



An
Bord
Pleanála

Technical Report- Ecology ABP- 312659-22

Development

Windfarm development including 15
no. wind turbines, 1 no. 110kV
electrical substation, 110kV
connection line and all associated and
ancillary works, Glenard, County
Donegal

Topic:

Board Referral:

Independent examination and
assessment of impacts on Bats and
Bird species

Inspectorate Ecologist

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External Consultant

Blackstaff Ecology:
Cormac Loughran
Dr Brian Sutton

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1.0 Introduction

In considering case 312659-22 the Board referred the case to the Inspectorate Ecologist to assess and advise on potential impacts from the proposed development on bats and on birds listed on Annex I of the EU Birds Directive namely, Hen Harrier, White tailed Eagle, Golden Plover, Merlin and also Goshawk.

In addition, the Board requested an assessment and advice on the likely significant effects arising from the proposed development on special conservation interest bird species of Lough Swilly Special Protection Areas (site code 004075), Lough Foyle Special Protection Area (site code 004087) and Lough Foyle Special Protection Area (site code UK9020031).

1.1. Scope of report

In my role as Inspectorate Ecologist and with the approval of the Board, I requested that external consultants from Blackstaff Ecology support this referral by providing an independent examination and review of the bat and ornithological assessments provided in the Environmental Impact Assessment Report (EIAR) and associated appendices, the Natura Impact Statement (NIS) and additional bird data presented in Response to Observations document (May 2023). The Board will note that the independent examination by Blackstaff Ecology did not have access to the Planning Inspectors Report or recommendations.

This technical report presents a summary of the examination and review undertaken by Blackstaff Ecology and my professional evaluation of the findings in view of the Boards request. The reports prepared by Blackstaff Ecology are appended to this report.

The examination and assessment is confined to the windfarm site and does not assess other ancillary works including cable routes. The assessment has been undertaken in view of current best practice and takes account of:

- Observations made by the Department of Housing, Local Government and Heritage and the response of Applicant to same which contains additional information on bird surveys.
- Response to request for further information section 2.13 and Appendix 2.
- EIAR Chapters 6 Biodiversity and 7 Ornithology and associated appendices including 6-2 Bat Report, and Ornithology appendices 7-1 to 7-8.
- Natura impact Statement (NIS)

2.0 Potential impacts on Bat Species

2.1. Context

The independent review of documents relating to bats at the proposed Glenard windfarm was prepared by Cormac Loughran CEnv, MCIEEM (See Appendix 1). Mr. Loughran focused his examination and review on the Bat Report contained as Appendix 6-2 in the EIAR. The board will note that the detail presented in the Bat Report is summarised in EIAR Chapter 6 Biodiversity.

The potential risks to bats from wind farms include:

- Collision mortality, barotrauma and other injuries
- Loss or damage to commuting and foraging habitat
- Loss of damage to roosts and
- Displacement of individuals or populations

2.2. Approach and Methodology

The independent review finds that overall, the bat survey approach, methodology and assessment of impacts as presented by the Applicant are thorough and in line with industry practice¹.

¹ NatureScot (2021) Bats and onshore wind turbines - survey, assessment and mitigation

The independent review refers to a methodology identified in the Northern Ireland Environment Agency (NIEA) Guidance on Bat Surveys, Assessment & Mitigation for Onshore Wind Turbine Developments Version 1.1 (March 2024) related to the use of paired static detectors. The NIEA Guidance considers that ‘paired detectors are important for wind farm sites proposed to be “key-holed” into commercial forestry to provide a comparison between bat activity at forestry edges and in cleared areas’. This is because the habitat available to bats will change post felling, with greater areas of forestry edge created around cleared edges, and it is important to try and represent what bat activity will be like on site post construction.

I note that the Applicant has referred to the 2021 version of the NIEA guidance in Section 1.2 of the Bat Report but does not apply the recommendation on paired static detectors. (For avoidance of doubt, the 2021 and 2024 versions contain the same recommendations on this point). However, the Applicant has considered keyholing (Bat Report Section 3.3.5) and that where this is proposed, detectors were placed along nearby forestry edge to more closely reflect post construction habitat. I have examined the locations of the static detectors (Bat Report Table. 3.3 and Figure 3-1) and I am satisfied that they were deployed in a variety of locations representative of both forestry edge and more open habitats.

2.3. Bat activity

The independent review finds that the assessment of bat activity levels and collision risk based on data collected in 2019 and 2020 are thorough and in line with industry practice.

Bat surveys at the windfarm site found Leisler’s bat, Common pipistrelle and Soprano pipistrelle the most commonly recorded bats over the various survey periods. These species are considered to have high collision risk with turbines.

2.4. Likely significant effects and mitigation measures

The Applicant has determined that the development of the windfarm at this site poses a medium collision risk to Leisler's Bat, Soprano and Common pipistrelle bats based on evaluation system used. High levels of bat activity were recorded near turbine locations 3,5,6,7, 8, 10 and 11 based on static detectors located within 50m of conifer forestry edge (see Bat Report Table 3-3). Mitigation measures involving the curtailment of these turbines is proposed at certain times of the year when weather conditions are most suitable for bat activity (Bat Report Table 6.1). The independent review finds that the mitigation proposed involving curtailment and adaptive monitoring to reduce bat mortality or injury to non-significant levels is in line with industry practice as presented in NatureScot Guidelines (2021).

The independent review recommends that post construction monitoring with adaptive management be implemented over a minimum of three years at all turbine locations in line with the Applicant's proposal. The independent review recommends that trained dog searches be implemented for greater accuracy of finding any bat carcasses. The Applicant has proposed that dog searches will only be necessary where observed human searcher efficiency is less than 50%.

Curtailment as a form of mitigation is a recognised practice with scientific evidence showing significant reductions in bat collision related mortalities when correctly applied and monitored. The integration of programmed downtime based on specific parameters reduces inefficient powering down periods. The Applicant has specified that downtime will be programmed to kick-in based on certain parameters integrated into SCADA system. As outlined in the NatureScot Guidance relied upon by the Applicant:

'In order to minimise down time, the threshold values at which turbines are feathered should be site specific and informed by bat activity peaks at that location, but as an indication, they are likely to be in the range of wind speeds between 5.0 and 6.5m/s and at temperatures above approximately 10 or 11°C

measured at the nacelle. Significant savings can be achieved by so-called “smart” curtailment over the other less sophisticated alternatives’.

In addition, feathering of turbine blades when wind speeds are below the cut-in speed is proposed for all turbines.

If the Board are minded to grant planning permission for the proposed windfarm, the consideration of the use of dogs for survey of bat casualties should be added as a condition to the proposed mitigation and adaptive monitoring plan.

Operational monitoring should be undertaken over a minimum of 3 years post construction providing periodic evidence-based reviews of the effectiveness of the curtailment program and allowing for refinement or scaling back of the curtailment. Reports of the results of the monitoring should be submitted to the planning authority and to the National Parks and Wildlife Service.

2.5. Conclusion

The independent review corroborates the findings of the Applicant that with the application of proposed mitigation measures including selective, timed curtailment of turbines with operational monitoring and adaptive management, significant negative impacts on bats will be prevented.

The impact assessment does not predict significant displacement of individuals or local bat populations as there will be no net loss of linear landscape features for foraging and commuting bats and there will be no loss of roosting sites. There will in fact be an increase in forestry edge habitat due to clear-felling/ keyholing into conifer plantation which may increase the attractiveness to bat species foraging in the area. The proposed 50m buffer area (from blade tip) around the turbines is designed to mitigate the risk of bat collision or injury within this cleared space

3.0 Potential impacts on Birds

3.1. Context

The independent review of documents relating to birds at the proposed Glenard windfarm was prepared by Dr Brian Sutton, BSc, PhD, CEnv, MCIEEM (See Appendix 2). Dr Sutton focused his examination and review on the following documents:

- EIAR Chapter 6 – Biodiversity
- EIAR Chapter 7 – Ornithology
- Response to Observations by the Department of Housing, Local Government and Heritage including additional survey results from 2021/2022
- Natura Impact Statement.

Dr Suttons report is presented in the order above which examines the information in a sequential manner. Therefore, the review of Chapter 7 doesn't take into account the results of the bird surveys undertaken in 2021/2022 which showed some notable changes at the site with breeding Goshawk and Merlin and increased records of White-tailed Eagle. In summarizing the findings of the independent report, I have considered the predicted impacts based on all survey data.

The independent examination and assessment considers impacts on all target bird species but with a focus on Annex I bird species including Hen Harrier, White tailed Eagle, Golden Plover, Merlin and Goshawk in terms of potential habitat loss, disturbance, displacement and collision risk for these species from the proposed windfarm alone and in combination with other existing and proposed (consented) windfarms.

3.2. Approach and Methodology

The independent examination finds that in general, the approach to survey methodology and assessment follows accepted methodology and industry practice including NatureScot Guidance² (formally Scottish Natural Heritage-SNH).

The issue of lifespan of survey data is raised, highlighting that data over 5years is considered dated. However, I am satisfied that surveys undertaken in 2021/2022 and associated updated assessment and collision risk analysis for species with increased records supplements data collected in earlier years and presents the most up to date data that the Applicant could have submitted as part of the current planning application.

The independent examination by Dr Sutton is critical of the limited timeframe afforded to migration surveys undertaken by the Applicant consisting of three hours per month between August 2016 and March 2017 as he considers the approach unlikely to detect significant migratory movements. Dr Sutton observes that large scale movements can occur within short time periods, are highly variable at diurnal and seasonal scales and are largely unpredictable. He makes particular reference to Whooper swan, a target species which was not recorded during the dedicated migratory surveys.

