



26/05/2026

Bellair Bog Community Group

Observation to An Coimisiún Pleanála

Re: PAX19.324161

**Proposed Lemanaghan Wind Farm
Development**

Lemanaghan and Surrounding Townlands, Co. Offaly

Bellair Bog Community Group
Ballycumber
County Offaly

25 May 2026

An Coimisiún Pleanála
64 Marlborough Street
Dublin 1
D01 V902

Re: PAX19.324161 – Proposed Lemanaghan Wind Farm Development

Dear Sir/Madam,

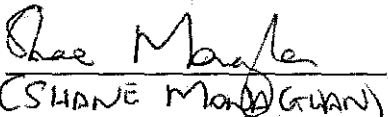
Please find enclosed an observation on behalf of the Bellair Bog Community Group concerning the proposed Lemanaghan Wind Farm development under Case Reference PAC19.324161.

This observation outlines concerns relating to cumulative environmental effects, peatland rehabilitation and hydrology, landscape and visual impacts, ecological sensitivity, alternatives assessment, cumulative infrastructure development, and the long-term industrialisation of peatland landscapes within County Offaly and the wider Midlands region.

The observation also addresses issues arising in relation to cumulative assessment, strategic infrastructure concentration, peatland rehabilitation objectives, and the adequacy of the Environmental Impact Assessment and alternatives assessment processes undertaken in support of the Proposed Project.

We respectfully request that the matters raised within this observation be fully considered as part of the assessment of the proposed development and associated Environmental Impact Assessment Report.

Yours faithfully,

 (Chairperson)
(SHANE MORAN)
On Behalf of

Bellair Bog Community Group

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1. Cumulative Impacts

1.1 Existing Wind/Energy Infrastructure in Offaly

County Offaly has already experienced substantial industrial and energy-related development across its peatland landscapes. For decades, the county carried a significant share of Ireland's peat-based energy legacy, resulting in long-standing environmental alteration, drainage, habitat disturbance and landscape change throughout extensive areas of bogland.

In addition to historic peat extraction, Offaly now contains a growing concentration of renewable energy and associated infrastructure, including wind farms, substations, battery storage facilities, grid connections, transmission infrastructure and associated enabling works (hereafter collectively referred to as the 'Offaly Energy Infrastructure Baseline'). This existing context is important, as the proposed Lemanaghan Wind Farm under Case Reference PAC19.324161 would not be introduced into an untouched landscape, but into a county already substantially shaped by energy production and industrial land use.

The applicant's own EIA submitted under Case Reference PAC19.324161 repeatedly relies upon the historically modified and industrial character of Offaly's peatland landscapes in support of the suitability of the site for further large-scale renewable energy development.

Chapter 14 (Landscape and Visual) of the EIA states that:

"The peatlands in which the site is located form part of a larger rural working landscape setting which has undergone substantial degree of modification through peat extraction and agriculture."

Chapter 14 further states that:

"The Proposed Project is strategically sited within a flat landscape of degraded cutover peatland, a landscape currently of low value and low sensitivity."

Similarly, Chapter 3 (Site Selection and Reasonable Alternatives) states that:

"This report clearly identified the potential for the development of renewable energy (in particular wind energy) and other developments on BnM lands."

Chapter 3 further identifies advantages of Bord na Móna peatlands for onshore wind farm development, including:

"Industrial brownfield sites suitable for redevelopment."

The significance of these statements is that the applicant expressly relies upon the existing industrial and modified character of Offaly's peatland landscapes as part of the justification for further large-scale renewable energy development within the receiving environment.

Further, they demonstrate the extent to which the receiving environment has already undergone substantial long-term industrial and infrastructural transformation arising from historic peat extraction and more recent energy-related development.

The Environmental Impact Assessment Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment of cumulative effects and the interaction between projects and the receiving environment. Similarly, the Planning and Development Act 2000 requires consideration of the proper planning and sustainable development of the area. European case law, including *Holohan v An Bord Pleanála* (Case C-461/17) and *Commission v Ireland* (Case C-50/09), has consistently emphasised the importance of assessing projects in the context of the wider receiving environment and cumulative interaction between developments, rather than treating projects as isolated developments divorced from their broader environmental context.

Accordingly, the proposed development should not be assessed in isolation. Proper consideration must be given to the cumulative environmental, landscape, ecological, hydrological, cultural and social burden already placed on County Offaly and its rural communities through historic peat extraction, existing energy infrastructure and continuing industrial land-use transformation.

1.2 Statistics on Existing Turbines/Projects

County Offaly already contains a substantial concentration of renewable energy and associated infrastructure projects. According to Wind Energy Ireland, Offaly currently accounts for approximately 3.53% of Ireland's installed wind energy capacity, with approximately 208MW of installed wind generation already operational within the county. Wind Energy Ireland data also indicates that County Offaly represents approximately 11% of the national wind energy development pipeline, demonstrating the significant scale of additional renewable energy infrastructure proposed or progressing within the county.

1.2.1 Existing and Permitted Wind Energy Developments

Existing and permitted wind energy developments within County Offaly include, but are not limited to:

- Mount Lucas Wind Farm — originally permitted as a 30-turbine wind farm
- Cloncreen Wind Farm — 21 turbines with tip heights of approximately 170 metres
- Yellow River Wind Farm — 29 turbines with an installed capacity of approximately 101MW
- Cushaling Wind Farm — including turbines up to approximately 187 metres in height together with associated substations, battery storage, drainage works, road upgrades and spoil storage areas
- Cloncant Wind Farm — including turbines up to approximately 187 metres in height and associated infrastructure
- Cloghan Wind Farm

- Derrinlough Wind Farm
- Moanvane Wind Farm
- Leabeg Wind Farm
- Meenwaun Wind Farm
- Moanmore Wind Farm
- Proposed large-scale solar developments, including Blackwater Solar Farm within former boglands

The applicant's own EIAR also identifies multiple additional existing, permitted and potential renewable energy developments on Bord na Móna lands, including Littleton Wind Farm, Garryhinch Wind Farm, Bellair Bog, Derryfadda Bog, Coolnagun Bog, Kilberry Bog and Cornafulla Bog.

1.2.2 Proposed Lemanaghan Wind Farm

The proposed Lemanaghan Wind Farm would add a further 15 turbines with blade tip heights of up to 220 metres together with a permanent 220kV on-site substation, overhead line infrastructure connecting into the existing Shannonbridge–Maynooth 220kV transmission line, internal road networks, upgraded site entrances and roads, underground cabling, drainage infrastructure, borrow pits, construction compounds and peat and spoil management areas across a site area of approximately 1,258 hectares (hereafter collectively referred to as the “Proposed Project Infrastructure”).

1.2.3 Cumulative Concentration of Energy Infrastructure

When considered cumulatively, the continued expansion of the Offaly Energy Infrastructure Baseline within County Offaly raises significant planning concerns. As outlined, County Offaly already contains substantial existing and permitted renewable energy infrastructure together with additional projects identified within the applicant's own EIAR across Bord na Móna lands. Concern therefore arises regarding the cumulative impact of continued electricity infrastructure expansion within landscapes already substantially altered through decades of peat extraction, industrial land use and energy-related development.

The Offaly County Development Plan and Wind Energy Strategy recognise the importance of balancing renewable energy development with landscape protection, environmental considerations and the cumulative effects of wind energy development within the county. Similarly, Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires consideration of cumulative effects and the interaction between existing, permitted and proposed developments within the receiving environment.

The issue arising is not renewable energy development in principle, but whether the continuing concentration of large-scale energy infrastructure within historically industrialised peatland environments places an excessive cumulative environmental, landscape and infrastructural burden on the receiving environment and rural communities of County Offaly.

1.3 Additional Industrialisation of Boglands

The Environmental Impact Assessment Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment of the direct, indirect and cumulative effects of projects on matters including population, biodiversity, land, soil, water, climate, cultural heritage and landscape. The Planning and Development Act 2000, as amended, also requires decision-makers to consider the proper planning and sustainable development of the area.

In this context, serious concern arises that the proposed introduction of substantial additional industrial-scale infrastructure within this peatland environment would contribute to the further industrialisation of landscapes within County Offaly already subject to extensive historic industrial and infrastructural alteration.

Chapter 3 identifies Bord na Móna peatlands as including:

“Industrial brownfield sites suitable for redevelopment.”

This repeated reliance upon historic industrial alteration and degraded peatland conditions as justification for further large-scale infrastructure development risks reinforcing the long-term industrialisation of peatland landscapes.

This appears increasingly inconsistent with national peatland rehabilitation and rewetting objectives, including those reflected within the Peatlands Climate Action Scheme and Ireland’s 4th National Biodiversity Action Plan 2023–2030.

This concern is further reinforced by the fact that substitute consent and retrospective regularisation processes relating to historic peat extraction within the wider Midlands peatlands have themselves involved restoration, rehabilitation, rewetting and environmental management measures intended to address the long-term impacts of industrial peat extraction.

In this context, concern arises regarding the apparent tension between these long-term rehabilitation and ecological recovery objectives and the continued concentration of additional industrial-scale infrastructure within the same peatland landscapes.

A key issue therefore arises as to whether the continued concentration of industrial-scale infrastructure within these peatland environments is compatible with long-term peatland restoration, landscape protection, ecological recovery and sustainable land-use objectives.

1.4 Grid Infrastructure Cumulative Impacts

The proposed development would require connection to the wider electricity grid. Accordingly, the cumulative impact of the proposal extends beyond the turbines themselves and includes the wider grid and transmission infrastructure associated with the Proposed Project Infrastructure identified earlier in this chapter.

These issues must also be considered in the context of the cumulative assessment obligations arising under Directive 2011/92/EU, as amended by Directive 2014/52/EU, identified earlier in this chapter.

Chapter 17 of the EIAR acknowledges interaction between project components, material assets, utilities, roads, traffic and national grid supply. However, it remains unclear whether the assessment fully addresses the wider long-term cumulative implications of continued transmission and electricity infrastructure expansion within County Offaly and the wider Midlands peatland region.

In particular, questions arise regarding whether sufficient consideration has been given to:

- the cumulative concentration of transmission and electricity infrastructure within landscapes already subject to extensive industrial and infrastructural alteration;
- the potential requirement for future grid reinforcement, substations, transmission upgrades or associated enabling infrastructure arising from continued renewable energy expansion within the region;
- the long-term cumulative interaction between existing, permitted and potential future transmission infrastructure forming part of the Offaly Energy Infrastructure Baseline; and
- the wider landscape, hydrological and community implications of continued infrastructure intensification across peatland environments already subject to historic peat extraction and ongoing rehabilitation measures.

While the EIAR identifies interaction between project components and existing infrastructure, the assessment appears primarily focused upon the direct effects of the Proposed Project Infrastructure itself rather than the broader long-term cumulative implications of continued infrastructure concentration within the receiving environment.

In this context, serious reservations remain regarding whether the wider cumulative effects of continued grid and transmission infrastructure expansion within County Offaly have been fully assessed in the context of the existing Offaly Energy Infrastructure Baseline.

1.5 Offaly Becoming an “Energy Landscape”

A significant issue arising from the proposed development relates to the long-term cumulative transformation of County Offaly’s peatland landscapes into concentrated energy-generation landscapes. While renewable energy development forms an important part of national climate policy, questions arise regarding the continuing concentration of large-scale energy infrastructure within peatland environments already historically altered through decades of industrial peat extraction and associated land-use change.

As outlined earlier in this chapter, the applicant repeatedly relies upon the historically modified, degraded and industrial character of Offaly's peatland landscapes in support of the suitability of these environments for large-scale renewable energy development.

The EIAR also references national planning policy supporting renewable energy development on former peat extraction lands. Chapter 3 states that the National Planning Framework identifies the importance of:

"focusing in particular on the extensive tracts of publicly owned peat extraction areas in order to support a managed just transition of local economies to greener energy"

The applicant also acknowledges that Bord na Móna previously identified:

"the potential for the development of renewable energy (in particular wind energy) and other developments on BnM lands."

The significance of these statements is that they demonstrate an ongoing strategic transition whereby former peat extraction landscapes are increasingly being repurposed for large-scale energy infrastructure. The proposed development must therefore be assessed within the wider cumulative context of the continuing transformation of Offaly's peatland landscapes into concentrated energy and infrastructure environments.

This cumulative transformation is further reinforced by the applicant's own description of multiple additional existing, permitted and potential future renewable energy developments on Bord na Móna lands identified earlier in this chapter.

The applicant also openly identifies low population density as a factor supporting site selection. Chapter 3 states that:

"The Applicant sought to identify an area with a relatively low population density."

The EIAR further states that:

"The number of receptors experiencing these effects is very low as the landscape surrounding the proposed turbines has a low population density."

Questions arise regarding whether rural peatland communities within County Offaly are increasingly being identified as suitable locations for concentrated energy infrastructure precisely because of their industrial history, lower population density, existing grid proximity and modified landscape character.

While such factors may influence site selection from a commercial or technical perspective, they also raise broader concerns regarding cumulative landscape transformation, spatial concentration of infrastructure and the long-term environmental burden placed upon rural peatland environments and communities.

These issues must also be considered in the context of the cumulative assessment obligations identified earlier in this chapter, including the principles established in *Holohan v An Bord*

Pleanála (Case C-461/17) concerning assessment of cumulative interaction within the wider receiving environment.

In this context, the proposed development must be assessed within the wider cumulative context of the progressive transformation of County Offaly's peatland landscapes into concentrated energy and infrastructure environments layered upon decades of historic industrial peat extraction.

1.6 Spatial/Environmental Justice Concerns

A significant issue also arises regarding the fair distribution of environmental burdens. County Offaly and the wider Midlands have already carried significant national energy burdens through decades of peat extraction, peat-fired generation and associated industrial land use.

In this context, the continued concentration of large-scale energy infrastructure within rural peatland communities raises important issues of spatial and environmental justice. While County Offaly is characterised by extensive rural landscapes and relatively low population density, this should not diminish the significance of the environmental, landscape, cultural and community impacts experienced by those living within affected areas.

The applicant's own EIAR openly identifies low population density as a factor supporting site selection. Chapter 3 states that:

"The Applicant sought to identify an area with a relatively low population density."

The EIAR further states that:

"The number of receptors experiencing these effects is very low as the landscape surrounding the proposed turbines has a low population density."

While population density may form part of site-selection considerations, questions arise where sparsely populated rural communities repeatedly experience the cumulative concentration of nationally significant infrastructure and associated environmental burdens over time. In particular, the relatively low number of residential receptors identified within standard assessment methodologies may reduce the extent to which cumulative environmental and infrastructural burdens affecting rural communities are fully reflected within conventional planning assessments.

In this context, careful consideration should be given to the lived experience, landscape dependence and cumulative environmental burden affecting rural peatland communities beyond purely numerical population analysis.

The Aarhus Convention reflects the importance of meaningful public participation in environmental decision-making and access to environmental justice. Proper consideration

should therefore be given not only to numerical population density, but also to the cumulative burden already carried by rural communities affected by repeated large-scale industrial and energy-related development proposals.

