	3	1	11:50	21	5	3-5			Lost into scrub at lake
	4.1.11.1	22/08/2023	1	1	17:10	9	5	3-5	M		Direct flight, lost behind trees
	4.2.12.2	04/09/2023	2	1	10:25	13	5	3-5			Direct flight into scrub, lost in scrub at lake
	4.2.12.3	04/09/2023	2	1	10:35	24	10	10			Direct flight, harassed by rook, lost behind conifer copse
	4.2.12.8	04/09/2023	2	1	11:10	72	50	8-50			Harassed by hooded crow and stonechat, lost into scrub at lake
	4.2.12.10	04/09/2023	2	1	11:55	23	10	5-10			Along gorse, lost behind trees/scrub
	4.3.12.3	04/09/2023	3	1	14:30	24	25	20-25			Lost behind trees
Buzzard	3.1.1.1	21/09/2022	1	2	11:15	240	70	20-70			Circling/hunting? - Lost behind trees

RECEIVED: 04/11/2024

Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	3.1.1.2	21/09/2022	1	1	11:25	139	120	10-120			Gliding/hovering - First seen at c.120m. Lost in scrub
	3.1.1.5	21/09/2022	1	1	12:50	7	5	5			Seen briefly among trees
	3.3.1.2	21/09/2022	3	1	13:50	57	40	20-40			Not one of the five perched in the field
	3.3.1.4	21/09/2022	3	2	14:20	67	20	10-20			Flying along hedgerows. Hunting? Lost over hill. Counted 4 BZ still in field.
	3.3.1.5	21/09/2022	3	1	14:35	533	120	25-120			Dropped below tree line
	3.3.1.6	21/09/2022	3	1	15:00	188	100	50-100			Lost among large flock of corvids
	3.3.1.8	21/09/2022	3	1	16:15	28	4	0-4			Direct flight. Landed in field.
	3.2.1.8	23/09/2022	2	1	12:00	60	20	15-20			Lost behind trees
	3.1.2.1.2	06/10/2022	1	1	10:10	2	10	5-10			Lost among trees/scrub
	3.1.2.2	06/10/2022	1	1	10:45	20	5	2-5			Over the gorse. Dropped out of view
	3.3.2.1	06/10/2022	3	1	13:45	44	20	15-20			Went into trees
	3.3.2.3	06/10/2022	3	1	14:35	223	60	40-60			Along treeline. Lost behind trees
	3.3.3.5	10/10/2022	3	1	13:55	8	3	3			Lost behind copse
	3.3.3.6	10/10/2022	3	1	14:20	12	20	15-20			Flew out from trees and back in again
	3.2.2.1	11/10/2022	2	1	10:35	12	3	2-3			Appeared to land out of view in hawthorn
	3.2.2.4	11/10/2022	2	1	11:35	16	2	1-2			
	3.2.2.5	11/10/2022	2	1	11:35	45	15	5-15			Lost behind hedgerow/trees
	3.1.3.3	11/10/2022	1	1	14:25	185	50	25-50			Hovering/gliding. Hunting? - Lost behind scrub/trees
	3.1.3.4	11/10/2022	1	1	14:30	44	50	20-50			Gliding/hovering/hunting - Went behind trees
	3.1.3.5	11/10/2022	1	2	15:45	212	150	40-150			Lost to view
	3.1.3.6	11/10/2022	1	2	16:05	48	25	15-25			Spotted one perched on tree. When it flew it was joined by a second
	3.1.3.7	11/10/2022	1	1	16:15	8	10	5-10			Lost behind hedgerows