The Board will note that the migratory survey was just one of a series of bird surveys undertaken at the windfarm site (See EIAR 7.2.4) and the Applicant has undertaken 36hrs per vantage point (no.6) over the non-breeding season and breeding season covering a period from September 2016- September 2022 (excluding 2020). Whooper swan was recorded flying over the windfarm site during standard vantage point surveys on numerous occasions and was recorded

² Scottish Natural Heritage (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms, Version 2.

in large numbers at traditional staging areas at Inch levels as part of the wildfowl distribution and abundance surveys.

The potential movements of large numbers of Whooper Swans is the main concern identified by the independent review. Lough Swilly and Lough Foyle and surrounding areas are the most important roosting and foraging habitats for migrating flocks on arrival from Iceland and the movement of birds between these sites is a focus of Dr Suttons assessment.

3.3.Field survey results and evaluation of conservation importance

The independent examination finds that the accounts of target species including their conservation significance is appropriate.

Most records of significance are of birds flying over/ through the airspace of the proposed windfarm as the conifer plantation that dominates the site limits habitat availability for bird species. Of note is the additional surveys undertaken in 2021/2022 which found increased observations for Goshawk, Merlin and White-tailed Eagle. The identification of a Goshawk breeding territory within the windfarm site is noteworthy change and Merlin were confirmed breeding within 600m of a proposed turbine location and another pair recorded 2.6km from the windfarm. Whooper swan were observed on two occasions only over this period- in small numbers commuting over the site

3.4. Likely significant effects and mitigation measures

The independent examination and review of the impact assessment presented in the EIAR and 2021/2022 data corroborates the applicants findings in general. A level of uncertainty regarding Whooper Swan is the only deviation from that presented by the applicant.

Predicted impacts range from slight negative to insignificant for most species based on habitat loss, displacement or collision. The increased occurrence of White-tailed eagle in the 2021/2022 surveys has resulted in an increased risk of collision for this species and it is considered a **moderate significant effect**.

The independent examination found that predicated impacts on key ornithological receptors are generally appropriate given the habitats and specific behaviours of the species of concern and that mitigation measures and monitoring programmes follow established practice.

The only deviation from the Applicants conclusions is in relation to Whooper Swan. Dr Sutton observes that the Glenard site occupies a significant gap in a spread of existing turbines that extend from east to west across the higher ground near the southern base of the Inishowen peninsula. Observations of small numbers of Whooper swans passing over the site show that this area is used at least occasionally by this species as identified during vantage point surveys and Dr Sutton considers that observations to date do not preclude the use of the gap by significant numbers of Whooper Swans.

Construction of the Glenard wind farm would effectively close the gap between existing wind farms, with a consequent increase in collision risk for birds passing through the site or cause a barrier effect affecting bird behaviour. Dr Sutton also raises uncertainty regarding transboundary and cumulative impacts for Whooper swans.

Cumulative impacts for other bird species are assessed to be not significant, apart from a moderate significance with regard to collision risk for white-tailed eagle.

The Board will note that concerns for whooper Swan movements were not raised in the Department of Housing, Local Government and Heritage submission on

nature conservation. The approach to survey is in line with industry standards. It is evident from that the location of the proposed windfarm on the Inishowen Peninsula informed the approach to survey and data collection and there is no reliance on just the migratory surveys undertaken in 2016 and 2017 to inform the risk to Whooper swan. The Applicant has confirmed that there are occasional flights through the proposed windfarm site with most flights in the direction of Lough Swilly. As Dr Sutton observes, large movements of significant numbers of Whooper swan can occur over short time spans as the birds move in/out of the staging areas at Lough Swilly and Lough Foyle. Definitively ruling out the possibility of such movements over the site is not feasible however, given the location and topography and low number of Whooper Swan recorded it is reasonable to consider that the majority of flocks moving between Lough Swilly and Lough Foyle do so south of the proposed windfarm site around what the NPWS refer to as the Lough Swilly/Lough Foyle/River Foyle complex³. North of the windfarm site Whooper Swan were also recorded moving between the reservoir at Eddie Fullerton Dam, Lough Turk and Lough Foyle during Wildfowl distribution surveys.

Table 1 presents a summary of predicted impacts on Annex I bird species for the Board taking account of the Applicants determination and the independent examination and review.

Table 1 Summary of predicted impacts on Annex I bird species and Goshawk from EIAR including 2021/2022 data and assessment from independent examination

Bird species	Status on proposed windfarm site	Habitat loss	Disturbance/Displacement Mitigation	Collision risk
Hen Harrier Annex I	Nat importance: Winter: roosts on site (2-4 birds) and within 1.5km and foraging	Long term slight negative	Design of windfarm considers location of winter roost – nearest turbine is 750m from roost site	Not significant

³ (NPWS 2011, Lough Swilly SPA, Conservation Objectives Supporting Document

Bird species	Status on proposed windfarm site	Habitat loss	Disturbance/Displacement Mitigation	Collision risk
	Freq record over breeding season- but no evidence of breeding within 2km of site		Low effect significance and long-term slight negative Mitigation: exclusion of works within 750m of the known hen harrier roost	
White-tailed Eagle Annex I	Nationally important Marked increase in occurrence in 2021/2022 survey period Juvenile birds recorded	Slight negative - not significant	No breeding or roosting within 2km. Majority of windfarm habitats are suboptimal (conifer plantation) Slight negative – not significant	Significant (moderate) at 1/ 1.9 years if activity remained (95% avoidance rate) Mitigation plan for management/ removal of fallen animals Cumulative effect: moderate significance
Merlin Annex I	Local importance Nest in adjacent woodland Nesting 600m from turbine layout in 2022 but construction compound within 250m	Slight negative – not significant	Possible disturbance –during construction phase. Moderate negative during construction phase of road and compound Mitigation can be applied Not significant	Not significant low effect significance (Percival, 2003) and long-term slight negative effect (EPA, 2022) predicted for merlin, post mitigation.
Goshawk	Local importance Single record between 2016 and 2021 In 2022 found nesting on the site with territory overlapping with windfarm.	Slight negative – not significant Loss of nesting site	Will be displaced from future breeding at the site once construction commences. Goshawk tend to have two or more alternative nest sites and given other suitable nesting habitat it is likely that this pair has alternative nest site. Local negative impact	Not significant (0.02 collisions/year)
Golden Plover (SCI Lough Foyle SPA) Annex I	Local importance Low numbers- Wintering birds / spring passage	Habitats not suitable - dominance of forestry	Not significant Long term imperceptible negative effect	Not significant Predicted collision risk is long term negligible negative effect in context of

Bird species	Status on proposed windfarm site	Habitat loss	Disturbance/Displacement Mitigation	Collision risk
				SPA populations
Whooper swan (SCI Lough Swilly and Lough Foyle SPAs), Annex I	County Importance Small flocks (2-21) birds commuting Large flocks (up to 900 at Inch levels 7km from windfarm site)	Habitats not suitable	Applicant: Not significant External review: uncertainty regarding possible movements of larger flocks	Applicant Not significant Long term - Imperceptible negative Collision risk modelling showed increased annual mortality to be non-significant for all SPA populations based on low numbers recorded (Table 5.1 NIS) External review: uncertainty regarding possible movements of larger flocks

3.5. Conclusion

In general, the independent review corroborates the findings of the Applicant regarding predicted impacts on key ornithological receptors.

A degree of uncertainty is raised regarding possible movements of large numbers of Whooper swan over the proposed windfarm site which forms a gap between other windfarms between important sites around Lough Swilly and Lough Foyle. The Applicants assessment of no significant effects on this species is based on low numbers of birds recorded over multiple years of survey in line with industry standards.

4.0 Implications of the proposed development on the Special Conservation Interest features of Lough Swilly SPA, Lough Foyle SPA (Ireland and UK)

4.1. Context

Blackstaff Ecology were requested to provide an independent appraisal of the assessment presented in the AA Screening and NIS of the implications of the proposed development on the SCIs of Lough Swilly SPA (004075), Lough Foyle SPA (004087) and Lough Foyle SPA (UK 9020031).

4.2. Stage 1 Screening

The independent examination carried out by Dr Brian Sutton corroborated the findings of the AA screening provided by the Applicant.

The possibility for significant effects on Lough Swilly SPA (004075), Lough Foyle SPA (004087) and Lough Foyle SPA (UK 9020031) could not be excluded in view of the conservation objectives of a number of bird species and wetland habitats that support those species. The potential for direct impacts on bird species which are SCI features of the SPA sites and also recorded during surveys could not be excluded in relation to displacement and disturbance effects and collision risk. Indirect effects on habitat quality. The exclusion of significant effects arising for other SCI species of the SPA sites is adequately justified based on objective information in view of the conservation objectives and ecological preferences of those species.

Table 2: SPA sites and SCI features for which the possibility of significant effects could not be excluded in stage 1 screening.

Lough Swilly SPA (004075)	Lough Foyle SPA (004087)	Lough Foyle SPA (UK 9020031)
Grey Heron Mallard Whooper Swan Greylag Goose Wigeon Black-headed Gull Common Gull	Whooper Swan Greylag Goose Wigeon Mallard Golden Plover Curlew Black-headed Gull Common Gull Herring Gull	Golden Plover Whooper Swan Mallard Wigeon Curlew
Wetland and Waterbirds	Wetland and Waterbirds	

4.3. Stage 2: Appropriate Assessment

The independent examination carried out by Dr Sutton aligns with the findings of the assessment provided in the NIS which excludes adverse effects on site integrity of the three SPA sites in view of the conservation objectives except for Whooper Swan. This is an SCI species of all three SPA sites and the external examination finds a degree (unquantified) of uncertainty regarding the use of the Glenard airspace by Whooper Swans during migration periods and dispersal between the SPA sites following arrival in autumn.