The issue arising is not whether rural landscapes can accommodate renewable energy development in principle, but whether the continued concentration of nationally significant energy infrastructure within the same peatland environments results in a disproportionate cumulative burden being placed upon particular rural communities and landscapes over time.

1.7 Cumulative Social Impacts on Rural Communities

The cumulative impact of the proposed development is not limited to ecology, hydrology or landscape. It also includes impacts on rural communities, sense of place, cultural identity, local amenity and the relationship between people and their surrounding environment.

Large-scale infrastructure can alter how communities experience and interact with their landscapes over time. In the case of Lemanaghan and the wider Offaly boglands, this is particularly significant given the area's cultural, historical, ecological and community importance beyond its industrial use.

Over time, repeated large-scale energy and infrastructure development may gradually alter the character of peatland landscapes and the relationship between rural communities and their surrounding environment.

This is particularly relevant within County Offaly and the wider Midlands, where rural communities have already experienced decades of landscape alteration and industrial land-use change associated with peat extraction and national energy infrastructure.

The proposed development should therefore be assessed within the wider cumulative context of long-term industrial and energy-related transformation affecting rural peatland communities within County Offaly and the wider Midlands region.

Serious consideration must be given to whether the continued concentration of industrial-scale infrastructure within landscapes already shaped by decades of environmental alteration and industrial land use represents a sustainable and proportionate long-term planning outcome for affected rural communities.

2. Historic Peat Extraction Impacts

2.1 History of Industrial Peat Extraction

The remedial Environmental Impact Assessment Report ("rEiAR") submitted under Case Reference SU19.323676 concerning historic peat extraction and ancillary activities at Lemanaghan Bog documents a long history of industrial peat extraction, drainage and

associated industrial activity affecting peatland landscapes within County Offaly and the wider Midlands region.

The rEIAR confirms that:

“bog drainage works began in 1950 followed by the commencement of peat extraction in 1960.”

The substitute consent application further confirms that consent is sought for:

“Industrial scale peat extraction (milled peat) at the Application Site from 1988 to June 2020”

together with:

“Installation, use and maintenance of surface water drainage infrastructure (drains, silt ponds, pumps) at the Application Site to facilitate peat extraction activity from 1988 to present day”, “Use and maintenance of pre-existing railway infrastructure to facilitate peat extraction activity from 1988 to present day” and:

“All associated site development and ancillary works.”

The hydrology assessment within the rEIAR further confirms that historic peat extraction fundamentally altered the hydrological regime of the bog. The assessment states that:

“The cumulative effects of the Peat Extraction Phase (July 1988 – June 2020) and the peat extraction and site preparation works which preceded 1988 would have had a profound negative effect on the bog hydrogeological regime whereby vegetation was cleared, drainage inserted, and peat extracted from much of the Application Site.”

Chapter 14 (Landscape and Visual) of the EIAR submitted under Case Reference PAC19.324161 similarly confirms the extent of industrial landscape modification arising from historic peat extraction activities. The assessment states that:

“Modified landforms exist throughout the site...”

It further states that:

“Industrial features that facilitated historic peat extraction activities are still evident throughout the Proposed Project site”

and:

“Industrial elements such as railway infrastructure contribute to the industrialised landcover and character of the landscape.”

Chapter 9 (Water) of the EIAR submitted under Case Reference PAC19.324161 similarly acknowledges the historically altered peatland environment forming the receiving baseline for the proposed development. The assessment states that:

“Due to the historic industrial peat extraction activities at the Proposed Project site, the site has been artificially drained in order to lower the peat water table.”

It further states that:

“Drainage ditches were first inserted into the upper surface of the bog in 1950 prior to the commencement of peat extraction in 1960.”

The environmental legacy of industrial peat extraction therefore forms an important part of the baseline receiving environment against which the cumulative impact of the proposed development under Case Reference PAC19.324161 must be assessed.

Article 3 of Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment of the direct and indirect significant effects of a project, including “the cumulation of effects” and interaction between factors including population and human health, biodiversity, land, soil, water, climate, landscape and cultural heritage.

In this context, the extensive historic industrial modification affecting Offaly’s peatland landscapes forms a critical component of the environmental baseline relevant to assessment of the likely significant effects of the proposed development.

2.2 Substitute Consent and Retrospective Regularisation

The substitute consent application before An Coimisiún Pleanála under Case Reference SU19.323676 relates to historic peat extraction and ancillary activities carried out at Lemanaghan Bog and surrounding peatland areas within the Boora Bog Group.

The remedial Environmental Impact Assessment Report (rEIAR) submitted under Case Reference SU19.323676 expressly acknowledges limitations associated with retrospective environmental assessment. The rEIAR states that:

“The retrospective assessment has been limited by the availability, completeness, accuracy and accessibility of historical baseline environmental data.”

This acknowledgement is significant in the context of substitute consent and retrospective environmental assessment because it identifies inherent limitations in reconstructing baseline environmental conditions following decades of industrial peat extraction and environmental alteration. As a consequence, the full extent of cumulative environmental effects, ecological change and long-term hydrological alteration affecting the receiving environment may no longer be capable of being fully identified through retrospective assessment processes.

The hydrology assessment within the rEIAR further confirms that:

“The effects of the receiving hydrological and hydrogeological environment have been assessed over 3 no. phases of the life cycle of the Project. These phases include the Peat Extraction Phase (July 1988 – June 2020), the Current Phase (June 2020 – present day) and the Remedial Phase.”

These issues must also be considered in the context of the cumulative assessment obligations identified earlier in this submission together with the exceptional nature of substitute consent and retrospective environmental assessment processes recognised within Irish and European case law.

In *Sweetman v An Bord Pleanála* [2017] IESC 46, the Irish Supreme Court confirmed that substitute consent is intended to apply only in exceptional circumstances. Similarly, in *Commission v Ireland* (Case C-215/06), the Court of Justice of the European Union emphasised that retrospective assessment cannot fully remedy the failure to carry out environmental assessment prior to development taking place.

The substitute consent process under Case Reference SU19.323676 therefore demonstrates that extensive industrial peat extraction and associated ancillary activities occurred across the receiving environment prior to the completion of the environmental assessment processes required under Irish and European environmental law.

In this context, the history of substitute consent, retrospective regularisation and acknowledged retrospective assessment limitations associated with Case Reference SU19.323676 is highly relevant to assessment of the proposed wind farm development under Case Reference PAC19.324161.

This is particularly significant in the context of cumulative assessment, where accurate identification of historic baseline conditions forms an essential component of environmental impact assessment. Questions therefore arise regarding the extent to which long-term cumulative environmental effects within the receiving environment can now be fully identified following decades of industrial peat extraction and acknowledged retrospective assessment limitations.

2.3 Restoration and Rehabilitation Obligations

The substitute consent application before An Coimisiún Pleanála under Case Reference SU19.323676 confirms that significant decommissioning, rehabilitation and environmental management obligations now apply following cessation of industrial peat extraction activities within the Application Site.

The remedial Environmental Impact Assessment Report (rEIAR) submitted under Case Reference SU19.323676 states that:

“Peat extraction ceased at the Application Site in June 2020, and decommissioning activities as required by Condition 10 of the IPC Licence are currently ongoing. Subsequent to the completion of decommissioning activities, rehabilitation works will commence at the Application Site.”

The biodiversity assessment within the rEIAR further confirms that rehabilitation measures are:

“required under Condition 10 of its EPA Licence P0500-01”

The applicant also repeatedly refers to:

“The proposed mitigation measures associated with the Draft Bord na Móna Cutaway Bog Decommissioning and Rehabilitation Plan”

The Environmental Protection Agency further advised during the scoping process associated with Case Reference SU19.323676 that:

“consideration should be given to the inclusion of any relevant bog areas in an enhanced rehabilitation scheme e.g. Peatlands Climate Action Scheme (PCAS)”

These rehabilitation and restoration measures are also reflected within wider national peatland, climate and biodiversity policy, which increasingly emphasises peatland rehabilitation, rewetting, environmental stabilisation, biodiversity recovery and long-term ecosystem restoration across former industrial peatlands.

The Government’s Bord na Móna Bog Rehabilitation Scheme states that the scheme will:

“protect the storage of 100 million tonnes of CO₂ emissions, enhance biodiversity, create 310 jobs and will contribute to Ireland’s target of being carbon-neutral by 2050.”

The Peatlands Climate Action Scheme (PCAS) states that:

“The primary aim of the Peatlands Climate Action Scheme is to optimise climate action benefits of re-wetting the former industrial peat production areas”

The Peatlands Climate Action Scheme (PCAS) further states that:

“The general objective of peatland rehabilitation is to ensure environmental stabilisation of the former industrial peat production areas.”

The Peatlands Climate Action Scheme (PCAS) also states that enhanced rehabilitation focuses on:

“optimising suitable hydrological conditions (stable water levels close to the surface)”

Ireland’s 4th National Biodiversity Action Plan 2023–2030 identifies the need to:

“Meet Urgent Conservation and Restoration Needs.”

These statements demonstrate that the Application Site and wider peatland environment associated with Case Reference SU19.323676 are already subject to ongoing decommissioning, rehabilitation and environmental management processes arising from historic industrial peat extraction activities.

In this context, questions arise regarding the extent to which the continued concentration of additional industrial-scale energy infrastructure within the same receiving environment can be reconciled with stated national peatland rehabilitation, ecosystem restoration and hydrological recovery objectives associated with former industrial peatlands.

2.4 Compatibility of Rehabilitation Objectives and Proposed Industrial Infrastructure

The substitute consent application before An Coimisiún Pleanála under Case Reference SU19.323676, together with the associated remedial Environmental Impact Assessment Report (“rEIAR”), confirms that the Application Site and surrounding peatland environments are now subject to ongoing decommissioning, rehabilitation and environmental management obligations arising from historic industrial peat extraction activities.

The rEIAR submitted under Case Reference SU19.323676 states that:

“Peat extraction ceased at the Application Site in June 2020, and decommissioning activities as required by Condition 10 of the IPC Licence are currently ongoing. Subsequent to the completion of decommissioning activities, rehabilitation works will commence at the Application Site.”

The IPC Licence P0500-01 further states under Condition 10 “Cutaway Bog Rehabilitation” that:

“The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for permanent rehabilitation of the cutaway boglands within the licensed area.”

The licence further requires:

“The criteria which define the successful rehabilitation of the activity or part thereof, which ensures minimum impact to the environment.”

and:

“A programme for aftercare and maintenance.”

The applicant also repeatedly refers within the rEIAR to:

“The proposed mitigation measures associated with the Draft Bord na Móna Cutaway Bog Decommissioning and Rehabilitation Plan”

The Peatlands Climate Action Scheme (PCAS) identifies a number of key rehabilitation and restoration objectives, including:

“The general objective of peatland rehabilitation is to ensure environmental stabilisation of the former industrial peat production areas.”

and:

“optimising suitable hydrological conditions (stable water levels close to the surface)”

The substitute consent documentation submitted under Case Reference SU19.323676 further states that:

“the objectives of the rehabilitation plan are to place the Application Site on a trajectory towards becoming a naturally functioning peatland”

The same documentation additionally states that:

“The key objective of Bord na Móna peatland rehabilitation is environmental stabilisation.”

Ireland’s 4th National Biodiversity Action Plan 2023–2030 further identifies the need to:

“Meet Urgent Conservation and Restoration Needs.”

At the same time, the EIAR submitted under Case Reference PAC19.324161 proposes substantial additional industrial-scale infrastructure within a peatland environment already subject to ongoing rehabilitation, rewetting and environmental management measures.

The EIAR submitted under Case Reference PAX19.324161 further identifies:

“the permanent upgrade of c.1.14km of existing internal site roads/tracks and the provision of c.17.1 km of new permanent internal site access roads”

together with:

“Site Drainage”

and:

“Peat and Spoil Management.”

The IPC Licence P0500-01 further requires that:

“The licensee shall ensure that all existing waste facilities are managed and maintained to ensure their physical stability and to prevent pollution or contamination of soil, air, surface water or groundwater.”

The applicant’s own documentation therefore demonstrates that the receiving environment is already subject to ongoing rehabilitation, environmental stabilisation and restoration obligations arising from historic industrial peat extraction activities.

In this context, questions arise regarding the extent to which the continued introduction of additional industrial-scale infrastructure within peatland environments already subject to rehabilitation, rewetting, aftercare and environmental management measures can be reconciled with long-term peatland restoration, hydrological recovery, ecological rehabilitation and environmental stabilisation objectives.

2.5 Hydrological Restoration Commitments

The following section considers the cumulative interaction between historic peat extraction, drainage and rehabilitation obligations identified within the substitute consent documentation submitted under Case Reference SU19.323676 concerning Lemanaghan Bog and surrounding peatland areas within the Boora Bog Group, and the hydrological impacts, drainage infrastructure and excavation works associated with the proposed wind farm development submitted under Case Reference PAC19.324161.

The substitute consent documentation submitted under Case Reference SU19.323676 and the associated hydrological assessments confirm that historic industrial peat extraction activities have fundamentally altered the hydrological regime of Lemanaghan Bog and the surrounding peatland environment through extensive drainage, excavation and engineered water management systems.

The hydrology assessment within the substitute consent documentation under Case Reference SU19.323676 states that:

“The cumulative effects of the Peat Extraction Phase (July 1988 – June 2020) and the peat extraction and site preparation works which preceded 1988 would have had a profound negative effect on the bog hydrogeological regime whereby vegetation was cleared, drainage inserted, and peat extracted from much of the Application Site.”

Chapter 9 (Water) of the EIAR submitted under Case Reference PAC19.324161 similarly confirms that:

“Due to the historic industrial peat extraction activities at the Proposed Project site, the site has been artificially drained in order to lower the peat water table.”

It further states that:

“Drainage ditches were first inserted into the upper surface of the bog in 1950 prior to the commencement of peat extraction in 1960.”

The existing drainage regime is described as comprising:

“a network of field drains typically spaced at 15 to 20m intervals, piped drains, main drains, headland drains, and silt ponds.”

It additionally states that:

“Following peat extraction activities, drainage by gravity in this area of the site was no longer feasible as the water level in the surrounding streams were higher than the water level within the site.”

The hydrological regime of the site therefore already reflects extensive historic artificial modification, engineered drainage intervention and long-term hydrological alteration arising from industrial peat extraction activities.

The acknowledged limitations associated with retrospective environmental assessment are particularly significant in the context of hydrological assessment and cumulative impact evaluation. The substitute consent documentation under Case Reference SU19.323676 expressly states that:

“The retrospective assessment has been limited by the availability, completeness, accuracy and accessibility of historical baseline environmental data.”

This acknowledgement is highly relevant in circumstances where the receiving environment has already undergone decades of drainage, excavation, peat removal and engineered hydrological alteration prior to the completion of the environmental assessment processes now required under Irish and European law.

