Planning and Environmental Consultants

Response to Observations

Seskin Renewables Wind Farm

An Coimisiún Pleanála Ref No: 323775-25



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Prepared By:	**MKO** **Tuam Road** **Galway** **Ireland** **H91 VW84**

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1. EXECUTIVE SUMMARY

MKO have been instructed by Seskin Renewable Energy Limited (a subsidiary of Atlantic Infrastructure Renewables Ltd) to prepare this Response to Observations, having been invited to respond to same by An Coimisiún Pleanála (the Commission) on the 18th of June 2026. The request was made in relation to a planning appeal which is currently before the Commission for consideration (Case reference: ACP-323775-25), concerning a proposed wind farm development, comprising of 2 no. wind turbines and associated infrastructure in the townlands of Tinwear, Archestown and Durrow, Co. Laois.

As set out in Section 1, this response to submissions document comments on observations from Third Parties which have been categorised into themes.

As discussed in Section 2 of this Response to Observations, there were 64 no. submissions received on from Third Party Observers for the Laois appeal case (Case Reference: ACP-323775-25) and a further 93 no. submissions received for the Kilkenny appeal case (Case Reference: ACP-323759-25). Table 1 outlines the common themes identified within the Third-Party submissions and the relevant areas of expertise within the project team assigned to address each theme. Each theme is addressed in full in Section 2.

As set out in the summary section in Section 3, the information contained in this Response to Observations constitutes a full and robust response to all matters raised and the information provided here will directly assist An Coimisiún Pleanála in their ongoing consideration of the planning appeal. The Proposed Wind Farm will contribute to the national wind energy target of 9GW by 2030 and is strongly supported by a comprehensive suite of European, national, regional, and local policy.

To combat the effects of climate change, Ireland must decarbonise its economy by 2050. There is no "silver bullet" to do so. It will take multiple individual renewable energy projects to decarbonise the Irish economy. The scale of the challenge we face to decarbonise the Irish economy is enormous, but the climate change implications of not doing so are even greater. There is no other way to decarbonise a modern society except through renewable energy projects such as the Proposed Development.

The Proposed Development will deliver a range of benefits including the following:

- Supporting the transition to a low-carbon and climate resilient society by reducing greenhouse gas emissions, through the generation of wind energy and displacing electricity that would otherwise be produced from fossil fuel sources.
- Providing clean, renewable, electricity to the national grid, thus contributing to the decarbonisation of the electricity sector and in the process reduce the need for imported fossil fuels for electricity, improving national energy security.
- Helping to moderate energy costs for consumers over time, both locally and nationally.
- Delivering up to 48MW of onshore renewable energy, making a meaningful contribution towards achieving the transition to a low-carbon economy and climate resiliency, increasing renewable energy generation, and enhancing energy security. It will contribute directly towards the CAP25 goals of 9GW of wind energy by 2030 and renewable electricity share of 80% by 2030.
- Contributing to the achievement of Laois County Council's strategic objectives, as set out in the Laois County Development Plan 2021-2027, such as to "generate 100% of electricity demand for the County through renewables by 2030 by promoting and facilitating all forms of renewable energies".
- Enabling the development of a self-sustaining, secure, reliable and efficient renewable energy supply and storage for County Laois, further advancing the Council's goal of contributing to economic development and enhanced employment opportunities in the county.

- Delivering a long-term positive impact on climate by offsetting of 30,934 tonnes of CO2 emissions per annum.
- Providing a significant positive benefit to the local community through the creation of sustainable local employment, contributing annual rates to the local authority and providing a local Community Benefit Fund in line with the new Renewable Electricity Support Scheme (RESS) to provide direct funding to those areas surrounding the project.

Having regard to the key points set out in this Response to Observations, no significant information has been introduced. Rather, the response provides further discussion and clarification based on information already contained in the EIAR. It is respectfully requested that the Commission consider the relevant international, European national and regional and local legislative and planning policy framework.

2. INTRODUCTION

MKO have been instructed by Seskin Renewable Energy Limited (the Applicant), to prepare this Response to Observations, having been invited to respond to same by An Coimisiún Pleanála (the Commission) on the 18th June 2026. The request was made in relation to a planning appeal which is currently before the Commission for consideration (Case reference: ACP-323775-25), concerning a proposed wind farm development, comprising of 6 no. wind turbines and associated infrastructure in the townlands of Tinwear, Archestown and Durrow, Co. Laois. The letter from the Commission states that the deadline for submission is the 15th July 2026.

Both the Environmental Impact Assessment Report (EIAR) and the Natura Impact Statement (NIS) consider the combined impacts of these individual elements of the Proposed Development. A separate response to submissions relating to the aspects of the project which are located in Co. Kilkenny (Case Reference – ACP-323759-25) is also being submitted to the Commission.

For ease of reference, the following terminology is used throughout this document, as reproduced from Chapter 1, Section 1.1.1, of the EIAR:

- Where the 'Proposed Project' is referred to, this refers to the entirety of the project (the 'Proposed Wind Farm,' and the 'Proposed Grid Connection,')
- Where the 'Proposed Wind Farm' is referred to, this relates to the 8 no. turbines and associated foundations and hardstanding areas, including site access roads and entrances, underground 38kV internal cabling, meteorological mast, temporary construction compounds, peat and spoil management areas, borrow pits, biodiversity enhancement areas, tree felling and vegetation removal, site drainage, operational stage signage, 38kV onsite substation, and all ancillary works and apparatus.
- Where the 'Proposed Grid Connection' is referred to, this relates to the 38kV underground cabling connection from the proposed 38kV onsite substation to the existing Ballyragget 110kV substation, and all ancillary works and apparatus. The Proposed Grid Connection will facilitate the connection of the Proposed Wind Farm to the national electricity grid.
- The 'Site' refers to the primary study area for the EIAR, as delineated by the EIAR site boundary in green as shown in Figure 1-1 of the EIAR.
- The 'Proposed Wind Farm site' refers to the portion of the Site surrounding the Proposed Wind Farm but excluding the portion of the Site surrounding the Proposed Grid Connection underground cabling route.

There have been no observations received from Statutory Consultees. This Response to Observations comments on observations from Third Parties which have been categorised into themes, this response is structured as follows:

- Section 2 – Introduces the document and its structure,
- Section 3 – Addresses Third-Party observations in accordance with the Commission's request,
- Section 4 – Concluding Remarks.

3. THIRD PARTY OBSERVATIONS

3.1 Preamble

MKO wishes to reaffirm that the EIAR and Planning Application submitted to the Commission are both comprehensive and robust and are of a standard which enables the Commission to undertake an adequate assessment of the Proposed Development.

MKO can only comment on the scope, quality and adequacy of the documentation submitted as part of this application. In this regard, MKO considers that the EIAR and supporting documentation provide a strong evidence base for the Commission to undertake an assessment of the Proposed Development.

The Seskin site is an extremely well-studied site and has been the subject of extensive survey work over several years, including bird survey data, numerous ground investigations and ecological surveys, which have been collected at the site since 2021. The findings of these surveys have informed both the design and assessment of the Proposed Development present with the application documentation.

Based on the evidence collected and assessments carried out, MKO considers the site appropriate for a proposed wind energy development. MKO acknowledges that submissions made on this application express an alternative view. However, from a review of the submissions, MKO does not consider that the submissions have identified any clear deficiencies in the survey data, methodologies or assessments carried out which would alter the conclusions reached in the EIAR. Furthermore, it is considered that the submissions have not provided an equivalent body of technical analysis, survey data or assessment evidence that supports alternative conclusions to those presented in the EIAR.

Notwithstanding the above, MKO acknowledges the concerns that have been raised in the submissions and every effort has been made to address these concerns throughout this Response to Observations.

There were 157 no. submissions received from Third-Party Observers across both the appeal cases, 93 no.from Third Party Observers on the Kilkenny appeal case and a further 64 no. submissions received on the application from Third Party Observers on the Laois appeal case. Table 1 below outlines the common themes identified within all Third-Party submissions on both appeal cases and the relevant areas of expertise within the project team assigned to address each theme.

Table 1 Common themes identified within Third-Party submissions

Theme	Lead Expert for Response
Cumulative Impact Assessment	MKO Planning
Planning Policy Compliance	MKO Planning
Traffic and Transport	MKO Environment
Biodiversity	MKO Environment
Ornithology	MKO Environment
Public Consultation and Engagement	MKO Environment
Site Context and Suitability	MKO Environment
Hydrology, Hydrogeology and Water Quality	Hydro-Environmental Services (HES).
Proposed Grid Connection	MKO Environment
Landscape and Visual Impact	MKO Landscape
Impact on Cultural Heritage	Irish Archaeological Consultancy (IAC)
Human Health	MKO Environment
Noise & Vibration	AWN Consulting

Agricultural and Equine Industry	MKO Environment
Consideration of Reasonable Alternatives	MKO Environment
Other Material Assets	MKO Environment
Property Values	MKO Environment
Tourism	MKO Environment

3.2 Response to Third Party Submissions

3.2.1 Cumulative Impact Assessment

Several observations raise concerns regarding the inadequacy of the cumulative impact assessment undertaken within the submitted EIAR, particularly regarding nearby energy and infrastructure projects.

A comprehensive cumulative impact assessment has been undertaken for this project. The cumulative assessment methodology, as set out in Chapter 2, Section 2.9.1, of the EIAR, adheres to Environmental Impact Assessment legislative requirements and best-practice guidelines. This assessment addressed the cumulative impact of the Proposed Development with all relevant wind farms in the surrounding area, as identified in Table 2-3, Chapter 2 of the EIAR, ensuring that the combined effects were fully evaluated.

The purpose of the cumulative impact assessment was to identify the likely significant effects of the Proposed Development on the surrounding environment when considered collectively with existing, permitted and proposed projects and other land-uses in the defined cumulative assessment study areas. The assessment specifically assessed the impacts arising from the Wind Farm in combination with other projects in the area inclusive of impacts on biodiversity, air and climate, noise, landscape, and material assets confirming that the predicted effects remain within acceptable thresholds.

Assessment material for the cumulative impact assessment was compiled on the relevant projects (see Appendix 2-3 of the EIAR) within the vicinity of the Site. The material was gathered through a search of relevant online Planning Registers and EIA portal, reviews of relevant EIAR (or historical EIS) documents, planning application details and planning drawings, and served to identify past and future projects, their activities, and their environmental impacts to ensure that cumulative impacts were assessed accurately.

To gather a comprehensive view of cumulative impacts within the cumulative study areas and to inform the EIA process being undertaken by the consenting authority, each relevant chapter within the EIAR addresses the potential for cumulative effects where appropriate and within the context of their identified cumulative study area.

A long list of projects considered (i.e. the largest cumulative study boundary of 25 km list) across all disciplines in their cumulative impact assessment is included in Appendix 2-3 of the EIAR.

In conclusion, the cumulative impact of the Wind Farm Site and any potential interaction with other energy and infrastructure projects, has been robustly assessed using a clear and detailed methodology. The findings confirm that, with the proposed mitigation in place, there will be no significant cumulative effects on the receiving environment.

For a full breakdown of the Cumulative Impact Assessment methodology, please refer to Section 2.9.1 of Chapter 2 of the application submitted with the EIAR.

3.2.2 Planning Policy Compliance

Several submissions contend that some of the guidelines related to wind energy development are outdated and that the relevant planning policy framework is not supportive of the Proposed Development. It is also asserted that the proposed development fails to address regional renewable energy capacity allocations under CAP 25.

Additionally, submissions raise the fact that the zoning set out in in the Development Plans do not support the development of wind farms in this location. Submissions were also received which questions the quality of the consultation that took place.

Planning Policy Support

The planning application was supported by a robust and comprehensive planning report which clearly outlines the strong policy support that is in place at International, National and Regional level, particularly in the context of achieving the transition to a low carbon and climate resilient economy, increasing renewable energy generation, and enhancing energy security.

While the adopted Wind Energy Guidelines are from 2006, draft Wind Energy Guidelines were published in 2019, and these have been considered in the proposed development. This includes in relation to the 4-times tip-height setback distances.

Furthermore, Table 6-1 of the Planning Report contains a detailed compliance statement, demonstrating the Wind Farm Site's consistency with International, National and Regional Policy. Table 6-2 of the Planning Report contains a detailed compliance statement, demonstrating the Wind Farm Site's consistency with Local Policy.

Zoning

As set out in Section 5 of the Planning Report submitted as part of the planning application, the design of the Proposed Development has been an informed and collaborative process from the outset, involving the project designers, engineers, landscape and visual, environmental, ecological, ornithological, hydrological, geotechnical, and traffic consultants and archaeological specialists. The design process has involved several revisions and refinement of the Proposed Development layout.

The final proposed turbine layout has been developed to take full account of all physical and environmental site constraints, including the required separation distances between turbines and from dwellings, public roads and other sensitive receptors. The layout reflects an iterative design process, informed by the findings of the site investigations, surveys and technical assessments carried out as part of the EIAR. Constraints identified through this process have been actively designed out of the layout, rather than merely acknowledged. On this basis, the final layout represents the optimal balance between constraint avoidance and appropriate utilisation of the site's wind energy resource and is considered fully compliant with the relevant siting and design criteria set out in the Wind Energy Development Guidelines (WEGS).

A number of submissions raise concerns regarding the suitability of this location for wind energy development with reference to Policy WES 7, which identifies certain areas as unsuitable for wind farm development due to sensitivities associated with landscape character, ecology, recreational amenity, cultural and built heritage, and limited wind resource. Each of these sensitivities has been addressed in detail within the EIAR. The cumulative evidence set out in the EIAR therefore demonstrates that, notwithstanding its location within a broader area to which WES 7 policy considerations apply, the specific characteristics of this site do not give rise to the level of sensitivity that would render it unsuitable for wind energy development.

Consultation

Prior to the lodgement of this application, the application engaged with the surrounding community regarding the Proposed Development. Initial consultation commenced in September 2024 and involved leaflet drops, correspondence with local elected representatives, door-to-door correspondence with residents within 1.5km of the Proposed Development. This extended to include local businesses, community groups and sporting organisations. The Public Consultation Event was held on the 9th April 2025 in the Castle Arms Hotel, Durrow, Co. Laois, this event provided the public with updates on the Proposed Development and allowed the public to ask queries in relation to the development, to the developer and environmental consultants working on the project. A project website was created in September 2024 and has the most up to date information regarding the project and it hosts a 'Virtual Room' which is viewable to the public, this website also went live on the 9th April 2025. Follow up letters were also sent to residents within 1.5km of the Proposed Development to address the main concerns raised during the community consultation. Further detail on the public consultation and engagement that took place can be found in the Public Consultation and Engagement section below.

Landowner Consents

A number of the observations that were received raise concerns as to whether sufficient landowner consents have been attained in relation to the over sails of residential dwellings.

The Applicant is satisfied that they have provided all necessary landowner consents to make the subject planning application and all necessary over sail agreements are in place with the relevant landowners.

Additionally, the Applicant has received planning consent from the Council to carry out temporary accommodation works in Durrow which will be dealt with as part of the road opening licence process.

The Commission will also note Section 31(13) of the Planning and Development Act 2000 (as amended) which states the following:

> *'A person shall not be entitled solely by reason of a permission under this section to carry out any development.'*

The inference of this provision of the legislation is that a grant of planning permission does not authorise a developer to undertake works on land outside their ownership based solely on a grant of planning permission. The Applicant confirms that no works will proceed without all required consents being in place

In conclusion, the Wind Farm Site, is consistent with the Development Plan, which acknowledges the significance of climate change and the need for continued support and investment within renewable energy generation. The Wind Farm Site will support the Council in achieving its objective to ensure the security of energy supply by accommodating the development of wind energy resources, including the proposed Seskin Wind Farm. A comprehensive Public Consultation and Community Engagement programme was undertaken during the application preparation process complying with all relevant regulations and guidelines which includes the RESS Rulebook for Community Benefit Funds under RESS[1]. The Applicant is confident that all necessary landowner consents are in place and no works will be undertaken without them.

[1] *Rulebook for Community Benefit Funds under RESS: Rulebook_for_CBFs_under_RESS_branded.pdf*

3.2.3 Traffic and Transport

A number of submissions have raised concerns in relation to:

- The impact the proposed Turbine Delivery Route would have on the N77 national secondary road within the town of Durrow as well as the impact on the L58333 local road in the townland of Ballynaslee, Co. Kilkenny;
- Safety risks to residents and road users, the impact on roads from roadworks and the impact on the community from proposed works in the area;
- Potential for an increase accident risk due to additional construction convoys along the N77 and L58333;
- Alternative delivery routes were not considered;
- Transport Management Plan (TMP) is inadequate and lacks key details such as a verifiable, scaled format of the Autotrack swept path;
- Use of blade lifter instead of blade extender for delivery of turbine components;
- Turbine component weights as part of the traffic and transport assessment.

Impact on N77 and L58333

Section 15.1 in Chapter 15 of the EIAR, assesses the effects on roads, traffic and transport of the traffic movements that will be generated during the construction, operational and decommissioning phase of the Proposed Development. In relation to the N77 national secondary road it is noted that there are no new access junctions proposed on the proposed turbine delivery route and that only minor temporary accommodation works in the townlands of Durrow Townparks, Co. Laois and Ballynaslee, Co. Kilkenny are required to facilitate the delivery of turbine components and other abnormal sized loads. The accommodation works to provide a temporary runover area at the N77 / L58333 junction will be undertaken from the L58333 and will therefore not impact on the N77.

It is noted in submissions that neither a Road Safety Audit or a Design Phase Procedure for Road Safety Improvement Scheme, Urban Renewal Schemes and Local Improvements Schemes (DN-GEO-03030) Report have been undertaken. These will be undertaken and provided if required by Transport Infrastructure Ireland (TII).

A swept path analysis was also undertaken at all potential pinchpoints along the N77 using Autotrack assessments in order to establish the locations where the wind turbine transporter vehicles will be accommodated, and the locations where some form of remedial measure may be required. The N77 junction entering Durrow was one such location where a swept path analysis was carried out and no temporary accommodation works will be required.

The L58333 Local Road was assessed using swept path analysis (see Section 15.1.9 of Chapter 15) for abnormal loads and HGVs as part of the Traffic Management Plan (TMP) appended to the EIAR (Appendix 15-2, Section 3) which describes the management of HGVs to and from the Proposed Wind Farm site. A detailed Traffic Management Plan will be finalised and confirmatory detailed provisions in respect of traffic management agreed with the Roads Authority and An Garda Síochána prior to construction works commencing on site. Locals in the area, including the residents along the L58333, will be informed of any upcoming traffic related matters e.g. delivery of turbine components at night, via letter drops and posters in public places. Information will include the contact details of the Contract Project Co-ordinator, who will be the main point of contact for all queries from the public or local authority during normal working hours.

Road Safety

In relation to the increase accident risk due to additional construction convoys along the haul route the major emergency scenarios for both counties Laois and Kilkenny Major Emergency Plans are described in Section 16.3 of the Major Accidents and Natural Disasters chapter. The risk assessment of Major Road Traffic Accidents is provided in Section 16.4 and rated the likelihood of a traffic incident as unlikely and the consequence minor. As detailed in Section 15.1 of this EIAR: Material Assets, the localised traffic disruptions due to other proposed works will be mitigated using industry standard traffic management measures. These traffic management measures will be in accordance with the Department of Transport's *'Guidance for the Control and Management of Traffic at Roadworks – Second Edition (2010)'.*

During the construction stage it is forecast that the additional traffic that will appear on the public road network serving the Site will have a short-term slight negative effect on existing road users for the majority of the delivery route, and a short-term moderate negative effect on existing road users and residents on the L58333 approaching the Site. While the severity of the traffic effects relates to the additional volumes of traffic movements generated during the construction of the Proposed Development, the implementation of the mitigation measures included in the proposed traffic management plan (Appendix 15-2) will ensure a controlled and efficient operation during this stage, and minimise the impacts on local road users.

Increased Traffic

Residents in the area surrounding the Proposed Development are concerned about the traffic volumes of the Proposed Development will have on the N77 and L58333.

During the construction phase there will be increase in vehicle numbers, or Passenger Car equivalent Units (PCUs) travelling to the Proposed Development site. On the busiest days (pouring of concrete foundations) it is estimated that this will have a temporary, negative and slight effect on the N77 and more noticeable temporary, negative and moderate effect on the L58333. In relation to construction traffic of the Proposed Development site, delivery of abnormal loads and construction of the Proposed Grid Connection it is forecast that there will be a temporary, slight negative effect. Overall, no Significant effects are forecast.

In relation to the traffic the Proposed Grid Connection route will have on N77 the preliminary assessment of the N77 from Section 15.1.7 of Chapter 15 indicates that the retention of 2 lane operation on the N77 will be possible for the majority of the duration of the construction of the Proposed Grid Connection underground cabling route. It is concluded that no road closures will be required during the construction of the Proposed Grid Connection underground cabling route.

With respect to the traffic volumes that will be generated during the construction of the underground electrical cabling route, it is estimated that there will be approximately 30 daily return trips made by trucks removing spoil and transporting materials to the site, and 4 return trips made by a car to transport construction staff, to and from the Site. By its nature the effect impacts of these additional trips on the network will be transient and will therefore be temporary and slight.

The successful completion of the Proposed Development will require significant coordination and planning and a comprehensive set of mitigation measures will be put in place before and during the construction stage of the Proposed Development in order minimize the effects of the additional traffic generated by the Proposed Development. A detailed Traffic Management Plan (TMP), incorporating all the mitigation measures included as Appendix 15-2 of this EIAR, will be finalised and confirmatory detailed provisions in respect of traffic management agreed with the roads authority and An Garda Síochána prior to construction works commencing on Site.

Alternative delivery routes

The Site is located approx. 21.1km south of the M7/N77 junction (Junction 17) and, as such, delivery of turbine components from this direction were considered as part of the iterative design process for the Proposed Development.

The alternative delivery route considered, exited Junction 8 on the M9, following the N10 northwest for 6.3km, before turning right onto the N77 on the eastern outskirts of Kilkenny city. The route continued north along the N77 for 22.1km, passing through the town of Tullaroan. In the townland of Ballynaslee, Co. Kilkenny the turbine component delivery vehicles would turn on to the L58333 local road from the existing junction on the N77 and continue north on this local road for approximately 700m to the Proposed Wind Farm site entrance. After review by the Traffic Consultant and subsequent autotrack assessment, it was concluded that this route would require substantial accommodating works along the route, to facilitate the delivery of abnormal loads to the Site. In particular, it was determined that it would be difficult facilitate the delivery of turbine components through the town of Ballyragget without considerable accommodation works in the town centre.

Therefore, the optimal delivery route is considered as the one that utilises the M7, N77 and L58333 which has been subject to autotracks assessment and shows that limited accommodation works are required along the delivery route itself.

All construction traffic will use designated haul routes only, as agreed with the local authority. An alternative to this would be to allow for more direct access to the Site using multiple approach routes; however, this is more likely to give rise to additional traffic and road impacts.