Dr Sutton does not expand upon this uncertainty in relation to the conservation objectives for the SPA sites. He considers that the collision risk determined by the Applicant (not significant and no adverse effects in view of conservation objectives) is provisional in the absence of more evidence regarding movements of the species at migration peaks. His particular concern is the period of time where large numbers of birds arrive to Lough Swilly. He acknowledges that it is possible that birds arrive directly at the lough at points to the west of the Glenard site, but the fact that small numbers of swans pass over the site in the direction of Lough Swilly indicates that this a *feasible route for an unknown number* of birds. He observes that the Glenard site constitutes a significant gap in a spread of wind farms that extend across higher ground at the base of the Inishowen peninsula and the issue

of whether this area provides a relatively safe flightline for birds, particularly migrating Whooper swans results in a conclusion of some uncertainty with regard to cumulative effects on this species in particular.

The Board will note that I have considered this issue in the previous section in terms of the consideration of this issue by the applicant from the earliest surveys undertaken and the survey effort of over multiple years (Section 3.4) which found no evidence of regular flight paths and low levels of Whooper Swan movements across the site. Nonetheless, a degree of scientific doubt has been identified. This residual risk needs to be considered by the Board in a manner proportionate to nature and scale of risk to the SPA sites.

Definitively ruling out the possibility of such movements over the site with absolute certainty is not feasible. When dealing with uncertainty the integrity test is one of 'reasonable scientific doubt' rather than absolute certainty. In order to assist the Board in putting the risk identified into context I expand upon the risks in view of the conservation objectives.

Lough Swilly and Lough Foyle are the two most important SPA sites for this species in the Republic of Ireland and Lough Foyle is the fourth most important site for Whooper Swan in the UK. As described in the Conservation Objectives Supporting Documents for both Lough Swilly SPA and Lough Foyle SPA (NPWS 2011) these sites form part of the Lough Swilly/Lough Foyle/River Foyle complex as Whooper swans move frequently around the whole area. The area is particularly important as a staging area in late October/early November when thousands of swans congregate at the site before making onwards movements.

The Applicant has undertaken comprehensive and extensive bird surveys using multiple survey methods over a period of time extending from 2016 to 2022 covering the critical period of October/ November that Whooper Swans congregate

at the Lough Swilly/Lough Foyle/River Foyle complex. Whooper swan was recorded flying over the windfarm site in low numbers during standard vantage point surveys on numerous occasions and was recorded in large numbers at traditional staging areas at Inch levels as part of the wildfowl distribution and abundance surveys. The evidence points to occasional flights through the area. Given the location and topography and low number of Whooper Swan recorded it is reasonable to consider that the majority of flocks moving into Lough Swilly and Lough Foyle do so outside of this elevated area between the SPAs and that movements between the sites is infrequent over the elevated site of the proposed windfarm.

The conservation objectives for Lough Foyle and Lough Swilly SPAs (IRL and UK) in view of Whooper Swan is to maintain the favourable conservation condition. This is achieved where the long-term population trend stable or increasing and where there is no significant decrease in the range, timing or intensity of use of areas by Whooper swan, other than that occurring from natural patterns of variation.

In the assessment of disturbance and displacement of the SPA populations presented in the NIS, the low levels of flight activity recorded relative to the survey effort combines with assessment of flightlines relative to proposed turbine locations led to the conclusion that significant displacement impacts will not occur for Whooper swan during the construction, operational or decommissioning phases. Section 5.1.1 of the NIS presents collision risks for the SPA populations based on a worst case scenario of the data collected and found that the collision risk is negligible with no significant effects anticipated due to collision risk for SPA populations.

The collision risk has been calculated at a ratio of 0.18 collisions per year or one bird every 5.5 years. Annual mortality of adult whooper swan has been calculated

at 20% per annum. A 1% increase in background mortality level is generally considered a significant population level impact for windfarm collision assessments. The Applicant has calculated that if 0.18 collisions were to occur per year based on data collected at the windfarm site, it would mean that the losses at the proposed wind farm would increase the annual mortality of the SPA populations as follows (population sizes in brackets):

- Lough Swilly SPA (1673) - 0.05%
- Lough Foyle SPA (811) – 0.11%
- Lough Foyle SPA (UK) (890) – 0.1%,

These predicted levels are far below the 1% increase in background mortality that would constitute a significant population level impact for the SPAs.

In acknowledging the degree of uncertainty raised in the external review, it is my professional opinion that the evidence presented in the NIS and all associated bird surveys is adequate to dispel reasonable scientific doubt as to the validity of the Applicants findings of no adverse effects on site integrity of the SPA sites.

4.4. Conclusion

In general, the independent review corroborates the findings of the Applicant in Screening for Appropriate Assessment and of the NIS where adverse effects on site integrity for Lough Swilly and Lough Foyle (Irl and UK) can be excluded with confidence in view of the conservation objectives of those sites.

In order to reach clear, precise and definitive conclusions regarding the exclusion of adverse effects on European Sites for the Appropriate Assessment, the Board needs to be satisfied that no reasonable scientific doubt remains as to the absence of such effects.

In acknowledging the degree of uncertainty raised in the external review regarding movements of Whooper Swan, a SCI of the three SPA sites, I consider that the evidence presented in the NIS and all associated bird surveys is adequate to dispel reasonable scientific doubt as to the validity of the Applicants findings of no adverse effects on site integrity of the SPA sites.

Signed by

A handwritten signature in blue ink, appearing to read 'Maeve Flynn', with a stylized, flowing script.

Maeve Flynn BSc. PhD, MCIEEM
Inspectorate Ecologist

11/12/2024

Appendix I

Review of Documents Relating to Bats at Proposed Glenard Wind Farm

Review of Documents Relating to Bats at Proposed Glenard Wind Farm

Introduction

An Bord Pleanála appointed Blackstaff Ecology Ltd to analyse and assess the potential for a proposed wind farm at Glenard, Co Donegal to have effects on bat species that are strictly protected under the Habitats Directive (92/43/EEC). All bats are listed in Annex IV and some are listed in Annex II

Statement of Authority

This short report has been prepared by This short report has been prepared by Cormac Loughran CEnv MCIEEM MSc, Director of Blackstaff Ecology Ltd. Cormac is a Chartered Environmentalist (CEnv), and a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). He has worked professionally as a Consultant Ecologist for the past twenty years. He holds an MSc (Distinction) in Environmental Management from the University of Ulster, and has extensive experience in a broad range of flora and fauna surveys. He has undertaken and coordinated the Ecological Impact Assessments (including bats) for numerous infrastructure developments; including over 20 windfarms across Ireland.

Review of Documents

A review of the following documents related to the project was carried out:

- Appendix 6.2 - Bat Survey Report for the scheme.

These documents have been reviewed in the light of guidance provided by the following authorities:

- BATS AND ONSHORE WIND TURBINES: SURVEY, ASSESSMENT AND MITIGATION Version: August 2021 (updated with minor revisions);
- Collins, J. (ed.) (2023) the Bat Conservation Trust has produced Bat Surveys for Professional Ecologists: Good Practice Guidelines 4th edition; and
- Guidance on Bat Surveys, Assessment & Mitigation for Onshore Wind Turbine Developments – Version 1.1 NIEA, Natural Environment Division, March 2024.

Review of Appendix 6.2 – Bat Survey Report

Bat Survey and Assessment Guidance

This section provides a comprehensive list of the sources of guidance to be followed in the report, with appropriate mention of the NatureScot (formerly SNH) 2021 Guidance which has become the standard for bat surveys at proposed windfarms in Ireland.

Statement of Authority

Members of the survey and reporting team are listed, together with their academic and professional qualifications.

Methodology

Standard procedures and methodologies were used to provide descriptions of the elements of site in terms of habitats, bats and potential roosting locations.

Multidisciplinary Surveys

This section outlines the dates of the 12 occasions that dedicated bat surveys were undertaken.

Roost surveys

The appropriate buffer was applied and searches for roosts undertaken as per the SNH guidance. Two roosts were identified during surveys with a peak count of 10 bats. It would have been useful to have an annotated diagram or figure showing the relative position and number of surveyors during each emergence re-entry survey (as has become the industry). There is also no mention of the use of NVA (Night Vision Aids) as recommended by BCT 2023 for use during emerge/re-entry surveys. These would have been useful as the report mentions that not all emerging bats were registered on the bat detectors indicating that they may not have been echolocating at the time. Therefore, the roosts could have potentially contained larger numbers of bats. Which an NVA would have recorded.

Manual Transects

Walked or driven transects were undertaken during summer & autumn 2019 and during spring, summer & autumn 2020. Again, the age of the surveys is a concern. Also, the coverage (as shown on Figures 4.1 to 4.6) does not extend to all areas of the site (in a given season). However, SNH 2021 states;

“Either/both of these survey methods (walked transect and vantage point surveys) can be used to complement the information gained from static detectors and other sources, but their applicability is discretionary and site-specific.”

Therefore, this is not seen as a significant constraint.

Ground-level Static Surveys

SNH 2021 states that;

“Where developments have more than ten turbines, detectors should be placed within the developable area at ten potential turbine locations plus a third of additional potential turbine sites up to a maximum of 40 detectors for the largest developments.”

At Glenard, (during 2019) nine locations were surveyed. This was supplemented by four additional locations (during 2020). In addition, 12 turbine locations should have been surveyed (in a given year). Although, it is also noted however, that more than the required 10-nights were recorded which ameliorates this issue somewhat.

The location of the static detectors is also not at each of the proposed turbine locations. Although the data collected is likely representative of the activity levels across the wider site.

