Inspector's Report
ABP-315865-23

Development	Appeal against refusal for continued operation of Knockastanna wind farm.
Location	Townland of Curraghafoil, Co. Limerick
Planning Authority	Limerick City and County Council
Planning Authority Reg. Ref.	22646
Applicant(s)	SSE Renewables Generation Ireland
Type of Application	Permission
Planning Authority Decision	Refuse permission
Type of Appeal	First Party
Appellant(s)	SSE Renewables Generation Ireland
Observer(s)	None
Date of Site Inspection	24th November 2023
Inspector	Donal Donnelly

Contents

1.0 Introduction

1.1. A first party appeal against Limerick County Council's decision to refuse permission for the continued operation of the existing Knockastanna wind farm has been submitted to the Board by SSE Renewables Generation Limited. The wind farm was originally granted by the Board on 16th July 2003 under PL13.130938 for a period of 20 years (Limerick County Council Reg. Ref: 01/1385). The applicant is seeking permission for a further period of 15 years following expiry of the current permission.

2.0 Site Location and Description

2.1. The appeal site is located in the townland of Curraghafoil in north-eastern Co. Limerick in close proximity to the boundary with Co. Tipperary. The village of Rear Cross is approximately 2.8km to the north-east of the site and Limerick City is approximately 27km to the west. The site is also 6km north-east of Doon.

2.2. The surrounding area is characterised by upland rolling hills and valleys to the east/ south-east of the Slievefelim and Silvermines Mountains. The site is on the northern slope of Knockastanna, which rises to a height of 444m OD. The lowest part of the site along the public road is at a height of 240m OD. Cullaun (460m OD) is located to the west and the River Bilboa flows southwards along the valley between these hills. The Bilboa River joins the Dead River to become the Mulkear River, which is a tributary of the Shannon. There are a number of streams commencing within the site, which flow towards the Bilboa to the west and north.

2.3. The appeal site is currently in use as a wind farm comprising 4 no. turbines with tip heights of c. 100m. The uppermost turbine to the south is currently demounted and material and vegetation have been stripped away from the turbine foundation. The stated area of the site is c. 43 hectares. Access to the site is from the local road to the north. Parts of Knockastanna hill are forested and there are also agricultural fields. Hill farming and forestry are the main land uses in the locality. There are a number of other windfarms in the area including Garracummer windfarm to the south-east

3.0 **Proposed Development**

3.1. Planning permission is sought for the continued operation of the existing Knockastanna Wind Farm for a further period of 15 years following the expiry of the current planning permission.

3.2. The existing windfarm comprises the following:

- 4 no. wind turbines and associated turbine foundations and crane hardstandings;
- Site entrance and 2 km of site access tracks;
- Electrical control building with a gross floor area of 66 sq.m., electrical equipment enclosure and wastewater treatment system;
- Underground electrical and communications cabling; and
- All drainage, signage, and all ancillary site infrastructure.

3.3. The proposed development does not comprise any modifications to the existing windfarm and there will be no increase in the number or dimensions of the permitted wind turbines.

3.4. An Environmental Impact Assessment Report and Natura Impact Statement (Stage 2 Appropriate Assessment) have been prepared in respect of this application. A full list of documents submitted with the planning application and appeal is set out below.

3.5. **Accompanying documents:**

- Cover letter/ Schedule of Documentation,
- Completed planning application form,
- Copy of newspaper notice,
- EIA portal confirmation notice,
- Confirmation of landowner consent,
- Planning application fee (€4,508),
- Planning application drawings,

- Environmental Impact Assessment Report (EIAR) comprising the following:
  - Volume 1: Main text,
  - Volume 2: Range of annexes, including technical data and reports,
  - Non-Technical Summary of EIAR,
  - Environmental mitigation measures document,
- Natura Impact Statement (NIS).

4.0 Planning Authority Decision

4.1. Decision

4.1.1. Limerick County Council issued notification of decision to refuse permission for the following reason:

> *"The Planning Authority, in undertaking an Appropriate Assessment, has concluded that the submitted Natura Impact Statement has insufficiently assessed the impact the continued operation of the wind turbines may have on the Hen Harrier (Annex I Species) in light of conservation objectives of the Slievefelim to Silvermines Mountains SPA (site code 004165). Having regard to the foregoing and as set out in the Planning Authority's concluding statement, it is considered that it has not been sufficiently demonstrated that adverse effects on the integrity of the Natura 2000 site including the aforementioned species and their habitats, arising from the proposed development, can be excluded. On the basis of the information presented to date, it is considered that the proposed development materially contravenes Policy EH P1 of the Limerick Development Plan 2022-2028 which seeks to protect and conserve Special Protection Areas."*

4.2. Planning Authority Reports

4.2.1. The recommendation to refuse planning permission in the final Planner's Report reflects the decision of the Planning Authority. Issues covered under the appraisal of the proposed development within the initial Planner's Report dated **28th July 2022**

include habitats directive screening, policy compliance, services, submissions/ objections, development principle and Environmental Impact Assessment.

4.2.2. The Council's Heritage Officer reviewed the submitted NIS and advised that the last available survey for hen harrier dates from 2019 and that updated information from Spring 2022 should be submitted. There is agreement with the screening assessment findings that there would be no effects on the Lower River Shannon SAC, as any works would involve the re-erection of an existing turbine in an already developed location. It is noted that it was a structural defect in relation to Turbine 5, rather than a ground stability issue that caused it to be taken down.

4.2.3. With respect to the **principle of development**, it is noted that renewable energy is supported at national, regional and local policy levels to achieve a low carbon economy and to meet national renewable energy and emission reduction targets. It is also highlighted that the windfarm did not become operational until 2009 and the operation lifespan is widely accepted to be 25-30 years. The site is also located in an area where wind energy development is 'open for consideration' and based on these factors, it is considered that the development is acceptable in principle, subject to satisfying other planning and environmental considerations.

4.2.4. The following outlines the Planning Authority's comments on the **EIAR** submitted with the planning application:

- Do nothing alternative would result in the cessation of renewable energy production at the site. Continued operation is likely to result in no additional impacts. Repowering would result in construction related impacts and other increased impacts due to revised site layout and increased turbine size.
- In the event that permission is granted, a detailed decommissioning plan and financial bond will be required to ensure satisfactory reinstatement.
- *Population & human health:* No construction related activities and some employment through routine maintenance. There will be annual contributions to community groups, commercial rates and development contributions. Formal community gain proposal shall be conditioned in the event of a grant of planning permission.

- *Biodiversity:* Additional mitigation measures will be implemented where bat mortality is detected. Intrusive maintenance operations and decommissioning works will be undertaken outside the hen harrier breeding season where breeding hen harrier is recorded. Decommissioning works will be timed to avoid the coldest winter months and breeding season. Bird and bat monitoring and control of suspended solids will be required by condition.
- *Land & soil:* Land and bedrock geology considered to have low sensitivity. Site management measures will continue to be employed during operational phase to prevent adverse impacts on land, soil and geology. Detailed decommissioning plan will include measures to prevent soil contamination. Site includes area of high and moderate landslide susceptibility.
- *Water:* Walkover survey confirmed that there is no indication that the existing wind farm has impaired groundwater or surface water, has increased flood risk, or has resulted in downstream pollution of surface waters. Site is not at risk of flooding and site management measures will continue to be employed during operation.
- *Air Quality & Climate:* Continued operation of wind farm is considered to have a positive impact on climate. Dust mitigation proposed for operational and decommissioning phases.
- *Landscape:* Landscape and visual impact assessment has been carried out and no significant impacts identified. Condition 6 of the parent permission relating to landscaping has not been complied with. Applicant considers that screen bunds or planting would be more visually intrusive than leaving the site 'as is'.
- *Cultural heritage:* No cultural heritage assets identified within the site and visual effects on heritage features within 5km were considered.
- *Noise & Vibration:* Noise limits below the limits set out in Condition 9 of the parent permission. No dwelling within 500m of a turbine and no specific mitigation measures proposed.
- *Shadow flicker:* Environment & Placemaking Section recommend measures to automatically shut down relevant turbines to ensure shadow flicker will not occur for no more than 30 minutes at any residential property.

- *Material assets:* EIAR states that the proposed development is unlikely to result in any significant adverse impacts on renewable and non-renewable resources or on utilities infrastructure. Aviation requirements can be addressed by way of condition and FI requested from Road Section on sightlines. Other matters raised by Roads Section not considered relevant as there are no construction works proposed.
- *Interaction with the foregoing:* Further information required in respect of noise, shadow flicker and traffic matters.

4.2.5. The Planning Authority's concluding comment is that the EIAR did not individually or in-combination identify any significant impacts and all submissions have been considered in conjunction with the assessment of the EIAR. It is stated that the reasoned conclusion of significant effects will not be carried out until receipt of further information.

4.2.6. Further information was requested from the applicant to include updated hen harrier surveys for from Spring 2022; an assessment of landslide susceptibility; details on noise; automatic shutdown proposals during shadow flicker; waste management proposals; and submission of a topographical survey demonstrating sightlines and a site layout plan showing entrance upgrade works.

4.2.7. With respect to noise, it is noted that the existing condition attached to the parent permission is not appropriate for the control of wind turbine noise from the continued operation of the wind farm. The further information request also highlights that there is an inconsistency with wind speeds used in the compliance report and that a noise assessment should be carried out to determine the critical wind speed at a standardised 10m height above ground. Background noise and operational noise monitoring surveys are required and there are insufficient valid data points at the critical wind speed to establish compliance with Condition 9 of the parent permission. The characteristics of wind turbine noise should be established and if there are tones or amplitude modulation, it is stated that measures to control these should be agreed. Properties to be monitored should also be agreed with the Planning Authority.

4.2.8. The assessment of the further information was carried out in the Planner's Report dated **23rd January 2023**. In response to the further information request, the

applicant submitted a draft interim bird monitoring programme for Spring 2022, which is considered to be generally consistent with the assessments contained within the EIAR and NIS. In terms of Appropriate Assessment, the Council Heritage Officer notes that prior to development commencement, this site was used by hen harrier and the site is now unsuitable for nesting. It is considered that the continued operation of the wind farm would compromise the conservation objectives of the Slievefelim and Silvermines Mountains SPA, particularly attributes relating to spatial utilisation of breeding pairs. The Heritage Officer highlights that the existing development has led to the modification and desiccation of peatland habitat within the site. Wet and dry heath habitats have been modified by works and in some cases have dried out and the original peatland species have been replaced by grasses as the area dried. The surveys offer insight into the species habitat after the construction of the wind turbines and are unable to reflect the former conditions on site. The Heritage Officer attributes the relative lack of harrier activity to the wind turbines. Therefore, significant effects on the qualifying interests of the SPA cannot be excluded, notwithstanding mitigation measures included in the NIS. It is apparent that the wind turbines have displaced hen harriers and modified peatland in the SPA.

4.2.9. With respect to the historic landslide event, it is submitted by the applicant that it was 2.2km south of the site and was relatively small, with no impact on local rivers and streams. The continued operation of the wind farm is unlikely to increase the risk of landslide as the turbines have been operational for 13 years. A structural defect rather than unfavourable ground stability conditions was the reason Turbine 5 was taken down.

4.2.10. A technical noise response was submitted in response to the FI request and the Environmental Department confirmed it is satisfied with the proposals for managing and minimising noise, subject to condition.

4.2.11. Two dwellings are expected to experience shadow flicker in excess of 30 minutes per day. Specifications of software to curtail the operation of turbines as necessary are included in the FI response and this is considered acceptable by the Planning Authority.

4.2.12. A site-specific waste management plan has been prepared in the context of the assessment included in the EIAR and it is stated that it does not conflict with any of the findings in same.

4.2.13. Finally, it is noted that discussions were held with the Roads Department and comments and conditions are recommended in the event of a grant of permission. It is noted that part B of the FI request relating to access upgrade works was inserted in error.

4.3. Third Party Observations

4.3.1. A single observation was received by the Planning Authority from Knockastanna Residents, c/o Gyr Penn. Issues that were raised include the following:

- Impact on hen harrier – species successfully nested on Knockastanna before wind farm was constructed and has not bred there since.
- Derrybrien ruling
- Noise impact
- Cracked foundations – safety of turbines

5.0 Planning History

5.1. Subject site

Limerick County Council Reg. Ref: 01/1385 (PL13.130938)

5.1.1. The Board granted permission on 16th July 2003 for five of the proposed six turbines in the windfarm, as well as a substation, access road and both a temporary and permanent monitoring mast.

5.1.2. Condition 2 of the Board's Decision stated that the permission is for a period of 20 years from the date of the Order and the wind turbines and associated infrastructure shall then be removed unless, prior to the end of the period, planning permission is granted for a further period.

5.1.3. Under Condition 4, a protocol was to be agreed for annual reports on the impact of the wind farm on wild birds, in particular hen harrier and red grouse. Construction

works were to take place between April and July inclusive as required by Condition 5, and a landscaping scheme was to be submitted as part of Condition 6. Details of the proposed service road and drains were to be agreed under Condition 7.

5.1.4. It was a requirement under Condition 9 that the noise from the proposed development shall not exceed 40 dB(A)Leq at the nearest occupied house at the critical wind speed (speed at which the noise of wind turbines and blades is most in excess of ambient noise levels).

Limerick County Council Reg. Ref: 07/758 (PL13.224401)

5.1.5. The Board granted permission on 27th February 2008 for modifications to Reg. Ref: 01/1385 consisting of a change in design and location of 20kV electrical substation, including control building and all associated site works.

5.1.6. It was a condition of this permission that the development shall be carried out in accordance with the parent permission except as amended to conform with the provisions indicated in the plans lodged in connection with this application and with the conditions.

Limerick County Council Reg. Ref: 08/7007

5.1.7. Permission granted for an extension of duration of permission of Reg. Ref: 01/1385 until 14th July 2011.

5.2. Nearby windfarm applications

Tipperary County Council Reg. Ref: 13/510003 (PL22.243040)

5.2.1. Ecopower Development Ltd. was granted a ten-year permission in August 2014 for 22 wind turbines up to 126.6m in height, 2 no. meteorological masts with wind measuring equipment attached, access roads, electrical substation compound, control buildings and ancillary works.

Tipperary County Council Reg. Ref: 12/510385 (PL22.242852 - withdrawn)

5.2.2. ABO Wind Ireland Ltd. applied for permission for a wind energy project of 5 no. wind turbines each with a maximum tip height of 126m, together with the construction of new access tracks and the upgrading of existing tracks, an electrical substation, borrow pit and associated works at Knockcurraghbola Commons.

5.2.3. A third party appeal on this case was withdrawn and permission was granted in February 2014.

Tipperary County Council Reg. Ref: 15/600566 (PL22.245544)

5.2.4. ABO Wind Ireland Ltd. were granted permission for development consisting of amendments and additions to an electrical substation associated with a previously permitted, five-turbine, wind farm development (Reg. Ref: 12/510385).

Tipperary County Council Reg. Ref: 14/10 (PL92.243611)

5.2.5. ABO Wind Ireland Ltd. was granted permission in September 2016 for 1 no. wind turbine (applied for 2 no.), new internal access roads, upgrading of existing internal roads, underground cables and associated works, (site to west of above).

Tipperary County Council Reg. Ref: 16/600701

5.2.6. Ten year permission granted to ABO Wind Ireland Ltd. To develop an electricity service, entailing of the laying of a 20kV underground cable from the proposed Inchivara Wind Farm to proposed 38V substation at Graniera and a 38kV underground cable from the proposed 38kV substation at Graniera to the existing Cauteen 110kV/38kV substation at Seskin, Co Tipperary. The development will consist of three phase underground electrical cables laid in ducts, with communications cable, draw pits, jointing bays, cable sheath sectionalising chambers, works to terminus substations and all associated works.

Tipperary County Council Reg. Ref: 13/510035 (PL22.241924)

5.2.7. The Board granted a 10 year permission for construction of a windfarm comprising 16 wind turbines and all associated site works above and below ground at Bunkimalta, Bauraglanna, Lackabrack, Keeper Hill (22/07/14). However, the Board's decision was quashed by Order of the Supreme Court.

5.2.8. The question was referred to the Court of Justice of the European Union (C-164/17, Edel Grace and Peter Sweetman v An Bord Pleanála) by the Supreme Court as to whether or not measures in a management plan could be considered as mitigation under Article 6(3) when assessing whether the proposal adversely affects the integrity of the SPA, or whether they were in fact compensatory and therefore relevant under Article 6(4). It was ruled in this case on 25th July 2018 as follows:

"Article 6 of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that, where it is intended to carry out a project on a site designated for the protection and conservation of certain species, of which the area suitable for providing for the needs of a protected species fluctuates over time, and the temporary or permanent effect of that project will be that some parts of the site will no longer be able to provide a suitable habitat for the species in question, the fact that the project includes measures to ensure that, after an appropriate assessment of the implications of the project has been carried out and throughout the lifetime of the project, the part of the site that is in fact likely to provide a suitable habitat will not be reduced and indeed may be enhanced may not be taken into account for the purpose of the assessment that must be carried out in accordance with Article 6(3) of the directive to ensure that the project in question will not adversely affect the integrity of the site concerned; that fact falls to be considered, if need be, under Article 6(4) of the directive."

Tipperary County Council Reg. Ref: 11/510251

5.2.9. Permission granted on 18th April 2014 for a windfarm consisting of 16 turbines (total tip height of 145m), and ancillary works at Castlewaller.

5.2.10. An extension of duration of permission was granted on 18th July 2016 (Reg. Ref: 16/600472).

6.0 Policy Context

6.1. European Green Deal

6.1.1. The European Green Deal is a set of policy initiatives approved in 2020 that pledge to transform the EU into a modern, resource efficient and competitive economy; ensuring:

- No net emissions of greenhouse gases by 2050;
- Economic growth decoupled from resource use; and
- No person and no place left behind.

6.1.2. The European Green Deal will improve the well-being and health of citizens and future generations by providing fresh air, clean water, healthy soil and biodiversity; renovated, energy efficient buildings; healthy and affordable food; more public transport; cleaner energy and cutting-edge clean technological innovation; longer lasting products that can be repaired, recycled and re-used; future-proof jobs and skills training for the transition; and globally competitive and resilient industry.

6.2. REPowerEU Plan

6.2.1. This Plan aims to make the EU independent from Russian fossils fuels well before 2030 through front-loading of wind and solar energy, increasing the average deployment rate of such energy, and from additional renewable energy capacity to accommodate the higher production of renewable fuels of non-biological origin. Member States should endeavour to collectively achieve an overall EU renewable energy target of 45 % in line with the REPowerEU Plan.

6.3. Renewable Energy Directive[1]

6.3.1. The Renewable Energy Directive is a legal framework for the development of clean energy across the EU. Directive EU2018/2001 has been legally binding since June 2021 and this sets an overall European renewable energy target of 32% by 2030. The Commission proposed a revision of this Directive in July 2021 raising the 2030 target to 40%. However, following Russia's invasion of Ukraine, and the need to accelerate the EU's independence from fossil fuels, it was proposed to raise the target further to 45% by 2030. The European Parliament gave its final approval to the legally binding target on 12th September 2023 requiring at least 42.5%, aiming for 45%, of EU energy to be renewable by 2030.

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[1] Directive (EU) 2023 of the European Parliament and of the Council of amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652

6.3.2. Under the new Directive, national authorities have 12 months to decide on new solar and wind farms that are located in a renewable acceleration area. Outside of these areas, the process should not exceed 24 months.

6.3.3. It is stated under Section 37 of the Directive that:

> *"The construction and operation of renewable energy plants can result in the occasional killing or disturbance of birds and other species protected under Directive 92/43/EEC or under Directive 2009/147/EC of the European Parliament and of the Council 20. However, such killing or disturbance of protected species should not be considered to be deliberate within the meaning of those Directives if the project for the construction and operation of those renewable energy plants provides for appropriate mitigation measures to avoid such killing, to prevent disturbance, to assess the effectiveness of such measures through appropriate monitoring and, in the light of the information gathered, to take further measures as required to ensure that there are no significant adverse impact on the population of the species concerned."*

6.3.4. Sections 38 to 40 are also of relevance:

> *"(38) In addition to installing new renewable energy plants, repowering of existing renewable energy power plants has significant potential to contribute to the achievement of the renewable energy targets. Since the existing renewable energy power plants have, for the most part, been installed in sites with significant renewable energy source potential, repowering can ensure the continued use of those sites while reducing the need to designate new sites for renewable energy projects. Repowering includes further benefits such as the existing grid connection, a likely higher degree of public acceptance and knowledge of the environmental impact.*
>
> *39) Directive (EU) 2018/2001 introduces streamlined permit-granting procedures for repowering. In order to respond to the increasing need for the repowering of existing renewable energy power plants and to make full use of the advantages it offers, it is appropriate to establish an even shorter permit-granting procedure for the repowering of renewable energy*

power plants located in renewables acceleration areas, including a shorter screening process. For the repowering of existing renewable energy power plants located outside renewables acceleration areas, Member States should ensure a simplified and swift permit-granting procedure not exceeding one year, while taking into account the 'do no harm' principle of the European Green Deal.

(40) In order to further promote and accelerate the repowering of existing renewable energy power plants, a simplified permit-granting procedure for grid connections should be established where the repowering results in a limited increase in total capacity compared to the original project. The repowering of renewable energy projects entails changes to or the extension of existing projects to different degrees. The permit-granting procedure, including environmental assessments and screening, for the repowering of renewable energy projects should be limited to the potential impact resulting from the change or extension compared to the original project."

6.4. National Planning Framework, 2018

6.4.1. The National Planning Framework provides policies, actions and investment to deliver 10 National Strategic Outcomes (NSO) and priorities of the National Development Plan. Transitioning to a low carbon and climate resilient society is the main NSO that pertains to the proposed development. It is stated that new energy systems and transmission grids will be necessary for a more distributed, renewables-focused energy generation system.

6.4.2. Chapter 9 of the NPF: Realising Our Sustainable Future recognises the need to accelerate action on climate change for a low carbon energy future. In this regard, National Policy Objective 54 seeks to *"reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate policy mitigation and adaptation objectives, as well as targets for greenhouse gas emissions reductions."*

6.4.3. The transition to renewable sources of energy is an integral part of Ireland's climate change strategy as a means of reducing reliance on fossil fuels. Reflecting this,

National Policy Objective 55 will *"promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050."*

6.4.4. It is also recognised that Ireland's forests play an important role in helping with climate change mitigation, through carbon sequestration and the provision of renewable fuels and raw materials.

6.5. Regional Spatial & Economic Strategy for the Southern Region, 2020

6.5.1. This document is a 12-year strategic regional development framework that will facilitate the delivery of the NPF. It is stated that the Southern Regional Assembly supports the implementation of the Climate Action Plan, 2019 by prioritising decarbonisation, resource efficiency and climate resilience.

6.5.2. The Strategy states that opportunities for both commercial and community wind energy projects should be harnessed. Objective (RPO 99) seeks *"…to support the sustainable development of renewable wind energy (on shore and off shore) at appropriate locations and related grid infrastructure in the Region in compliance with national Wind Energy Guidelines."*

6.6. Limerick Development Plan, 2022-2028

6.6.1. Chapter 9 of the Development plan addresses climate action, flood risk and transition to a low carbon economy. Section 9.4 refers to renewable energy and Policy CAF P6 seeks *"to support renewable energy commitments outlined in national and regional policy, by facilitating the development and exploitation of a range of renewable energy sources at suitable locations throughout Limerick, where such development does not have a negative impact on the surrounding environment landscape, biodiversity, water quality or local amenities, to ensure the long-term sustainable growth of Limerick."*

6.6.2. Objective CAF 028 aims *"…to encourage the development of wind energy, in accordance with Government policy and having regard to the principles and planning guidance set out in the Department of Housing, Planning and Local Government publications relating to Wind Energy Development and the DCCAE Code of Practice*

for Wind Energy Development in Ireland and any other relevant guidance, which may be issued in relation to sustainable energy provisions during the course of the Plan."

6.6.3. Objective CAF 036 seeks to *"… support the life-extension and repowering of existing wind farms, where considered appropriate and subject to an appropriate level of environmental and planning assessment."*

6.6.4. The following objectives are also contained in Chapter 9 of the Development Plan:

Objective CAF O1 Compliance with Higher Tier Climate Legislation and Guidance It is an objective of the Council to:

a) *Support the National Adaptation Framework 2018 and the National Climate Change Strategy, including the transition to a low carbon future, taking account of flood risk, the promotion of sustainable transport, soil conservation, the importance of green infrastructure, improved air quality, the use of renewable resources and the re-use of existing resources.*

b) *Support the implementation of the Limerick Climate Change Adaptation Strategy (2019) while cognisance shall be had of any revised or forthcoming adaptation, mitigation or climate action strategies or plans at local, regional and national level in the formulation of any plans or policies*

Objective CAF O29 Wind Energy Development and Environmental Considerations: It is an objective of the Council to facilitate the development of wind energy in an environmentally sustainable manner, ensuring proposals are consistent with the landscape character objectives of the Plan, the protection of the natural and built environment and the visual and residential amenities of the area.

Objective CAF O30 Location of Wind Energy Developments: It is an objective of the Council to promote the location of wind farms and wind energy infrastructure in the 'preferred areas' as outlined on Map 9.1, to prohibit such infrastructure in areas identified as 'not open for consideration' and to consider, subject to appropriate assessment, the location of wind generating infrastructure in areas 'open for consideration'.

Objective CAF O34 Wind Energy Development: It is an objective of the Council to ensure that wind energy developments on sensitive or sloping sites, or any significant alterations to them, are accompanied by adequate assessment of the effects of the development on soil stability.