In this context, uncertainty necessarily arises regarding the full extent of historic hydrological alteration, cumulative environmental effects and long-term changes to peatland hydrological functioning across the receiving environment. The ability to accurately characterise original baseline hydrological conditions, hydrological connectivity and long-term cumulative effects is inherently constrained where extensive industrial modification has already occurred over prolonged periods prior to assessment.

At the same time, the proposed development under Case Reference PAC19.324161 includes substantial additional excavation, drainage management and engineered infrastructure works across peatland environments already subject to ongoing hydrological management and rehabilitation measures.

Chapter 9 (Water) of the EIAR submitted under Case Reference PAC19.324161 contains sections addressing:

“Proposed Drainage Management”

together with:

“Development Interaction with the Existing Bog Drainage Network”

The EIAR also identifies numerous potential hydrological risks and mitigation requirements relating to groundwater levels, excavation dewatering, hydrologically connected designated sites and Water Framework Directive objectives.

The EIAR submitted under Case Reference PAC19.324161 further acknowledges the cumulative assessment context through specific consideration of:

“Cumulative Effects with Substitute Consent and EPA Licensed Activities”

and:

“Potential Cumulative Effects from PCAS”

The Peatlands Climate Action Scheme (PCAS) identifies the importance of:

“optimising suitable hydrological conditions (stable water levels close to the surface)”

and further states that:

“The general objective of peatland rehabilitation is to ensure environmental stabilisation of the former industrial peat production areas.”

A significant tension therefore arises between the hydrological recovery, rewetting and environmental stabilisation objectives relied upon within the substitute consent and rehabilitation framework under Case Reference SU19.323676 and the ongoing drainage management, excavation works and engineered hydrological intervention associated with the proposed development under Case Reference PAC19.324161.

While the EIAR submitted under Case Reference PAC19.324161 expressly acknowledges cumulative interaction with substitute consent activities, EPA licensed activities and PCAS rehabilitation measures, the compatibility of long-term hydrological recovery objectives with the continued intensification of industrial-scale infrastructure and engineered drainage intervention within the same peatland environment remains unclear.

The extent of proposed hydrological mitigation, drainage management and monitoring measures identified throughout the EIAR itself therefore demonstrates the acknowledged hydrological sensitivity of the receiving environment.

In circumstances where the receiving environment has already been subject to extensive historic drainage, retrospective assessment limitations, ongoing rehabilitation obligations and acknowledged hydrological alteration, questions arise regarding the degree of scientific certainty that can realistically be attached to predictions concerning long-term cumulative hydrological effects, hydrological recovery trajectories and the interaction between historic

peat extraction impacts and further large-scale industrial infrastructure within the same peatland system.

The issue arising is not merely the direct hydrological effects of the proposed development in isolation, but whether the continued intensification of engineered drainage systems, excavation works and hydrological intervention within peatland environments already subject to extensive historic drainage and acknowledged hydrological alteration is compatible with long-term hydrological recovery, peatland rehabilitation and environmental stabilisation objectives.

2.6 Long-Term Ecological, Hydrological and Landscape Damage

The substitute consent documentation submitted to An Coimisiún Pleanála under Case Reference SU19.323676 confirms that the peatland environment at Lemanaghan Bog has already undergone extensive and long-term ecological, hydrological and landscape alteration arising from decades of industrial peat extraction, drainage and associated ancillary activities.

The hydrology assessment within the remedial Environmental Impact Assessment Report (rEIAR) submitted under Case Reference SU19.323676 states that:

“The cumulative effects of the Peat Extraction Phase (July 1988 – June 2020) and the peat extraction and site preparation works which preceded 1988 would have had a profound negative effect on the bog hydrogeological regime whereby vegetation was cleared, drainage inserted, and peat extracted from much of the Application Site.”

The substitute consent documentation under Case Reference SU19.323676 additionally acknowledges limitations associated with retrospective environmental assessment, stating that:

“The retrospective assessment has been limited by the availability, completeness, accuracy and accessibility of historical baseline environmental data.”

The substitute consent rehabilitation framework further confirms that the Application Site is unlikely to fully recover its original peatland condition. Chapter 7 (Land, Soils and Geology) of the rEIAR submitted under Case Reference SU19.323676 states that:

“the Application Site is unlikely to ever revert to the original raised bog which existed prior to the commencement of peat extraction and ancillary activities.”

It further states that:

“Despite the best practice measures to be implemented as part of the Draft Bord na Móna Cutaway Bog Decommissioning and Rehabilitation Plan it is unlikely that the entire site will return to the same level of active peat forming conditions which likely existed at the Application Site prior to commencement of peat extraction operations.”

Similarly, the biodiversity assessment submitted under Case Reference SU19.323676 states that:

“it is not anticipated that the Application Site has the potential to develop active raised bog analogous to the priority EU Habitats Directive Annex I habitat in the foreseeable future (c. 50 years).”

Chapter 14 (Landscape and Visual) of the EIAR submitted under Case Reference PAC19.324161 confirms the extent of ongoing landscape alteration associated with historic peat extraction activities. The chapter states that:

“Modified landforms exist throughout the site; including a large network of drainage ditches, which were cut into the bog to facilitate peat extraction and ancillary activities.”

It further states that:

“Industrial features that facilitated historic peat extraction activities are still evident throughout the Proposed Project site”

and:

“Industrial elements such as railways infrastructure contribute to the industrialised landcover and character of the landscape.”

The substitute consent documentation under Case Reference SU19.323676 therefore acknowledges that substantial long-term ecological and hydrological damage has already occurred within the receiving environment, and that even with rehabilitation and rewetting measures, full restoration of the original peatland ecosystem is unlikely.

At the same time, the Environmental Impact Assessment Report (EIAR) submitted under Case Reference PAC19.324161 proposes substantial additional industrial-scale infrastructure and engineered intervention across the same peatland environment.

The EIAR submitted under Case Reference PAC19.324161 also expressly acknowledges cumulative interaction through specific consideration of:

“Cumulative Effects with Substitute Consent and EPA Licensed Activities”

and:

“Potential Cumulative Effects from PCAS”

The landscape assessment submitted under Case Reference SU19.323676 additionally identifies the importance of assessing:

“likely cumulative and in-combination effects.”

The same assessment further identifies:

“Cumulative Baseline – Identification and description of other sites of peat extraction in the wider landscape where the cumulative or in combination landscape and visual effects may potentially exist.”

In circumstances where the receiving environment has already undergone extensive and acknowledged long-term ecological, hydrological and landscape alteration arising from historic industrial peat extraction activities, questions necessarily arise regarding the continued concentration of additional industrial-scale infrastructure within the same peatland landscape.

The issue arising is not merely the direct effects of the proposed development in isolation, but the long-term cumulative interaction between:

- historic drainage and peat extraction;
- acknowledged irreversible ecological and hydrological alteration;
- ongoing rehabilitation and rewetting obligations;
- landscape industrialisation;
- retrospective assessment limitations; and
- further industrial-scale infrastructure and engineered intervention within the same peatland system.

this context, questions arise regarding the extent to which the proposed development under Case Reference PAC19.324161 may further impede long-term ecological recovery, hydrological stabilisation, peatland rehabilitation and landscape restoration objectives already identified within the substitute consent and rehabilitation framework associated with Case Reference SU19.323676.

3. Alternatives Assessment

3.1 Legal Requirement to Assess Reasonable Alternatives

Article 5(1)(d) of Directive 2011/92/EU, as amended by Directive 2014/52/EU (“the EIA Directive”), requires that an Environmental Impact Assessment Report (“EIAR”) contain:

“a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment.”

Annex IV of the EIA Directive further requires:

“a description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer... including a comparison of the environmental effects.”

The Applicant acknowledges these obligations within Chapter 3 of the EIAR and states that the alternatives assessment includes consideration of:

- site location,
- renewable energy technologies,
- site layout,
- size and scale,
- grid connection,
- transport routes,
- and design considerations.

The EIAR further states that:

“The consideration of alternatives is an effective means of avoiding environmental impacts.”

and references the EPA Guidelines (2022), which recognise that the presentation and consideration of reasonable alternatives forms:

“an important part of the overall EIA process.”

Notwithstanding these acknowledgements, questions arise regarding whether the alternatives assessment presented within the EIAR is unduly narrow in scope and heavily constrained by pre-existing developer preferences and land availability considerations.

The EIAR expressly states that:

“Higher level considerations have been fully assessed and therefore do not need to be assessed again in the EIAR...”

While Strategic Environmental Assessment (“SEA”) may inform wider strategic planning policy, it is respectfully submitted that reliance upon higher-tier assessments does not remove the obligation under the EIA Directive to undertake a robust project-level assessment of reasonable alternatives, particularly in the context of peatland landscapes undergoing rehabilitation and hydrological transition.

This is particularly relevant in circumstances where the Proposed Project involves substantial industrial-scale infrastructure and peatland intervention within a landscape undergoing rehabilitation and environmental transition.

The EIAR also confirms that the identification of candidate sites was confined to Bord na Móna lands:

“BnM conducted a technical review of lands which are either cut away or cutover.”

The site selection exercise therefore appears to have been substantially restricted at the outset to lands already within Bord na Móna ownership and control, rather than representing a broader comparative assessment of potentially suitable alternative locations.

The EIAR further states that the alternatives assessment was influenced by:

- “project economics,”
- “land availability,”
- “engineering feasibility,”
- and “planning considerations.”

While such considerations may legitimately arise within project development, it remains unclear whether environmental considerations were afforded sufficient weight within the alternatives assessment process, as required under the EIA Directive.

In addition, the methodology described within Chapter 3 repeatedly refers to the identification of sites capable of delivering a:

“successful wind farm project by 2030”

and the selection of sites based upon:

- grid access,
- wind resource,
- planning policy,
- population density,
- infrastructure availability,
- and commercial deliverability.

While these factors may be relevant to project viability, the EIAR does not clearly demonstrate that environmentally preferable alternatives were comparatively assessed with sufficient transparency or detail.

Furthermore, the EIAR itself acknowledges that the EIA Directive requires consideration of alternatives in terms of:

- “project design,”
- “technology,”
- “location,”
- “size and scale.”

Accordingly, it is respectfully submitted that the adequacy of the alternatives assessment must be considered not merely by reference to whether alternatives were mentioned, but whether the assessment was sufficiently broad, genuinely comparative, environmentally focused and transparent.

Where the assessment of alternatives is narrow, unclear or insufficiently comparative, members of the public are deprived of the ability to understand why this particular site, scale and design were selected over less environmentally damaging alternatives. This is particularly important in the context of a large-scale wind energy development involving substantial peatland intervention, long-term landscape change and associated industrial infrastructure within a rehabilitating peatland environment.

In light of the scale, duration and environmental sensitivity of the Proposed Project, questions arise regarding whether the alternatives assessment fully satisfies the requirements of Article 5 and Annex IV of the EIA Directive.

3.2 Whether Less Environmentally Damaging Alternatives Were Properly Assessed

The EIA Directive requires consideration of reasonable alternatives and “a comparison of the environmental effects.” In the context of the Proposed Project, this obligation is particularly significant given the environmental sensitivity of the receiving peatland landscape and the scale of the associated infrastructure works.

Chapter 8 of the EIAR confirms that the Proposed Project involves substantial peatland excavation, hydrological interaction and associated infrastructure intervention across the receiving environment.

The EIAR also confirms that dedicated assessments relating to:

- “Peat Stability Assessment”,
- “Hydrological Considerations”,
- and “Geotechnical Peat Stability Risk Assessment”

were required as part of the assessment process.

The requirement for such extensive peat stability and hydrological assessments itself demonstrates the environmental sensitivity and technical complexity of the receiving peatland environment. Questions therefore arise regarding whether less environmentally damaging alternatives were sufficiently explored during site selection and project design.

The Water chapter similarly identifies extensive hydrological interaction between the Proposed Project and the receiving environment, including interaction with existing drainage systems, groundwater conditions, excavation dewatering processes, hydrologically connected sites and Water Framework Directive objectives.

In particular, Chapter 9 includes dedicated assessment sections relating to:

- “Potential Effects on Hydrologically Connected Designated Sites”,
- “Potential Effects on WFD Status and Objectives”,
- and “Development Interaction with the Existing Bog Drainage Network.”

These identified hydrological sensitivities indicate that the receiving environment may be particularly vulnerable to large-scale infrastructural intervention. In such circumstances, it is respectfully submitted that the alternatives assessment should clearly demonstrate why this peatland location represented the least environmentally damaging option reasonably available.

The EIAR further acknowledges the existence of:

- designated sites,
- geological heritage sites,
- peat stability considerations,
- hydrologically connected habitats,
- and cumulative environmental interactions.

Chapter 17 (“Interaction of the Foregoing”) additionally recognises that significant environmental effects may interact across multiple environmental receptors and states:

“The result of interactive effects may exacerbate the magnitude of the effects or ameliorate them or have a neutral effect.”

This is particularly relevant in the context of peatland environments, where:

- hydrology,
- biodiversity,
- peat stability,
- carbon storage,
- landscape character,
- and ecological rehabilitation

are closely interconnected.

Notwithstanding these acknowledged environmental sensitivities, the alternatives assessment in Chapter 3 appears substantially focused upon:

- land availability,
- grid access,
- wind resource,
- engineering feasibility,
- and project deliverability.

While such considerations may legitimately form part of project development, it remains unclear whether the EIAR demonstrates that alternative locations or project approaches involving reduced peatland disturbance, lower hydrological risk, reduced excavation requirements or lower ecological sensitivity were comparatively assessed in sufficient detail.

The Landscape and Visual chapter also confirms that the Proposed Project would result in substantial landscape and visual interaction across the receiving environment and wider landscape setting, requiring:

- cumulative assessment,
- extensive Zone of Theoretical Visibility mapping,
- landscape character assessment,
- visual receptor analysis,
- and assessment of effects on designated scenic and cultural receptors.

Concern therefore arises that the alternatives assessment may not have adequately examined whether less environmentally damaging alternatives existed in terms of:

- site location,
- project scale,
- turbine height,
- infrastructure footprint,
- or alternative landscapes with lower environmental sensitivity.

This concern is further heightened by the fact that the Proposed Project is located within a peatland landscape subject to ongoing rehabilitation and hydrological management pressures associated with historic industrial peat extraction activities.

Accordingly, it is respectfully submitted that the EIAR does not clearly demonstrate that alternative locations, scales or project approaches with lower environmental sensitivity were comparatively assessed with sufficient transparency or environmental weighting, particularly having regard to the hydrological, ecological, carbon-storage and cumulative environmental sensitivities identified across the receiving environment.

3.3 Whether Alternative Locations Were Properly Considered

Chapter 3 of the EIAR describes a two-stage site selection process undertaken by Bord na Móna (“BnM”) in order to identify sites considered suitable for wind energy development.

The EIAR confirms that the initial candidate site selection process was confined to lands within the Bord na Móna landbank:

“BnM conducted a technical review of lands which are either cut away or cutover.”