Otherwise, the duration, timing and equipment are all in keeping with the recommended guidance.

Static Surveys at Height

These are a useful addition to the ground level surveys mentioned above.

Key-holing/Bat felling buffer

The deployment of paired static detectors can provide a useful comparison between bat activity at a proposed wind turbine site and nearby habitat features. Although not specifically mentioned in SNH

2021, the use of ‘paired’ detectors is recommended by NIEA⁴ in situations where turbines are to be in effect key-holed into commercial forestry.

“Additionally, as the habitat available to bats will change post felling, it is important to try and represent what bat activity will be like on site post construction. Therefore, paired static detectors should be used at forestry edges and in more open habitats, such as forestry rides or clearings, to try and mimic what conditions will be like post construction.”

This maybe pertinent here, when a total of 80.5 hectares of forestry will be permanently felled within and around the footprint of the Proposed Development in order to facilitate infrastructure construction and turbine erection.

Assessment of Bat Activity Levels & Collision Risk

These are thorough and in keeping with industry practice.

Results

These are thorough and in keeping with industry practice; as is the data interpretation in terms of the recommended mitigation measures.

Risk and Impact Assessment

The report states that the cross tabulation of a **Medium project** on a **Moderate risk site** results in an overall risk score of **Medium**.

This contrasts with the initial assessment (based on habitats, as negligible (plantation forestry) and moderate (forest edge habitats).

Soprano pipistrelle

Detectors D05, D08, D10 and D11 all registered nights with High levels of Soprano pipistrelle activity in Autumn 2019. These detectors correspond to Turbines T5, T6, T7, T8, T10 and T11 (Figure 3-1).

Common pipistrelle

Detector D03 and D10 registered nights with High levels of Common pipistrelle activity in summer 2019 and D03, D08, D10 and D11 all registered nights with High levels of Common pipistrelle activity in Autumn 2019. These detectors correspond to Turbines T3, T5, T6, T10 and T11 (Figure 3-1).

Overall, site-level collision risk for high collision risk bat species was typically **Medium**.

BMMP including Curtailment

This is broadly in line with SNH 2021, and the described methodologies are sound. However, it must be emphasised that;

“At key-holed woodland/plantation sites (and other proposals involving extensive habitat alteration), pre-application survey data may not represent the situation post-construction, as the habitat available for bats will change following construction.”

Bat activity on upland sites is very much weather dependant and can change year on year (as shown by the applicant’s own survey data). This fact, in conjunction with the medium risk assessment for

⁴ Guidance on Bat Surveys, Assessment & Mitigation for Onshore Wind Turbine Developments – Version 1.1 NIEA, Natural Environment Division, March 2024

Common & Soprano pipistrelle), along with the proposed felling (i.e., bat buffer) means that bat activity on site will alter, along with flight paths and foraging areas. Therefore, the highest level of recorded activity could potentially occur at any of the turbines (in a post construction situation). Therefore, in addition to particular turbines being curtailed in line with Appendix 5 of SNH 2021 (carcass searches using trained dog search teams should be implemented for a minimum of 3-years post-construction (and all turbines should be searched at least once each season)).

As such, the proposed 'Adaptive Monitoring and Mitigation Strategy' ensures that curtailment will be implemented on any turbine (in the event that a bat carcass(es) is/are recorded).

Limitations

It is stated that the Bat Report that no limitations in the scope, scale or context of the assessment have been identified. Overall, a comprehensive assessment has been achieved.

Monitoring

Otherwise, the standard monitoring programme for pre- and post-construction works is proposed.

Cumulative Effects

The current recommendations for an adaptive monitoring and mitigation strategy suggest that the conclusion of no cumulative effects can be satisfactorily upheld.

Conclusion

The conclusion that the proposed wind farm will not result in any significant effects on the identified local bat population could potentially be upheld with the full implementation of the proposed turbine specific curtailment (as per Appendix 5 of SNH 2021); in conjunction with enhanced carcass searches using trained dog search teams.

Appendix 2

Review of Documents Relating to Ornithological Interests at Proposed Glenard Wind Farm

Review of Documents Relating to Ornithological Interests at Proposed Glenard Wind Farm

Introduction

An Bord Pleanála appointed Blackstaff Ecology Ltd to analyse and assess the potential for a proposed wind farm at Glenard, Co Donegal to have effects on bird species that are listed in Annex I of the Birds Directive and on the Special Conservation Interest (SCI), species of Special Protection Areas (SPAs). To these ends, Blackstaff is required to critically review Chapter 6 – Biodiversity and Chapter 7 – Ornithology, of the Environmental Impact Assessment Report (EIAR) produced by MKO Planning and Environmental Consultants, the associated Natura Impact Statement (NIS) and responses to requests for further information relating to the construction of the proposed wind farm. This review addresses only the proposed wind farm site, within the development red line submitted by the applicant, Futureenergy Glenard Designated Activity Company, and does not include access routes and connections outside the site.

Statement of Authority

This short report has been prepared by Dr Brian Sutton BSc PhD CEnv MCIEEM. Brian was awarded a PhD in Environmental Science by the University of Ulster. Prior to working at Blackstaff Ecology, he worked as a member of the Habitat Survey Team of the Environment and Heritage Service (now the Northern Ireland Environment Agency) for two years. Following this, he worked as a consultant ecologist for AECOM Ltd for 15 years, carrying out habitat, bird and mammal surveys for a wide range of governmental and private clients. He has produced numerous EclAs and PEAs, both during his time at AECOM and for Blackstaff Ecology. He has carried out HRA, both at Screening and Appropriate Assessment/Natura Impact Statement level, for numerous schemes, at a range of scales, from small private developments to major infrastructure projects. He has also prepared Strategic Environmental Assessments for a number of government plans. Brian has been a Principal Ecologist at Blackstaff Ecology for the past eight years.

Review of Documents

A review of the following documents related to the project was carried out:

- Chapter 6 – Biodiversity of the EIAR for the scheme;
- Chapter 7 – Ornithology of the EIAR for the scheme;
- Response to Observations by the Department of Housing, Local Government and Heritage.; and
- Natura Impact Statement for the scheme.

These documents have been reviewed in the light of guidance provided by the following authorities:

- EPA (2022) Guidelines on the information to be contained in Environmental Impact Assessment Reports;
- EC (2018) Managing Natura 2000 Sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC;
- EC92021) Assessment of plans and projects in relation to Natura 2000 sites. Methodological guidance on Article 6(3) and 6(4) of the Habitats Directive 92/43/EC; and
- CIEEM (2019) Ecological Impact Assessment Checklist.

Review of Chapter 6 – Biodiversity

Chapter 6 “assesses the likely significant effects (both alone and cumulatively with other plans and projects) that the proposed development may have on Biodiversity, Flora and Fauna and sets out the mitigation measures proposed to avoid, reduce or offset any potential significant effects that are identified.” This review is concerned solely with effects on ornithological receptors and any effects on other biological groups and receptors are not considered.

Introduction

The Introduction outlines clearly the objectives of the EIAR chapter of the site and notes the requirement for the scheme to be evaluated for its potential impacts on Natura sites.

Requirements for Ecological Impact Assessment

This section provides a comprehensive account of the requirements of national and European legislation and policy with regard to nature conservation. The requirements of the Birds Directive are described and its relationship with the Appropriate Assessment process established.

Relevant Guidance

This section provides a comprehensive list of the sources of guidance to be followed in the chapter, with appropriate mention of the Ramsar Treaty and the European Communities Regulations.

Statement of Authority

Members of the survey and reporting team are listed, together with their academic and professional qualifications. However, there is no indication of the experience of individuals in the relevant fields.

Methodology

Standard procedures and methodologies were used to provide descriptions of the non-avian elements of site biodiversity.

Establishing the Ecological Baseline

Criteria (distance, ecological linkages) for establishing which European sites, including SPAs, should be considered for effects from the proposed wind farm are consistent with good practice.

Table 6-4 states that there is no potential for direct effect on Lough Swilly SPA, as the proposed development is located entirely outside of this designated site. This statement does not take into account the fact that the majority of the SCI species that occur in the SPA are highly migratory and hence highly mobile. Whooper swan, in particular, may arrive in Lough Foyle in considerable numbers prior to dispersing to wintering sites elsewhere. **The proposed site is on a potential flightline between Loughs Foyle and Swilly, and Table 9 (Appendix 7-4) records that 17 out of 18 vantage point (VP) records of whooper swan passed through the observation area at collision risk height during the 2016/17, 2017/18 and late 2018 periods, involving a total of 116 birds.** Many records are of birds flying west or southwest, consistent with birds moving onward from Lough Foyle.

An alternative potential migration route for birds arriving directly at Lough Swilly from the north also passes over the proposed wind farm site. Return movements of birds wintering at Lough Swilly are perhaps more likely to use this route as they begin their journey back to Iceland.

Table 6-4 also discounts direct effects on the SCIs of Lough Foyle SPA. Since it is likely that there is some interchange of, perhaps *inter alia*, whooper swans between Lough Swilly and Lough Foyle, with likely flights documented between the two sites (see above), there are clearly potential direct effects on Lough Foyle designation species.

Description of the Existing Environment

This section identifies that the greater part of the site supports conifer plantation of varying stages of growth, with small areas of peatland habitats, with implications for the use of the site by breeding (particularly goshawk and hen harrier) and foraging (particularly hen harrier) Annex I raptor species.

Importance of Ecological Receptors

Table 6-12 acknowledges the international importance of Lough Swilly, Lough Foyle and Trawbreaga Bay SPAs as key ecological receptors, with potential indirect effects through water pollution.

