Specialist Report to Inspector (Appendix to main report) ABP-308210 and 308208

Development	Barnadivane windfarm (6 turbines) and Substation at Lackareagh and Garranereagh, Lissarda and Barnadivane (Kneeves) Teerelton, Co Cork
Type of Application	Planning Appeal/ Remitted case
Topic: **Appropriate Assessment** **EIA: Biodiversity**	Adequateness of information for Appropriate Assessment and EIA-Biodiversity
Ecologist	Maeve Flynn BSc. PhD. MCIEEM
Senior Planning Inspector	Rachel Gleave O'Connor

Contents

1.0 Introduction

1.1. Scope of Report

1.1.1. This report to the Inspector and available to the Board is a written record of my review and examination of the submitted information for Barnadivane Wind Farm and associated substation regarding issues raised related to biodiversity and the requirements for Appropriate Assessment (including screening). In my capacity of Inspectorate Ecologist, I have the relevant expertise to provide a professional opinion as to the adequacy of the information for the Inspector and the Board to undertake Appropriate Assessment (AA) and Environmental Impact Assessment (EIA) of the proposed project.

1.1.2. The focus of my review is on the updated documentation (2023) prepared by Fehily Timoney to support this application and remittal to the Board.

1.1.3. In my review of the Biodiversity aspects of the Environmental Impact Assessment Report (EIAR), I focus my examination on key issues raised in submissions including impacts on birds, protected species including bats and impacts on terrestrial and aquatic habitats and species.

1.1.4. In my review of the Natura Impact Statement, I focus my examination on the requirements for screening for Appropriate Assessment and for Appropriate Assessment in view of the conservation objectives of relevant European Sites and on key issues raised in submissions.

1.1.5. I have reviewed the scope of the proposed development as described in the EIAR and NIS and all aspects of the proposed development which consists of the construction of a 6 -turbine wind farm, 110kV substation, grid connections and ancillary works including turbine delivery route.

1.1.6. I undertook a site visit to the proposed windfarm development site on 11th of April 2025.

1.1.7. I have reviewed and examined the following documents including relevant appendices and figures (plans and particulars): Updated documents (2023)

- Natura Impact Statement including AA Screening Report

- EIAR with particular focus on Chapter 5 Biodiversity and associated appendices 5.1- 5.8
- Other relevant EIAR Chapters 6 Soils, Geology and Hydrogeology, 7 Hydrology and water quality, 15 Interactions,
- Construction and environmental management plan (CEMP)
- Applicants' response documents to submissions

1.1.8. The documents have been reviewed with respect to the following current best practice guidance:

- CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine Version 1.3. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM (2019) Ecological Impact Assessment Checklist (as relevant to Irish legislation
- 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
- EC (2021) 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
- EC (2020) Guidance document on wind energy development and EU nature legislation

1.2. Submissions and observations

1.2.1. I have had regard to submissions and observations related to biodiversity and AA matters and summarise key issues raised below. I have also considered the response documents prepared by the Applicant addressing third party submissions and observations.

Prescribed bodies

1.2.2. Inland Fisheries Ireland (IFI)

As part of the initial application, IFI set out a number of general requirements related to watercourses and control of suspended solids and contaminated run off and criteria for culverts and bridges over watercourses and timing of works.

Public submissions

1.2.3. General concerns regarding impacts on biodiversity have been raised including:

- Impact on Bats
- Impacts on bird species including Kestrel, Snipe, Meadow pipit, Golden plover, Curlew, White Tailed Eagle
- Impacts on migratory routes of birds
- survey effort for birds
- General concerns regarding the Habitats Directive and European Sites,
- Impacts on local rivers and potential impacts on aquatic ecology
- Invasive species

1.3. Expertise and technical content of Ecological Reports

1.3.1. The ecological appraisal presented was undertaken by Ecologists from Fehily Timoney and Company with expert contributions from Triturus Environmental Ltd. And Sweeny Consultancy for aquatic and freshwater pearl mussel survey and assessment. EIAR Chapter 5 Biodiversity provides information on the Ecological team involved in the various surveys, their qualifications and competencies and specific role in the various ecological assessments. The NIS also provides a statement of competence for Ecologists involved in the compilation and assessment of this report. I am satisfied that based on the information submitted all ecologists and surveyors have the necessary (demonstrated) competencies and experience to carry out the work undertaken.

1.3.2. I am satisfied that the scope, structure and content of the EIAR and the NIS has been prepared in accordance with good practice guidance as cited in the relevant documents.

1.3.3. Based on the documentation provided, I am satisfied that the scientific information on surveys, nature conservation sites, species, habitats and their ecological significance, is adequate and up to date (submitted to update information assessed as part of the remittal) and included desk study, habitat and flora survey, breeding bird and non-breeding bird survey on lands within the application site and wider study area, terrestrial mammal surveys including detailed bat surveys and aquatic surveys.