The delivery of turbine components including blades, tower sections and nacelles is a specialist operation owing to the oversized loads involved. As detailed in Section 15.1 of this EIAR, turbine blades will be delivered to site using a Super Wing Carrier. When considering turbines transport routes, alternative modes of transport were also considered. Depending on the selected turbine delivery route and the turbine manufacturer, a blade adapter or blade transporter may also be used, if deemed appropriate, for delivery of turbines to the Proposed Wind Farm.

It should be noted that all component deliveries (abnormal loads) will be undertaken as described in the Traffic Management Plan which will be submitted and agreed with the local authorities and roads authorities upon consent of this application. All component deliveries will be subject to garda escort. All manoeuvres around junctions and into site entrances will be supervised by a qualified team of turbine delivery experts. The abnormal load entrance will be temporary in nature, over a short period of the construction phase only. The abnormal load entrance will be reinstated after all abnormal loads have been delivered to site. However, should replacement components be required, this entrance will be temporarily reopened to facilitate such works. Please see Section 15.1 Material Assets- Traffic and Transport for further details.

Blade Lifter

In relation to the use of a blade lifter instead of the proposed blade extender for the turbine delivery vehicle, a blade lifter is proposed to be used for the delivery of turbines blades to the Proposed Wind Farm site. This type of delivery vehicle includes a rear trailer that can lift the blade tip up to 11 metres above ground level, allowing the blade to clear obstacles such as buildings and walls.

As stated in Chapter 4, Section 4.4.4, of the EIAR, delivery vehicles fitted with blade adapters may be used, as an alternative to the blade lifter in order to navigate the existing roads along the turbine delivery route. Blade adaptors allow the turbine blade to be transported at a suitable angle, without a rear trailer, in order to navigate tight bends or obstacles along the delivery route. Plate 3-1 below shows an example of a blade adapter.



Plate 3-1 Blade adaptor transport system

Absence of abnormal weight loads assessment

The proposed haul routes are identified in this Chapter 15 of the EIAR. While it is proposed that the delivery stage of the Proposed Development will involve abnormally large loads, the axle loadings will not exceed accepted limits. A program of pre-delivery condition and structural assessment of the route is however proposed, as set out in the Traffic Management Measures, included set out in Section 15.1.11.5.

3.2.4 Biodiversity

Several submissions expressed concern about the potential adverse effects the Proposed Development may have on the existing baseline environment and on ecological connectivity within the wider area namely, habitat loss and disturbance to various faunal species, including badger, otter and freshwater aquatic species such as freshwater pearl mussel.

Other third-party submissions expressed concern about the removal of trees and hedgerows required to facilitate the construction of the proposed turbines, access roads, and the Proposed Grid Connection within the Site and lack of net gain commitment to post construction monitoring of the areas for hedgerow enhancement.

A number of submissions also raise concerns about potential effects on functional connections between the Proposed Development and the River Nore SPA and River Barrow and River Nore SAC.

Additional concerns were raised regarding the risk of invasive species and pollinator protection (Bees, butterflies, moths and other key insect taxa).

Habitats Directive

The potential for adverse effects on European Designated Sites, i.e. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) was comprehensively assessed in the Appropriate Assessment Screening Report (AASR). The AASR identified the European Sites within the Likely Zone of Influence of the Proposed

Development and considered all potential pathways for significant effects on these European Sites. In relation to the SAC and SPAs, as outlined in Table 4-1 of the AASR, potential pathways for adverse effects on both the River Barrow and River Nore SAC (the Proposed Grid Connection is located adjacent to the SAC and Proposed Wind Farm site is approximately 500m west to the SAC) and River Nore SPA (the Proposed Grid Connection is located adjacent to the SPA and Proposed Wind Farm site is approximately 360m west to the SPA). No other pathways for adverse effect (including ex-situ habitat loss, disturbance, displacement or collision risk for SCIs species) on these sites or on any other SPAs located at greater distances from the Proposed Development were identified. The conclusions were based on the comprehensive suite of ecological surveys undertaken at the Proposed Wind Farm site between 2024 and 2025, 'Where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures'. The NIS prescribed robust mitigation measures (section 6.2 of the AA Screening Report) to ensure that there will be no adverse effects on these designated sites due to deterioration of water quality.

Badger

The survey methodology for badgers, which follows best-practice guidance, is outlined in Section 6.2.3.4.1 of Chapter 6 of the EIAR. During the dedicated badger surveys undertaken in 2024 and early 2025, the results of the data recorded determined that there is one main active badger sett within the Site (see Plate 6-20 of Chapter 6 of the EIAR). Two additional setts constituting outlier setts were confirmed within the Site. No badgers were confirmed using these outlier setts. The main badger sett is located over 136m from the nearest infrastructure, while the outlier setts are located over 100m from the nearest infrastructure. A potential badger sett was also recorded approximately 131m from the grid connection infrastructure.

Given the nature of the Proposed Development, there will be some minimal loss of suitable badger foraging habitat i.e., agricultural grassland (GA1), associated with the footprint of the Proposed Wind Farm infrastructure. However, this habitat loss will not be significant in the context of the widespread alternative foraging habitat available within the Site and the wider area surrounding the Site. There will be no significant loss/fragmentation of badger habitat as a result of the Proposed Development. Any potential for physical damage or significant disturbance of occupied setts (if established prior to construction) would be considered significant at the local geographic scale in the absence of mitigation. In relation to mitigation, it is proposed to carry out a pre-construction badger survey to identify the presence of any new setts that may have been established. If an active badger sett is identified and works can be undertaken safely (as to avoid sett collapse) then an exclusion zone will be set up around the sett. The assessment of the potential effects of badger is outlined in Section 6.5.2.2.1 of Chapter 6 of the EIAR.

Otter

The survey methodology for otters is outlined in Section 6.2.3.4.2 of Chapter 6 of the EIAR. During the dedicated otter surveys undertaken in 2024, no signs of otter were recorded within the boundaries of the Proposed Wind Farm site. Signs of otter were recorded along the Proposed Grid Connection route where it runs adjacent to, and crosses, the River Nore. Given the proposed works, no significant habitat loss will occur affecting otter. There will be no loss of holts/resting sites related to the proposed works and all works will be outside any zone of disturbance for otter (150m for breeding natal holts and 20m for active non-breeding holts). Therefore, there is no potential for the Proposed Development to result in mortality, habitat loss/fragmentation for otter and no significant disturbance impacts are predicted. Further detail on mitigation for disturbance/displacement is outlined in Section 6.5.2.2.2 of Chapter 6.

Aquatic Fauna

An Aquatic Baseline Report (Appendix 6-3) was completed by MKO in June 2025, the Desk studies and Aquatic Baseline Surveys were undertaken in July and December 2024. Freshwater aquatic surveys were carried out at streams and rivers relevant to the Proposed Wind Farm site, including the River Nore. White-clawed crayfish were recorded in the upper reaches of the Lisdowney Stream (EPA code: 15L02, IG Ref.: S 41496 70951) with no evidence of crayfish plague via eDNA sampling. No Freshwater Pearl Mussel was detected via eDNA sampling. To avoid any adverse effects on this protected species or other aquatic fauna, best practice and proven mitigation measures relating to the protection of surface water drainage regimes and surface water quality within the Site have been detailed in Chapter 9 of the EIAR under Section 9.4.2.1 (earthworks), Section 9.4.2.5 (surface water), Section 9.4.2.6 (hydrocarbons), Section 9.4.2.7 (wastewater), Section 9.4.2.8 (cement-based products) and Sections 9.4.2.9 and 9.4.2.10 (morphological changes). Following mitigation, no potential for residual significant effect on aquatic habitats or species as a result of operation of the Proposed Development is predicted.

Removal of Hedgerows

A combined total of 1,794m of linear habitat, i.e. treeline and hedgerow, will be removed within the Site to facilitate bat buffers around turbines as well as to facilitate construction of the Proposed Development infrastructure footprint. Hedgerows within the Proposed Development site were assessed using a method adapted from the Hedgerow Appraisal System (HAS) (Foulkes et al., 2013). This methodology was used to record the extent (i.e. quantitative survey) floristic composition, context, physical structure, condition, and management of hedgerows (i.e. qualitative survey) on the Site. This detailed survey methodology for hedgerows was applied to hedgerows within the footprint of the Proposed Development with potential to be impacted (i.e. those hedgerows that fall within the bat felling buffers around each of the turbines and other associated infrastructure (turbine hardstand, road infrastructure etc.). Further details on the assessment methodology can be found in Appendix 6-1 of the EIAR. Removal of the hedgerows has the potential to cause fragmentation of habitat connectivity within the landscape. Following the implementation of the mitigation measures proposed in Section 6.5.2.1.1 of Chapter 6 of the EIAR (translocation of existing hedgerows and new hedgerow planting across the Site) no potential for significant residual effect exists at any geographic scale in the long-term. However, there will be a negative residual effect at the local geographic scale in the short to medium term[2] (5-15 years) while newly planted hedgerows across the Site establish into mature hedgerows. The loss of these linear habitats has been comprehensively assessed in Section 6.5.2.1.1 of Chapter 6 of the EIAR. The proposed Biodiversity Management and Enhancement Plan (BMEP) included as Appendix 6-4 of the EIAR outlines proposals for new tree and hedgerow planting, which will offset the treeline and hedgerow habitat that will be lost as a result of the Proposed Development.

It is proposed to plant new linear features (where none currently exist) within the Site to offset any loss in linear habitat, increase the quality of existing habitat and to provide additional new opportunities for commuting and foraging bats. It is proposed to enhance 2,375m of exiting hedgerow habitat and provide translocation and planting of 2,097m of hedgerow habitat. The proposed areas for replanting are shown in Figure 2-3 and Figure 2-4 in the BMEP, included as Appendix 6-4 of the EIAR and identified in Drawing No. 231103 – 03B to 231103-03H in the Planning Drawings submitted as part of the planning application.

As outlined in Section 6.1.5 of the Bat Report included as Appendix 6-2 of the EIAR, the proposed new hedgerow planting has been strategically chosen to link up with identified bat commuting corridors within the Proposed Wind Farm site. Species planted in these locations will be of a similar composition to those occurring on the Site and will be of local provenance, which will provide overall better-quality for commuting and

[2] *Duration of effects defined in line with EPA guidance (Section 3 page 51) https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf (accessed May, 2025).*

foraging habitat for bat species (and other fauna). There is a network of existing linear landscape features within the Site that will be retained, and the addition of new hedgerow will provide continuous high quality habitat connectivity across the Site and to the wider landscape. With regards to the Proposed Grid Connection, hedgerows will be reinstated following construction, ensuring no net loss of linear features.

Other important considerations for the planting of new linear features included providing habitat connectivity away from the turbine buffers in order to reduce the potential for bat fatalities, providing continuous linear features from the north to the south of the Site and enhancing habitat connectivity.

Effects on Designated Sites.

The Proposed Wind Farm is located completely outside of the boundary of any European site. The Proposed Grid Connection Route runs adjacent and under to the River Barrow and River Nore SAC, while watercourses within the Proposed Wind Farm site have a direct hydrological link to the River Barrow and River Nore SAC. A potential for likely significant effect was therefore identified on the following European site:

- River Barrow and River Nore SAC
- River Nore SPA

In relation to European sites, an Appropriate Assessment Screening Report and Natura Impact Statement (NIS) have been prepared to provide the competent authorities with the information necessary to complete an Appropriate Assessment for the Proposed Development in compliance with Article 6(3) of the Habitats Directive. The findings presented in the NIS are that:

> *'Where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within this report and its appendices. The measures ensure that the construction and operation of the Proposed Development does not adversely affect the integrity of European sites.*
>
> *Therefore, it can be objectively concluded that the Proposed Development, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site'.*

Invasive Species

A baseline invasive species survey was carried out at the Site to identify the presence and location of any invasive species (listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) by a suitably qualified ecologist. As outlined in Chapter 6 of the EIAR, no Third Schedule Alien invasive species were recorded within the footprint of the Proposed Wind Farm or Proposed Grid Connection during the survey conducted.

In the event that the presence of such species is found at or adjacent to the Proposed Development footprint during pre-commencement surveys, particularly in areas where its excavation may be required, an Invasive Species Management Plan will be prepared for the Site to prevent the introduction or spread of any invasive species within the footprint of the works. An Invasive Species Management Plan, if required, will set out best practice control methods as summarised in Section 3.7 of Appendix 4-2 of the EIAR. The Invasive Species Management Plan would be updated during construction.

This is referenced in Section 3.7 Invasive Species Management in Appendix 4-2 of the EIAR.

Pollinator Protection

The ashy mining bee (*Andrena cineraria*) which is a species of ground-nesting solitary bee, was recorded nesting within a section of an earth bank (associated with a hedgerow) north of Turbine 6.

The National Biodiversity Data Centre published guidance on Pollinator-friendly management of Wind Farms. This identifies an evidence-based action plan for wind farm operators that can help pollinators by employing changes to existing management strategies.

Such policies have informed the evaluation of ecological receptors recorded within the Site and the ecological assessment process. Pollinator friendly measures have been incorporated into the Proposed Development, and these are detailed within Section 4.1 of the Biodiversity Management and Enhancement Plan (BMEP) (see Appendix 6-4).

3.2.5 Ornithology

A number of submissions have made reference to Barn Owl in the area surrounding the Proposed Development and the apparent absence of the species in Chapter 7. There is a concern that the Proposed Development will displace bird species in the surrounding area as a result of habitat loss/disturbance. There is concern that the Bird Monitoring Programme and Collision Risk Assessment are generic and lack binding operational controls or adaptive management.

Barn Owl

Breeding Raptor Surveys (which include owls) were undertaken within the Site and to a 2km radius to identify occupied territories and monitor their breeding success near or within the Site. The methodology that was carried out is referenced in section 7.2.4.1.3 of the EIAR. No Barn Owls were identified within the Site or within the 2km radius of the Site.

Displacement of Bird Species

As outlined in Section 7.5.2 of the EIAR, a comprehensive species-specific impact assessment was undertaken that included consideration of displacement impacts (including from both visual and auditory stimuli). The key factors that were considered included the rate of occurrence of the receptor, suitability and abundance of habitat on site relative to the wider surroundings, the pathway for impacts, conservation status and population importance. As outlined in Section 7.5.2, no significant population-level effects were predicted.

In relation to bird species impacted by the Proposed Grid Connection a survey was conducted at the crossing point where the Proposed Grid Connection will cross beneath the River Nore SPA. A small section of suitable breeding habitat for Kingfisher was identified 130m from the crossing point. Given that the works would involve drilling under the river, there is no potential for habitat loss to kingfisher and therefore no direct habitat loss effect is anticipated. However, there is the potential for disturbance of kingfisher during the construction works of the Proposed Grid Connection. Given the temporary nature of the works, and that works will be limited to the winter period (see Section 7.6.2.1 of Chapter 7), if disturbance were to occur it would not be significant as wintering kingfisher are mobile and will utilise other sections of the river during the short period that construction works will be undertaken.

Notwithstanding this, a comprehensive suite of commencement/pre-construction and operational phase monitoring is proposed in Section 7.7 of the EIAR. The proposed monitoring programme was proposed as industry best practice rather than in response to any identified impacts associated with the Proposed Development. The monitoring is comprehensive and considered entirely adequate in this regard. The

monitoring results will be reported to the Planning Authority following each monitoring year and will include information on the rate of occurrence of receptors to inform consideration of displacement. This will then inform recommendations that may include additional mitigation or adaptation if required.

Bird Monitoring Programme

As mentioned above, the Bird Monitoring measures that are proposed are industry best practice rather than in response to any identified impacts associated with the Proposed Development. Please see Section 7.7 of Chapter 7 for further information.

Collision Risk Assessment

As outlined in Appendix 7-6 of the EIAR a detailed collision risk assessment was undertaken in accordance with industry best practice standards. The collision risk assessment identified the potential for collisions to occur. The annual rate of collisions was then considered against the population that is likely to be impacted.

As outlined in Section 7.5.2 of Chapter 7, no significant population-level collision risk effects were predicted for any species.

3.2.6 Public Consultation and Engagement

Concerns have been raised about the lack of community consultation with local residents in relation to the Proposed Development. Some submissions reference a lack of engagement for the properties adjacent to the turbine delivery route.

A Community Consultation Report detailed the full and comprehensive community consultation effort that was undertaken for the overall Proposed Development and is included at Appendix 2-2 of the EIAR. As outlined in that document, the key elements of the Applicant's community engagement model is as follows:

- Detailed and systematic engagement with all 'near neighbours' to the project (within 1.5km) from a very early stage of project design.
- Wider community outreach through online platforms, local print media advertisements, distribution of an introductory newsletter and a detailed brochure, issued within a 1.5km radius.
- A commitment to open, transparent dialogue and communications.
- Creating opportunities for discussion on key issues via Community Liaison Officer door-to-door visits.
- Ensuring that the local community has access to all relevant information, as soon as it is available, in a user-friendly format.

In relation to this specific project, a focus was put on a consistent and open engagement approach by meeting with concerned residents (on request) and responding to emails and submissions from the Seskin Renewables Wind Farm website to ensure good coverage of the area. Seskin Renewable Energy Ltd chose to appoint Edward Moran as Community Liaison Officer (CLO) to this project. Edward has the responsibility for acting as the point of contact for members of the public with questions or queries about the Proposed Development. A dedicated CLO email address and phone number was established in September 2024 to allow members of the public to communicate directly with the project team.

The CLO is on hand to discuss any queries raised by residents and relay those concerns to the project team. Every query submitted, whether by phone, text or email, will be answered. Where a response requires technical input, the CLO will acknowledge receipt and ensure it would be addressed by the project manager or

the relevant expert. On many occasions this led to follow-up meetings between the project team and the near neighbours of the Proposed Development.

The CLO is also readily available to take calls and meet with near neighbours living outside the 1.5km priority zone, including with community groups and local political representatives. This was communicated at every opportunity, especially during the delivery of Newsletter 1, which was circulated to properties within a 1.5km radius of the Site in September 2024 and remains an open and ongoing invitation on all published project material and on the website.

The community consultation effort comprised of, but was not limited to the following:

- **September 2024** – Community Liaison Officer Appointed.
- **September 2024** - Direct engagement with local political representatives including local councillors, TDs and senators. An introductory letter and project brochure was mailed to each elected representative.
- **September 2024** – Door-to-door engagement with residents within a 1.5km radius of the Proposed Development which included an introductory letter and project brochure. Wider consultation with groups, clubs and businesses within a 5km radius of the development, to consist of a mailout of an introductory letter and a project brochure, with additional follow-up meetings held when requested
- **February 2025** – Client and CLO met residents (on request) and discussed their concerns with the Proposed Development
- **April 2025** – Notices advertising the Public Information Event (PIE) were placed in two local newspapers and circulated with residents within a 1.5km radius of the Proposed Development.
- **April 2025** – PIE held in Durrow which was attended by representatives of the project team. Approximately 60 to 80 people attended the Public Information Event over the course of the five hours.

Throughout the lengthy consultation period the CLO continued to liaise with any interested parties and answer any questions as promptly as possible.

In conclusion, active engagement and consultation with the local community has taken place from an early stage during the pre-application phase of the Proposed Development. The consultation process has been an extremely valuable exercise and has provided a detailed, and enhanced understanding of the key issues and concerns of the local community, which have ultimately shaped the final project proposal. The CLO remains active and is available to the community for discussion on any matter relating to the project.

3.2.7 Site Context and Suitability

Several submissions raise concern about the suitability of the site for a Wind Farm and Grid Connection development.

Suitability of the Location

The Site has been identified as having potential for a wind energy development as a result of a nationwide search of suitable lands. The site selection process has been constraints and facilitators led. Facilitators are factors that give an advantage to a Proposed Development, while constraints are restrictions that inform the location and design of a project by highlighting sensitivities.

Site selection for the development of a wind farm must be suitable for consideration under a number of criteria, such as:

- **Environmental Sensitivities:** Located outside of EU Natura 2000 sites; locations outside of National designations; located outside of Article 17 Annex I Habitats;
- **Grid Connection:** Access to the national electricity grid possible within a viable distance;
- **Sensitive Receptors:** Capable of complying with required setbacks from sensitive receptors;
- **Site Scale:** Sufficient area of unconstrained land that could potentially accommodate a wind farm development and turbine spacing requirements.

From the review of the criteria set out above, the Site is considered a suitable location for the provision of a renewable energy development of the scale proposed. The Proposed Wind Farm is located on agricultural land which allows the site to take advantage of the existing access roads (some of which will be upgraded) and highlights the suitability of the Proposed Wind Farm as it can make sustainable use of established items of infrastructure.

The Proposed Wind Farm site is not located within or adjacent to EU or National protected areas, nor does it contain any EU designated Annex I Habitat. The Proposed Wind Farm site is located primarily on agri-pastoral lands, of low ecological value, within a rural setting. Required setbacks from sensitive receptors, as set out above are achievable. The Proposed Grid Connection underground cabling route crosses the River Nore SPA, and the River Barrow and River Nore SAC in Ballyragget. At this location, the proposed underground cabling route will cross the river via horizontal direction drilling, with the drilling commencing within a field of improved agricultural grassland located within the SAC, and finishing in agricultural land, outside of the SAC.

Initial grid studies, undertaken by the Applicant, identified Ballyragget 110kV substation as the optimum connection node for the Proposed Development. An underground grid connection cabling route to Ballyragget 110kV Substation was considered and assessed to identify whether it was a viable option. This assessment outlines a number of routes from the Proposed Wind Farm to Ballyragget 110kV substation, which were considered during the iterative design process.

The Proposed Grid Connection to Ballyragget 110kV substation and the proposed underground electrical cabling route has been revised and refined to take account of the findings of the site investigations and baseline assessments, which have informed the proposed grid connection design as presented in Figure 3-5 of Chapter 3. The alternative options considered are shown Figures 3-6 to Figure 3-8 of Chapter 3.

The Applicant sought to identify an area with a relatively low population density to allow for appropriate setback distances from residential dwellings. Having reviewed the settlement patterns in the vicinity, the study area has emerged as suitable to accommodate the Proposed Development. The population density of the Population Study Area as described in the Population and Human Health section of this EIAR is 33.32 persons per square kilometre, as described in Chapter 5 of this EIAR. This is significantly lower than the average national population density of 73.27 persons per square kilometre. The proposed turbine positions achieve the recommended setbacks in both the Guidelines (500m) and the draft Guidelines (4 x the proposed turbine tip height).

The Site, covering a total of 302 hectares, comprises a mix of agri-pastural land public road corridor and has an elevation range of 81m AOD to 202m AOD. Land-use in the wider vicinity of the Site comprises a mix of agriculture, low density residential, renewable energy and industrial and commercial. The Proposed Wind Farm site benefits from existing farm tracks (approx. 4,460m). The Proposed Wind Farm site is easily accessible via an existing agricultural access off the L58333 local road, which in turn is accessed off the N77 in the townland of Ballynalsee, Co. Kilkenny. As discussed above, the Site comprises habitats of low ecological value and the recommended setback distance to sensitive receptors is achieved.