6.6.5. The development site is within an area designated as *'open for consideration'* for wind energy development.

6.6.6. The notification of decision to refuse permission refers to Policy EH P1 of the Development Plan, which seeks to:

a) *Protect and conserve Limerick's natural heritage and biodiversity, in particular, areas designated as part of the European Sites Natura 2000 network, such as Special Protection Areas (SPAs) and Special Areas of Conservations (SACs), in accordance with relevant EU Directives and national legislation and guidelines.*

b) *Maintain the conservation value of all Natural Heritage Areas and proposed Natural Heritage Areas (pNHAs) for the benefit of existing and future generations.*

6.6.7. Development management standards for wind energy are set out in Section 11.7.2.1.

6.7. Climate Action Plan, 2023

6.7.1. The Climate Action Plan (CAP23) sets out a roadmap to halve emissions by 2030 and reach net zero by 2050. CAP23 will also be the first to implement carbon budgets and sectoral emissions ceilings that were introduced under the Climate Action and Low Carbon Development (Amendment) Act, 2021. Sector emission ceilings were approved by Government in July 2022 for the electricity, transport, built environment – residential, built environment – commercial, industry, agricultural and other (F-gases, waste & petroleum refining) sectors. Finalisation of the emissions ceiling for the Land Use, Land Use Change and Forestry (LULUCF) sector has been deferred for up to18 months from July 2022.

6.7.2. Citizen engagement and a strengthened social contract between the Government and the Irish people will be required around climate action. Some sectors and

communities will be impacted more than others. A just transition is embedded in CAP23 to equip people with the skills to benefit from change and to acknowledge that costs need to be shared. Large investment will be necessary through public and private sectors to meet CAP23 targets and objectives.

6.7.3. The electricity sector will help to decarbonise the transport, heating and industry sectors and will face a huge challenge to meet requirements under its own sectoral emissions ceiling. A large-scale deployment of renewables will be critical to decarbonising the power sector, as well as enabling the electrification of other technologies. CAP23 seeks to accelerate the delivery of onshore wind, offshore wind and solar through a competitive framework to reach 80% of electricity demand from renewable energy by 2030. Up to 9GW of onshore wind, 8GW of solar and at least 7GW of offshore wind is to be dialled up by 2030, with 2GW earmarked for green hydrogen production. Renewable energy generation projects and associated infrastructure should be considered to be in the overriding public interest.

6.8. National Adaption Framework, 2018

6.8.1. The Framework was developed under the Climate Action and Low Carbon Development Act, 2015. A number of Government Departments are required under this Framework to prepare sectorial adaptation plans to reduce the vulnerability of the country to the negative effects of climate change and to avail of the positive impacts. The Climate Change Adaptation Plan for Electricity and Gas Networks Sector has been prepared under the National Adaption Framework to identify the potential impacts of climate change on energy infrastructure, assess associated risks and set out an action plan for adapting to those impacts.

6.9. Wind Energy Guidelines, 2006

6.9.1. These guidelines still constitute the official strategy guidance on wind farms under the provision of Section 28 of the Planning and Development Act 2000 (as amended). Advice is set out in relation to the design, siting, spatial extent, and height of turbines in various landscape character types. Details are also included for best practice for wind farm development on peatlands and flatland areas, and guidance is also provided on matters such as noise, shadow flicker, natural heritage,

archaeology, architectural heritage, ground conditions, aircraft safety, wind take and potential cumulative effects.

6.10. Draft Wind Energy Guidelines, 2019

6.10.1. The Board will note that these guidelines are still in draft form and have not been officially adopted as official guidance. The Supreme Court held in Balz & Anor v An Bord Pleanála [2016] IESC 134, that while statutory guidelines (in this instance the 2006 guidelines) still in force and may be out of date was not an irrelevant planning consideration, and the Board in setting out its reasons and considerations in determining the application, should have its given reasons for not accepting the guidance set out in the 2019 Wind farm Guidelines.

6.11. Natural Heritage Designations

6.11.1. The following designated sites are within 5km of the proposed wind farm site:

Site Name	Site Code	Distance (nearest point to wind farm)
Slievefelim to Silvermines Mountains SPA	004165	0km
Lower River Shannon SAC	002165	0.42km north-west
Mauherslieve Bog NHA	002385	4.6km north
Bilboa and Gortnageragh River Valleys pNHA	001851	1.2km south-west
Knockanavar Wood	000961	4.9km

7.0 The Appeal

7.1. Grounds of Appeal

7.2. The applicant's agent, Galetech Energy Services, lodged a first party appeal against the Council's decision. The grounds of appeal and main points raised in this submission can be summarised as follows:

Adequacy of Appropriate Assessment undertaken by the Planning Authority

- Conclusion in the NIS was informed by best available scientific knowledge and site-specific conservation objectives including:

- Annual bird surveys of Knockastanna Wind Farm undertaken from 2006 to 2019 (Oliver & Penn 2007-2019) (Fehily Timoney, 2008-2009),
- Article 17 and Article 21 reports completed by NPWS,
- Site Synopsis, Conservation Objectives and Standard Data Forms for Natura 2000 sites,
- Draft Site-Specific Conservation Objectives: Breeding Hen Harrier (NPWS, 2021),
- Draft Threat Response Plan for Hen Harrier 2021-2015 (NPWS, 2021) and
- Results from national hen harrier surveys (Ruddock, Dunlop, O'Toole, Mee & Nagle, 2012) (Ruddock, et al., 2016).

- Broad range of effects on hen harrier have been assessed in the NIS including collision risk, disturbance and/ or displacement, reduction in prey availability, barrier effect, and loss of habitat. Proposed development alone would not undermine the conservation objectives of the SPA.
- In-combination assessment includes a range of other wind energy developments, forestry plantations, agricultural developments, residential dwellings, development plans, the Central Munster Five Year Forest Plan 2021-2015 and the Draft Hen Harrier Threat Response Plan.
- NIS provides a wide-ranging, extensive and comprehensive assessment of the effects of the continued operation of the wind farm in light of the conservation objectives – Planning Authority's assertion that the NIS has *"insufficiently assessed the impact the continued operation of the wind turbines may have on hen harrier"* is entirely refuted by the appellant.
- NIS prepared on the basis of accepted research of hen harrier activities and their interaction with wind energy developments and is supported by multi-annual ornithological survey data – provides a clear understanding of the usage of the site by the species including emerging trends in hen harrier activity.
- Surveys show that hen harrier continue to utilise the area; however, the level of usage is reduced compared to prior to construction of the existing wind farm. During the period since the wind farm was permitted, there have been four

national hen harrier surveys encompassing the whole SPA. One of these was before the wind farm was constructed and three were after and each found 4-8 no. confirmed breeding pairs. Specific target is to maintain this population.

- 5-7 hen harrier territories have been consistently recorded within 5km of the proposed development site between 2010 and 2019.
- While activity levels within the immediate area around the development site are reduced, the overall hen harrier population in the SPA is meeting the target set out in the conservation objectives and, therefore, the conservation objectives of the SPA are not currently being undermined by the presence of existing development.
- It has been demonstrated, beyond a reasonable scientific doubt, that the continued operation of the wind farm, individually or in combination with other existing, permitted or proposed developments, does not pose a risk to the conservation objectives or integrity of the SPA or any other Natura 2000 site.
- Appropriate Assessment carried out by the Planning Authority is completely devoid of any evaluation and analysis of the information presented in the NIS or provided by the applicant in response to the FI request. No actual assessment of the information provided by the applicant is carried out and no reference is made to the conservation objectives of the SPA.
- A brief reference is made to the presence of hen harrier at this location prior to construction of the existing development and the effects of the construction phase on existing habitat – conclusion that the *"…relative lack of hen harrier activity is likely due to the development itself…"* and *"…this is reflected in the data presented in the surveys submitted"* does not contain scientific evidence and does not refer to the conservation objectives.

Incorrect assessment of the proposed development

- Appears that Planning Authority has placed very significant weight on environmental effects perceived to have arisen during construction of the existing wind farm. Construction phase effects were assessed in full by the Board under PL13.130938 and it was concluded that the proposed development *"would not seriously damage the habitat of a species listed under Annex I of the Birds*

Directive" and would not *"be otherwise contrary to the proper planning and sustainable development of the area."*

- It is inappropriate to reassess the construction of an existing development given that the construction phase is complete, and the scope of the subject development simply relates to an additional operational period of 15 years.
- Planning Authority has unlawfully extended the scope of its Appropriate Assessment beyond the subject matter of the proposed development, i.e. the continued operation of the existing wind farm for a period of 15 years.

Compliance with Limerick Development Plan 2022-2028

- Alleged contravention of Policy EH P1 is a direct consequence of the inadequate Appropriate Assessment completed by the Planning Authority.
- Board is referred to Chapter 5 (Biodiversity) of the EIAR which concludes that there will be *"…no significant effects on biodiversity as a result of the proposed development."*
- Continued operation of the existing wind farm does not pose a risk to the protection and conservation of Limerick's natural heritage and biodiversity, including Natura 2000 sites.
- Objective CAF 028 seeks to encourage the development of wind energy.
- Objective CAF 036 supports the life-extension and repowering of existing wind farms, where considered appropriate and subject to an appropriate level of environmental and planning assessment.
- Development site is within an area designated as 'open for consideration' for wind energy development.
- Increased generation of energy from renewable sources is a key national policy, as set out in CAP23. Meeting of targets is critically reliant on the continued operation of the existing fleet of wind turbines. Existing wind farm is operating benignly and its continued operation will have no key likely significant effects on the environment and is therefore of national, significance and strategic importance.

Supplementary matters

- Works to existing entrance are not required or proposed and the application of any conditions relating to same are unwarranted and unjustified.
- Roads, Traffic & Cleansing Department confirmed that matters relating to upgrade works at the existing site entrance were requested in error and did not require a response.
- Upon decommissioning, it is assumed that proposed wind turbine components will be processed on site and removed by standard HGVs – existing entrance capable of accommodating standard HGVs.

7.2.1. Correspondence was appended to the appeal from the applicants, SSE Renewables. This submission reiterates the points made by Galetech Energy Services. Reference is made to REPowerEU, which was introduced by the European Commission in May 2022 in response to the global energy market disruption caused by the war in Ukraine. Part of this package introduces a new temporary emergency regulation to accelerate the deployment of renewable energy sources. The Board is referred to Recital 7 of the regulation, which states as follows:

> *"This Regulation should apply to permit-granting processes that have a starting date within the period of its application. In view of the objective of this Regulation, and the emergency situation and exception context of its adoption, in particular the fact that a short-term acceleration of the pace of deployment of renewables in the Union justifies the application of this Regulation to pending permit-granting processes, Member States should be allowed to apply this Regulation, or certain or its provisions, to pending permit-granting processes for which a final decision of the relevant authority has not been taken, provided that the application of those rules duly respect the pre-existing rights of third parties and their legal expectations. Member States should therefore ensure that the application of this Regulation to pending permit-granting processes is proportionate and appropriately protects the rights of legitimate expectations of all interested parties."*

7.2.2. It is considered that Limerick County Council did not adequately have regard to this Regulation.

7.2.3. In an Irish context, the application for lifetime extension at Knockastanna comes at a time when the government has introduced binding carbon budgets for the period 2021-25 and 2026-30. It is submitted that retention of existing renewable energy generation will be essential to deliver these targets. It is noted that Limerick City and County Council referred to CAP21 instead of CAP23.

7.3. Response from Planning Authority

7.3.1. None received.

8.0 Observations

8.1. None received.

9.0 Assessment

9.1. Having regard to the requirements of the Planning and Development Act, 2000 (as amended), this assessment is divided into three main parts, the planning assessment, environmental impact assessment and appropriate assessment. In each assessment, where necessary, reference is made to issues raised by all parties. There is inevitable overlap between the assessments, for example, with matters raised falling within both the planning assessment and the environmental impact assessment. In the interest of brevity, matters are not repeated but such overlaps are indicated in subsequent sections of the report.

10.0 Planning Assessment

10.1. Planning permission is sought for the continued operation of Knockastanna wind farm, Co. Limerick for a period of 15 years. Five of the then proposed six turbines in the wind farm were originally granted by the Board on 16th July 2003 for a period of 20 years. One of the permitted turbines was not erected and four turbines began operating in 2009. Three turbines are currently operating after one was demounted following structural issues with the turbine foundation.

10.2. The applicant contends that modern wind farms have an operational lifespan in excess of 30 years and the existing wind farm has only been operational for 14

years. It is therefore considered that the turbines are capable of operating for another 15 years from their currently required date of decommissioning (June 2023).

10.3. Limerick City and County Council issued notification of decision to refuse permission for the continued operation of the turbines and the applicant, SSE Renewables Generation Limited, has submitted a first party appeal against this decision. Under the reason for refusal, it is considered that the submitted NIS has insufficiently assessed the impact the continued operation of the wind turbines may have on the Hen Harrier (Annex I Species) in light of conservation objectives of the Slievefelim to Silvermines Mountains SPA (site code 004165).

10.4. Having regard to the above, and in view of national, regional and local policy guidance, and the submissions/ observations received, I consider that the main issues arising in this case can be addressed under the following headings:

- Development Principle/ Policy context
- Issues raised by third party
- Construction Impact
- Environmental Impact Assessment
- Appropriate Assessment
- Overall Conclusion

10.5. **Policy Context/ Development Principle**

10.5.1. The Climate Action Plan, 2023 (CAP23), introduces carbon budgets and sectoral emissions ceilings for the electricity, transport, built environment, industry, agricultural and other sectors. The electricity sector will help to decarbonise the transport, heating and industry sectors and will face a huge challenge to meet requirements under its own sectoral emissions ceiling. A large-scale deployment of renewables will be critical to decarbonising the power sector and CAP23 seeks to accelerate the delivery of onshore wind, offshore wind and solar through a competitive framework to reach 80% of electricity demand from renewable energy by 2030. It is considered that renewable energy generation projects and associated infrastructure should be in the overriding public interest. The existing windfarm with

installed capacity to power approximately 4,000 homes complies with an overarching aim of the Climate Action Plan of tackling climate breakdown by reducing greenhouse gas emissions and by contributing towards the target of 9GW of onshore wind generation by 2030.

10.5.2. Transitioning to a low carbon and climate resilient society is a National Strategic Outcome of the National Planning Framework. Reflecting this, National Policy Objective 55 seeks to *"promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050."* It is therefore recognised that the transition to a low carbon energy future requires a shift from predominately fossil fuels to predominately renewable energy sources.

10.5.3. At a regional level, the Regional Spatial & Economic Strategy for the Southern Region, 2020 supports the delivery of the NPF and implementation of the Climate Action Plan. Objective (RPO 99) seeks *"…to support the sustainable development of renewable wind energy (on shore and offshore) at appropriate locations and related grid infrastructure in the Region in compliance with national Wind Energy Guidelines."*

10.5.4. At a local level, it is pertinent to note that Objective CAF 036 of the Limerick Development Plan seeks to *"… support the life extension and repowering of existing wind farms, where considered appropriate and subject to an appropriate level of environmental and planning assessment."* The proposed continuation would therefore be in accordance with this objective subject to the environmental and planning assessment contained herein.

10.5.5. The site is also within an area that is *"open for consideration"* for wind generating infrastructure where such development shall be subject to appropriate assessment. In addition, the Development Plan contains a number of policies and objectives that would support wind energy development and therefore the continued operation of the wind farm. These include Policy CAP P6 on renewable energy, as well as Objective CAF 028, which seeks to encourage wind energy development in accordance with Government policy and guidance.

10.5.6. Finally, it is noteworthy that Objective CAP 01 refers to the use of renewable resources and the re-use of existing resources. An existing wind farm is in place at

this location and its continued operation reuses existing infrastructure and does not require the additional construction resources. Furthermore, there will be no further embodied carbon emissions associated with the raw materials, manufacturing, transport of materials, wastes, etc.

10.5.7. Overall, I consider that the continuation of the existing wind farm is in compliance with the strategic objectives of the national and regional policy on renewable energy. At a local level, the proposal complies with a core aim of the Development Plan, as set out in Chapter 9: Climate Action, Flood Risk and Transition to a Low Carbon Economy, *"to implement international and national objectives, to support Limerick's transition to a low carbon economy and support the climate action policies included in the Plan."*

10.6. Issues raised by Third Party

10.6.1. No observations on the first party appeal were received by the Board. A third party observation was submitted to the Planning Authority and issues raised in this submission relating to EIA and hen harrier are addressed hereunder. With respect to concerns relating to noise, I propose the attachment of an up to date noise condition setting out noise limitations and monitoring requirements.

10.6.2. The cracking of the foundation of Turbine T05 and its effects is raised in the submission. The applicant responds that if permission is granted for the proposal, the existing turbine will be remounted following replacement of the turbine foundation. A structural defect was discovered within the foundations and the turbine was taken down and stored at the lower end of the site. Structural support works will be carried out involving the removal of the defective foundation; pouring of a new concrete foundation; reinstatement of spoil; and remounting of turbine. I agree that these repairs could have been carried out as maintenance works under the parent permission in any case, and they have been adequately assessed under the EIAR and NIS for the current proposal.

10.7. Construction Impact

10.7.1. It is stated in the first party appeal that the Planning Authority appears to have placed very significant weight on environmental effects perceived to have arisen

during construction of the existing wind farm. In addition, the applicant submits that no works are proposed to the existing entrance and therefore no conditions relating to access are warranted.

10.7.2. I agree that the proposal is for continuation of use of an existing wind farm and there are no construction or amendment works proposed that need to be assessed. Ongoing maintenance and decommissioning will occur and works associated with these activities have been assessed in full under the EIA and Appropriate Assessment.

11.0 Environmental Impact Assessment

11.1. Introduction

11.1.1. Part 2 of Schedule 5 of the Planning and Development Regulations, 2001 (as amended) sets out development for the purposes of Part 10 and includes *"installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts."* The 4-turbine windfarm with an installed capacity of 6 MW is therefore a prescribed class of development for the purposes of EIA.

11.1.2. Directive 2014/52/EU amending the 2011 EIA Directive was transposed into Irish legislation on 1st September 2018 under the European Union (Planning and Development) (Environmental Impact Assessment) Regulations, 2018. The EIAR was submitted on 8th June 2022 and is therefore assessed under the provisions of the new Directive.

11.1.3. The EIAR was prepared in the context of the existing environment including the operational Knockastanna Wind Farm, with the focus being on the likelihood of significant effects on the environment arising during the proposed further operational period of 15 years. No notable works are predicted to be undertaken at the site until the decommissioning phase.

11.1.4. An examination has been carried out of the information presented by the applicant, including the EIAR, and the submissions made during the course of the application for permission. It should be noted that no submissions have been received by prescribed bodies. summary of the results of the submissions by other observers has

been set out at Section 4.3 of this report. The main issues raised specific to EIA can be summarised as follows:

- Impacts on biodiversity including ornithology and peatland habitat;
- Impacts on soils and water bodies;
- Impacts on population and human health;
- Production of renewable wind energy and impact on climate.

11.1.5. These issues are addressed below under the relevant headings, and as appropriate in the reasoned conclusion and recommendation including conditions.

11.1.6. I am satisfied that the EIAR has been prepared by competent experts to ensure its completeness and quality, and that the information contained in the EIAR and supplementary information provided by the applicant, adequately identifies and describes the direct and indirect effects of the proposed development on the environment, and complies with article 94 of the Planning and Development Regulations 2000, as amended. I am also satisfied that the information is up to date for the purposes of EIA.

11.2. EIAR Content and Structure

11.2.1. The EIAR is presented in two volumes, with Volume 1 comprising the main text assessing each environmental factor prescribed under the EIA Directive, supplemented by any additional environmental factors owing to the characteristics of the project. Volume 2 contains the annexes, including technical data and reports to ensure that the EIAR is transparently supported by evidence. In general, I consider that the content and scope of the EIAR is acceptable and in compliance with the EIAR Directive and the Planning and Development Regulations, 2001 (as amended).

11.2.2. The EIAR also contains a non-technical summary which gives a concise synopsis of the EIAR and is written in language that can be easily understood. I am satisfied that the EIAR adequately describes the proposed development to include information on the site, design and size of the site and proposed development. The applicant has also carried out an assessment of reasonable alternatives relevant to the proposed development and its specific characteristics. A baseline scenario is assessed and a description of the factors likely to be significantly affected by the

proposed development are set out, together with any direct, indirect, secondary, cumulative, transboundary, and short-long term effects of the proposed development. A description of forecasting methods including difficulties encountered and the main uncertainties, as well as measures envisaged to avoid, prevent, reduce or off-set significant adverse effects and any monitoring arrangements are included for both operational and decommissioning phases. The vulnerability to risk of major accidents is also described, along with any measures to prevent or mitigate the significant adverse effects on the environment. Details of scoping consultations are included and there is an adequate list of experts who contributed to the EIAR.

11.2.3. Overall, I am satisfied that the information provided is reasonable, up to date and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the proposed development on the environment, taking into account current knowledge and methods of assessment.

11.3. Reasonable Alternatives

11.3.1. The EIAR must include a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, as well as an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment.

11.3.2. An assessment of project alternatives is carried out in Chapter 2 of the EIAR. It is noted that alternative locations and site designs will have been undertaken at the early stages of the Knockastanna Wind Farm design process, and consequently, alternatives to be considered at the current time are limited by the presence of the extant development. Thus, the reasonable alternatives considered in the EIAR are as follows:

- 'Do Nothing' alternative,
- Continued operation of Knockastanna Wind Farm,
- Repowering of Knockastanna Wind Farm, and
- Alternative technologies

11.3.3. The 'Do Nothing' alternative would see Knockastanna Wind Farm being decommissioned and infrastructure removed, with the site being restored gradually

to managed farmland or commercial forestry plantation. However, this alternative was not considered as a viable option given the central importance of onshore wind energy in the transition to a low carbon economy. It was also considered that the existing development has been operating benignly for a significantly shorter timeframe than is typical and it not resulting in any significant environmental effects.

11.3.4. In assessing the alternative to continue the operation of Knockastanna Wind Farm, the applicant considered that the wind turbines are capable of operating for further period of at least 15 years from the predicted decommissioning date. The operational life of the wind farm has been curtailed to approximately 14 years, when the operational lifetime is typically 25-30 years. It was therefore considered that this is a reasonable alternative to efficiently maximise the use of extant renewable energy generating infrastructure and to avoid the need for replacement capacity elsewhere. Under this alternative, there will be no change to existing noise and shadow flicker levels and no construction activities would be required. There would be no loss of habitat or increased disturbance and existing drainage and pollution prevention arrangements would be continued. The landscape would remain in its current condition and the wind farm would continue to supply renewable energy to the national grid.

11.3.5. The alterative to repower Knockastanna Wind Farm would involve the decommissioning and removal of the existing turbines and their replacement with larger, more efficient turbines, which would increase the volume of renewable energy generated at the site. Alternatively, fewer turbines could be erected. These options would, however, necessitate substantial construction works, including larger foundations and hardstandings, realignment of access tracks and upgrade works along the public road to deliver larger turbine components. Inter-turbine spacing would also require a full revised site layout. This alternative has the potential for increased adverse effects during construction in terms of dust and noise, habitat loss and disturbance, water quality impacts and disruption to road users. Excavations within areas of blanket peat would also be required, and there is hydrological connectivity with the Lower River Shannon SAC. There would be greater potential for adverse visual and cultural heritage impacts, as well as increased shadow flicker potential.

11.3.6. Photovoltaic solar is the only alternative technology reasonably available to the applicant that could be considered. This would also require the decommissioning and removal of the wind farm from the site and the installation of solar arrays. A similar output to the windfarm would require an area of c. 12 hectares and this would represent a substantial alteration to the landscape. Furthermore, a solar energy project would not generate renewable electricity as efficiently as wind energy development.

11.3.7. It is concluded in the EIAR that the continued operation of the existing development represents the most environmentally sensitive and appropriate alternative. In particular, this alternative avoids extensive construction activities elsewhere. Overall, I consider that all reasonable alternatives that are relevant to the project and its specific characteristics are clearly presented in the EIAR. The main reasons for the chosen site are set out, together with the background for the chosen layout. I would be satisfied that this section of the EIAR is sufficient to comply with the provisions of Paragraph 1(d) of Schedule 6 of the Planning and Development Regulations, 2001 (as amended).

11.4. Likely Significant Effects on the Environment

11.4.1. This section of the EIA **identifies, describes and assesses** the potential direct and indirect effects of the project under each of the individual factors of the environment (population and human health; biodiversity; land, soil, water, air and climate; material assets, cultural heritage and the landscape; and the interactions between these factors). Baseline characteristics, cumulative information and an evaluation of impacts on each sensitive aspect are set out, together with mitigation measures and residual impacts.

11.5. Population and Human Health

11.5.1. Chapter 4 of the EIAR describes the general characteristics of human activity and health status in the study area. The chapter is structured under the headings of population; employment and human activity; land use; recreation, amenity and tourism; and human health and safety.

11.5.2. The study area for the demographic analysis is defined in terms of Census records of Electoral Divisions focused on a 2km buffer surrounding of the existing wind turbines. Eircode data, Geodirectory data and planning applications have been used to assess the likely effects on population trends of the continued operation and decommissioning of the wind farm. A socio-economic profile was also established from Census records.

11.5.3. Corine land cover data was used to determine the likely effects on existing land use patterns and a profile of tourism in the region was established from Fáilte Ireland statistics. A baseline health profile of the area was also determined from CSO data and Department of Health reports. The surrounding area comprises an upland landscape with commercial forestry plantations and non-intensive agricultural activities. The proposed development is proximate to the Slieve Felim Mountains, Slieve Felim Way and Clare Glens forest and riverside walk, which are all minor tourist attractions. There are also a number of national monuments in proximity to the site.