The alternatives assessment therefore appears to have been substantially constrained from the outset to lands already within Bord na Móna ownership and control, rather than representing a broader comparative assessment of potentially suitable alternative locations.

The EIAR states that the identification of candidate sites involved:

- desk studies,
- on-site surveys,
- GIS datasets,
- and the application of known constraints, including:
 - planning policy context,
 - proximity to sensitive receptors,
 - peat depths,
 - suitable wind speeds,
 - proximity to the national electricity grid,
 - and proximity to designated sites and environmental sensitivities.

The second stage of assessment was then used to identify sites considered to have:

“the best potential to deliver a successful wind farm project by 2030”

with particular emphasis placed upon:

- environmental sensitivity,
- grid access/capacity,
- county development plans and zoning,
- and proximity to houses.

The EIAR confirms that this process resulted in the identification of multiple Bord na Móna bogs as potential wind farm locations, including:

- Littleton,
- Ballydermot,
- Clorhane,
- Coolnamona,
- Derryarkin,
- Garryhinch,
- Ballybeg,
- Bellair,
- Derryfadda,
- Coolnagun,
- Kilberry,
- and Cornafulla,

and further states that:

“all were considered to be viable sites for wind energy development.”

However, notwithstanding the apparent viability of multiple locations, the EIAR provides limited side-by-side environmental comparison between the alternative sites identified and limited explanation as to why Lemanaghan Bog was ultimately preferred from an environmental perspective.

The EIAR states that Lemanaghan Bog was progressed due to:

“its relatively low potential for environmental effects and the close proximity of its potential grid connection which would provide environmental and project viability benefits.”

However, limited explanation is provided as to the basis for this conclusion, particularly having regard to the acknowledged peatland sensitivities, hydrological interactions, designated-site connectivity and substantial infrastructure intervention proposed within the receiving environment.

The EIAR also provides limited discussion within the site selection assessment regarding the wider cultural and landscape sensitivities of the surrounding area, including the proximity of

the Proposed Project to the internationally significant monastic and heritage landscape of Clonmacnoise and the wider River Shannon corridor. Similarly, limited consideration appears to have been given to nearby rural settlements and valued community landscapes such as Ballinahown, a community recognised through National Tidy Towns initiatives. Limited weight also appears to have been afforded to nearby educational and community receptors, including St. Ciaran's Mixed National School, Ballycumber.

It is noted that the **Offaly County Council** Development Plan (including previous plan reference O16-01) sets out a clear objective:

"To preserve and enhance the character of the County's landscape where, and to the extent that, in the opinion of the Council, the proper planning and sustainable development of the area require it."

This objective reflects the statutory obligations of the planning authority under the **Planning and Development Act 2000**, which requires that all development be assessed in the context of the proper planning and sustainable development of the area.

In this context, Bellair Hill represents a prominent elevated landform within an otherwise relatively flat surrounding landscape. Due to this topographical prominence, the area is particularly sensitive to large-scale vertical development. The introduction of turbines of the scale proposed would result in significant skyline intrusion and visual dominance, fundamentally altering the character of the landscape.

Furthermore, Bellair House is a protected structure (Ref: 11-07) and is also located within a designed landscape recorded in the **National Inventory of Architectural Heritage** (Inventory of Historic Gardens and Designed Landscapes, Ref: OF-48N-186318). As such, it benefits from statutory protection under Part IV of the Planning and Development Act 2000.

In addition, the trees and wider demesne at Bellair are afforded specific protection under Section 15.12 of the Offaly County Development Plan. These protections recognise the architectural, historical, and landscape significance of the site as a unified heritage asset.

The proposed wind farm would introduce large-scale industrial structures into the setting of this protected structure and designed landscape, resulting in significant adverse impacts on its character, setting, and visual integrity. Such impacts would materially diminish the heritage value of Bellair House and its associated landscape.

Under Section 34(2) of the Planning and Development Act 2000, the planning authority is required to have regard to the protection of architectural heritage and the preservation of the character of protected structures and their settings. The proposed development fails to demonstrate how these statutory protections would be upheld.

It is further submitted that the Environmental Impact Assessment Report (EiAR) is deficient in that it fails to adequately assess these impacts, including the effects on the setting of protected structures and designed landscapes, as required under the **EIA Directive 2014/52/EU**.

In light of the above, the proposed development would:

- conflict with the landscape protection objectives of the Offaly County Development Plan

- adversely impact a protected structure and its setting
- undermine the integrity of a nationally recognised designed landscape
- fail to comply with statutory obligations under Irish and EU planning law

Accordingly, the proposed development is contrary to the proper planning and sustainable development of the area.

It is noted that the **Offaly County Council** Development Plan, including previous Development Plan reference O16-01, contains a clear objective:

“To preserve and enhance the character of the County’s landscape where, and to the extent that, in the opinion of the Council, the proper planning and sustainable development of the area require it.”

The proposed wind farm would introduce substantial industrial infrastructure into the immediate setting of this protected structure and designed landscape, fundamentally altering its visual integrity and historic character. Such impacts would materially diminish the heritage value of Bellair House and its associated landscape and would therefore be contrary to the proper planning and sustainable development of the area.

This is particularly relevant in circumstances where the Proposed Project would introduce substantial industrial-scale infrastructure into a historically rural peatland landscape containing recognised architectural and landscape heritage receptors.

While the EIAR repeatedly relies upon low population density and modified landscape character as indicators of suitability, questions arise as to whether less quantifiable cultural, historical and community landscape sensitivities were afforded equivalent consideration within the comparative assessment of alternative locations.

The EIAR also characterises the receiving environment as:

- “modified working landscape types of low sensitivity”
and:
- “Industrial brownfield sites suitable for redevelopment”

While the historic industrial use of the boglands is acknowledged, previous industrial activity does not establish that all candidate peatland locations are environmentally equivalent or suitable for large-scale wind energy development.

Accordingly, it is respectfully submitted that the EIAR does not clearly demonstrate through a sufficiently transparent comparative assessment why Lemanaghan Bog was environmentally preferable to other candidate locations identified during the site selection process.

3.4 Whether Already Industrialised or Brownfield Lands Were Considered

3.4.1 Reliance on Existing Industrial Peatland Landscapes

The EIAR places significant emphasis on the historically modified and industrial nature of Bord na Móna peatlands in explaining the selection of the Proposed Project site. Chapter 3 describes Bord na Móna bogs as “industrial brownfield sites suitable for redevelopment”, highlighting their scale, existing drainage infrastructure, open landscapes and previous association with energy development.

The assessment further identifies characteristics of cutaway peatlands which are presented as advantageous for wind energy development, including that they are “generally flat and well drained” and already linked by infrastructure corridors. The EIAR and LVIA also characterise the receiving environment as a modified working landscape with a stated capacity to accommodate wind energy development.

Concern arises that the existence of previous industrial peat extraction and historic environmental modification appears to have been treated primarily as a factor supporting further large-scale infrastructure development, rather than prompting a more cautious assessment of cumulative ecological, hydrological and landscape pressures affecting these peatland environments.

This concern is particularly significant given that the EIAR simultaneously identifies the need for extensive peat stability assessment, hydrological management, mitigation infrastructure and ongoing environmental controls across the receiving environment.

The extensive level of engineering, drainage and mitigation infrastructure proposed appears inconsistent with any suggestion that the site is environmentally uncomplicated or inherently of low sensitivity solely because it has been historically industrialised.

3.4.2 Restriction of the Alternatives Assessment to Bord na Móna Lands

The alternatives assessment appears to have been substantially confined to Bord na Móna cutaway and cutover bog lands from the outset. Chapter 3 states that Bord na Móna conducted “a technical review of lands which are either cut away or cutover” in order to identify candidate sites for wind energy development.

The EIAR does not appear to demonstrate that a broader regional assessment of genuinely alternative locations outside the Bord na Móna peatland portfolio was undertaken. Instead, the assessment process appears primarily focused on identifying which peatland sites within the Bord na Móna landbank were considered most commercially and technically suitable for wind energy development.

The EIAR identifies a series of Bord na Móna bogs selected for wind farm or renewable energy consideration, including:

- Littleton,

- Ballydermot,
- Clorhane,
- Coolnamona,
- Derryarkin,
- Garryhinch,
- Ballybeg,
- Bellair,
- Derryfadda,
- Coolnagun,
- Kilberry,
- and Cornafulla.

However, there appears to be limited evidence of meaningful comparative assessment of alternative locations outside the Bord na Móna peatland landbank, including other previously developed, lower-sensitivity or non-peatland brownfield environments.

3.4.3 Adequacy of Comparative Environmental Assessment

While the EIAR refers to “reasonable alternatives” and a “comparison of the environmental effects”, questions arise regarding the adequacy and transparency of the comparative assessment undertaken between alternative locations.

The site selection methodology places significant emphasis on:

- grid access and capacity,
- wind resource,
- planning policy compatibility,
- population density,
- supporting infrastructure,
- and project viability considerations.

Although environmental sensitivity is included as one criterion, the assessment does not appear to provide a detailed comparative analysis demonstrating why the environmental effects associated with large-scale wind energy development on rehabilitating peatlands were preferable to potential alternatives on less sensitive lands.

The EIAR also expressly acknowledges that non-environmental factors such as:

- project economics,
 - engineering feasibility,
 - land availability,
 - and planning considerations
- may have “equal or overriding importance” in the consideration of alternatives.

Questions therefore arise regarding the extent to which commercial viability and infrastructure convenience were afforded substantial weighting within the site selection

process, potentially limiting the scope of environmental comparison between genuinely alternative locations.

3.4.4 Whether Lower Sensitivity or Previously Developed Lands Were Examined

The EIAR characterises Bord na Móna peatlands as “industrial brownfield sites suitable for redevelopment”. However, questions arise regarding whether the assessment sufficiently distinguishes between:

- previously developed lands which remain environmentally sensitive, and
- genuinely low sensitivity brownfield or degraded industrial lands.

The proposed development area remains characterised by:

- extensive peat deposits,
- active hydrological management systems,
- peat stability considerations,
- rehabilitating cutaway bog environments,
- biodiversity constraints,
- drainage infrastructure,
- and sensitive peatland conditions requiring extensive mitigation and management.

The EIAR acknowledges peat depths exceeding 6 metres in parts of the site and confirms that hundreds of peat probes and detailed peat stability investigations were required as part of the assessment process.

The requirement for extensive mitigation and environmental management measures raises questions regarding whether the site can reasonably be characterised as a low sensitivity brownfield location comparable to more conventional previously developed lands.

The EIAR does not appear to provide a clear comparative assessment demonstrating that alternative previously developed or lower-sensitivity locations with reduced hydrological, ecological or peatland constraints were unavailable or environmentally less suitable than the chosen peatland location.

3.4.5 Existing Infrastructure Corridors and Cumulative Industrialisation

The EIAR places considerable emphasis on the advantages associated with existing infrastructure corridors and prior industrial development patterns within the peatland landscape.

The site selection process specifically considered:

- proximity to the national electricity grid,
- supporting infrastructure,
- existing drainage networks,

- and existing transport access.

The EIAR also identifies the close proximity of the proposed grid connection to the existing Shannonbridge–Maynooth 220kV overhead line as an important factor supporting site suitability.

Questions arise regarding the extent to which the existence of prior industrial infrastructure and previous energy development within the wider peatland landscape may have been treated as justification for further industrialisation, rather than prompting a more cautious assessment of cumulative landscape transformation and long-term environmental pressure within the wider Midlands peatland region.

The repeated reliance upon existing infrastructure, drainage systems and historic industrial modification within peatland landscapes appears to contribute to an incremental pattern of cumulative industrialisation across environments already subject to extensive historic disturbance and ongoing rehabilitation obligations.

3.5 Strategic Suitability of Peatland Locations

3.5.1 Environmental Sensitivity of Peatlands

Concern arises regarding the strategic suitability of large-scale wind energy infrastructure within peatland environments which remain environmentally sensitive notwithstanding historic industrial use. While the EIAR repeatedly refers to the site as a modified or previously developed peatland landscape, the same documentation also identifies extensive peat deposits, hydrological management requirements, biodiversity considerations and peat stability constraints across the Proposed Project site.

Chapter 8 confirms that peat depths across the site range from 0 metres to greater than 6 metres, with an average peat depth of approximately 2 metres. The EIAR also confirms that 722 peat probes and detailed geotechnical investigations were required as part of the site assessment process.

The requirement for extensive peat stability assessment, hydrological management, drainage infrastructure and environmental mitigation measures indicates that the receiving environment continues to exhibit significant environmental sensitivity notwithstanding its industrial history.

The Biodiversity, Water and Land, Soils and Geology chapters also identify the presence of hydrologically connected habitats, peatland systems, designated sites and sensitive environmental receptors within and surrounding the wider study area.

Questions therefore arise regarding whether the historic industrial use of the bog may have been afforded disproportionate weight within the site selection process, potentially understating the continuing environmental sensitivity of rehabilitating peatland systems.

3.5.2 Restoration and Rehabilitation Objectives

The EIAR confirms that the Proposed Project site remains subject to ongoing rehabilitation and environmental management obligations arising from historic peat extraction activities and IPC licence requirements. Chapter 3 states that, irrespective of whether the Proposed Project proceeds, the site will continue to be managed under IPC Licence P0500-01 and the associated Draft Rehabilitation Plan.

The EIAR further confirms that:

- decommissioning activities are ongoing,
- rehabilitation works are required,
- and environmental stabilisation measures are intended to support rewetting and ecological recovery across cutaway peatland areas.

Questions arise regarding the compatibility of these long-term rehabilitation and restoration objectives with the continued introduction of substantial industrial-scale infrastructure and engineered intervention across the receiving environment.

While the EIAR states that rehabilitation can continue alongside the Proposed Project, questions remain regarding whether the long-term industrialisation of rehabilitating peatlands may fundamentally alter the nature, extent and ecological trajectory of restoration objectives across the site.

This concern is particularly significant given that peatland rehabilitation is intended to support hydrological recovery, ecological restoration, carbon stabilisation and the gradual re-establishment of functioning wetland conditions.

3.5.3 Hydrological Complexity of Peatlands

The EIAR identifies extensive hydrological management requirements across the Proposed Project site. Chapter 9 describes a highly engineered and managed drainage environment involving:

- interceptor drains,
- collector drains,
- settlement ponds,
- culverts,
- silt traps,
- check dams,
- drainage maintenance,
- and ongoing surface water management infrastructure.

The site selection process itself identifies existing drainage infrastructure as a “facilitator” to the project. Questions arise regarding whether the existence of historic drainage systems was treated primarily as an advantage for development, rather than as evidence of the underlying hydrological sensitivity and complexity of peatland environments.

Peatlands function as interconnected hydrological systems and can be highly sensitive to excavation, drainage alteration, soil disturbance and changes in groundwater or surface water movement.