As such, with its proximity to grid, accessibility, low ecological value habitats and achievable setbacks from sensitive receptors, the Site affords a largescale area that is sufficiently unconstrained to accommodate an 8-no. turbine wind farm development.

3.2.8 Hydrology, Hydrogeology and Water Quality

In relation to Hydrology and Water Quality the concerns raised in the third-party submissions can be summarised into a set of recurring themes mainly groundwater quality, private wells, surface water, karst conditions, public water supplies and downstream receptors.

Although each submission presents these points differently, many rely on similar assumptions or repeat the same technical concerns. As a result, the matters raised are broadly consistent across multiple submissions and can be addressed collectively by reference to the site-specific investigations, conceptual site model and impact assessment already set out in the EIAR.

The response from HES to these concerns can be found in Appendix 1 of this Response to Observations document.

3.2.9 Proposed Grid Connection

Some submissions raised concern regarding the Proposed Grid Connection. There are concerns about Electro-Magnetic Frequency (EMF) exposure from underground cables and long-term implications and a risk of methane ignition from nearby septic tanks along the proposed grid connection route. Other submissions are concerned about Ballyragget 110kV substations capacity to accommodate the 48MW output from the Proposed Wind Farm and the technical feasibility assessment of the Proposed Grid Connection.

EMF

Underground electricity cables of the proposed capacity are routinely installed across Ireland, and when constructed to the required specification they do not present any health risks.

The extremely low frequency (ELF) electric and magnetic fields (EMF) produced by these cables remain well below the internationally recognised exposure limits set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and endorsed by the World Health Organisation and the EU. These limits are not exceeded at any distance, including directly above the cable route, meaning there is no impact on nearby residential or commercial properties.

Further practical information is available in ESB's 'EMF & You' (2017) [3].

Methane Explosion

The likelihood of a methane explosion occurring at the Proposed Development is anticipated to be low. As outlined in Section 15.3 of the Material Assets chapter, utilities or built services in the area such as electricity supply and transmission, water, gas and underground telecommunications were considered as part of the Proposed Grid Connection. With the implementation of good site management practices during the construction, operational and decommissioning phases this likelihood will be lowered. The Risk Assessment for Fire/Gas explosions is outlined in Section 16.4 of the EIAR.

[3] *EMF & You: Information about Electric & Magnetic Fields and the electricity network in Ireland Available at: https://esb.ie/docs/default-source/default-document-library/emf-public-information_booklet_v9.pdf?sfvrsn=0.*

Ballyragget 110kV Substation capacity

Initial grid studies, undertaken by the Applicant, identified Ballyragget 110kV substation as the optimum connection node for the Proposed Development. The Applicant made an application to Eirgrid for a grid connection as part of the Enduring Connection Policy - Generation and System Services 1 (ECP-GSS-1) in September 2025 indicating a connection to the Ballyragget substation, as per grid connection rules[4]. An underground grid connection cabling route to Ballyragget 110kV Substation was considered and assessed to identify whether it was a viable option. Section 3.2.6 assesses a number of routes from the Proposed Wind Farm to Ballyragget 110kV substation, which were considered during the iterative design process.

Technical Feasibility

The feasibility and design of the Proposed Grid Connection is detailed in Section 4.8.2 of the EIAR. The Proposed Grid Connection design and identified construction methodologies are in accordance with the requirements and specifications of ESB Networks, industry best practice and has due consideration of the ESBN Guidelines (Specification no. 18149).

The assessment of the Alternative Grid Connection Route is discussed below in Consideration of Reasonable Alternatives.

Overall, the Proposed Development has been designed to avoid and mitigate impacts on the environment and a suite of mitigation measures is set out within the EIAR. The mitigation measures set out in this EIAR will ensure that significant cumulative effects do not arise during the construction, operational or decommissioning phases of the Proposed Development. Additional detail in relation to the potential significant cumulative effects arising and, where appropriate, the specific suite of relevant mitigation measures proposed are set out within each of the relevant chapters of this EIAR.

Please refer to Chapter 3 & 4 of the EIAR for further details.

3.2.10 Landscape and Visual Impact

A number of submissions have raised concerns in relation to:

- The potential for adverse effects on visual amenity and the landscape character of the area.
- Failure to provide accurate, transparent and policy-compliant assessment of the visual and landscape impacts of the Proposed Development.
- The viewpoint selection process and the apparent exclusion of local walking trails and amenity areas.
- Apparent inclusion of outdated landscape classification.
- The impact the Proposed turbines will have on designated protected/scenic views and the cumulative over-concentration of Proposed turbines which may be visible across the skyline from certain vantage points.
- Statement that only 6.3% of homes would have a 'significant' view of the turbines.
- Lack of visual-mitigation or LVIA treatment to be carried out for temporary accommodation works along the N77 and at the L-58333 access.
- Other submissions have raised concern in relation to the Proposed Grid Connection onsite 38kV substation being located in a prominent, elevated position giving a visually industrial look to an otherwise rural landscape.

[4] *https://cms.eirgrid.ie/sites/default/files/publications/Node-Assignment-Rules-ECP-2.pdf*

A comprehensive Landscape and Visual Impact Assessment (LVIA) of the Proposed Development is detailed in Chapter 14 of the EIAR: Landscape and Visual. The LVIA was informed by best practice guidance and objective LVIA tools to demonstrate the nature of effects on residential visual amenity, including Zone of Theoretical Visibility (ZTV) mapping, field surveys, a route screening analysis and the production of verified photomontages.

LVIA Methodological Approach

The comprehensive assessment of predicted landscape and visual effects of the Wind Farm site is presented in Chapter 14 of the EIAR, comprising:

- EIAR Chapter 14 Landscape & Visual,
- *EIAR Volume 2: Photomontage Booklet*, presenting visualisations of the proposed turbines and other existing, permitted and proposed wind energy developments within 25km of the proposed turbines from 15 no. viewpoints,
- *Appendix 14-1: LVIA Methodology*,
- *Appendix 14-2: Landscape Character Area (LCA) Assessment Tables*, assessing landscape, visual and cumulative effects of designated LCAs,
- *Appendix 14-3: Photomontage Visual Impact Assessment Tables*, assessing landscape, visual and cumulative effects of the 15 no. selected photomontage viewpoints presented in the *Photomontage Booklet*,
- *Appendix 14-4: A0 LVIA Baseline Map*, showing all baseline landscape features, viewpoints, and visual receptors,
- *Appendix 14-5: Photowire Booklet Appendix*, presenting supplemental "early draft-stage" wireline visualisations known as "photowires" from an additional 8 no. selected viewpoint locations representing views of the proposed turbines.

The LVIA site surveys were conducted in 2023-2024. The methods and processes followed by professionals experienced in making objective assessments as they have done for over 20 similar large scale wind form proposals previously to conduct the LVIA and produce the resultant chapter, appendices and visualisations included in the EIAR are in accordance with the frameworks, specifications and standards set out by benchmark best practice guidance for the LVIA of wind energy developments in Ireland, including:

- *Guidelines for Landscape and Visual Impact Assessment Third Edition* (GLVIA3) published by Landscape Institute & Institute of Environmental Management and Assessment (2013),
- *Wind Energy Development Guidelines for Planning Authorities* (hereafter, the DoEHLG 2006 Guidelines) published by Department of the Environment, Heritage, and Local Government (2006),
- *Draft Revised Wind Energy Development Guidelines* published by Department of Housing, Local Government and Heritage (2019) (hereafter, the Draft 2019 Guidelines).

The LVIA was conducted with regard to the context of landscape and visual policies in the relevant local authority policy documents: Kilkenny County Development Plan 2021-2027 (KKCDP) and Laois County Development Plan 2021-2027 (LCDP). These are discussed in section 14.4.1 of Chapter 14 of the EIAR.

Methodology for Photomontage and Photowire Production

A total of 15 no. verified photomontages were produced for the EIAR and are included in the Volume 2: Photomontage Booklet. Additional photowire imagery produced for the EIAR is included in the LVIA Appendix 14-5: Photowire Booklet. A comprehensive methodology for the production of photomontages and photowires included in the EIAR is set out in Section 1.6 of Appendix 14-1: LVIA Methodology of the EIAR.

The methods used for viewpoint selection, field surveying, data collection, data processing, graphics production and final presentation of photomontages within the booklet follow a rigorous approach utilising best practice guidance for LVIA, photomontage production and benchmark guidance for the production of wind energy photomontages, as follows:

- *Visual Representation of Development Proposals* (Landscape Institute Technical Guidance Note 06/19, 2019) (LI TGN 06/19),
- *Visual Representation of Wind Farms, Version 2.2* (SNH, 2017) (SNH Guidance v.2.2).

In line with best practice guidance for the production of verified photomontages for wind energy development (SNH Guidance v.2.2, 2017 and LI TGN 06/19, 2019), the photomontages are printed on A1 banner sheets of paper which show the proposed turbines enlarged to fit within a 53.5-degree horizontal field of view. It is acknowledged that photomontages can be subject to a range of limitations which are set out in Section 1.6.5 of the LVIA Appendix 14-1. Every attempt has been made to adhere to benchmark best practice standards and specifications for photomontage production and presentation of verified photomontages for the EIAR.

Selection Process for viewpoints

Following preliminary scoping and analysis of the Visual baseline in Section 4.5 a list of all visual receptors selected for assessment in this LVIA are compiled. ZTV mapping and visibility appraisals conducted on-site during 2024 were used to inform the analysis and exclude visual receptors from further assessment. These receptors were excluded from further assessment due to the very limited visibility of the Proposed turbines, as determined by the ZTV as well as onsite appraisals of each visual receptor location. In some cases, the factor of distance to the Proposed turbines as well as the directional focus of views was included in the preliminary analysis and was a contributing factor in excluding these locations from being selected as viewpoints. The list of Photomontage viewpoints locations is provided in Section 14.5.3.

Visual Effects on Residential Receptors

Submissions were made in relation to potential impacts on local residential receptors. The LVIA identified local residential receptors as being some of the receptors with the greatest potential to be impacted by the Proposed Development. The analysis and assessment in Section 14.7.3.2.7 of Chapter 14 considered the spread, layout and orientation of houses throughout the surrounding landscape and the nature of views in the direction of the proposed turbines from residences. As per best practice guidance, it is not in the remit of an LVIA to conduct an impact assessment for every single residence, as this is not feasible and would be disproportionate, in mind of all other visual receptors throughout the study area requiring assessment (see Visual Baseline in LVIA Section 14.5 of Chapter 14). The assessment of overall visual effects on local residential receptors accounted for many factors besides the potential visibility of the proposed turbines, for example:

- Mitigation by design in response to effects on residential receptors, including exceedance of both the minimum 500m set-back distance from residences set out in the DoEHLG 2006 Guidelines and the 4-times-tip-height set-back distance (in this case 4 × 175m = 700m) prescribed for residential visual amenity by the Draft 2019 Guidelines.
- Siting of the Proposed turbines that ensures restriction of potential visibility due to localised visual screening by mature vegetation and undulating terrain for most receptors within 3-5km.
- Siting of the Proposed turbines to ensure visual containment within the topographical features of Ballynalacken Hill (east) and Knockmannon Hill (west) and restrict visibility from the north-east, east, south-east, and south-west.

The assessment of visual effects also considered site selection and landscape characteristics:

- The Proposed turbines are sited within a rural landscape of significantly low population density compared to national and county averages,
- A receiving landscape of undulating landforms and prevalence of mature boundary vegetation limiting clear and open views of the proposed turbines from many residential receptors.

The absence and avoidance of key factors of the wind farm design relating to visual amenity include:

- The Proposed Development is well set-back from designated Scenic Views and Prospects (the closest is located 4.5km from the Proposed turbines) and therefore will not give rise to significant effects on designations with potential visibility.
- The Proposed turbines do not obstruct long-ranging views of general scenic value or does not obstruct views of a high scenic amenity within the high sensitivity Nore Valley LCA.

It is reiterated that the design of the Proposed Development aligns with industry benchmark best practice guidance and standards. Siting of the proposed turbines adheres to the minimum 500m setback distance from residential receptors as set out in the DoEHLG 2006 Guidelines and also adheres to the recommended 4-times-tip-height setback distance (4 × 175m = 700m) to third party properties explicitly set out for residential visual amenity in the Draft 2019 Guidelines.

Alignment to Visual Siting and Design Guidance in the WEDGs

The proposed turbine layout has been designed to create a coherent arrangement of turbines, viewed as contiguous and connected to each other visually and with consistent spacing in line with the siting and design guidance for wind farms within Hilly and Flat Farmland landscape types in the DoEHLG 2006 Guidelines and Draft 2019 Guidelines (see Section 14.4.4 of Chapter 14). The LVIA reports that the landscape of the Wind Farm Site most closely matches the Hilly and Flat Farmland category set out in the DWEGs and that the Proposed Development is in line with an appropriate landscape type for accommodating wind energy development.

The Proposed turbines are spaced appropriately in two staggered linear arrays in response to the underlying field pattern, such that they read coherently within the landscape and are of acceptable form and arrangement in alignment with the recommended siting and design of turbines for Hilly and Flat Farmland.

The results of the residential visual amenity analysis are herein discussed in the next section below.

Views Representing Majority of Local Residential Receptors

Section 14.7.3.2.7 of Chapter 14 specifically addresses the visual impact of the Proposed Development on residential visual amenity. 8 no. photomontage viewpoints (VP03-VP06, VP09, VP10, VP14, VP15) and 1 no. supplementary photowire viewpoint (PWVP-H) are located within 3km of the Proposed turbines and represent views from residential receptors. It is not proportionate nor is it required for a thorough and robust assessment of landscape and visual effects to collect individual photomontages from all dwellings. In line with the GLVIA3 (LI & IEMA, 2013) guidance, the viewpoints selected for the LVIA were informed by "ZTV analysis, fieldwork, and desk research" (para 6.18, GLVIA3). Furthermore, the selected viewpoints "represent the experience of different types of visual receptor, where larger numbers of viewpoints cannot all be included individually and where the significant effects are unlikely to differ" (para 6.19 GLVIA3). It is submitted that the number of viewpoints collected for the LVIA is sufficient to represent the residential receptors within the LVIA Study Area, including the "distribution of population" (para 6.18, GLVIA3). With respect to EPA (2022) significance of effects, the visual effects on local residential receptors are predicted to be primarily "Not Significant," "Slight" or "Moderate." Three viewpoints were predicted to have "Significant" residual visual effects, VP05, VP14 and VP15; these outcomes are discussed in the paragraphs below.

The majority of visual effects within 3km of the proposed turbines are predicted to be "Not Significant" to "Moderate." Mitigating factors which help to reduce the impact on visual amenity and warrant these effects ratings include provisions of the wind farm design and location siting of the proposed turbines which ensure that:

- No dwellings or community destinations are within 700m of the proposed turbines. The siting of the proposed turbines exceeds the minimum setback distances of wind energy development guidelines: 500m in the WEGs and 4-times-tip-height (175m × 4 = 700m) in the DWEGs (DoHPLG, 2019).
- The proposed turbines are likely to be fully or partially visually screened from view by ridgelines in the topography or forestry and other roadside vegetation (see Section 4.3.5 on *Route Screening Analysis*); views occurring in a journey scenario will be intermittent, in some cases with entire clusters of turbines being screened from view.
- Views towards the proposed turbines within village centres will be limited or none, owing to visual screening by the built environment and localised landform.

Overall, the LVIA reports that the greatest visual effects (i.e. the "Significant" effects at VP05, VP14 and VP15) are limited to a cluster of receptors who will experience them (supported by the significantly low population density reported in the EIAR Chapter 5, Table 5.2).

It is to be anticipated that wind farms inevitably have the potential to cause some "Significant" visual effects on proximate visual receptors due to the prominence of turbines within landscape views and the "Substantial" magnitude of change (EPA 2022) which will arise in close proximity to a wind farm development. For effects on locally sensitive receptors such as residential properties, mitigation measures can be implemented. In the case of the Proposed Development, these measures are discussed throughout Section 14.7.3.2.7 and 14.8 of Chapter 14.

The outcome of the LVIA, with regards to the EPA, 2022 definition of significance, is calibrated in the overall context of LVIA of wind energy developments in Ireland as well as what is acceptable in the context of emerging baseline trends and the acceptability of wind turbines within views as a result of national policy. The Proposed Development is therefore considered acceptable in this context and is in alignment with emerging baseline trends.

Visual Receptor Screening Process

Queries were raised in some submissions as to why the LVIA didn't assess the impact along Leafy Loop Walks, Durrow Brick Amenity, Mill Wheel Area, Cullahill Mountain and Bunlacken. Popular recreational, cultural and tourist destinations were identified in the LVIA Study Area through a desktop exploration of localised tourism plans as well as considering the most popular tourism destinations in Co. Kilkenny and Co. Laois. The loops and trails were not part of the local tourism plans for the counties.

Prominent outdoor tourism, cultural, and recreational destinations identified in the LVIA Study Area are listed in the table 14-9 of Chapter 14 of the EIAR. The preliminary analysis and scoping are provided in that table.

Cullahill Mountain was assessed in Chapter 14. The LVIA concluded that the Proposed Development will not result in significant impacts on the landscape setting of Cullahill Mountain. The Landscape effects of the Proposed Development on Cullahill Mountain are discussed in Section 14.7.3.1.6 of Chapter 14.

Outdated Landscape Classification

Landscape Character Assessment, as carried out by the local authorities in all counties in Ireland to meet the objectives of the National Landscape Strategy Framework 2015–2025 (Department of Arts, Heritage and the Gaeltacht [DoAHG], 2015), forms an important basis of the LVIA. The EIAR references the 2008 Landscape Character Assessment (LCA) classifying the area as "Class 2 – Robust". At the time the EIAR referenced the latest LCA from Kilkenny CDP Landscape Appraisal of County Kilkenny 2008-2016. The LVIA chapter is using the latest LCA available from County Kilkenny and County Laois.

Impact the Proposed turbines will have on designated Protected/Scenic views

Overall, no significant residual visual effects are deemed to arise from the protected scenic amenity designations of Co. Laois or Co. Kilkenny identified within the LVIA Study Area; discussion for each receptor is provided in Section 14.7.3.2.3 of Chapter 14 of the EIAR. Whilst the Proposed turbines may be visible from some areas of the designated scenic views, they will not fundamentally impact the key scenic and landscape sensitivities as reported in the LCDP and KKCDP. This LVIA has determined that by means of strategic design and locational siting of the Proposed Development, it will not significantly impact on the integrity of protected scenic views or any unique and distinctive upland vistas.

Cumulative Impact of the Proposed Wind Farm

All cumulative turbines are included within the relevant photomontage imagery presented in the *EIAR Volume 2 Photomontage Booklet* and assessed in *Appendix 14-3: Viewpoint Assessment Tables*. Section 1.10 of *Appendix 14-1: LVIA Methodology* reports the detailed methodology of the rationale for the search process of identifying cumulative wind farms, the rationale of cumulative assessment and the details of how cumulative wind farms are visually presented in the booklet.

The potential contribution of the Proposed Development during the construction phase to cumulative landscape effects on designated LCAs in combination with other Existing, Permitted and Proposed wind energy developments in the 15km LCA Study area are discussed in Appendix 14-2: LCA Assessment Tables and summarised in Section 14.7.3.3.

Overall, it was found that the Proposed Development is likely to have limited contribution to cumulative landscape effects on designated LCAs.

The potential contribution of the Proposed Development during the operation phase to cumulative visual effects with existing, permitted and proposed wind energy developments in the 20km LVIA Study area are discussed in Appendix 14-3: Photomontage Viewpoint Assessment Tables and summarised in Section 14.7.3.4.

Overall, the Proposed Development has its greatest contribution to cumulative visual effects at the northern end of the Nore Valley where in combination effects occur with both Existing Lisdowney Wind Farm and also potentially the proposed Ballynalacken Wind Farm. These effects have been accounted for in the assessment of visual effects on specific receptors in Section 14.7.3.2 and viewpoints in Appendix 14-3. The undulating and well-defined landform features and highly dense nature of vegetation of the area have the potential to reduce the extent of cumulative visual effects experienced from many locations by many visual receptors surrounding the Proposed Wind Farm. It is highlighted that at the time the status of the Ballynalacken Wind Farm was 'proposed' and therefore any potential cumulative effects are reliant on the outcome of the consenting system, therefore this is an uncertain scenario.

No visual-mitigation or LVIA treatment for temporary accommodation works

The locations of temporary accommodation works are deemed to have a 'Medium' landscape sensitivity and the change to occur will be concentrated along the N77 National Road corridor in the town of Durrow and in the townland Ballynaslee. These works are likely to be Temporary, Negative visual effects which are Not Significant.

Percentage of residential properties with the potential to experience Significant visual effects

In Section 14.7.3.2.7 of Chapter 14 it is reported that approximately 6.3% of residential properties within 3km have the potential to experience "Significant" visual effects as a result of the Proposed Development. This figure was calculated based on GIS data available indicating the number of dwellings (Eircodes) within 3km, and the assessment details on the affected dwellings are discussed in detail in Section 14.7.3.2.7 "Residential Visual Amenity" of the LVIA. The assessment was conducted using best practice guidance on LVIA and best practice analysis for determining the likely potential of receptors to experience landscape and visual effects. There are 270 no. Visual Receptors within 3km of the proposed turbines. According to the assessment of residential visual amenity reported in Section 14.7.3.2.7 of the LVIA, it was found that approximately 17 no. Visual Receptors have the potential to experience "Significant" visual effects as a result of the Proposed Development. Most of these dwellings are located to the east of the Proposed Wind Farm, along the N77 within the townland of Ballynaslee, Co. Kilkenny and a few are located to the northwest, within the townland of Archerstown, Co Laois; the views are represented by VP05, VP14 and VP15 in the Photomontage Booklet. The reported figure indicates that a low number of receptors within 3km of the proposed turbines have the potential to experience "Significant" visual effects, while the majority of receptors are likely to experience visual effects which are not significant in the context of EIA.

The visual impact of the onsite 38kV substation

The proposed onsite 38kV substation will be partially visible from the N77 and residential receptors immediately to the east and will slightly contribute to the overall visual effects from these receptors as well as the Proposed turbines as assessed in Section 14.7.3.2.9 of Chapter 14. There are small pockets of woodland as well as mature hedgerows located between the proposed substation and the three closest residential receptors located directly east adjacent to the N77. This mature boundary vegetation will partially visually screen views of the proposed onsite 38kV substation. This vegetation will be allowed to grow over time with the aim of reducing the visual exposure of the substation from these residences.