11.5.4. A total of 53 dwellings are within 2km of one of the wind turbines on site. No dwellings are within 500m of a turbine. Sixteen receptors outside the 2km study area were also considered as part of the assessment. The population of the EDs within the study area increased from 812 in 2011 to 1,476 in 2016 (+81.8%). This compares to a State increase of 3.8% during the same period. The population density of the study area still remains sparse compared to the State and to Limerick and Tipperary counties. The highest employment category in the study area is farming. The existing wind farm supports the provision of a site supervisor and three operational and maintenance technicians shared across five other operational wind farms.

Characteristics of the Proposed Development

11.5.5. The proposal is for the continued operation of an existing 4-turbine wind farm for a further period of 15 years. The existing wind farm includes the turbines and associated foundations and hardstandings; an electrical control building (66 sq.m.); underground electrical cabling between each of the turbines and the electrical control building; site entrance and 2km of access tracks; and site drainage infrastructure. All wind farm infrastructure is pre-existing and no new infrastructure will be required for

the continued operation. Turbine T05 is currently demounted on a temporary basis due to a structural defect. Turbine T01 was not constructed. Any remounting works associated with Turbine T05 will comprise of routine maintenance works. All construction works associated with the wind farm have been completed.

Predicted Impact of the Proposed Development

11.5.6. The predicted impacts of the proposed development on population and human health are summarised as follows:

- All construction activities associated with the proposed development have been completed and no additional infrastructure is proposed.
- Slight positive direct and indirect effects on employment during the operational phase – wind farm will continue to be visited 1-2 times per week for maintenance purposes.
- Additional employment opportunities are likely to arise from specific maintenance works, e.g. maintenance of access tracks and turbine hardstandings.
- Economic benefit of renewable energy to customers is greater than what would have been if Ireland did not invest in wind power.
- No evidence to demonstrate any significant health effects in humans arising from noise at the levels generated by wind turbines.
- Extended period of operation will have no effect on the population of the area in terms of changes to trends, population density, household size or age structure.
- Not proposed to provide any additional infrastructure that would result in an alteration of existing land uses. Commercial forestry, and non-intensive cattle and sheep enterprises will continue to co-exist with the wind farm.
- Annual contributions to community groups of €13,500 in the vicinity of the wind farm (€171,721 since 2010 benefiting seven local groups). Applicant proposes to continue the operation of the community benefit fund for the during of the proposed extended operational period.
- Over past 5 years, wind farm has contributed commercial rates in excess of €100,000 per annum to the Council, which assists in the provision of local services.

- Local landowners will benefit from lease agreements and there will be continued purchase of materials and consumables from local suppliers.
- Not considered that the proposed development will have a detrimental impact on tourism in the vicinity. There are no dedicated amenity walks within the site and the nearest amenities are minor in nature and remote from the wind farm.
- Not considered that the continued operation of the wind farm will present a danger to the public or livestock.
- Recorded noise levels are below the criteria set out by the Board in respect of the parent permission and expected shadow flicker levels are extremely low.
- Decommissioning phase will not result in any predictable effect on population and land use. There will be a slight positive impact on local employment and economic activity. Decommissioning plan will be following and clear signage will be utilised on public roads and the community will be informed of all works.

Mitigation Measures

11.5.7. No specific mitigation measures required as there will be no significant effects on population. Decommissioning works will take place in accordance with a decommissioning plan and a health and safety plan will continue to be implemented.

Residual Impacts

11.5.8. It is unlikely that any long-term residual effects to population; recreation, amenity and tourism; and human health and safety will occur. There will be slight positive residual effects on employment and economic activity from the community benefit fund and rates payments.

Conclusions on Population and Human Health

11.5.9. Overall, it is considered that there will be no significant cumulative adverse impacts of population and human health during the operational and decommissioning phases of the proposed development. I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions. There will be slight positive effects on local residential and community

and the local economy from increased employment and from the community benefit fund and rates payments.

11.6. **Biodiversity**

11.6.1. Chapter 5 of the EIAR identifies, describes, and assesses the likely significant, direct and indirect impacts of the proposed development on biodiversity, including designated sites, habitat and species using information collected during the operation of the existing wind farm and other sources. This section has been prepared in accordance with European and national legislation, relevant planning policies and the guidelines for ecological impact assessment prepared by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018).

11.6.2. It is a condition of the parent permission that annual reports shall be prepared on the impact of the wind farm on wild birds, in particular hen harrier and red grouse during the operational years. A total of 14 years of bird surveys were undertaken, 11 of which coincided with the operation of the wind farm. Vegetation at the site was surveyed in 2001 and 2021 and one year of bat survey data was collected in 2021.

11.6.3. The proposed development site is within the Slievefelim to Silvermines Mountains SPA, which was designated in March 2007, solely for its population of hen harrier. The site is also hydrologically connected to the Lower River Shannon SAC via the Bilboa River. The habitat on sites consists of fields of improved grasslands, upland blanket bog and wet heath. There are conifer plantations outside of the site in the surrounding area. Vegetation and bog on site have been damaged by grazing. The level of bat activity on site varied from low to moderate-high depending on the species.

11.6.4. There was no evidence of hen harrier breeding or occupying territories between 2008 to 2019 apart from 2017, when there was evidence of an occupied territory. There have been less than eight hen harrier sightings per year since the construction and operation of the wind farm on site. Hen harrier has continued to breed within 5km of the site. Kestrel is a resident of Knockastanna Hill and Peregrine falcon, short-eared owl, white tailed eagle, sparrowhawk and buzzard have all been recorded after the wind farm was constructed but not before. Curlew was recorded before the wind farm was constructed but not after, and snipe has been recorded

before and after. Golden plover were recorded after the wind farm was constructed but not before. One to two pairs of red grouse are likely to maintain a permanent presence within the proposed development site and are likely to breed there. The proposed development site also supports other moorland birds, including numerous meadow pipit. Woodland birds are found in adjacent forestry plantations and in treelines within the site.

11.6.5. Other species recorded within the site include common frog, and within the 10km square which includes the site, bank vole, Eurasian badger, Eurasian red squirrel, European otter, European rabbit, fallow deer, greater white-toothed shrew, Irish hare, Irish stoat, pine marten and West European hedgehog were recorded. The Mulkear and Bilboa rivers are hydrologically connected to the site and are known to support salmon and three species of lamprey.

11.6.6. Potential changes to baseline condition could occur from nearby forestry thinning or clear felling. A clear fell could favour moorland bird species such as skylark, meadow pipit and hen harrier and result in the decline of woodland bird species and possibly bats. Baseline conditions could also be affected by two consented but not yet commenced windfarms at Castlewaller and Upperchurch.

Characteristics of the Proposed Development

11.6.7. The proposal is for the continued operation of the existing wind farm for another 15 years and therefore no construction works will take place that may affect the biodiversity and ornithology of the area.

11.6.8. The existing wind turbines are General Electric GE1.5s turbines with a hub height of 64.7m, rotor diameter of 70.5m and overall tip height of 99.95m. The turbines have a cut in speed of 4m/s and a cut out speed of 25m/s.

11.6.9. Drainage infrastructure, including track side drains, access track cross drains and culverts, was installed when the wind farm was being constructed to ensure the appropriate management of surface water due to the sloping nature of the site. Surface water is directed to local drainage ditches. No specific drainage works are proposed other than ongoing maintenance.

Predicted Impact of the Proposed Development

11.6.10. The predicted impacts on each of the key ecological receptors arising from the construction phase of the proposed development are summarised as follows:

- No construction phase effects on biodiversity.
- No scope for the continued operation of the wind farm to affect any designated site beyond the Slievefelim to Silvermines Mountains SPA, (see section 12).
- Proposal will not have any effects on habitat and flora in proximity as no vegetation clearance is required and the land can still be grazed by livestock.
- Risk of bat mortality from ongoing operation is limited, as the combined area swept by the turbines is relatively small – smaller turbines such as these generally pose lower risks to bats than larger ones (NatureScot, 2021). Turbines are also located at least 100m from edges of woodland, which are likely to be the main areas used by foraging bats.
- Surveys undertaken in 2021 demonstrate that the site is used by certain species of bat that are at risk of collision – using NatureScot guidelines, the site has an overall amber risk rating for collision risk for bats.
- Hen harrier is expected to avoid wind turbines on 99% of occasions (Whitfield & Madders, 2006). Around 9% of observed flights of hen harrier at the site were at heights coincidental with turbine heights. There is a very low collision risk for hen harrier.
- Hen harrier population at the Slievefelim to Silvermines Mountains SPA as a whole has apparently increased during the operational period of the wind farm – Ruddock et. al. reported five pairs in 2005 (four confirmed breeding); seven in 2015 (six confirmed breeding); and ten in 2015 (four confirmed breeding).
- Available research suggested that wind farms have a relatively weak displacement effect on hen harrier of about 3 ha per turbine and mature forestry has a strong displacement effect. Forestry habitat at Knockastanna Hill has become less attractive for hen harrier as the forestry has matured from about 2001.

- Birds will be able to fly around the wind farm without difficulty and there is no scope for the wind farm to provide a significant barrier to hen harrier movement. Birds have been observed moving through the site during monitoring surveys.
- Risk of onging maintenance operations disturbing hen harrier is negligible since the species does not currently nest on Knockastanna Hill.
- Other birds of prey (kestrel, sparrowhawk and buzzard) have not been displaced from the site, nor do they experience a barrier effect. These species were observed infrequently that the risk of collision, displacement, barrier effect and disturbance are negligible.
- Due to agricultural practices, curlew is now likely to be absent from the site and golden plover was recorded on only two years post construction. Neither of these species are therefore at risk of collision, displacement, barrier effect and disturbance. Snipe spends much of its time on the ground in winter and was not recorded breeding on site. Research suggests that snipe numbers are depressed at wind farms.
- Red grouse generally stay on the ground or make short, low level flights, meaning that it has a negligible risk of collision. It has also been found to be using wind farms to the same degree before and after construction. Ongoing presence at the site indicates that its population and occurrence are not affected by routine maintenance operations.
- No evidence from surveys of a decline in meadow pipit but there may be a decline in skylark population – adjoining conifer plantation is not a suitable habitat for this species.
- Long-term bird monitoring at the site has not revealed any population decline of woodland birds except for blackbird, which is a common and widespead species.
- Main risk to designated sites during the decommissioning phase is suspended solid pollution of watercourses when buildings and hardstandings are removed or disturbed. There is also a risk of damage to adjoining habitat – only the timing of risk would change under the proposed development.
- Hen harrier could be susceptible to disturbance during decommissioning if the species returns to breed at Knockastanna Hill following clear felling.

- Snipe and red grouse are susceptible to disturbance during decommissioning but return once decommissioning activities cease. Ground disturbance can create foraging and breeding patches for meadow pipit and skylark. Mammal species expected to escape construction areas and are therefore not at risk.
- Do nothing scenario would remove the, albeit low, risk of collision for birds and bats and the potential displacement effect for some species of bird. Hen harrier territories are much larger than the proposed development site and forestry is having a displacement effect on hen harrier at Knockastanna Hill. Considered unlikely that hen harrier would return to breed at Knockastanna Hill if the only change is the removal of the wind farm – substantial clear felling of conifer would also have to occur.

Mitigation Measures

11.6.11. No mitigation measures are proposed for effects on designated sites during the operational phase. No mitigation is also required for habitats and flora. The following measures are proposed for bats and birds:

- Carcass searches for dead bats will be undertaken in the early morning at times when bird survey work is being carried out during the active bat season (minimum three searches per year). Carcass monitoring will inform the need, or otherwise, for curtailment of the wind farm to reduce further mortality.
- Monitoring of bird populations will continue during the operational of the wind farm as per Condition 4 of the parent permission. This will be extended to include carcass searches, and these will also inform the operation of the wind farm.
- Should hen harrier be recorded breeding on Knockastanna Hill, intrusive maintenance operations, such as demounting and reinstating turbines, will be undertaken outside the breeding season.
- Protection and restoration of habitats when infrastructure is being removed during the decommissioning phase through implementation of the planning stage decommissioning plan.
- Most intrusive decommissioning works will be timed to occur outside the coldest winter months and main breeding season.

Residual Impacts

11.6.12. Residual effects following mitigation and taking account of cumulative effects will be minor or negligible during the operational phase and negligible during the decommissioning phase.

Conclusions on Biodiversity

11.6.13. The proposed development site is within the Slievefelim to Silvermines Mountains SPA and the site is hydrologically connected to the Lower River Shannon SAC via the Bilboa River. An Appropriate Assessment of the impact of the proposal, in combination with other plans and projects, is carried out in Section 12 of this report.

11.6.14. The proposal is for the continued operation of the existing wind farm for another 15 years and therefore no construction works will take place that may affect the biodiversity and ornithology of the area. Drainage infrastructure was installed when the wind farm was being constructed and no specific drainage works are proposed other than ongoing maintenance.

11.6.15. The habitat on site consists of fields of improved grasslands, upland blanket bog and wet heath. Vegetation and bog on site have been damaged by grazing. Hen harrier has been recorded on site less than eight times per year since the construction and operation of the wind farm. There was no evidence of hen harrier breeding. Other species recorded on Knockastanna Hill since the construction of the wind farm are kestrel, Peregrine falcon, short-eared owl, white-tailed eagle, sparrowhawk and buzzard, snipe, golden plover and moorland birds, including numerous meadow pipit. One to two pairs of red grouse are likely to breed and maintain a permanent presence within the proposed development site. Woodland birds are found in adjacent forestry plantations.

11.6.16. In terms of the potential collision impact of the proposal on bats, I note that the turbines are located at least 100m from the edges of woodland, which are likely to be the main bat foraging areas. There is a risk of collision for bats, but I do not consider this to be significant having regard to the smaller scale of the turbines. There is also a low collision risk for hen harrier as only around 9% of observed flights were at height coincidental with turbine heights. Other birds of prey were observed infrequently on site to an extent that collision risk is negligible. Species such as red

grouse stay on the ground or make short lights and are not therefore at risk of collision with turbines.

11.6.17. I note that the Department of Housing, Local Government and Heritage stated in its submission during EIAR scoping stage that the EIAR and NIS should detail what monitoring of bird usage has taken place at the site since construction and whether regular systematic searching for corpses of birds or bats has taken place. The applicant confirmed that no collisions were observed during surveys; however, no actual carcass searches were undertaken during the operation of the wind farm. It is stated that the scope of monitoring was agreed with the NPWS beforehand, and this did not include regular systemic searching for corpses of birds or bats on site. The applicant nonetheless proposes to conduct such searches under any consent for the continued operation of the wind farm.

11.6.18. It was reported by Ruddock et. al. that there were five pairs of hen harrier in the Slievefelim to Silvermines Mountains SPA in 2005 (four confirmed breeding); seven in 2015 (six confirmed breeding); and ten in 2015 (four confirmed breeding. Other bird species have not been displaced from the site and there is no significant risk of barrier effects or disturbance as birds have been observed moving through the site during monitoring surveys.

11.6.19. The decommissioning phase may give rise to risks associated with suspended solid pollution of watercourses, damage to adjoining habitat and disturbance. However, the proposed development would only change the timing of these risks and mitigation measures would be included as part of a planning stage decommissioning plan, e.g. the most intrusive decommissioning works will be timed to occur outside the coldest winter months and main breeding season. The remounting of Turbine T05 may also give rise to some impacts in terms of the potential for pollution of watercourses; however, there are no works in addition to those originally authorised and there would be no significant impact on biodiversity given the nature and scale of this work.

11.6.20. Overall, I am satisfied that with proper implementation of mitigation measures and best practice measures, together with implementation of environmental commitments under the decommissioning plan, impacts on water quality, habitats and species will be minimised to a non-significant level. The wind farm is already operational and

collision and displacement risks do not appear to have resulted in local population level effects of any species. The Council's reason for refusing the proposed continuation of operation of the wind farm refers to the submitted NIS. It is considered that the NIS has insufficiently assessed the impact on hen harrier. This is addressed further in the Appropriate Assessment in Section 12. I note the conclusion in the EIAR that forestry is having the main displacement effect on hen harrier at Knockastanna Hill.

11.7. Land, Soil, Water, Air and Climate

11.7.1. This assessment deals separately with the above environmental factors as they appear in the EIAR. Chapter 6 addresses Land and Soil and Chapter 7 deals with Water. Air and Climate are covered under Chapter 8 and Noise and Vibration within Chapter 11. Chapter 12 covers Shadow Flicker.

11.7.2. The proposed development is situated in an upland rural area where the dominant land uses are agricultural and forestry. Ground elevations on site range from 230m OD to 444m OD. Subsoils at the site comprise of blanket peat to the south and bedrock is close to the surface to the north of the site. The site is underlain by greywacke, siltstone and grit of Hollyford Formation. The bedrock is classified as a poor aquifer and groundwater vulnerability mapping indicates rock near the surface to the north of the site, and extreme vulnerability to the south of the site. Groundwater recharge is limited at the site due to low permeability bedrock and steep topographic gradients encouraging surface water runoff.

11.7.3. The site is within the Slieve Felim GWB, which has been assessed as having 'good' status for 2013-2018. The site is within the Lower Shannon WFD catchment and the Bilboa_SC_010 sub-catchment. The Bilboa River is approximately 500m north of the site and c. 1km to the west. This river enters the Mulkear approximately 9.5km south-west. There are several minor tributaries of the Bilboa located within or proximate to the site. The Bilboa_SC_010 sub catchment has a moderate WFD status. There is potential for climate change to impact on future baseline conditions, e.g. increased peak fluvial flows associated with extreme storm events.

11.7.4. The Scottish Windfarm Carbon Assessment Tool was used to predict the carbon savings for an additional 15 year period of operation. EPA air quality monitoring data

was used to characterise the existing environment. The Air Quality Index for Health map shows that the current air quality at the wind farm site is classed as 1 – Good.

11.7.5. A noise monitoring campaign was undertaken following the commissioning of the wind farm. Condition 9 of the parent permission states that the noise from the proposed development shall not, when measured externally at the nearest occupied house, exceed 40 dB(A)Leq over any five minute period. Given the rural location of the site, properties in the vicinity would have a daytime ambient noise level ranging between 45 and 55 dB $L_{Aeq, 1hr}$. Vibration standards relate to those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. There are no dwellings within 500m of a wind turbine and nine within 1km.

11.7.6. It is recommended in the 2006 Wind Energy Development Guidelines that shadow flicker at offices and dwellings within 500m should not exceed 30 hours per year or 30 minutes per day. A total of 3 no. dwellings have nonetheless been included in the shadow flicker assessment, being within 705m (10 rotor diameters). Only one of these dwellings is currently occupied. Dwellings are assessed in 'greenhouse' mode, which assumes that all the elevation is glazed and there is no intervening screening. Turbines are assumed to be operating all of the time when in reality they only operate for approximately 85% of the year.

Characteristics of the Proposed Development

11.7.7. The proposal is for the continued operation of the wind farm for another 15 years. The electrical capacity of the wind farm is 6MW. All infrastructure is pre-existing and there is no increase in size or intensification of activities on site. No increase in electrical output from the turbines is proposed and the turbines and their foundations will remain in place, along with hardstandings, access tracks and drainage arrangements. Existing drainage infrastructure includes track-side drains, access track cross-drains and culverts. Surface water is collected from areas of hardstanding, access track and the electrical control building and directed to the local drainage network. If permission is granted for the proposal, an existing turbine on site will be remounted following replacement of turbine foundation.

*Predicted Impact of the Proposed Development on **Land and Soil***

11.7.8. The predicted impacts on land and soil are summarised as follows:

- No construction effects.
- Ongoing maintenance during operational phase – maintenance of access tracks, drainage and wind turbine maintenance.
- Reinstatement of Turbine T5 will not require any additional land take or footprint above what already exists – not anticipated that reinstatement of T5 will have a significant effect on land, soils and geology.
- Potential for impacts from road and drainage maintenance and the handling and management of hydrocarbons (oils and lubricants) at the site.
- Significance of effects classified as minor to negligible in the EIAR.
- During decommissioning, all structures above ground shall be dismantled and removed for reuse or recycling where possible. Access tracks may be retained, along with sub-surface elements, so as to minimise environmental disturbance.
- Risk of soil contamination due to presence of plant/ machinery during decommissioning.

Mitigation Measures for Land and Soil

- Current industry standard good practice measures and monitoring/ inspection during proposed additional periods of operation. Includes site management measures to prevent soil erosion; non-storage of hydrocarbon; availability of spill kits and drip trays for accidental leak/ spill; stockpiling of soils and material on level ground away from drains; and undertaking of any earthworks during drier weather only.
- Good practice measures in relation to pollution risk and management of surface water run-off.
- Implementation of Environmental Management System (EMS).
- Preparation of Decommissioning Management Plan to control any activities which could have an adverse effect on land, soils and geology – will include measures such as silt fences, check dams and buffered outfalls.

Residual Impacts for Land and Soils

11.7.9. No residual effects will occur as all construction activities have been completed.

*Predicted Impact of the Proposed Development on **Water***

11.7.10. The predicted impacts on water are summarised as follows:

- Activities associated with the reinstatement of Turbine T5 are standard maintenance works which are regularly undertaken at operational wind farms.
- Routine inspection and maintenance programme will be continued throughout the proposed period of operations. Effects from ongoing operational works may include localised and temporary pollution, erosion and sedimentation, which could result in slight adverse effects on surface water and groundwater.
- Pollution may occur from leakages and spillages and from surface water runoff from excavated and stockpiled material arising from regular maintenance works.
- Not anticipated that there will be any requirement for substantial excavation or stockpiling of material, reducing the likelihood of erosion or sedimentation effects.
- Groundworks for T5 will be relatively small scale and localised.
- Risk of sedimentation of local watercourses and accidental leakages of hydrocarbons from plant machinery.

Mitigation Measures for Water

- Current industry standard good practice measures and monitoring/ inspection will continue to be implemented during the proposed additional period of operation. Existing wind farm operated and maintained in accordance with applicant's EMS.
- Good practice measures will be continued to prevent pollution from refuelling, foul water, leakages, storage, and works areas. Other measures include buffers from watercourses and surface water treatment.
- Regular maintenance of on-site drainage systems will reduce the likelihood of increased delivery of sediment to natural watercourses. Routine maintenance and best practice measures will be put in place for management of erosion and sedimentation, paying regard to stockpiling, buffering, silt fencing, ground exposure, rainfall and visual inspections.

- Implementation of Decommissioning Management Plan to mitigate against any significant effects associated with sedimentation of local watercourses and accidental spillage/ leakage of hydrocarbons.

Residual Impacts for Water

11.7.11. The magnitude of impact associated with a pollution event or erosion/ sedimentation is considered negligible. The significance of effect on identified receptors is predicted to be not significant. It is assessed in the EIAR that the existing development on site has not impaired groundwater or surface water resources or increased the risk of flooding.

*Predicted Impact of the Proposed Development on **Air and Climate:***

11.7.12. The predicted impacts on air and climate are summarised as follows:

- Proposed development will result in the continued production of energy from a renewable source, which has the potential to avoid several thousand tonnes of CO2 annually that would have been released if the energy was produced by average Irish power generation mix.
- Payback time for the manufacture, construction and decommissioning phases of the proposed wind farm (including carbon losses from soil, felling of forestry, etc.) is estimated at 1.7 years – this has already been achieved with the operation of the existing wind farm.
- Construction related dust will be limited to the reconstruction of Turbine T5.
- Nearest receptor to Turbine T5 remounting is at a distance of c. 760m and will therefore not experience the soiling, deposition or vegetation effects from dust. Impact of emissions would also be imperceptible from nearest receptor.
- Traffic at the site will fall below the screening criteria set out in UK DMRB Guidance, and plant and machinery for the remounting of Turbine T5 will be relatively small and operated on an intermittent basis. Maintenance activities are assessed as requiring similar plant and machinery but are likely to be of a lesser duration.
- Wind turbine and electrical control building maintenance vehicles will have low traffic movements and impact will be imperceptible.

- Truck movements during decommissioning will result in emissions and dust; however, number of movements will be significantly less than the construction phase.
- No direct or indirect impact on air temperature or microclimate due to the proposed development.

Mitigation Measures for Air and Climate

- Mitigation measures will be implemented for the construction-like activities associated with the remounting of Turbine T5, i.e. availability of water bowser; covering of loads; vegetation of exposed areas; access, egress and speed controls; wheel washing; serving of plant and machinery; and no idling and minimisation of exhaust emissions.

Residual Impacts for Air Quality and Climate

- No significant adverse impacts are anticipated on air quality and climate. Residual positive impacts on air quality and climate will occur from the continued operation of the existing wind farm through avoidance of fossil fuel emissions.

*Predicted Impact of the Proposed Development on **Noise & Vibration***

11.7.13. The predicted impacts from noise and vibration are summarised as follows:

- Ongoing maintenance of wind farm and decommissioning works will involve construction-like activities and the use of plant and machinery, which will result in noise emissions.
- Reinstatement of Turbine T05 will comprise of routine maintenance works undertaken in the normal management of an operational wind farm.
- Noise assessment was extremely conservative and precautionary and only recordings between 23:00 and 07:00 were utilised when background noise levels are at their lowest.
- Average noise levels recorded at Monitoring Location 1 (34 dB(A) L_{A90}); Location 2 (31.6 dB(A) L_{A90}); Location 3 (36 dB(A) L_{A90}); and Location 4 (37.8 dB(A) L_{A90}) are below the limit of 38 dB(A) L_{A90} and confirms that the wind farm was operating within the terms of its planning permission.