RECEIVED: 04/12/2024

Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	3.2.3.2	13/10/2022	2	1	14:30	25	8	4-8			
	3.2.3.4	13/10/2022	2	1	15:05	41	40	25-40			
	3.2.3.5.2	13/10/2022	2	1	15:10	22	5	5			
	3.2.3.8	13/10/2022	2	1	16:40	42	40	30-40			Lost behind trees
	3.1.4.3	14/10/2022	1	1	14:00	227	140	30-140			Circling and hovering. Went below hill
	3.1.4.4	14/10/2022	1	1	15:20	49	50	30-50			Went below treeline
	3.1.4.5	14/10/2022	1	2	15:25	173	100	30-100			Went below treeline
	3.4.2.1	16/10/2022	4	1	09:10	15	30	20-30			Lost behind scrub
	3.4.2.2	16/10/2022	4	1	09:45	13	20	10-20			Lost behind scrub
	3.4.3.1	23/10/2022	4	1	13:20	62	60	40-60			Lost behind trees
	3.4.3.5	23/10/2022	4	1	14:55	12	50	40-50			Dipped below hill
	3.4.4.2	06/11/2022	4	1	08:10	12	20	15-20			
	3.4.4.4	06/11/2022	4	1	09:50	82	60	50-60			Above trees. Lost behind trees
	3.4.5.1	06/11/2022	4	1	11:25	48	60	50-60			Above trees
	3.4.5.2	06/11/2022	4	1	12:05	50	60	50-60			Lost behind trees
	3.4.5.4	06/11/2022	4	1	12:45	20	30	25-30			Flew into trees
	3.1.5.1	09/11/2022	1	1	09:10	4	10	5-10			Seen briefly. Lost in scrub
	3.1.5.4	09/11/2022	1	1	10:00	45	40	25-40			Constantly harassed by hooded crow. Lost behind hill
	3.1.5.9	09/11/2022	1	1	10:50	14	8	5-8			Went behind farm buildings
	3.1.5.10	09/11/2022	1	2	10:55	24	20	10-20			Lost in trees/scrub
	3.3.4.5	09/11/2022	3	1	14:15	129	50	10-50			Lost over hill. Behind tree/hedgerow
	3.3.4.6	09/11/2022	3	1	14:20	43	5	5			Gliding just above gorse. Potentially hunting - Lost in gorse
	3.3.4.7	09/11/2022	3	1	14:35	132	25	15-25			Potentially hunting. Above gorse/scrub - Lost over hill behind gorse

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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	3.2.4.5.1	11/11/2022	2	1	10:20	12	2	2			
	3.2.4.5.2	11/11/2022	2	1	10:20	131	50	2-50			Flying/circling/landed in hawthorn
	3.2.4.7	11/11/2022	2	1	11:45	35	20	8-20			Went below scrub
	3.3.5.4	11/11/2022	3	1	13:55	57	15	5-15			Lost behind barn
	3.3.5.6	11/11/2022	3	1	14:15	38	30	20-30			Lost behind conifers
	3.1.6.3.1	14/11/2022	1	1	11:15	6	20	15-20			On telegraph pole
	3.1.6.3.2	14/11/2022	1	1	11:20	2	20	0-20			
	3.2.6.3	25/11/2022	2	1	12:50	163	35	15-35			Went behind gorse
	3.2.6.5	25/11/2022	2	1	13:55	141	40	10-40			Landed in tree
	3.1.7.2.1	05/12/2022	1	1	10:20	3	5	5			In hawthorn tree
	3.1.7.2.2	05/12/2022	1	1	10:25	8	5	3-5			Landed again.
	3.1.7.4	05/12/2022	1	1	12:05	11	10	8-10			Lost behind hill/scrub
	3.2.7.2	05/12/2022	2	1	13:20	18	15	5-15			Lost behind hill/scrub
	3.2.7.3	05/12/2022	2	1	14:05	31	50	15-50			Calling/flying/landed in tree
	3.2.8.2	07/12/2022	2	1	09:35	2	1	0-1			In harvested potato field. Still there at 12:30
	3.2.8.4.1	07/12/2022	2	1	11:45	8	5	3-5			In scrub. Harassed by HC
	3.2.8.4.2	07/12/2022	2	1	11:45	11	8	3-8			Lost over hill
	3.3.7.1	09/12/2022	3	1	13:40	20	20	20			Lost behind trees
	3.3.7.3	09/12/2022	3	1	14:45	6	5	5			Landed in scrub
	3.3.7.4	09/12/2022	3	1	15:20	15	10	10			Went behind conifers



