



APPENDIX 7-8

BIRD MONITORING PROGRAMME

DOCUMENT DETAILS

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Table of Contents

1.	INTRODUCTION	1
2.	METHODOLOGY	3
2.1	Construction Phase.....	3
2.2	Operational Phase.....	3
2.2.1	Prescribed Monitoring Years.....	3
2.2.2	Surveys.....	4
2.2.2.1	Vantage Point Surveys.....	4
2.2.2.2	Winter Walkover Surveys.....	4
2.2.2.3	Breeding Lapwing Surveys.....	5
2.2.2.4	Collision Monitoring Surveys.....	8
2.3	Decommissioning Phase.....	8
2.4	Reporting.....	9
3.	SUMMARY	10
4.	BIBLIOGRAPHY	11

1. INTRODUCTION

This Bird Monitoring Programme has been prepared by MKO for the Proposed Project. It has been informed by surveys undertaken from September 2020 to September 2023. Based on these surveys, key ornithological receptors (KORs) in the study area were identified and the potential effects of the development on these receptors during the construction, operational and decommissioning phases were assessed in the Environmental Impact Assessment Report (EIAR). This Bird Monitoring Programme was prepared based on these species to monitor the bird population within the study area during each development phase. The objectives of the Bird Monitoring Programme are:

- To record birds using the study area and their interaction with operating turbines;
- To monitor short-term and long-term effects of the Proposed Project on bird populations in the study area, with a particular emphasis on birds of high conservation concern (birds listed on Annex I of the EU Birds Directive or on the Red List of Birds of Conservation Concern in Ireland);
- To undertake collision monitoring for potential bird fatalities as a result of a collision with turbine blades;
- To ensure any required construction, operational and decommissioning phase surveys are scheduled to avoid impacts on birds of conservation concern;
- To report on the findings of monitoring.

Table 7 - 8 - 1 lists the KORs recorded within the study area. During surveys undertaken from September 2020 to September 2023, a breeding lapwing territory was identified in the north-west of the Site with one breeding pair. Surveys are proposed in the Bird Monitoring Programme to monitor this territory. Also during surveys undertaken from September 2020 to September 2023, high lapwing and golden plover flight activity was recorded in the turbine area and a Bird Mitigation Plan was prepared to reduce this activity and hence reduce the risk of collisions (refer to Appendix 7-7 Bird Mitigation Plan). Surveys are proposed in the Bird Monitoring Programme that will monitor lapwing and golden plover flight activity and collision rates to further inform the Bird Mitigation Plan.

Table 7 - 8 - 1 Key ornithological receptors identified during surveys

Species	Scientific Name	Conservation Status
Buzzard	<i>Buteo buteo</i>	Green List
Golden Plover	<i>Pluvialis apricaria</i>	Annex I of Birds Directive & Red List with respect to breeding and wintering populations
Hen Harrier	<i>Circus cyaneus</i>	Annex I of Birds Directive & Raptor
Kestrel	<i>Falco tinnunculus</i>	Red List with respect to breeding populations & Raptor
Kingfisher	<i>Alcedo atthis</i>	Annex I of Birds Directive & SCI of River Nore SPA
Lapwing	<i>Vanellus vanellus</i>	Red List with respect to breeding and wintering populations

Species	Scientific Name	Conservation Status
Little Egret	<i>Egretta garzetta</i>	Annex I of Birds Directive
Merlin	<i>Falco columbarius</i>	Annex I of Birds Directive & Raptor
Peregrine	<i>Falco peregrinus</i>	Annex I of Birds Directive & Raptor
Snipe	<i>Gallinago gallinago</i>	Red List with respect to breeding and wintering populations
Sparrowhawk	<i>Accipiter nisus</i>	Green List
Whooper Swan	<i>Cygnus cygnus</i>	Annex I of Birds Directive

2. METHODOLOGY

This Bird Monitoring Programme consists of three discrete parts: the construction phase, operational phase and decommissioning phase. Construction and decommissioning phase monitoring will begin one month prior to the commencement of construction or decommissioning works to avoid impacts on birds of conservation concern during the works. Operational monitoring will be conducted during prescribed monitoring years throughout the operational lifetime of the Proposed Wind Farm.

Target species during surveys will include all KORs listed in Table 7 - 8 - 1. In addition, target species will include all other waterbirds, raptors, groundfowl, protected near-passerines and protected passerines¹.