- Wind Energy Development Guidelines, 2006 state that “in general, noise is unlikely to be a significant problem where the distance from the nearest turbine to any noise sensitive property is more than 500m.”
- There has been no noticeable alteration to the existing environment since the completion of post-commissioning noise monitoring.
- Substantial maintenance works may be necessary on occasion to access tracks, the drainage network, or for the reinstatement of Turbine T05. No items of plant or machinery are expected to give rise to noise levels that would be out of the ordinary or in exceedance of acceptable levels at the nearest dwelling.
- Any noise from plant and machinery during maintenance works would be short-term and noise generated would be common-place.
- Vibrating rollers may generate localised vibrations – however, no human discomfort or cosmetic or structural effects to buildings would occur.
- Noise and vibration generated by plant and machinery during decommissioning works will be similar and will not result in exceedances of the appropriate limit or a significant effect on any dwelling.

Mitigation for Noise & Vibration

- Maintenance programme will be continued to ensure the efficient application of the wind farm and any necessary remedial actions to avoid undue generation of noise.
- All maintenance activities will be undertaken in accordance with the provisions of the Code of Practice for noise and vibration control on construction and open site – Noise.
- Relevant practices to be adopted include limitation of work hours, establishing channels of communication, minimisation of plant noise, etc.
- No specific wind turbine noise mitigation measures other than the continuation of turbine maintenance.
- No noise mitigation measures are proposed for the decommissioning phase other than those which relate to plant and machinery.

Residual Impact for Noise & Vibration

- Residual noise effects remain per the pre-mitigation effects and are of slight magnitude.

*Predicted Impact of the Proposed Development on **Shadow Flicker***

11.7.14. The predicted impacts from shadow flicker are summarised as follows:

- Level of shadow flicker will remain identical to the current operational phase. Conclusion remains valid that the flicker effect would be very slight.
- Worst case scenario is that dwellings H3 and H4 will experience 47 minutes and 31 minutes of shadow flicker per day; however, likelihood of the specific circumstances occurring to give rise to such an exceedance is extremely low. Worst case shadow flicker will not be significant.
- Expected results over the course of the year are more realistic – 4 hrs 44 mins at H3, 2 hrs 28 mins at H4 and 2 hrs 34 mins at H5, which is substantially below the 30 hour threshold.
- Slight effect at each dwelling accords with the conclusion of the Board under the parent permission.
- Applicant is unaware of any shadow flicker complaints since commencement of operations.

Mitigation Measures for Shadow Flicker

- In the context of low levels of expected shadow flicker, no mitigation measures are warranted and none are proposed.
- In the event that a complaint is received, and a subsequent investigation identifies significant levels of shadow flicker, appropriate mitigation measures will be implemented.
- Mitigation could be applied to limit the operation of the turbines during any periods of shadow flicker.

Residual Effects for Shadow Flicker

- No receptor will experience likely significant shadow flicker effects.

Conclusions on Land, Soil, Water, Air & Climate, Noise & Vibration and Shadow Flicker

11.7.15. The most significant impact of the operation of the wind farm for a further 15 years will be the positive effects on climate due to the continued production of renewable wind energy and a reduction in the use of fossil fuels. There will be no construction related adverse impacts on land, soil, water and air to offset the overall beneficial impacts associated with the continued production of renewable energy.

11.7.16. If permission is granted for the continuation of the wind farm, it is proposed to remount Turbine T05, which was dismantled following discovery of a structural defect within the foundations. Structural support works will involve the removal of the foundation; pouring of a new concrete foundation; reinstatement of spoil; and remounting of turbine. It is not anticipated that the reinstatement of T5 will have a significant effect on land, soils and geology. Overall, the geology underlying the site is not of regional or local importance and the proposal will not result in significant effect on land and soils.

11.7.17. The hydrogeological environment beneath the site is a poor aquifer. Groundwater may be relatively shallow and vulnerable to pollution. The site drains to the Bilboa River, which is located approximately 500m north of the site. A site walkover survey confirmed that there is no indication that the existing wind farm, or its associated water management measures, has impaired groundwater or surface water resources or resulted in any downstream pollution. I would therefore be satisfied that continued use of the site would not result in any significant effect on hydrology, hydrogeology or flood risk. I note that a Decommissioning Management Plan incorporating a Surface Water Management Plan will be prepared prior to decommissioning to detail method statements and safeguards to be adopted during the decommissioning process.

11.7.18. Noise monitoring was carried out post construction of the existing wind farm and it was confirmed that noise levels are below the criteria set out in the relevant condition attached to the parent permission. There have been no changes in circumstances that would significantly alter these findings. A comprehensive maintenance regime will continue to be implemented and no increased noise emissions are likely. It is predicted that three dwellings could experience shadow flicker in a worst-case

scenario; however, expected shadow flicker levels will be extremely low over the course of a year. No mitigation for shadow flicker is proposed and it is noted that no complaints were made on the existing wind farm.

11.7.19. Overall, I consider that the impacts on land, soil, water, air and climate, noise and vibration and shadow flicker would be avoided, managed and/ or mitigated by the measures that will be implemented for construction-like activities associated with the remounting of Turbine T05. No works are proposed above those that were originally authorised and turbine repair would fall under routine maintenance. Current industry standard good practice measures and monitoring/ inspection, particularly with respect to construction noise, will continue to be implemented during the proposed additional period of operation and for decommissioning. Taken with other projects or activities, the cumulative effects of the proposal are not likely to give rise to significant effects that might warrant a refusal of the proposed development.

11.8. Material Assets

11.8.1. Material assets are addressed under Chapter 13 of the EIAR. Topic areas examined under this chapter include built services and infrastructure such as traffic and access, aviation, telecommunications, and resources and utility infrastructure. Topic areas closely related to material assets are considered in other sections of the EIAR.

11.8.2. An assessment of the local road network is carried for operational and decommissioning traffic, and transport policies outlined in the Development Plan relating to road safety are considered. The local road accessing the site is well maintained and traffic volumes are low. The nearest regional road is the R503 located 1.5km to the north.

11.8.3. The likelihood of effects on aviation and telecommunications are assessed in the EIAR as required under the Wind Energy Guidelines, 2006. This involved consultation with stakeholders and compliance with the Draft Air Corps Wind Farm/ Tall Structures Position Paper (August 2014). Desk based research was undertaken to identify locations of known telecommunications facilities, fixed links and television broadcast and re-broadcast facilities.

11.8.4. There is an established presence of utility infrastructure in the surrounding area comprising of other wind farms, overhead electricity lines connecting to dwellings,

medium and high volage electricity lines, and telecommunications lines adjacent to local roads. Local water and drainage infrastructure is also present along local roads. The existing wind farm is connected to the national grid by an 11km 20kV overhead electricity line.

Characteristics of the Proposed Development

11.8.5. The proposed development involves the continued operation of an existing 4-turbine wind farm. All existing infrastructure on site will be utilised and there are no proposal to upgrade or amend any aspect of the wind farm. This includes the existing turbines, an electrical control building, underground cabling, the site entrance and drainage infrastructure.

Predicted Impact of the Proposed Development

11.8.6. The predicted impacts on **material assets** are summarised as follows:

- Ongoing works at the site access may include verge trimming to maintain sight visibility splays and maintenance of access track and/ or associated drainage.
- Any works to be undertaken, including reinstatement of Turbine T05, will comprise routine maintenance works undertaken in the normal management of an operational wind farm.
- Regular visits to the site will take place for routine inspection and maintenance, averaging 1-2 visit per week. There will be no intensification of vehicular movements additional to that currently experienced.
- Reinstatement of Turbine T05 may give rise to a minor increase in traffic volumes; however, the duration of these works will be short term.
- Overall volume of traffic will be low and will not notably affect the local road network or interact with third party access.
- Abnormally sized loads are unlikely for the decommissioning phase - upgrade works or carriageway damage are not likely.
- Traffic during decommissioning will increase compared to operational phase; however, phase is likely to last only 3 months.

- Continued operation of wind farm not assessed as likely to give rise to any additional effects on aviation – presence of existing turbines is known to the Irish Aviation Authority and there will be no increase in overall height.
- Crane will be erected on site when Turbine T05 is being remounted – IAA will be notified a minimum of 30 days prior to crane erection. IAA will also be notified prior to decommissioning.
- Likely extent of any potential problems is much less with digital TV than with analogue. No risk of interference to local digital TV have been identified.
- Consultation process has not identified the likelihood of significant interference with mobile phone and broadband signals and no service provider has raised any concerns.
- No significant effects on telecommunications during decommissioning.
- Continued operation of the wind farm will not result in any likely effects on existing utility infrastructure or renewable and non-renewable resources.
- Any aggregates to be imported for reinstatement of Turbine T05 will be sourced locally.
- No significant effects on resources and utility infrastructure during the decommissioning phase.

Mitigation Measures

- Adequate traffic signage will be provided for access.
- Speed limit compliance will be emphasised to all staff and contractors accessing the site.
- Maintenance works will generally be restricted to between 07:00 and 19:00 hours Monday to Friday and between 07:00 and 13:00 hours on Saturdays.
- Site shall be closed and strictly secured to the public during the period of additional operations.
- Aviation lighting will be maintained and shall continue to operate during the proposed additional period of operation.
- IAA and Department of Defence will be notified of any failure of warning lights.

- Should significant signal interference be identified and assessed as being directly attributable to the proposed development, appropriate remedial measures will be immediately undertaken, e.g. signal amplifiers, active deflectors and relay transmitters, repeater stations, booster units, realignment of domestic aerials, installation of better quality aerials and installation of suppressor equipment.
- No mitigation required for resources and utility infrastructure.

Residual Impacts

11.8.7. There are no significant residual effects during the operational phase for traffic as only light vehicles will visit the site. More notable works will be short term in duration.

11.8.8. There are no residual effects for aviation, telecommunication or resources and utility infrastructure.

Conclusions on Material Assets

11.8.9. Aspects evaluated under material assets include traffic and access, aviation, telecommunications, and resources and utility infrastructure. All local roads providing access to the proposed development site are lightly trafficked and only light vehicles will be accessing the site during the operational phase. Traffic impacts from decommissioning will only occur for a 3 month period.

11.8.10. The proposed development is unlikely to result in any significant effects on aviation. The presence of the turbines is known to the IAA and the site is not identified as being of any particular sensitivity or importance. Subject to the continued maintenance of the aviation warning lights and appropriate management of crane operations, no significant effects are likely to occur. The proposed continuation of the wind farms will not result in significant effects on the telecommunications network; however, mitigation measures will ensure that any effects are appropriately managed.

11.8.11. The proposed development is also unlikely to result in any adverse impacts on resources or utility infrastructure and the continued operation of the wind farm will bring about a benefit in terms of electricity generated from renewable sources.

11.8.12. Subject to the proper implementation of all relevant mitigation and best practice measures, I would be satisfied that the proposed continuation of operation of the wind farm would not have any significant effect on material assets either individually or cumulatively with other projects or activities.

11.9. Cultural Heritage and the Landscape

11.9.1. Chapters 9 of the EIAR describes the landscape and visual effects of proposed development and Chapter 10 presents an archaeological and cultural heritage assessment. The landscape and visual baseline already contains the elements to be assessed and therefore photomontages are not required. Eight sample viewpoints are recorded to illustrate the visibility of the development from different directions and from designated scenic routes. A Zone of Theoretical Visibility with a 20km radius was produced for the hub heights and tip heights of the existing turbines. Factors considered when determining the magnitude of landscape and visual change include geographic extent, size and scale, and duration and reversibility. The Landscape and Visual Impact Assessment is prepared in accordance with the 3rd edition of the Guidelines for Landscape and Visual Impact Assessment (Landscape Institute and Institute of Environmental Management and Assessment).

11.9.2. The site is located within the Slieve Felim Uplands Landscape Character Area as designated in the Limerick Development Plan 2022-2028. This area comprises rounded pastoral hills with evidence of enclosure for agricultural purposes and a well developed field boundary system. The nearest view and prospect in Co. Limerick is approximately 9.5km to the west along local roads to the east of the village of Murroe. The area of County Tipperary located to the north and east of the appeal site is designated as a Secondary Amenity Area. There are a number of views/ prospects through this area, most notable along the R503 which is approximately 1.5km north of the site. The Slieve Felim Way and the Glenstal Loop are within 3.5-10km to the west/ north-west of the appeal site and the Multeen Way and Kilcommon Pilgrim Loop are within 4-8km to the east/ north-east. Most of these routes are located in existing forestry plantations where visibility would be limited.

11.9.3. It was a condition of the parent permission that archaeological monitoring and management of the construction phase shall be carried out. No finds were identified

or recorded as a result of this condition. Following methodology adapted from the *'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'* (EPA, 2022), effects are assessed in the EIAR for the current application on the significance of any nearby heritage assets by causing change within their setting through factors such as intervisibility. The ZTV maps are used for this purpose. There are 57 sites of national importance on the Sites and Monuments Record (SMR) and one site of national importance and six sites of regional importance on the National Inventory of Architectural Heritage (NIAH) within 5km of the study area. There are no recorded heritage assets within the site itself.

Characteristics of the Proposed Development

11.9.4. Clearly, the main visual and landscape impacts is the continued presence of the 3 no. existing wind turbines and the remounting of the fourth turbine. The turbines have an overall height of 99.95m and rotor diameter of 77.5m and are constructed on the northern side of Knockastanna Hill on a site with elevation between 230m OD and 444m OD. The blades are off white in colour and are geared to rotate in the same direction. The turbines are evenly spaced and aligned from north-west to south-east. An electrical control building on site sits at an elevation of 310m OD. The surrounding area comprises an upland landscape with forestry plantations. There is also a significant presence of windfarms in the wider area; a total of c. 66 turbines is present between 2-10km to the south-east.

Predicted Impact of the Proposed Development

11.9.5. The predicted **landscape and visual** impacts of the development are summarised as follows:

- All four turbines are likely to be visible from most of the area within 5km to the west, north and north-east of the site; some areas with 5-12km to the north-west and north-east; and much of the lowland area within 5-20km to the south-west.
- Only noticeable areas where three turbines or fewer are visible are within 7km and between 11-20km to the south/ south-east.
- Large areas of the upland area, for which visibility is indicated, are remote, inaccessible and/ or covered with conifer plantations – there are few visual receptors in these areas.

- Existing boundary hedgerow along river valleys and throughout the lowland area within 5-20km to the south-west reduce visibility of the development from these areas.
- Within Visibility Area 1 to the north-west, the turbines appear ordered and visibly legible. Their height is appropriate to the scale of Knockastanna Hill and as a result they are not prominent. Neither the access track or control building are very noticeable. Some third party turbines to the south-east are visible in most views within VA1; however, the skyline does not appear crowded and there is no visual overlap. High susceptibility for residents and hikers. Numbers travelling along the R503 are low.
- In Visibility Area 2 to the south, roadside and intervening vegetation prevents many views. Landscape in this view is more remote and the development is located behind the ridgeline of Knockastanna Hill. The upper parts of the turbines are visible against the sky and their height is also appropriate to the scale of Knockastanna Hill. Turbines take up a small proportion of the panoramic view. Part of Garracummer Wind Farm is visible in more north-easterly locations but not in the same viewshed. High susceptibility for residents. Local roads used rarely.
- Visibility Area 3 is located north-east of the development and views from roads are intermittent. There are protected views along the R503 along with sections of the Multeen Way and Kilcommon Pilgrim Loop within this area. Knockastanna Hill appears as one of the summits along a long undulating ridgeline parallel to the R503, which includes Garracummer Wind Farm. The development is located behind the ridgeline and is visible against the sky. Turbines at the site take up a very small proportion of the panoramic view and there is a distinct separation with other third party turbines. High susceptibility for residents and hikers but numbers are low.
- Visibility Area 4 is to the south-west and roadside and intervening vegetation within this lowland area prevents many views towards the site. Knockastanna Hill appears as one of many highpoints along the undulating ridgeline of the Slieve Felim Mountains, which forms a scenic backdrop. Development is located behind the ridgeline of Knockastanna and other intervening summits. The lowest turbine

is almost fully screened in some views and all turbines are visible against the sky. Again, the turbines are proportionate and take up a small part of the panoramic view. Third party turbines appear distinct from the development and there are broad sections of the ridgeline with no turbines present. High susceptibility for residents but they are located at a minimum distance of 5km. Road users also a minimum distance of 5km.

- Upland landscape character type has medium sensitivity and lowland agricultural landscape type has low sensitivity. Four turbines are not particularly prominent and have not changed the composition/ balance of the wider upland landscape. There is a negligible change in landscape character with a small geographical extent within the lowland agricultural landscape type. Turbines are prominent within the site but due to their small footprint, they affect a small proportion of the site. No landscape effects are assessed to be significant.
- Decommissioning activities will result in changes to the development site, which will ultimately result in a reduction of the existing landscape and visual effects and which will be positive in nature.

Mitigation for Landscape and Visual

- No construction phase mitigation or monitoring.
- No significant landscape or visual impact identified for the operational phase, which require mitigation.
- Condition 6(ii) of the parent permission required a landscaping scheme for the electricity control building and access track to be agreed with the Planning Authority – screening bunds were not installed and were contemplated for inclusion as part of the current planning application. However, electricity control building was found to be not particularly intrusive in the visual assessment and boundaries facing surrounding land are very steep in places. It is considered that bunding itself would be more visually intrusive than the currently unscreened building. Tree/ scrub planting would be out of place and may struggle to become established due to the exposure of the site. Areas disturbed during construction have naturally vegetated.

- Applicant is committed to improving the biodiversity value of the proposed development site, which may also have positive visual and landscape effects, e.g., maintain native flowering hedgerow for biodiversity and eliminate or reduce pesticide use.
- During decommissioning, it is proposed to demolish and remove all structures above ground level and to grub the turbine foundations and hardstanding areas up to a depth of 1m below ground level. Areas will be profiled to match the surrounding ground, covered with topsoil and seeded to vegetate naturally.
- Two-year monitoring period will take place following completion of decommissioning works to ensure regraded areas successfully establish a grass sward/ heathland cover.

Residual Impacts for Landscape and Visual

- Residual effects will be the same as those identified as part of the assessment of likely effects, none of which are assessed to be significant.

Predicted Impact of the Proposed Development

11.9.6. The predicted impacts on **cultural heritage** are summarised as follows:

- Possibility of unknown prehistoric sites in the proposed development site is low based on the absence of earthworks which may otherwise highlight the presence of such features. Above ground indicators would also be present for features such as megalithic tombs or barrows.
- Potential for early medieval and medieval heritage assets is very low, as no sites of this type have been found within 1km. Potential for unknown post-medieval assets is also low as most of those found within 1km are well preserved and documented.
- There would be no change affecting the understanding of the cultural significance of the Church of the Visitation in Rear Cross – there is the presence of a plantation to the immediate south of the church.
- Wind farm is peripheral to Commaun Bridge and would not have an impact on the appreciation or understanding of the heritage asset.

- Setting of farmhouse to north-east of site is within a local depression and there is dense forestry between the site and farmhouse – turbines unlikely to be visible.
- Presence of existing wind farm does not cause any intervisibility issues with any surrounding wedge tombs - wind farm is part of the current setting and there are other modern additions in views from heritage assets.
- Woodland would provide a visual and sound barrier for any potential noise impacts at nearby holy well. Wind farm only provides a minor distraction from the understanding and appreciation of this site.
- Enclosures positioned on north facing slopes to east of site – main view from these assets would be to be north.
- Existing wind farm now forms part of the setting of the upright stones, circular earthworks and collapsed standing stone – life extension would not cause any further change.
- East-west orientation of boulder burials suggests that main views were to the east and west – wind farm is 3.57km to the south-east and is likely to be peripheral in views from the monument.
- View towards Baurnadomeeny wedge tomb from the orthostat is not interrupted by the existence of the wind farm.
- Shanballyedmond court tomb is fenced off and wind farm is partially obscured from view and are therefore a minor distraction.
- Ringfort (TN038-014) setting has changed significantly since original construction – presence of wind farm on far side of valley is a minor distraction.
- There are no clear links between the children's burial ground and surrounding landscape.
- Positioning of wind farm in the background of the view over the Bilboa River Valley does not provide an interruption to the key view from the ringfort (TN038-023).
- Existing wind farm forms part of the baseline environment and the wider setting of heritage assets – it is not proposed to alter the infrastructure present at the site.

- Given the absence of heritage assets within the site, the decommissioning phase will not result in any direct effects.

Mitigation Measures for Cultural Heritage

- Proposal does not comprise the construction of additional infrastructure and no previously undisturbed ground will be affected by the continued operation of the wind farm. No archaeological mitigation or monitoring is therefore required.

Residual Impacts for Cultural Heritage

- No residual effects as no mitigation is proposed.

Conclusions on Cultural Heritage and the Landscape

11.9.7. A 5km study area surrounding the development site, extending to 10km to the north-west and north east and 20km to the south-west, was identified for the purpose of landscape and visual assessment based on the zone of theoretical visibility. The wind turbines are in place and are an established feature in the landscape. Views are experienced intermittently with the 5km core upland area. Beyond the 5km core area, the turbines are visible in the distance along the skyline. The turbines have a small footprint and I would be in agreement that they occupy a limited proportion of available panoramic views and are visually separate from other wind farm developments. The regularly spaced and linear layout aligns with the adjacent conifer plantations, in particular when viewed from the north-west. Furthermore, I am satisfied that the height of the turbines is appropriate for the scale of Knockastanna Hill.

11.9.8. No specific landscape or visual mitigation measures are required for the continued operation of the wind farm or for its decommissioning phase. However, the applicant is committed to increasing the biodiversity value of the site through actions set out in the All-Ireland Pollinator Plan – Pollinator-friendly Management of Wind Farms. A 2-year monitoring programme will also be carried out post decommissioning to ensure that regraded areas successfully establish a grass sward or heathland cover.

11.9.9. Cultural heritage comprises sites of archaeological, historical or architectural significance within the receiving environment. No heritage assets were identified within the subject site and there will be no impacts on unknown assets due to the absence of any proposed infrastructural works. There will also be an absence of

any increased effect on the setting of identified heritage features within 5km of the site. Decommissioning of the development will have no direct impacts on known heritage assets and the landscape will be returned to its pre-wind farm state. No archaeological mitigation measures are considered necessary.

11.9.10. Overall, I would be satisfied that the proposed development would not have any significant effect on cultural heritage and the landscape, either individually or cumulatively with any other projects or activities. The wind farm is an established feature in the surrounding area and it has been demonstrated that it does not form on obtrusive feature or impact negatively on any heritage asset.

11.10. Vulnerably of the Project to Major Accident and/ or Natural Disaster

11.10.1. The EIAR does not identify any risk of major accidents or natural disasters during the continued operational phase. The construction phase is long completed, and the wind farm is now well established. The nearest SEVESO facility at Grassland Argo in Limerick is not in proximity to the wind farm site.

11.10.2. Land slippage and flooding are natural disasters that could potentially occur. Landscape susceptibility mapping shows that most of the site is under moderate risk of a landslide occurring. There are a number of small areas classified as a high risk of landslide susceptibility; however, no turbines or wind farm access tracks are situated in these areas. The uppermost turbine and the electricity control building at the lower end of the site are located within areas of moderately low susceptibility. The middle two turbines are within a moderately high landslide susceptibility. As noted, the wind farm including turbine foundations, hard standings, access tracks and drainage arrangements are well established and the greatest potential for land slippage would be during the construction period or shortly after.

11.10.3. A landslide occurred to the south of Knockastanna Hill in 1988. However, the applicant submitted in response to the further information request that this event was 2.2km south of the site and was relatively small, with no impact on local rivers and streams. Furthermore, it was highlighted that a structural defect rather than unfavourable ground stability conditions was the reason Turbine 5 was taken down. Regular maintenance inspections at the wind farm site would identify any issue relating to the structural stability of any of the turbines on site, as was the case with

Turbine T05. This turbine will be remounted following structural support works, involving the removal of the defective foundation and pouring of a new concrete foundation.

11.10.4. A Flood Risk Assessment was carried out for the proposed development, which concludes that the site is not at risk of flooding from all sources including tidal, fluvial, surface water, groundwater sources and infrastructure failure. A network of drains on site collect and discharge incident rainfall runoff and these drains are subject to routine inspection and maintenance. The proposed continuation of the wind farm does not therefore increase the flood risk off site.

11.10.5. The continued operation of wind farm is not likely to give rise to any additional effects on aviation, as the presence of existing turbines is known to the Irish Aviation Authority and there will be no increase in overall height. Aviation lighting will be maintained and shall continue to operate during the proposed additional period of operation.

11.10.6. Overall, I am satisfied that given the nature of the proposed development, and the mitigation measures proposed, together with the low probability of a major accident/ natural disaster, it is not likely that significant effects on the environment would arise in this regard. No construction works are proposed and therefore the proposal does not pose a major hazardous accident risk.

11.11. Cumulative Impacts & Environmental Interactions

11.11.1. Chapter 14 of the EIAR sets out the various interactions between the environmental factors insofar as the effect of one environmental factor causes an indirect effect on another environmental factor. Throughout the EIAR, the cumulative assessment of the proposed development is carried out along with other developments in the area.

11.11.2. Figure 14.1 of the EIAR provides a matrix of interactions between environmental factors for the operational and decommissioning phases of the proposed development. It is assessed that the proposal is not likely to result in any impacts that could magnify environmental effects through interaction or accumulation.

11.11.3. There is an identified interaction between population & human health and the landscape through visibility of the wind farm in the landscape from key prospects and receptors. The development will remain visible in the landscape but not to a degree

that would result in significant impacts on population & human health. There will also be no significant interactions with landscape and cultural heritage as the development will not exert a significant visual effect on features of cultural heritage.

