

Appendix 7-6 – Bird Monitoring Programme

Cleanrath Wind Farm, Co. Cork
– 191223a





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1. INTRODUCTION

This Bird Monitoring Programme has been prepared by MKO for the Cleanrath Wind Farm, Co. Cork.

This document provides a timeframe and monitoring schedule for the bird population of the study area during the construction and post-construction phases of the project. Breeding and wintering bird surveys were undertaken during the period February 2015 and March 2017 encompassing two full breeding seasons and two full winter seasons, as well as autumn and spring migration periods. These surveys were in line with SNH guidance entitled “*Recommended bird survey methods to inform impact assessment of onshore wind farms*” (SNH, 2017). The surveys undertaken to date have informed the various bird monitoring measures outlined in this document.

1.1 Background

As previously discussed, the Subject Development and certain parts of the wider project were constructed. The surveys outlined below were also designed to ensure the necessary information was collected to satisfy the requirements of Planning Condition 12 of Pl. Ref. No. 15/06966 (ABP Ref. PL 04.246742). The condition states that:

- “Pre-construction and post-construction monitoring and reporting programmes for birds (particularly Hen Harrier and Merlin), otter, badger and Kerry slug shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. The surveys shall be undertaken by suitably qualified and experienced specialists.
- Surveys shall be completed annually for a period of five years following commissioning of the wind farm and copies of the reports to the planning authority shall also be submitted to the National Parks and Wildlife Service”.

1.2 Key Ornithological Receptors and Birds of Conservation Concern

Table 1-1 lists the Key Ornithological Receptors recorded within the study area during field surveys.

Table 1-1 Key Ornithological Receptors identified during field surveys undertaken at the Cleanrath Wind Farm

Common Name	Latin Name	Conservation Status
Hen Harrier	<i>Circus cyaneus</i>	Annex I; EU Birds Directive; BoCCI Amber List & Irish Wildlife Act.
Golden Plover	<i>Pluvialis apricaria</i>	Annex I; EU Birds Directive; BoCCI Red List & Irish Wildlife Act.
Chough	<i>Pyrrhocorax pyrrhocorax</i>	Annex I; EU Birds Directive; BoCCI Amber List & Irish Wildlife Act.
Merlin	<i>Falco columbarius</i>	Annex I; EU Birds Directive; BoCCI Amber List & Irish Wildlife Act.
Peregrine Falcon	<i>Falco peregrinus</i>	Annex I; EU Birds Directive & Irish Wildlife Act.
Kestrel	<i>Falco tinnunculus</i>	Raptor Species; Schedule 4 of the Wildlife Act 1976

Common Name	Latin Name	Conservation Status
Sparrowhawk	<i>Accipiter nisus</i>	Raptor Species; Schedule 4 of the Wildlife Act 1976
Common Snipe	<i>Gallinago gallinago</i>	BoCCI Amber Listed,

1.3

Objectives

This document has been prepared having regard to the following objectives:

- To report that the required pre-commencement/ pre-construction phase monitoring was scheduled to ensure any impacts were avoided.
- To record usage of the site by birds and interactions with operating turbines during the post-construction phase of the development.
- To monitor short-term and long-term effects on bird populations with a particular emphasis on wintering and breeding birds deemed to be of high conservation concern (Annex I; EU Birds Directive and BoCCI red list species).
- To undertake collision monitoring and corpse searches for potential bird fatalities as a result of collision with turbine blades.
- Report on findings of post construction monitoring at the end of each monitoring year (Year 1, 2, 3, 5, 10 and 15 of the lifetime of the wind farm).

2. METHODOLOGY

2.1 Pre-construction and Construction Bird Monitoring

Construction works commenced outside the bird nesting season (1st of March to 31st of August inclusive) in September 2018. Pre-commencement surveys were undertaken immediately prior to the initiation of works at the wind farm. Bird survey were undertaken in June, July and August 2018. The survey involved a thorough walkover survey to a 500m radius of the development footprint, where access allowed. In addition, breeding raptor survey were undertaken to a 2km radius of the subject development site.

2.2 Post-construction Bird Monitoring

Operational monitoring at the subject development site was begun in January 2020 and continued into May 2020.

Survey methods employed for post-construction/operational monitoring were/will be in line with guidelines issued by the Scottish Natural Heritage (SNH, 2009). Post-construction monitoring were undertaken in the initial months of operation (January to May 2020) and will be undertaken in Years 1, 2, 3, 5, 10 and 15 of the lifetime of the wind farm.