2.1 Construction Phase

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 study area to identify sensitive sites (e.g. roosts). If works run into subsequent breeding or winter seasons, further pre-commencement surveys will be repeated to identify sensitive sites (eg. roosts or nests). Breeding season surveys will be conducted once per month from April to July inclusive where applicable.

The survey will be undertaken by a suitably qualified ornithologist. The survey will comprise a thorough walkover survey of the development footprint and/or all works areas to a 500m radius, where access allows. If winter roosts or nests of birds of high conservation concern are identified, the roost/nest will be earmarked for continued monitoring during works. If the roost/nest is found to be active during works, works will cease within a species-specific buffer of its location in line with best practice guidance (Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007) to avoid disturbance. No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied.

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 to alert all personnel on site to the suspension of works within that area.

2.2 Operational Phase

2.2.1 Prescribed Monitoring Years

Operational monitoring will be undertaken in prescribed monitoring years during the operational lifetime of the Proposed Wind Farm. The SNH guidance document 'Monitoring the impact of onshore wind farms on birds' (SNH, 2009) requires that bird monitoring in wind farms should occur in years 1, 2, 3, 5, 10 and 15 after the turbines become operational. As mitigation is being undertaken at the Site (refer to Appendix 7-7 Bird Mitigation Plan), there is an associated requirement for an increase in the frequency of monitoring surveys compared to guidance. Monitoring at the Site will be conducted continuously during the first 5 operational years. At the end of this period, the results will be reviewed in consultation

¹ Protection comprises (i) species listed on Annex I of the EU Birds Directive (Directive 2009/147/EC) and (ii) species listed as Red on the Birds of Conservation Concern in Ireland (<https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland-2014-2019/>)

with the National Parks and Wildlife Service and future monitoring needs and gaps will be identified to determine the frequency of monitoring in subsequent years (ie. increased frequency or a return the SNH guidance). The requirements for monitoring in subsequent years, including any decision to reduce the frequency of surveys, will be agreed with the National Parks and Wildlife Service, allowing an adaptive approach to monitoring at the Site.

2.2.2 Surveys

The ornithological surveys that will be undertaken during prescribed monitoring years are listed below and the methodology is outlined in the following sections:

- › Vantage point surveys;
- › Winter walkover surveys;
- › Breeding lapwing surveys;
- › Collision monitoring surveys.

2.2.2.1 Vantage Point Surveys

Vantage point surveys will be undertaken to monitor flight activity within a 500m radius of the turbine positions. Surveys should be conducted from the same three fixed point vantage points as were used during pre-planning surveys (Figure 7 - 8 - 1). Should vantage point locations need to be moved, a viewshed analysis will be conducted to ensure there is still comprehensive coverage of the 500m radius of turbines at the new locations.

To provide comparable data before and after construction of the Proposed Wind Farm, vantage point survey methodology will be the same as used during pre-planning surveys. Survey methodology should follow SNH (2017) and any revisions to the same. The surveyor should collect data on bird observations and flight activity from the scanning arc of 180° to a 2km radius at the fixed vantage point locations for two 3-hour watches separated by a minimum 30 minute break (ie. 6 hours total) per month. Surveys should be conducted every month and provide a minimum of 36 hours per winter or breeding season and spread over the full daylight period, including dawn and dusk watches, to coincide with the highest periods of bird activity.

Flight activity of target species will be mapped and recorded as per defined flight bands chosen in relation to the dimensions of the turbines as built: below rotor swept height, at the rotor swept height and above rotor swept height. In addition, the presence of any non-target species will be recorded to inform the evaluation of supporting habitat.