The requirement for extensive drainage engineering and hydrological mitigation measures throughout the EIAR indicates that the site remains hydrologically sensitive notwithstanding its historic industrial modification.

Questions therefore arise regarding the long-term compatibility of major infrastructure development with peatland hydrological recovery, water management objectives and wider catchment stability.

3.5.4 Climate and Carbon Considerations

While the EIAR emphasises the climate benefits associated with renewable energy generation, questions arise regarding the strategic suitability of locating large-scale infrastructure within peatland environments which themselves function as important carbon stores and climate-regulating systems.

The Land, Soils and Geology chapter confirms the presence of substantial peat deposits across the site. Peatlands play an important role in long-term carbon storage, hydrological regulation and ecological functioning. Disturbance of peat soils through excavation, drainage, piling, road construction and associated infrastructure works has the potential to affect peat stability, hydrology and long-term carbon balance.

The EIAR proposes extensive peat excavation, relocation and management measures across the site. Questions arise regarding the extent to which the long-term climate and carbon implications of continued industrial development on rehabilitating peatlands were fully considered within the strategic site suitability assessment.

While renewable energy generation may contribute positively to national climate targets, climate mitigation objectives must also consider the long-term protection of peatland carbon stores, ecological restoration objectives and the avoidance of unnecessary disturbance within sensitive peatland environments.

3.5.5 Landscape Sensitivity and Peatland Character

The Landscape and Visual chapter acknowledges the open and expansive nature of the surrounding peatland landscape and assesses cumulative landscape and visual effects associated with the Proposed Project.

Although the EIAR characterises the receiving environment as a modified working landscape capable of accommodating wind energy development, questions arise regarding whether this approach places disproportionate emphasis on historic industrial activity while understating the landscape distinctiveness, cultural associations and cumulative visual transformation of Midlands peatland environments.

The peatland landscapes of the Midlands possess a distinctive visual character shaped by open horizons, extensive bogland areas, wetland systems, historic peat extraction and cultural associations linked to the region's industrial and ecological history.

Questions therefore arise regarding the cumulative transformation of these landscapes through the continued concentration of industrial-scale energy infrastructure across already heavily modified peatland environments.

3.5.6 Long-Term Ecological Recovery and Infrastructure Compatibility

Questions also arise regarding the long-term compatibility between ecological recovery objectives and the introduction of major long-duration infrastructure within rehabilitating peatland systems.

The Proposed Project involves substantial long-duration industrial infrastructure with an anticipated operational lifespan extending over several decades.

At the same time, the site remains subject to ongoing rehabilitation and environmental management objectives intended to support long-term peatland recovery.

Questions therefore arise regarding the extent to which the long-term ecological trajectory of the site may become increasingly shaped by the operational and infrastructural requirements of the Proposed Project rather than by restoration-led environmental recovery objectives.

The EIAR does not appear to fully address the extent to which long-term ecological recovery, hydrological restoration, biodiversity enhancement and peatland rehabilitation objectives may be constrained or altered by the continued industrialisation of rehabilitating peatland landscapes.

3.6 Whether Offshore or Other Strategic Renewable Alternatives Were Adequately Considered

3.6.1 Broader National Renewable Energy Strategy

The EIAR repeatedly references national renewable energy policy, including the Climate Action Plan 2025 (CAP25), the National Planning Framework and national renewable electricity targets. The EIAR states that achieving Ireland's renewable energy objectives will require substantial increases in renewable electricity generation, including both onshore and offshore renewable energy infrastructure.

However, concern arises regarding whether the strategic alternatives assessment undertaken sufficiently examined the broader balance between:

- onshore wind development,
- offshore renewable energy expansion,
- solar generation,

- and other strategic renewable pathways within the wider national energy transition framework.

While the EIAR identifies the importance of renewable energy generation generally, the assessment appears primarily focused on facilitating onshore wind development within Bord na Móna peatland landscapes rather than examining whether alternative renewable energy strategies could reduce pressure for continued industrial-scale development within environmentally sensitive peatland environments.

3.6.2 Expansion of Offshore Renewable Energy

Chapter 3 expressly acknowledges the growing strategic role of offshore wind energy within national renewable energy policy and confirms that both SSE Renewables and Bord na Móna are actively involved in offshore renewable energy initiatives.

The EIAR notes that:

- SSE Renewables is involved in the Arklow Bank offshore project,
- Bord na Móna has entered an offshore partnership with Ocean Winds,
- and national policy targets include a minimum offshore wind capacity target of 5GW.

The EIAR nevertheless concludes that offshore wind is not considered a “reasonable alternative at this time”, primarily due to regulatory and delivery constraints associated with offshore development.

Questions arise regarding whether the discussion of offshore alternatives is proportionate to:

- the scale of national offshore renewable expansion currently planned,
- the applicant’s acknowledged offshore involvement,
- and the strategic significance of offshore wind within Ireland’s long-term renewable energy transition.

While it is accepted that offshore development currently faces regulatory and infrastructural challenges, questions remain regarding whether the strategic alternatives assessment sufficiently examined the extent to which accelerated offshore deployment and broader renewable diversification could reduce reliance upon large-scale infrastructure development within rehabilitating peatland landscapes.

3.6.3 Strategic Energy Planning Context

The EIAR places considerable emphasis on national and regional policy support for renewable energy development on former peat extraction lands. Chapter 3 references the National Planning Framework objective of harnessing the renewable energy potential of “publicly owned peat extraction areas” as part of a “managed just transition” towards greener energy infrastructure.

Concern does not arise regarding the importance of renewable energy generation or just transition objectives generally. However, questions arise regarding whether strategic planning policy support for renewable energy development on former peat extraction lands has been interpreted in a manner which affords insufficient weight to:

- peatland rehabilitation objectives,
- cumulative industrialisation,
- hydrological sensitivity,
- ecological restoration,
- and long-term environmental recovery considerations.

The strategic planning context for renewable energy transition is increasingly evolving towards a diversified renewable energy mix involving:

- offshore wind,
- solar generation,
- energy storage,
- grid reinforcement,
- and lower-carbon infrastructure strategies.

Questions therefore arise regarding whether the strategic alternatives assessment remained overly focused on continued concentration of large-scale infrastructure within Midlands peatland landscapes rather than more broadly examining how national renewable energy targets may be achieved through a wider combination of technologies, locations and renewable energy pathways.

3.6.4 Consideration of Alternative Renewable Technologies

The EIAR considers solar energy as an alternative renewable technology and compares its environmental characteristics with the proposed wind farm development.

The assessment concludes that wind energy was considered the preferred option due to:

- higher energy yield,
- lower land take,
- and greater generation efficiency relative to solar PV within the site context.

However, concern arises that the assessment of alternative renewable technologies remains relatively narrow and project-specific in nature. The analysis primarily compares how alternative technologies could be delivered within the same peatland site rather than examining whether broader strategic renewable deployment across multiple technologies and locations may reduce environmental pressure on sensitive peatland environments.

The assessment also appears focused primarily on generation efficiency, development footprint and project viability rather than undertaking a broader strategic environmental comparison between alternative renewable development pathways.

3.6.5 Justification for Peatland-Based Development

The EIAR repeatedly identifies characteristics of Bord na Móna peatlands which are presented as advantageous for renewable energy development, including including existing infrastructure, grid proximity, low population density and previous industrial modification.

Questions arise, however, regarding whether the EIAR sufficiently demonstrates why rehabilitating peatlands specifically represent the most environmentally appropriate locations for large-scale renewable infrastructure when considered within the broader national renewable strategy context.

While the EIAR identifies commercial, technical and infrastructural advantages associated with peatland locations, there appears to be limited examination of whether alternative renewable strategies, alternative regional locations or broader renewable diversification approaches.

This concern is particularly significant given that the same EIAR acknowledges ongoing peatland rehabilitation, hydrological sensitivity, peat stability considerations, biodiversity constraints and extensive environmental mitigation requirements across the Proposed Project site.

3.6.6 Adequacy of the Strategic Alternatives Assessment

Overall, questions arise regarding whether the strategic alternatives assessment undertaken was sufficiently broad in scope when viewed within the wider context of Ireland's evolving renewable energy transition.

The assessment appears primarily project-led and site-focused, concentrating on:

- identifying suitable Bord na Móna peatland locations,
- comparing onshore wind layouts and technologies,
- and assessing project-specific delivery considerations.

While offshore wind and solar generation are discussed, the assessment does not appear to undertake a detailed strategic comparison examining how alternative renewable deployment pathways, evolving offshore capacity, renewable diversification and lower-sensitivity development locations may influence the long-term strategic justification for peatland-based infrastructure development.

Questions therefore arise regarding whether the strategic alternatives assessment remained relatively narrow in focus, with limited comparative examination of broader renewable energy strategies capable of contributing to national climate objectives while potentially reducing long-term industrial pressure on rehabilitating peatland environments.

3.7 Whether Lower-Height or Smaller-Scale Alternatives Were Considered

3.7.1 Reduced Turbine Height Alternatives

Chapter 3 of the EIA considers alternative turbine models and layout configurations as part of the design evolution process. However, concern arises regarding the extent to which lower-height turbine alternatives were comparatively assessed from an environmental and landscape perspective.

The Proposed Project involves turbines of substantial vertical scale across an open peatland landscape. The Landscape and Visual chapter acknowledges that the Proposed Project will give rise to varying levels of visual impact, including moderate and significant effects at certain viewpoints.

Questions therefore arise regarding whether lower turbine heights, reduced blade tip elevations or alternative lower-profile configurations were comparatively assessed in sufficient detail in order to reduce visual prominence, skyline intrusion, cumulative visual effects and wider landscape impacts across the peatland environment.

While the EIA identifies energy yield and turbine efficiency considerations, the comparative environmental advantages associated with reduced turbine height alternatives do not appear to have been extensively examined.

3.7.2 Reduced Turbine Number Alternatives

The EIA considers alternative turbine layouts and design options during the project evolution process. However, concern arises regarding whether reduced turbine number alternatives were sufficiently assessed as a means of minimising overall development intensity and associated environmental impacts.

A reduction in turbine numbers may potentially have reduced the scale of peat excavation, internal road infrastructure, drainage intervention, habitat disturbance and cumulative visual effects associated with the Proposed Project.

Concern therefore arises regarding whether the EIA adequately examined whether a smaller-scale development configuration could have achieved a more proportionate balance between renewable energy generation and environmental protection within a sensitive peatland landscape.

The assessment appears primarily focused on identifying a commercially and technically efficient turbine arrangement rather than comparatively examining whether lower-intensity alternatives may have resulted in materially reduced environmental effects.

3.7.3 Smaller Site Footprint and Reduced Infrastructure

The Proposed Project includes substantial ancillary infrastructure and associated engineered intervention across the site.

Concern arises regarding whether smaller-footprint alternatives involving reduced ancillary infrastructure were comparatively assessed in sufficient detail.

A smaller-scale project footprint may potentially have reduced:

- peat disturbance,
- hydrological intervention,
- habitat fragmentation,
- spoil generation,
- and the overall level of engineering intervention required across the site.

The EIAR identifies substantial environmental management requirements associated with peat handling, drainage and hydrological control measures. Concern therefore arises regarding whether reduced infrastructure alternatives capable of minimising these interventions were adequately examined during the design evolution process.

3.7.4 Reduced Visual and Landscape Effects

The Landscape and Visual chapter confirms that the Proposed Project will give rise to varying degrees of landscape and visual impact across the receiving environment.

Questions arise regarding whether scaled alternatives specifically intended to reduce visual and landscape effects were comparatively assessed in sufficient detail, including reduced turbine numbers, alternative turbine spacing, lower turbine heights, reduced infrastructure clustering, or more limited spatial spread across the site.

This concern is particularly significant within open peatland landscapes where visibility can extend across large distances due to the relatively open and expansive character of the receiving environment.

The EIAR acknowledges cumulative landscape considerations and the presence of existing and emerging energy infrastructure across the wider Midlands region. Concern therefore arises regarding whether the potential landscape benefits associated with more restrained development configurations were fully explored.

3.7.5 Reduced Habitat Fragmentation and Ecological Disturbance

The Proposed Project involves extensive linear and spatial infrastructure across peatland environments, including roads, drainage infrastructure, turbine bases, cabling and associated works.

Concern arises regarding whether reduced-scale alternatives were comparatively assessed as a means of minimising habitat fragmentation, hydrological severance, peat disturbance and ecological disruption across the site.

Although the EIAR concludes that impacts can be mitigated through environmental management measures, concern remains regarding whether smaller-scale or more spatially constrained alternatives may have reduced the extent of habitat loss, drainage intervention, peat excavation and fragmentation effects within rehabilitating peatland systems.

This concern is particularly relevant given the hydrological interconnectedness and ecological sensitivity of peatland environments identified throughout the EIAR.

3.7.6 Adequacy of Comparative Assessment of Scaled Alternatives

Overall, questions arise regarding whether scaled alternatives involving reduced turbine heights, lower turbine numbers, smaller infrastructure footprints and reduced ancillary infrastructure were comparatively assessed in sufficient detail within the EIAR.

While Chapter 3 documents aspects of project evolution and design optimisation, the assessment appears primarily focused on identifying technically and commercially effective project configurations rather than systematically evaluating whether less intensive alternatives may have materially reduced environmental effects.

The EIAR does not appear to provide a detailed comparative assessment quantifying the potential environmental benefits associated with reduced project scale, reduced visual prominence, reduced peat excavation, reduced hydrological intervention or reduced habitat fragmentation.

Concern therefore arises regarding whether environmental minimisation through reduced-scale development was afforded sufficient weight within the overall design evolution and alternatives assessment process.

3.8 Grid Constraints and Strategic Efficiency

3.8.1 Grid Connection Requirements

The EIAR identifies proximity to the national electricity grid as a significant factor in the site selection process for the Proposed Project. Chapter 3 confirms that “Proximity to the national electricity grid” formed one of the key constraints and selection criteria applied during the assessment of candidate sites.

The EIAR further states that the Proposed Project intends to connect to the national grid via approximately 0.8km of new overhead line (OHL) infrastructure linking the proposed onsite 220kV substation to the existing Shannonbridge–Maynooth 220kV overhead line.

Concern arises regarding the extent to which grid proximity and connection efficiency may have significantly influenced the selection of the Proposed Project site relative to broader environmental considerations, particularly given the environmentally sensitive characteristics of rehabilitating peatland environments identified elsewhere throughout the EIAR.

The site selection criteria expressly identify "Grid Access/Capacity" as a significant as a significant site-selection criterion.

3.8.2 Associated Overhead Line Infrastructure

The Proposed Project includes substantial associated electricity infrastructure in addition to the wind turbines themselves. The EIAR confirms that the Proposed Grid Connection includes approximately 0.8km of overhead line, 4 no. new steel masts, 2 no. new gantry structures, a new onsite 220kV substation and associated infrastructure works.

The Landscape and Visual chapter also confirms that the Proposed Grid Connection infrastructure will include new steel mast locations and associated substation infrastructure within the northern portion of the site.