3.2.11 Impact on Cultural Heritage

A number of submissions have raised concerns in relation to:

- The IAC assertion that the 'current street layout at this location dates to the late 19th or early 20th century and does not form part of the planning 18th century town layout'.
- The description of the bollards surrounding the plinth and the bollards that were present in the 1950s
- The assessment of impacts on the Durrow Town ACA
- The crushed stone being introduced along Tae Lane.
- The Architectural Impact Assessment (AHIA), asset-specific setting, curtilage analysis etc along with buffers and management plans for recorded cultural heritage assets
- The curated views from RPS in the photomontages or Durrow ACA
- The mitigation buffers, management plans and targeted test trenching
- The Architectural Heritage Impact Assessment in relation to Ballyragget ACA, BH4 and BH 5
- The CEMPs detail regarding exclusions, testing or monitoring

- That an AHAI should be under-taken as a pre-condition to any permission

Current street layout at this location dates to the late 19th or early 20th century

For clarification, the area of the streetscape referred to and illustrated in the IAC report relates solely to the green space where accommodation works are proposed in the southern part of Durrow town. This is clearly illustrated in the IAC report that was included as Appendix 2 in the appeal submitted to Laois County Council. The green space, as it exists today, did not form part of the original 18th century town layout. This is clearly shown on the first edition Ordnance Survey (OS) map from 1842, which shows a house to the immediate west of the green space, along with a garden plot extending into the location of what is now the green space. Roads are present surrounding the house and garden and that is not disputed. The green space, which is the area under assessment, is later in date and is clearly shown on the 1906 OS map, when the house and garden to the west had been removed and the green space formed with a water pump present.

The submission goes on to note that whilst the water pump is not marked on the first edition OS map of 1842, it does not mean it was not present. The water pump would not have been present in the 1840s, as publicly accessible water pumps were not installed in Ireland until after the Public Health Act of 1878. Section 65 of this act ensured that local councils were obliged to provide 'pure and wholesome water' to the public and as a result, water pumps were installed across the country after this date and marked on the relevant later editions of the OS maps.

Bollards surrounding the plinth

Based on the 1950s photograph replicated in the Appendix 2 IAC report (Laois CC appeal response), it is worth noting that the plinth shown in the 1950s image is larger than the plinth present today and as such, the bollards do not represent the original in-situ features associated with the pump in the 1950s. On reinspection of the images, it is possible that two of the bollards may have be present in the 1950s but have been relocated when the plinth was reconstructed on a smaller footprint. The remaining five bollards are modern in origin.

Assessment of impacts on the Durrow Town ACA

As per section 13.3 of the Cultural Heritage EIAR, the assessment of impacts is in accordance with a defined methodology. The Durrow ACA is assessed as possessing a high sensitivity and given the size of the ACA and the localised position of the proposed enabling works, the magnitude of impact is assessed as low. This results in a significance of effect that is moderate. As laid out in the Appendix 2 IAC report (Laois CC appeal response), there will be a direct, negative (temporary) impact on the ACA, which is moderate in significance.

Use of crushed stone along Tae Lane.

A very small volume of crushed stone will be required to be temporarily placed at the very northern corner of the green space, on the Tae Lane side. This will facilitate the movement of the rear wheels of the turbine-blade delivery vehicle up onto the ground-protection mats that will be placed on the grassed area. It is not proposed to place crushed stone over the entirety of the Tae Lane corridor as the turbine delivery vehicles will not traverse this area, as illustrated in Figure 15-7 of Chapter 15 of the EIAR. Therefore, this will not result in any impacts on the lane or surrounding structures, as it is a small temporary surface, required for access to the green space.

Standalone Architectural Impact Assessment

Chapter 13 of the EIAR addresses the archaeological, architectural and cultural heritage baseline (detailed in Section 13.4) in accordance with the impact assessment methodology provided (Section 13.3). Chapter 13 contains all the relevant information that would be included in a stand-alone archaeological assessment or architectural assessment. The methodology includes for the assessment of direct and indirect impacts, which includes potential effects on the setting of assets in the defined study areas (Table 13.1). These are addressed in an impact assessment for all relevant assets in the study area (which is considerable in size and includes over 200 assets) in Appendix 13.3, with a summary presented in section 13.5.3. Appropriate mitigation measures, which represent industry standard, are detailed in Section 13.5.2 of chapter 13.

Views from RPS in the photomontages or Durrow ACA

The Landscape and Visual chapter presents a photomontage from the southern edge of Durrow Town and ACA (VP10), as well as numerous other points in the surrounding landscape. It is not possible to either access or provide photomontages for the 56 protected structures located within the 5km study area. As such, the photomontages that are available are utilized, along with the Theoretical Zone of Visibility mapping in order to produce the impact assessment given in Appendix 13.3. This is detailed in Chapter 13.

No buffers included in the mitigation, nor management plans or targeted test trenching.

In relation to the mitigation, the development as proposed is the development that was subject to assessment in terms of potential impacts. Therefore, sites of significance were avoided by design in the first instance to reduce direct negative impacts on recorded monuments and features in proximity to the proposed development area. As such, 'buffer' areas are not required. Similarly, 'management plans' are not required, as the monuments surrounding the development will not be directly impacted and continue to be located with farmland. Section 13.5.2 of Chapter 13 states that archaeological test trenching will be carried out within the proposed wind farm site prior to the commencement of construction.

No Architectural Heritage Impact Assessment is presented in relation to Ballyragget ACA, BH4 and BH 5

Please see response to Architectural Heritage Impact Assessment above. The impact assessment was carried out in accordance with the assessing the magnitude of the impact on the sensitivity of the receptor and included Ballyragget ACA, BH4 and BH5.

CEMP includes for archaeological mitigation but states that no detail is given regarding exclusions, testing or monitoring

These details will be developed by the archaeologist appointed to carry out the archaeological investigations, which will be carried out under licence, as approved by the National Monuments Service of the DoHLGH.

No AHIA has been carried out, and should be under-taken as a pre-condition to any permission

Please refer to the response above in relation to AHIA. The impact assessment regarding the archaeological, architectural and cultural heritage resource was carried out in accordance with the assessing the magnitude of the impact on the sensitivity of the receptor as laid out in section 13.3 of chapter 13. No further assessment of indirect effects is required.

3.2.12 Human Health

A number of submissions have raised concerns in relation to:

- The health impact the Proposed Development would have on people including the vulnerable (children, elderly and medical conditions) in the surrounding area which include impacts from Noise, Dust and Shadow Flicker;
- Rural depopulation in the surrounding area as a result of the Proposed Development;
- Setback distances from sensitive receptors;
- The Visual impact from the Aviation lighting;
- Current literature and guidance;
- A standalone Human Impact Assessment;
- Modelling on the combined exposure of the Proposed Wind Farm;
- Dust pollution during excavation, piling or cable trenching;
- Operations stage response plans for emergency scenarios;
- Vibration modelling or risk assessment and;
- Radon risk assessment.

Health Impacts

As discussed in section 5.5.1 of Chapter 5 of the EIAR, Population and Human Health, that while there are anecdotal reports of negative health effects on people who live very close to wind turbines, peer reviewed research has generally not supported these statements. There is currently no published scientific evidence to positively link wind turbines with adverse health effects. Extensive research has been carried out in the US, Canada, UK, Australia, and by the World Health Organisation (2018). All studies conclude that exposure to wind farms and the sound emanating from wind farms does not trigger adverse health effects.

Impacts on the Vulnerable

As set out in the Department of Housing, Planning, Community and Local Government '*Key Issues Consultation Paper on the Transposition of the EIA Directive 2017*' and the guidance listed in Section 1.2.1 of Chapter 1: Introduction, the consideration of the effects on populations and on human health should focus on health issues and environmental hazards arising from the other environmental factors, for example water contamination, air pollution, noise, accidents, disasters.

Chapter 5: Population and Human Health (including Shadow Flicker), Chapter 8: Land, Soils and Geology, Chapter 9: Water, Chapter 10: Air Quality and Chapter 11: Climate, Chapter 12: Noise and Vibration and Chapter 15: Material Assets (Traffic and Transport) provide an assessment of the effects of the Proposed Development on these areas of consideration.

The assessments show that the residual effects are not significant and do not have the potential to cause negative health effects for human beings. On this basis, the potential for negative health effects associated with the Proposed Development is imperceptible.

The Health effects of Wind Farms is covered in Section 5.6 of Chapter 5 of the EIAR.

It should be noted that KKCC requested the Health Service Executive (HSE) to provide observations on Seskin Renewables Wind Farm (Planning Ref: 2560418; NEHS ref: ID5104). A particular section (*Criteria for Consideration of Likely Significant Effects on Public Health*) considers the likely significant effects on Public Health as per the EPA issued EIAR Guidance (*Guidelines on the information to be contained in*

Environmental Impact Assessment Reports, 2022), particularly section 3 on Human Health. From the observation it was concluded that

> *the assessment should consider established land development and use and service provision and activities within communities and not individual members of communities.*

Provided that the Proposed Development is constructed, operated and decommissioned in accordance with the design, best practice and mitigation that is described within this EIAR, significant effects on population and human health, employment and economic activity, land-use, residential amenity, community facilities and services, tourism, property values and health and safety are not anticipated at international, national or county scale.

In relation to the Proposed Development causing rural depopulation, it is demonstrated from the Census data in Chapter 5 that rural depopulation is already occurring. The age category results of the Population Study Area correspond with the trend of younger generations leaving rural areas to move to urban areas with greater education and employment opportunities (Section 5.3.5).

Dust and Air Quality

An observation highlights concern over the potential impacts of increased dust and air pollution arising from the construction phase of the Proposed Development.

Chapter 10 of the EIAR focuses on air quality and specifically assesses the likely significant effects, both direct and indirect, on air quality arising from all components of the Proposed Development, including its construction, operation, and decommissioning phases. The assessment considers not only the Wind Farm Site but also the Grid Connection and turbine delivery route.

The air quality assessment has been undertaken with reference to the Environmental Protection Agency's (EPA) 'Guidelines on the information to be contained in environmental impact assessment reports' (EPA, 2022). The Institute of Air Quality Management in the UK (IAQM) guidance document 'Guidance on the Assessment of Dust from Demolition and Construction' (2024) was considered in the dust impact assessment.

The likely significant effects on air quality of the Proposed Development both individually and in combination with other plans and projects in the vicinity of the Wind Farm Site and Grid Connection were considered as part of this assessment. The other plans and projects considered as part of this cumulative impact assessment are presented in Appendix 2-2 of the EIAR.

Construction dust can be generated from many on-site activities such as excavation, backfilling and construction traffic movements along the haul route. The extent of dust generation will depend on the type of activity undertaken, the location, the nature of the dust, i.e., soil, sand, peat, etc. and the weather. Dust Control measures for the construction dust that can be generated from the many on-site activities such as excavation and backfilling is referenced in the CEMP in section 3.5.

Shadow Flicker

A number of submissions raised concerns of shadow flicker effects on dwellings located within proximity of the Proposed Development. Section 5.2.3.5 of Chapter 5 of the EIAR demonstrates that all sensitive receptors within 1.5km (150m rotor diameter x 10 = 1.5km) of the Proposed Development were assessed for possible shadow flicker effects. There are 104 no. properties located within 1.5 km of the proposed turbine locations. Of these, a total of 52 no. properties are theoretically predicted to experience shadow flicker over the thresholds set out in the Guidelines (DoEHLG, 2006).

Table 5-10 of Chapter 5 outlines the maximum potential daily and annual shadow flicker for dwellings within the shadow flicker study area. It is worth noting that the predicted exceedances of shadow flicker listed in Table 5-10 is considered conservative and the occurrence and/or duration of shadow flicker at these properties is likely to be eliminated or significantly reduced.

Section 5.10.3.2.7 details the mitigation measures which will be employed at the potentially affected properties to ensure that the current adopted Guidelines are complied with at any property within the Shadow Flicker Study Area. It is noted that the Proposed Development can be brought in line with the requirements of the Draft Guidelines (DoHPLG, 2019), should they be adopted while this application is in the planning system, through the stricter implementation of the mitigation measures outlined in Section 5.10.3.2.7 of Chapter 5.

Where exceedances are reported it will first be investigated with the householder to confirm and quantify the situation. Where exceedances are confirmed, mitigation will first be pursued through locally appropriate measures agreed with the affected homeowner, including window blinds, screening vegetation, or other site-specific solutions, with all costs borne by the wind farm operator. Where local mitigation is not feasible or agreement cannot be reached, turbine-based mitigation will be implemented through shadow flicker control units integrated into the wind farm's SCADA system.

As noted in Section 5.10.3.2.7 of the EIAR, System accuracy and effectiveness will be verified through targeted site visits during predicted shadow flicker periods, and operational performance will be reviewed during the early operational phase. A post-construction report may be submitted to the Local Authority following 12 months of operation, confirming implementation and successful operation of the mitigation measures.

This approach reflects established best practice and has been proven at operational wind farms in Ireland and internationally, providing a robust and reliable mechanism to ensure shadow flicker impacts remain within accepted guideline limits.

Setback from Sensitive Receptors

A number of submissions reference that the Proposed Wind Farm has not maintained the 700m setback from sensitive receptors. In relation to the appropriate setback distances from turbines to dwellings/buildings, the Draft Guidelines (DoHPLG, 2019) clearly outline that it is industry standard that the setback point from turbines to a dwelling is taken from the closest point on the identified building rather than the closest edge of the property. Furthermore, there is no property within 700m of any proposed turbine location, therefore abiding by the recommended minimum setback identified in the Guidelines (DoEHLG, 2006)) and the Draft Guidelines (DoHPLG, 2019).

This concern was also one of the refusal reasons Kilkenny County Council (KKCC) provided against Seskin Renewables Wind Farm. It was concluded that the reason for refusal was not justified and that the EIAR clearly demonstrates that the Proposed Development complies in full with the 4 times tip height setback requirement to safeguard visual and residential amenity. Please see the full response in the Planning Appeal document (ACP ref: 323759).

Visual Impact from Aviation Lighting

The specific aviation lighting that will be applied to the Proposed Development has yet to be confirmed. However, various options for aviation lighting can be applied to reduce any potential impact on residential visual amenity that might arise, and therefore, will not give rise to a significant increase in turbine lighting in combination with other existing and permitted wind turbines in the area.

The various options include:

- Reduced Intensity
- Shielding and Directional Intensity
- Obstacle Zone Agreement eliminating the need for turbines to be lit
- Cardinal or Perimeter Lighting
- Reduced Lighting
- Aircraft Detection System

These various types of mitigation that can be applied when the lighting scheme is agreed with the IAA to reduce/eliminate the nighttime visual effects that might arise in relation to residential visual amenity as a result of aviation lighting at night. The proposed lighting scheme will also account for the existing aviation lighting present on other existing turbines located within the same landscape area as the Proposed Development, for example by extending the perimeter lighting that might be in place on an existing wind farm which eliminates the need for additional turbines to be lit.

Mitigation will be implemented in agreement with IAA and DoD to ensure there are no significant effects from aviation lighting on people or the environment.

Lack of up-to-date literature and reliance on outdated guidance

A number of submissions make reference to Appendix 5-1 which was published in 2015, it is noted that while some of the literature is dated the EIAR is using the most up-to-date literature available, relevant and accepted by regulators and the date of publication does not determine whether a source is current or valid.

In relation to the reliance on outdated guidance, it is noted that the design and layout of the Proposed Wind Farm follows the recommendations and guidelines set out in the '*Wind Energy Development Guidelines for Planning Authorities'* (the Guidelines) published by the then Department of Environment, Heritage and Local Government (DEHLG) in 2006, and the *'Best Practice Guidelines for the Irish Wind Energy Industry'* published by the Irish Wind Energy Association in 2012. The design and layout of the Proposed Wind Farm also have regard to the *'Draft Wind Energy Guidelines*' (the draft Guidelines) published by the DHELG in 2019. Should the draft Guidelines be adopted in advance of a planning decision being made on Seskin Renewables Wind Farm, the Proposed Development will be capable of achieving the requirements of the draft Guidelines as currently proposed.

In relation to the inconsistency with national and county-level planning policy it is referenced in Section 2.5.1.2 that the Proposed Development is in line with and supported by the National Planning Framework and the National Development Plan.

At a local policy level County Kilkenny, despite the absence of a local Wind Energy Strategy for Kilkenny as discussed in Section 2.5.4, it is considered that due to the comprehensive suite of international, national, regional and local policy support for wind energy, the principle of the Proposed Development at this location is acceptable.

The Kilkenny City and County Development Plan 2021-2027 (KCCDP) is supportive of renewable energy developments, such as the Proposed Development, as it sets out the need for Kilkenny to transition to a low carbon and climate resilient County with a focus on renewable energy to increase the County's energy sustainability and security. Specifically, a strategic aim of the KCCDP is to generate 100% of the County's electricity demand through renewable energy by 2030, the Proposed Development will support the KCCDP in this aim.

For County Laois, the Laois County Development Plan 2021-2027 (LCDP) is supportive of renewable energy developments, such as the Proposed Development, as it sets out it's support for the development of renewable resources and more specifically, it's aim to facilitate wind energy developments in appropriate locations.

Despite the location of a portion of the Proposed Development in an area deemed as *'Not Open for Consideration'* within the LCDP, there are objectives within the LCDP to support the location of wind energy developments in areas designated as '*Mountains, Hills and Upland Areas'*, of which the Proposed Development is located.

Please refer to the Planning Report (which accompanied the planning applications) for a detailed justification of why the turbines are located within this area.

No dedicated Human Health Impact Assessment

The impact on Human Health is covered in Chapters 5 (Population & Human Health), Chapter 10 (Air Quality), Chapter 12 (Noise and Vibration) and Chapter 15 (Material Assets).

No modelling of the combined exposure of the Proposed Wind Farm

The EIAR provides information on the receiving environment and assesses the likely significant effects of the Proposed Development on it and proposes mitigation measures to avoid or reduce these effects. There is currently no software/method of modelling the combined exposure of noise/AM, shadow flicker and vibration. Section 5.10 considers the pre-mitigation impacts, residual impact, significance of effects as well as the mitigation and monitoring measures for the impacts the Proposed Development could potentially have any sensitive receptors during to the construction and operational phases of the Proposed Development.

CEMP

In relation to an emergency response plan for the Operational phase of the Proposed Development, Operational phase emergency response procedures are not part of the EIAR and are instead developed by the operator prior to commissioning, in line with industry standards and statutory safety requirements. These plans form part of the operational management system rather than the construction-phase CEMP. The CEMP included in the EIAR relates solely to the construction phase, as required under the relevant guidelines.

The CEMP identifies the key planning and environmental considerations that must be adhered to and delivered during site construction and operation. While the document makes reference to noise and vibration it was determined in Chapter 12 that due to the distance of the proposed works from sensitive locations vibration effects are not likely at any NSL therefore vibration modelling is not required to be carried out. In relation to thresholds and mitigation measures, for the Noise and Vibration thresholds please refer to Chapter 12 of the EIAR. In regards to mitigation measures please see Section 7 of the CEMP.

Radon Risk Assessment

The proposed on-site 38kV Substation is located in an area of high radon levels[5]. Radon is an indoor air issue for occupied buildings. The proposed on-site 38kV Substation is not an occupied structure and will have limited human presence for maintenance. For further details please see the EPA Protocol for the measurement of radon in homes & workplaces (EPA, 2019). Within this document, it is referenced that it is not necessary to carry out measurements in areas such as corridors, washrooms, toilets, etc. which are unoccupied or occupied infrequently. As a general rule, an infrequently occupied area is one where an individual is unlikely to spend more than 100 hours per year of their working time. The Proposed on-site 38kV Substation would be one of

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5 https://gis.epa.ie/EPAMaps/Radon?&lid=EPA:RadonRiskMapofIreland&_gl=1*15rheo7*_ga*MTYxMzg1NDQ5MS4xNzYzMDM2NDMx*_ga_TPK2CK9KEX*czE3ODQxMDIzODgkbzYkZzAkdDE3ODQxMDIzODgkajYwJGwwJGgw.

these areas. The proposed on-site 38kV Substation will be built in compliance with the Department of Housing, Local Government and Heritage Building Regulations and current health and safety standards. The EPA was contacted in May 2024 as part of the EIAR Scoping exercise. No response was received.

3.2.13 Noise & Vibration

In relation to Noise the concerns raised in the third-party submissions can be summarised into a set of recurring themes mainly:

- Cumulative Impacts;
- Tonal Penalty;
- Location of Noise Monitors;
- Methodology and Guidelines;
- Calculation Methodology;
- Low-frequency Noise, Infrasound and Amplitude Modulation;
- Vibration and;
- Construction Traffic Noise.

Although each submission presents these points differently, many rely on similar assumptions or repeat the same technical concerns. As a result, the matters raised are broadly consistent across multiple submissions and can be addressed collectively by reference to the site-specific investigations, conceptual site model and impact assessment already set out in the EIAR.

The response from AWN to these concerns can be found in Appendix 2 of this Response to Observations document.

A number of submissions have concerns about the potential use of rock blasting at the proposed on-site borrow pit.

Blasting

It is noted in Section 4.3.1.8 that hardcore materials will be extracted from the borrow pit (and some turbine locations, if necessary), principally by means of rock breaking. Depending on the hardcore volume, blasting may also be used as a more effective rock extraction method. Any blasting will be carried out in accordance with the *Guidance on the Safe Use of Explosives in Quarries* (Safety and Health Commission for the Mining and Other Extractive Industries, 2002) and the British Standard BS 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Noise* . Blasting will only be carried out after notifying any potentially sensitive receptors. If blasting is undertaken as part of the Proposed Development, a detailed assessment will be undertaken by a specialist blast design engineer to determine the blast design parameters; all mitigation measures specified by the blast design engineer to keep vibration values within the criteria in Section 12.3.1.1.3 will be implemented.

The methods used to minimise the potential for complaints could consist of some or all of the following:

- Restriction of hours within which blasting can be conducted (e.g. 09:00 – 18:00hrs).
- Notification to nearby residents before blasting starts (e.g. 24-hour written notification).
- The firing of blasts at similar times to reduce the 'startle' effect.
- On-going circulars informing people of the progress of the works.
- The implementation of an onsite documented complaints procedure.
- The use of independent monitoring by external bodies for verification of results.
- Trial blasts in less sensitive areas to assist in blast designs and identify potential zones of influence

3.2.14 Agricultural and Equine Industry

A number of submissions highlighted concerns around for the potential for negative effect on stud farms and other equine facilities within the vicinity of the Wind Farm Site. There is also concern that the proposed turbines could create a microclimate in the area surrounding the Proposed Wind Farm.

The closest registered stud farm is Springfield House Stud, Co. Tipperary, approximately 22.9km northwest of the nearest proposed turbine. The closest equestrian facility is Emerald Equine Stables in Conahy, Co. Kilkenny, approximately 6.3km southeast of the of the nearest proposed turbine.

There have been no known studies carried out in Ireland on the impacts of wind farms on the equine industry. In 2014 Marshall Day Acoustics published a document entitled *'Summary of research of noise effects on Animals'*. The Marshall Day study specifically assessed the impacts of varying levels of noise on horses in three differing behavioural settings.

The three behavioural settings studied included horses in stables, breeding mares and racing horses which are discussed below.

Horses in Stables

The study by Marshall Day Acoustics found that horses, stabled at the Flemington Racecourse Australia at the same time as a music concert on the site, when exposed to LAeq,15min of 54-70 dB showed little response to the music noise unless the noise was particularly impulsive. The horses stabled at Flemington Racecourse were thoroughbreds, and stables were located 200 metres from the concert.