Ecological Impact Assessment

Assessment of impacts on avian receptors is to be found in Chapter 7 – Ornithology. The need for a Screening level Appropriate Assessment of four SPAs is mentioned.

The areas of the various habitat types on the site that will be lost to the development are noted. Although not directly stated, the relatively small area of coniferous plantation that will be lost indicates that turbines will be inserted within the plantation habitat, with potential for effects on breeding and foraging Annex I raptors.

Potential cumulative effects on ecological receptors arising from the presence of 21 wind farms or wind farm extensions that lie between 100m and 20.1km from the proposed wind farm are addressed in the light of assessments carried out during the EIA process or each of the mentioned wind farms. None of these assessments identified cumulative effects arising from the respective schemes and adverse cumulative effects are not anticipated for the present scheme. It is understood that this assessment refers only to non-avian receptors.

Review of Chapter 7 – Ornithology

Introduction

The Introduction outlines clearly the objectives of the EIAR chapter of the site. A comprehensive list of legislation, policy and guidance that are considered relevant to the proposal is provided.

Statement of Authority

Members of the survey and reporting team are listed, together with their academic and professional qualifications. However, there is no indication of the extent of the experience of individuals in the relevant project.

Assessment Approach and Methodology

Sources accessed for the desktop study are relevant and comprehensive and the list of consultees is appropriate. It is noted that some key consultees, particularly the Irish Raptor Study Group and the Irish Red Grouse Association had not replied at the time of publication.

The rationale for identifying Target Species is outlined and the list of species in Table1, Appendix 7-1 is suitable and appropriate.

Field survey methodologies are described. It is stated that Field surveys were undertaken during the survey period August 2016 - September 2019 and December 2020 – September 2021, in compliance with SNH guidance (SNH 2017⁵). However, SNH (2017) indicates that data over five years old (i.e. prior to 2019 in this case) is considered to be dated. This is of particular importance where the status of a significant species is changing rapidly. It may be argued that this is the case with white-tailed eagle, which has increased significantly in recent years in both western Scotland and southwest Ireland, with a consequent increase in records of the species in north Ireland. This species appears to be particularly susceptible to collision with turbine rotors at some localities⁶. Further data were collected between October 2021 and September 2022 but have not been included in the collision risk analysis.

Vantage point surveys

The initial paragraph of 7.4.2.1 is somewhat confusing. It is stated that VP surveys were undertaken from six vantage points (VP1-VP6) during September 2016 to September 2019 and January to September 2021. The document goes on to state that VP watches were carried out from six points using a different numbering scheme (VP1a etc) between February and September 2021. However, interrogation of Table 1, Appendix 7-2 shows that VPs 1a etc were used from August 2016 until July 2019, at which point the VP1-6 scheme came into use. The VP1a numbering scheme reappears in April 2019 until July 2019, following which the VP1-6 scheme is used. VPs 1, 2 and 5 are not shown in Fig 7.1, although records from these VPs are included in Table 1 between October 2018 and April 2021. This period overlaps with VPs carried out by Canavan Associates, whose VP locations are mapped in Figs 7.2.12 and 7.2.13 as VP1 and VP2 respectively. It is not clear whether the MKO VP1 and VP2 and the Canavan VP1 and VP2 are the same or different, since they are all used over the same time period. An accurate statement regarding which VPs were used and when would be useful. An indication of the reason for changing VP usage during the course of the survey programme would facilitate an analysis of the coverage achieved during the survey.

The viewshed map (Fig 7.2.1) indicates that the locations of Turbines T05, T06, T12 and T13 at swept height were not visible from any vantage point during surveys in 2016-2019, a significant part of the period largely used for collision risk analysis. However, Table 1, Appendix 7-2 shows that VP3a, the vantage point from which T05 and T06 are visible was in fact in use from April 2017, despite the statement that “the proposed turbine layout was surveyed from six fixed VPs (VP1a, VP2a, VP3a, VP4, VP5a and VP6) and a seventh fixed VP (VP7) between February and September 2021,” implying that these four swept volume locations were only visible between February and September 2021, with the acquisition of VP3a and VP7. The difficulty of obtaining adequate visibility of the site due to topography and the prevalence of forestry is acknowledged.

Viewshed analysis follows SNH guidelines. However, VP3 is not included in the list of VPs used, although it was clearly in use during part of the survey period. This confusion extends to Table 7-2, which records the VP hours at up to 7 VPS, while Fig 7.1 indicates eight VP locations. Review of Table 1, Appendix 7-2 suggests that a number of watches were in excess of the three hours recommended in SNH (2017).

Breeding walkover surveys

⁵ SNH 2017. Recommended bird survey methods to inform impact assessment of onshore wind farms. March 2017. Version 2.

⁶ May, R. Nygard, T. Falkdalen, U. Astrom, J. Hamre, O. and Stokke, B.G. 2020. Paint it black: efficacy of increased wind turbine rotor blade visibility to reduce avian fatalities. *Ecology and Evolution*, 10, (2020), 8927-8935

Surveys referenced an accepted methodology. Surveys in 2017 were intensive and covered the entire breeding season. Surveys in 2018 were restricted to June and no surveys were carried out in 2019 and 2020. Surveys in 2021 conformed to SNH (2017) guidelines. However, two out of the three survey years are over five years old. In the absence of significant habitat change and considering the likely breeding wader assemblage (apparently confined to snipe) at this location, the remaining, more recent, survey is likely to provide a reasonable indication of the breeding wader population of the site. Fig 7.3 indicates that the area around Turbine T12 was not surveyed. The surveyed area extended a considerable distance beyond the limits of the site towards the east.

Breeding raptor surveys

Surveys follow an accepted methodology. Three out of the four survey years are over five years old, which would generally be regarded as delivering old data.

Winter walkover surveys

Surveys follow an accepted methodology, with a considerable extension of the surveyed area to the east of the wind farm site.

Hen harrier roost surveys

Surveys followed an accepted methodology. Three of the four survey periods are over five years old (see above). The tendency for hen harrier to use traditional roost sites suggests that, in the absence of habitat changes or an increase in disturbance, the most recent survey period results are likely to remain valid.

Golden eagle surveys

These surveys took place in 2017 and their results may be dated. The species is long-lived and a territory, once established, may be occupied for a considerable number of years; results of the survey may therefore be indicative of current conditions. The proposed wind farm is in any case at or beyond the likely foraging range of the breeding birds (SNH 2016)⁷

Wildfowl distribution and abundance surveys

Surveys are likely to have considered all the significant wildfowl wintering sites within the vicinity of the proposed wind farm.

Migratory surveys

The limited surveys (three hours per month between August and March of 2017) are unlikely to detect any significant migratory movements. Large scale movements can occur within very short time periods, are highly variable at diurnal and seasonal scales and are largely unpredictable. Coincidence of significant movements and short period watches well-separated in time would be serendipitous. In particular, large-scale arrivals of whooper swans can occur within a matter of hours at Lough Foyle (pers obs) and onward movements may also be rapid over short time periods. Large numbers of whooper swans (>1,500) use Lough Swilly SPA and presumably arrive in autumn from a northerly quadrant(s) and many are likely to pass over the survey observation area. It is noted that none of this highly visible species, which may be regarded as a marker for the efficacy of this survey, was detected during the migratory surveys.

⁷ SNH 2016: Assessing connectivity with Special Protection Areas (SPAs). Guidance

Red grouse surveys

The surveys used a recognised methodology in appropriate habitats.

Breeding woodcock surveys

The surveys used a recognised methodology and covered most of the areas of apparently suitable woodcock breeding habitat.

Supplementary field surveys

These surveys, carried out variously between October 2019 and August 2020 updated some of the dated (>5 years) surveys used in the EIAR. It is noted that the breeding walkover survey comprised three visits, rather than the four recommended in SNH (2017), although the limited range of likely breeding target species (snipe) suggests that results of the surveys are representative. The surveys confirm the presence of a number of target species that were recorded during the earlier surveys.

Ornithological Evaluation Criteria and Impact Assessment Methodology

Assessment methodology follows established procedures and is described in detail.

Collision risk assessment

The collision risk methodology adopted uses the established methodology described in Band *et al* (2007).

Survey justification

The range of surveys carried out is correctly described as comprehensive, although the fact that some of the surveys would normally be considered to be dated is not mentioned. It would be useful if these older (>5 years) surveys were differentiated from more recent surveys and some analysis of any changes in distribution and population size of target species carried out.

Mitigation

General statements are made concerning the aim to avoid, reduce and minimise effects on all ornithological receptors. This section would be better included in the conclusion to the EIAR, where the appropriateness of the statements could be tested in the light of the results of surveys and assessments of effects in later sections of the report.

Limitations

It is stated that the EIAR chapter accurately and comprehensively describes the baseline environment. However, the confusion noted above with regard to vantage point distribution and timing upon which understanding of the EIAR conclusions rely, the outdated data used in some analyses and the limited utility of the migration surveys make it difficult to assess the merits of this statement.

It is also stated that “Furthermore, a third and fourth survey year, consisting of two breeding seasons and two non-breeding seasons were undertaken between October 2018 and August 2020 and December 2020 and September 2021, exceeding the minimum two-year recommended survey period outlined in SNH guidance (SNH 2017).” Interrogation of Appendix 7-2, Table 2 shows a gap in breeding walkover surveys between 30.07.2018 and 29.04.21. Appendix 7-6, Table 1 records three supplementary breeding walkover surveys in May-July 2020. Appendix 7-6, Table 4 provides records winter walkover surveys for three dates in November 2019 to December 2020. It is not recorded whether additional surveys were undertaken on further dates, with no target species found, or

whether these are the only survey dates within the period of concern. VP, breeding raptor and hen harrier roost supplementary surveys are recorded as appropriate.