Concern arises regarding the extent to which the environmental and landscape implications of this associated grid infrastructure were comparatively assessed alongside the proposed turbines themselves during the alternatives assessment process.

The EIAR identifies that the greatest visual impacts associated with the Proposed Grid Connection are likely to affect nearby residential receptors in the townland of Cooldorragh, with moderate residual visual effects identified in relation to the overhead line connection and proposed substation infrastructure.

3.8.3 Cumulative Grid Infrastructure Impacts

The EIAR acknowledges that cumulative visual effects may arise through interactions between the Proposed Project and other energy developments and grid infrastructure within the wider landscape.

Concern therefore arises regarding the cumulative implications of substations, overhead lines, steel mast infrastructure, access roads, and associated electricity infrastructure within peatland landscapes already subject to extensive historic and ongoing energy-related development.

The Proposed Project does not consist solely of turbine infrastructure but forms part of a broader energy infrastructure network involving grid reinforcement, electricity transmission infrastructure, overhead line connectivity and associated engineering works.

Concern arises regarding whether the cumulative landscape, ecological and hydrological implications of this wider infrastructure network have been sufficiently considered within the strategic alternatives assessment process.

3.8.4 Environmental Impacts Arising from Grid Connectivity

The EIAR identifies that the Proposed Grid Connection infrastructure traverses agricultural grassland fields and involves the installation of new pylons, overhead line connections and associated infrastructure works.

The Water chapter further confirms that portions of the Proposed Grid Connection overlap with groundwater bodies and areas of elevated groundwater vulnerability.

The Land, Soils and Geology chapter confirms that the Proposed Project includes grid connection infrastructure, borrow pits, temporary compounds, internal roads, and ancillary engineering works across a substantial peatland site.

Concern therefore arises regarding whether the environmental impacts associated with grid connectivity infrastructure were fully integrated into the strategic alternatives assessment, particularly in relation to peatland disturbance, groundwater vulnerability, landscape impacts, habitat fragmentation, and cumulative infrastructure effects.

3.8.5 Strategic Efficiency of the Location

The EIAR repeatedly identifies characteristics of the Proposed Project site which are presented as strategically advantageous from an infrastructure and delivery perspective, including proximity to existing grid infrastructure, existing transport and drainage infrastructure, low population density and previously industrialised landscapes.

Concern arises, however, regarding whether strategic efficiency considerations may have been afforded disproportionate weighting relative to environmental sensitivity and long-term peatland rehabilitation objectives.

The site selection process appears to have placed considerable emphasis on grid access, infrastructure compatibility, commercial viability and ease of connection to the national electricity network.

While these considerations are relevant within renewable energy planning, concern arises regarding whether infrastructure efficiency and connection convenience may have significantly influenced the selection of rehabilitating peatlands for continued industrial-scale development.

3.8.6 Whether Alternative Grid-Compatible Locations Were Considered

Chapter 3 confirms that proximity to the national electricity grid formed a key component of the candidate site selection process.

Questions arise, however, regarding whether alternative grid-compatible locations outside the Bord na Móna peatland portfolio were meaningfully assessed during the strategic alternatives process.

The alternatives assessment appears primarily focused on identifying suitable sites within Bord na Móna lands which could efficiently connect to existing electricity infrastructure.

The EIAR does not appear to provide a detailed comparative assessment examining whether:

- other grid-accessible locations,

- previously developed industrial lands,
- or lower sensitivity sites
may have provided suitable renewable energy opportunities with reduced environmental impacts.

3.8.7 Potential Project-Splitting and Cumulative Infrastructure Concerns

Concern also arises regarding the wider cumulative context within which the Proposed Project is being advanced. The EIAR confirms that the Proposed Project includes both:

- the Proposed Wind Farm,
- and the Proposed Grid Connection infrastructure.

The Proposed Project also relies upon:

- new overhead line infrastructure,
- a new onsite 220kV substation,
- new steel mast structures,
- associated access infrastructure,
- and integration with the existing Shannonbridge–Maynooth 220kV overhead line network.

Concern arises regarding whether sufficient emphasis has been placed on the cumulative environmental implications arising from the wider expansion of interconnected renewable energy and transmission infrastructure across the Midlands peatland landscape.

It is also noted that additional wind energy development proposals have emerged within nearby peatland areas, including the Bellair Bog area, where public consultation processes have already taken place in relation to potential future turbine development.

While such developments may proceed as separate planning applications, concern arises regarding the extent to which the cumulative implications of:

- wind farm development,
- substations,
- overhead line infrastructure,
- grid reinforcement,
- access infrastructure,
- and associated industrial energy development
across interconnected peatland landscapes have been strategically assessed in an integrated manner.

This concern is particularly relevant given that grid connection and transmission infrastructure itself may give rise to:

- landscape and visual impacts,
- habitat disturbance,

- hydrological interaction,
- peatland fragmentation,
- and cumulative infrastructure pressures extending beyond the footprint of individual turbine sites.

Concern therefore arises regarding whether the strategic alternatives assessment fully considered the broader cumulative infrastructure network associated with ongoing renewable energy expansion across the wider Midlands peatland region, rather than assessing individual infrastructure elements in relative isolation.

3.9 Conclusion on Alternatives Assessment

3.9.1 Narrow Scope of the Alternatives Assessment

Overall, concern arises that the alternatives assessment undertaken within the EIAR remained relatively narrow in scope and was substantially focused on identifying suitable locations within Bord na Móna peatland lands rather than undertaking a broader strategic assessment of lower-impact alternatives.

The assessment process appears primarily project-led and site-focused, concentrating on:

- commercially viable peatland locations,
- proximity to existing grid infrastructure,
- wind resource suitability,
- and infrastructure efficiency considerations.

While a range of project design and layout alternatives were considered, the broader strategic scope of the alternatives assessment appears comparatively limited.

3.9.2 Lack of Transparent Comparative Reasoning

Concern also arises regarding the limited level of transparent comparative reasoning presented between alternative locations, technologies and scaled development options.

Although the EIAR identifies various assessment criteria including:

- grid access,
 - environmental sensitivity,
 - wind resource,
 - planning policy compatibility,
 - and infrastructure considerations,
- the assessment does not appear to provide a detailed comparative analysis clearly demonstrating why the selected peatland site represented the most environmentally appropriate option relative to:
- alternative locations,
 - lower-intensity development configurations,
 - or broader renewable energy approaches.

The weighting afforded to commercial viability, infrastructure convenience, grid proximity, and environmental sensitivity within the overall decision-making process also remains relatively unclear.

3.9.3 Failure to Justify Environmentally Sensitive Site Selection

The EIAR repeatedly characterises the site as a modified or previously developed peatland landscape suitable for redevelopment. However, the same EIAR simultaneously identifies extensive peat deposits, hydrological complexity, biodiversity sensitivities, peat stability considerations, groundwater interactions, rehabilitation obligations and extensive mitigation requirements across the Proposed Project site.

Concern therefore arises regarding whether the alternatives assessment adequately justified the selection of a rehabilitating peatland environment for long-term industrial-scale infrastructure development when considered against the wider environmental sensitivity of the receiving environment.

The extensive reliance upon drainage infrastructure, peat management measures, hydrological controls and associated engineering intervention appears difficult to reconcile with any suggestion that the site represents an environmentally uncomplicated or inherently low-sensitivity development location.

3.9.4 Inadequate Consideration of Lower-Impact Alternatives

Concern also arises regarding the extent to which lower-impact alternatives were comparatively assessed throughout the alternatives process.

While the EIAR briefly discusses:

- offshore wind,
 - solar generation,
 - alternative layouts,
 - turbine configurations,
 - and alternative grid connection arrangements,
- the assessment does not appear to provide a detailed comparative examination of:
- lower-scale development options,
 - lower turbine heights,
 - reduced infrastructure footprints,
 - lower sensitivity locations,
 - or broader renewable diversification pathways.

Similarly, the assessment appears to contain limited examination of whether alternative grid-compatible locations, previously developed non-peatland lands or lower ecological sensitivity sites may have reduced the environmental impacts associated with the Proposed Project.

3.9.5 Concerns Regarding Compliance with EIA Requirements

Article 5(1)(d) of the EIA Directive requires the EIAR to contain “a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment.”

The purpose of the alternatives assessment is to enable the competent authority and the public to evaluate the comparative environmental implications of different development options prior to consent being granted.

Concern arises regarding whether the alternatives assessment undertaken satisfies the spirit and purpose of this requirement given:

- the relatively narrow focus of the assessment,
- the limited comparative examination of broader strategic alternatives,
- the apparent emphasis on commercially and technically favourable peatland sites,
- and the absence of more detailed comparative environmental reasoning between alternative development pathways.

Concern also arises regarding whether the cumulative implications of:

- grid infrastructure,
- substations,
- overhead lines,
- associated transmission infrastructure,
- and wider renewable energy expansion across Midlands peatlands were sufficiently integrated into the strategic alternatives assessment process.

The EIA process also requires consideration of cumulative and indirect effects arising from associated and interconnected infrastructure.

3.9.6 Implications for Lawful Decision-Making

The consideration of reasonable alternatives forms an important component of lawful environmental assessment and informed decision-making.

Reasonable alternatives should be assessed in an integrated manner having regard to environmental sensitivity, infrastructure requirements, cumulative effects and long-term land use implications.

Concern therefore arises regarding whether the information presented within the EIAR provides a sufficiently robust comparative basis to conclude that:

- environmentally preferable alternatives were adequately explored,
- lower-impact development approaches were fully considered,

- and the environmental implications of selecting a rehabilitating peatland landscape for large-scale infrastructure development were comprehensively assessed.

These concerns are particularly significant given the environmental sensitivity of peatland systems, ongoing rehabilitation objectives, cumulative infrastructure pressures across the Midlands region, and the long-term landscape, hydrological and ecological implications associated with the Proposed Project and its associated grid infrastructure.

4. Peatland, Hydrology & Water Protection

4.1 Peat Excavation and Disturbance During Construction

The proposed development would require substantial excavation and ground disturbance across a peatland site. Chapter 4 confirms that the project includes 15 turbines, permanent turbine foundations, hard-standing and assembly areas, underground cabling, a 220kV substation, c.17.1km of new permanent internal access roads, c.1.14km of upgraded internal roads, 5 temporary construction compounds, 4 temporary borrow pits, peat and spoil management, site drainage, and associated hard and soft landscaping and drainage infrastructure.

Chapter 8 confirms that excavation of peat and subsoil will be required for “access roads (floating and excavated roads), gravity foundations for turbine bases, crane hardstands, met masts, proposed onsite 220kV substation, internal cable network, biodiversity enhancement measures etc.” It states that “the total combined volume of peat and spoil requiring excavation is estimated to be 438,449m³.”

This represents a very substantial volume of peat and spoil excavation within a peatland environment. The EIAR itself identifies the pre-mitigation effect as a “Negative, moderate, direct, likely, permanent effect on peat and spoil due to relocation within the Proposed Project site.”

The peat and spoil figures require close scrutiny. Chapter 4 states that the total volume of peat requiring management is estimated at 207,527m³, with 175,000m³ capacity in peat deposition areas, 608,600m³ capacity in borrow pits, 10,710m³ side casting capacity, and 30,000m³ for landscaping. Chapter 8 similarly states that peat material will be stored in 2 peat deposition areas and 4 borrow pits, with excess peat and spoil also sidecast or used for landscaping, and that the total storage capacity is 824,310m³.

Concern arises that the EIAR’s approach is primarily one of excavation, relocation and storage within the site, rather than avoidance of peat disturbance. While mitigation includes placing turbines and infrastructure in shallower peat “where constraints allow” and using floating roads “where appropriate”, the EIAR still proposes large-scale excavation and on-site management of peat and spoil.

The proposed borrow pits are also significant. Chapter 4 states that “significant volumes of crushed stone” are intended to be obtained from 4 onsite borrow pits. Chapter 8 further explains that these borrow pits will be excavated and then used to store excavated peat and spoil, with engineered rock buttresses and cells required to retain the material. It also states that “a berm up to 8m (max.) in height will be required” on the downslope side of the borrow pits to retain infilled peat and spoil.

This raises concern that peat management is not a minor ancillary matter, but a central construction issue involving excavation, temporary storage, internal relocation, borrow pit backfilling, side casting and landscaping.

Chapter 8 also confirms that peat stability was assessed, including “Hydrological Considerations”, “Peat Slides – Lessons Learned” and a “Geotechnical Peat Stability Risk Assessment.” The EIA states that peat stability depends on several interacting factors, including slope angle, shear strength, peat depth, pore water pressure and loading conditions, and that an adverse combination of factors could potentially result in peat sliding.

Although the EIA concludes that the calculated factors of safety indicate a low risk of peat instability, this conclusion depends on the assumptions, modelling and mitigation measures adopted. Concern remains that the cumulative interaction of excavation, piling, drainage installation, access roads, crane hardstands, borrow pit excavation and peat deposition may alter the physical and hydrological conditions of an already modified peatland landscape.

This subsection therefore objects to the adequacy of the EIA’s treatment of peat excavation on the basis that the development would require extensive peat and spoil disturbance, with the applicant relying heavily on internal relocation and engineered management measures rather than demonstrating that peat disturbance has been avoided or minimised to the greatest practicable extent.

4.2 Concrete Foundations, Fuels and Construction Pollution Risks

The EIA confirms that the proposed development will involve extensive concrete works, excavation activities, refuelling operations, drainage installation and the storage and use of fuels, oils and other construction-related substances across the Application Site during the construction phase. Concern arises that these activities introduce significant pollution risks within a hydrologically sensitive peatland environment.

Chapter 4 identifies:

- “Turbine and Met Mast Foundations”
- “Site Roads and Crane Pad Areas”
- “Concrete Deliveries”
- “Concrete Pouring”
- “Refuelling”

- and “Vehicle Washing”

as part of the proposed construction activities associated with the development.

The EIAR confirms that turbine foundations will involve reinforced concrete gravity foundations and piling works. Chapter 8 further identifies “Potential Effects from Piling Works” during the construction phase. Concern arises that large-scale concrete foundation construction within peat soils may create direct and indirect pathways for contamination of surrounding peat, groundwater and surface water systems, particularly where excavation dewatering, piling or drainage alteration occurs.

Chapter 9 specifically identifies:

- “Potential Effects Associated with Leakages or Spillages of Hydrocarbons”
- “Potential Effects Associated with the Release of Cement-Based Products”
- “Potential Effects from Wastewater Disposal”
- “Potential Effects on Groundwater Levels During Excavation Works”
- “Potential Effects on Surface Water Quality from Excavation Dewatering”
- and “Potential Effects on WFD Status and Objectives”

as potential construction-phase effects associated with the Proposed Project.

The inclusion of these dedicated impact assessments demonstrates that the applicant itself recognises the potential for pollution pathways and hydrological impacts arising during construction activities.

