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Appendix 7-7 – Bird Monitoring Programme

Seskin Renewables Wind Farm

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1. INTRODUCTION

This Bird Monitoring Programme has been prepared by MKO for the proposed Seskin Renewables Wind Farm. This document provides a timeframe and monitoring schedule for the bird population of the study area during the construction and operational phase of the project. Breeding and wintering bird surveys were undertaken during the period October 2021 to September 2023, 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 proposed bird monitoring measures outlined in this document.

1.1 Key Ornithological Receptors

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

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

Common Name	Scientific Name	Conservation Status
Golden Plover	*Pluvialis apricaria*	Annex I EU Birds Directive
Kingfisher	*Alcedo atthis*	Annex I EU Birds Directive; SCI of the River Nore SPA
Peregrine	*Falco peregrinus*	Annex I EU Birds Directive
Whooper Swan	*Cygnus cygnus*	Annex I EU Birds Directive
Kestrel	*Falco tinnunculus*	BoCCI Red Listed (Breeding Populations)
Snipe	*Gallinago gallinago*	BoCCI Red Listed (Breeding & Wintering Populations)
Buzzard	*Buteo buteo*	Raptor Species; Sensitive to wind farm developments
Sparrowhawk	*Accipiter nisus*	Raptor Species; Sensitive to wind farm developments

1.2 Objectives

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

- To ensure any required pre-construction/construction phase monitoring is scheduled to ensure any impacts are avoided.
- To record usage of the site by birds and interaction 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 (EU Birds Directive Annex I 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

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2.1 Pre-construction and Construction Bird Monitoring

It is proposed that construction works will commence outside the bird nesting season (1st of March to 31st of August inclusive) to avoid the most sensitive time of the year for most bird species with the potential to use the site and its environs. Pre-commencement confirmatory surveys will be undertaken within one month prior to the initiation of works at the Proposed Development to identify sensitive sites (e.g. roosts).

Any requirement for construction works to run into the subsequent breeding or winter seasons following commencement will be subject to a repeat of the pre-commencement bird surveys to confirm the absence of breeding or roosting birds of conservation concern. These surveys will be conducted once per month during the breeding season (April to July) and once at the start of the winter season (October). The survey will aim to identify sensitive sites (e.g., nests or roosts depending on the season in question).

This monitoring will involve surveying onsite and to a 500m radius of the development footprint/works areas. Monitoring will be undertaken by a suitably qualified ornithologist. The survey period will include one month prior to the initiation of works, four visits between April and July and one visit during the winter period (October). If a sensitive area is identified, the nest/roost sites will be located, and no works shall be undertaken within a species-specific buffer in line with best practice guidance (e.g. Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007). No works within the buffer zone shall be permitted until it can be demonstrated that the species is no longer reliant on the area for breeding or roosting.

All site staff and subcontractors will be made aware of any restrictions to be imposed by means of a toolbox talk and a map of the 'no-work zone' will be made available to all construction staff. The restricted area will also be marked off using hazard-tape fencing to alert all personnel on site to the suspension of works within that area.

2.2 Operational Bird Monitoring

Survey methods employed for operational monitoring will be in line with guidelines issued by the Scottish Natural Heritage (SNH, 2009). operational monitoring will be undertaken in operational Years 1, 2, 3, 5, 10 and 15 of the lifetime of the wind farm with surveys commencing at the start of the breeding season (April) or the start of the winter season (October) in each monitoring year.

Operational monitoring will include vantage point surveys, breeding bird 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 will include the following survey methods:

- Flight activity surveys: vantage point surveys
- Breeding bird surveys: O'Brien & Smith methodology.
- Targeted bird collision surveys (corpse searches) will be undertaken. The surveys will include 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 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 will follow guidelines issued by the SNH (2009) and SNH (2017). The proposed vantage point watches will adhere to a minimum of 36 hours/VP per season as per guidelines issued by SNH. Monthly visits will be undertaken for 12 consecutive months during each monitoring year, with surveys commencing at the start of the breeding

season (April) or the start of the winter season (October). During each visit, six-hour vantage point watches will be undertaken from each fixed vantage point location that offers an un-interrupted view of the study area.

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Vantage points will be undertaken from the same locations that pre-planning surveys which informed the EIAR application of the Proposed Development (i.e. VPs 1 & 2)[1]. Vantage point surveys will be timed to provide a spread over the full daylight period including dawn and dusk watches to coincide with the highest periods of bird activity. Behavioural categories for the observation of bird interactions with operational wind farms will be in line with terminology outlined by Meredith *et al.*, (2002).

2.2.2 Breeding Bird Surveys

During monitoring years, operational breeding bird surveys will be conducted in the form of lowland walkover transect surveys. Survey methodology 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 methodology and timing of visits will follow those outlined in O'Brien and Smith (1992) and Gilbert *et al.* (1998), combined with Common Bird Census methods (British Trust for Ornithology, 2021) for dense habitat. Transects should ensure all areas of suitable breeding/ foraging habitat are approached to within 100m. Target species will include waders, raptors, waterbirds, gulls and other birds of conservation concern. Along with target species, all additional species observed will be recorded to inform the evaluation of supporting habitat. These surveys will follow the same routes that were followed during pre-planning surveys.

A total of four site visits will be undertaken during the bird breeding season for each monitoring year and timed to coincide with the core breeding period April - July. Notes 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 will also be recorded.