Baseline Conditions and Receptor Evaluation

Identification of Designated Sites within the Likely Zone of Influence of the Development

Protected sites within the anticipated zone of influence are identified following current guidelines.

Table 7-8 appears to show some confusion between the concept of zone of influence and the area actually covered by the various surveys. It is unlikely that the majority of designation species of Lough Swilly SPA, which is within the prescribed zone of influence, were not present during the period covered by the various surveys. For example, curlew, which is precluded from further consideration, is recorded on numerous occasions at Blanket Nook. Species that are selected for consideration of impacts are appropriate, based on their occurrence within the areas outlined in the specified methodologies.

Data and/or responses from appropriate sources of wintering and breeding bird atlases, IWeBS, BirdWatch Ireland, BTO and NPWS are recorded.

Field survey results

Target species are listed that conform to accepted criteria as species of conservation significance.

Accounts at an appropriate level of detail are provided for individual species of conservation concern that were recorded during the various surveys.

Evaluation

Records are reviewed species by species and the significance of the records evaluated. It is noted that this evaluation concerns the importance of the populations of which the recorded birds are part, rather than the importance of the proposed site to those populations. The only exception concerns those species for which the site is assessed to have any ecological importance. In consideration of the importance of the populations recorded at the site, it must be noted that records presented cover the five years from 2017 to 2021.

Golden eagle

Golden eagles recorded at the site are likely to be from the Irish population, considering the reluctance of the species to cross large bodies of water. The evaluation that birds recorded at the site are of a nationally important population is appropriate.

Golden plover

There is a strong association of this species with short vegetation and the dominance of plantation forestry at the site indicates that golden plover are unlikely to find the site attractive at any stage of their annual cycle. Small numbers of mainly overflying birds are consistent with the evaluation of the site as being of local importance during the winter/passage periods and of no ecological importance during the breeding season.

Goshawk

A single winter record is consistent with the evaluation of no ecological importance of the site for this species.

Hen harrier

The site was used consistently by foraging hen harrier throughout the winter survey periods. The occurrence of hen harriers at roost in the close vicinity of the proposed wind farm throughout the survey period is recorded. Of particular importance is the presence of a roost within the site during the most recent surveys (2019-2021), with up to four birds present. On the basis of the consistent occurrence of multiple birds at the site, the evaluation of at least national importance of the species is appropriate.

The frequent appearance of the species during the breeding season indicates that at least one breeding territory in the vicinity of the proposed wind farm. SNH (2016) indicates that the core foraging range of the species is within 2km of the nest site, with a maximum range of 10km. With a declining population of the species in Ireland, and a continuing loss of foraging/breeding habitat to, mainly, agriculture, the precautionary evaluation of the population to be of at least national importance is appropriate.

Merlin

The observation of young being fed within 2km of the proposed wind farm suggests that the species had a nest site in the adjacent woodland. The limited observations of the species are typical for this species, which can be difficult to observe, particularly at significant distances, due to its small size, characteristically low, contour-hugging, fast flight and dark colouration against often dark bog vegetation. The precautionary evaluation of the population as of local importance (higher value) is appropriate.

Osprey

The single observation of this species justifies the evaluation of no ecological importance of the site for this species.

Peregrine

Occasional records of this species throughout the recording year are likely to include foraging birds that breed in the general vicinity of the proposed wind farm and the evaluation of the population as being of local value (higher value) is appropriate.

Red kite

The evaluation of no ecological importance of the site for this rarely-occurring species is appropriate.

Whooper swan

This section differentiates the population of whooper swans that winter in Ireland. The close proximity of a major wintering/transit area for this species at Lough Foyle, and the interchange that occurs between the two jurisdictions, suggests that the overall population of the species should also be considered, since the birds from both entities comprise a single biogeographical population. In particular, cross-border presence must be considered when, for example, effects on SPA populations are evaluated. Records from site surveys were of occasional small parties passing over the proposed site; in the absence of suitable wetland habitats the evaluation of the site as of no ecological importance for the species is appropriate.

Black-headed gull

The species was recorded on six occasions within 500m during site surveys. In the absence of suitable wetland habitats on the site, the evaluation of the population to be of local importance (higher value) must be considered precautionary.

Common gull

The species was recorded on three occasions within 500m during site surveys. In the absence of suitable wetland habitats on the site, the evaluation of the population to be of local importance (higher value) must be considered precautionary.

Grey heron

The species was recorded on twenty occasions within 500m during site surveys, all but one of which comprised birds passing over the site. The evaluation of the population as of county importance must be considered precautionary.

Greylag goose

The species was recorded on four occasions passing over within 500m during site surveys. In the absence of suitable wetland habitats on the site, but a potential for large numbers of the species to pass over the site, the evaluation of the winter population as of local importance (higher value) is appropriate.

Herring gull

In the absence of winter records of the species within 500m of the proposed site, the evaluation of the site as of no ecological importance for the species at that season is appropriate. There were nine breeding season records of the species and in the absence of suitable wetland habitats the evaluation of the population to be of local importance (higher value) must be considered precautionary.

Mallard

The species was recorded on nine occasions within 500m of the proposed site. In the absence of suitable wetland habitats the evaluation of the population to be of local importance (higher value) must be considered precautionary.

Redshank

With a single record of this species within 500m of the proposed site the evaluation as of no ecological importance for the species is appropriate.

Wigeon

The species was recorded on three occasions within 500m of the proposed site. In the absence of suitable wetland habitats the evaluation of the site as of no ecological importance for the species is appropriate.

Curlew

The species was recorded on two occasions within 500m of the proposed site. In the absence of suitable wetland habitats the evaluation of the site as of no ecological importance for the species is appropriate. Breeding territories were found at a number of locations in excess of 1.7km from the proposed wind farm site. The evaluation of this breeding population as of national importance is appropriate but the application of this assessment to the proposed wind farm site must be considered precautionary.

Kestrel

The evaluation of the recorded population of the species observed at the site as of local importance (higher value) is appropriate.

Red grouse

In the absence of suitable heather-dominated habitats, the evaluation of the proposed site as of no ecological importance for the species is appropriate.

Snipe

The regular occurrence of breeding birds, in some years in significant numbers, supports the evaluation of county importance for the species.

White-tailed eagle

With just two records of this species within 500m of the proposed site, and a considerable distance from the nearest source population, the evaluation as of no ecological importance for the species is appropriate

Woodcock

A single breeding season record of this Red-listed species, but with much apparently suitable habitat available, indicates that the evaluation of local importance (higher value) is appropriate.

Hobby

The single occurrence of a vagrant species indicates that the evaluation of no ecological importance for the species is appropriate.

Buzzard

The regular occurrence of a likely breeding local population indicates that the evaluation of local importance (higher value) is appropriate.

Sparrowhawk

The regular occurrence of a likely breeding local population indicates that the evaluation of local importance (higher value) is appropriate.

Passerines (Red-listed)

With the listed species occurring in small numbers around the periphery of the site, the evaluation of local importance (lower value) is appropriate.

Identification of Key Ornithological Receptors

The selection of species as key receptors is appropriate.

Effects on Key Ornithological Receptors during Construction and Operation

Each of the key receptors identified is considered separately. Potential impacts arising from habitat loss, displacement and collision during both construction and operation are assessed to be insignificant or to have a slight negative effect for all species considered. These conclusions are generally appropriate when the available habitats and specific behaviours of the species of concern are considered and are consistent with the standard methodology employed.

The conifer plantation that dominates the site is described as mature and it is likely to be felled within the projected 35 year lifetime of the wind farm. Clear felling of conifers may produce suitable nesting habitat for hen harrier in residual brash, as has been recorded in Scotland. The likelihood of hen harrier nesting within 500m of a turbine has been found to be reduced by >50% in English upland locations, when compared to non-wind farm habitats⁸. It is therefore likely that the operation of the wind farm will reduce the available future nesting habitat for this species.

Effects on Designated Areas

Designated sites within a likely zone of impact are identified and the requirement for an Appropriate Assessment of the effects of the proposed development on designated sites is addressed. This issue is addressed below.

Transboundary Effects

The assessment of transboundary effects on whooper swans is concerned largely with the absence of suitable foraging habitats in the vicinity of the proposed wind farm. The assessment does not adequately take into account the potential for onward migration of whooper swans that arrive at Lough Foyle and subsequently pass on to wintering grounds in RoI. The close proximity of Lough Swilly SPA and its significant wintering population of swans and the observed apparently preferred flight height within the collision risk height band suggests that there is a potential risk to birds moving between the two sites. Studies described in the EIAR have not detected such movements, which can be of significant numbers over short time spans; the studies described are unlikely to be able to detect these movements, should they occur, because of the limited time devoted to, particularly, migration watches. In the absence of definitive evidence that these cross-border movements do not take place, the precautionary principle indicates that the assessment of negligible impact with regard to this species cannot be sustained.

The assessment of negligible impact of transboundary effects on the remaining target species under consideration is appropriate.

Mitigation and Best Practice Measures

Recognised mitigation measures are described. In particular, the exclusion of works within 750m of the known hen harrier roost is significant.

Monitoring

A standard monitoring programme for pre- and post-construction works is proposed.

Residual Effects

Low significance of residual effects for the species under consideration is generally appropriate. However, effects on whooper swan must be considered to be unknown in the absence of definitive information regarding the route(s) taken by birds arriving at and departing from Lough Swilly SPA.

⁸ Pearce-Higgins, W.J., Stephen, L., Langston, R.H.W., Bainbridge, I.P. and Bullman, R. 2009. The distribution of breeding birds around upland wind farms. *Journal of Applied Ecology*, 46, 6, 1323-1331.