Concrete-related pollution risks are of particular concern within peatland environments due to the sensitivity of bog hydrology and downstream water systems. Wet concrete, cement washout and alkaline runoff can significantly affect water chemistry where accidental releases occur. Similarly, the storage, handling and use of:

- fuels,
- lubricants,
- oils,
- hydraulic fluids,
- and other chemical substances

within a drained peatland environment may create contamination risks for peat soils, groundwater pathways and surface water systems.

The Application Site contains an extensive artificial drainage network associated with historical peat extraction activities. Chapter 9 specifically references “Regional and Local Hydrology”, “Surface Water Flows”, “Proposed Project Site Drainage” and “Development Interaction with the Existing Bog Drainage Network”. Concern arises that such drainage pathways may increase the potential for sediment, hydrocarbons or cementitious materials to migrate beyond immediate construction areas, particularly during periods of sustained rainfall or elevated flow conditions.

Chapter 4 confirms that the Proposed Project includes extensive site drainage infrastructure and management measures, including:

- interceptor drains,
- collector drains,
- over-the-edge drainage,
- check dams,
- silt bags,
- sedimats,
- culverts,
- silt fences,
- peat ditch silt traps,
- settlement ponds,
- and drainage maintenance measures.

Chapter 18 states that all construction activities and associated mitigation measures will be managed through a Construction and Environmental Management Plan (CEMP), and that drainage, peat and spoil management measures will be implemented and monitored by an Environmental Clerk of Works. The EIAR also states that mitigation and monitoring measures may be updated prior to commencement of development to address planning conditions or “alternative monitoring and mitigation measures should they emerge during the course of the planning process.”

Chapter 18 further states that:

“The Project Hydrologist will complete a detailed drainage design and maintenance plan before construction commences and will attend the site to set out and assist with micro-siting of proposed drainage controls...”

Concern arises that elements of the detailed drainage design and micro-siting of drainage controls therefore appear to be deferred until after consent, potentially limiting the ability of the decision-maker to fully assess the final drainage configuration and associated pollution risks at application stage.

Concern further arises that a significant proportion of the mitigation strategy relies upon:

- future implementation,
- contractor compliance,
- ongoing maintenance,
- monitoring regimes,
- and operational oversight

rather than demonstrating that pollution risks have been avoided or minimised at source through the underlying design and layout of the Proposed Project itself.

While measures such as drainage controls, settlement ponds, monitoring programmes, Environmental Clerk of Works oversight and Construction Environmental Management Plans may reduce risk, such measures remain inherently management-based and do not fully

eliminate the possibility of accidental releases, sediment mobilisation, hydrocarbon contamination or cementitious pollution entering interconnected drainage and water systems.

Concern further arises regarding the resilience of the proposed drainage and pollution control measures during extreme rainfall events, particularly in light of projected climate-related increases in rainfall intensity discussed within Chapter 11 of the EIAR. Peatland environments are particularly vulnerable to erosion and sediment mobilisation during storm conditions, and concern arises regarding whether temporary construction mitigation measures would remain fully effective during prolonged or high-intensity rainfall events.

Article 5(1) and Annex IV of Directive 2011/92/EU, as amended by Directive 2014/52/EU, require that mitigation measures forming part of an Environmental Impact Assessment Report be identified and assessed as part of the project itself. Concern arises that the EIAR places substantial reliance upon post-design management controls and operational compliance measures rather than demonstrating that impacts have been avoided or minimised to the greatest practicable extent through the underlying project design.

Chapter 9 specifically identifies “Potential Effects on WFD Status and Objectives”. Concern arises that pollution events, sediment mobilisation or hydrological alteration during construction could adversely affect the achievement or maintenance of Water Framework Directive objectives within hydrologically connected water bodies.

Concern further arises that the cumulative interaction of:

- concrete foundation construction,
- piling works,
- excavation,
- dewatering,
- drainage alteration,
- fuel storage,
- wastewater generation,
- and peat disturbance

across multiple construction areas may collectively increase the probability of pollution events occurring within the wider hydrological network of the peatland environment.

4.3 Hydrology and Drainage Impacts

The EIAR confirms that the Application Site forms part of a complex peatland hydrological environment characterised by artificial drainage networks, modified bog hydrology and historical industrial peat extraction activities. The proposed development would introduce additional drainage infrastructure, excavation works, piling activity, permanent hardstanding areas and altered runoff pathways within this already modified peatland landscape.

Chapter 9 of the EIAR specifically addresses:

- "Water Balance"
- "Regional and Local Hydrology"
- "Surface Water Flows"
- "Proposed Project Site Drainage"
- and "Development Interaction with the Existing Bog Drainage Network".

The inclusion of these dedicated sections demonstrates that hydrology and drainage form central environmental considerations associated with the Proposed Project.

The EIAR further confirms that the Proposed Project includes extensive drainage infrastructure and management measures, including:

- interceptor drains,
- collector drains,
- over-the-edge drainage,
- culverts,
- settlement ponds,
- peat ditch silt traps,
- and cable trench drainage systems.

The installation of additional drainage infrastructure, together with excavation, piling, road construction and cable trenching, may alter existing water movement patterns and water-table conditions within the peatland environment.

Chapter 9 specifically identifies:

- "Potential Effects on Groundwater Levels During Excavation Works"
- "Potential Effects on Surface Water Quality from Excavation Dewatering"
- "Potential Effects on Hydrologically Connected Designated Sites"
- and "Potential Effects on WFD Status and Objectives"

during the construction phase.

This demonstrates that the EIAR itself identifies potentially significant interactions between excavation activity, groundwater conditions, drainage systems and hydrologically connected receptors.

Peatland hydrology is highly dependent upon relatively stable water-table conditions. Alteration of drainage pathways or prolonged lowering of groundwater levels may contribute to:

- peat drying,
- oxidation,
- settlement,
- hydrological fragmentation,
- and long-term degradation of peatland function.

Chapter 8 of the EIAR includes dedicated sections relating to:

- “Hydrological Considerations”
- “Peat Stability Assessment”
- and “Geotechnical Peat Stability Risk Assessment”.

Article 3 of Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment of the direct, indirect and cumulative interaction of environmental factors, including impacts relating to land, soil, water, biodiversity and climate. Questions arise regarding whether the long-term interaction between drainage alteration, peat stability, excavation activity, groundwater conditions and historical peatland modification has been fully assessed within the EIAR, particularly in the context of a previously drained and industrially modified peatland environment.

Hydrological impacts within peatland systems may not always occur as isolated or immediate effects, but may instead emerge gradually over time through cumulative alteration of drainage pathways, groundwater movement and peat structure. In such environments, even localised drainage intervention or excavation activity may contribute to wider hydrological and geomorphological change across interconnected peatland systems.

Particular concern arises regarding the interaction between the proposed development and the extensive artificial drainage network associated with historical peat extraction activities. The Application Site does not comprise an undisturbed peatland environment. Rather, it forms part of a previously modified industrial bog landscape containing existing drains, altered flow pathways and ongoing environmental management measures.

In such environments, hydrological responses to excavation, drainage interception and infrastructure installation may be difficult to predict with certainty due to the cumulative interaction between:

- historical drainage,
- peat extraction,
- rehabilitation measures,
- altered groundwater movement,
- and new construction-related drainage systems.

Chapter 9 further addresses:

- “Hydrogeology”
- “Groundwater Vulnerability”
- “Groundwater Hydrochemistry”
- “Water Framework Directive Water Body Status & Objectives”
- and “Designated Sites and Habitats”.

Due to the interconnected nature of peatland drainage systems and hydrologically connected water bodies, hydrological alteration may extend beyond immediate construction areas.

Chapter 18 states that:

“The Project Hydrologist will complete a detailed drainage design and maintenance plan before construction commences and will attend the site to set out and assist with micro-siting of proposed drainage controls...”

Aspects of the final drainage configuration and drainage micro-siting therefore remain dependent upon post-consent design refinement and construction-stage implementation, potentially reducing the level of certainty available to the decision-maker regarding the final drainage configuration and associated hydrological impacts at application stage.

While the EIAR proposes drainage management and monitoring measures, the effectiveness of such measures may depend heavily upon:

- ongoing maintenance,
- monitoring,
- operational compliance,
- weather conditions,
- and long-term management performance.

Long-term hydrological alteration may also arise from:

- permanent hardstanding areas,
- access roads,
- altered runoff pathways,
- drainage interception,
- excavation works,
- and long-term maintenance activities.

Chapter 9 specifically identifies:

- “Potential Effects from the Progressive Replacement of Natural Surface with Lower Permeability Surfaces”
- and “Potential Effects on WFD Status and Objectives”.

Under the Water Framework Directive, deterioration in the status of a water body must be avoided and Member States are required to protect, enhance and restore water bodies to achieve good ecological and chemical status objectives. Questions arise regarding whether the EIAR demonstrates with sufficient certainty that the proposed drainage interventions, excavation dewatering, runoff pathways and long-term hydrological alterations would avoid deterioration of hydrologically connected water bodies within the wider peatland system.

Even gradual or incremental hydrological alteration may contribute to long-term changes in peatland hydrology, groundwater movement and surface water behaviour across the wider bog system.

Article 5(1) and Annex IV of Directive 2011/92/EU, as amended by Directive 2014/52/EU, require that likely significant environmental effects and mitigation measures be properly identified and assessed within the EIAR process. Uncertainty remains regarding the long-term

hydrological consequences of extensive drainage intervention and infrastructure installation within an already modified peatland landscape.

Concern further arises regarding the cumulative interaction between:

- historical peat extraction,
- existing artificial drainage,
- ongoing rehabilitation measures,
- proposed drainage infrastructure,
- excavation dewatering,
- and permanent infrastructure development

within a hydrologically connected peatland environment.

4.4 Surface Water and Groundwater Protection

Chapter 9 of the EIAR confirms that the Proposed Project has the potential to interact with surface water systems, groundwater conditions, drainage pathways and hydrologically connected receptors within the wider peatland environment. The EIAR specifically addresses:

- "Surface Water Flows"
- "Surface Water Quality"
- "Hydrogeology"
- "Groundwater Vulnerability"
- "Groundwater Hydrochemistry"
- "Water Resources"
- "Flood Risk Assessment"
- and "Water Framework Directive Water Body Status & Objectives".

The inclusion of these dedicated assessments demonstrates that surface water and groundwater protection form central environmental considerations associated with the Proposed Project.

Chapter 9 specifically identifies:

- "Potential Effects from Earthworks Resulting in Suspended Solids Entrainment in Surface Waters"
- "Potential Effects on Groundwater Levels During Excavation Works"
- "Potential Effects on Surface Water Quality from Excavation Dewatering"
- "Potential Effects Associated with Leakages or Spillages of Hydrocarbons"
- "Potential Effects Associated with the Release of Cement-Based Products"
- "Potential Effects on Groundwater Abstractions (Public and Private)"
- "Potential Effects on Surface Water Drinking Supplies"
- and "Potential Effects on WFD Status and Objectives"

during the construction phase.

These identified impact pathways demonstrate that the EIAR itself recognises the potential for interaction between construction activities, drainage systems, groundwater conditions and downstream water receptors.

Particular concern arises regarding the potential for suspended solids, sediment mobilisation and contaminated runoff to enter interconnected drainage systems during excavation, piling, road construction, cable trenching and dewatering activities. Peatland environments are particularly vulnerable to sediment transport due to the highly water-dependent nature of peat soils and the extensive drainage connectivity associated with both natural and artificial drainage pathways.

The Application Site forms part of a historically drained peatland landscape containing extensive artificial drainage infrastructure associated with former industrial peat extraction activities. In such environments, surface water runoff and sediment mobilisation may extend beyond immediate construction areas through interconnected drains, channels and hydrologically connected watercourses.

Chapter 4 confirms that the Proposed Project includes extensive drainage and runoff control measures, including:

- interceptor drains,
- collector drains,
- check dams,
- silt bags,
- sedimats,
- silt fences,
- peat ditch silt traps,
- settlement ponds,
- and cable trench drainage systems.

While such measures may reduce pollution risk, their inclusion also demonstrates that significant runoff, sedimentation and drainage management issues are anticipated as part of the Proposed Project.

Questions also arise regarding the long-term effectiveness and maintenance of temporary and permanent drainage controls during prolonged rainfall events or periods of elevated surface water flow. Peatland environments are particularly sensitive to erosion and sediment mobilisation during storm conditions, particularly where excavation and drainage alteration occur simultaneously across multiple construction areas.

Chapter 9 further addresses:

- "Hydrogeology"
- "Groundwater Vulnerability"
- "Groundwater Hydrochemistry"
- and "Groundwater Resources".

Concern arises that excavation dewatering, piling activity, drainage interception and permanent infrastructure installation may alter shallow groundwater conditions and groundwater flow pathways within the peatland environment.

Groundwater alteration within peatland systems may contribute to:

- peat drying,
- oxidation,
- settlement,
- altered hydrochemistry,
- and long-term hydrological degradation.

Questions also arise regarding whether the long-term cumulative interaction between:

- excavation dewatering,
- groundwater interception,
- altered runoff pathways,
- permanent drainage infrastructure,
- and historical peatland drainage

has been fully assessed within the EIAR.

Particular concern also arises regarding potential impacts upon public and private water resources. Chapter 9 specifically identifies:

- “Potential Effects on Groundwater Abstractions (Public and Private)”
- and “Potential Effects on Surface Water Drinking Supplies”.

The inclusion of these dedicated assessments demonstrates that the EIAR itself recognises the potential for interaction between the Proposed Project and local drinking water receptors.

Under the Water Framework Directive, deterioration in the status of a water body must be avoided and Member States are required to protect, enhance and restore water bodies to achieve good ecological and chemical status objectives. Chapter 9 specifically identifies “Potential Effects on WFD Status and Objectives”.

Questions arise regarding whether the EIAR demonstrates with sufficient certainty that:

- excavation dewatering,
- suspended solids entrainment,
- drainage alteration,
- runoff pathways,
- and long-term hydrological change

would avoid deterioration of hydrologically connected surface water and groundwater bodies within the wider peatland system.

Chapter 9 also includes a dedicated “Flood Risk Assessment”. The Proposed Project would introduce permanent hardstanding surfaces, access roads, drainage interception systems and altered runoff pathways across the Application Site.

Concern arises that cumulative alteration of surface water drainage patterns and replacement of permeable peatland surfaces with lower permeability infrastructure may contribute to altered runoff behaviour and localised drainage capacity pressures within the wider bog environment.

Chapter 9 specifically identifies:

- “Potential Effects from the Progressive Replacement of Natural Surface with Lower Permeability Surfaces”.

Even gradual alteration of runoff behaviour and drainage patterns may contribute to long-term hydrological and flood-related impacts across interconnected peatland drainage systems.