Breeding Mares

A study by Le Blanc et al (1991) and summarised by Marshall Day studied the effects of simulated aircraft noise over 100 dB and visual stimuli on pregnant mares. The study focused on pregnancy success, behaviour, cardiac function, hormonal production and rate of habitation. Le Blanc concluded the following:

> *Le Blanc et al (1991) found that birth success of pregnant mares was not affected by F-14 jet aircraft noise. While the 'fright-flight' reaction was initially observed, the mares did adapt to the noise.*

Racehorses

Marshall Day Acoustics concluded the following in relation to their study on the impacts of noise on racehorses:

> *Marshall Day Acoustics have observed horses grazing in paddocks directly under the main approach path of the Christchurch International Airport where noise levels are in excess of 90 dB (LAmax) during an aircraft flyover. Although these horses are arguably "used to" the noise, there was generally little recognition by them of an aircraft passing, let alone any sign of disturbance. This tends to support the conclusions by Le Blanc et al (1991).*

Guidance

In the absence of national policy or guidance in relation of the development of wind farms near stud farms/equestrian centres, MKO have reviewed the British Horse Society's *'Advice on Wind Turbines and Horses – Guidance for Planners and Developers'*.

As mentioned previously, one submission horse farm is located approximately 2km from the nearest proposed turbine location and is therefore at a distance of ten times the British Horse Society's recommended minimum separation distance of 200 metres as noted above. It also exceeds the 525 metres separation distance (based on three times the maximum turbine blade tip height of 175 metres).

In conclusion, the Wind Farm Site complies with the minimum separation distance as recommended by the British Horse Society.

Microclimate

Some submissions are concerned that the Proposed turbines will create a microclimate in the locality and result in reduced surface humidity and soil moisture.

The submission's claim that wind turbines reduce soil moisture, degrade soil quality, or cause a 30–40% reduction in grass yield is not supported by any scientific evidence. There is no evidence from Ireland and internationally that shows a reduction in grass yield or soil quality near turbine locations, and no such impact has ever been identified in EPA, EU, or UK regulatory guidance. Wind farms have operated on agricultural land for decades without any documented decline in productivity. The Proposed Development will not affect soil moisture or grass yield, and normal farming activities will continue unaffected.

3.2.15 Consideration of Reasonable Alternatives

A number of submissions raise concern that only one site location was considered, and the only one proposed turbine layout was assessed for alternative design. Submissions also raise concerns that alternative technologies weren't considered and no proper assessment of an alternative grid connection routes or turbine delivery routes was undertaken.

The EU Guidance Document on the preparation of EIAR (EU, 2017) outlines the requirements of the EIA Directive and states that, in order to address the assessment of reasonable alternatives, the Developer needs to provide the following:

- A description of the reasonable alternatives studied; and
- An indication of the main reasons for selecting the chosen option with regards to their environmental impacts.

The guidance also acknowledges that *"the selection of alternatives is limited in terms of feasibility. On the one hand, an alternative should not be ruled out simply because it would cause inconvenience or cost to the Developer. At the same time, if an alternative is very expensive or technically or legally difficult, it would be unreasonable to consider it to be a feasible alternative".*

EPA, 2022 states that *"It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account is deciding on the selected option. A detailed assessment (or 'mini-EIA') of each alternative is not required."*

Consequently, Chapter 3 of the EIAR: Consideration of Reasonable Alternatives, contains a description of the reasonable alternatives that were studied by the applicant, which are relevant to the Proposed Development and its specific characteristics.

Site Location

In relation to the site location for the Proposed Development the process of identifying the wind farm site was influenced by a number of factors, such as wind speeds, the area of suitable or available land, proximity to a grid connection point and planning policy. The Site has been identified as having potential for a wind energy development as a result of a nationwide search of suitable lands. The site selection process has been constraints and facilitators led. A nationwide constraints analysis was undertaken and included avoidance of environmental designations (Natura 2000 sites), review of national, regional and local policies and objectives, suitable wind speeds, adequate setbacks from sensitive receptors, proximity to national grid nodes, avoidance of direct impacts on known cultural heritage assets, access and constructability. The outcome of this search was the location of the Proposed Development.

Turbine Layout

In regard to turbine layouts a comparison of the potential environmental effects of the installation of a larger number of smaller wind turbines when compared against the chosen option of installing a smaller number of larger wind turbines on the Proposed Wind Farm is presented in Table 3-3 of Chapter 3. It was determined that

- Smaller turbines would be less visually obstructive in the skyline; however, the larger development footprint would spread further across the landscape potentially occupying a larger portion of a viewpoint.
- Larger development footprint would result in greater potential for habitat loss and greater volume of spoil to be generated, excavated and sorted and;
- Increase in environmental impact from silt-laden runoff to enter receiving waterbodies and a greater impact on air quality and climate from increased traffic.

The final proposed turbine layout takes account of all site constraints and the distances to be maintained between turbines and from houses, roads, etc. The layout is based on the results of all site investigations that have been carried out during the EIAR process and the EIA scoping process with statutory and non-statutory consultees. As information regarding the Proposed Wind Farm was compiled and assessed, the number of turbines and the proposed layout have been revised and amended to take account of the physical constraints of the Proposed Wind Farm and the requirement for buffer zones and other areas in which no turbines could be located. The selection of the turbine number and layout has also had regard to wind-take and the separation distance to be maintained between turbines, as well as landscape and visual, noise and shadow flicker impacts. The EIAR and Proposed Wind Farm design process was an iterative process, where findings at each stage of the assessment were used to further refine the design, always with the intention of minimising the potential for environmental impacts.

The development of the final Proposed Wind Farm site layout has resulted following feedback from the various studies and assessments carried out as well as ongoing negotiations and discussions with landowners and the local community

Please refer to Figure 3-2, Figure 3-3 and Figure 3-4 of Chapter 3 to see the evolution of the turbine layout for the Proposed Wind Farm.

Alternative Technologies

A number of submissions reference that alternative technologies weren't considered as part of the application. Alternative Renewable Energy Technologies were considered as part of the Proposed Development as outlined in Section 3.2.4 of Chapter 3.

Both onshore and offshore wind energy development and solar energy developments will be required to ensure Ireland reaches the target set in the Climate Action Plan 2025 (CAP25) to source 80% of our electricity from renewable energy by 2030. CAP25 has set out the following targets for electricity generation:

- Share of electricity demand generated from renewable sources to up to 80% where achievable and cost effective, without compromising security of electricity supply;
- Onshore Wind Capacity: up to 9GW
- Offshore Wind Capacity: 5GW (minimum)
- Solar PV Capacity: 8GW

When considering alternative renewable energy developments to the Proposed Project, the Applicant considered offshore wind and commercial solar energy production.

In relation to Offshore Wind delays with the regulatory process for offshore development was the key consideration on why it was not chosen as an alternative. In relation to Solar energy it was determined that a larger development footprint would be required to achieve the same maximum estimated electricity output as the Wind Farm. In addition, a solar development of this scale, would have a higher potential environmental effect on Traffic and Transport (construction phase), Air Quality (construction phase) and Biodiversity and Ornithology (habitat loss), a greater potential for direct impacts on unknown subsurface archaeology (construction phase) and glint and glare at the Site (operational phase).

A comparison of the potential environmental effects of the development of a solar PV array when compared against the chosen option of developing the Proposed Development at this Site are presented in Table 3-2 in Chapter 3 of the EIAR.

This onshore wind energy development will directly facilitate the State achieving its target of generating 9GW of electricity from onshore wind and reducing greenhouse gas emissions by 80% by 2030, as called for in the Climate Action Plan 2025 (CAP25).

Alternative Grid Connection Route

A number of submissions reference that the applicant's proposed 38kV grid connection along the public roads fails to meet the requirements of the Government's Climate Action Plan 2024 (CAP24), which mandates a full assessment of all route alternatives including off-road options to determine the optimal and least impactful solution.

Both underground and overhead lines were considered as part of the Proposed Grid Connection. It was determined that while overhead lines are less expensive and allow for easier repairs when required, underground cabling will have no visual impact. For this reason, it was considered that underground cabling would be a preferable alternative to overhead lines. The Guidelines also indicate that underground cables are the preferred option for connection of a wind energy development to the national grid. The underground electrical cabling will follow the route of existing public road insofar as possible in order to minimise the amount of ground disturbance required.

An entirely, off-road grid connection route was considered at an early stage of the design process, however, this was discounted due to requirement to construct significant lengths of access and maintenance tracks to access joint bays along the route, increasing the potential for environmental effects compared to a route that predominantly follows existing roads.

Existing substations located within 5km of the Proposed Wind Farm site were assessed and it was determined that Ballyragget 110kV Substation would have sufficient capacity to accommodate the 48MW that is proposed to be generated by the Proposed Wind Farm.

The Proposed Grid Connection to Ballyragget 110kV substation and the proposed underground electrical cabling route has been revised and refined to take account of the findings of the site investigations and baseline assessments. The options have been considered in Section 3.2.6.2 of Chapter 3.

Kilkenny County Councils Refusal Reason No. 2 also references that CAP24 was not demonstrated in the EIAR. The applicant provided a robust response in the grounds of appeal which included

- Selection of the Optimal Grid Connection Route (including Table 4.1 with the Grid Connection Options Considered)
- Identification of Direct and Indirect Interactions with the National Road Network
- Potential Precedent set for Other Relevant Developments

It was concluded that the reason for refusal was not justified and that the EIAR clearly demonstrates that the Proposed Grid Connection underground cabling route is the optimal solution. Please see the full response in the Planning Appeal document (ACP ref: 323759).

Alternative Turbine Delivery Route

In relation to alternative Turbine Delivery Routes this was assessed in Section 3.2.5.5.2 of the Reasonable Alternatives Chapter of the EIAR. It was concluded that the alternative component delivery routes to the Site would require substantial accommodation works to facilitate the delivery of the turbine components. Therefore, the optimal delivery route is considered as the one that utilises the M7, N77 and L58333 which has been subject to autotracks assessment and demonstrates that limited accommodation works are required along the delivery route itself, see Section 15.1.9 of Chapter 15 for the assessment and Figures 15-7 to 15-15.

3.2.16 Other Material Assets

Several submissions seek clarification on when will businesses be notified of construction activities, what provision there is for loss of service (power, security, Wi-Fi) as well as loss of earnings due to disruption caused during the construction phase.

Concerns were also raised in relation to loss of services due to the construction phase of the Proposed Grid Connection.

In addition, a number of submissions raise concerns that the Proposed Development poses a significant aviation safety risk regarding the proximity to Abbeyleix Airfield.

Impact on Businesses

Section 15.1 in Chapter 15 of the EIAR, assess the effects on roads, traffic and transport of the traffic movements that will be generated during the construction, operational and decommissioning phase of the Proposed Development. Section 15.1.11.5 summarises the mitigation measures to minimise the effects of the Proposed Development during both the construction and operational stages (decommissioning will be same as construction where required).

As referenced above, it is forecast that the additional traffic that will appear on the public road network serving the Site will have a short-term slight negative effect on existing road users for the majority of the delivery route, and a short-term moderate negative effect on existing road users and residents on the L58333 approaching the Site

Transportation of large turbine components will be carried out at night when traffic is at its lightest with deliveries accompanied by Garda escort.

There is potential for overhead and underground electricity lines and underground services to be impacted through interference or breakage during the construction phase, specifically during the delivery of turbine components. There will also be a requirement, to temporarily relocate overhead lines during the turbine delivery phase. This will potentially have a temporary, moderate negative impact on local electricity supply in the absence of appropriate mitigation measures. This is proposed as part of the Construction/Decommissioning phase with a list of mitigation measures in Section 15.3.3.2.1.

With the implementation of the mitigation measures referenced above, the residual impact is considered to be a temporary, slight negative impact on local electricity supply and a short term, slight negative impact on health and safety. There will be no significant direct or indirect effect on electricity supply from the Proposed Development during the construction phase.

Loss of Services

As part of the detailed design process, every effort has been made to locate the Proposed Grid Connection cabling trench off the existing road carriageway and within the hard shoulder or soft margin/grass verges, avoiding, insofar as possible, other existing underground services/utilities (Refer to Section 4.8.2.4).

Scoping requests were made to EirGrid, Uisce Éireann and numerous sections of Kilkenny and Laois County Councils including Water Services and Environment. A request for information response was received from Uisce Éireann on the 25th of March 2024 which provided details in relation to specific water services within the EIAR Site Boundary. A request for information response was received from ESB Networks on the 28th of March 2024 which provided details in relation to electricity infrastructure within the EIAR Site Boundary. No response was received from EirGrid or the local authority sections.

In advance of any construction activity, the contractor will undertake additional surveys of the proposed route to confirm the presence or otherwise of any services. If found to be present, the relevant service provider will be consulted with in order to determine the requirement for specific excavation or relocation methods and to schedule a suitable time to carry out works.

Aviation Impact

Abbeyleix Airfield is located approximately 7km north from the nearest proposed turbine. No submissions were received from the owner/operator of the private airfield or from any group/club using the airfield. A scoping response received from Irish Aviation Authority (IAA) on June 2024 in which they requested certain lighting requirements for the turbines. In response to the lighting requirements requested by the IAA, the turbines will be marked on maps, lit at night and entered into aircraft navigation databases and therefore can be avoided during flight. For further details please review the scoping and consultation section 15.2.4.2 in the Material Assets chapter

3.2.17 Property Values

A number of submissions raise concern that there would be a significant negative impact on the property value in the area surrounding the Proposed Wind Farm.

Concerns have been raised about the potential for the Proposed Wind Farm to have adverse effects on the value of properties of local residents.

As detailed in Chapter 5 of the EIAR - Population and Human Health, there are no studies on the potential for impact on property values from wind farm developments in Ireland, with the largest study on property value impacts from wind farms undertaken in the USA in 2009 by Lawrence Berkley National Laboratory (LBNL). This study, entitled 'The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi Site Hedonic Analysis', (LBNL, 2009), concluded that:

> *"Based on the data and analysis presented in this report, no evidence is found that home prices surrounding wind facilities are consistently, measurably, and significantly affected by either the view of wind facilities or the distance of the home to those facilities. Although the analysis cannot dismiss the possibility that individual or small numbers of homes have been or could be negatively impacted, if these impacts do exist, they are either too small and/or too infrequent to result in any widespread and consistent statistically observable impact."*

The study was updated by LBNL in August 2013 through the publication of a paper entitled 'A Spatial Hedonic Analysis of the Effects of Wind Energy Facilities on Surrounding Property Values in the United States' (LBNL, 2013). The result of the study concluded the following:

> *"Across all model specifications we find no statistical evidence that home prices near wind turbines were affected in either the post-construction or post announcement/pre-construction periods."*

Likewise, a 2014 UK study, carried out by the Centre for Economics and Business Research (Cebr) and referenced in Chapter 5 Population and Human Health, came to similar conclusions stating that the county-wide property market drives property values not the presence or absence of wind farms, adding that studies across 5 areas in England and Wales where wind farms were constructed did not experience a detectable impact on house properties. This study also concluded that in some circumstances, wind farms can improve property values.

As set out in Chapter 5 of the EIAR submitted with the Application, another study in Scotland in 2016[6] by an independent body, analysed sales on over 500,000 properties and concluded that there no evidence of a consistent negative effect on house prices.

> *'Across a very wide range of analyses, including results that replicate and improve on the approach used by Gibbons (2014), we do not find a consistent negative effect of wind turbines or wind farms when averaging across the entire sample of Scottish wind turbines and their surrounding houses. Most results either show no significant effect on the change in price of properties within 2km or 3km or find the effect to be positive. Results vary across areas: The results vary across different regions of Scotland. Our data does not provide sufficient information to enable us to rigorously measure and test the underlying causes of these differences, which may be interconnected and complex.'*

To conclude, while the presence of wind farms influencing an individual buyer's opinion on a property is subjective to that individual, on an empirical level, there is no international evidence to indicate that wind farms have impacted the value of properties in areas near wind farms.

3.2.18 Tourism

A number of submissions identified concerns that the Proposed Wind Farm will have a negative impact on tourism on the area.

Section 5.4 of Chapter 5 of the EIAR provides a detailed overview of tourism and the potential impacts of the Proposed Wind Farm, via a tourism baseline assessment. Due to the temporary nature of the works and any potential effects associated with the Proposed Grid Connection underground cabling route, it has been scoped out from the tourism assessment.

In relation to concerns about the Proposed Wind Farm affecting tourism, as identified in Section 5.4.2 of Chapter 5 of the EIAR, there are no tourist attractions pertaining specifically to the Proposed Wind Farm. Key tourist attractions within the surrounding area of the Proposed Wind Farm were also assessed, with the nearest tourist attraction (Cullahill Castle) being located approximately 5.5km west of the Site. The Proposed Wind Farm and Proposed Grid Connection is not within any of the strategic tourism areas identified in either of the County Development Plans for Laois and Kilkenny, nor does it impact on any of the sites of existing tourism attractions.

No impacts on tourism are determined to arise as a result of the Proposed Wind Farm.

[6] *Heblicjh, Dr. S. et al 2016, Impact of wind turbines on house prices in Scotland. Available at: https://www.climatexchange.org.uk/media/1359/cxc_wind_farms_impact_on_house_prices_final_17_oct_2016.pdf*

4. SUMMARY

This document has been prepared to address the observations made by Third-Party observers in respect of the Wind Farm application for the proposed Seskin Renewables Wind Farm development. The information constitutes a full and robust response to all matters raised and the information provided here will directly assist the Commission in their ongoing consideration of the planning application.

In relation to the Climate Act, Consenting Authorities must meaningfully engage with national climate objectives when exercising their functions, including decision-making and must also demonstrate how those functions have been carried out in a manner consistent with, in so far as practicable, national climate objectives. Taking these legal duties into account, the Commission is required to attribute significant weight to national climate policy and the delivery of renewable energy infrastructure, such as the Proposed Wind Farm. Having regard to these matters, it is considered that the Commission can exercise its planning judgement to determine the application in a manner which is consistent with the achievement of national and EU policy goals, in accordance with its statutory duty under Section 15 of the Climate Act.

As discussed in Section 3 of this Response to Observations, there were 93 no. submissions received from Third-Party Observers across both the appeal cases from Third Party Observers on the Kilkenny appeal case and a further 64 no. submissions received on the application from Third Party Observers on the Laois appeal case. Section 3 outlines the common themes identified within the Third-Party submissions and the relevant areas of expertise within the project team assigned to address each theme.

To combat the effects of climate change, Ireland must decarbonise its economy by 2050. There is no "silver bullet" to do so. It will take several individual renewable energy projects to decarbonise the Irish economy. The scale of the challenge we face to decarbonise the Irish economy is enormous, but the climate change implications of not doing so are even greater. There is no other way to decarbonise a modern society except through renewable energy projects such as the Proposed Development.

Having regard to the key points set out in this Response to Observations, it is respectfully requested that the Commission consider the relevant international, national and regional planning context that applies to the Wind Farm Site, and grants permission for the application as proposed.

APPENDIX 1

RESPONSE TO OBSERVATIONS BY HES

HYDRO ENVIRONMENTAL SERVICES

22 Lower Main St
Dungarvan
Co.Waterford
Ireland

tel: +353 (0)58 44122
fax: +353 (0)58 44244
email: info@hydroenvironmental.ie
web: www.hydroenvironmental.ie

Date: 10th July 2026
Our Ref: P1653-3-0011

An Coimisiún Pleanála
64 Marlborough Street,
Dublin 1,
D01 V902.

To whom it may concern,

Re: An Coimisiún Pleanála Appeal Submission

Geological, Hydrological and Hydrogeological Responses to 3rd Party Submissions in Relation to the proposed Seskin Renewables Wind Farm, Co. Laois/Co. Kilkenny

LCC Planning Ref: 25/60414
ACP Ref: 323775-25

Hydro-Environmental Services (HES) were requested by MKO Ireland (MKO) to respond to the geological, hydrological and hydrogeological concerns raised in submissions in relation to the proposed Seskin Renewables Wind Farm.

This letter responds to the geological, hydrological and hydrogeological issues and concerns raised in 3rd party submissions.

For consistency, the terminology and project referencing used throughout this letter response aligns with that presented in the submitted Environmental Impact Assessment Report (EIAR), i.e. the "Proposed Development", the "Proposed Wind Farm", the "Proposed Grid Connection" and the "Site".

For clarity, and as described in Section 4.1 of the EIAR, the Proposed Development includes 8 no. proposed turbines and associated foundations and hard standing areas, a permanent 38kV substation compound, a permanent underground electrical (38kV) cabling to the existing Ballyragget 110kV substation, underground electrical cabling between the turbines and the on-site substation, upgrade of existing tracks and roads, provision of new site access roads, upgrade of existing agricultural access, 2 no. temporary construction compounds, 1 no. met mast, a borrow pit, biodiversity management and enhancement plan measures, spoil management, site drainage and all associated site development works.

1 STATEMENT OF EXPERIENCE

Michael Gill and Adam Keegan prepared the Land, Soils and Geology and Water Chapters of the submitted EIAR, and their qualifications, competencies, and experience are already presented in the EIAR (Section 9.1.2).

Conor McGettigan assisted with the response submission and his qualifications, competencies, and experience are detailed as below

Conor McGettigan (BSc, MSc) is an Environmental Scientist with 6 years' experience in the environmental sector in Ireland. Conor holds an M.Sc. in Applied Environmental Science (2020) and a B.Sc. in Geology (2016) from University College Dublin. Conor routinely prepares the hydrology and hydrogeology chapters of environmental impact assessment reports for wind farm developments. Conor has worked on the EIARs for Littleton WF, Lemanaghan WF,

Knockshanvo WF, Briskalagh WF, Seven Hills WF and over 30 other wind farm related projects across the country.

2 3RD PARTY SUBMISSIONS

The geological, hydrological and hydrogeological issues raised in third party submissions generally relate to a relatively small number of recurring themes, including potential effects on groundwater quality, private wells, surface water quality, karst, public water supplies and downstream receptors.

While individual submissions differ in presentation, many repeat similar concerns or rely on the same underlying technical arguments. Consequently, the issues raised are largely common across multiple submissions and can be addressed through a consideration of the site-specific investigations, conceptual site model and impact assessment already presented in the EIAR.

It is also noteworthy that many submissions identify hypothetical pathways by which effects could occur but do not demonstrate that such pathways are credible in the context of the Proposed Development, the local geological and hydrogeological setting of the Site or the mitigation measures incorporated into the design.

It is also important to recognise the scale and nature of the Proposed Development. Wind farm construction involves relatively small and discrete excavation footprints associated with turbine foundations, crane hardstands and access tracks. These excavations are generally shallow (i.e. <3 to 4m below ground level) and are designed to remain above the groundwater table wherever practicable. The development does not involve large-scale groundwater abstraction, permanent dewatering, deep excavations or long-term alteration of groundwater flow systems, other than at the borrow pit (which has a max excavation depth of 10.8m). Notwithstanding, the assessment presented in the EIAR placed particular emphasis on protecting sensitive groundwater receptors, including public and group water supplies and remote private water supply abstractions. Whilst the Site does fall within the delineated source protection areas associated with the Seskin and Ballyconra Group Water Supplies (GWSs) this does not preclude development. It is worth noting that the Ballyconra scheme is no longer used as a drinking water supply and that the abstraction is now utilised for industrial activities at the Tirlán plant. The impact assessment within Chapter 9 of the EIAR, which was informed by extensive site-specific investigations, and prescribed tried and tested mitigation measures, demonstrates that there is no potential for significant effects.