1.3.4. Over the course of this planning application, a number of submissions raised issues in relation to survey effort for birds and bats. Further clarification was provided by the applicant in response documents and the most up to date data is provided in the updated (2023) EIAR and NIS. I consider these issues further in this report however, overall, I am satisfied that the ecological surveys were undertaken in line with published good practice methods and at the optimum seasonal periods providing a robust baseline for the impact appraisal as part of the (updated) EIAR and the NIS.

2.0 Consideration of the Likely Significant Effects on a European Site

2.1. Article 6(3) of the Habitats Directive

The requirements of Article 6(3) as related to Appropriate Assessment of a project under part XAB of the Planning and Development Act 2000 (as amended) are considered in this section. This section does not comprise the AA but serves to assist the Inspector and the Board in their assessment.

2.2. Screening for Appropriate Assessment

2.2.1. The first test of Article 6(3) is to establish if the proposed development is directly connected with or necessary to the management of a European sites and where this is not the case, then whether the development (either alone or in combination with other plans and projects) could result in significant effects to a European site in view of the sites conservation objectives.

2.2.2. The project is not directly connected with, or necessary for the management of any European Site and consequently is subject to the Appropriate Assessment Screening process.

2.2.3. I note that no part of the proposed development is within a European site. The location of proposed development is characterised by modified habitats including improved agricultural grassland, pockets of wet grassland and scrub, hedgerows and treelines, conifer plantations, drainage ditches and upland streams. From my field visit, I am satisfied that these habitats are characteristic of the wider area and the development site is of no particular ecological significance locally.

2.2.4. A comprehensive description of the proposed development including the ecological baseline is presented in Section 2 of the NIS (2023). All aspects of the proposed development are described (including previously permitted elements) and a summary of potential impact mechanisms is provided in Table 2.1.

2.2.5. The AA screening report prepared by Fehily Timoney is presented in Section 3 of the NIS and considers 6 European sites within a possible zone of influence due to proximity and/or the existence of possible ecological connections between various aspects of the proposed development and sites designated as SAC or SPA.

2.2.6. The only European site which warranted further consideration at the screening stage is the Gearagh SPA which is located 6km from the proposed development site. Two bird species for which the site is designated have ranges that could extend to the area of the windfarm. Using the source-pathway -receptor model, the report concludes that in the absence of mitigation, significant effects arising from the construction and operational phases of the proposed development cannot be excluded for The Gearagh SPA. (See Table 3.2 NIS). The proposed development is within a possible range of special conservation interest species (SCI) Mallard and Coot and which may be affected by ex-situ habitat loss, disturbance, collision with turbines.

2.2.7. No pathways for potentially significant effects on other European sites was identified. The likelihood of significant effects is excluded for the following European sites:

- The Gearagh SAC (00108)
- Bandon River SAC (002171)
- Mullaghanish to Musheramore Mountains SPA (004162)
- Cork Harbour SPA (004030)
- Great Island Channel SAC (001508)

2.3. Screening recommendation

2.3.1. I am satisfied that the five European Sites listed above can be excluded from further assessment on the basis of objective information presented in the screening report. These European sites are outside of any likely zone of impact due to distance and a demonstrated lack of meaningful impact pathways. The applicant did not have to rely on any mitigation measures to come to this conclusion.

2.3.2. In the consideration of likely significant effects on the Gearagh SPA (Table 3.2) the applicant presents a very precautionary approach that is not based on evidence of either Mallard or Coot being present or recorded on the site (at this point in the report), merely that that they could be, based on known range from the SPA. I note that a more detailed evaluation and assessment of the bird species is considered in

Section 4 of the NIS to inform stage 2 AA which includes low numbers of Mallard, infrequently recorded flying across the proposed windfarm site.

2.3.3. I note that the conclusion on likely significant effects on the Gearagh SPA was made in the absence of site and species-specific conservation objectives which have since been published by the NPWS (2025), Conservation Objectives: The Gearagh SPA 004109. Version 1.

2.3.4. In view of the updated conservation objectives and adopting the precautionary approach of the applicant, I consider that further detailed assessment is required to exclude the possibility of significant effects on the Gearagh SPA in view of the conservation objectives set for this site.

2.3.5. Having regard to the information presented in the AA Screening Report, including the nature, size and location of the proposed development, the various infrastructure elements and likely effects during all stages of the lifespan of the proposal, the source pathway receptor model and sensitivities of the ecological receptors, I consider that Appropriate Assessment is required to further assess in more detail the potential for adverse effects on the Gearagh SPA in view of the conservation objectives set for SCI species.