Cumulative Effects

Twenty-three wind turbine developments within approximately 20km are identified for consideration of cumulative effects, comprising a total of 113 proposed and existing turbines. Nine developments are within 5km of the proposed wind farm (Chapter 2 of the EIAR, Table 2-1). Impact assessments for each of these developments prior to construction or in the assessment for the Glenard site have concluded that active and permitted wind farms will not have a cumulative significant effect on target species.

The Glenard site occupies a significant gap in a spread of turbines that extends from east to west across the higher ground near the base of the Inishowen peninsula. Observations of small numbers of whooper swans passing over the site show that this gap is used at least occasionally by this species; observations to date do not preclude the use of the gap by significant numbers. Occurrence of this species is clearly not related to the habitats available at the site. Construction of the Glenard wind farm **would effectively close the gap between existing wind farms, with a consequent increase in collision risk for birds passing through the site. Alternatively, the closure of the gap could produce a barrier effect, with unknown impacts on bird behaviour.** Potential effects are diversion of birds around the collective wind farms, deterrence of birds from reaching their preferred destination, an increase in flight altitude to avoid turbine airspace, and/or passage through the wind farm at collision risk height.

Conclusion

The conclusion that the proposed wind farm will not result in any significant effects on any of the identified key ornithological receptors reflects the dominance of coniferous plantation at the site and its low utility for the species under consideration. However, there remains some uncertainty concerning the use of the proposed wind farm airspace by birds passing through the site. **The precautionary principle would indicate the route(s) used by whooper swans as they arrive at and depart from Lough Swilly should be determined in order to definitively assess the potential for collision and/or diversion of this species following construction of the wind farm.**

Review of Response to Observations by the Department of Housing, Local Government and Heritage.

DAU Item No. 1

The Department notes the applicant published a leaflet that clearly located the roost site for Hen Harrier to an accuracy of 750m. The information leaflet made available to the public regarding the proposed development clearly identified on a map (see figure 5, Third constraints map) a hen harrier exclusion zone of 750m around the identified roost site. The Department highlights that identifying the location of a sensitive site with such accuracy (<750m) is not considered best practice and may result in deliberate disturbance.

Comments on MKO response

MKO acknowledged the unintentional error in revealing confidential material and measures were taken to rectify the situation at the earliest opportunity.

DAU Item No. 2

The Department notes that the majority of bird survey species were undertaken in the 2016-2019 period. These surveys provide a valuable baseline of data for the site and complement the data collected in the 2020-2021 season. However, the CIEEM advice note on the lifespan of ecological data suggests that data used in ecological assessment should be gathered within 2-3 years of the application. To that end, the Department requests that Further Information is provided on all threatened bird species (inclusive of all raw data for all raptor species) recorded during the 2021-2022 breeding and wintering (September-March 2022) seasons. Moreover, this period overlaps with the publication of the location of the winter roost and an Glenard Wind Farm SID (ABP-312659-22) Glenard Wind Farm SID (ABP-312659-22) 2023.05.10-Response to Observations-F-190114 assessment and/or comparison of Hen Harrier data from 2020/2021-2021/2022 roost seasons should be included in the assessment.

Comments on MKO response

The baseline date for surveys is the date of application for permission to construct the proposed wind farm, i.e. 04.02. 2022 (ref: ABP-312659-22). In pursuance of CIEEM advice, survey data should be provided for the period after 04.02.2019. In the event, surveys were carried out to September 2022. For those surveys carried during this post-application period, the appropriate survey period begins in September 2019. It should be noted that SNH (2017) advice is that data over five years old are considered dated. At the time of this review (October 2024) the earlier data has become increasingly dated, with the earliest VP surveys over eight years old. Use of all data collected may therefore not be justified. It is stated that there was no significant change in the distribution and abundance of key ornithological receptors, such as hen harrier, over the survey period. A tabulated comparison of records between the earlier and later periods to illustrate this lack of change would have been useful. The breeding records of merlin and goshawk and the increase in records of white-tailed eagle record the evolution of the raptor assemblage at the site, which has the potential to influence the populations of other members of the assemblage. The DAU request for comparisons of hen harrier roost activity between the 2020/21 and 2021/22 seasons are referenced to the Confidential Appendix. Data on all threatened bird species identified in the EIAR are provided, as requested by DAU.

VP watches were carried out continuously between 20.09.2016 and 13.09.2019, and between 20.01.2021 and 27.09.2022. There is thus a gap of three months (October-December 2020) in the run

of data required to provide a continuous two years of records as indicated in CIEEM guidance and required by SNH methodology. The most recent data have not been incorporated into the collision risk model, apart from assessments for goshawk and merlin, which were found to be breeding in the application site, and white-tailed eagle, which showed a notable increase in records during the later period.

Assessment of Effects and Mitigation Measures

Potential effects on merlin, goshawk and white-tailed eagle are re-assessed in light of increased occurrence during the most recent observation period.

The likelihood that the mature plantation is likely to be felled during the lifetime of the proposed wind farm is noted and the loss of the goshawk nest site is therefore inevitable. The presence of alternative suitable habitat is described, much of it sufficiently distant from existing/permitted wind farms to provide suitable alternative nest sites. Replanting (alternative afforestation), following felling of the mature timber, will be greater than 10km from the wind farm site and also outside any potential hydrological pathways of connectivity with the proposed project. It is likely that considerable amounts of brash will remain on the site; felling of mature woodland may therefore provide suitable nesting habitat for hen harrier but is unlikely to be used by the species in the presence of an active wind farm.

It is stated the predicted collision risk for merlin and goshawk and merlin is insignificant, given no collisions are predicted to occur during the lifetime of the wind farm. The collision risk model provides an estimate of the probability of an event occurring; it does not predict that no events will occur during the time span covered by the calculation.

A significant collision risk is calculated for white-tailed eagle, of one casualty per 1.9 years. It is stated that the precautionary assumption that the level of flight activity on which the calculation is based will continue. With an increasing population of the species in both Ireland and Scotland, and the habitats of the Inishowen Peninsula that appear to mirror typical white-tailed eagle habitats elsewhere, it is likely that the species will occur, perhaps with increasing frequency, into the future.

Proposed mitigation measures include frequent searches for fallen animals and removal as necessary. Mitigation measures and monitoring programmes follow established practice.

Cumulative Impact Assessment

Cumulative impacts are assessed to be not significant, apart from a moderate significance with regard to collision risk for white-tailed eagle. This species is known to be at particular risk from collision at some locations, as is also suggested by the high collision risk computed at the proposed wind farm site, based on a likely population of three individual birds. With a likely increasing Irish population, and a consequent increased number of dispersing young birds, the series of wind farms projected to extend across the higher ground towards the south of the peninsula has the potential to produce collectively a significant collision risk to the species.

DAU Item No. 3

The Department notes the volume of Hen Harrier (both breeding and roosting), Golden Eagle and Merlin activity and is concerned that risks to these species arising from the proposed development are not fully considered and or mitigated in the EIAR. Specifically, the raw data indicate that breeding Hen Harrier may be a consideration on site but no scientific rationale is provided for discounting this probability.

Comments on MKO response

Hen harrier

Records for hen harrier appear to have been assessed appropriately and follow accepted guidance with regard to disturbance distances and likely displacement effects. “Agitated behaviour or calls given by adults” is given as a criterion for confirmed breeding in Ruddock *et al* (2024)⁹ but the single record of a calling harrier recorded at the site was not repeated. It is concluded that this record may refer to a prospecting bird in suitable nesting habitat or may record a nesting attempt that failed very early during the attempt. Nesting in mature plantation forestry is frequent in Scotland and has been known in the past from Co Antrim. Mature plantations are not known to have been used as nest sites in RoI (Ruddock *et al* 2024) and observations recorded in the EIAR confirm the preferred use of open habitats. The design of the wind farm included consideration of the location of the known harrier roost site, ensuring that the nearest turbine is at least 750m from the roost site, and is at the upper end of the separation distance recommended by Ruddock and Whitfield (2007)¹⁰ and Goodship *et al* (2022).¹¹

Golden eagle

The distance (13km) of the proposed wind farm from the nearest known golden eagle territory indicates that the proposed site facility is unlikely to be within the home range of the breeding birds. Observations also suggest that the species is of occasional occurrence at the site. Alternative collision risk estimates of one collision per 17.7 or 43.5 years have been produced; the higher risk is not relevant to this study, since it is heavily biased by the inclusion of records of birds from a topographical feature 1km from the site; this estimate is therefore not comparable with estimates for other species at the site. Collision risk calculations were based on an avoidance rate of 95%, while the most recent recommended avoidance rate for the species is 99% (SNH 2018)¹², which would provide a substantially reduced risk. The meaning of the statement that “on a precautionary basis it is assumed that there will be 100% avoidance to within 500m of turbines (Pearce-Higgins, 2009)” is obscure; the presumed relevant assumption in this paper is that there are likely to be reductions in raptor flight activity by up to c. 50% within 500 m of a turbine. Low occurrence rates, likely remoteness from known breeding territories and the dominance of closed woodland habitats suggest that additional mitigation for this species is not feasible.

Merlin

Merlin was confirmed to breed in the plantation edge in 2022 around 600m from the turbine layout. While the nest site is relatively distant and shielded from construction of the nearest turbine, the construction and use of a construction compound at 230m -390m distance, with consequent intermittent vehicular and pedestrian movements and associated noise, may cause some disturbance to nesting birds. The intensity of any disturbance is difficult to predict, since individual birds may be highly reactive to human presence while others may be less so. The compound site will be shielded

⁹ Ruddock, M., Wilson-Parr, R., Lusby, J., Connolly, F., J. Bailey, & O'Toole, L. (2024). The 2022 National Survey of breeding Hen Harrier in Ireland. Report prepared by Irish Raptor Study Group (IRSG), BirdWatch Ireland (BWI), Golden Eagle Trust (GET) for National Parks & Wildlife Service (NPWS). Irish Wildlife Manuals, No. 147. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

¹⁰ Ruddock, M. and Whitfield, D.P. 2007. A review of disturbance distances in selected bird species.