Given the relatively shallow excavations (other than at the borrow pit) associated with the construction of a wind farm, from an environmental management perspective, the principal potential pathway during construction of a wind farm is the generation of sediment-laden surface water runoff rather than direct impacts on groundwater. Surface water therefore represents the principal environmental receptor assessed during the construction phase, although the proposed mitigation measures have been developed to address all identified environmental risks, including those relating to groundwater. Accordingly, the mitigation strategy presented in the EIAR focuses on controlling runoff at source through avoidance, settlement, attenuation, filtration and controlled discharge. These measures represent established best practice within the Irish construction industry and have consistently demonstrated their effectiveness when properly implemented.

It is acknowledged that all construction projects carry an inherent environmental risk if undertaken without appropriate environmental controls. The purpose of the EIAR is therefore not to demonstrate that no conceivable impact pathway exists, but rather to identify realistic and credible impact pathways, assess their significance and prescribe mitigation measures that reduce residual effects to acceptable levels.

It is important to recognise that wind farms have been successfully constructed throughout Ireland over the past two decades, including within environmentally sensitive geological and hydrogeological settings. The mitigation measures proposed for the Seskin Renewables Wind Farm reflect established industry best practice and have been successfully implemented on

numerous comparable developments. There is no established body of published data demonstrating that wind farm developments of this nature, when designed and constructed in accordance with recognised environmental management practices, give rise to the significant hydrogeological impacts suggested in the third-party submissions.

In summary, while the submissions frequently identify implied potential impact pathways, the submitted EIAR evaluates those pathways that are credible based on the site-specific investigations and conceptual site model (CSM). The geological, hydrological and hydrogeological investigations establish the actual site conditions, and the embedded mitigation measures have been specifically designed to address the realistic environmental pathways identified through the assessment. Consequently, no likely significant residual effects have been identified in the EIAR.

The following recurring themes were raised in 3rd party submissions:

- Potential effects on groundwater quality;
- Potential effect on local private groundwater well supplies;
- Potential effects on surface water quality in the River Nore;
- Potential effects on Seskin GWS;
- Potential effects on Tirlán water supply;
- Potential effects from blasting;
- Potential effects on groundwater recharge and groundwater flows;
- Potential effects on downstream designated sites;
- Inaccurate characterisation of the environment renders the impact assessment invalid;
- Potential effects on flooding; and,
- WFD Compliance.

A notable submission was received from the No To Seskin Renewables Wind Farm Community Group and responses to the geology and water related issues raised in that submission are provided separately below. Please note that many of the issues raised in that submission are the same as the issues raised by other 3rd parties. The recurring themes which are not raised in the No to Seskin Wind Farm submission are addressed separately in Section 2.2 below.

2.1 NO TO SESKIN WIND FARM COMMUNITY GROUP - HYDRO-G SUBMISSION

A substantial submission was received from the No to Seskin Wind Farm Community Group. This submission included a Technical Response from Hydro-G. This section provides a response to the key issues raised in the No to Seskin Wind Farm submission and the associated Hydro-G Technical Response.

Differences Between the EPA 2010 Source Protection Report and the EIAR

The Hydro-G submission identifies some differences between the hydrogeological information presented in the submitted EIAR and in the 2010 EPA Source Protection Zone Report for the Ballyconra Public Water Supply (PWS).

The 2010 EPA Source Protection Zone Report, and associated Conceptual Site Model (CMS) for the Ballyconra PWS was prepared using the available information at that time. The purpose of that report was to delineate the Zone of Contribution (ZoC) to the Ballyconra boreholes. Hydro-G highlight the EPA's CSM which indicates that significant karstification has taken place in the Ballyconra area, and that groundwater in this area is extremely vulnerable.

In contrast, the CSM presented in the EIAR (Section 9.3.6.6) was developed specifically to characterise the geological and hydrogeological environment at the Site and to assess the potential effects of the Proposed Development on the local surface and groundwater receptors. The CSM is informed by a comprehensive site-specific dataset including:

- 4 no. groundwater monitoring wells;

- 1 no. rotary core borehole;
- 31 no. trial pits;
- Infiltration testing;
- Laboratory analysis of recovered soils/subsoils;
- Geophysical surveys;
- Groundwater level monitoring at 12 no. locations within and surrounding the Site (over a 5-12 month period);
- 2 no. rounds of surface water sampling at 2 no. locations;
- 2 no. rounds of groundwater sampling at 2 no. locations; and,
- Detailed walkover surveys, drainage and geological mapping.

The CSM presented in the EIAR relies on a detailed and site-specific geological, hydrological and hydrogeological dataset. Therefore, some differences between the reports are to be expected, as there is more, and newer data. The newer, site-specific data has allowed an improved, higher resolution understanding and characterisation of the local hydrogeological regime at the Proposed Wind Farm Site. The differences between the EPA report and the EIAR do not invalidate the impact assessment but reflect the incorporation of more recent, detailed site-specific data undertaken to inform this particular assessment. Furthermore, the EIAR does not downplay the risk of groundwater contamination and includes proportionate and appropriate mitigation measures.

Importantly, the EIAR identifies the Ballyconra PWS as a sensitive receptor (with baseline data presented at Section 9.3.6.5.1 of the EIAR), assesses it (in Section 9.4.2.12 of the EIAR), and clearly outlines appropriate mitigation measures to ensure its continued protection both in terms of available water quantity, and also in terms of protection of groundwater quality.

Groundwater Source Protection Area - Tirlán Supply

Hydro-G's submission and comments regarding the source protection area associated with the Tirlán water supply are acknowledged.

We note Hydro-G are not working for Tirlán, nor have Tirlán made a submission on this development, expressing any concerns regarding their water supply. We also note that Tirlán allowed access to their water wells for monitoring during preparation of the EIAR.

As noted above, the source protection area presented in the submitted EIAR was based upon the EPA's 2010 delineation of the former Ballyconra PWS. The source protection area for the boreholes was delineated for a maximum abstraction rate of 3,840m^3/day. As detailed in the EIAR, the southern area of the Site (~11.3ha) overlaps with the EPA's 2010 delineated source protection area (~410ha), as shown in EIAR Figure 9-10.

Abstraction rates have increased since 2010 at the Tirlán facility. As noted by Hydro-G, the abstraction rate on the EPA Abstraction Register database for the Ballyconra PWS is listed as 17,140m^3/day (12,000m^3/day from the River Nore and 5,140m^3/day from the Killkenny-Ballynakill Gravels Groundwater Body).

This represents an increase of 33.8% in comparison to the groundwater abstraction rate upon which the EPA's 2010 source protection area was delineated. Therefore, the current groundwater source protection area may extend beyond that which was originally mapped by the EPA in 2010, but importantly it can't extend further onto the Site as the western and northern extents of the ZoC were defined at the limits of the topographical catchment divides (Rkd - diffuse karst aquifer). This is clearly stated in the 2010 report, which states at pg 25:

> *"The **Western boundary** is based on the topographic divide along the topographical high in Seskin and Seskin North Townlands, that is assumed to coincide with the groundwater divide. Within this, an area of Namurian-age bedrock is included, as the surface water flowing off this area sinks into the*

groundwater system at Seskin. The entire surface water catchment area to the swallow holes and the sinking stream has been included."

*"The **Northern boundary** is also based on topography, as a west-east spur extends off the main Seskin Ridge at Ballynaslee, separating the area at Ballyconra from a small catchment to the north, in the northern portion of Ballynaslee Townland. The latter is the catchment area to a spring to the north."*

Hydro-G has previously advanced a similar argument, attempting to over-state the possible extents of source protection areas for water supplies located near proposed wind energy developments (e.g. ABP-322225 (EDF Seskin Wind Farm Grid Connection is permitted)). On file ABP-322225, the Inspector's assessment on the Gowran PWS source protection area, relative to the suggested deficiencies in the EIAR assessment implied by Hydro-G, are particularly relevant to this current application refer to pages 87-88 of the Inspector's Report (ABP-322225-25).

Returning to the Seskin WF, any increase in the extent of the groundwater source protection area does not alter the conclusions of the EIAR. The siting of infrastructure within the source protection area does not in itself preclude development. Source Protection Area/Zone of Contribution mapping are intended to be a planning tool that "*aims to maintain the quantity and quality of groundwater, and in some cases improve it, by applying a risk assessment-based approach to groundwater protection and sustainable development*", (DOELG/EPA/GSI, 1999). Seven Hills WF was permitted by ACP (file ref: ABP-313750 & ABP-313750-22) and part of its proposed development is located within the ZoC of the Killeglan PWS.

Another point to add here is that the hydrograph data for the Tirlán wells (Appendix 9-3 of the EIAR) do not indicate water supply wells that are under stress (stress would result in large drawdowns with slow recovery) nor are they responding in a typical flashy (rapid response in groundwater levels to rainfall events) karst-type form. Water level drawdowns during pumping are small, and seasonal and temporal water level responses are relatively normal, and do not indicate that drought (or aquifer storage/flow) is a significant concern.

To conclude there will be no likely significant effects on the Ballyconra PWS (i.e. the Tirlán water supply), no matter what size its groundwater source protection area is, for the following reasons:

- The Ballyconra PWS is no longer used as a drinking water supply. The groundwater abstraction is now utilised for industrial activities at the Tirlán plant rather than for the supply of potable water;
- The inclusion of the Ballyconra PWS in the impact assessment on public and group water supplies presented in Section 9.4.2.12 of the submitted EIAR is therefore considered to be conservative;
- The assessment presented in the EIAR, or its conclusions, are not dependent on the extent of the groundwater source protection area;
- We note that both Figure 9-11 of the EIAR and Figure 6 of EPA (2010) indicates groundwater flow in the area is to the east towards the River Nore;
- The mitigation measures prescribed in the EIAR for the protection of groundwater and surface water apply to all works, including those located within and outside the EPA's 2010 source protection area for the Ballyconra PWS. Therefore, the prescribed mitigation measures are the same irrespective of the location of the works relative to the source protection area;
- The wind farm layout has been designed cognisant of the sensitivity of the receiving environment and downgradient receptors including the Tirlán water supply;
- The submitted EIAR assessed the potential effects on surface water and groundwater receptors and prescribed detailed, tried and tested, best practice mitigation measures for the protection of the surface and groundwater environments during all phases of the Proposed Development;

- The EIAR details mitigation measures in relation to suspended solids in surface water runoff and groundwater recharge (Section 9.4.2.1), hydrocarbons (Section 9.4.2.6), wastewater (Section 9.4.2.7), cement-based products (Section 9.4.2.8);
- Mitigation measures are also prescribed in relation to piled foundations (Section 9.4.2.4) and maintaining groundwater recharge rates (Section 9.4.2.2);
- The proposed drainage system has been designed to mimic the existing hydrogeological regime which is characterized by high rates of groundwater recharge. Surface water collected by the wind farm drainage system will be redirected to areas where it can be slowly re-distributed to ground and will infiltrate to ground with minimal displacement (10s metres from the point of collection). Consequently, there will be no significant alteration of groundwater recharge rates or groundwater flows at the Site; and,
- There will be no discharge of untreated or unattenuated water at the Site as a result of the Proposed Development.

The prescribed mitigation measures and the proposed drainage system are tried and tested, best practice mitigation measures which have been used at construction sites across the country.

Accordingly, even if a larger groundwater source protection area is assumed, it can't extend further on to the Site as its maximum extent is naturally defined by topographical and previously defined hydrogeological boundaries, but notwithstanding this the implementation of the prescribed mitigation measures will ensure that the conclusions of the EIAR remain unchanged and that there will be no significant effects on the Ballyconra PWS (Tirlán water supply).

Surface Water Source Protection Area – Tirlán Supply

Hydro-G also note that the EPA Abstraction Register identifies the River Nore as a significant component of the Tirlán water supply, with an abstraction rate of ~12,000m³/day. Using the EPA Hydrotool database, the catchment to the River Nore in the vicinity of the abstraction is ~1,058km² and includes the Site.

However, the inclusion of the Site within the catchment of the surface water abstraction associated with the Tirlán water supply does not alter the conclusions of the EIAR. The siting of infrastructure within the source protection area does not in itself preclude development. There will be no significant effects on the Ballyconra PWS (i.e. the Tirlán water supply) for the following reasons:

- The River Nore catchment close to the abstraction location is extensive, covering an area in excess of 1,000km²;
- The footprint of the Proposed Development (7.6ha) represents only a very small percentage (<0.01%) of the catchment area (105,800ha);
- The River Nore is a large river draining a regional catchment. The large flows in this river will provide significant dilution, limiting the potential for effects even in an unmitigated scenario. However, the Proposed Development does not in any way rely upon the dilution or assimilation capacity of the River Nore;
- There is no direct hydrological connection from the majority of the key proposed development locations at the Proposed Wind Farm (i.e. proposed turbine locations, borrow pit and proposed onsite substation) to the River Nore. The only connection that exists across much of the Proposed Wind Farm site is an indirect connection via infiltration through the subsoils and lateral groundwater flow to local downgradient watercourses including the Lisdowney Stream and its tributaries;
- Only 2 no. minor surface water pathways exist between the Proposed Wind Farm site and downgradient watercourses (i.e. the River Nore) – surface water in the area of T8 may drain to a field drain which leads to the Ballyconra Stream whilst surface water

from T4 will drain towards the Archerstown Stream. Mitigation measures are prescribed in Section 9.4.2.5 including the completion of works between May and October when the local field drains will be dry;

- The Proposed Grid Connection underground cabling route is mapped to cross the River Nore ~250m to the south and downgradient of the Tirlán Plant. Nevertheless, there will be no instream works at this location and the crossing will be completed by Horizontal Directional Drilling (HDD). Detailed mitigation measures are prescribed in Section 9.4.2.10;
- The submitted EIAR assessed the potential effects on surface water receptors and prescribed detailed, tried and tested, best practice mitigation measures for the protection of the surface and groundwater quality during all phases of the Proposed Development;
- The prescribed mitigation measures ensure the protection of all waters in the immediate vicinity and downstream/downgradient of the Site;
- The EIAR details mitigation measures in relation to suspended solids in surface water runoff and groundwater recharge (Section 9.4.2.1), hydrocarbons (Section 9.4.2.6), wastewater (Section 9.4.2.7), cement-based products (Section 9.4.2.8);
- The proposed site drainage system has been designed to mimic the existing hydrogeological regime which is characterized by high rates of groundwater recharge and low rates of surface water runoff. Surface water runoff will be collected by the wind farm drainage system and will be recharged to ground in close proximity to its point of collection. Consequently, there will be no significant alteration of surface water runoff rates from the Site and no alteration of downstream flow regimes.

Accordingly, while the Proposed Development is located within the wider River Nore catchment upstream of the Tirlán abstraction, the EIAR demonstrates that, with the implementation of the prescribed mitigation measures, there will be no significant effects on surface water quality/quantity (flows) or groundwater quality/quantity (flows). The conclusions of the EIAR therefore remain unchanged, and there will be no significant effects on the Tirlán surface water supply.

Karst – Potential Groundwater Effects and Effects on GWS

The Proposed Development has been designed cognisant of the vulnerability of the local hydrogeological environment. The submitted EIAR acknowledges the presence of a Regionally Important Karst Aquifer (Rkd – diffuse) which underlies the eastern section of the Site and the presence of karst features in the local area (swallow holes). Note that the GSI classifications and bedrock aquifer mapping is based on regional-scale hydrogeological mapping and is not evidence that all of the underlying bedrock is uniformly karstified. The GSI classification indicates the potential for karst development and groundwater resource importance. However, karstification is inherently heterogenous and site-specific ground investigations are often used to provide higher resolution information on the local hydrogeological conditions.

The design of the Proposed Wind Farm has been informed by detailed constraints mapping which was based upon comprehensive site walkover surveys, drainage mapping, geological mapping and site investigations. The Proposed Wind Farm avoids the identified karst features and site investigations, and walkover surveys, have shown that karstification is not ubiquitous in the area.

No likely significant effects are predicted on karst, groundwater quality or downgradient receptors including local GWSs (including the Seskin GWS) for the following reasons:

- The layout of the Proposed Wind Farm was developed following comprehensive constraints mapping which was informed by detailed site investigations comprising walkover surveys, geophysical surveys, trial pit excavations and borehole drilling;

- The identified GSI mapped karst features have been avoided during the design process. No additional karst features were identified during the extensive site walkover and site investigation surveys completed as part of the EIAR;
- Site investigations demonstrate that the limestone bedrock beneath the proposed infrastructure is generally competent, with no evidence of significant karst or preferential groundwater flow pathways;
- Groundwater level monitoring has revealed high groundwater gradients across the area. However, the slow response to rainfall observed in the monitoring wells reflects a low transmissivity environment where groundwater seeps slowly. This is not indicative of a karst environment where groundwater velocities are high and groundwater levels respond rapidly to rainfall;
- The proposed drainage system has been designed to replicate, as far as practicable, the existing hydrological and hydrogeological regime. Surface water will be discharged to ground via infiltration measures in close proximity to its point of collection, thereby maintaining existing groundwater recharge patterns and avoiding significant changes in groundwater flow;
- The EIAR prescribes comprehensive, tried and tested mitigation measures for the protection of groundwater and surface water quality throughout all phases of the Proposed Development, including measures relating to suspended solids, hydrocarbons, wastewater, cement-based products and emergency response procedures.

Therefore, there are no likely significant effects on karst, groundwater quality/quantity or downstream groundwater receptors (including the Seskin GWS).

Potential Effects from Turbine and Blade Chemical Coatings

During operation, the principal potential sources of groundwater contamination at the Site are substantially reduced compared to the construction phase.

Hydro-G notes the potential for the chemical coatings on turbine blades to leach following rainfall. However, no evidence (published data or peer-reviewed studies) is presented that demonstrates that the normal operation of a commercial wind farm, or weathering of commercial turbine blade coatings, results in measurable and/or significant contamination of groundwater or surface water from these materials.

Furthermore, rainfall dripping from turbine blades would be dispersed over a wide area where it would undergo substantial dilution, infiltration and natural attenuation.

Consequently, no evidence is presented that the chemical coatings would result in significant effects on groundwater quality.

We respectfully submit to the Commission that this is not a credible or proven impact source.

Alteration of Groundwater Recharge Rates (Groundwater flows)

The Proposed Development has no potential to significantly alter the existing groundwater recharge rates. The footprint of the development is small, and all drainage is recharged to ground as per the existing baseline environment.

As detailed in the CSM (described in Section 9.3.6.6 of the submitted EIAR), the baseline hydrogeological regime is characterised by high rates of groundwater recharge and low rates of surface water runoff. Rainfall falling at the Site infiltrates to ground through the sandy, gravelly clay subsoils. The infiltration tests show that the permeability of these subsoils varies across the Proposed Wind Farm site, however, the average bulk permeability is sufficiently high that effectively all rainfall infiltrates to ground and there is limited surface water runoff, evidenced by the lack of surface water drainage features within the site. In the northwest of the Site, the rainfall percolates through the subsoils, before it flows along the top of the

underlying siliclastic bedrock (classified as a Poor Aquifer). Some of the shallow subsurface flows along the siliclastic bedrock emerge as seepages at the faulted contact between the Poor Aquifer and the Regionally Important Aquifer. The majority of the groundwater flow from the siliclastic bedrock however, discharges into the Limestone bedrock aquifer. Elsewhere, rainfall infiltrates through the subsoils and recharges the underlying limestone bedrock aquifer, which has a more permeable flow system than the siliclastics. Groundwater subsequently flows from the Site to the east/southeast through the Limestone bedrock, where it will either seep into the River Nore gravel aquifer or deeper flows in the limestone will flow beneath the gravels before discharging into the River Nore.

The Proposed Development will not result in any likely significant alteration to groundwater recharge, drainage patterns, or the existing hydrogeological regime for the following reasons:

- The proposed drainage system has been designed to reflect the prevailing hydrogeological conditions at the Site (high rates of groundwater recharge and low rates of surface water runoff);
- Surface water collected by the proposed wind farm drainage system will be treated and attenuated close to its collection point (within 10s of metres along the edge of access tracks or hardstands) before being discharged over vegetated ground;
- This water will then infiltrate to ground as per the existing baseline conditions;
- Construction related soil compaction will be temporary and localised and will not result in any significant increase in runoff rates. All water will infiltrate to ground within the site; and,
- The footprint of the Proposed Development (~7.6ha) represents a very small proportion of the overall Site area and, combined with the proposed drainage system, will not result in any significant effects on the local hydrogeological regime.

With the implementation of the proposed drainage design measures, the recharge to the underlying aquifers will not be altered and therefore, groundwater levels and flows will not be altered. There will be no quantitative effects on downgradient water supplies (Seskin GWS, Tirlán water supply and private groundwater well supplies).

Adequacy of Site Investigations

The Hydro-G submission makes reference to the conclusions and recommendations of the Geophysical Report (Apex, 2024) and the inadequacy of the intrusive site investigations completed at the Site. The Apex report concludes that:

> *"a number of ERT profiles within the limestone setting……. indicate areas of low bedrock resistivity (100-300 Ohm-m at T7 and T8) and slightly reduced resistivity (300-1,000 Ohm-m on HY2). These areas indicate increased weathering/fracturing/possible karst within the limestone.*
>
> *Direct investigation locations are recommended across the survey area to confirm overburden type, depth to rock and to investigate the possibility of increased fissuring/karstification within the limestone area.*
>
> *The results of the geophysical investigation should be reviewed based on the findings of any further direct investigations."*

The Apex recommendations were subsequently addressed through the intrusive site investigations completed at the Site. A robust and comprehensive geological dataset has been accrued for the Site and comprises:

- Observations made during detailed walkover surveys and geological/hydrogeological mapping;
- Drilling of 4 no. groundwater monitoring wells;

- Completion of geophysical surveys;
- Drilling of 1 no. rotary core borehole;
- Excavation of 31 no. trial pits; and,
- Completion of 10 no. infiltration tests.

With reference to the limestone areas (area with the potential for karst development), the site investigations included the installation of 3 no. groundwater monitoring wells, and the excavation of trial pits at the principal development infrastructure locations. These site investigations, which provide high resolution site-specific information on the local hydrogeological environment, did not identify any evidence of shallow karstification.

The limestone bedrock encountered during the intrusive investigations was consistently described as strong, grey limestone with occasional fractures. While isolated fracturing was observed, no karst features, solution cavities, enlarged fissures or voids indicative of karstified limestone were encountered in the boreholes or trial pits.

The site investigations completed for the Proposed Development are considered to be robust, adequate, and proportionate to the scale of the Proposed Development, and appropriate to the nature of the receiving geological and hydrogeological environment.