11.11.4. Interactions may also occur between population & human health and noise & vibration and shadow flicker. However, noise levels are below the criteria set out in the appropriate condition attached to the parent permission. The continued operation of the wind farm will not result in any increased traffic, noise or shadow flicker, and it has been assessed that the wind farm has not given rise to any significant impacts on population & human health from these environmental factors.

11.11.5. Lastly with respect to interactions, the development will result in overall beneficial impacts on human health interactions with air quality and climate from the generation of renewable electricity and a net saving in terms of greenhouse gas emissions.

11.11.6. In terms of cumulative impacts, there is a large wind energy complex to the east and south-east of the proposed development site. These developments will have no effect on the population, land use, recreation and amenity, and health and safety of the study area. There will be slight positive cumulative effects from employment and economic activity.

11.11.7. Cumulative impacts on biodiversity are possible when other wind farms affect the same populations of bats and birds at the same time. Table 5.12 of the EIAR lists the projects identified for potential cumulative effects. It is concluded that the main influence on bat and bird populations and their distribution in the upland landscape is the extent and stage of commercial forestry, with wind energy developments having far less of an effect. Those wind energy developments listed are generally to the south and at some distance beyond the Slievefelim to Silvermines Mountains SPA.

11.11.8. Monitoring at Garracummer Wind Farm (3 no. of 17 no turbines are inside the SPA) showed that hen harrier, sparrowhawk, buzzard and kestrel have been observed around the wind farm and hen harrier activity increased where mature conifers have been felled. A carcass search yielded a dead Leisler's bat in 2017. Surveys for Cappawhite B (Milestone) Wind Farm (just outside the SPA) showed that habitat is not suitable for breeding hen harrier and cumulative impacts were ruled out. Cumulative impacts were also ruled out for kestrel, meadow pipit and skylark. The consented Upperchurch Wind Farm is just outside the SPA and consists of 22 no.

turbines. The EIAR for this case predicted a slight to moderate impact for bats due to collisions. A positive effect on hen harrier is expected from a hen harrier management scheme. Cumulative effects were considered unlikely to be significant.

11.11.9. The consented Castlewaller Wind Farm is inside the SPA but has not yet been constructed. The EIS accompanying this application identified five bat species, along with hen harrier, red grouse, golden plover and kestrel. It was stated that there would be a slight improvement due to the creation of c. 34 ha of open forested area for hen harrier. Templederry Wind Farm is now inside the SPA but was not at the time of consent in 2003. It is likely to contain flora and fauna similar to Knockastanna Hill. Several other operational wind farms are located in the Sliverfelim area within 10km of the site. Overall, it is considered that wind farms in the surrounding area are for the most part widely separated and unlikely to have effects on the populations of the region. As noted above, the hen harrier population appears to have been increasing while many of the wind farms considered in the cumulative assessment have been operational.

11.11.10. Other types of development considered in the cumulative assessment for biodiversity include quarries, forestry, agricultural and residential developments. Agricultural and residential developments are mainly in lowland settings and Rear Cross Quarry is set within forestry. Lackamore Quarry, however, is within the SPA and has resulted in the loss of moorland habitat.

11.11.11. Other matters to be considered are decommissioning, afforestation and other elements of Knockastanna Wind Farm. Decommissioning dates for other wind farms in the Lower River Shannon catchment do not coincide with proposed development and this reduces the likelihood of cumulative effects from suspended solids pollution during decommissioning. The Central Munster Five Year Forest Plan 2021-2025 includes a commitment to maintain suitable foraging and nesting habitat for hen harrier. Extensive areas of clear felling in upland areas have the potential to benefit hen harrier. There will be no cumulative effects arising from the continued operation of the other main element of the wind farm which is the grid connection. This item is static and below ground and will not affect habitats and species.

11.11.12. No wind farms or quarries are located within 2km and therefore no cumulative impacts on land, soil or bedrock geology are expected. No other developments are

located within the same surface or groundwater catchments that might give rise to significant effects on the water environment.

11.11.13. Cumulative effects in relation to air quality would only occur if a large development was being constructed in the vicinity and due to the separation distances to the quarry and other wind farm developments in the wider area, no cumulative dust impacts are likely.

11.11.14. Other developments in the vicinity are not likely to generate significant volumes of noise, vibration or shadow flicker such that significant cumulative impacts would occur. The felling of forestry may take place during the operational phase but the temporary nature of such activities will not result in significant cumulative noise impacts. The nearest wind farm is at Garracummer in excess of 2km to the south-east. Having regard to this distance, significant cumulative impacts are unlikely.

11.11.15. There is a visual barrier between the development and third party wind farms and this creates a distinct separation with no visual confusion/ overlapping. In addition, the four turbines at Knockastanna limit the contribution to cumulative effects. The consented Castlewaller and Upperchurch wind farms would have a similar visual separation.

11.11.16. Since the construction of the wind farm, other developments have been constructed and these have been added to the baseline of the identified heritage assets within 5km of the site. However, no adverse effects on heritage assets have been found and therefore a cumulative assessment on cultural heritage is not warranted in this instance.

11.11.17. The proposed development is not likely to generate significant volumes of vehicular traffic and therefore there is no likelihood of significant cumulative effects. There will also be no cumulative effects on aviation, telecommunications or resources and utility infrastructure.

11.11.18. In general, I would be satisfied with the methodology provided within the EIAR for interactions and cumulative assessment. The subject development is assessed with all the other windfarms in the area and any relevant other activities. Overall, this provides for a robust and complete assessment of the proposal by itself and any cumulative interactions with projects and activities in the area. I am therefore

satisfied that sufficient information has been acquired to fully inform the cumulative assessment of the proposed development and other relevant projects and activities.

11.12. Reasoned Conclusion

11.12.1. Having regard to the examination of environmental information contained above, and in particular to the EIAR and supplementary information provided by the applicant, and the submissions from Planning Authority and other parties in the course of the application, it is considered that the main significant direct and indirect effects of the proposed development on the environment are as follows:

- Positive cumulative impacts on **Climate** from the continued operation of the wind farm and other wind farms in the area due to the production renewable wind energy and a reduction in the use of fossil fuels.
- Positive impacts on **population and human health** from local residents and the community, and the local economy benefiting from increased employment and from the community benefit fund and rates payments.
- Potential for adverse effects on **Biodiversity** from collision and displacement impacts on bats and birds from the operating turbines; however, the collision risk for bats is low due to the location of the turbines away from woodland edges. Furthermore, the wind farm has been operational for a number of years, and collision and displacement risks do not appear to have resulted in local population level effects of any species. The applicant proposes to carry out systemic searching for corpses of birds or bats on site under any permission for the continued operation of the wind farm.
- Potential for adverse effects on **Biodiversity** during the decommissioning phase from suspended solid pollution of watercourses, damage to adjoining habitat and disturbance. The proposed development would only change the timing of these risks and mitigation measures would be included as part of a planning stage decommissioning plan, e.g. the most intrusive decommissioning works will be timed to occur outside the coldest winter months and main breeding season.
- Potential for adverse effects on **land, soils, water and air** during the remounting of Turbine T05 and the decommissioning phase from soil and water

contamination from machinery and sedimentation of local watercourses. These impacts will be mitigated through current industry standard good practice during construction-like activities and the measures outlined in a Decommissioning Management Plan, which will include a Surface Water Management Plan. Regular maintenance of on-site drainage systems will reduce the likelihood of increased delivery of sediment to natural watercourses.

11.12.2. Having regard to the above, the Board is satisfied that the proposed development would not have any unacceptable direct or indirect effects on the environment. The Board completed an environmental impact assessment in relation to the proposed development and concluded that, subject to the implementation of the mitigation measures referred to above, including proposed monitoring as appropriate, and subject to compliance with the conditions set out below, the effects on the environment of the proposed development, by itself and in combination with other development in the vicinity, would be acceptable. In doing so, the Board adopted the report and conclusions set out in the Inspector's report. The Board is satisfied that the reasoned conclusion is up to date at the time of making the decision.

12.0 **Appropriate Assessment**

12.1. The areas addressed in this section are as follows:

- Compliance with Articles 6(3) of the EU Habitats Directive
- Geographical Scope and Main Characteristics
- Screening the need for Appropriate Assessment
- The Natura Impact Statement and associated documents
- Appropriate Assessment of implications of the proposed development on each European Site

12.2. **Compliance with Articles 6(3) of the EU Habitats Directive:** The Habitats Directive deals with the Conservation of Natural Habitats and of Wild Fauna and Flora throughout the European Union. Article 6(3) of this Directive requires that any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects shall be subject to appropriate assessment of its

implications for the site in view of the site's conservation objectives. The competent authority must be satisfied that the proposal will not adversely affect the integrity of the European site.

12.2.1. The proposed development comprising the continued operation for a period of 15 years of the existing Knockastanna wind farm at Curraghfoil, Co Limerick is not directly connected with or necessary to the management of any European site, and is therefore subject to the provisions of Article 6(3).

12.3. Geographical Scope and Main Characteristics

12.3.1. The appeal site is located in an upland area to the south of the Slieve Felim and Silvermines mountains in Co. Limerick near the boundary with Co. Tipperary. Most of the site is within the Slievefelim to Silvermines Mountains SPA (site code: 004165). The main land uses in the area are hill farming and forestry. There are also sporadic dwellings and farm buildings in the vicinity along a local road that continues around the western and northern sides of Knockastanna Hill. Knockastanna Hill rises to a height of 444m and forms the eastern side of the Bilboa River valley. The Bilboa River is a tributary of Mulkear River, which enters the Shannon to the east of Limerick City.

12.3.2. Habitat closest to the summit of Knockastanna Hill are wet heath (HH3), with upland blanket bog (PB2) below this, and improved agricultural grassland (GA1) on lower slopes. Conifer plantation (WD4) bounds the site on both sides to the east and south-west.

12.3.3. There are a number of watercourses that drain from the site and onto the Bilboa River. The Bilboa River is within the Lower River Shannon SAC, which is 0.42km from the appeal site boundary. The site is within the Lower Shannon WFD Catchment and the Bilboa_SC_010 sub catchment. The Slieve Phelim groundwater body lies under the site, which is described as poorly productive bedrock.

12.3.4. The main characteristics of the proposal are the continued operation of the existing Knockastanna Wind Farm for a period of 15 years. The main change associated with the proposal is the timing and tighter environmental control of decommissioning, which would occur if permission for the proposed continued operation was granted. Planning permission was granted for the wind farm in July 2003 and construction

didn't commence until January 2008. The wind farm became fully operational in March 2009. The Slieve Felim to Silvermines Mountains SPA was designated in March 2007 and most of the wind farm site falls under this designation, together with a surrounding area of approximately 209 sq.km. The conservation objective for the SPA is to restore the favourable conservation condition of hen harrier in Slievefelim to Silvermines Mountains SPA.

12.3.5. The wind farm planning application was supported by an EIS, which included ecology survey work undertaken in 2001. Since 2006 and up to 2019, bird monitoring work have been completed in accordance with a specification agreed with the NPWS pursuant to Condition 4 of the parent permission (PL.13.130938).

12.4. Screening the need for Appropriate Assessment

12.4.1. The first test of Article 6(3) is to establish if the proposed development could result in likely significant effects to a European site. This is considered stage 1 of the appropriate assessment process i.e. *screening.* The screening stage is intended to be a preliminary examination. If the possibility of significant effects cannot be excluded on the basis of objective information, without extensive investigation or the application of mitigation, a plan or project should be considered to have a likely significant effect and Appropriate Assessment carried out.

12.4.2. Having regard to the information and submissions available, the nature, size and location of the proposed development and its likely direct, indirect and cumulative effects, the source pathway receptor principle and sensitivities of the ecological receptors, the European Sites set out in Table 1 below are considered relevant to include for the purposes of initial screening for the requirement for Stage 2 appropriate assessment on the basis of likely significant effects. A 15km study area from the wind farm site is applied for this purpose, wherein a total of 23 European Sites are included (19 SACs & 4 SPAs).

12.4.3. European sites considered for Stage 1 screening:

European site (SAC/SPA)	Site code	Distance to UWF Related Works	Connections (source, pathway, receptor)	Considered further in Screening (Y/N)
Slievefelim to Silvermines Mountains SPA	004165	0 km	Numerous connections	Y
Lower River Shannon SAC	002165	0.42 km	Numerous connections	Y
Lower River Suir SAC	002137	6.3 km	No pathway	N
Anglesey Road SAC	002125	6.8 km	No pathway	N
Bolingbrook Hill SAC	002124	10.4 km	No pathway	N
Keeper Hill SAC	001197	8.6 km	No pathway	N
Silvermines Mountain SAC	000939	12.2 km	No pathway	N
Silvermines Mountain West SAC	002258	12.4 km	No pathway	N
Philipstown Marsh SAC	001847	10 km	No pathway	N
Clare Glen SAC	000930	10.9 km	No pathway	N
Glenstal Wood SAC	001432	10.8 km	No pathway	N
River Shannon and River Fergus Estuaries SPA	004077	29 km	Potential connections	Y
Slieve Aughty Mountains SPA	004168	35 km	Possible connections	Y
Slieve Bloom Mountains SPA	004160	46 km	Possible connections	Y
Stack's to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA	004161	62 km	Possible connections	Y
Mullaghanish to Musheramore Mountains SPA	004162	90 km	Possible connections but less likely	Y
Slieve Beagh SPA	004167	192 km	Possible connections but less likely	Y

Table 1 – Summary Table of European Sites considered in Screening for Appropriate Assessment

12.4.4. Based on my examination of the NIS and other supporting information, the NPWS website, aerial and satellite imagery, the scale of the proposed development and likely effects, separation distances and functional relationships between the proposed works and the European sites, their conservation objectives, and taken in conjunction with my assessment of the subject site and the surrounding area, I conclude that a Stage 2 Appropriate Assessment is required for the following European Sites in view of the conservation objectives of those sites:

- Slieve Felim to Silvermines Mountains SPA (Site code: 004165)
- Lower River Shannon SAC (Site code:002165)
- River Shannon and River Fergus Estuaries SPA (Site code: 004077)
- Slieve Aughty Mountains SPA (Site code: 004168)
- Slieve Bloom Mountains SPA (Site code: 004160)
- Stack's to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA (Site code: 004161)
- Mullaghanish to Musheramore Mountains SPA (Site code: 004162)
- Slieve Beagh SPA (Site code: 004167)

12.4.5. Table 2 below provides a screening summary matrix where there is a possibility of significant effects, or where the possibility of significant effects cannot be excluded without further detailed assessment.

Site name **Qualifying Interest feature**	**Is there a possibility of significant effects in view of the conservation objectives of the site?** **General impact categories presented**		
	Habitat loss/ modification	Water quality and water dependent habitats (pollution)	Disturbance/ displacement barrier effects
Slieve Felim to Silvermines Mountains SPA *Special Conservation Interest:* Hen Harrier	Yes - Damage of habitat/ flora from removal of infrastructure during decommissioning.	No	Yes - Potential for collision with wind turbines and disturbance/ displacement of birds from the area around the turbines. - Reduction of prey availability due to displacement by turbines. - Disturbance of birds during routine maintenance including reinstatement of Turbine T05. - Barrier effect, disruption or migratory or other routes used by birds due to avoidance of wind turbines. - Disturbance of birds during decommissioning.
Lower River Shannon SAC *Qualifying Interests:* Sandbanks which are slightly covered by sea water all the time [1110]	No	Yes - Release of suspended solids and other pollution from removal of infrastructure during decommissioning.	Yes There is hydrological connectivity to the Lower River Shannon via the Bilboa River – potential impacts on Sea Lamprey, Brook Lamprey, River Lamprey and Salmon.

Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Coastal lagoons [1150] Large shallow inlets and bays [1160] Reefs [1170] Perennial vegetation of stony banks [1220] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] Margaritifera margaritifera (Freshwater Pearl Mussel) [1029]			

Petromyzon marinus (Sea Lamprey) [1095] Lampetra planeri (Brook Lamprey) [1096] Lampetra fluviatilis (River Lamprey) [1099] Salmo salar (Salmon) [1106] Tursiops truncatus (Common Bottlenose Dolphin) [1349] Lutra lutra (Otter) [1355]			
River Shannon and River Fergus Estuaries SPA *Qualifying Interests:* Cormorant (Phalacrocorax carbo) [A017] Whooper Swan (Cygnus cygnus) [A038] Light-bellied Brent Goose (Branta bernicla hrota) [A046] Shelduck (Tadorna tadorna) [A048] Wigeon (Anas penelope) [A050] Teal (Anas crecca) [A052] Pintail (Anas acuta) [A054] Shoveler (Anas clypeata) [A056] Scaup (Aythya marila) [A062]	No	Yes - Release of suspended solids and other pollution from removal of infrastructure during decommissioning.	There is hydrological connectivity to the Lower River Shannon via the Bilboa River – potential impacts wetlands and habitat for waterbirds.

Ringed Plover (Charadrius hiaticula) [A137] Golden Plover (Pluvialis apricaria) [A140] Grey Plover (Pluvialis squatarola) [A141] Lapwing (Vanellus vanellus) [A142] Knot (Calidris canutus) [A143] Dunlin (Calidris alpina) [A149] Black-tailed Godwit (Limosa limosa) [A156] Bar-tailed Godwit (Limosa lapponica) [A157] Curlew (Numenius arquata) [A160] Redshank (Tringa totanus) [A162] Greenshank (Tringa nebularia) [A164] Black-headed Gull (Chroicocephalus ridibundus) [A179] Wetland and Waterbirds [A999]			
Slieve Aughty Mountains SPA *Qualifying Interests:* Hen Harrier (Circus cyaneus) [A082] Merlin (Falco columbarius) [A098]	No	No	Yes - Possibly supported by hen harrier population at Slievefelim to Silvermines Mountains SPA and vice versa. - Very unlikely ecological connection for merlin and the core

			foraging range for this species is less than 5km.
Slieve Bloom Mountains SPA *Qualifying Interests:* Hen Harrier (Circus cyaneus) [A082]	No	No	- Possibly supported by hen harrier population at Slievefelim to Silvermines Mountains SPA and vice versa.
Stack's to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA *Qualifying Interests:* Hen Harrier (Circus cyaneus) [A082]	No	No	- Possibly supported by hen harrier population at Slievefelim to Silvermines Mountains SPA and vice versa.
Mullaghanish to Musheramore Mountains SPA *Qualifying Interests:* Hen Harrier (Circus cyaneus) [A082]	No	No	- Possibly supported by hen harrier population at Slievefelim to Silvermines Mountains SPA and vice versa but less likely given the separation distance of 90 km.
Slieve Beagh SPA *Qualifying Interests:* Hen Harrier (Circus cyaneus) [A082]	No	No	- Possibly supported by hen harrier population at Slievefelim to Silvermines Mountains SPA and vice versa but much less likely given the separation distance of 192 km

Table 2 Screening summary matrix: European Sites for which there is a possibility of significant effects (or where the possibility of significant effects cannot be excluded without further detailed assessment)

12.4.6. The remaining sites can be screened out from further assessment because of the nature of the proposal, the nature of the Conservation Objectives, Qualifying and Special Conservation Interests, the separation distances and the lack of a substantive ecological and hydrological linkage between the appeal site and these European sites.

12.4.7. There is no potential for the proposed development to cause direct habitat loss, fragmentation or disturbance in any of the Special Areas of Conservation screened out within the study area due to the location of the appeal site outside of any such European Sites. Indirect terrestrial or aquatic habitat loss or degradation will not occur in all sites screened out due to the absence of hydrological connectivity and the separation distance between the appeal site, including any operational or decommissioning stage work, and these sites.

12.4.8. The Lower River Suir SAC is within a different catchment and therefore no hydrological connections can occur. There is also no potential for indirect/ ex-situ disturbance or displacement of animal species qualifying interests in the Anglesey Road SAC, Bollingwood Hill SAC, Keeper Hill SAC, Silvermines Mountain SAC, Silvermines Mountains West SAC, Philipstown Marsh SAC, Clare Glen SAC and Glenstall Wood SAC as these European Sites relate to habitats/ plant species only. There is also no hydrological link with these European Sites.

12.4.9. With respect to the SPAs in the study area, it should be noted that the NIS screens out Slieve Aughty SPA, Slieve Bloom Mountains SPA, Stack's to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA, Mullaghanish to Musheramore Mountains SPA and Slieve Beagh SPA. It is recognised in the NIS that the population of hen harriers in the Slievefelim to Silvermines Mountains SPA may have a supporting role for populations of hen harrier within other SPAs if there is an exchange of individuals between SPAs. According to the NIS, there are records of hen harrier movements of many hundreds of kilometres, and it is stated that likely significant effects on other SPAs cannot be excluded without an assessment of the effects of the proposal on the Slievefelim to Silvermines Mountains population.

12.4.10. The upland nature of the site confirms that it is not an ex-situ location for wintering golden plover, which is the only species recorded at the appeal site that is also a qualifying interest of the Lough Derg (Shannon) SPA and the River Shannon and

River Fergus Estuaries SPA. In addition, these European Sites are located 24km and 29km respectively from the appeal site and the core foraging range for golden plover is 3km. These wetland SPAs can be discounted on the basis of the distance and habitats present, and the unlikelihood of any barrier effect for migrating birds given the small scale of the wind farm. The River Shannon and River Fergus Estuaries SPA is nonetheless connected to the appeal site via the Bilboa River and likely significant effects cannot be excluded when the proposal is considered in combination with other plans and projects resulting in greater quantities of suspended solid pollution continuing downstream.

Screening Determination

12.4.11. It is therefore reasonable to conclude that on the basis of the information on the file, which I consider adequate in order to issue a screening determination, that the proposed development, individually or in combination with other plans or projects would not be likely to have a significant effect on the Lower River Suir SAC (002137), Anglesey Road SAC (002125), Bolingbrook Hill SAC (002124), Keeper Hill SAC (001197), Silvermines Mountain SAC (000939), Silvermines Mountains West SAC (002258), Philipstown Marsh SAC (001847), Clare Glen SAC (000930) and Glenstal Wood SAC (001432), in view of the sites' conservation objectives and a Stage 2 Appropriate Assessment for these sites is not therefore required.

12.4.12. I am therefore satisfied that no additional sites other than those assessed in the NIS (Slievefelim to Silvermines Mountains SPA, Lower River Shannon SAC, River Shannon and River Fergus Estuaries SPA, Slieve Aughty Mountains SPA, Stack's to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA, Mullaghanish to Musheramore Mountains SPA and Slieve Beagh SPA) need to be brought forward for Appropriate Assessment. As noted in the NIS, impacts on other hen harrier SPAs are only possible if there are adverse effects on the integrity of the Slievefelim to Silvermines Mountains SPA.

12.5. The Natura Impact Statement and Associated Documents

12.5.1. The application was accompanied by a NIS for the proposed continuation of operation of Knockastanna Wind Farm submitted to the Planning Authority on 8th June 2022. This document is made up of the following:

- Introduction:
    - Project Background
    - Purpose of Report
    - Evidence of Technical Competence and Experience
    - Methodology
- Stage 1: Screening
    - Step 1: Management of Natura 2000
    - Step 2: Part 1 – Brief Project Description
    - Step 2: Part 2 – Potential Impact Factors
    - Step 3: Identification of Natura 2000 Sites
    - Step 4: Likely Significant Effects
    - Conclusions
- Stage 2: Appropriate Assessment
    - Step 1, Part 1: Information on the Project
    - Step 1, Part 2: Information on Natura 2000
    - Step 2, Part 1: Effects on the Integrity of Natura 2000 ‘Alone’
    - Step 2, Part 2: Effects on the Integrity of Natura 2000 ‘In Combination’
    - Step 2, Part 3: Implications for the Conservation Objectives
    - Step 3: Effects on the Integrity of the Natura 2000 Sites
    - Step 4: Mitigation Measures
- Conclusions
- Figure 1: Natura 200 Site within 15km
- Figure 2: Habitats within the Project Site
- Annex 1: Bird Survey Report
- Annex 2: Planning Stage Decommissioning Plan

12.5.2. The Planning Authority requested further information from the applicant on 28th July 2022, noting that the last available surveys for hen harrier activity dated from 2019 and that updated information from Spring, 2022 should have been submitted. In response, the applicant submitted a Draft Interim Bird Monitoring Report for Spring 2022. The report remained in draft format because further survey work for red grouse is being undertaken in February/ March 2023 and the results of this survey are being added to the report before it is finalised.

12.5.3. It is highlighted that the results from 2022 are broadly consistent with previous monitoring reports and therefore it is considered that the assessment in the EIAR and NIS remains valid and unchanged by the results of 2022 monitoring. The following is noted with respect to hen harrier:

- Knockastanna – no sightings (but were recorded on site in 2020) and therefore no breeding;
- Lossett – territory was occupied by the nest failed after the female started provisioning;
- Commanealine – territory occupied up to nest building at least, with pair then possibly moving across the valley to the south-east at Bahaga to nest, where they successfully fledged one juvenile;
- Forkeala – territory had a displaying male but no further evidence of breeding;
- Mauher Slieve East and West – no sightings;
- Callaun North/ West – no sightings; and
- Glenstall (more than 5km) – one chick fledged.

12.5.4. The conclusion is reached that hen harrier does not breed at Knockastanna Hill but continues to breed within 5km and beyond. Data collected appears to show a general decline in numbers since a peak of 7 in 2012-2013. It is submitted that the apparent decline is not an effect of the operational wind farm as numbers were higher during its operational life. Rather, it is considered that the decline can be attributed to changes at the sites where hen harrier did not breed in 2022 but did in previous years, or wider reasons for population decline, or a combination of these.