2.2.3 Collision Monitoring Surveys

Surveys for bird collisions with turbines will follow survey methods broadly based on guidelines issued by the Scottish Natural Heritage (2009) and search methods adopted by Duffy and Steward (2008). It is proposed to undertake a minimum of one visit per month during each survey year by a trained dog and handler. During each visit, searches will be undertaken at each operating turbine location by a trained dog with handler. Edkins (2014), recommends the "search width should be equal to the maximum rotor tip height". Given a turbine rotor tip height of 175 meters the search area surrounding the base of the turbine would be taken as a radius of between 87.5 meters centred on the turbine base. This area will be the subject of target searches for bird casualties. Searches 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 will be confirmed using a portable GPS recording device. Recording sheets will be used to document bird carcasses encountered in the field.

The following details 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.

Carcass removal trials and searcher efficiency trials will be undertaken to account for the ability of the dog team to find bird carcasses and the likelihood of scavenging of corpses by animals. This is done to ensure a more accurate estimation of the total number of collision victims. During carcass removal trials, a carcass is placed in a study area periodically and is monitored for a set number of days or until scavengers remove the carcass (this can be done with the use of a trail camera). A determination on carcass removal is made when no body parts containing flesh or bone or >10 disarticulated feathers can be found. During

[1] *The adequacy of the vantage point viewsheds will be monitored throughout the lifetime of the wind farm.*

searcher efficiency trials, a number of carcasses are placed in a study area by one worker, then searched for by another worker with the dog. These may be conducted on the same day as surveys are carried out to avoid flooding the area with carcasses and increasing scavenger activity. The result of these trials provides a correction factor that can be applied to the results of the carcass searches.

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2.3 Decommissioning Bird Monitoring

It is proposed that decommissioning works will commence outside the bird nesting season (1st of March to 31st of August inclusive) to avoid the most sensitive time of the year for most bird species with the potential to use the site and its environs. Pre-commencement confirmatory surveys will be undertaken within one month prior to the initiation of works at the Proposed Development to identify sensitive sites (e.g. roosts).

Any requirement for decommissioning works to run into the subsequent breeding or winter seasons following commencement will be subject to a repeat of the pre-commencement bird surveys to confirm the absence of breeding or roosting birds of conservation concern. These surveys will be conducted once per month during the breeding season (April to July) and once at the start of the winter season (October). The survey will aim to identify sensitive sites (e.g., nests or roosts depending on the season in question).

This monitoring will involve surveying onsite and to a 500m radius of the development footprint/works areas. Monitoring will be undertaken by a suitably qualified ornithologist. The survey period will include one month prior to the initiation of works, four visits between April and July and one visit during the winter period (October). If breeding or roosting activity is identified, the nest/roost sites will be located, and no works shall be undertaken within a species-specific buffer in line with best practice guidance (e.g. Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007). No works within the buffer zone shall be permitted until it can be demonstrated that the species is no longer reliant on the nesting or roosting areas.

All site staff and subcontractors will be made aware of any restrictions to be imposed by means of a toolbox talk and a map of the 'no-work zone' will be made available to all construction staff. The restricted area will also be marked off using hazard-tape fencing to alert all personnel on site to the suspension of works within that area.

3. TIMEFRAME OF PROPOSED MONITORING WORKS

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It is proposed to undertake bird monitoring surveys at the Proposed Wind Farm during years 1, 2, 3, 5, 10 and 15 of the wind farm operation. Table 2 below describes the proposed bird monitoring work schedule for each monitoring year for the Proposed Development.

Table 2 Proposed bird monitoring work schedule for each monitoring year at the Seskin Renewables Wind Farm

Survey Type	Phase	Period	No. of Visits	Survey Method
Vantage Point Surveys	Year 1, 2, 3, 5, 10 and 15	Every month	1 visit per vantage point per month for each monitoring year	Two 6-hour vantage point surveys
Breeding Bird Surveys	Year 1, 2, 3, 5, 10 and 15	April - July	4 visits per monitoring year	O'Brien & Smith transect surveys
Collision Monitoring Surveys	Year 1, 2, 3, 5, 10 and 15	Every month	1 visit per turbine per month for each monitoring year	Targeted searches at turbine bases

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4. REPORTING

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

For consistency with the Birds Chapter of the EIAR, the results section of the report will include the following information, the average number of flights per hour, the average flock size and the peak counts for each observed target species. This approach is in line with best practise and will facilitate an analysis of results following a before-after experimental design. 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.

4.1 Sharing Ecological Data

As a measure to support conservation research and policy, it is proposed to submit the monitoring survey data and information to the National Biodiversity Data Centre (NBDC) and to BirdWatch Ireland to contribute to the upcoming bird atlas (2027) on relevant ecological records, for example, information on the location of breeding territories and nest sites of bird species of conservation concern (e.g., Red-List Species as per the most recent BoCCI). The submission of the data will follow relevant standards and will be provided in the preferred NBDC excel template. This measure will be fulfilled within three months of each monitoring year, as relevant, in the event of a successful application. This commitment ensures the project is contributing to the aims of Objective Four, Outcome 4B of the Ireland's 4th National Biodiversity Action Plan[2]: *Data relevant to biodiversity and ecosystems, including conservation needs, is widely accessible and standardised.*

[2] *https://www.npws.ie/sites/default/files/files/4th_National_Biodiversity_Action_Plan.pdf*

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