Following completion of the geophysical surveys in October 2024, Apex Geophysics provided a series of recommendations for further site investigations which comprised drilling at 9 no. locations to a depth of 20mbgl to confirm **overburden type** and **depth to rock**. HES had reviewed those recommendations at the time we received the Apex report and we considered that sufficient data was already available. While Table 8-8 of the EIAR already outlines this, we have presented the available data in **Table A** below for clarity.

As a result, the Apex recommendation to complete the additional SI will be brought forward and implemented as confirmatory investigations prior to commencement of construction.

The other recommendations (i.e. foundation design and excavatability) made in the Apex report (at Section 4, pg 15) relate to design requirements, and all those factors will be considered carefully during detail design. None of those recommendations are dependent on additional site investigation, they are presented based on the available information.

It is also important to note that while the available information relating to depth to bedrock at T07 and T08 is taken from geophysical data rather than direct investigations, the foundation design at those locations (as defined in Table 8-9 of the EIAR) is "Ground-Bearing Gravity", and the depth to bedrock is not needed to define the foundation type at those turbines.

Table A: Apex SI Recommendations V Available Data

Apex ID	Location Ref	Existing Available SI Data
PBH1	T1	TP-T01 – depth to bedrock: 1) Refusal at 0.90m BGL due to presumed bedrock. Subsoil type = Soft, sandy, gravelly Clay with pockets of loose clayey sand/gravel.
PBH2	T2	TP-T02 – Depth to bedrock: 1) Refusal at 2.30m BGL due to presumed bedrock. Subsoil type = @1.5mbgl – Brown, silty, sandy, gravelly CLAY (PSD ref: SA2647).
PBH3	T3	TP-T02 – Depth to bedrock: 1) Refusal at 2.30m BGL due to presumed bedrock. Subsoil type = @2.5mbgl – Brown, silty, sandy, gravelly CLAY (PSD ref: SA2648).
PBH4	T4	TP-T04 – Depth to bedrock: 1) Refusal at 2.00m BGL due to presumed bedrock or boulders. 2) Moderately weathered mudstone/shale interpreted from ~2.6mbgl (from geophysics), bedrock not fully confirmed during trial pitting. Subsoil type = from log - Firm brownish grey slightly sandy gravelly CLAY with low cobble and boulder content.
PBH5	T5	TP-T05 and TP-05A – Depth to bedrock: 1) Refusals at 0.7 and 0.8m BGL due to presumed bedrock. Subsoil type (TP-T05) = @0.2-0.5mbgl – Firm brown slightly sandy slightly gravelly CLAY with low cobble content.
PBH6	T6	TP-T06 and MW3 – Depth to bedrock: 1) Not conformed from TP-T06. 2) bedrock logged in MW3 from 2.9mbgl (MW3 is located 23m south of T06). Subsoil type = @TP-T06 log between 0.7-2.6mbgl – Firm brown slightly sandy gravelly CLAY with medium cobble and boulder content.
PBH7	T7	TP-T07 and MW4 – Depth to bedrock: 1) Not conformed from TP-T07. 2) bedrock logged in MW4 from 10.6mbgl (130m northwest of T07). 3) Geophysics @ T07: 21.4-27mbgl: Moderately weathered Limestone; >27.0mbgl: Slightly weathered to fresh Limestone. Subsoil type = @TP-T07 log between 0.7-2.8mbgl – Firm to stiff greyish brown slightly sandy gravelly CLAY with medium cobble and boulder content.
PBH8	T8	TP-T08 and MW4 – Depth to bedrock: 1) Not conformed from TP-T07. 2) bedrock logged in MW4 from 10.6mbgl (513m northeast of T08). 3) Geophysics @ T08: 18.2-27mbgl Moderately weathered Limestone; >27mbgl: Slightly weathered to fresh Limestone. Subsoil type = @TP-T08 log between 0.6-2.9mbgl – Firm to stiff greyish brown slightly sandy gravelly CLAY with medium cobble and boulder content.
PBH9	HY1	TP-T06 and MW3 – Depth to bedrock: 1) Not conformed from TP-T06. 2) bedrock logged in MW3 from 2.9mbgl (MW3 is located 116m southwest of PBH9). Subsoil type = @TP-T06 log between 0.7-2.6mbgl – Firm brown slightly sandy gravelly CLAY with medium cobble and boulder content.

Notes: 1) This table responds to the table included in Section 4: Recommendations of Apex (2024). 2) PBH1-PBH9 are potential BHs recommended by Apex.

2.2 OTHER ISSUES RAISED IN 3RD PARTY SUBMISSIONS

Potential Effects on Local Groundwater Quality

A robust and comprehensive impact assessment in terms of potential effects on local groundwater quality was presented in Chapter 9 of the EIAR. The assessment presented in Chapter 9 concluded that with the implementation of the prescribed mitigation measures, that there would be no significant effects on groundwater quality within or downgradient of the Site.

It is important to note that the primary potential effect associated with the construction of a wind farm relates to the soils/subsoil disturbance and the entrainment of suspended solids in runoff. Surface water therefore represents the principal environmental receptor assessed during the construction phase, although the proposed mitigation measures have been developed to address all identified environmental risks, including those relating to groundwater. The mitigation strategy presented in the EIAR focuses on controlling runoff at source through avoidance, settlement, attenuation, filtration and controlled discharge.

Detailed, tried and tested best practice mitigation measures for the protection of groundwater quality in the vicinity and downgradient of the Wind Farm Site are prescribed in the submitted EIAR with respect to suspended solids in groundwater recharge (Section 9.4.2.1), hydrocarbons (Section 9.4.2.6), wastewater (Section 9.4.2.7), cement-based products (Section 9.4.2.8), piled foundations (Section 9.4.2.4) and maintaining groundwater recharge rates (Section 9.4.2.2).

These mitigation measures are used at construction sites across the country and have been used in the successful construction of numerous wind farm developments, including wind farm developments in regions mapped to be underlain by karst bedrock. It is noteworthy that similar mitigation measures for the protection of the receiving groundwater environment were proposed in the EIAR for the recently permitted Seven Hills Wind Farm (ABP Case No. 313750). Seven Hills Wind Farm is a site that is also underlain by limestone bedrock (with karst potential) and has downstream sensitive receptors, including SAC Groundwater Dependent Terrestrial Ecosystems (GWTDEs).

In recent years many wind farms have been constructed using similar mitigation measures as proposed for the Seskin Wind Farm development. These mitigation measures have proven to be successful in the protection of the hydrogeological environment, and are summarised below:

- The key control is that there will be no direct discharge of any infrastructure runoff into any existing drainage network or sensitive features at the Wind Farm Site;
- This will be achieved through avoidance (i.e. self-imposed buffer zones were used during the design of the Proposed Wind Farm to avoid sensitive hydrological and hydrogeological features including karst features) and the proposed surface water drainage controls;
- Two distinct methods will be employed to manage drainage water within the Proposed Wind Farm:
    - Firstly, clean water will be kept clean by avoiding disturbance to existing drainage features, minimising any works in or around existing drainage features and by diverting clean water around the proposed works areas; and,
    - Secondly, all drainage waters from the proposed works areas that may carry silt or sediment, will be routed towards silt traps (for details on the Terra Stop Premium silt fences to be used please see https://ssienvironmental.ie/silt-fence-terra-stop-premium/) and settlement ponds prior to controlled diffuse release via buffered outfalls.

- The Proposed Wind Farm drainage system comprises of source controls (upstream interceptor drains, small working areas etc.), in-line controls (such as check dams, silt fences etc.) and treatment systems (settlement ponds):
    - Each individual element of the water treatment train is not intended to be a standalone or a single treatment but rather forms part of a treatment train of water quality improvements/control systems;
    - Source controls are designed to reduce the volume of water requiring treatment and include the use of interceptor drains, small working areas, covering stockpiles and the cessation of works during periods of heavy rainfall;
    - Runoff from the works areas will be collected in collector drains and treated and attenuated via in-line controls and treatment systems such as check dams, silt traps, silt fences and settlement ponds;
    - All water will be treated to a high quality and slowed down (attenuated) prior to release; and,
    - The treated water will be released in a diffuse and controlled manner through the use of level spreaders and vegetation filters and will not be directly discharged into any drainage feature. This water will infiltrate naturally to ground as per the existing baseline condition.
- Furthermore, all works will be completed cognisant of weather forecasts, and no works will be completed during or within 24 hours of heavy rainfall events. This will minimise the risk of the entrainment of suspended solids in runoff;
- An inspection and maintenance plan for the onsite construction drainage system will be prepared in advance of construction activities and will include regular inspections of the drainage systems and the removal of any excess build-up of silt which may decrease the effectiveness of the drainage system; and,
- Preventative measures relating to fuels and concrete management are also proposed in Chapter 9 of the EIAR.

The implementation of the prescribed mitigation measures will ensure that the quantity and quality of the recharge to ground is maintained and there are no likely significant effects.

A WFD Compliance Assessment has been completed for the Proposed Development and included an assessment of potential effects on the underlying Lisdowney, Durrow and Kilkenny-Ballynakill Gravels GWBs. The assessment concluded that the Proposed Development is compliant with WFD objectives and will not result in the deterioration in status of any surface waterbody or prevent the achievement of Good status in the future.

Potential Effects on Private Groundwater Supply Wells

The potential effects on local groundwater well supplies are comprehensively addressed in Section 9.4.2.13 of the submitted EIAR. The risk is associated with surface water runoff recharging to ground.

It is also important to recognise the scale and nature of the Proposed Development. Wind farm construction involves relatively small and discrete excavation footprints associated with turbine foundations, crane hardstands and access tracks. These excavations are generally shallow and are designed to remain above the groundwater table wherever practicable. The development does not involve large-scale groundwater abstraction, permanent dewatering, deep excavations or long-term alteration of groundwater flow systems. Notwithstanding the assessment presented in the EIAR placed particular emphasis on protecting sensitive groundwater receptors, including remote private water supply abstractions. The impact assessment, which was informed by site-specific investigations, and prescribed tried and tested mitigation measures, demonstrates that there is no potential for significant effects.

There are no likely significant effects on private groundwater supply wells for the following reasons:

- The potential for effects is limited due to the scale and nature of the Proposed Development. The proposed works involve small, discrete and shallow excavation footprints which are designed to remain above the groundwater table. There will be no large scale abstraction of groundwater or permanent dewatering which would have the potential to impact groundwater levels and flows;
- The layout of the Proposed Wind Farm avoids all identified hydrological/hydrogeological constraints;
- The limestone bedrock which underlies the east of the Site is generally competent and does not exhibit any significant or widespread indicators of karstification;
- All turbines and the proposed borrow pit at the Proposed Wind Farm site are distant from nearby local private groundwater well supplies (>700m). The conservative impact assessment presented in the EIAR assumes that all local dwellings are supplied by a private groundwater well;
- We point out to well owners and to ACP that credible risks to private water supplies are located much closer to wells (i.e. local septic tanks/wastewater treatment systems, local chemical storage/fuel storage and surrounding land spreading of farm effluents). These risks are set out by the EPA at https://eparesearch.epa.ie/water/wells/;
- Notwithstanding, and importantly for addressing well owner concerns the EIAR prescribes detailed tried and tested, best practice mitigation measures with respect to suspended solids, hydrocarbons, wastewater, cement-based products and piling and these mitigation measures will ensure that there are no significant effects on the local groundwater quality;
- All proposed excavations are located above the local groundwater table and there will be no requirement for groundwater dewatering; and,
- The proposed drainage system has also been designed to mimic the existing hydrogeological regime, ensuring that there is no significant alteration to groundwater recharge rates or groundwater levels.

Therefore, there are no likely significant effects on the qualitative or quantitative status of any local groundwater well.

Potential Effects on River Nore

With the implementation of the prescribed mitigation measures there are no likely significant effects on the River Nore.

As described above, detailed tried and tested mitigation measures have been prescribed for the protection of surface water and groundwater quality at the Site. Furthermore, the proposed drainage system will ensure that there is no significant alteration in runoff or recharge rates. There is no potential for the Proposed Development to impact the qualitative or quantitative status of the River Nore.

A WFD Compliance Assessment has been completed for the Proposed Development and included an assessment of potential effects on the River Nore. The assessment concluded that the Proposed Development is compliant with WFD objectives and will not result in the deterioration in status of any surface waterbody or prevent the achievement of Good status in the future.

Potential Effects from Blasting

The extraction of bedrock from the proposed borrow pit may be achieved by blasting in order to break the rock into pieces suitable for crushing. The use of explosives has the potential to affect local groundwater quality, as common explosives such as ammonium nitrate, often contain large percentages of nitrogen compounds, which could dissolve when it comes into contact with water.

However, blasting at the Site, if required, will be limited in extent and duration. Blasting would be short-term, controlled and highly localised in nature. Any blasting will be undertaken in accordance with the current international best practice, and standard environmental management procedures will be employed to minimise potential interaction between explosive residues and the environment.

It is also noted that the floor of the borrow pit is above the recorded water level, thereby significantly limiting the potential for direct interaction between blasting activities and groundwater.

Any residual nitrogen-based compounds that do make their way into the subsurface, will be localised and subject to rapid dilution and attenuation.

All explosives will be stored and handled by competent contractors in accordance with established environmental management procedures.

Therefore, given the limited scale and duration of blasting, the absence of a direct interaction with groundwater, and the attenuation capacity of the environment, blasting is not considered to give rise to significant likely effects on the groundwater environment or any downgradient receptors.

Inaccurate Geological Characterisation

Several 3rd party submissions indicate that the Water Assessment includes references to acidic peatlands which is a fundamentally distinct hydrological/hydrogeological environment from the Seskin Site. Chapter 9 contains only three references to the word "peat". These are included in the following sentence in Section 9.3.6.2:

> *"There is no peat present at the Proposed Wind Farm Site. No peat was recorded in any of the site investigation data, and no peat was observed on site during any of the site walkover surveys"*

Furthermore, it is suggested that the Apex Geophysical Report confirms the presence of karst at the Site. This is not the case, as indirect geophysical surveys are used to identify potential anomalies in the subsurface. The presence of karst is then confirmed by direct intrusive site investigations. The direct intrusive site investigations completed at the Site did not encounter any significant karstification in the underlying bedrock.

Potential Effects on Flooding

A Flood Risk Assessment (FRA) was completed for the Proposed Development and was included as Appendix 9-1. The FRA was completed in accordance with the 'Planning System and Flood Risk Management Guidelines for Planning Authorities' (DoEHLG, 2009). The FRA concluded that the Proposed Development is located in Flood Zone C and is deemed to be at low risk of flooding. In addition, the risk of the Proposed Wind Farm contributing to downstream flooding is very low. The Proposed Wind Farm drainage system will attenuate and treat runoff from Proposed Wind Farm infrastructure areas prior to release and re-distribute over ground. This water will then infiltrate through the soils/subsoils as per the baseline environment. Therefore, the Proposed Wind Farm will not result in an increase in the downstream flood risk.

Potential Effects on Designated Sites

A comprehensive impact assessment was completed for all designated sites downstream of the Proposed Development in Section 9.4.2.11 of the EIAR including the River Barrow and River Nore SAC, the River Nore SPA and the River Nore/Abbeyleix Woods Complex pNHA. All other

designated sites were screened out of the impact assessment due to the lack of hydrological and/or hydrogeological connectivity.

For clarity, no effects will occur on designated sites located downstream of the Proposed Development for the following reasons:

- The length and scale (volume of water) of the hydrological flowpaths between the Proposed Wind Farm site and the downstream designated sites. The River Barrow and River Nore SAC is situated ~500m east of the Wind Farm site, however it is located ~6.2km downstream (by channel length) from the Ballyconra stream (near T8) and 8.1km downstream of the upper reaches of the Archerstown stream (380m from T4);
- The only works which are located in the immediate vicinity of a designated site is the new proposed crossing under the River Nore along the Proposed Grid Connection underground cabling route. There will be no instream works at this location and the crossing will be achieved by directional drilling;
- The potential for effects on other designated sites is limited given the increasing volumes of water and associated dilution effect in downstream watercourses (River Nore downstream of the Proposed Wind Farm and Proposed Grid Connection underground cabling route);
- Nevertheless, mitigation measures for the protection of surface and groundwater water quality/quantity will be implemented during the construction phase of the Proposed Development to ensure that there is no deterioration in local or downstream water quality; and,
- A WFD Compliance Assessment included as Appendix 9-4 concludes that with the implementation of the prescribed mitigation measures that there will be no significant effects on any designated sites as a result of the Proposed Development.

Potential Effects from the Proposed Borrow Pit

The potential for the proposed borrow pit excavation to impact local groundwater levels was comprehensively addressed in Section 9.5.2.3 of the EIAR. The Proposed Wind Farm site is situated on an area of elevated ground with elevations ranging from ~150 to 200mOD. Groundwater monitoring at the Proposed Wind Farm site revealed that the proposed final floor level of the borrow pit lies above local groundwater levels. Therefore, no regional groundwater flow regime will be encountered during the excavation of the borrow pit and no significant dewatering will be required. The EIAR states that direct rainfall and surface water runoff will be the main inflows which will require management. Any water gathered on the floor of the borrow pit will be pumped to a settlement pond where it will be recharged to ground as per existing baseline conditions. There is no potential for the excavation at the proposed borrow pit to alter groundwater levels or impact the quantitative status of any downgradient receptor (private groundwater well supplies or the GWS).

Furthermore, detailed tried and tested best practice measures have been prescribed in the EIAR in relation to the protection of groundwater quality (hydrocarbons, suspended solids, and blasting - see text above). These measures will be implemented during the extraction of rock from the proposed borrow pit. With the implementation of these measures there will be no potential for qualitative effects on any downgradient receptor (private groundwater well supplies or the GWS).

WFD Compliance

A dedicated WFD Compliance Assessment was prepared for the Proposed Development and was included as Appendix 9-4 of the EIAR. This assessment demonstrates due to the nature and scale of the Proposed Development, combined with the implementation of the prescribed mitigation measures that there will not be any deterioration in the status of any WFD waterbody, nor will it prevent the achievement of WFD objectives in the future. The Proposed Development is considered to be compliant with the requirements of the WFD.

3 SUBMISSION SUMMARY

Throughout the assessment within the EIAR and this response, HES has deliberately relied upon site-specific geological, hydrological and hydrogeological information collected during the preparation of the EIAR, and as presented in the EIAR, rather than broad regional datasets or theoretical interpretations. Where differences arise between the EIAR and third-party submissions, the HES assessment has consistently been informed by the higher-resolution site-specific site investigation data, detailed groundwater monitoring, intrusive investigations and the Conceptual Site Model developed specifically for the Proposed Development.

This response has considered the principal geological, hydrological and hydrogeological issues raised by third-party submissions in relation to the Proposed Seskin Wind Farm, and our summary is provided as follows:

- The concerns raised largely relate to potential effects on groundwater quality, groundwater supplies, surface water quality, karst, flooding, designated sites and compliance with the Water Framework Directive. These issues have all been comprehensively assessed within the submitted EIAR and its supporting technical appendices, including the Water Framework Directive Compliance Assessment and Flood Risk Assessment.

- The EIAR was not based solely on published regional datasets, but also on an extensive programme of site-specific investigations including geological mapping, geophysical surveys, borehole drilling, groundwater monitoring, trial pitting, infiltration testing, surface water and groundwater quality monitoring and the development of a detailed Conceptual Site Model. This information provided a robust understanding of the receiving environment and informed both the impact assessment and the design of the Proposed Development.

- Many of the third-party submissions identify theoretical mechanisms by which impacts could occur. However, the existence of a theoretical pathway does not, in itself, demonstrate that a significant environmental effect is likely. The EIAR evaluates those pathways that are credible having regard to the actual geological, hydrological and hydrogeological conditions encountered at the Site. Where potential effects were identified, detailed and well-established mitigation measures have been incorporated into the design to avoid, control and minimise environmental risk.

- In our opinion, the third-party submissions do not identify any new site-specific geological, hydrological or hydrogeological evidence that would alter the conclusions of the EIAR. Rather, they present a series of hypothetical impact mechanisms which have either been comprehensively assessed within the EIAR or are not supported by the extensive site-specific investigations undertaken for the Proposed Development.

- It is also important to recognise the nature of the Proposed Development. Other than at the borrow pit, the proposed works comprise relatively small, local and generally shallow (<3-4m) excavations associated with turbine foundations, crane hardstands, access tracks and ancillary infrastructure. The development does not involve deep excavations, permanent groundwater abstraction or long-term alteration of groundwater flow systems. The footprint of the permanent development is relatively small. During construction, the principal environmental pathway is the generation of sediment-laden surface water runoff, and accordingly the mitigation strategy focuses on controlling runoff at source through established drainage, treatment and attenuation measures that have been successfully implemented on wind farm developments throughout Ireland. It is therefore important that the level of assessment remains proportionate to the nature, scale and risk profile of the Proposed Development.

- The responses presented in this submission demonstrate that the concerns raised by third parties have been carefully considered and can be addressed through the

extensive site-specific investigations, the Conceptual Site Model, the detailed impact assessments and the embedded mitigation measures presented within the EIAR. Where statements made in submissions are inconsistent with the available site-specific evidence, they have been clarified by reference to the geological, hydrological and hydrogeological data collected for the Site.

- Over the past three decades, more than 400 onshore wind farms have been developed in Ireland, many within environmentally sensitive geological and hydrogeological settings. The mitigation measures proposed for the Seskin Wind Farm reflect established industry best practice and have been successfully applied on comparable developments nationwide. To the best of our knowledge, there is no established body of published scientific evidence, regulatory guidance, EPA reporting or enforcement action (from local authorities) demonstrating that wind farm developments of this nature, when designed, constructed and managed in accordance with recognised environmental management practices, give rise to the significant and widespread geological, hydrological or hydrogeological impacts suggested in the third-party submissions.

- Having considered the site-specific evidence, the identified environmental pathways and the proposed mitigation measures, HES remains fully satisfied that the conclusions of the submitted EIAR are robust and technically sound. The Proposed Development will not result in significant adverse effects on the geological, hydrological or hydrogeological environment, will not adversely affect groundwater or surface water resources, will not increase downstream flood risk, and will not result in deterioration of any Water Framework Directive waterbody or prevent the achievement of its environmental objectives.

Accordingly, we respectfully request that An Coimisiún Pleanála place substantial weight on the detailed technical assessments presented in the EIAR and the supporting site-specific data and documentation when determining this appeal.