2.2.2.2 Winter Walkover Surveys

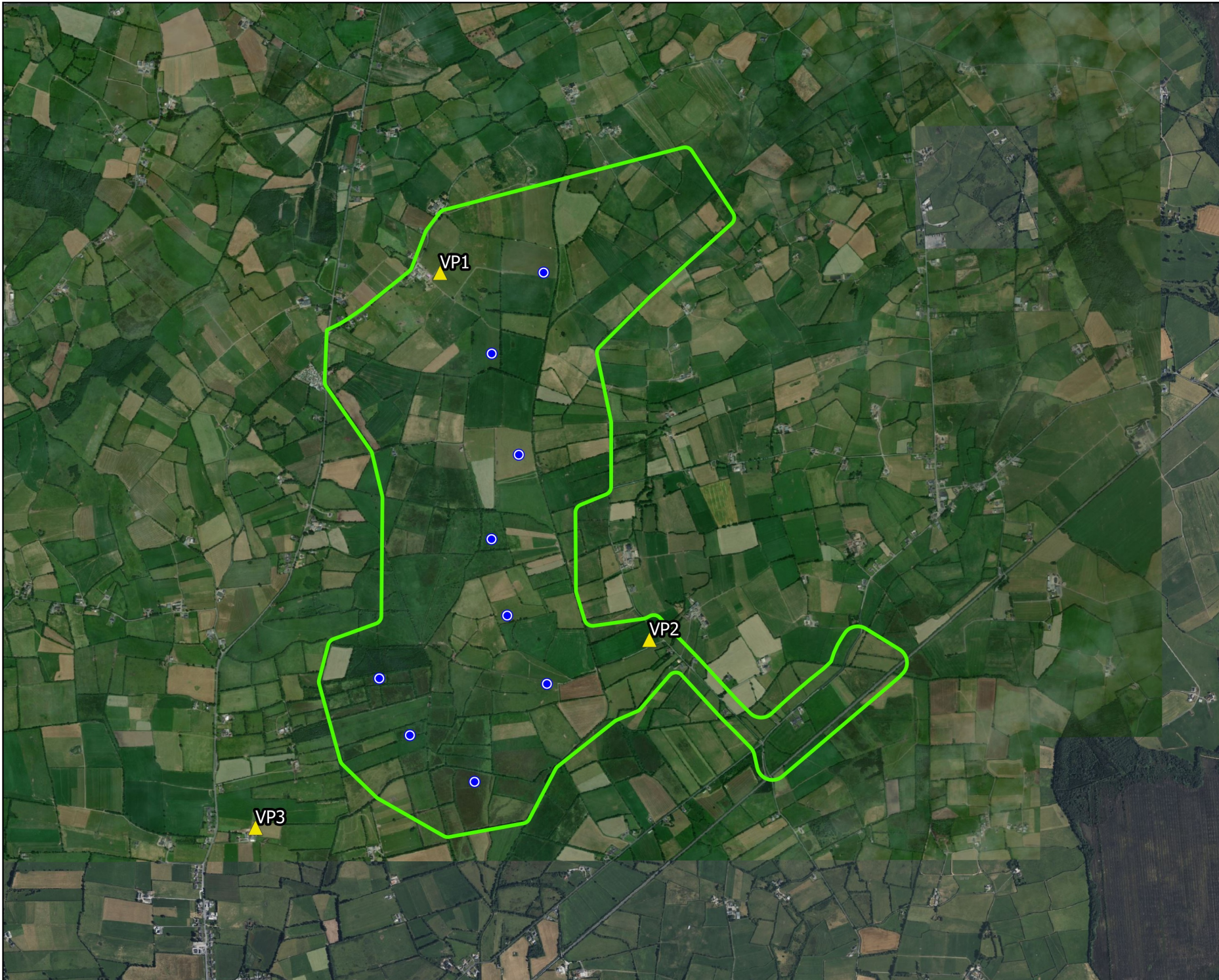
Winter walkover surveys will be undertaken to record the presence of bird species within a 500m radius of the turbine positions, including areas between vantage point locations. These surveys will include monitoring of the use of the site by foraging or roosting lapwing and golden plover, which will inform the Bird Mitigation Plan. Winter walkover surveys will be conducted in daylight hours over four visits between October and March each prescribed monitoring year.

To provide comparable data before and after construction of the Proposed Wind Farm, winter walkover survey methodology will be the same as used during pre-planning surveys. The methodology should be adapted from the breeding walkover methodology outlined in Brown and Shepherd (1993) and Calladine *et al.* (2009) combined with Common Bird Census methods (British Trust for Ornithology, 2021). The five transect routes used during pre-planning surveys (Figure 7 - 8 - 2) should be walked (where access allows). All target species will be recorded and mapped. If the surveyor encounters lapwing or golden plover, detailed notes on the birds' activity, behaviour and habitat and remarks on their use of the site will be made. In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat.