2.4. Adequacy of scientific information to inform the Appropriate Assessment

2.4.1. The Gearagh SPA comprises a stretch of the River Lee that was dammed in the 1950s to provide for a Hydroelectric scheme. The main habitat is a shallow lake/ reservoir fringed by wet woodland, scrub and grassland prone to flooding. The SPA was designated for nationally important populations of four wetland bird species (wintering) Wigeon, Teal, Mallard and Coot and for supporting wetland habitat.

2.4.2. Other species listed on the site synopsis but not SCI species include Mute Swan, Whooper Swan, Gadwall, Shoveler. Pochard, Tufted Duck, Goldeneye, Cormorant, Lapwing, Golden Plover and Curlew. A feral Greylag Goose flock is present in the area. A few pairs each of Great Crested Grebe and Tufted Duck breed.

2.4.3. The conservation objectives for the SPA are to **restore** the favourable conservation condition of Wigeon, Teal, Mallard and Coot as defined by attributes and targets and maintain the favourable conservation condition of wetland habitats.

2.4.4. Having reviewed the NIS I am satisfied that it in general it provides adequate information in respect of the baseline conditions. A suite of recent bird surveys informs the assessment including:

- Vantage Point survey (breeding and non-breeding season; October 2020 to September 2022)
- Hinterland survey (October 2020 to September 2022);
- Breeding & winter bird transect survey (2020 and 2022);
- Breeding Wader Survey (2021 and 2022)

2.4.5. Over the course of the Vantage point surveys at the proposed development site spanning October 2020 to September 2022, Mallard was only recorded on 4 occasions, 2 -3 individuals, all flying across the site. I refer the Inspector and the Board to Section 3.2.9 of the Ornithology Survey report (Note the dates cited in the NIS S4.1.2 only refer to surveys between 2020 and 2021 but this appears to be an error).

2.4.6. None of the other SCI species were recorded at the site over this period. This is to be expected as these species are waterbirds and no suitable habitat exists at the development site. The hinterland surveys of wetland sites in the wider area provide context on the wider distribution of wetland birds and movements between those sites. No frequently used flightpaths of any SCI species were recorded at the proposed development site.

2.4.7. In considering the potential for adverse effects arising from the proposed development alone or in combination with other plans and projects, the applicant found that the low and infrequent records of Mallard combined with the fact that the area does not support foraging, loafing or roosting features of significance for this species due to the absence of suitable habitats (e.g., wetlands, lakes) leads to a conclusion of negligible impacts on Mallard and no adverse effects on conservation status.

2.4.8. The assessment presented in chapter 5 Biodiversity goes further for individual bird species (See Avifauna construction phase impacts 5.6.1.5 operational phase impacts 5.6.25).

2.4.9. In view of the site-specific conservation objectives for the SPA, I set out an assessment for the Inspector and the Board taking account of the conclusions of the NIS and the information presented in the Avifauna section of the biodiversity impact assessment (Chapter 5).

2.4.10. Taking account of the attributes and targets that relate to factors outside of the SPA site, the consideration of barriers to connectivity and site use and Supporting habitat (outside of the SPA) are of most relevance in the AA.

Table 1 Conservation objectives for The Gearagh SPA

The Gearagh SPA (004109), NPWS 2025			
Special conservation interest and conservation objective	**Attributes**	**Targets**	**Adverse effects**
Wigeon **restore** favourable conservation condition **Teal** **restore** favourable conservation condition **Coot** **restore** favourable conservation condition	Winter population trend Winter spatial distribution Disturbance at wintering site Barriers to connectivity and land use Forage spatial distribution Roost spatial distribution Supporting habitat quality* (outside SPA) *(not relevant to Coot)	Targets will not be undermined as species outside of zone of influence of proposed development	None Conservation objectives will not be undermined or delayed by any aspect of the proposed development.
Mallard **restore** favourable conservation condition	Winter population trend Winter spatial distribution	Targets set for these attributes relate to the SPA site and will not be	None Conservation objectives will not be undermined or

	Disturbance at wintering site Forage spatial distribution Roost spatial distribution	undermined by the proposed development	delayed by any aspect of the proposed development.
	Barriers to connectivity and land use	Barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA	Taking account of low numbers recorded, unsuitability of habitats for mallard and wider landscape – no adverse effect predicted Imperceptible collision risk
	Supporting habitat quality* (outside SPA)	Sufficient area of utilisable habitat available in ecologically important sites outside the SPA	The windfarm site does not constitute an ecologically important site for this species – no adverse effect
Wetlands Maintain favourable conservation condition	Wetland habitat area Wetland habitat quality and functioning	No significant loss of wetland habitat within SPA No significant impact on quality or functioning of wetland habitat within SPA	**None** Targets will not be undermined wetland habitat outside of zone of influence of proposed development

2.4.23. The Board will note that where a conservation objective is set to restore favourable conservation status, the AA must demonstrate that the proposal will not interfere with or delay the attainment of such measures, and that the proposal will not add to

the threats and pressures already being exerted on the SPA or ecological processes required to support the integrity of the site.