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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	3.3.7.5	09/12/2022	3	1	16:00	74	30	5-30			Lost behind scrub
	3.4.6.1	11/12/2022	4	1	10:10	12	8	5-8			Lost behind scrub
	3.4.6.2	11/12/2022	4	1	10:25	18	40	25-40			Went below treeline
	3.1.8.6.2	13/12/2022	1	1	10:55	28	40	30-40			May have landed in conifers.
	3.4.7.5	13/12/2022	4	1	15:05	19	50	40-50			Lost behind trees
	3.2.9.4	06/01/2023	2	1	14:40	421	50	10-50			Lost behind hill/scrub
	3.2.9.5	06/01/2023	2	1	15:05	72	40	20-40			Went into trees
	3.2.9.6	06/01/2023	2	1	15:10	8	20	10-20			Landed. Didn't see leave gone at 15:20
	3.4.8.2	08/01/2023	4	1	08:25	30	40	30-40			Circling/Flying. Lost behind conifers
	3.4.8.3	08/01/2023	4	1	08:30	22	40	30-40			Direct flight. Lost behind conifers
	3.2.10.1	09/01/2023	2	1	13:00	127	40	10-40			Drift over scrub slowly then flew SW
	3.4.9.5	15/01/2023	4	1	10:45	27	20	15-20			Direct flight into trees.
	3.3.9.2	16/01/2023	3	1	12:45	17	50	40-50			Lost into quarry
	3.3.9.3	16/01/2023	3	1	13:05	5	40	30-40			In conifers
	3.1.10.1.2	17/01/2023	1	1	09:45	3	6	5-6			Flew from bush into scrub/trees. Lost in scrub/trees
	3.1.10.4.1	17/01/2023	1	1	11:55	3	15	5-15			Flew and landed on telegraph pole.
	3.1.10.4.2	17/01/2023	1	1	12:00	26	15	10-15			Flew from pole into trees. Lost in trees.
	3.4.10.2	05/02/2023	4	1	08:30	18	25	15-25			Direct flight. Lost to view
	3.4.10.3	05/02/2023	4	1	09:15	13	25	20-25			Direct flight. Lot behind scrub/hill
	3.4.10.5	05/02/2023	4	2	10:50	72	50	40-50			Lost behind conifers
	3.2.11.2	08/02/2023	2	2	15:10	215	40	15-40			Lost behind trees
	3.2.12.2	10/02/2023	2	1	12:10	33	15	10-15			Lost over hill/scrub



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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	3.2.12.3 .1	10/02/2023	2	2	12:45	20	10	5-10			Landing briefly, calling
	3.2.12.3 .2	10/02/2023	2	2	12:45	8	10	5-10			Flew from tree, lost over hill/scrub
	3.3.11.2	10/02/2023	3	1	14:40	58	50	35-50			Hanging above trees. Went into or below trees
	3.4.11.3	12/02/2023	4	1	10:40	14	20	20			Lost behind scrub/hill
	3.1.11.4	15/02/2023	1	1	13:40	8	10	10			Lost behind hedgerow
	3.3.12.2	02/03/2023	3	1	15:35	223	100	100			Lost to view behind trees
	4.4.1.3	19/03/2023	4	1	09:25	85	50	40-50			Above trees. Lost being or into trees
	4.4.1.4	19/03/2023	4	1	09:30	52	50	40-50			Above trees. Lost being or into trees
	4.2.1.1	21/03/2023	2	2	09:30	92	50	30-50			Calling together. Disappeared over hill
	4.2.1.2	21/03/2023	2	2	10:20	134	40	20-40			Circling together. Disappeared over hill
	4.2.1.3	21/03/2023	2	1	11:00	42	15	10-15			Gliding along scrub. Lost behind copse/hill
	4.2.1.5	21/03/2023	2	2	12:15	277	50	10-50			Lost over hill/gorse.
	4.3.1.2	22/03/2023	3	2	15:05	79	50	30-50			Circling over trees together. Lost behind trees
	4.3.1.6	22/03/2023	3	2	16:10	345	60	10-60			Went into conifers
	4.3.1.7	22/03/2023	3	2	16:35	6	5	0-5			Feeding on ground
	4.4.2.4	02/04/2023	4	2	10:15	180	70	40-70			
	4.4.2.5	02/04/2023	4	1	10:30	74	60	50-60			
	4.2.2.1	06/04/2023	2	1	12:55	28	50	20-50			Circling then dived rapidly. Out of view over hill
	4.2.2.2	06/04/2023	2	2	13:10	89	60	60			Lost over hill
	4.2.2.3	06/04/2023	2	2	13:20	80	60	40-60			Lost behind trees
	4.2.2.4. 1	06/04/2023	2	1	13:35	23	20	20			Flying low and direct. Landed in tree at pond
	4.2.2.4. 2	06/04/2023	2	1	13:35	67	50	30-50			Went into trees at copse
	4.2.2.5	06/04/2023	2	1	14:10	98	40	10-40			Circling before flying fast low east.



Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	4.2.2.8	06/04/2023	2	1	14:45	40	10	10			Flying low and direct. Lost behind copse
	4.3.2.1	07/04/2023	3	1	12:50	49	40	20-40			Flying along quarry. Went below hill/gorse
	4.3.2.3	07/04/2023	3	1	13:35	324	60	20-60			Hovering and potentially hunting. Went below hill
	4.3.2.4	07/04/2023	3	1	13:55	27	15	10-15			On dead tree. Didn't see bird leave. Gone at 14:00
	4.3.2.5	07/04/2023	3	1	14:50	681	50	20-50			Flying. Hovering Hunting. Went below hill
	4.1.2.2	10/04/2023	1	1	12:40	8	30	30			Lost behind trees
	4.1.2.5	10/04/2023	1	1	13:55	135	40	25-40			Flying along treetops. Dipped into trees
	4.1.2.6	10/04/2023	1	1	15:00	38	40	25-40			Flying above top of trees. Dipped into trees between deciduous and conifers
	4.1.3.2	11/04/2023	1	1	12:25	10	60	50-60			Circling. Harassed by crow. Dipped below quarry
	4.1.3.4.2	11/04/2023	1	1	13:55	4	20	10-20			Dipped from tree. Lost in trees
	4.3.3.4	13/04/2023	3	1	10:15	10	40	25-40			Flying along trees. Went below trees
	4.3.3.5	13/04/2023	3	1	10:25	52	40	25-40			Flying along trees. Went below trees
	4.1.4.1	02/05/2023	1	1	13:55	42	40	30-40			Lost behind trees
	4.1.4.2	02/05/2023	1	1	15:25	297	100	30-100			Lost behind trees
	4.1.4.3	02/05/2023	1	2	16:00	266	80	40-80			Went below treeline
	4.1.5.2	12/05/2023	1	1	10:20	2	50	150			
	4.1.5.3	12/05/2023	1	1	11:25	32	40	30-40			Lost in trees
	4.1.5.4	12/05/2023	1	2	12:40	233	100	40-100			Went below treeline
	4.4.4.2	14/05/2023	4	1	08:10	134	50	30-50			Went lower
	4.3.4.3	16/05/2023	3	2	11:32	580	100				Initially 2 birds, but one soon disappeared. Other bird drifted about for a while, occasionally hanging in the air, quite far over forest
	4.3.4.4	16/05/2023	3	3	11:45	300	100	100-20			Two of them diving at each other frequently before dropping behind hill
	4.3.4.13	16/05/2023	3	2	12:42	90	40	0			Drifting slowly east, then dropped

Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	4.2.4.1	16/05/2023	2	1	13:53	120	40				Gliding about
	4.2.4.5	16/05/2023	2	1	14:38	15	40	40-20			Quite distant gliding then dropped rapidly
	4.2.4.6	16/05/2023	2	1	14:51	120	60	20-60			Quite distant, occasional hovering
	4.2.4.7	16/05/2023	2	1	14:53	260	150	10-150-10		Ad	Flew in low over field, then circled up high, drifting back north, then descended into tree
	4.2.4.9	16/05/2023	2	3	15:27	40	20				Up just beyond a row of houses, dropped again soon after
	4.2.4.12	16/05/2023	2	1	15:51	25	40	40-10			Drifting down behind some farm sheds
	4.2.4.13.1	16/05/2023	2	1	16:20	45	10	10-2		Ad	Flying low across field, landed in gorse
	4.2.4.13.2	16/05/2023	2	1	16:29	30	20	0		Ad	Flying north over trees.
	4.2.5.1	23/05/2023	2	1	12:28	45	30				Gliding about, dropped. Quite distant
	4.2.5.3	23/05/2023	2	1	13:01	200	250	30-250		Ad	Circled up very high, then lost
	4.2.5.4	23/05/2023	2	2	13:38	105	60	0		Imm	Gliding north, called once. No tail bands, but thick leading edge
	4.2.5.5	23/05/2023	2	1	13:47	40	20	20-10			Gliding quite low, then headed S, descending and in behind trees. Didn't get a good look at under parts
	4.2.5.7	23/05/2023	2	1	14:12	225	100	20-100-50		Ad	Drifting over gorse, then rose quite high over fields, stopped to hang and scour, then moved on descending
	4.2.5.8	23/05/2023	2	1	14:31	285	30	10-30-10		Ad	Gliding back and forth, eventually chased away by crows
	4.2.5.9	23/05/2023	2	3	14:33	180	30	0			Gliding about, more distant
	4.2.5.10	23/05/2023	2	1	14:40	230	100	20-100-20		Ad	Hovering quite low at first, then rose up, glided about and descended towards copse
	4.3.5.1	23/05/2023	3	1	15:22	430	50	30-50-30-60-50		Ad	Drifting about, occasionally hovering

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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	4.3.5.3	23/05/2023	3	1	16:23	115	20				Hovering
	4.3.5.4	23/05/2023	3	1	16:29	80	50				Gliding about quite distant
	4.3.5.6	23/05/2023	3	1	16:44	160	20	20-30-20		Ad	Gliding and calling and being mobbed. Flew down into tree
	4.3.5.5	23/05/2023	3	2	16:44	150	100	0			Distant
	4.3.5.7	23/05/2023	3	1	16:55	150	20	20-5			Flying towards quarry, generally quite low
	4.3.5.9	23/05/2023	3	1	17:11	135	200	50-200			Gliding, distant, high
	4.3.5.10	23/05/2023	3	1	17:14	305	80	20-80-100			Gliding slowly, then hovered over scrub patch before plunging to ground
	4.3.5.11	23/05/2023	3	1	17:33	270	50			Ad	Hovering
	4.3.5.13	23/05/2023	3	1	17:53	195	200	50-200		Ad	Second bird closer and rose high over site, drifting east
	4.3.5.12	23/05/2023	3	1	17:53	30	50				Two birds seen at the same time, this one further away and hovering
	4.4.5.2	28/05/2023	4	1	08:00	82	60	30-60			Lost in trees
	4.4.5.3	28/05/2023	4	1	08:15	48	40	30-40			Lost in trees
	4.4.5.4	28/05/2023	4	1	08:40	216	50	25-50			Dropped into trees
	4.4.5.5	28/05/2023	4	1	09:00	384	120	30-120			Lost behind trees
	4.4.5.7	28/05/2023	4	1	09:35	335	100	30-100			Lost to view
	4.4.5.8	28/05/2023	4	1	09:45	13	30	20-30			Lost behind trees
	4.2.6.4	06/06/2023	2	1	11:20	351	100	0			Lost behind conifers
	4.2.6.5	06/06/2023	2	2	11:40	793	80	0			Hovering/circling. Lost behind conifers. Went fast. One bird joined by 2nd after 500 seconds
	4.3.6.2	06/06/2023	3	1	13:25	173	70	25-70			Went over hill
	4.3.6.3	06/06/2023	3	1	13:30	184	50	30-80			Circling, landed in conifer
	4.3.6.4	06/06/2023	3	1	13:55	4	30	25-30			Landed in conifer at copse
	4.3.6.5	06/06/2023	3	1	14:10	25	30	30			Direct flight into deciduous trees

Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	4.3.6.9	06/06/2023	3	1	14:45	45	15	10-15			Landed on dead branch
	4.3.6.10	06/06/2023	3	1	15:05	97	40	30-40			Hovering, Dropped below gorse/hill.
	4.3.6.11	06/06/2023	3	1	15:35	82	30	25-30			Dipped below hill/gorse
	4.1.6.2	07/06/2023	1	1	09:35	38	30	10-30			Hovering, Dropped below hill/gorse
	4.1.6.5	07/06/2023	1	1	10:20	572	80	10-80			Hovering, hanging in air. Lost behind trees
	4.1.6.6	07/06/2023	1	1	11:00	269	100	10-100			Hovering/hunting. Lost behind trees
	4.1.6.9	07/06/2023	1	1	11:20	6	60	60			
	4.2.7.2	07/06/2023	2	1	12:55	123	50	15-50			Circling then direct flight. Lost over scrub/hill
	4.2.7.3	07/06/2023	2	1	13:25	52	30	30			Direct flight. Went behind copse
	4.2.7.4	07/06/2023	2	1	13:40	57	30	20-30			Hovering. Went below hill
	4.2.7.6	07/06/2023	2	1	13:50	86	30	10-30			Hovering. Went below hill
	4.2.7.9	07/06/2023	2	1	14:25	72	50	40-50			Calling, went into trees
	4.1.7.2	12/06/2023	1	1	14:10	55	80	50-80			Dipped below hill
	4.3.7.1	13/06/2023	3	1	13:05	88	30	15-30			Flying, circling landed in conifers
	4.3.7.5	13/06/2023	3	1	14:50	18	40	40			Circling around copse. Lost behind trees
	4.3.7.6	13/06/2023	3	1	14:55	67	60	30-60			Circling before going low. Lost behind trees
	4.3.7.7	13/06/2023	3	1	15:15	158	40	15-40			Lost over hill/gorse
	4.3.7.8	13/06/2023	3	1	15:30	127	100	60-100			Lost below quarry
	4.2.8.1	03/07/2023	2	2	10:45	330	50	10-50			1 hunting at first, circling joined by 2nd. Lost behind trees
	4.2.8.2	03/07/2023	2	1	11:55	155	80	30-80			Peregrine harassing buzzard. Lost behind copse
	4.2.8.4	03/07/2023	2	1	12:05	483	120	20-120			Went low and lost
	4.1.8.2	03/07/2023	1	1	15:00	58	40	30-40			Drifting along treeline. Dropped suddenly into trees
	4.4.8.2	09/07/2023	4	1	08:20	69	50	30-50			Lost behind trees
	4.4.8.4	09/07/2023	4	1	09:25	84	50	30-50			Lost in conifers