2.2.2.3 Breeding Lapwing Surveys

The breeding lapwing territory identified north-west of the Proposed Wind Farm during pre-planning surveys will be surveyed each prescribed monitoring year for breeding lapwing. Surveys will be conducted in daylight hours over one visit in April.

The methodology should follow Gilbert *et al.* (1998). The breeding area should be surveyed from a suitable vantage point (e.g. VP1; Figure 7 - 8 - 1). All lapwing using the breeding area and surrounds should be recorded in detail and their breeding status determined following British Trust for Ornithology codes.



Map Legend

- ▭ EIA Study Boundary
- Proposed Turbine Locations
- ▲ Vantage Point

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Drawing Title
Vantage Point Locations

Project Title
Borrisbeg Wind Farm

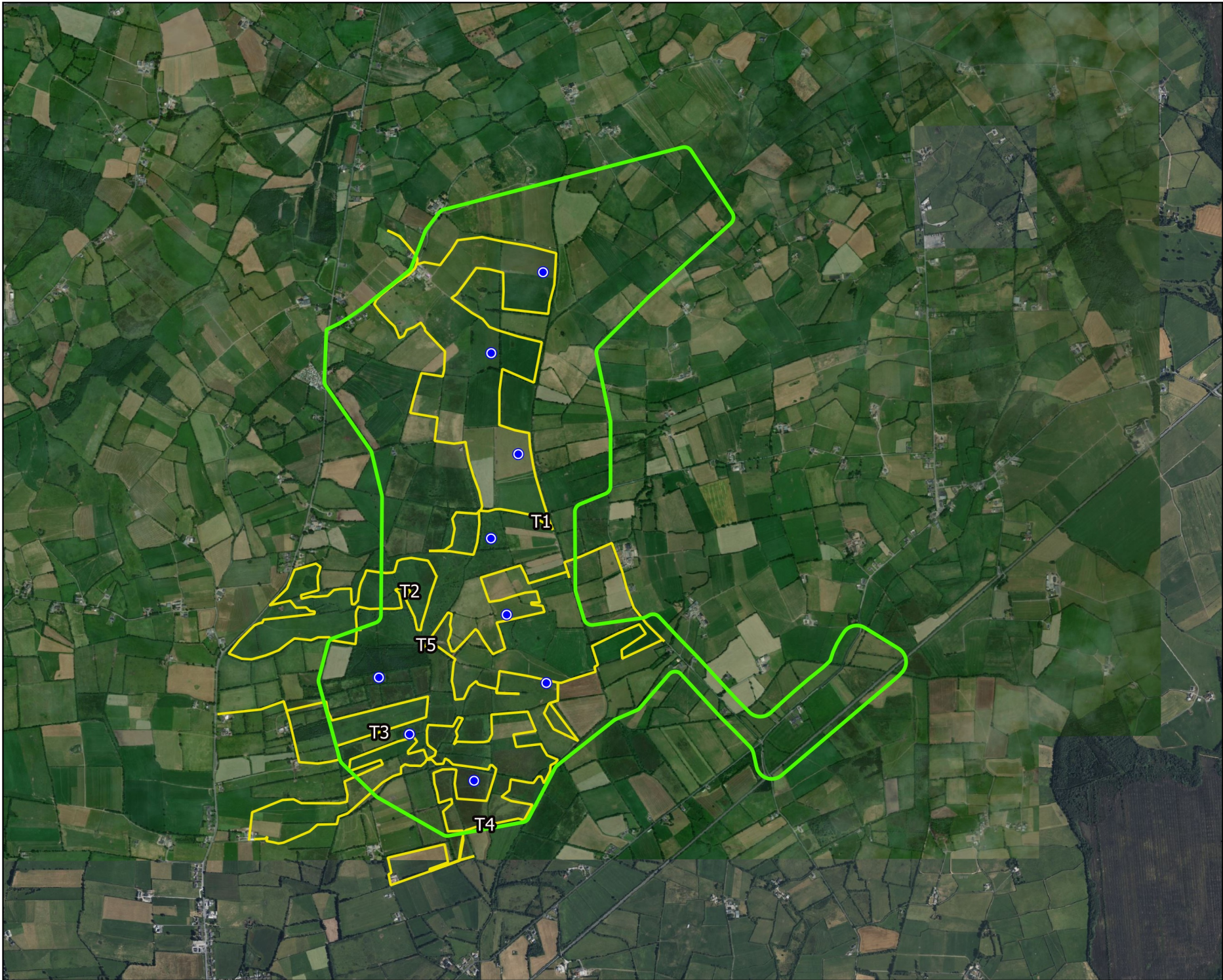
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Map Legend