Yours sincerely,



Michael Gill PGeo
Civil Engineer and Hydrogeologist
B.A., B.A.I., M.Sc., Dip Geol, MIEI, MCIWEM



Adam Keegan
Hydrogeologist
B.Sc., MSc., P.Geo

© HYDRO-ENVIRONMENTAL SERVICES

22 Lower Main Street, Dungarvan, Co. Waterford, X35 HK11
T: +353-(0)58-441 22 **F:** +353-(0)58-442 44 **E:** info@hydroenvironmental.ie

www.hydroenvironmental.ie

APPENDIX 2

RESPONSE TO OBSERVATIONS BY AWN

REPORT



Response to Seskin Renewables Wind Farm Noise Submissions

Seskin Renewables Wind Farm Wind Farm, ACP reference 320705-24

CLIENT	DOCUMENT REFERENCE	DATE
MKO	267501.0543NR01	8 July 2026

AWN Consulting Ltd, The Tecpro Building, IDA Business & Technology Park, Clonshaugh, Dublin 17, D17 XD90

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Details	Written by	Approved by
Signature		
Name	Alistair Maclaurin	Mike Simms
Qualifications	Senior Acoustic Consultant	BE MEngSc MIOA
Title	BSc Dip MIOA	Principal Acoustic Consultant
Date	8 July 2026	

Disclaimer
This report has been prepared by AWN Consulting Ltd. with the reasonable skill, care and diligence to be expected of a competent consulting practice experienced in environmental and engineering disciplines. All analyses and conclusions have been produced and reviewed by suitably qualified and competent experts. Any use of software tools, including artificial intelligence, has been subject to appropriate professional oversight and validation. This report has been prepared and validated by the above-named consultants. The contents are based on the information available at the time of preparation and are intended for the sole use of the named client in accordance with the agreed scope of work. The contents of this report are not intended for third-party use or reliance, and no responsibility is accepted for any third party unless expressly agreed. The provisions in this report apply solely to this project and should not be assumed applicable to other developments.

ENVIRONMENT
I.S. EN ISO 14001:2015
NSAI Certified

HEALTH & SAFETY
I.S. ISO 45001:2018
NSAI Certified

QUALITY
I.S. EN ISO 9001:2015
NSAI Certified

1. INTRODUCTON

AWN are the noise consultants for this project and prepared Chapter 12 Noise and Vibration of the submitted Environmental Impact Assessment Report (EIAR) and carried out the assessments presented therein.

AWN undertook baseline noise monitoring, conducted detailed noise modelling with consideration of cumulative impacts and prepared the noise and vibration section of the submitted EIAR.

The noise and vibration assessment carried out as part of the submitted EIAR is considered robust, comprehensive, and in line with best practice as set out in the Wind Energy Development Guidelines for Planning Authorities published by the Department of the Environment, Heritage and Local Government (2006) and A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (IOA, 2013, hereafter referred to as IOAGPG); however, appropriate clarifications and further discussion are presented in the following sections of this technical note to clarify, expand, and highlight relevant previous statements within the submitted EIAR and address the items raised in the submissions.

Appropriate clarifications and further discussion are presented in the following sections of this technical note. These aim to clarify, expand upon, and highlight relevant previous statements within the submitted EIAR. They also address the items raised in relation to construction and operational noise due to the proposed wind farm in third party, statutory body and local authority observations.

2. SUMMARY OF KEY POINTS NOTED IN THE APPEALS

Table 2-1 presents an overview of the key points relating to noise that were noted in the appeals.

Table 2-1. Summary of Key Appeal Points and Responses

Item Theme	Key Claims in Appeal	High Level Response	Information Contained within EIAR	Additional Information provided
Turbine Hub Height	Turbine Hub Height is lower than the specified minimum in the manufacturer specifications. Increased hub-height would lead to approximately +1 dB in turbine noise.	The assessment of turbine noise was based on a hub-height of 100m, this is the selected hub-height for the Seskin Renewable Wind Farm project.	Section 12.4.5.3	None required
Cumulative Impacts	Omission of cumulative assessment taking account of the Tirlan site.	Predicted fixed plant noise is orders of magnitude below the license requirements of the Tirlan site and will not cause a cumulative impact.	Not required	Further comment provided in Section 3.1
Tonal Penalty	Omission of tonal penalty as per BS4142 and ETSU-97.	The assessment of turbine noise has been based on the WEDG06 guidelines. A tonal penalty has not been applied. However, the EIAR includes a commitment to secure a warranty from the turbine manufacturer confirming that the turbine noise output will not require a tonal noise correction under best practice guidance.	Section 12.4.5.3	Further detail provided in Section 3.2
Location of Noise Monitor Positions	Noise monitors were located close to reflective surfaces and undertaken during months were absorption from vegetation is greatest.	Please note that vegetation is not a reflective surface. Noise monitors were located in free-field conditions. Absorption due to vegetation would be minimal, however, any increase in absorption would lead to a more conservative assessment due to lower baseline values.	Section 12.4.2.1	Further detail provided in Section 3.3

Methodology and Guidelines	Guidance is outdated; Draft Wind Energy Guidelines 2019 not considered; no application of the WHO Environmental Noise Guidelines 2018.	The assessment methodology and guidelines considered and applied in the EIAR are the most up to date applicable guidelines, and have been applied to the assessment of turbine noise in the EIAR	Section 12.3.2.5	Further detail provided in Section 3.4
Calculation Methodology	Calculation of noise doesn't account for site specific factors and references an ISO 9613-2 standard that does not exist.	The assessment chapter references the latest ISO 9613-2 standard which was released in 2024. Noise modelling calculation settings utilise best practice guidance from the IOA GPG.	Sections 12.3.2, 12.6.3.1 & Appendix 12.3	Further detail provided in Section 3.5
Special Acoustic Characteristics (AM / LFN / Infrasound / Tonality)	EIAR does not adequately address AM and other special characteristics; mitigation is unclear/insufficient.	The EIAR addresses special characteristics and sets out a mitigation framework by setting out how complaints will be investigated and objectively evaluated, and how mitigation, if necessary, will be implemented.	Sections 12.3.2.5.7, 12.3.2.5.8, 12.7.2.2	Further detail provided in Section 3.6
Identification of Sensitive Receptors	EIAR does not identify potential receptors, namely, Lisdowney National School, Lisdowney Playschool and Lisdowney Church.	Listdowney National School and Lisdowney Church are identified as reference H207 and H269, respectively. Lisdowney Playschool is outside of the noise study area.	Appendix 12.4	None required
Lack of Vibration Standards, Thresholds and Mitigation	The EIAR does not reference widely used standards and does not set appropriate vibration thresholds. Appropriate assessment of vibration impacts not undertaken.	The EIAR references BS5228, BS7385 and the Tii Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes. Construction stage criteria are defined in Table 12-3 and Operational Vibration is scoped out.	Section 12.3.2.4, 12.3.2.7, Table 12-3	Further detail provided in Section 3.7

Construction Traffic Noise	The EIAR does not quantify construction traffic noise at receptor locations.	The EIAR assesses the change in noise level due to construction traffic at receptor locations, where a moderate or major change in noise level is calculated a further detailed assessment of traffic noise levels and durations has been undertaken within the EIAR with the resultant impacts ranging from imperceptible to not significant.	Section 12.6.2.6	None required

3. RESPONSES TO OBERVATIONS

The submissions from local residents refer to topics covered above such as the applicability of the guidelines; additional topics are responded to here.

3.1 Cumulative Impacts

Concerns have been raised that cumulative noise has not been appropriately assessed, in particular with regard to the existing Tirlan facilty.

As detailed in the Section 12.6.3.1 of the EIAR, a cumulative assessment of wind farm noise has been undertaken taking account of other wind farms within the surrounding area. The Tirlan facility is subject to a separate set of regulatory criteria and is required to comply with licensed noise limits specified as part of its EPA IPPC licence.

Wind turbine noise and industrial noise are generally assessed separately, as they are governed by different guidance documents, assessment methodologies, prediction models and compliance criteria. Consequently, it is not standard practice to undertake a cumulative assessment combining wind turbine noise and industrial noise.

The predicted fixed plant noise levels from the site are a potential source of cumulative noise when combined with the industrial noise from the Tirlan facility. The closest receptor to the fixed plant is H007. Section 12.6.3.2.1 of the EIAR indicates that the highest predicted fixed plant noise level is 27 dB $L_{Aeq,T}$ at receptor H007. This receptor is located over 1.5 km away from the Tirlan facility and the predicted noise level is substantially below the most stringent noise criterion of 35 dB $L_{Aeq,T}$. Noise level contributions from proposed fixed plant at receptors closer to the Tirlan facility will be considerably lower than 27 dB $L_{Aeq,T}$.

Given the significant margin between the predicted fixed plant noise levels and the criteria, and taking account of the separation distance between H007 and the Tirlan facility, cumulative noise effects arising from the interaction of fixed plant noise and noise from the Tirlan facility are considered unlikely to occur and are therefore the effect is not significant.

3.2 Tonal Penalty

The potential for tonality in the noise associated with the operation of the turbines was covered in Section 12.4.5.3 and Section 12.7.3 of the EIAR and the following statement form the EIAR are reiterated:

> *"For the purposes of this assessment a tonal penalty has not been included within the predicted noise levels. A warranty will be provided by the manufacturers of the selected turbine to ensure that the noise output will not require a tonal noise correction under best practice guidance."*

> *"The commissioning survey will include a review for the presence of audible tones associated with the operation of the wind turbine farm in accordance with Annex C of ISO 1996-2:2017 Acoustics — Description, measurement and assessment of environmental noise Part 2: Determination of sound pressure levels."*

It is confirmed that the potential for tonality has been considered in the EIAR. The following additional comments are provided to provide supplementary context.

A tone is the concentration of acoustic energy into a very narrow frequency range, with a noticeable character (such as a "hum" or "whine" for example). The audibility of any tones can be assessed by comparing the narrow band level of such tones with the masking level contained in a band of frequencies around the tone. Several objective methodologies to assess tonal audibility are available, such as the one included in ETSU-R-97 or that of ISO 1996-2:2017 Acoustics — Description, measurement and assessment of environmental noise Part 2: Determination of sound pressure levels as confirmed in Section 12.7.3 of the EIAR.

Mechanical noise may emanate from components within the nacelle of a wind turbine. This is a less natural-sounding noise which can be characterised in some cases by its tonal content, particularly if resonances in the mechanical noise are not suitably controlled. However, modern turbine designs have evolved to minimise mechanical noise radiation from wind turbines and resonances are normally minimised through design.

Wind farm noise guidelines such as those of ETSU-R-97, for predicting noise level at receptors, assume that the wind turbine noise contains no clearly audible tones. However, it not possible to predict the occurrence of tonality on a project as this would not normally be expected from standard wind turbine designs.

In the unlikely event that a clearly audible tone or tones are identified at a noise-sensitive location, the operator would liaise with the turbine manufacturer to investigate and implement measures to mitigate or minimise the occurrence of tonality as much as is reasonably practicable. This may involve engineering methods or turbine operational changes.

3.3 Location of Noise Monitor Positions

Concerns were raised regarding the positioning of noise monitoring locations and nearby reflective surfaces, as well as the potential for reduced noise levels due to increased vegetation in Summer months.

As stated in Section 12.4.2 of the EIAR, background noise measurements were carried out in accordance with the relevant guidance:

> *"All measurement data collected during the background noise surveys has been carried out in accordance with the IOA GPG and accompanying Supplementary Guidance Note 1: Data Collection (2014) discussed in the following sections."*

"The selection of the noise monitoring locations was informed by a site visit and supplemented by reviewing aerial images of the study area and other online sources of information (e.g., Google Earth and OSI Maps)."

It should be noted that vegetation is not considered an acoustically reflective surface in environmental noise assessments. Reflective surfaces are typically hard surfaces such as building façades and walls. The IOA GPG states the following with regards to the siting of monitoring equipment:

"The specification of a minimum distance from a dwelling (or any other acoustically reflective surface other than the ground) is to ensure standardised measurements approximating to free-field conditions, where the potential effects of acoustic reflections from surfaces such as building façades, walls, fences and other surfaces are minimised."

The guidance goes on to acknowledge that professional judgement may be required where site constraints limit the availability of ideal monitoring locations.

AWN is satisfied that the selected monitoring locations were not unduly influenced by reflective surfaces.

It is accepted that increased vegetation may increase acoustic absorption and result in marginally lower measured background noise levels. However, contrary to the assertion made in the submission, any such effect would lead to a more conservative assessment by producing lower derived background noise levels and, consequently, potentially more stringent noise criteria against which the Proposed Development would be assessed.

3.4 Methodology and Guidelines

Submissions observed that the Draft Wind Energy Guidelines 2019 and the WHO Environmental Noise Guidelines 2018 were not considered for criteria.

Sections 12.3.2.5.5 and 12.3.2.5.6 presents a detailed discussion on both the Draft Wind Energy Guidelines 2019 the World Health Organisation (WHO) Environmental Noise Guidelines for the European Region (2018) and is re-produced here:

"The World Health Organisation (WHO) Environmental Noise Guidelines for the European Region (2018) provide guidance on protecting human health from exposure to environmental noise. They set health-based recommendations based on average environmental noise exposure of several sources of environmental noise, including wind turbine noise. Recommendations are rated as either 'strong' or 'conditional'. A strong recommendation, "can be adopted as policy in most situations" whereas a conditional recommendation, "requires a policy-making process with substantial debate and involvement of various stakeholders. There is less certainty of its efficacy owing to lower quality of evidence of a net benefit, opposing values and preferences of individuals and populations affected or the high resource implications of the recommendation, meaning there may be circumstances or settings in which it will not apply".

Based upon the review set out above, it is concluded that the conditional WHO recommended average noise exposure level (i.e. 45dB L_{den}) should not currently be applied as target noise criteria for an existing or proposed wind turbine development in Ireland.

The WHO 2018 guidelines are not applicable for the assessment of environmental wind turbine noise. The assessment of wind turbine noise has been undertaken in accordance the applicable guidelines (2006 WEDGs) and best practice guidance for the assessment of wind turbine noise (IOA GPG).

The wind turbine noise assessment methodology in the EIAR is in accordance with the guidelines contained in the Wind Energy Development Guidelines for Planning Authorities, 2006 (2006 WEDGs), and supported

by best practice guidance for the assessment of wind turbine noise, namely, A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Turbine Noise (2013) and its supplementary Guidance Notes (2014) (IOA GPG). Full details of guidance documents referenced for the assessment of operational wind turbine noise are presented in Section 12.3.2.5 of the EIAR.

Section 12.3.2.5 of the EIAR presents a statement that was submitted by the Minister for Housing, Local Government and Heritage during a Dail Eireann Debates on 13 June 2023. A more recent statement was submitted by the Minister for Housing, Local Government and Heritage during a Dail Eireann Debate on 19 June 2025 which similarly confirmed that the *"current 2006 Wind Energy Development Guidelines remain in force."*

3.5 Calculation Methodology

Submissions have commented on the methodology for the calculation of noise and in particular referencing site specific factors.

As detailed in Section 12.6.3.1 of the EIAR, the operational noise predictions presented within the EIAR were undertaken using a computer-based propagation model consistent with current accepted practice for wind turbine noise assessment, having regard to the Institute of Acoustics Good Practice Guide and supplementary guidance, and ISO 9613-2:2024, which was released in 2024.

The models were prepared with ground absorption settings recommended within the Institute of Acoustics Good Practice Guide, specifically that ground absorption is set to 0.5. This is considered a conservative absorption setting. The guidance states that:

> *"A soft ground factor (G=1.0) should not be used. Although a ground factor of G=0.0 is commonly used, as it will tend to provide robust predictions in most situations, this can over predict noise levels. For consistency it is recommended to use a ground factor of G=0.5."*

ISO 9613-2:2024 states the following with regards to ground absorption:

> *"a) **Hard ground,** which includes paving, water, ice, concrete, and all other ground surfaces having a low porosity. Tamped ground, for example, as often occurs around industrial sites, can be considered hard. For hard ground G = 0.*
>
> *b) **Porous ground,** which includes ground covered by grass, trees or other vegetation, and all other ground surfaces suitable for the growth of vegetation, such as farming land. For porous ground G = 1.*
>
> *c) **Mixed ground,** if the surface consists of both hard and porous ground, then G takes on values ranging from 0 to 1, the value being the fraction of the region that is porous."*

Given that porous ground includes ground covered by grass, trees or other vegetation, it can be concluded that a ground absorption value of 0.5 is conservative for this assessment.

3.6 Low-frequency Noise, Infrasound and Amplitude Modulation

A number of the submissions from local residents refer to their concerns in respect of low-frequency noise, infrasound and Amplitude Modulation due to the proposed wind turbines.

Section 12.3.2.5.7 of the EIAR presents a discussion on the evidence for low frequency noise and infrasound associated with the operation of wind turbines. It concludes that "*low frequency noise and infrasound associated with wind turbines is expected to be below perceptibility thresholds and are not*

likely to result in any significant effects at NSLs. The are no criteria proposed to assess low frequency noise or infrasound as part of the EIAR."

The following additional comments are provided to support this conclusion: A statement from the Institute of Acoustics (IOA) in respect of Wind Farm Noise Assessments dated December 2024 and published on the IOA website[1] states the following in relation to Infrasound and Low Frequency noise:

> *"The IOA is aware that there is some information presented at planning inquiries suggesting the potential for physiological health effects from infrasound from wind turbines. It is current advice to members that there is no need to assess infrasound as part of the noise impact assessment process, as the absolute levels are well below those reported to trigger physiological health effects based on peer reviewed research to date."*
>
> *"The IOA is aware that there is some information presented at planning inquiries suggesting the potential for physiological health effects from low frequency noise from wind turbines. It is current advice to members that there is no need to assess low frequency noise as part of the noise impact assessment process, as the absolute levels, whilst potentially audible at typical receptor distances, are well below those reported to trigger physiological health effects based on peer reviewed research to date."*

Additionally, the latest update to ETSU-97 was released on 19 June 2026 (Assessment and Rating of Wind Turbine Noise, (ARWTN)) and lists the following effects that do not require assessment:

> *"Infrasound*
>
> *1.21*
>
> *The term infrasound refers to sound at frequencies below 20 Hz, and for wind turbines is often related to the blade passage frequency. Research has shown that, for modern upwind turbines (i.e. turbines where the rotor is positioned upwind of the tower when in operation), the levels of infrasound at typical receptor distances are well below the threshold of perception. The scoping review [2] (p. 114) concluded that 'the findings from the existing evidence base indicate that infrasound from wind turbines at typical exposure levels has no direct adverse effects on physical or mental health'.*
>
> *Low frequency*
>
> *1.23*
>
> *The term low frequency sound refers to sound occurring predominantly in the frequency range from approximately 20 to 200 Hz. Noise-sensitive receptors are considered to be suitably protected from low frequency sound by the proposed noise criteria (which are based on A-weighted noise levels, see glossary for definition). In the absence of specific low frequency tonal noise (which is covered by the tonal assessment methodology of Appendix B), no specific low frequency limits are necessary to control wind turbine noise."*

The EIAR confirmed that low frequency noise and infrasound associated with wind turbines is expected to be below perceptibility thresholds and are not likely to result in any significant effects at NSLs. The EIAR considered the potential for low frequency noise and infrasound associated with wind turbine noise.

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1 https://www.ioa.org.uk/sites/default/files/IOA%20Statement%20-%20Wind%20Farm%20Noise%20Assessment%20Dec%202024.pdf accessed 10 April 2026.

Section 12.3.2.5.8 of the EIAR presents a detailed discussion of Amplitude Modulation (AM) from the operation of wind turbines. This discussion reviews notable recent publications with respect to AM research and guidance. The following statements from the EIAR are highlighted in the context of the claims that AM was not properly addressed in the EIAR and that the proposed mitigation was unclear or unknown:

> *"It is not possible to predict an occurrence of AM at the planning stage."*

and

> *"To date there is no clear industry consensus on how AM should be regulated or managed through the planning stage. In the context of a site seeking permission to continue operation, reference is made to the post-commissioning monitoring and potential mitigation measures in respect of AM described in Section 12.7.2.2 of this chapter."*

Section 12.7.2.2 of the EIAR sets out a clear process for investigating complaints relating to amplitude modulation (AM), including application of an objective, published assessment methodology and an outline mitigation strategy implemented through engineering methods and/or curtailment of specific turbines. This provides a measurable basis for determining whether AM is present (and, where relevant, excessive) and whether mitigation is required, by committing to a recognised objective rating method, namely the Institute of Acoustics (IOA) AMWG 'Reference Method' and defined operational control measures.

The following statement is reiterated from the EIAR:

> *"The measurement method outlined in the IOA AMWG document, known as the 'Reference Method', will provide a robust and reliable indicator of AM and yield important information on the frequency and duration of occurrence, which can be used to evaluate different operational conditions including method to mitigate any excessive AM. These mitigation measures, if required, will consist of the implementation of operational controls for the relevant turbine type, which will include turbine curtailment under specific operational conditions.*
>
> *In the absence of widely accepted and robust planning conditions to control amplitude modulation (AM) from wind turbines, the commitments outlined in this EIAR are considered best practice. The proposed approach will ensure that any negative impacts arising from AM associated with the operation of the Proposed Development will be effectively addressed by the operator."*

Additionally, ARWTN states the following with regards to Amplitude Modulation:

> *"All wind turbines generate AM (or blade swish, to a limited extent), but the occurrence of elevated levels of AM is a complex phenomenon that is likely to be related to a combination of turbine and site characteristics; the current consensus is that AM cannot be predicted. Tonal noise and AM are therefore best controlled through enforcement of planning conditions which include the application of character corrections as described in section 4."*

It is confirmed that the EIAR addresses the potential for AM arising from the Proposed Development in line with recognised guidance, and it provides a mitigation framework by setting out how any potential AM will be investigated and objectively evaluated, and how mitigation, if necessary, will be implemented.

3.7 Vibration

Concerns were raised regarding the assessment of vibration and the application of criteria for vibration effects.

Vibration emissions from turbines have been scoped out of the assessment. Section 12.3.2.7 presents the discussion on operational phase vibration which concludes that:

> *"The shortest distance from any turbine in the Proposed Wind Farm to any NSL is 700m. This setback distance complies with the four-times tip height setback requirement as set out in the Draft Guidelines. At that distance, the level of vibration will be significantly below any thresholds for perceptibility. Therefore, vibration criteria are not specified for the operational phase of the Proposed Development."*

Additionally, ARWTN lists the following effects that do not require assessment:

> *"Ground-borne vibration*
>
> *1.22*
>
> *The term ground-borne vibration refers to mechanical vibration from the operation of the wind turbine that is directly transferred to and propagates through the ground. Levels of ground-borne vibration from modern upwind turbines are very low and, although ground-borne vibration from wind turbines can be measured at large distances using sensitive equipment, these levels are significantly below the human perception threshold and therefore do not result in adverse effects on human receptors."*

Vibration criteria for the construction phase is presented in Section 12.3.2.4 of the EIAR and references the latest guidance documents BS5228-2, BS 7385 and the Tii's Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes. Appropriate criteria has been defined in Table 12-3 and vibration effects have been assessed as part of the report. It is confirmed that the EIAR adequately addresses the vibration effects from the Proposed Development.

4. CONCLUSION

This document has been prepared in response to observations relating to noise and vibration submitted to the Commission in relation to the planning application for the Seskin Renewables Wind Farm Development.

The submitted noise impact assessment in the EIAR is robust and has been carried out in line with current standards and best practice guidelines. The submitted EIAR Noise and Vibration assessment demonstrates that the proposed development can be constructed and can operate within the noise criteria derived from the relevant guidance. This document has reiterated the relevant sections of the EIAR to comprehensively address the concerns and comments relating to noise and vibration within the submitted observations.