2.4.24. It is my professional opinion that based on the information provided by the applicant and considering the conservation objectives, the proposed development will not interfere with or delay the attainment of these measures and will not add to any existing threats and pressures noted for the SPA.

2.4.25. Table 4.1 of the NIS lists the threats, pressure and activities that impact on the SPA, namely human induced changes to hydraulic conditions, flooding modifications, grazing and hunting of which the proposed development will not add to in any way.

2.4.26. I note that concerns were raised in submissions regarding migratory routes between the Gearagh and Coastal SPA sites including Courtmacsherry Bay and Galley head. These Coastal sites are located over 20km south of the proposed development and over the period of extensive bird surveys, there is no evidence of any regularly used migratory routes across the windfarm site. The location of turbines at this location, taking account of other wind farms in the area will not be a barrier to movement of birds in the local or wider area.

2.4.27. Overall, I am satisfied that the information presented in the NIS, together with scientific information detailed in EIAR Chapter 5 Biodiversity and associated appendices conforms to best available scientific information and is adequate to allow the Board to reach complete, precise and definitive findings as part of the Appropriate Assessment of the implications of the proposed development on the integrity of the Gearagh SPA in view of the conservation objectives of this site.

3.0 Likely effects on the Environment: Biodiversity

3.1. Biodiversity

3.1.1. Effects on biodiversity are considered in EIAR Chapter 5 and associated appendices. Chapter 5 describes and assesses direct and indirect effects of the proposed development on biodiversity with particular attention to species and habitats protected under the Habitats and Birds Directive.

3.1.2. In my capacity as Inspectorate Ecologist, the Planning Inspector requested support in terms of evaluation of the impact assessment and consideration of issues raised in relation to the following:

- Impacts on Bats
- Impacts on Birds
- Impacts on aquatic ecology

3.1.3. In considering these issues I provide summary tables which set out the key findings of the relevant assessments and address key points of the submissions, the applicants approach and my evaluation of the adequacy of the response based on the evidence provided and professional opinion for the purpose of the EIA to be undertaken by the Board.

3.2. Terrestrial Ecology

3.2.1. Tables 2-4 below summarise key issues in relation to biodiversity. It is worth noting that the ecological assessment including habitat survey and evaluation shows the habitats present to be of local significance, with the area dominated by improved agricultural grassland, wet grassland in poorly drained areas, hedgerows and treelines, pockets of scrub and conifer plantation and drainage channels and upland water courses. These habitats are characteristic of the wider landscape in this area and are evaluated as local importance in terms of ecological value.

3.2.2. Terrestrial mammal surveys showed very low levels of mammal activity at the proposed windfarm site. No significant impacts on terrestrial mammals is predicted.

3.2.3. Bat activity at the site was investigated via a number of survey techniques over multiple dates in 2021 and 2022 including bat activity/ transect surveys, tree and building surveys for roost identification and emergence surveys of roost sites and static detector surveys.

3.2.4. The survey and methodological approach as set out in the EIAR is standard and best practice for windfarm development. Chapter 5 sets out a lot of information on the baseline environment, survey results and impact prediction. The data and analysis is spread throughout the chapter and it is a challenge to pull together the

assessment. In order to assist the Inspector and the Board I summarise the precited impacts.

Table 2 Biodiversity: Bats summary of impact assessment at windfarm site (Chapter 5)

Bats species	**Ecological significance**	**Impact (median Ecobat analysis)**	**Impact significance (Turbines)**
Total of 9 species recorded from bat activity and static survey	All Annex IV species requiring strict protection. Also Annex II species, Lesser Horseshoe Bat	Collision mortality, barotrauma Loss or damage to commuting and foraging habitat	Low, low to Moderate levels of bat activity recorded from static survey. No bat roosts directly impacted All turbines present low to medium risk for all species (only high-risk species assessed in EcoBat analysis)
Leislers Bat	commonly recorded	Low	
Lesser horseshoe bat	Only recorded on static – very low number of passes	-	
Brown long-eared Bat	Low numbers of passes	-	
Natterers bat	Only recorded on static – low number of passes	-	
Nathusius pipistrelle	Only recorded on static – low number of passes	Low (except T4 med)	
Soprano pipistrelle	Most commonly recorded	low	
Common pipistrelle		low	
Whiskered Bat	Low numbers of passes	-	
Daubenton's bat	Recorded in lower numbers	-	
	In the absence of mitigation, short term significant local impacts are predicted for the local bat population during the construction phase- individual species are not differentiated. In absence of mitigation, long term significant impact on avlocal level is predicted from the operational windfarm. This is not broken down into species level for operational phase, however Leisler's bat, Common and Soprano pipistrelle were most recorded and evidence of roosting in the wider area was recorded during emergence surveys. Cumulative impacts are considered long term imperceptible		