12.5.5. The second item of the further information request indicates that a landslide occurred to the south of the site and the Landslide Susceptibility Viewer shows areas of high to moderately high landslide susceptibility. It is also noted that the Limerick Development Plan requires soil stability to be taken into consideration in the assessment of wind energy proposals.

12.5.6. In response, the applicant submits that the site of the historic landslide at Doon is significantly different to the appeal site, and together with the fact that the existing wind farm has been in place for 13 years, with no landslide events having occurred, it is unlikely that the continued operation of the wind farm will result in increased risk of landslides occurring. It is stated that this conclusion does not alter the assessment completed at Chapter 6 of the EIAR.

12.5.7. In general, I am satisfied that NIS submitted with the planning application, and the response to the Council's further information request adequately describe the proposed development, the project site and the surrounding area. The Stage 1 Screening Assessment concluded that a Stage 2 Appropriate Assessment (NIS) was required. The NIS outlined the methodology used for assessing potential impacts on the habitats and species within the European Sites that have the potential to be affected by the proposed development. It predicted the potential impacts for the site and its conservation objectives, suggested mitigation measures, assessed in-combination effects with other plans and projects and identified any residual effects on the European site and its conservation objectives.

12.5.8. The NIS was informed by the following studies, surveys and consultations:

- Annual bird surveys of Knockastanna Wind Farm undertaken from 2006 to 2019 (Oliver & Penn, 2007-2019) (Fehily Timoney, 2008-2009),
- Article 17 and Article 12 reports completed by the NPWS,
- Site Synopsis, Conservation Objectives and Standard Data Forms for the Natura 2000 sites,
- Draft Site-Specific Conservation Objectives: Breeding Hen Harrier (NPWS, 2021),
- Draft Threat Response Plan for Hen Harrier, 2021-2-25 (NPWS, 2021), and

- Results from the national hen harrier surveys (Ruddock, Dunlop, O'Toole, Mee & Nagle, 2012) (Ruddock, et al., 2016),
- Limerick County Development Plan, 2010-2016,
- Draft Limerick Development Plan, 2022-2018,
- South Tipperary Development Plan, 2009-2015 (as varied),
- Tipperary County Development Plan, 2022-2018
- Central Munster Five Year Forest Plan, 2021-2025 (Coillte updated),
- EIS and NIS for Garracummer Wind Farm and associated bird monitoring report,
- EIS for Cappawhite B (Milestone) Wind Farm,
- EIAR and NIS for Upperchurch Wind Farm,
- EIAR and NIS for Castlewaller Wind Farm,
- EIS for Templederry Wind Farm,
- EIS for Cappawhite A Wind Farm and extension,
- Sustainable Energy Authority of Ireland Wind Energy Mapping,
- Consultation response of relevance to biodiversity from the Department of Housing, Local Government and Heritage

12.5.9. With the identified mitigation measures in place, the NIS concludes, beyond all reasonable scientific doubt, that the Project, either alone or in combination with other plans and projects will not undermine the conservation objectives of any Natura 2000 site. It is therefore concluded that the project would not have an adverse effect on the integrity of any Natura 2000 site.

12.5.10. Having reviewed the NIS and the supporting documentation, I am satisfied that it provides adequate information in respect of the baseline conditions, clearly identifies the potential impacts, and uses best scientific information and knowledge. Details of mitigation measures are provided, and they are summarised in the NIS. I am satisfied that the information is sufficient to allow for appropriate assessment of the proposed development (see further analysis below).

12.6. Appropriate Assessment of implications of the proposed development on each European Site

12.6.1. The following is an assessment of the implications of the project on the relevant conservation objectives of the European sites using the best available scientific knowledge in the field. All aspects of the project which could result in significant effects are identified and mitigation measures designed to avoid or reduce any adverse effects are examined and assessed.

12.6.2. I have relied on the following guidance:

- DoEHLG (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, National Parks and Wildlife Service.
- EC (2002) 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/EC
- EC (2011) Guidance Document: Wind Energy Development and Natura 2000
- EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC

12.6.3. **Relevant European sites:** The following sites are subject to appropriate assessment.

- Slieve Felim to Silvermines Mountains SPA (Site code: 004165)
- Lower River Shannon SAC (Site code:002165)
- River Shannon and River Fergus Estuaries SPA (Site code: 004077)
- Slieve Aughty Mountains SPA (Site code: 004168)
- Slieve Bloom Mountains SPA (Site code: 004160)
- Stack's to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA (Site code: 004161)
- Mullaghanish to Musheramore Mountains SPA (Site code: 004162)
- Slieve Beagh SPA (Site code: 004167)

12.6.4. A description of these sites and their Conservation Objectives and Qualifying Interests, including any relevant attributes and targets for these sites, are set out in the NIS and outlined in Tables 3-10 below. I have also examined the Natura 2000 data forms as relevant and the Conservation Objectives supporting documents for these sites available through the NPWS website (www.npws.ie).

12.6.5. **Aspects of the proposed development:** The main aspects of the proposed development that could adversely affect the conservation objectives of European sites include;

- Mortality of birds through collisions with wind turbines for the period of extended operation;
- Disturbance and displacement of birds from the area around the wind turbines for the period of the extended operation;
- Reduction in prey availability due to displacement by turbines for the period of the extended operation;
- Disturbance of birds during routine maintenance operations including the reinstatement of Turbine T05 and potentially removal/ reinstatement of other turbines and reinforcement of turbine bases;
- Barrier effect, disruption to migratory or other routes used by bats due to avoidance of wind turbines for the period of the extended operation;
- Damage of habitats and flora during the removal of infrastructure when the wind farm is being decommissioned;
- Disturbance of birds by construction workers during decommissioning;
- Release of suspended solids and other pollution during the removal of infrastructure when the wind farm is being decommissioned.

12.6.6. **Tables 3-10** summarise the appropriate assessment and site integrity test. The conservation objectives, targets and attributes as relevant to the identified potential significant effects are examined and assessed in relation to the aspects of the project (alone and in combination with other plans and projects). Mitigation measures are examined, and clear, precise and definitive conclusions reached in terms of adverse effects on the integrity of European sites.

12.6.7. Supplemental to the summary tables, key issues that arose through consultation and through my examination and assessment of the NIS and further information request are expanded upon in the text below:

12.6.8. Key issue raised by the National Parks and Wildlife Service is the loss of hen harrier habitat, if any, that occurred due to the wind farm construction and operation, both in terms of the footprint of the development and any zone of avoidance around the development, and including any deterioration in habitat quality or prey availability around the development. The NPWS also stated that consideration should be given to:

- The likely quality and value of habitat if it were to become available once again to hen harrier.
- Hen harrier surveys carried out prior to grant and construction of development compared to surveys after construction.
- Any decline in the natural range of the area covered by the species within that range and the availability of a sufficiently large habitat to maintain the population on a long term basis.
- The monitoring of bird usage since construction and whether systematic searching for corpses of birds or bats has taken place on site and what the results have been.

Table 3

Slievefelim to Silvermines SPA (Site code: 004165)

Key Issues:

- Disturbance/ displacement of Hen Harrier and its prey
- Mortality through collisions with turbines
- Barrier effect and avoidance of wind turbines
- Damage of habitat at decommissioning

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004165.pdf

		Summary of Appropriate Assessment			
Conservation Objective	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
To restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: Hen Harrier (A082)	The favourable conservation status of a species is achieved when: - Maintain numbers at or above 4-8 confirmed breeding pairs and restore to 1.0-1.4 fledged young per confirmed pair (hen harrier). - Maintain spatial utilization of SPA by breeding pairs to at least 74-94%.	- Potential for collision with turbines. - Ongoing displacement due to the continued presence of the wind turbines. - Disturbance/ displacement during routine maintenance and decommissioning. - Hen harrier has continued to breed within 5km of the appeal site.	- Appeal site is monitored for breeding hen harrier each year and in the event of a breeding attempt, the surveyors would inform the site manager so that steps can be taken to avoid the disturbance of birds. - Works will be timed to avoid the nesting season for hen harrier in the event that breeding occurs during regular	- Potential for other projects, especially other wind farms, forestry and other land use changes to affect the hen harrier population. - Other wind energy developments are generally to the south and some distance beyond Slievefelim to Silvermines Mountains SPA.	- Surveys showed the equivalent of one hen harrier passing through the site a day. Around 91% of flights were at heights either above or below the turbine blades. Expected that hen harrier will avoid turbines on at least 99% of occasions. Sky-dancing during breeding occurs at turbine blade height; however, there is no breeding on site. Thus, there is a very low risk of collision.

	- Restore extent and quality of heath & bog and low intensity managed grasslands to support targets relating to population size, productivity rate and spatial utilization. - Maintain at least the length and quality of hedgerow to support targets relating to population size, productivity rate and spatial utilization. - Achieve an even & consistent distribution of age-classes across the forest estate. - Disturbance occurring at levels that do not significant impact on breeding hen harrier.	- Birds apparently disturbed during unrelated construction works on Knockastanna Hill in 2007, showing the potential for this to happen, e.g. reinstallation of Turbine T05 and other turbines should that be needed. - Should clear felling take place on Knochastanna Hill, hen harrier could return to breed at Knockastanna Hill and would therefore become more susceptible to disturbance during decommissioning works.	maintenance and decommissioning. - Most intrusive maintenance and decommissioning works will be timed to occur outside the coldest winter months, when birds can be most vulnerable to disturbance, as well as the main breeding season (April to August inclusive).	- NIS finds that hen harrier population in the SPA appears to have been increasing if measured as a total number of occupied territories, or staying the same if measured as successful breeding pairs, while many of the wind farm identified in the in-combination assessment have been operational. - Little scope for cumulative effects with quarries, residential and agricultural development. - Central Munster Five Year Forest Plan 2021-2025 includes commitment to maintain suitable foraging and nesting habitat for hen harrier within SPA and identifies clear-felling operations within forestry at Knockastanna Hill – this has the potential to benefit the hen harrier population.	- No evidence of hen harrier breeding or occupying territories within the appeal site, except in 2017. - NIS states that research suggests that wind farms have a relatively weak displacement effect of around 100m, equating to 12 hectares of the appeal site. - Forestry takes up 43% of Knockastanna Hill – mature forestry has a strong displacement effect on hen harrier, which prefers young plantations up to 11 years old and open moorland. Habitat on Knockastanna Hill has become less suitable as the forestry has matured. - NIS states that research suggests that hen harrier needs 100ha of suitable open habitats out of 300ha for a breeding territory – this is not available at Knockastanna Hill. - Absence of breeding hen harrier from Knockastanna Hill may be as a result of both forestry and wind farm acting together – forestry is the major factor as it affects 195ha of habitat and the windfarm affects 12 ha. - Appeal site is more than 1km from the nearest hen harrier breeding location,

					meaning that the site is not likely to be an important hunting area for hen harrier. - Bird monitoring has not shown any effect on the population of meadow pipit at the appeal site. - No scope for wind farm to provide a significant barrier to hen harrier movement since it comprises 4 four relatively small turbines and is some distance from other wind farms. - Hen harrier have been observed moving through the landscape around the appeal site and this would not be affected by the ongoing operation of the wind farm. - Very low risk that maintenance workers will disturb nesting hen harrier during routine maintenance. - Any maintenance works would be short term and there would be no lasting effects on the hen harrier population. - Results from 2022 surveys broadly consistent with those from previous monitoring reports.
Overall Conclusion: Integrity test Following the implementation of mitigation, the continued operation and decommissioning of this development will not adversely affect the integrity of the Slievefelim to Silvermines Mountains SPA in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.					

Table 4

Lower River Shannon SAC (Site code: 002165)

Key Issues:

- Riparian habitat degradation
- Decrease in habitat quality via: surface water runoff, sediment entrainment or release; release of fuels/ oils/ chemicals, surface/ ground water quality impacts
- Disturbance to fisheries
- Disturbance to otter

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002165.pdf

		Summary of Appropriate Assessment			
Conservation Objective To maintain the favourable conservation condition of the following:	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
Water courses of plain to montane levels with the Ranunculion	Stable/ increasing habitat area; no decline in habitat distribution;	- River Bilboa flows to the north and there are several minor tributaries	- Implementation of planning stage decommissioning plan,	- Potential for other plans and projects to result in suspended	Yes - Terrestrial habitat or marine and coastal habitat

fluitantis and Callitricho-Batrachion vegetation [3260]	maintain appropriate hydrological and tidal regime; maintain appropriate sub-stratum, water quality, typical species, floodplain connectivity and marginal fringing.	located within or in proximity to the appeal site. - Suspended solids and other pollution generated from during the decommissioning phase could be transported from the appeal site to the Lower Shannon SAC. - Suspended solids could affect freshwater aquatic species by reducing water quality and the quality of fish spawning beds, especially within the River Bilboa and potentially further downstream. - Release of suspended solids could occur when soil is disturbed during the removal of infrastructure at decommissioning stage, especially during periods of heavy rainfall. - Suspended solids could reduce water quality and smother spawning beds of fish species, leading to effects on fish populations and therefore otter populations.	which details control of suspended solids and other pollution.	solids (and other pollution). - Potential for other projects to be constructed or decommissioned at the same time that Knockastanna Wind Farm is decommissioned; however, it is not possible to identify these projects now as wind farm would be decommissioned in 2038. Expected that all such projects and plans would be subject to assessment under the Habitats Directive and will include mitigation to minimise the risks of suspended solids pollution.	are not hydrologically connected to the appeal site or are beyond the distance where effects could be perceptible due to dilution of any suspended solid pollution. - Quantities of suspended solids that could be released at the appeal site would be very small and subject to high levels of dilution in the river system. - Release of suspended solids could only occur for a short period of time during decommissioning works. - Decommissioning dates of any other wind farms in the Lower River Shannon catchment do not coincide with the proposed decommissioning date for Knockastanna Wind Farm and this reduces the potential for in-combination effects through suspended solid pollution.
Lampetra planeri (Brook Lamprey) [1096]	Access to all watercourses down to 1st order streams; at least 3 age/ size groups present, juvenile density at least 2/m^2; no decline in extent and distribution of spawning beds; more than 50% of sample sites positive.				
Lampetra fluviatilis (River Lamprey) [1099]	Access to all watercourses down to 1st order streams; at least 3 age/ size groups present, juvenile density at least 2/m2; no decline in extent and distribution of spawning beds; more than 50% of sample sites positive.				
Sandbanks which are slightly covered by sea water all the time [1110]	Stable or increasing habitat area and habitat distribution; and conservation of subtidal sand to mixed sediment with *nephtys spp*. community complex				
Estuaries [1130]	Habitat area stable or increasing; and conservation of :				

	Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex; Estuarine subtidal muddy sand to mixed sediment with gammarids community complex; Subtidal sand to mixed sediment with Nucula nucleus community complex; Subtidal sand to mixed sediment with Nephtys spp. community complex; Fucoid-dominated intertidal reef community complex; Faunal turf-dominated subtidal reef community; and Anemone-dominated subtidal reef community.				
Mudflats and sandflats not covered by seawater at low tide [1140]	Stable or increasing habitat area; conserve intertidal sand with *Scolelepis squamata* and *Pontocrates* spp. Community, and Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex in a natural condition.				

Large shallow inlets and bays [1160]	Stable or increasing habitat area; and conserve : Intertidal sand with *Scolelepis squamata* and *Pontocrates spp*. community; Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex; Subtidal sand to mixed sediment with *Nucula nucleus* community complex; Subtidal sand to mixed sediment with Nephtys spp. community complex; Fucoid-dominated intertidal reef community complex; Mixed subtidal reef community complex; Faunal turf-dominated subtidal reef community; Anemone- dominated subtidal reef community; and *Laminaria*-dominated community complex.				
Reefs [1170]	Stable or increasing habitat area and habitat distribution; and conserve intertidal reef community complex and subtidal reef community				

	complex in natural condition.				
Perennial vegetation of stony banks [1220]	No decline in habitat distribution; stable/ increasing habitat area; maintain/ restore natural circulation of sediments/ organic matter; maintain range of coastal habitat; maintain typical vegetated shingle flora; and negative indicator species to less than 5% cover.				
Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	Stable habitat length; no decline in habitat distribution; no alteration to natural functioning of geomorphological and hydrological processes; maintain range of sea cliff habitat zonations; maintain structural variation within sward; maintain range of Irish Sea Cliff Survey species; negative indicator species less than 5%; and cover of bracken and woody species on grassland/heath less than 10% and 20% respectively.				

Salicornia and other annuals colonizing mud and sand [1310]	No decline in habitat distribution; stable/ increasing habitat area; maintain/ restore natural circulation of sediments/ organic matter; maintain creek and pan structure and natural tidal regime; maintain range of coastal habitat and structural variation within sward; maintain >90% of areas outside creeks vegetated; maintain presence of listed species poor communities; and no significant expansion of common cordgrass.				
Bottlenose Dolphin Tursiops truncates [1349]	No restriction of species range by artificial barriers to site use; critical areas of habitat maintained in natural condition; and no adverse effect from human activities.				
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]	No decline in habitat distribution; stable/ increasing habitat area; between 40% and 90% broadleaf herb component and 30%-70% of sward between 10 & 80cm high; at least 7 positive indicator species, with at least one being high quality;				

	no decline in vegetation composition and negative indicator species not more than 20%; and bog mosses no more than 10% cover; hair moss not more than 25% cover.				
To restore the favourable conservation condition of the following:					
Margaritifera Margaritifera (Freshwater Pearl Mussel) [1029]	Maintain distribution at 7km; restore to 10,000 adult mussels, restore to least 20% of population no more than 65mm in length and at least 5% no more than 30mm in length; no more than 5% decline from previous number of live adults counted – dead shells less than 1% of adult population and scattered in distribution; restore suitable habitat in more than 3.3km and any additional stretches necessary for salmonid spawning; restore water quality-microinvertebrates: EQR greater than 0.90; phytobenthos: EQR				

	greater than 0.93; restore substratum quality with no artificial elevated levels of fine sediment; restore to no more than 20% decline from water column to 5cm depth on substate; restore appropriate hydrological regimes; and maintain sufficient juvenile salmonids to host glochidial larvae.				
Petromyzon marinus (Sea Lamprey) [1095]	Greater than 75% of main stem length of rivers accessible from estuary; at least 3 age/ size groups present; juvenile density at least 1/m^2; no decline in extent and distribution of spawning beds, more than 50% of sample sites positive				
Salmo salar (Salmon) [1106]	100% of river channels down to 2nd order accessible from estuary, conservation limit for each system consistently exceeded, maintain or exceed 0+ fry mean catchment-wide abundance threshold value- currently set at 17 salmon fry/5 minutes sampling, no significant				

	decline in out-migrating smolt abundance, no decline in no. & distribution of spawning redds due to anthropogenic causes, water quality at least Q4 at all sampled sites.				
*Coastal Lagoons [1150]	No decline in habitat distribution; stable/ increasing habitat area; median annual salinity and temporal variation within natural ranges; annual water level fluctuations and minima within natural ranges; appropriate hydrological connections between lagoons and sea; water quality (chlorphyyll, MRP & DIN) within natural ranges; macrophyte colonisation to maximum depth of lagoons; maintain typical plant and animal species; and negative indicator species under control.				
Atlantic Salt Meadows (Glauco-Puccinellietalia maritimae) [1330]	No decline in habitat distribution; stable/ increasing habitat area; maintain/ restore natural circulation of sediments/ organic matter; maintain creek and pan structure				

	and natural tidal regime; maintain range of coastal habitat and structural variation within sward; maintain >90% of areas outside creeks vegetated; maintain range of sub-communities with typical species; and no significant expansion of common cordgrass.				
Mediterranean Salt Meadows (Juncetalia maritime) [1410]	Stable/ increasing habitat area; no decline in habitat distribution; maintain appropriate physical structure (sediment supply); maintain creek and pan structure; maintain natural tidal regime; maintain range of coastal habitat; maintain structural variation in sward; maintain more than 90% of the area outside of creeks vegetated; maintain range of sub-communities with typical species; and no expansion of common cordgrass.				
Alluvial forests with Alnus glutinosa and Fraxinus excelsior	Stable/ increasing habitat area; no decline in habitat distribution; stable or increasing				

(Alno-Padion, Alnion incanae, Salicion albae) [91E0]	woodland size and diverse structure; appropriate hydrological regime; no decline in vegetation composition and a variety of native species present with negative indicator species absent/ under control.				
Lutra lutra (Otter) [1355]	No significant decline in distribution or extent of terrestrial, marine and freshwater habitat; no significant decline in couching sites and holts; available fish biomass; no significant increase in barriers to connectivity.				
Overall Conclusion: Integrity test Following the implementation of mitigation, the continued operation and decommissioning of this development will not adversely affect the integrity of the Lower River Shannon SAC in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.					

Table 5

River Shannon and River Fergus Estuaries SPA (Site code: 004077)

Key Issues:

- Mortality through collisions with turbines
- Barrier effect and avoidance of wind turbines
- Decrease in habitat quality via: surface water runoff, sediment entrainment or release; release of fuels/ oils/ chemicals, surface/ ground water quality impacts

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004077.pdf

		Summary of Appropriate Assessment			
Conservation Objective	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: Cormorant (Phalacrocorax carbo) [A017] Whooper Swan (Cygnus cygnus) [A038] Light-bellied Brent Goose (Branta bernicla hrota) [A046] Shelduck (Tadorna tadorna) [A048]	The favourable conservation status of a species is achieved when: - No significant decline of breeding cormorant. - Long term population trend stable or increasing. - No significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation. - Potential for pollution arising during the	- Golden Plover recorded infrequently and in low numbers at the appeal site. - Risk of mortality and displacement on golden plover. - Barrier effect (disruption to migratory or other routes used by birds due to avoidance of wind turbines). - Suspended solids and other pollution generated from during the decommissioning phase could be transported from the appeal site to the River Shannon and River Fergus Estuaries SAC.	- Implementation of planning stage decommissioning plan, which details control of suspended solids and other pollution.	- Potential for other plans and projects to result in suspended solids (and other pollution). - Potential for other projects to be constructed or decommissioned at the same time that Knockastanna Wind Farm is decommissioned; however, it is not possible to identify these projects now as wind farm would be decommissioned in 2038. Expected that all such projects and plans would be subject	Yes - Habitat within appeal site not suitable for the majority of wetland bird species that are qualifying interest species for this SPA. - Upland nature of the appeal site confirms that it is not an ex-situ site for wintering golden plover (the species prefers lowlands in winter). - Appeal site is beyond the core foraging range from any SPA for golden plover (3km and a maximum of 11km). - Survey data confirms that golden plover does not breed at the appeal site. - Barrier effect for migratory wetland birds can be discounted due to the relatively small size of the

Wigeon (Anas penelope) [A050] Teal (Anas crecca) [A052] Pintail (Anas acuta) [A054] Shoveler (Anas clypeata) [A056] Scaup (Aythya marila) [A062] Ringed Plover (Charadrius hiaticula) [A137] Golden Plover (Pluvialis apricaria) [A140] Grey Plover (Pluvialis squatarola) [A141] Lapwing (Vanellus vanellus) [A142] Knot (Calidris canutus) [A143] Dunlin (Calidris alpina) [A149] Black-tailed Godwit (Limosa limosa) [A156] Bar-tailed Godwit (Limosa lapponica) [A157]	decommissioning phase impacting on downstream habitat and species.	- Suspended solids could affect freshwater aquatic species by reducing water quality and the quality of fish spawning beds, especially within the River Bilboa and potentially further downstream. - Release of suspended solids could occur when soil is disturbed during the removal of infrastructure at decommissioning stage, especially during periods of heavy rainfall. - Suspended solids could reduce water quality and impact on bird habitats.		to assessment under the Habitats Directive and will include mitigation to minimise the risks of suspended solids pollution.	windfarm and given the distances and habitat present on site. Birds can readily pass the wind farm without making a significant detour. - Any pollution arising from the appeal site during decommissioning would be imperceptible within the SPA due to distance and dilution. - Wintering waterbirds, breeding cormorants and wetland habitats are in favourable conservation condition (NPWS, 2012) and their abundance and distribution within the estuary could not be affected by small amounts of suspended solid pollution. - Terrestrial habitat or marine and coastal habitat are not hydrologically connected to the appeal site or are beyond the distance where effects could be perceptible due to dilution of any suspended solid pollution. - Quantities of suspended solids that could be released at the appeal site would be very small and subject to high levels of dilution in the river system. - Release of suspended solids could only occur for a

Curlew (Numenius arquata) [A160] Redshank (Tringa totanus) [A162] Greenshank (Tringa nebularia) [A164] Black-headed Gull (Chroicocephalus ridibundus) [A179]					short period of time during decommissioning works. - Decommissioning dates of any other wind farms in the Lower River Shannon catchment do not coincide with the proposed decommissioning date for Knockastanna Wind Farm and this reduces the potential for in-combination effects through suspended solid pollution.
To maintain the favourable conservation condition of the wetland habitat in the River Shannon and River Fergus Estuaries SPA as a resource for the regularly-occurring migratory waterbirds that utilise it. This is defined by the following attribute and target: Wetland and Waterbirds [A999]	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 32,261ha, other than that occurring from natural patterns of variation.				As above
Overall Conclusion: Integrity test Following the implementation of mitigation, the continued operation and decommissioning of this development will not adversely affect the integrity of the River Shannon and River Fergus Estuaries SPA in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.					