Post-construction monitoring included (January to May 2020) and will include vantage point surveys, breeding bird surveys, winter surveys, breeding raptor surveys, hen harrier winter roost surveys and a programme of regular corpse searching of birds that may potentially collide with operating turbines during the operational phase of the wind farm project.

Bird monitoring included/will include the following survey methods going forward:

- Flight activity surveys: Vantage Point Surveys
- Breeding Bird Surveys: Adapted Brown & Shephard.
- Winter Walkover Surveys
- Breeding Raptor surveys
- Hen Harrier Winter Roost Surveys
- Targeted bird collision surveys (corpse searches) were/will be undertaken with training dogs. The surveys included detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust.

2.2.1 Vantage Point Surveys

Vantage point surveys were/will be undertaken monthly during operational years 1, 2, 3, 5, 10 and 15 of the lifetime of the wind farm. The methodology for vantage point watches followed/will follow guidelines issued by the SNH (2009) and SNH (2017). The vantage point watches adhered/will adhere to a minimum of 36 hours/VP per season as per guidelines issued by SNH. Monthly visits were/will be undertaken between January and December inclusive. During each visit, six-hour vantage point watches were/will be undertaken from each fixed vantage point location that offers an un-interrupted view of the study area. Vantage point surveys were/will be timed to provide a spread over the full daylight period including dawn and dusk watches to coincide with the highest peaks of bird activity. Behavioural categories for the observation of bird interactions with operational wind farms were/will be in line with terminology outlined by Meredith et al., (2002).

2.2.2 Distribution and Abundance Surveys

During monitoring years, post-construction distribution and abundance surveys included/will include adapted Brown & Shephard. Survey methodology were/will be similar to methods employed for baseline EIAR surveys which will allow a comparison of data to be made for each monitoring year.

The standard approach for surveying breeding waders is outlined in SNH (2017) and Gilbert et al. (1998). It is recommended that surveys for breeding waders should be undertaken during daylight hours with at least four visits undertaken during the core breeding period: April and July. On site surveys consisted/will consist of the surveyors walking a route within quadrats which will have been selected to survey all suitable habitat types on site and to a 500m radius from the development/planning boundary (where access allows). Surveyors should spend 20-25 minutes in each 500 x 500m quadrat (or field).

Notes were/will be recorded on nesting and territorial behaviour and breeding signs using standard BTO codes. Non-breeding behaviour such as birds flying over the site were recorded/will also be recorded.

2.2.3 Breeding raptor Surveys

Breeding raptor surveys (i.e. birds of prey and owls) were/will be conducted within the study area and its immediate surroundings during the core breeding seasons (April - July). Survey methodology were/will be as outlined in Hardey et al. (2013). Breeding Raptor Surveys aimed to cover all areas of suitable raptor breeding habitat within 2km of the site boundary, including hen harrier, merlin, peregrine, barn owl and other raptor species. This included surveying suitable buildings (where access allowed) (as per SNH 2017 recommendations for surveying owls) of the site for barn owl.

Raptor surveys, in the form of walked transects and short VP watches, were/will be conducted within a 2km radius of the site boundary on a monthly basis during the core breeding season (April - July). The aim of these surveys was/will be to identify occupied territories and establish whether breeding was successful within the study area.

2.2.4 Winter Distribution and Abundance Surveys

During monitoring years, walked transects included/will include four visits during the winter season (October - March inclusive). Transects followed/will follow the same routes that were followed during pre-planning surveys. Methodology for these surveys will be broadly based on methods described in SNH (2017) and Gilbert et al., (1998). While the primary concern during these surveys were/will be wintering raptors and waders, other target species (e.g. waterfowl and gulls, etc.) as well as passerines were recorded/will also be recorded.

2.2.5 Hen Harrier Winer Roost Surveys

These surveys were/will be undertaken in areas of suitable roosting habitat to a 2km radius of the subject development site during the winter season (as per SNH 2017).

Survey work was/will be undertaken in accordance with the methodology devised by Gilbert et al., (1998) and the 'Irish Hen Harrier Winter Roost Survey' (unpublished document coordinated by members of NPWS). Surveys were/will be carried out throughout both non-breeding seasons (October - March inclusive), as per Gilbert et al., (1998) recommendations.