Mitigation Measures (summary)	Buffer zone clear of vegetation to treeline/ hedgerow/ woodland habitat (89m) Vegetation clearance along drainage ditch (T2) Supervision of vegetation clearance Retention of trees, Planting of new hedgerows Lighting restrictions Feathering of blades (prevents rotating when not generating power) and increased cut in speeds- curtailment (shown in scientific literature to reduce bat fatalities by 30-90%) Increase cut in speeds during bat activity season (April to Oct) on all turbines with monitoring to inform any further adjustments to curtailment over operational phase Post construction monitoring- bat activity and fatality monitoring Maintenance of buffer zones (vegetation management)
Residual effects	Not significant Slight Residual Negative Reversible Impact in the local context with the favourable conservation status (FCS) of bat species being unaffected and all species confirmed or expected within or near the study areas predicted to persist. (i.e. no long-term adverse impact on populations)

Table 3 Biodiversity: Bats- consideration of key issues

Issues raised	**Consideration**
Adequacy of survey undertaken for Bats	Survey methodology in line standard practice, adequate and proportionate to proposed development. The survey included identification of potential bat roost sites including tree roosts and buildings within the proposed windfarm and substation study area and buffer zone to identify local population impacts. A disused dwelling situated to the north of the Study Area at Barnadivane supports a minor summer roost of Leisler's and pipistrelle bats and a disused dwelling at the east of the Study Area supports a Natterer's bat maternity roost and a minor common pipistrelle and brown long-eared bat roost. No demolition or construction works are proposed to the structures and their proximity turbines is provides context to predicted population level impacts.
Evaluation	

Leisler's bat, Common and Soprano pipistrelle are considered high collision risk species. Therefore, where higher numbers of passes have been recorded there is a commensurate increased risk in collision or barotrauma caused by coming into airspace of turbine blades. With the application of mitigation measures, I concur with the residual impact prediction of slight negative effect at the local level.

I am satisfied that mitigation measures proposed are in line with current best practice; feathering and curtailment (Eurobat guidelines for consideration of bats in windfarm projects (2014) NatureScot 2021 and EC 2019) are proven effective mitigation measures applied to reduce risks to an acceptable level -that being considered one where population level impacts are excluded.

As no bat roosts are predicted to be disturbed or removed and no significant disturbance is predicted during the construction phase, derogation under Regulation 54 of the European communities (Birds and Natural Habitats) Regulations 2011-2021 is not required based on the information presented in the EIAR.

3.3. Ornithology / Avifauna

3.3.1. EIAR Chapter 5 (including Appendix 5.3) examines impacts on avifauna (birds). As with the bat assessment, the information is spread across the chapter and a separate ornithology chapter would have facilitated a more consolidated assessment.

3.3.2. As previously outlined, a suite of standard bird surveys was undertaken over two years from 2020-2022 to provide up to date information on birds present at the proposed development site and likely impacts arising. I am satisfied that the general approach is in line with standard methodology following Scottish Natural Heritage Guidance (2017). Surveys undertaken at the windfarm and substation site included vantage point survey (breeding and non-breeding season), breeding and winter bird transect survey and breeding wader survey. A hinterland survey of wetlands in the wider area was also undertaken which provides information of general breeding and occupancy and winter bird occupancy of wetland sites within a 10km radius and possible movements of birds between those sites in the vicinity of the proposed windfarm.

3.3.3. Appendix 5.3 presents information on the ornithological survey and defines target bird species in line with SNH recommendations with a focus on species listed on Annex I of the Birds Directive, Red listed birds of conservation concern and being susceptible to impacts from windfarms (Section 2.1). As per SNH

recommendations, not all species on the above lists are categorised as target species, for example it is noted that most passerine species and general lowland farmland birds are not considered to be particularly susceptible to impacts from wind farms. Target species observations to determine flight activity and risk from turbines is presented in table 5.40.

3.3.4. A wider assemblage of birds is considered in terms of potential impacts from habitat loss and disturbance from the proposed development. This includes many passerine species that are red/ amber listed but not necessarily at risk from windfarm development per-se. While this is a fully comprehensive assessment, dispelling any criticism of possibly missing out on bird species present at the site, it makes the assessment challenging for a non-expert to extract the relevant target species and impacts from the various aspects of the proposed development.