Table 6

Slieve Aughty Mountains SPA (Site code: 00004168)

Key Issues:

- Slievefelim to Silvermines Mountains SPA population may have a supporting role for populations within other SPAs

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004168.pdf

		Summary of Appropriate Assessment			
Conservation Objective	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
To restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: Hen Harrier (A082)	The favourable conservation status of a species is achieved when: - Restore numbers to at least 14-24 confirmed breeding pairs and 1.0-1.4 fledged young per confirmed pair (hen harrier). - Restore spatial utilization of SPA by breeding pairs to at least 68-92%. - Restore extent and quality of heath & bog and low intensity managed grasslands to support targets relating to population size,	- Slievefelim to Silvermines Mountains SPA population may have a supporting role if there is an exchange of individuals between SPAs.			Yes - For there to be an effect on this SPA from exchange of individuals, there must first be effects on the hen harrier population at the Slievefelim to Silvermines Mountains SPA. - Conservation objectives for the population size and reproductive rate for hen harrier at Slievefelim to Silvermines Mountains SPA would not be undermined by the proposal, alone or in combination with projects and plans, and therefore it follows that the conservation objectives for the Slieve

	productivity rate and spatial utilization. - Maintain at least the length and quality of hedgerow to support targets relating to population size, productivity rate and spatial utilization. - Achieve an even & consistent distribution of age-classes across the forest estate. - Disturbance occurring at levels that do not significant impact on breeding hen harrier.				Aughty Mountains SPA would also not be undermined by the proposal.
To maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: Merlin (A098)	The favourable conservation status of a species is achieved when: - Breeding population is stable or increasing. - Productivity rate sufficient to maintain population. - Sufficient availability of suitable nesting sites throughout the SPA to maintain the population. - Sufficient availability of suitable foraging habitat across the SPA to				Yes - NIS states that merlin foraging distances are within 5km – very unlikely ecological connection.

	support the targets relating to population size, productivity rate and range. - Disturbance occurs at levels that does not significantly impact upon breeding merlin.				

Overall Conclusion: Integrity test

Following the implementation of mitigation, the continued operation and decommissioning of this development will not adversely affect the integrity of the Slieve Aughty Mountains SPA in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.

Table 7

Slieve Bloom Mountains SPA (Site code: 00004160)

Key Issues:

- Slievefelim to Silvermines Mountains SPA population may have a supporting role for populations within other SPAs

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004160.pdf

		Summary of Appropriate Assessment			
Conservation Objective	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
To restore the favourable conservation	The favourable conservation status of a	- Slievefelim to Silvermines Mountains			Yes

condition of the bird species listed as Special Conservation Interests for this SPA: Hen Harrier (A082)	species is achieved when: - Maintain numbers at or above 5-10 confirmed breeding pairs and 1.0-1.4 fledged young per confirmed pair (hen harrier). - Maintain at least 82-97% spatial utilization of SPA by breeding pairs. - Maintain extent and quality of heath & bog, low intensity managed grasslands and hedgerow to support targets relating to population size, productivity rate and spatial utilization. - Achieve an even & consistent distribution of age-classes across the forest estate. - Disturbance occurring at levels that do not significant impact on breeding hen harrier.	SPA population may have a supporting role if there is an exchange of individuals between SPAs.			- For there to be an effect on this SPA from exchange of individuals, there must first be effects on the hen harrier population at the Slievefelim to Silvermines Mountains SPA. - Conservation objectives for the population size and reproductive rate for hen harrier at Slievefelim to Silvermines Mountains SPA would not be undermined by the proposal, alone or in combination with projects and plans, and therefore it follows that the conservation objectives for the Slieve Bloom Mountains SPA would also not be undermined by the proposal.
Overall Conclusion: Integrity test Following the implementation of mitigation, the continued operation and decommissioning of this development will not adversely affect the integrity of the Slieve Bloom Mountains SPA in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.					

Table 8

Stacks to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA (Site code: 00004161)

Key Issues:

- Slievefelim to Silvermines Mountains SPA population may have a supporting role for populations within other SPAs

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004161.pdf

		Summary of Appropriate Assessment			
Conservation Objective	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
To restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: Hen Harrier (A082)	The favourable conservation status of a species is achieved when: - Restore numbers to at least 38-39 confirmed breeding pairs and maintain at least 1.0-1.4 fledged young per confirmed pair (hen harrier). - Restore 82-97% spatial utilization of SPA by breeding pairs. - Restore extent and quality of heath & bog and low intensity managed grasslands to support targets relating to population size, productivity rate and spatial utilization.	- Slievefelim to Silvermines Mountains SPA population may have a supporting role if there is an exchange of individuals between SPAs.			Yes - For there to be an effect on this SPA from exchange of individuals, there must first be effects on the hen harrier population at the Slievefelim to Silvermines Mountains SPA. - Conservation objectives for the population size and reproductive rate for hen harrier at Slievefelim to Silvermines Mountains SPA would not be undermined by the proposal, alone or in combination with projects and plans, and therefore it follows that the conservation objectives for the Stacks to Mullaghereirk Mountains, West Limerick Hills & Mount

	- Maintain at least the length and quality of hedgerow to support targets relating to population size, productivity rate and spatial utilization. - Achieve an even & consistent distribution of age-classes across the forest estate. - Disturbance occurring at levels that do not significant impact on breeding hen harrier.				Eagle SPA would also not be undermined by the proposal.

Overall Conclusion: Integrity test

Following the implementation of mitigation, the continued operation and decommissioning of this development will not adversely affect the integrity of the Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.

Table 9

Mullaghanish to Musheramore Mountains SPA (Site code: 00004162)

Key Issues:

- Slievefelim to Silvermines Mountains SPA population may have a supporting role for populations within other SPAs

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004162.pdf

		Summary of Appropriate Assessment			
Conservation Objective	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
To restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: Hen Harrier (A082)	The favourable conservation status of a species is achieved when: - Maintain numbers at or above 3 confirmed breeding pairs and maintain at least 1.0-1.4 fledged young per confirmed pair (hen harrier). - Restore 100% spatial utilization of SPA by breeding pairs. - Restore extent and quality of heath & bog and low intensity managed grasslands to support targets relating to population size, productivity rate and spatial utilization. - Maintain at least the length and quality of hedgerow to support targets relating to population size, productivity rate and spatial utilization. - Achieve an even & consistent distribution of age-classes across the forest estate.	- Slievefelim to Silvermines Mountains SPA population may have a supporting role if there is an exchange of individuals between SPAs.			Yes - For there to be an effect on this SPA from exchange of individuals, there must first be effects on the hen harrier population at the Slievefelim to Silvermines Mountains SPA. - Conservation objectives for the population size and reproductive rate for hen harrier at Slievefelim to Silvermines Mountains SPA would not be undermined by the proposal, alone or in combination with projects and plans, and therefore it follows that the conservation objectives for the Mullaghhanish to Musheramore Mountains SPA would also not be undermined by the proposal.

	- Disturbance occurring at levels that do not significant impact on breeding hen harrier.				

Overall Conclusion: Integrity test

Following the implementation of mitigation, the continued operation and decommissioning of this development will not adversely affect the integrity of the Mullaghanish to Musheramore Mountains SPA in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.

Table 10

Slieve Beagh SPA (Site code: 00004167)

Key Issues:

- Slievefelim to Silvermines Mountains SPA population may have a supporting role for populations within other SPAs

Conservation Objectives: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004167.pdf

		Summary of Appropriate Assessment			
Conservation Objective	Targets & Attributes (as relevant)	Potential adverse effects	Mitigation Measures	In-combination effects	Can adverse effects on site integrity be excluded?
To restore the favourable conservation condition of the bird species listed as Special	The favourable conservation status of a species is achieved when:	- Slievefelim to Silvermines Mountains SPA population may have a supporting role if			Yes - For there to be an effect on this SPA from exchange of individuals, there must first

Conservation Interests for this SPA: Hen Harrier (A082)	- Maintain numbers at or above 3-4 confirmed breeding pairs and maintain at least 1.0-1.4 fledged young per confirmed pair (hen harrier). - Maintain 100% spatial utilization of SPA by breeding pairs. - Maintain extent and quality of heath & bog and low intensity managed grasslands to support targets relating to population size, productivity rate and spatial utilization. - Maintain at least the length and quality of hedgerow to support targets relating to population size, productivity rate and spatial utilization. - Maintain an even & consistent distribution of age-classes across the forest estate. - Disturbance occurring at levels that do not significant impact on breeding hen harrier.	there is an exchange of individuals between SPAs.			be effects on the hen harrier population at the Slievefelim to Silvermines Mountains SPA. - Conservation objectives for the population size and reproductive rate for hen harrier at Slievefelim to Silvermines Mountains SPA would not be undermined by the proposal, alone or in combination with projects and plans, and therefore it follows that the conservation objectives for the Slieve Beagh SPA would also not be undermined by the proposal.
Overall Conclusion: Integrity test Following the implementation of mitigation, the continued operation and decommissioning of this development will not adversely affect the integrity of the Slieve Beagh SPA in view of the site's conservation objectives. No reasonable scientific doubt remains as to the absence of such effects.					

Relevant European site: Slieve Felim to Silvermines Mountains SPA (Site code: 004165)

12.6.10. According to the Site Synopsis, the Slieve Felim to Silvermines Mountains SPA is an extensive upland site located in Counties Tipperary and Limerick, much of which is over 200m above sea level, with the highest peak at Keeper Hill (694m). Roughly half of the site is afforested with coniferous forests in first and second rotation plantations (pre-thicket and post-thicket), and substantial areas of clear fell. Approximately one quarter of the site comprises unplanted blanket bog and heath, with the remainder consisting of mostly rough grassland used for hill farming. There is also some deciduous woodland occurring in river valleys.

12.6.11. It is noted that the site is one of the strongholds in the country for Hen Harrier, which is listed on Annex I of the EU Birds Directive. Numbers recorded in 2005 represented 3.7% of the all-Ireland total and the mix of forestry and open areas provide optimum habitat conditions for this bird species. The Site Synopsis states that the early stages of new and second-rotation conifer plantations are the most frequently used nesting sites, though some pairs may still nest in tall heather or unplanted bogs and heath. It is also stated that open bog and moorland, young conifer plantations, openings and gaps within forests and hill farmland are used for foraging, at distances of up to c. 5km from the nest. Prey consists mostly of small birds and mammals. Peregrine and Merlin have also been recorded on the site and Red Grouse is found in unplanted bog and heath.

12.6.12. The proposal is for the continued operation of Knockastanna Wind Farm for a further period of 15 years followed by its decommissioning. The wind farm comprises 4 no. turbines, one of which is currently demounted. It is proposed to reinstalled this turbine and to continue with maintenance works throughout the period of any new permission. No other construction works are proposed. The site is predominantly within the Slievefelim to Silvermines Mountains SPA.

Baseline ecological conditions of the Hen Harrier

12.6.13. The baseline ecological conditions of the existing wind farm site comprise of wet heath (HH3) towards the summit of Knockastanna Hill, with upland blanket bog (PB2) below this, and improved agricultural grasslands (GA1) on lower slopes. Conifer plantations (WD4) are located on both sides of the appeal site.

12.6.14. A Bird Survey Report appended to the NIS details the surveys carried out at the site between 2006 and 2019 (pre-construction - 2006-2007; during construction – 2008 and post-construction - 2009-2019). The primary target species recorded during flight activity surveys was hen harrier, which was recorded flying over the site 86 times. Usage of the site by this species was confined to foraging with no confirmed breeding, although territory was occupied in 2006, 2007 and 2017. Hinterland surveys consistently recorded between 5 and 7 occupied hen harrier territories per year in the 5km surrounding area between 2010 and 2019. The number of chicks fledged per confirmed nest is slightly higher in this area than those reported from the Slievefelim to Silvermines Mountains SPA. Meadow pipit have remained roughly stable within the appeal site and they represent an important source of prey for foraging hen harrier. No dedicated fatality searches were conducted but no bird collisions were reported during the surveys.

12.6.15. Construction work on the wind farm commenced in 2008 and the operation began in 2009. Since 2006, less than 10 hen harrier sightings per year have been made within the site. Hen harrier have been recorded foraging at the site since 2003, and between 2003 and 2007 inclusive, hen harrier either bred or occupied territories within the site. It should be noted that different surveyors were present pre-construction compared to the periods during and immediately post construction. Other factors to be considered are the exceptionally cold winter of 2009/2010 and the presence of contractors on site (unrelated to the wind farm) during a critical time for breeding hen harrier in 2007.

12.6.16. The Planning Authority sought further information from the applicant in July 2022 requesting updated survey information from Spring, 2022. A Draft Interim Bird Monitoring Report submitted by the applicant outlined that results from 2022 are broadly consistent with previous monitoring reports in that hen harrier does not breed at Knockastanna Hill but continues to breed within 5km of the appeal site. An apparent decline in numbers since a peak of 7 in 2012-2013 is considered not to be an effect of the operational wind farm but rather is attributed to changes at the site, wider reasons for population decline, or a combination of these factors.

12.6.17. Notwithstanding the further information submitted, the Planning Authority issued notification of decision to refuse permission for the proposed continuation of operation on the wind farm. It was concluded that the NIS has insufficiently

assessed the impact of the proposal on hen harrier and that adverse effects on the integrity of the Natura 2000 site including the aforementioned species and their habitats, arising from the proposed development, cannot be excluded. In its assessment, the Planning Authority noted that the site was used by hen harrier prior to commencement of development and the site is now unsuitable for nesting. It was therefore considered that the continued operation of the wind farm would compromise the conservation objectives of the Slievefelim and Silvermines Mountains SPA, particularly attributes relating to the spatial utilisation of breeding pairs. The lack of hen harrier activity on site is attributed to the wind farm and it is apparent to the Planning Authority that the wind turbines have displaced hen harriers and modified peatland in the SPA.

12.6.18. In response to the Council's decision, the applicant's consultants highlighted in the third party appeal that the conclusion in the NIS is informed by best available scientific knowledge and site specific conservation objectives. It is submitted that a broad range of effects on hen harrier have been assessed in the NIS including collision risk, disturbance and/ or displacement, reduction in prey availability, barrier effect, and loss of habitat. The applicant's consultants also note that the NIS has been prepared on the basis of accepted research of hen harrier activities and their interaction with wind energy developments. This is supported by multi-annual ornithological survey data to provide a clear understanding of the usage of the site by the species including emerging trends in hen harrier activity. While activity levels within the immediate area around the development site are reduced, it is considered that the overall hen harrier population in the SPA is meeting the target set out in the conservation objectives and, therefore, the conservation objectives of the SPA are not currently being undermined by the presence of existing development.

12.6.19. Overall, I am satisfied that species and habitat surveys are appropriate having regard to the location of the subject site within the Slievefelim to Silvermines Mountains SPA. The baseline information is also suitably up to date and the survey effort goes beyond what might normally be submitted with a first-time planning application. Survey information pertaining to the site as far back as 2006 provides a longer-term picture of the usage of the site and surroundings by different species. The further information response includes details on surveys and reviews carried out

as recently as 2022. I consider that this information is suitably up to date having regard to the lodgement dates of the planning application.

Factors that can adversely affect the achievement of conservation objectives

12.6.20. There are factors arising from the proposed development, in-combination with other plans/ projects, that can adversely affect the achievement of the conservation objective for which the Slievefelim to Silvermines Mountains SPA is designated. The conservation objective is to restore the favourable conservation condition of the bird species listed as the qualifying interest for this SPA: hen harrier.

12.6.21. The favourable conservation status of a species is achieved when its population dynamics data indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis.

12.6.22. The main potential impacts to the favourable conservation status of special conservation interest species relate to the potential for disturbance and/ or displacement during operation and decommissioning including barrier effects; direct effect of mortality caused by collisions with turbine blades and other infrastructure; reduction in prey availability due to displacement; and damage of habitat and flora during removal of infrastructure when the wind farm is being decommissioned.

12.6.23. In-combination impacts with other plans or projects, especially wind farms, forestry and other land use changes, may also give rise to impacts on the hen harrier population. However, other wind farm developments are at some distance from the appeal site, and as highlighted in the NIS, the hen harrier population in the SPA appears to have been increasing if measured as a total number of occupied territories, or staying the same if measured as successful breeding pairs, while many of the wind farms identified in the in-combination assessment have been operational. In terms of land use change, the Central Munster Five Year Forest Plan 2021-2025 includes a commitment to maintain suitable foraging and nesting habitat for hen harrier within the SPA and identifies clear-felling operations within forestry at Knockastanna Hill. This land use change has the potential to benefit the hen harrier population.

12.6.24. Mitigation measures will include monitoring for breeding hen harrier each year, and in the event of a breeding attempt, the surveyors would inform the site manager so that steps can be taken to avoid disturbance of birds. Maintenance and decommissioning works will be timed to avoid the nesting season for hen harrier in the event that breeding occurs. The most intrusive maintenance and decommissioning works will also be timed to occur outside the coldest winter months, when birds can be most vulnerable to disturbance, as well as the main breeding season (April to August inclusive). Overall, these measures would result in tighter environmental control than is the case for the current wind farm permission.

12.6.25. The Slievefelim to Silvermines Mountains SPA provides excellent nesting and foraging habitat for breeding Hen Harrier and is one of the top sites in the country for the species. The conservation objective is to restore the favourable conservation objective of this species. Notwithstanding this, I am satisfied the proposed continuation of operation of an already constructed wind farm will not have an adverse effect on the favourable conservation status of Hen Harrier and that the above mitigation measures are sufficient for the proposal, in combination with other plans or projects, to avoid or reduce adverse effects on Hen Harrier to non-significant levels.

12.6.26. It has been demonstrated that there is a very low risk of collision, with surveys showing an average of one hen harrier passing through the site a day and around 91% of flights taking place at either above or below turbine blades. Sky dancing during breeding takes place at turbine height but no breeding has taken place on site between 2006 and 2022. A key issue for the NPWS was the monitoring of bird usage since construction and whether systematic searching for corpses of birds has taken place on site and what the results have been. The applicant points out that the scope of monitoring was agreed with the NPWS beforehand, and this did not include regular systemic searching for corpses of birds or bats on site. The applicant nonetheless proposes to conduct such searches under any consent for the continued operation of the wind farm.

12.6.27. With respect to displacement, forestry takes up 43% of Knockastanna Hill and this habitat becomes less suitable for hen harrier as it matures. The absence of breeding hen harrier at Knockastanna Hill may be the result of maturing forestry and the wind farm acting together; however, forestry would be the major factor as it affects 195 ha

of habitat on Knockastanna Hill and the windfarm affects 12 ha (based on research referred to in the NIS that wind turbines have a displacement effect of around 100m). Research also suggests that hen harrier needs 100ha of suitable open habitats out of 300ha for a breeding territory, and this is not available at Knockastanna Hill.

12.6.28. In term of the potential barrier effect, the four turbine wind farm with c. 100m turbine tip height is relatively small scale, and the wind farm is some distance from other wind farms to an extent that in-combination barrier effects would not occur. It should also be noted that hen harrier are still observed moving through the landscape around the appeal site and this would not be affected by the ongoing operation of the wind farm.

12.6.29. Disturbance to hen harrier may result from outgoing maintenance works including the remounting of Turbine T05 and decommissioning. Any maintenance works would be short term and there would be no lasting effects on the hen harrier population, and as highlighted above, measures are now proposed to mitigate any impacts during the operational and decommissioning phases of the development.

12.6.30. Overall, it has been demonstrated that there is, and will probably continue to be, a sufficiently large habitat in the SPA to maintain the hen harrier population on a long-term basis. The hen harrier population in the SPA appears to have been increasing when the wind farm was operating. Furthermore, the NIS outlines that the displacement effect of the turbines is relatively weak, and this is evidenced by the continued use of the site by hen harrier. The stable population is also evidence that the proposed continuation of the windfarm will not have significant effect on the ability of the species to maintain itself on a long-term basis. The fact that hen harrier no longer breeds at the site is likely to have more to do with the maturation of nearby forestry than the presence of the turbines.

12.6.31. Having regard to the above, I am satisfied that the proposed development, in-combination with other plans and projects, would not adversely affect the maintenance or restoration of the favourable conservation condition of Hen Harrier, which is listed as special conservation interests for the Slieve Felim to Silvermines Mountains SPA and therefore there can be no adverse effect on site integrity of the SPA.

Relevant European site: Lower River Shannon SAC (Site code:002165)

12.6.32. The Site Synopsis states that this very large site stretches a distance of 120km from Killaloe in Co. Clare to Loop Head/ Kerry Head and encompasses the Shannon, Feale, Mulkear and Fergus estuaries. The Shannon and Fergus estuaries support the largest numbers of wintering fowl in Ireland and a number of Annex I Birds Directive species breed within the site.

12.6.33. Knockastanna Wind Farm is at the eastern end of the SAC within the Bilboa River catchment, which in turn is within the Mulkear sub-catchment. It is noted that floating river vegetation is present throughout the major river systems within the site. Interesting bryoflora (*Schistidium alpicola* var. *alpicola)* has been recorded from in-stream boulders on the Bilboa in Co. Limerick. The valley sides of the Bilboa and Gortnageragh Rivers on higher ground to the north-east of Cappamore, support patches of semi-natural broadleaf woodland.

12.6.34. Species listed on Annex II of the Habitats Directive found within the site include Sea Lamprey, Brook Lamprey, River Lamprey, Twaite Shad and Atlantic Salmon. The Mulkear catchment excels as a grilse fishery and spring fish are caught on the river itself. Rich bryophyte flora has been recorded in the Bilboa River. Otter is also commonly found in the SAC and could be present in larger downstream watercourses.

Baseline ecological conditions

12.6.35. The site is drained by a number of streams that flow onto the Bilboa River, which is in the Lower Shannon WFD Catchment and the Bilboa_SC_010 sub catchment. The River Bilboa is also within the Lower Shannon SAC (site code: 002165). The streams flowing from the site consist of four minor tributaries, three of which flow generally northwards from the appeal site towards the Bilboa River and fourth flows south-westwards. The Bilboa River flows generally westwards approximately 500m north of the project site before turning south approximately 1km west of the site.

Factors that can adversely affect the achievement of conservation objectives

12.6.36. At its nearest point, the subject site is approximately 0.42km to the south-east of the Lower River Shannon SAC. The conservation objectives for the Lower River Shannon SAC includes the maintenance of the favourable conservation condition of

watercourses of plain to montane levels, with the Ranunculion fluitantis and Callitricho-Batrachion vegetation, Brook Lamprey and River Lamprey. It is also the conservation objective to restore the favourable conservation objective of Sea Lamprey, Salmon and Otter.

12.6.37. The favourable conservation status of a habitat is achieved when its natural range, and area it covers within that range, are stable or increasing; the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and the conservation status of its typical species is favourable. The favourable conservation status of a species is achieved when its population dynamics data indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

12.6.38. There are factors arising from the proposed development, in-combination with other plans/ projects, that can adversely affect the achievement of the conservation objectives for which the Lower River Shannon SAC is designated. In the absence of mitigation measures, the proposed development alone, and in combination with other plans/ projects, has the potential to adversely affect the maintenance or restoration of the favourable conservation condition of certain habitats and species for which the Lower River Shannon SAC is designated through release of suspended solids or other pollution during maintenance works, including the remounting of Turbine T05, and at the decommissioning stage. In an unmanaged situation, impacts could occur from suspended solids and other pollution affecting freshwater aquatic species by reducing water quality and the quality of fish spawning beds, especially within the River Bilboa and potentially further downstream. This could lead to effects on fish populations and therefore otter populations.

12.6.39. Potential cumulative impacts could occur if other projects were constructed or decommissioned at the same time that Knockastanna Wind Farm is decommissioned. However, the decommissioning dates of any other wind farms in the Lower River Shannon catchment do not coincide with the proposed decommissioning date for Knockastanna Wind Farm and this reduces the potential for in-combination effects through suspended solid pollution. Furthermore, it is

expected that all other projects and plans would be subject to assessment under the Habitats Directive and will include mitigation to minimise the risks of suspended solids pollution.

12.6.40. Mitigation measures for the proposal will include implementation of a planning stage decommissioning plan, which details control of suspended solids and other pollution. These mitigation measures will ensure that watercourse vegetation is maintained and that the proposed development will not adversely impact on water quality. The measures will also mitigate any potential impact causing disturbance to fisheries species, including Lamprey and Salmon, and also for otter. Notwithstanding this, the expected quantities of suspended solids that could be released at the appeal site would be very small and subject to high levels of dilution in the river system.

12.6.41. I am satisfied that with full and proper implementation of the above mitigation measures, it can be determined, beyond all reasonable and reliable scientific doubt, that the proposed development will not result in adverse effects on the integrity of the Lower River Shannon SAC. The mitigation measures will address the source of any potential impacts and are adequate, in particular, to protect against sedimentation and pollutants arising from surface water run-off to various watercourses in the River Shannon catchment.

Relevant European site: River Shannon and River Fergus Estuaries SPA (Site code: 002137)

12.6.42. The Site Synopsis for this SPA notes that the River Shannon and River Fergus form the largest estuarine complex in Ireland. The site has vast expanses of intertidal flats containing a diverse macro-vertebrate community, providing a rich food resource for wintering birds. Salt marsh vegetation also provide important high roost areas for wintering birds.

12.6.43. The site regularly supports in excess of 50,000 wintering waterfowl, with internationally important populations of Light-bellied Brent Goose, Dunlin, Black-tailed Godwit and Redshank, as well as nationally important populations of Cormorant, Whooper Swan, Shelduck, Wigeon, Teal, Pintail, Shoveler, Scaup, Ringed Plover, Golden Plover, Grey Plover, Lapwing, Knot, Bar-tailed Godwit, Curlew, Greenshank and Black-headed Gull. Of particular note is that three of the

species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Golden Plover and Bar-tailed Godwit.