2.2.6 Collision Searches (Bird Casualties)

Surveys for bird casualties will follow survey methods broadly based on guidelines issued by the Scottish Natural Heritage (2009) and search methods adopted by Duffy & Steward, *'Turbine Search Methods and Carcass Removal Trials at the Braes of Doune Windfarm'* (Natural Research Information Note 4. Natural Research Ltd, Banchory, UK, 2008).

A minimum of one visit per month was/will be undertaken during each survey year. During each visit, searches were/will be undertaken at each operating turbine location. A square plot measuring 130m x 130m from the centre of each turbine location were/will be the subject of targeted searches for bird casualties. Searches incorporated/will incorporate the use of transects spaced at 10m intervals apart with the observer covering 5m on either side for each transect. Locations and coordinates of transect routes was/will be confirmed using a portable GPS recording device. Recording sheets were/will be used to document bird carcasses encountered in the field.

A trained dog and handler were/will be used where possible to locate any carcasses.

The following details were/will be considered during field surveys: GPS location of each bird carcass, photographic record, carcass condition (intact (carcass that is completely intact or not badly composed), scavenged (evidence that the carcass was fed upon by a scavenger/predator) or feather spot (ten or more feathers indicating predation or scavenging or two or more primary feathers must be present to consider the carcass a casualty)), distance from the turbine location, date, time, etc.

Corpses searching work were/will be calibrated to account for the ability to find bird corpses and likelihood of scavenging of corpses by animals. This will ensure a more accurate estimation of the total number of collision victims. To allow for this, sample bird corpses of various bird sizes were placed within the various habitats found within proximity of the turbine locations. Carcasses were left out in the trial areas by one worker and searched for by another two days later. A 36-hour period between laying carcasses and searching for them ensures no visual cues were left by the carcass layer which may deter scavengers. The locations of all carcasses were logged using GPS by the layer and the finder. Any signs of predation were recorded. Birds were left in place for a further four weeks before a further examination occurred in order to determine further predation levels. The level of predation which occurs will then be used to help calibrate the detection rate and estimate a likely percentage of collisions that may be removed by scavengers between searches.

Results of bird casualties will be incorporated into a report which will be submitted to the planning authority at the end of each monitoring year.

3. TIMEFRAME OF MONITORING WORKS

Operational monitoring at the subject development site was begun in January 2020 and continued into May 2020. It is proposed to continue bird monitoring surveys during years 1, 2, 3, 5, 10 and 15 of the wind farm operation.

Table 3-1 below describes the bird monitoring work schedule for each monitoring year for the Cleanrath wind farm development

Table 3-1 Bird monitoring work schedule for each operational monitoring year at the Cleanrath Wind Farm

Survey Type	Phase	Period	No. of Visits	Survey Method
Vantage Point Surveys	Year 1, 2, 3, 5, 10 and 15	January - December	1 visits/ VP / month for each monitoring year	Two fixed, 6-hour, Vantage Point Surveys
Distribution and Abundance Survey (Breeding Season)	Year 1, 2, 3, 5, 10 and 15	April - July	4 visits / monitoring year	Adapted Brown and Shepherd Survey
Breeding Raptor Surveys	Year 1, 2, 3, 5, 10 and 15	April - July	4 visits / monitoring year	Hardey et al., (2013)
Winter Distribution and Abundance Surveys	Year 1, 2, 3, 5, 10 and 15	October - March	4 visits / monitoring year	Winter walkover based on SNH (2017) and Gilbert et al., (1998)
Hen Harrier Winter Roost Surveys	Year 1, 2, 3, 5, 10 and 15	October - March	6 visits / monitoring year	Roost Surveys based on SNH (2017) and Gilbert et al., (1998)
Corpse Searches (Bird Casualties)	Year 1, 2, 3, 5, 10 and 15	January - December	1 visit/month for each monitoring year	Targeted corpse searches at turbine bases

4. **REPORTING**

A report summarising the findings of the bird monitoring surveys will be submitted to the Planning Authority, where required, within three months of each monitoring year. This will provide details of the various methods employed, the results of field surveys (vantage point watches, corpse searches, distribution and abundance surveys), potential effects/impacts on birds and any recommendations that may inform additional mitigation measures during the operational phase of the wind farm project.

Maps outlining flight lines of key target species will be produced using GIS software applications to accompany the final report at the end of each monitoring year.

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