- EIA Study Boundary
- Proposed Turbine Locations
- Transect

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Drawing Title
Walkover Transect Routes

Project Title
Borrisbeg Wind Farm

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2.2.2.4 Collision Monitoring Surveys

Collision monitoring will be undertaken during prescribed monitoring years at the Site. Carcass search methodology for bird casualties as a result of collision with turbines will follow survey methods based on guidelines issued by SNH (2009) and search methods adopted by Duffy and Steward (2008). As collision risk mitigation is being undertaken at the Site (refer to Appendix 7-7 Bird Mitigation Plan), there is an associated requirement for an increase in the frequency of collision monitoring surveys compared to guidance. The study area will be visited once per month during the breeding season (April to September inclusive) and twice per month during the winter season (October to March inclusive). During each visit, the base of each operating turbine will be searched for bird carcasses. The area to be searched will be based on the turbine size and surrounding landscape. A trained dog and handler should be used to locate carcasses.

If a bird carcass is found, the following details will be recorded: 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, date and time.

Carcass removal trials and searcher efficiency trials will be undertaken to account for the ability of the dog to find bird carcasses and the likelihood of scavenging of carcasses 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. A determination on carcass removal is made when no body parts containing flesh or bone or >10 disarticulated feathers can be found. During searcher efficiency trials, a number of carcasses are placed in a study area by one worker, then searched for by the dog two days later. A 24-48 hour period between laying carcasses and searching for them will prevent the dog following the scent of the layer rather than the carcasses. The result of these trials is a correction factor that can be applied to the results of the carcass searches.

2.3 Decommissioning Phase

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 study area to identify sensitive sites (e.g. roosts). If works run into subsequent breeding or winter seasons, further pre-commencement surveys will be repeated to identify sensitive sites (eg. roosts or nests). Breeding season surveys will be conducted once per month from April to July inclusive where applicable.

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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 to alert all personnel on site to the suspension of works within that area.

2.4

Reporting

A report summarising the findings of bird and collision monitoring surveys will be submitted to the Planning Authority and the National Parks and Wildlife Service at the end of each prescribed monitoring year. The report will provide the results of the surveys and discuss potential impacts on birds (particularly KORs) and any recommendations that may inform additional mitigation measures during the operational phase of the Proposed Wind Farm. The report will include the findings of the Bird Mitigation Plan (Appendix 7-7), including field inspections, adherence to Growing Schedules, assessment of Growing Schedules and any additional associated recommendations. If lapwing or golden plover carcasses are found during surveys, the significance of the effect on the county population will be evaluated and any necessary recommendations made.

3.

SUMMARY

Table 7 - 8 - 2 summarises the measures required for the Bird Monitoring Programme. The prescribed monitoring years are outlined in Section 2.2.1.

Table 7 - 8 - 2 Measures for the Bird Monitoring Programme

Phase	Measure	Timeframe	Method	Quantity
Construction	Pre-commencement Survey	Prior to the beginning of construction works at the study area	Walkover throughout the works area to a 500m radius	1 visit a month prior to site works beginning
Operation	Vantage Point Survey	Prescribed monitoring years	6 hour vantage point surveys at 3 vantage point locations	1 visit per month every month
Operation	Winter Walkover Survey	Prescribed monitoring years	Transect surveys on 5 transect routes	4 visits between October and March
Operation	Breeding Lapwing Survey	Prescribed monitoring years	Vantage point watch of lapwing breeding territory	1 visit in April
Operation	Collision Monitoring	Prescribed monitoring years	Dog led carcass searches at all turbine bases	1 visit per month April to September & 2 visits per month October to March
Operational	Report	Prescribed monitoring years	Report to be issued to planning authority and National Parks and Wildlife Service	1 report at the end of each prescribed monitoring year
Decommissioning	Pre-decommissioning Survey	Prior to the beginning of decommissioning works at the study area	Walkover throughout the works area to a 500m radius	1 visit a month prior to site works beginning

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