12.6.44. Knockastanna Wind Farm is located approximately 29km from the River Shannon and River Fergus Estuaries SPA. The only species recorded at the appeal site that is a qualifying interest of the SPA is golden plover. Records are of low numbers of this species on two occasions in 2014 and 2019. The upland nature of the appeal site confirms that it is not an ex situ site for wintering golden plover and the species favour lowlands in winter. Moreover, the core foraging range for this species is 3km and the appeal site is well beyond this. Any barrier effect for migratory birds can also be discounted on the basis of the nature and scale of the development and appeal site.

12.6.45. The boundaries of River Shannon and River Fergus Estuaries SPA roughly coincide with the Lower River Shannon SAC at the location of the estuaries. Thus, there is potential for suspended solids and pollution from maintenance or decommissioning works, in combination within other plans and projects, to also impact on River Shannon and River Fergus Estuaries SPA. Suspended solids could reduce water quality and impact on bird habitats. However, marine and coastal habitat and species are a significantly downstream and are beyond the distance where effects could be perceptible due to dilution of any suspended solid pollution.

12.6.46. Having regard to the above, I am satisfied that the proposed development, in combination with other plans and projects, would not adversely affect the favourable conservation of the species and habitat which are listed as special conservation interests for the River Shannon and River Fergus Estuaries SPA and therefore there can be no adverse effect on site integrity of the SPA.

Relevant European Sites: Slieve Aughty Mountains SPA (Site code: 004168); Slieve Bloom Mountains SPA (Site code: 004160); Stack's to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA (Site code: 004161); Mullaghanish to Musheramore Mountains SPA (Site code: 004162); and Slieve Beagh SPA (Site code: 004167)

12.6.47. These European Sites are the others that are designated for hen harrier in the State. The hen harrier population within the Slievefelim to Silvermines Mountains SPA could have a supporting role for populations of hen harrier in other SPAs through

exchange of individuals. There are records of hen harrier movements of many hundreds of kilometres.

12.6.48. For there to be effects on these SPAs designated for hen harrier, there must first be effects on the hen harrier population in the Slievefelim to Silvermines Mountains SPA. As concluded above, the proposed development, in-combination with other plans and projects, would not adversely affect the maintenance or restoration of the favourable conservation condition of Hen Harrier, which is listed as special conservation interests for the Slieve Felim to Silvermines Mountains SPA and therefore no adverse effects on any other SPA would occur through population exchange.

12.7. In-Combination Effects

12.7.1. The NIS evaluates the in-combination impacts of the proposed development within other relevant plans and projects in the area. Projects identified for potential in combination effects include 2 no. operational quarries, 2 no. consented but not yet operational wind farms, 10 no. operational wind farms, commercial forestry, agricultural developments and residential dwellings.

12.7.2. Plans that have been identified for consideration include the Central Munster Five Year Forest Plan, 2021-2025, the Draft Hen Harrier Threat Response Plan and various draft and adopted county development plans.

12.7.3. Other wind energy developments are generally at some distance beyond the Slievefelim to Silvermines Mountains SPA. There is little scope for cumulative effects with quarries, residential and agricultural development and the Central Munster Five Year Forest Plan 2021-2025 has the potential to benefit the hen harrier population.

12.7.4. Decommissioning dates of any other wind farms in the Lower River Shannon catchment do not coincide with the proposed decommissioning date for Knockastanna Wind Farm and this reduces the potential for in-combination effects through suspended solid pollution on the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA.

12.7.5. Overall, I consider that the in-combination analysis set out in the NIS is complete and robust in terms of plans and projects and that no likely significant impacts arose, taking into account any residual impacts from the proposed development.

12.7.6. The potential for adverse effects due to in-combination effects with other projects and activities was excluded based on the following:

- Other windfarms in the area being significantly distant from Knockastanna Wind Farm to an extent that there is no in-combination barrier effects.
- Numbers of recorded migratory birds that are special conservation interest species for the River Shannon and River Fergus Estuaries SPA were small or irregular and any cumulative impacts are reduced by the fact that the environs of the proposed development site are of no particular importance to any of these bird species.
- The proposed mitigation for control of suspended solids and other pollution and the decommissioning dates of any other wind farms in the Lower River Shannon catchment not coinciding with the proposed decommissioning date for Knockastanna Wind Farm.

12.8. Appropriate Assessment Conclusions

12.8.1. Having carried out screening for appropriate assessment for the proposed continuation of operation of Knockastanna Wind Farm, both individually and in combination with other plans or projects, it was concluded that it would be likely to have a significant effect on the Slievefelim to Silvermines Mountains SPA, the Lower River Shannon SAC, Lower River Suir SAC, the River Shannon and River Fergus Estuaries SPA, Slieve Aughty Mountains SPA, Slieve Bloom Mountains SPA, Stacks to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA, Mullaghanish to Musheramore Mountains SPA and Slieve Beagh SPA. Consequently, an appropriate assessment was required of the implications of the project on the qualifying features of those sites in light of their conservation objectives.

12.8.2. Following an appropriate assessment, it has been ascertained that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of the Slievefelim to Silvermines Mountains SPA, the

Lower River Shannon SAC, Lower River Suir SAC, the River Shannon and River Fergus Estuaries SPA, Slieve Aughty Mountains SPA, Slieve Bloom Mountains SPA, Stacks to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA, Mullaghanish to Musheramore Mountains SPA and Slieve Beagh SPA or any other European site, in view of the site's Conservation Objectives. No reasonable scientific doubt remains as to the absence of such effects.

12.8.3. This conclusion is based on:

- A full and detailed assessment of all aspects of the proposed project including proposed mitigation measures and ecological monitoring in relation to the Conservation Objectives of the Slievefelim to Silvermines Mountains SPA, the Lower River Shannon SAC, Lower River Suir SAC, the River Shannon and River Fergus Estuaries SPA, Slieve Aughty Mountains SPA, Slieve Bloom Mountains SPA, Stacks to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA, Mullaghanish to Musheramore Mountains SPA and Slieve Beagh SPA.
- Detailed assessment of in combination effects with other plans and projects including historical projects, current proposals and future plans, and in particular the other wind farms in the surrounding area,
- Identification and examination of the implications of the proposed development for species present on site and implications for habitat types and species found outside the boundaries of each European Site where they affect the conservation objectives of the European Site concerned.
- No adverse effects to Qualifying Interest habitat or species of the Slievefelim to Silvermines Mountains SPA, the Lower River Shannon SAC, Lower River Suir SAC, the River Shannon and River Fergus Estuaries SPA, Slieve Aughty Mountains SPA, Slieve Bloom Mountains SPA, Stacks to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA, Mullaghanish to Musheramore Mountains SPA and Slieve Beagh SPA following the application of mitigation measures.
- The demonstration, beyond reasonable scientific doubt, that with full and proper implementation of mitigation measures, the proposed development will not result in adverse effects on the integrity of the Slievefelim to Silvermines Mountains SPA, the Lower River Shannon SAC, Lower River Suir SAC, the River Shannon

and River Fergus Estuaries SPA, Slieve Aughty Mountains SPA, Slieve Bloom Mountains SPA, Stacks to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA, Mullaghanish to Musheramore Mountains SPA and Slieve Beagh SPA.

13.0 **Overall Conclusion**

13.1. There is a consistent message throughout all levels of policy that there must be a transition to a low carbon and climate resilient society. This requires an increase in renewable energy generation and associated infrastructure, including wind and solar farms, grid reinforcement, storage development and interconnection. National Policy Objective 55 of the National Planning Framework seeks to *"promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050."* Objective RPO99 of the Regional Spatial and Economic Strategy also aims *"…to support the sustainable development of renewable wind energy (on shore and off shore) at appropriate locations and related grid infrastructure in the Region in compliance with national Wind Energy Guidelines."* At a local level, it is an objective of the Development Plan to *"… support the life-extension and repowering of existing wind farms, where considered appropriate and subject to an appropriate level of environmental and planning assessment."*

13.2. This is a first party appeal against Limerick County Council's decision to refuse permission for the continued operation of the existing Knockastanna Wind Farm. The wind farm was originally granted by the Board in 2003 for a period of 20 years and the applicant is now seeking permission for a further period of 15 years following expiry of the current permission. The wind farm did not commence operation until 2009 and the applicant submits that the operational lifespan is widely accepted to be 25-30 years. No amendment works or increased output are proposed. At present, one of the four turbines on site is demounted for foundation repair and this turbine will be reinstalled if permission is granted for continuation of operation.

13.3. The site is predominately within the Slievefelim to Silvermines Mountains SPA, which was designated in March 2007, solely for its population of hen harrier. It was considered by the Planning Authority's within its reason for refusing the proposal that

the submitted Natura Impact Statement has insufficiently assessed the impact the continued operation of the wind turbines may have on the Hen Harrier (Annex I Species) in light of conservation objectives of the Slievefelim to Silvermines Mountains SPA.

13.4. The proposal for the continued operation of Knockstanna Wind Farm is assessed both individually and cumulatively within the EIA and Appropriate Assessment with all other relevant plans and projects. Baseline survey information in the current case goes beyond what might normally be submitted with a first-time planning application. Survey information pertaining to the site from the parent planning application as far back as 2006 provides a longer-term picture of the usage of the site and surroundings by different species. Surveys and reviews were carried out up to 2022. I consider that this information is suitably up to date having regard to the lodgement dates of the planning application.

13.5. The main issue with the proposed development relates to hen harrier and whether or not the proposed development, in combination with any other relevant plans or projects, will result in significant adverse effects on the integrity of the Slievefelim and Silvermines Mountains SPA. Potential impacts relate to collision risk with turbines, displacement due to the continued presence of the wind turbines, and disturbance/ displacement during routine maintenance and decommissioning.

13.6. The applicant has presented reasonable and reliable scientific evidence to conclude that there will be no significant adverse impacts arising from the continued operation of the wind farm. It has been demonstrated that there is a very low risk of collision and the main displacement impacts are associated with nearby maturing forestry. Any maintenance works would be short term with no lasting effects on the hen harrier population, and measures are now proposed to mitigate any impacts during the operational and decommissioning phases of the development. There will be a significant positive impact on climate arising from the increased generation of renewable energy.

13.7. I am satisfied that the proposed development, in-combination with other plans and projects, would not adversely affect the favourable conservation condition of hen harrier, which is listed as special conservation interests for the Slieve Felim to Silvermines Mountains SPA. I also consider that the EIAR and NIS provides the

Board with adequate information to fully assess the cumulative impacts and in-combination effects of the proposed wind farm continuation and any other relevant plans or projects. I am satisfied that these works are acceptable in principle and that the proposal complies with local, regional and national policy with respect to renewable energy and climate resilience.

13.7.1. Finally, the Board should note that the European Parliament recently gave its final approval to the legally binding target of at least 42.5%, aiming for 45%, of EU energy to be renewable by 2030 under Directive (EU) 2023 of the European Parliament and of the Council of amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652.

13.7.2. It is stated in the new energy regulations that *"the construction and operation of renewable energy plants can result in the occasional killing or disturbance of birds and other species protected under Directive 92/43/EEC or under Directive 2009/147/EC of the European Parliament and of the Council 20. However, such killing or disturbance of protected species should not be considered to be deliberate within the meaning of those Directives if the project for the construction and operation of those renewable energy plants provides for appropriate mitigation measures to avoid such killing, to prevent disturbance, to assess the effectiveness of such measures through appropriate monitoring and, in the light of the information gathered, to take further measures as required to ensure that there are no significant adverse impact on the population of the species concerned."*

13.7.3. The Regulation also refers to repowering of existing renewable energy power plants, which reduces the need to designate new sites for renewable energy projects and will have the benefit of an existing grid connection and a likely higher degree of public acceptance and knowledge of the environmental impact. It is also stated that the permit-granting procedure, including environmental assessments and screening, for the repowering of renewable energy projects should be limited to the potential impact resulting from the change or extension compared to the original project. The same principle applies for the proposed continuation of operation of Knockastanna Wind Farm.

14.0 Recommendation

14.1. On the basis of the above assessment, I recommend that the Board should grant permission for the proposed development for the reasons and considerations set out below.

15.0 Reasons and Considerations

In coming to its decision, the Board had regard to the following:

- the nature, scale and extent of the proposed development,
- the decisions made in respect of an appropriate assessment,
- the national target to have up to 80% of electricity generated from renewable sources by 2030,
- Directive (EU) 2023 of the European Parliament and of the Council of amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652,
- national and local policy support for developing renewable energy, in particular the:-
    - National Planning Framework, 2018,
    - Climate Action Plan, 2023
    - Regional Spatial & Economic Strategy for the Southern Region, 2020
    - the relevant provisions as set out in the current Limerick Development Plan,
- the pattern of development in the area (including the separation distance to dwellings),
- the submissions on file including that from the Planning Authority,
- the documentation submitted with the application, including the Natura Impact Statement and the Environmental Impact Assessment Report,
- the report of the Inspector,

- the likely consequences for the environment and the proper planning and sustainable development of the area in which it is proposed to carry out the proposed development and the likely significant effects of the proposed development on European Sites.

it is considered that, subject to compliance with the conditions set out below, the proposed development would not seriously injure the visual amenities of the area or of property in the vicinity, would not have an unacceptable impact on the landscape character of the area, would not be detrimental to the natural heritage or cultural heritage of the area, and would otherwise be in accordance with the proper planning and sustainable development of the area.

Appropriate Assessment: Stage 1

The Board agreed with and adopted the screening assessment and conclusions carried out in the Inspector's report that the only European sites in respect of which the proposed development has the potential to have a significant effect are the Slieve Felim to Silvermines Mountains SPA (Site code: 004165); Lower River Shannon SAC (Site code:002165); River Shannon and River Fergus Estuaries SPA (Site code: 004077); Slieve Aughty Mountains SPA (Site code: 004168); Slieve Bloom Mountains SPA (Site code: 004160); Stack's to Mullaghareirk Mountains, West Limerick Hills & Mount Eagle SPA (Site code: 004161); Mullaghanish to Musheramore Mountains SPA (Site code: 004162); and Slieve Beagh SPA (Site code: 004167).

Appropriate Assessment: Stage 2

The Board considered the Natura Impact Statement, and other associated documentation submitted with the application and appeal, the mitigation measures contained therein, the submissions and observations on file and the Inspector's assessment. The Board completed an appropriate assessment of the implications of the proposed development on the aforementioned European sites in view of the sites' Conservation Objectives. The Board considered that the information before it was adequate to allow the carrying out of an appropriate assessment. In completing the appropriate assessment, the Board considered, in particular, the following:

(a) the likely direct and indirect impacts arising from the development and the proposed development, both individually, when taken together and in combination with other plans or projects,

(b) the mitigation measures, which are included as part of the current proposal, and

(c) the Conservation Objectives for the European sites.

In completing the appropriate assessment, the Board accepted and adopted the appropriate assessment carried out in the Inspector's report in respect of the potential effects of the proposed development on the aforementioned European sites, having regard to the sites' Conservation Objectives. In overall conclusion, the Board was satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Sites, in view of the sites' Conservation Objectives.

Environmental Impact Assessment:

The Board completed an environmental impact assessment of the proposed development, taking into account:

(a) the nature, scale and extent of the proposed development,

(b) the Environmental Impact Assessment Report and other associated documentation submitted in support of the application,

(c) the submissions from the planning authority, the observers and prescribed bodies in the course of the application, and

(d) the Inspector's report.

The Board agreed with the summary of the results of consultations and information gathered in the course of the environmental impact assessment, and the examination of the information contained in the Environmental Impact Assessment Report and the associated documentation submitted by the applicant, and the submissions made in the course of the application as set out in the Inspector's report. The Board was satisfied that the Inspector's report sets out how these various environmental issues were addressed in the examination and recommendation which are incorporated into the Board's decision.

Reasoned Conclusion of the Significant Effects:

The Board considered that the Environmental Impact Assessment Report, supported by the documentation submitted by the applicant, provided information which is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the proposed development on the environment, taking into account current knowledge and methods of assessment. The Board is satisfied that the information contained in the Environmental Impact Assessment Report is up to date and complies with the provisions of EU Directive 2014/52/EU amending Directive 2011/92/EU. The Board considered that the main significant direct and indirect effects of the proposed development on the environment are those arising from the impacts listed below.

The main significant effects, both positive and negative, are:

- Positive cumulative impacts on **Climate** from the continued operation of the wind farm and other wind farms in the area due to the production renewable wind energy and a reduction in the use of fossil fuels.
- Positive impacts on **population and human health** from local residents and the community, and the local economy benefiting from increased employment and from the community benefit fund and rates payments.
- Potential for adverse effects on **Biodiversity** from collision and displacement impacts on bats and birds from the operating turbines; however, the collision risk for bats is low due to the location of the turbines away from woodland edges. Furthermore, the wind farm has been operational for a number of years, and collision and displacement risks do not appear to have resulted in local population level effects of any species. The applicant proposes to carry out systemic searching for corpses of birds or bats on site under any permission for the continued operation of the wind farm.
- Potential for adverse effects on **Biodiversity** during the decommissioning phase from suspended solid pollution of watercourses, damage to adjoining habitat and disturbance. The proposed development would only change the timing of these risks and mitigation measures would be included as part of a planning stage decommissioning plan, e.g. the most intrusive decommissioning works will be timed to occur outside the coldest winter months and main breeding season.

- Potential for adverse effects on **land, soils, water and air** during the remounting of Turbine T05 and the decommissioning phase from soil and water contamination from machinery and sedimentation of local watercourses. These impacts will be mitigated through current industry standard good practice during construction-like activities and the measures outlined in a Decommissioning Management Plan, which will include a Surface Water Management Plan. Regular maintenance of on-site drainage systems will reduce the likelihood of increased delivery of sediment to natural watercourses.

15.1.1. Having regard to the above, the Board is satisfied that the proposed development would not have any unacceptable direct or indirect effects on the environment. The Board completed an environmental impact assessment in relation to the proposed development and concluded that, subject to the implementation of the mitigation measures referred to above, including proposed monitoring as appropriate, and subject to compliance with the conditions set out below, the effects on the environment of the proposed development, by itself and in combination with other development in the vicinity, would be acceptable. In doing so, the Board adopted the report and conclusions set out in the Inspector's report.

Proper Planning and Sustainable Development:

It is considered that, subject to compliance with the conditions set out below, the proposed development would be in accordance with European energy policy, the National Planning Framework, the Regional Spatial and Economic Strategy for the Southern Region and the relevant provisions of the current Limerick Development Plan and would:

(a) make a positive contribution to Ireland's national strategic policy on renewable energy and its move to a low energy carbon future, and

(b) have an acceptable impact on the environment and on the amenities of the area.

The proposed development would, therefore, be in accordance with the proper planning and sustainable development of the area.

16.0 **Conditions**

1.	The development shall be carried out in accordance with the plans and particulars lodged with the application, as amended by the further plans and particulars received by the Planning Authority on the 25th day of November 2022, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be agreed with the planning authority, the developer shall agree such details in writing with the planning authority prior to commencement of development and the development shall be carried out and completed in accordance with the agreed particulars. **Reason:** In the interests of clarity.
2.	This permission shall be for a period of 15 years from the date of expiry of Reg. Ref: 01/1385 (PL13.130938). **Reason:** To enable the planning authority to review its operation in the light of the circumstances then prevailing.
3.	All of the environmental, construction and ecological mitigation measures set out in the Environmental Impact Statement and Natura Impact Statement accompanying the application to the Planning Authority and other particulars submitted with the application and the appeal to the Board shall be implemented by the developer in conjunction with the timelines set out therein, except as may otherwise be required in order to comply with the conditions of this order. **Reason:** In the interest of clarity and the protection of the environment during the construction and operation phases of the development.
4.	The applicant shall appoint a suitably qualified ecologist to monitor and ensure that all avoidance/mitigation measures relating to the protection of flora and fauna are carried out in accordance with best ecological practice and to liaise with consultants, the site contractor, the NPWS and Inland Fisheries Ireland. A report on the implementation of these measures shall

	be submitted to the planning authority and retained on file as a matter of public record. **Reason:** To protect the environmental and natural heritage of the area.
5.	The developer shall retain the services of a suitably qualified and experienced bird specialist to undertake appropriate surveys of this site for hen harrier. Details of the surveys to be undertaken shall be submitted to, and agreed in writing with the planning authority prior to commencement of development. **Reason:** To monitor the impact of the development on the local population of merlin.
6.	The developer shall review usage by birds of the wind farm site and document bird casualties through an annual monitoring programme, which shall be submitted by the developer to, and agreed in writing with, the planning authority prior to commencement of development. This programme shall be developed in consultation with the Department of Housing, Local Government and Heritage, and shall cover the entire period of the operation of the wind farm. **Reason:** To ensure appropriate monitoring of the impact of the development on the fauna of the area.
7.	The operation of the proposed development, by itself or in combination with any other permitted wind energy development, shall not result in noise levels, when measured externally at nearby noise sensitive locations, which exceed: (a) Between the hours of 7am and 11pm: i. the greater of 5 dB(A) $L_{90,10min}$ above background noise levels, or 45 dB(A) $L_{90,10min}$, at standardised 10m height above ground level wind speeds of 7m/s or greater ii. 40 dB(A) $L_{90,10min}$ at all other standardised 10m height above ground level wind speeds (b) 43 dB(A) $L_{90,10min}$ at all other times.

	Prior to commencement of development, the developer shall submit to and agree in writing with the planning authority a noise compliance monitoring programme for the subject development, including any mitigation measures such as the de-rating of particular turbines. All noise measurements shall be carried out in accordance with ISO Recommendation R 1996 "Assessment of Noise with Respect to Community Response," as amended by ISO Recommendations R 1996-1. The results of the initial noise compliance monitoring shall be submitted to, and agreed in writing with, the planning authority within six months of commissioning of the wind farm. **Reason:** In the interest of residential amenity.
8.	In the event that the proposed development causes interference with telecommunications signals, effective measures shall be introduced to minimise such interference. Details of these measures, which shall be at the developer's expense, shall be submitted to, and agreed in writing with, the planning authority prior to commissioning of the turbines and following consultation with the relevant authorities. **Reason:** In the interests of protecting telecommunications signals and of residential amenity.
9.	Details of aeronautical requirements shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. Subsequently the developer shall inform the planning authority and the Irish Aviation Authority of the co-ordinates of the 'as constructed' positions and highest point of the telecoms pole and turbines (to the top of the blade spin). **Reason:** In the interest of air traffic safety.
10.	Shadow flicker arising from the proposed development, by itself or in combination with other existing or permitted wind energy development in the vicinity, shall not exceed 30 hours per year or 30 minutes per day at existing or permitted dwellings or other sensitive receptors. A report shall be prepared by a suitably qualified person in accordance with the requirements of the planning authority, indicating compliance with the

	above shadow flicker requirements at dwellings. Within 12 months of commissioning of the proposed wind farm, this report shall be submitted to, and agreed in writing with, the planning authority. **Reason:** In the interest of residential amenity.
11.	Prior to commencement of development, details of the following shall be submitted to, and agreed in writing with the planning authority: (i) A Transport Management Plan, including details of the road network/haulage routes indicated in the Environmental Impact Assessment Report including the vehicle types to be used to transport materials on and off site during maintenance operation and decommissioning, and a schedule of control measures for exceptional wide and heavy delivery loads. (ii) A condition survey of the roads and bridges along the haul routes to be carried out at the developer's expense by a suitably qualified person both before and after construction of the wind farm development. This survey shall include a schedule of required works to enable the haul routes to cater for construction-related traffic. The extent and scope of the survey and the schedule of works shall be agreed with the planning authority/authorities prior to commencement of development. (iii) Detailed arrangements whereby the rectification of any construction damage which arises shall be completed to the satisfaction of the planning authority/authorities. (iv) Detailed arrangements for temporary traffic arrangements/controls on roads. (v) A programme indicating the timescale within which it is intended to use each public route to facilitate maintenance works and decommissioning of the development. **Reason:** To protect the public road network and to clarify the extent of the permission in the interest of traffic safety and orderly development.

12.	Prior to the commencement of development, community gain proposals shall be submitted to, and agreed in writing with, the planning authority. **Reason:** In the interest of the proper planning and sustainable development of the area.
13.	On full or partial decommissioning of the wind farm or if the wind farm ceases operation for a period of more than one year, the masts and the turbines concerned, shall be removed and all decommissioned structures shall be removed within three months of decommissioning. **Reason:** To ensure satisfactory reinstatement of the site upon cessation of the project.
14.	Prior to commencement of development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or such other security as may be acceptable to the planning authority, to secure the satisfactory reinstatement of the site upon cessation of the project coupled with an agreement empowering the planning authority to apply such security or part thereof to such reinstatement. The form and amount of the security shall be as agreed between the planning authority and the developer or, in default of agreement, shall be referred to An Bord Pleanála for determination. **Reason:** To ensure satisfactory reinstatement of the site.
15.	The developer shall pay to the planning authority a financial contribution in respect of public infrastructure and facilities benefiting development in the area of the planning authority that is provided or intended to be provided by or on behalf of the authority in accordance with the terms of the Development Contribution Scheme made under section 48 of the Planning and Development Act 2000, as amended. The contribution shall be paid prior to commencement of development or in such phased payments as the planning authority may facilitate and shall be subject to any applicable indexation provisions of the Scheme at the time of payment. Details of the application of the terms of the Scheme shall be agreed between the planning authority and the developer or, in default of such agreement, the

	matter shall be referred to An Bord Pleanála to determine the proper application of the terms of the Scheme. **Reason:** It is a requirement of the Planning and Development Act 2000, as amended, that a condition requiring a contribution in accordance with the Development Contribution Scheme made under section 48 of the Act be applied to the permission.

Donal Donnelly
Senior Planning Inspector

12th December 2023