3.3.5. I note that some submissions on the proposed development considered that there were inadequacies in the bird surveys undertaken and that there was an absence of assessments of certain bird species. The suite of surveys and birds recorded at the windfarm and substation site over the period 2020-2022 (and hinterland surveys) presents a very comprehensive list of species that are representative of the habitats present and a robust baseline for assessment and dispels any suggestion of a lack of data. A total of 60 bird species were recorded during VP surveys. As noted above, the approach is almost excessive for individual passerine species, as not all species are sensitive to windfarm development or the substation development.

3.3.6. In terms of target bird species (as defined in Appendix 5.3 which include all raptors and owls, all wild goose, swan and duck species, all waders, all gull species., herons, Great Spotted Woodpecker and Swift) 13 were observed during the survey period with a total of 247 flights recorded.

3.3.7. From the data presented, Buzzard was the target species most frequently sighted across all seasons during VP surveys with between 16- 29 sightings per season. Lesser Black-backed Gull was observed the next most frequently with 66 observations, of which 64 occurred during the second year of surveys. Kestrel was also seen in good numbers during the second year of surveys with a total of 33 observations during this period and just five observations during the first year of surveys. There was a total of 18 observations of Sparrowhawk, with a few records

from each season. All other target species had less than ten records throughout VP surveys. EIAR Table 5.40 presents information on Target species in term of the observational time within the wider turbine area and the rotor sweep zone which is the most high-risk area for collision. While Lesser Black backed gull and Golden Plover accounted for the most observation time in the wider area of the windfarm, the total observation time in the rotor sweep zone is low for all species with Buzzard showing the greatest percentage of time in the risk area (1.3% of all observational time).

3.3.8. I consider that these findings are in line with the habitats present. There is nothing at the proposed development site that differentiates it from the wider landscape and mosaic of farmland habitats. The bird species assemblage recorded are typical of improved/ semi improved agricultural land. The raptor species recorded are opportunistic foragers of smaller passerine birds and small mammals.

3.3.9. Impacts during construction phase in terms of habitat loss/ alteration and disturbance has been determined for a suite of species. No significant effects are predicted for any species with local long term imperceptible effect predicted for most species examined. Impacts of habitat loss on Golden Plover is assessed as a long term non-significant effect. Impacts on the local Snipe population is considered long term moderate negative impact, with short term moderate impacts of disturbance during construction due to the potential presence of a breeding territory.

3.3.10. Collision risks posed by the proposed turbine array at this site have been assessed as low and non-significant for all species considered. Overall, a low number of birds were recorded over a low percentage of survey time within the windfarm site and rotor sweep area. A collision risk model (e.g. Band et al. 2007) was not employed to determine collision risk or magnitude, rather the applicant based the assessment on know risk factors, VP observation time within rotor sweep zone and published avoidance rates.

3.3.11. Potential disturbance and barrier effects on a wide suite of bird species is presented in table 5.61 which considers target species and passerines species not usually considered in such assessments I am satisfied that based on the data collected and relatively small scale of the proposed windfarm, even in the absence of

mitigation measures, it will not pose a significant barrier effect to any bird species in the local or wider landscape context. Similarly, the operation of the windfarm will not result in a significant disturbance of the local bird populations.

3.3.12. Cumulative impact with other developments have been adequately addressed. In terms of cumulative impact assessment with other windfarms, I am satisfied that based on the evidence presented that any cumulative impacts to birds during the operational phase would be a Long-Term Imperceptible Cumulative Local Impact. There is a significant distance to the majority of the wind farms considered and most proximate windfarms are of limited scale (four turbines each).

Table 4. Summary of impact of proposed development on Target bird species.

Target species	**Ecological significance**	**Impact significance** (**overall** taking account of disturbance and habitat loss during construction and disturbance, collision risk and barrier effects during operational phase)
Buzzard	Green list	long-term imperceptible
Hen Harrier	Annex I Amber list	long-term imperceptible (collision) local long-term not significant effect (operation disturbance and barrier effect)
Kestrel	Red list	long-term imperceptible effect local Moderate long-term Effect but with habituation a slight long-term effect (operation disturbance and barrier effect)
Peregrine	Annex I Green list	long-term imperceptible
Sparrowhawk	Green list	long-term imperceptible
Grey Heron	Gren list	long-term imperceptible
Herring Gull	Amber list	long-term imperceptible

Lesser Black-backed gull	Amber list	long-term imperceptible
Mallard	Amber list SCI The Gearagh SPA	long-term imperceptible
Golden Plover	Annex I Red list	long-term not significant effect
Snipe	Red list (breeding and winter)	long-term imperceptible effect (collision) local moderate long-term effect (disturbance and barrier effect)
Passerines	Includes red, amber and green listed species	local long term imperceptible
Ground nesting passerines: Meadow pipit, skylark	Red list, Amber	long-term slight to moderate effect (operational disturbance)

Mitigation and Monitoring

Timing of works and vegetation clearance outside of breeding season
Planting, wildflower strips
Replanting of hedgerows

Confirmatory pre-construction surveys around turbine locations, roads and hard standings to establish if buzzard, kestrel sparrowhawk, snipe activity or new territories

Meadow pipit survey if ground works required during breeding.