¹¹ Goodship, N.M. and Furness, R.W. 2022. NatureScot Research Report 1283 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species.

¹² SNH 2018. Avoidance Rates for the onshore SNH Wind Farm Collision Risk Model September 2018 V2

by the plantation, but the degree of disturbance to provisioning birds is unknown. It is planned to fell the mature timber within the lifetime of the wind farm so that it should be noted that loss of the nest site is ultimately inevitable. The available woodland edge habitat as noted is extensive locally, and the assessment of absence of significant effects at the species level is appropriate. The predicted collision risk is insignificant, which is consistent with the behaviour and distribution of the species.

DAU Item No. 4

Furthermore, post construction bird monitoring programme does not detail the response and/or action to be taken if carcass finds are recorded (i.e. Hen Harrier, Golden Eagle).

Responses to carcass finds are described in some detail.

Review of Natura Impact Statement

Appropriate Assessment Screening

The present review is concerned only with Lough Swilly SPA and Lough Foyle SPAs (RoI and UK), as requested. It assesses only the wind farm site and does not address effects of ancillary structures.

The Appropriate Assessment Screening for the proposed wind farm is presented as Appendix 1 of the Natura Impact Statement (NIS). It addresses the potential effects on European Sites within a defined zone of influence. The Screening report repeats much of the information to be found in the EIAR with regards to survey methodology, identification of European sites within a defined zone of influence. The screening assessment follows the appropriate guidance provided in EC (2001).¹³

As required in the guidance, all designation features of each site that has been selected for consideration are included in the screening assessment (Table 3.3-1). Lough Swilly SPA and Lough Foyle SPAs (RoI and UK) are screened in for Appropriate Assessment because of the potential for significant effects on designation species of the European sites due to collisions with turbine rotors during operation of the proposed wind farm. The designation features and conservation objectives of the sites are listed and known threats to these are described. Designation species for each of the sites that were recorded during surveys for the scheme are listed; those that were not recorded during surveys for the wind farm scheme were screened out from further assessment. In consideration of in-combination effects, a comprehensive list of existing and proposed wind farms and non-wind farm developments is provided. It is concluded that the three SPAs (*inter alia*) of concern must be the subject of a Stage 2 Appropriate Assessment.

Potential for Direct Impacts on the European Sites

Species of Community Importance (SCI) that are designation species of the SPAs under review and which were recorded during surveys carried out at the proposed wind farm site are discussed individually.

Displacement and disturbance

Whooper swan

Habitats at the site are appropriately described as being of low importance for the species for foraging or as likely roosts. Small numbers of swans were recorded passing over or near the site, with most flocks flying in the direction of Lough Swilly. There was no indication of birds moving in the direction of Lough Foyle. Monthly migration watches from vantage points found no evidence of swans passing over the site. It is considered that there will be no significant displacement effects or habitat loss relevant to the species as a result of the construction and operation of the wind farm.

However, the presence of a major wintering ground of the species at Lough Swilly must be considered. The importance of the site is underlined in the site synopsis for the site, which states “Considerably higher numbers (with reference to numbers at the time of designation) of Whooper Swan (peak of 1,946) have been recorded, especially early in the season, as this is the area where the swans make their Irish landfall in autumn on their return from breeding grounds in Iceland.” Migration watches carried out for this study do not adequately cover the most important migration periods for the

¹³ European Commission 2001. Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC

species. Large-scale migration can take place over short time periods, with large numbers of birds arriving at favoured sites within a matter of hours or days. The only satisfactory method of recording the direction of arrival of large numbers of birds is likely to be intensive watches at the appropriate time at Lough Swilly. It is possible that birds arrive directly at the lough at points to the west of the Glenard site, but the fact that small numbers of swans pass over the site en route to Lough Swilly indicates that this is a feasible route for an unknown number of birds. It may also be relevant that at least some greylag geese, which have similar winter habitat requirements, are known to commute between Lough Foyle and Lough Swilly (Burke *et al* 2022).

Grey heron

Habitat considerations, the small number of birds available for impacts and the small numbers of birds recorded at the site indicate that the assessment that significant effects arising from displacement or habitat loss is appropriate.

Mallard

Habitat considerations, the small number of birds available for impacts and the small numbers of birds recorded at the site indicate that the assessment that significant effects arising from displacement or habitat loss is appropriate.

Greylag goose

The greylag goose population that winters at Lough Swilly (often aggregated with birds that also use Lough Foyle) consists largely of Icelandic birds (Crowe 2005)¹⁴ and is the largest flock of this population in the country (Burke 2022 *et al*)¹⁵. Habitat considerations, flight behaviour recorded at the site and the small numbers of birds recorded at the site indicate that the assessment that significant effects arising from displacement or habitat loss is appropriate.

Black-headed gull

Habitat considerations, the small number of birds available for impacts and the small numbers of birds recorded at the site indicate that the assessment that significant effects arising from displacement or habitat loss is appropriate.

Common gull

Habitat considerations, the small number of birds available for impacts and the small numbers of birds recorded at the site indicate that the assessment that significant effects arising from displacement or habitat loss is appropriate.

Golden plover

Habitat considerations, flight behaviour recorded at the site and the small numbers of birds recorded at the site indicate that the assessment that significant effects arising from displacement or habitat loss is appropriate.

Herring gull

¹⁴ Crowe, O. 2005. Ireland's Wetlands and their Waterbirds: Status and Distribution. BirdWatch Ireland, Newcastle, Co Wicklow.

¹⁵ Burke, B., Fitzgerald, N., Kelly, S. & Lewis, L.J. (2022) Greylag and Pink-footed geese in Ireland 2017/1819/20. Irish Wetland Bird Survey (I-WeBS) Report. BirdWatch Ireland, Wicklow.

Habitat considerations, the small number of birds available for impacts and the small numbers of birds recorded at the site indicate that the assessment that significant effects arising from displacement or habitat loss is appropriate.

Wigeon

Habitat considerations, the small number of birds available for impacts and the small numbers of birds recorded at the site indicate that the assessment that significant effects arising from displacement or habitat loss is appropriate.

Curlew

Habitat considerations, the small number of birds available for impacts and the small numbers of birds recorded at the site indicate that the assessment that significant effects arising from displacement or habitat loss is appropriate.

Collision mortality

All recorded SCI designation features were subjected to collision risk assessment calculations. These are largely based on data that is in part considered to be dated, but it is likely, in view of the population sizes and distribution of the species under consideration and the similarity of habitat types across all survey periods, that calculated collision risks remain similar. The caveat noted above concerning uncertainties around whooper swan migration routes suggests that collision rates for this species must remain provisional.

Potential for Indirect Impacts on the European Sites

Potential indirect impacts are identified as possible effects arising from impacts on water quality and hence the habitats that support designation species. These effects are largely mitigated through design and construction procedures and follow standard methodologies.

Deterioration of water quality

It is concluded reasonably that, because of the remoteness of the Glenard site from any SPA, effects on water quality and the habitats that depend on it are unlikely to occur.

Ex Situ Indirect Habitat Loss to SCI Birds

It is concluded reasonably that, + because SPA designation features consist primarily of aquatic species, loss of any of the habitats at the Glenard site will not have a significant effect on the designation species of the SPAs.

Mitigation

Mitigation by design

Much of the designed-in mitigation is directed at maintaining water quality of local watercourses. Mitigation by design has resulted in avoidance of a hen harrier roost by providing a disturbance barrier of an acceptable width. Mitigation measures during construction, operation and decommissioning of the wind farm follow accepted methodologies.

Assessment of Residual Adverse Effects

Lough Swilly SPA

It is concluded that, for the six species screened-in for assessment that there will be no adverse effects on the SPA populations arising from the construction and operation of the Glenard wind farm. However, for reasons previously stated, there must remain a degree of uncertainty regarding the use of the Glenard airspace by whooper swans of the Lough Swilly flock, particularly during migration periods.

Lough Foyle SPA (RoI)

It is concluded that, for the seven species screened-in for assessment that there will be no adverse effects on the SPA populations arising from the construction and operation of the Glenard wind farm. However, for reasons previously stated, there must remain a degree of uncertainty regarding the use of the Glenard airspace by whooper swans dispersing from Lough Foyle to Lough Swilly, particularly following arrival in autumn.

Lough Foyle SPA (UK)

It is concluded that, for the three species screened-in for assessment that there will be no adverse effects on the SPA populations arising from the construction and operation of the Glenard wind farm. However, for reasons previously stated, there must remain a degree of uncertainty regarding the use of the Glenard airspace by whooper swans dispersing from Lough Foyle to Lough Swilly, particularly following arrival in autumn.

Cumulative Effects

Assessment of cumulative effects on European sites are required under the relevant guidance (EC 2001). A comprehensive list of wind farm and non-wind developments is provided. With regard to wind farm developments, the conclusions of the relevant EIARs have been used to assess the role of cumulative effects of the present scheme. It is concluded that there is no potential for different (new) impacts resulting from the combination of the various projects and plans in association with the Glenard proposal. However, it is noted that the Glenard site constitutes a significant gap in a spread of wind farms that extends across the higher ground at the base of the Inishowen peninsula. The issue of whether this provides a relatively safe flightline for, particularly, migrating whooper swans remains and there is some uncertainty with regard to cumulative effects on this species.