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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	4.4.8.6	09/07/2023	4	1	10:05	8	25	25			Seen briefly around deciduous trees
	4.4.8.7	09/07/2023	4	1	10:25	97	40	10-40			Lost in trees
	4.4.8.8	09/07/2023	4	1	10:40	20	40	20-40			Lost behind trees
	4.1.9.2	14/07/2023	1	1	09:35	24	30	20-30			Flying west into trees. Lost in trees
	4.4.9.3	16/07/2023	4	1	08:15	18	50	30-50			Circled before going low. Lost behind trees/scrub hedgerow
	4.4.9.4	16/07/2023	4	1	08:25	81	50	25-50			Slowly along scrub. Lost below hill
	4.4.9.5	16/07/2023	4	1	09:00	159	40	20-40			Lost below scrub/hill
	4.4.9.7	16/07/2023	4	1	09:45	49	30	20-30			Gliding along above trees. Dropped into trees
	4.4.9.8	16/07/2023	4	2	09:50	97	50	25-50			Went below treeline
	4.4.9.9	16/07/2023	4	1	10:20	10	30	20-30			Direct flight. Going low, lost behind trees.
	4.2.9.2	21/07/2023	2	1	14:05	149	602	30-50			Lost behind copse
	4.3.8.3	27/07/2023	3	2	11:00	28	30	20-30			Flying out from trees and back in. Constant calling from that direction. Juveniles?
	4.3.8.8	27/07/2023	3	1	12:00	5	10	10			Lost behind trees
	4.3.9.3	27/07/2023	3	2	15:25	47	30	20-30			Flew directly north-east calling. Lost over hill/gorse
	4.3.9.4	27/07/2023	3	1	15:35	41	40	40			Flying S. Lost behind trees
	4.2.11.5	09/08/2023	2	2	11:25	16	15	10-15			Landed at copse south-east of VP
	4.1.10.1	09/08/2023	1	1	13:10	30	5	5		Juv	Lost into scrub/hedgerow
	4.2.12.1 .2	04/09/2023	2	1	09:45	6	5	5			Flew from tree, lost behind copse
	4.2.12.9	04/09/2023	2	3	11:20	388	100	10-100			Circling together, joined by a 3rd, lost over hill
	4.2.12.1 1	04/09/2023	2	2	12:00	710	150	50-150			Circling together, harassed by sparrowhawk for short while
	4.2.12.1 2	04/09/2023	2	1	12:20	86	60	30-30			Lost over hill/gorse
	4.3.12.1	04/09/2023	3	1	13:45	18	5	2-5			In scrub, gone at 15:40, didn't see leave



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Species	Flight ID	Date	VP	Count	Time	Flight Duration	Height	Height Range	Sex	Age	Notes
	4.3.12.2	04/09/2023	3	1	14:05	272	100	50-100			Then direct flight, lost over trees
	4.3.12.4	04/09/2023	3	1	15:40	50	20	20			Lost behind trees
	4.3.12.5	04/09/2023	3	1	15:41	34	20	20			Might have been previous bird
	4.1.12.1	05/09/2023	1	1	15:15	91	40	15-40			Hunting/hovering, lost behind hill
	4.1.12.2	05/09/2023	1	2	15:40	73	80	20-80			Circling then flying low into trees, lost behind trees
	4.1.12.4	05/09/2023	1	1	16:40	52	30	15-30			Circling then flying low into trees
Kestrel	3.2.1.5	23/09/2022	2	1	11:20	119	20	15-20			Lost over hill behind scrub
	3.1.2.3	06/10/2022	1	1	10:45	60	10	1-10			Dropped from quarry sign out of view
	3.1.2.4	06/10/2022	1	1	10:55	58	30	5-30			Dropped below scrub
	3.3.2.5.2	06/10/2022	3	1	15:15	3	4	3-4			Lost sight. May have re-landed in another bush
	3.3.2.5.3	06/10/2022	3	1	15:20	2	5	5			Landed in different hawthorn tree
	3.3.2.5.4	06/10/2022	3	1	15:30	5	5	0-5			In a different tree
	3.3.2.5.5	06/10/2022	3	1	15:35	5	5	0-5			Foraging in field on insects?
	3.1.3.2	11/10/2022	1	1	14:20	137	50	30-50			Hovering above scrub/trees - Lost behind trees
	3.3.8.3.2	09/01/2023	3	1	10:45	10	10	5-10			Flew from tree. Lost in scrub
	4.1.11.3	22/08/2023	1	1	18:05	15	5	5	M		Direct flight into quarry
Unidentified bird of prey	3.2.2.11	11/10/2022	2	1	12:40	12	50	5-50			Circling/harassed by crow. Dived out of view. Small raptor species. Probably sparrowhawk.