Post construction monitoring:

Fatality monitoring during years 1, 2, 3, 5, 7, 10, 15 and 20
Flight activity using Vantage Point survey over years 1, 2, 3, 5, 10 and 15 post construction
Monthly wildfowl census

Breeding bird survey Breeding wader survey Lighting management: reduce impacts of red-light from turbines -baffles to direct light.
Residual Impacts: Slight to Imperceptible Local Impact.

Table 5 Ornithology: consideration of key issues summary of key issues in relation to Ornithology.

Issues raised	Consideration in EIAR/background information	Consideration
Bird survey effort and methods Snipe survey methodology	EIAR (2023) presents Multi annual surveys undertaken from 2020- 2022 • Flight activity (Vantage Point) surveys • Breeding & winter bird transect surveys • Breeding wader survey • Hinterland surveys	All surveys analysis undertaken in line with current best practice Survey effort proportional to landscape and habitats present Breeding wader survey (see appendix 5.3 section 2.4) transects within 3hrs of dusk (April and July 2021, 2022 using standard methodology 2 x 1 km transects).
Presence of Snipe on the windfarm site	Snipe was recorded at the site during winter and breeding surveys as part of flight activity surveys. Specific Breeding wader survey recorded 2 separate birds calling on one date (April, 2021).	Snipe is considered adequately in impact assessment.
Impacts on Golden Plover	Golden Plover recorded flying over site only No records of forging on the site during surveys or within 500m reducing potential.	Collision risk: I concur with assessment of low overall significance effect in view of Percival (2003) criteria – long term non-significant effect.

	Habitat is described as sub-optimal for wader species.	Based on description provide, habitats on site are sub-optimal for wader foraging, however they may use the site occasionally. Concur with overall assessment- non significant in terms of habitat loss
Potential for impacts on White Tailed Eagle, Reference to Lough Allua, Cork	White-tailed Eagle have been reintroduced to Ireland between 2007 and 2011 in Killarney Co. Kerry. A second phase of reintroductions was started in 2020 to bolster the existing eagle population in Ireland. The released eagles have dispersed widely throughout Ireland and by July 2020, a small breeding population of eight to ten pairs had successfully fledged 31 chicks across counties Cork, Kerry, Clare, Galway and Tipperary (NPWS). Inland lakes such as Lough Allua and The Gearagh may support this species as they expand their range and there have been sporadic recordings of individual birds at and near these areas.	This species are expected to expand their range in the future where suitable habitat exists. The location of the proposed windfarm does not host habitat of significance to this species and there are no records of any observations in the wider area over the course of the surveys which included hinterland surveys of the Gearagh and other wetland sites While these sites are within 10km of the windfarm location, i.e. not that distant in Eagle terms given their flight capabilities, any movements in the region of the proposed windfarm would be opportunistic, associated foraging opportunities with fallen animals. Unfortunately, there have been documented fatalities at windfarms, however there are no significant risk factors

		associated with the proposed development.
Evaluation		
I consider that the Applicant has adequately addressed and considered issues related to ornithology based on knowledge of the site collected over the standard 2-year period required for windfarm survey (notwithstanding pervious assessments at the site) employing standard survey methodology and assessment criteria. I consider that the information provided allows for a robust assessment and that the proposed development considered either alone or in combination with other windfarms in the area will not result in significant adverse impacts on bird species.		

3.4. Aquatic Ecology

3.4.1. EIAR Chapter 5 and appendix 5.4 and 5.5 also examines impacts on aquatic ecology including evaluation and assessment of impacts on watercourses within a zone of influence of the various aspects of the proposed development. In-depth water quality assessments including consideration of the Water Framework Directive are considered in Chapter 7 Hydrology and Water quality. Key issues raised of relevance to this aquatic ecology include potential for adverse effects on local water courses and aquatic ecology.

3.4.2. The Proposed Development area is drained by the Cummer River (EPA code: 19C02) to the north and the Moneygaff East Stream (19F09), Barnadivane Stream (19B22) and River Bride (EPA code: 19B04) to the south. Having visited the site, I confirm that the watercourses in the vicinity of Barnadivane wind farm are typically small, upland eroding channels (FW1; Fossitt, 2000).

3.4.3. An aquatic ecology survey was conducted by Triturus (November 2022) which surveyed 11 riparian sites in the vicinity of the proposed windfarm and included a fisheries assessment, white-clawed crayfish survey, aquatic plant survey (macrophytes and bryophytes) and biological water quality sampling (Q-sampling). The presence of otter was determined at each sampling site (1ithin 150m) and eDNA analysis was undertaken to validate and detect potentially cryptically low populations of Freshwater Pearl Mussel. Separate to the Triturus survey, a

dedicated survey for potential presence of Freshwater Pearl Mussel was undertaken by a specialist consultancy of watercourses downstream from the proposed development, namely the River Cummer and River Bride.

3.4.4. Table 5.47 of EIAR Chapter 5 presents a summary of the aquatic survey and evaluation showing that no watercourse or sample site was evaluated being above local importance (higher value), generally Q4 (good status) water quality with moderate fisheries value. Atlantic Salmon was recoded in the lower reaches of the River Bride only, with examples of the Annex I habitat floating river vegetation (3260) also recorded.

3.4.5. The Annex II species Freshwater pearl mussel and White clawed crayfish were not recorded. Evidence of Otter was recorded at four locations, two on the lower reaches of River Cummer and two on the lower reaches of the River Bride.

3.4.6. Direct and indirect impacts from the construction phase are described in 5.6.1.6 of the EIAR and focus on release of sediments and construction related pollutants entering watercourses. No significant operational impacts are precited.

3.4.7. No significant impacts on any protected aquatic species are predicted to occur at any stage of the proposed development.

3.4.8. Table 6 summarises key issues in relation to aquatic ecology.

Table 6 Aquatic Ecology: summary of impact assessment

Aquatic receptors	**Ecological significance**	**Impacts**	**Impact significance**
Watercourses including Cummer River to the north and the Moneygaff East Stream Barnadivane Stream and River Bride to the south	Local importance - higher level with good water quality and salmonids present. Watercourses are small upland streams with limited sensitive receptors however sensitivity increases in lower reaches. Lower reaches of the River Bride of relevance for Salmon, floating river vegetation and otter.	Release of sediments arising from construction related site works: Water quality degradation Deterioration of salmonid spawning habitat Direct and indirect impacts on species	Direct impacts: Slight negative impact (short term, reversible) Indirect impacts: Significant Short-term
Mitigation Measures (summary)	Detailed suite of measures to protect all receiving waters from potential impacts during all stages of the development and integrated into detailed CEMP: installation of silt fencing Detailed surface water management plan, and waste management plan Measures developed in line with cited best practice and guidance Hydrocarbon management Biosecurity measures Invasive species management plan		
Residual effects	Imperceptible negative impact		
Evaluation	The sensitivity of receiving water courses is of key concern in the assessments undertaken by the applicant evidenced by the suite of surveys undertaken. The mitigation measures proposed will effectively protect more sensitive aquatic habitats and species downstream of the proposed development. I concur with the Applicants overall conclusion of imperceptible impacts with full implementation and monitoring of mitigation measures.		

3.5. Biodiversity – no net loss/ net gain

3.5.1. A Biodiversity enhancement and management plan has been prepared (Appendix 5.7) and is summarised in EIAR Section 5.8 which details biodiversity enhancement measures that are integrated into the proposed development including:

3.5.2. Pollinator planting, wildlife ponds at settlement pond sites, shelter habitats including bee nest boxes, log piles and refugia/ hibernacula. Five bat boxes are proposed to be installed as well as a number of bird boxes.

3.5.3. These measures are designed to increase the biodiversity value of the site. The supervising Ecological clerk of works will need to ensure that bat and bird boxes are correctly positioned and monitored to ensure use. A programme of monitoring and adaptive management is set out in Table 5.1 of Appendix 5.7 to ensure establishment and continued presence.

4.0 Conclusion

4.1. Appropriate Assessment (recommendation)

4.1.1. I consider that together with the scientific information presented in the NIS, response documents, and my examination of updated site-specific conservation objectives for the Gearagh SPA, that there is adequate information to ensure that all aspects of the project can be assessed and to allow the Board to reach complete, precise, and definitive findings for the purpose of Appropriate Assessment.

4.1.2. It is my professional opinion that the proposed development will not undermine or delay the conservation objective to restore the favourable conservation condition for Mallard, a special conservation interest species for the Gearagh SPA or any other species for which the SPA is designated. Therefore, based on the best scientific information available presented in the NIS, I conclude that the proposed development will not have an adverse effect on site integrity of the Gearagh SPA and that no reasonable scientific doubt remains as to the absence of such effects.

4.2. Biodiversity

4.2.1. It is my professional opinion that the information presented for the biodiversity impact assessment as part of the EIAR is proportionate to the ecological receptors identified and adequate for the purpose of identifying likely significant effects for the purpose of EIA.

4.2.2. I consider that the application and monitoring of mitigation measures will ensure that significant impacts on key ecological receptors will be avoided.

Signed: 

Maeve Flynn BSc. PhD, MCIEEM
Inspectorate Ecologist

19th June 2025