Article 3 of Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment of the direct, indirect and cumulative interaction of environmental factors, including impacts relating to land, soil, water, biodiversity and climate. Article 5(1) and Annex IV further require that likely significant environmental effects and mitigation measures be properly identified and assessed within the EIAR process. In circumstances involving hydrologically connected peatland systems and potential long-term water quality impacts, the precautionary principle is of particular relevance where scientific uncertainty remains regarding cumulative hydrological consequences.

Uncertainty remains regarding the cumulative long-term interaction between:

- surface water runoff,
- sediment mobilisation,
- groundwater alteration,
- excavation dewatering,
- drainage interception,
- flood risk,
- and permanent infrastructure development

within a hydrologically connected peatland environment already subject to historical industrial drainage and modification.

4.5 Peat Stability and Landslide Risk

Chapter 8 of the EIAR confirms that peat stability forms a central component of the environmental assessment for the Proposed Project. The chapter includes dedicated sections relating to:

- “Peat Stability Assessment”
- “Geotechnical Peat Stability Risk Assessment”
- “Hydrological Considerations”
- and “Peat Slides – Lessons Learned”.

The EIAR also specifically identifies:

- “Potential Effects from Peat Instability and Failure”
- “Potential Effects from Piling Works”
- and “Potential Effects from Peat and Subsoil Excavation”

during the construction phase.

The inclusion of these dedicated assessments demonstrates that the EIAR itself recognises peat instability, hydrological interaction and ground disturbance as potentially significant environmental and geotechnical considerations associated with the Proposed Project.

The Proposed Project would involve:

- turbine foundation excavation,
- piling works,
- crane hardstands,
- borrow pits,
- access roads,
- cable trenching,
- peat deposition areas,
- drainage interception,
- and permanent loading of peatland areas

across a previously drained and industrially modified peatland environment. Chapter 8 confirms that the total combined volume of peat and spoil requiring excavation is estimated to be 438,449m³.

This represents a very substantial level of excavation and ground disturbance within a peatland system whose hydrological and geotechnical conditions have already been altered through historical drainage and industrial peat extraction activities.

Chapter 8 further states that peat stability depends upon a combination of factors including:

- peat depth,
- slope angle,
- groundwater conditions,
- pore water pressure,
- loading conditions,
- and drainage characteristics.

Questions arise regarding whether the cumulative interaction between:

- excavation,
- drainage alteration,
- permanent infrastructure loading,
- groundwater fluctuation,
- and historical peatland modification

has been fully assessed over the long-term operational lifetime of the Proposed Project.

Particular concern arises regarding the interaction between peat stability and hydrological alteration. Peatland stability is intrinsically linked to water-table conditions, groundwater pressure and drainage behaviour. Excavation dewatering, drainage interception and permanent alteration of runoff pathways may therefore influence peat stability conditions beyond the immediate footprint of individual infrastructure elements.

The Application Site does not comprise an undisturbed peatland environment. Rather, it forms part of a historically drained industrial bog landscape containing existing artificial drainage systems, altered groundwater movement and ongoing environmental management measures. In such environments, hydrological and geotechnical responses to new excavation and infrastructure loading may be difficult to predict with certainty due to the cumulative interaction between historical disturbance and new construction activity.

The EIAR concludes that peat stability risks can be managed through mitigation measures, construction methodologies and monitoring procedures. However, questions arise regarding the extent to which these conclusions depend upon:

- modelling assumptions,
- ideal drainage performance,
- construction-stage compliance,
- monitoring effectiveness,
- and long-term maintenance of drainage controls.

Concern further arises that the EIAR appears substantially reliant upon construction-stage mitigation, drainage management and geotechnical monitoring measures rather than demonstrating that peat disturbance and loading have been avoided or minimised to the greatest practicable extent through site layout and infrastructure design.

Chapter 8 references “Peat Slides – Lessons Learned”, demonstrating that the EIAR itself recognises the relevance of previous peat instability incidents in Irish peatland developments. Peat instability and peat slide risk have been recognised as significant environmental and geotechnical concerns in Irish peatland infrastructure projects, particularly where excavation, drainage alteration and infrastructure loading occur simultaneously within hydrologically sensitive environments.

EPA guidance relating to peat landslide hazard and risk assessment for electricity generation developments further recognises that peat stability may be influenced by hydrology, excavation, loading, drainage alteration and intense rainfall events, and that uncertainty may remain in previously disturbed peatland environments.

Climate-related rainfall intensification is also relevant to peat stability assessment. Chapter 11 of the EIAR addresses climate-related considerations, including projected changes in rainfall intensity and weather conditions. Questions arise regarding whether the long-term implications of increased rainfall intensity, prolonged storm events and climate-related hydrological variability have been fully incorporated into the assessment of peat stability and drainage performance over the operational lifetime of the Proposed Project.

Peatland environments may be particularly vulnerable to instability during periods of prolonged or intense rainfall due to:

- elevated pore water pressures,
- erosion,
- softening of peat materials,
- drainage exceedance,
- and slope loading effects.

While the EIAR concludes that peat stability factors of safety are acceptable under modelled conditions, uncertainty may remain regarding how previously modified peatland systems will behave over time under cumulative hydrological stress, drainage alteration and changing climatic conditions.

Article 3 of Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment of the direct, indirect and cumulative interaction of environmental factors, including land, soil, water, climate and biodiversity. Article 5(1) and Annex IV further require that likely significant environmental effects and mitigation measures be properly identified and assessed within the EIAR process.

In circumstances involving hydrologically connected peatland systems and potential long-term geotechnical instability, the precautionary principle is of particular relevance where scientific uncertainty remains regarding cumulative peat stability consequences.

Uncertainty remains regarding the cumulative long-term interaction between:

- peat excavation,
- drainage alteration,
- groundwater fluctuation,
- infrastructure loading,
- settlement,
- borrow pit excavation,
- climate-related rainfall intensification,
- and permanent infrastructure development

within a previously modified peatland environment.

4.6 Agricultural and Land Use Impacts

The Proposed Project would involve extensive excavation, drainage intervention, road construction, piling works and permanent infrastructure installation within a historically drained peatland landscape containing adjoining agricultural lands and rural land users. Chapter 9 of the EIAR specifically addresses:

- “Regional and Local Hydrology”
- “Surface Water Flows”
- “Hydrogeology”
- “Water Resources”
- “Flood Risk Assessment”
- and “Development Interaction with the Existing Bog Drainage Network”.

The inclusion of these assessments demonstrates that the Proposed Project has the potential to interact with wider drainage systems, groundwater conditions and adjoining land areas beyond the immediate footprint of the development itself.

The Application Site forms part of a previously modified peatland environment containing extensive artificial drainage infrastructure associated with historical industrial peat extraction activities. Chapter 4 further confirms that the Proposed Project would include:

- interceptor drains,
- collector drains,
- culverts,
- settlement ponds,
- cable trench drainage,
- and other drainage control infrastructure.

Agricultural lands adjoining peatland environments may depend heavily upon stable drainage conditions and predictable ground conditions to maintain:

- grazing quality,
- field accessibility,
- machinery access,
- soil workability,
- and overall agricultural productivity.

Questions arise regarding how the cumulative interaction between:

- historical drainage,
- new drainage infrastructure,
- excavation dewatering,
- altered runoff pathways,
- and permanent hardstanding surfaces

may affect adjoining agricultural land functionality and local drainage behaviour over time. Even relatively small alterations in drainage behaviour, groundwater conditions or runoff pathways may contribute to:

- localised waterlogging,
- altered field drainage performance,
- increased surface runoff,
- reduced ground bearing capacity,
- delayed grazing access,
- and reduced usability of adjoining agricultural lands during wet conditions.

Particular concern arises regarding the potential for sediment mobilisation, suspended solids and contaminated runoff to migrate through interconnected drainage systems during periods of excavation, piling, road construction and dewatering activity. In historically drained peatland environments, such pathways may extend beyond immediate construction areas through artificial drains and connected watercourses.

Chapter 9 specifically identifies:

- “Potential Effects from Earthworks Resulting in Suspended Solids Entrainment in Surface Waters”
- “Potential Effects on Surface Water Quality from Excavation Dewatering”
- “Potential Effects Associated with Leakages or Spillages of Hydrocarbons”
- “Potential Effects Associated with the Release of Cement-Based Products”
- “Potential Effects on Groundwater Abstractions (Public and Private)”
- and “Potential Effects on WFD Status and Objectives”.

These identified impact pathways demonstrate that the EIAR itself recognises the potential for construction activity and altered drainage conditions to interact with surrounding land uses and local water resources.

Particular concern also arises regarding the potential for sediment, hydrocarbon contamination or cementitious runoff to affect the quality and suitability of water resources relied upon for:

- livestock watering,
- agricultural use,
- farm drainage systems,
- and adjoining agricultural activities

within surrounding rural land areas.

Questions also arise regarding potential implications for:

- grazing management,
- silage and harvesting operations,
- movement of agricultural machinery,
- and seasonal farming practices

where suspended solids, altered drainage conditions or localised waterlogging occur within hydrologically connected drainage networks.

While the EIAR proposes drainage controls, settlement ponds, monitoring measures and construction-stage mitigation in response to these identified risks, the assessment does not appear to specifically evaluate with certainty the long-term implications of altered drainage behaviour for adjoining agricultural land functionality, including grazing conditions, machinery access, field drainage performance and seasonal land management during prolonged wet weather conditions.

In particular, uncertainty appears to remain regarding:

- the cumulative interaction between historical drainage and new drainage infrastructure,
- the long-term behaviour of altered runoff pathways and groundwater conditions,
- the extent to which impacts may extend beyond immediate construction areas,
- and the resilience of mitigation measures during prolonged or high-intensity rainfall events.

While the EIAR concludes that impacts can be managed through mitigation and monitoring measures, the assessment appears substantially dependent upon hypothetical future drainage performance, construction-stage controls and ongoing maintenance assumptions over the operational lifetime of the Proposed Project. Questions therefore arise regarding the degree of scientific certainty available in relation not only to the effectiveness of proposed mitigation measures, but also to the full extent and long-term behaviour of the land-use and drainage impacts which such mitigation measures are intended to address.

Chapter 9 also includes a dedicated “Flood Risk Assessment” and identifies:

- “Potential Effects from the Progressive Replacement of Natural Surface with Lower Permeability Surfaces”.

Concern arises that cumulative alteration of permeable peatland surfaces, drainage pathways and runoff behaviour may contribute to localised drainage pressures and altered ground conditions within adjoining agricultural and rural land areas.

Under the Water Framework Directive, deterioration in the status of water bodies must be avoided and Member States are required to protect, enhance and restore water bodies to achieve good ecological and chemical status objectives. Questions arise regarding whether the EIAR demonstrates with sufficient certainty that long-term drainage alteration, runoff changes and sediment mobilisation associated with the Proposed Project would avoid adverse impacts upon hydrologically connected surface water and groundwater systems relied upon by adjoining agricultural activities and local land users.

Article 3 of Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment of the direct, indirect and cumulative interaction of environmental factors, including impacts relating to land, soil, water and human beings. The Planning and Development Act 2000 (as

amended) further requires proper consideration of impacts upon adjoining land uses and environmental receptors.

The Department of Agriculture, Food and the Marine recognises the importance of maintaining appropriate land drainage, soil conditions and water quality standards in support of sustainable agricultural land use and livestock management. In circumstances involving interconnected peatland drainage systems, agricultural dependency upon stable drainage conditions and long-term uncertainty regarding land and water conditions, the precautionary principle is of particular relevance where potential impacts upon adjoining agricultural lands and farming activities may arise over time.

Uncertainty remains regarding the cumulative long-term interaction between:

- excavation works,
- drainage alteration,
- groundwater fluctuation,
- runoff pathway change,
- permanent infrastructure development,
- and historical peatland modification

within adjoining agricultural and rural land environments.

4.7 Ecological and Carbon Interactions

Chapter 6 of the EIAR confirms that ecological effects are assessed with regard to habitat condition, hydrology, surface water quality and downstream ecological receptors. It states that “potential interaction pathways considered include habitat condition and availability, hydrology and surface water quality, and indirect effects on downstream ecological receptors.”

This is significant because the Proposed Project is not being introduced into an isolated or ecologically neutral environment. It is being proposed within a wider peatland landscape where ecological recovery, hydrological stabilisation, habitat development and carbon function are interlinked.

Chapter 6 states that the Proposed Project is located “primarily on degraded cutover peatland (PB4)” and that there are “no Annex I peatlands, heath or grasslands within the Proposed Project site.” It also states that the Proposed Project will result in a loss of approximately 60.8ha of habitats, including approximately 50.6ha of bare cutover bog, which the EIAR describes as “heavily degraded through extensive drainage and former peat extraction activities” and “of low ecological value.”

However, questions arise regarding whether reliance upon the existing degraded condition of the cutover bog fully reflects its wider ecological, hydrological and carbon recovery potential. A habitat may be degraded at present, but still retain importance as part of a wider recovering peatland system, particularly where rehabilitation, rewetting and revegetation are expected to occur over time.

This is especially relevant because Chapter 6 confirms that Lemanaghan Bog is subject to a Draft Cutaway Decommissioning and Rehabilitation Plan prepared in accordance with EPA IPC Licence requirements. The EIAR states that the objectives of this plan are “to achieve environmental stabilisation of cutaway peatlands, including the management of drainage, reduction of suspended solids and protection of receiving water quality.” It also states that implementation is expected to result in “gradual changes in ecological conditions over time through rewetting and natural revegetation.”

Chapter 8 similarly states that the Draft Rehabilitation Plan is intended “to stabilise and rehabilitate the peat bog” and to place “the existing peatland environments on a path towards naturally functioning peatlands.”

The EIAR therefore contains an important tension. On one hand, it characterises the existing cutover bog as degraded and of low ecological value. On the other hand, it confirms that the site is subject to rehabilitation and stabilisation measures involving drainage management, rewetting and natural revegetation, with the stated objective of placing the existing peatland environments on a path towards naturally functioning peatlands.

Questions arise as to whether the assessment gives sufficient weight to this future ecological and carbon recovery trajectory when assessing the acceptability of permanent wind farm infrastructure, hardstanding, access roads and drainage systems within the same peatland landscape.

Chapter 6 states that the Proposed Project has been designed to be compatible with the planned rehabilitation of Lemanaghan Bog and concludes that there is no overlap in activities or impact pathways giving rise to significant cumulative effects on terrestrial habitats or fauna. It further states that the Proposed Project and Draft Rehabilitation Plan are not predicted to give rise to significant cumulative effects on biodiversity at any geographic scale.

However, that conclusion should be treated with caution. The same EIAR acknowledges that relevant interaction pathways include habitat condition and availability, hydrology, surface water quality and downstream ecological receptors. It also acknowledges that rehabilitation outcomes will unfold gradually through rewetting and natural revegetation. Questions therefore arise regarding whether sufficient certainty has been demonstrated in relation to:

- the long-term interaction between permanent infrastructure and peatland recovery,
- the effects of ongoing drainage management on future ecological restoration,
- the ecological functionality of a rehabilitating peatland landscape containing permanent industrial infrastructure,
- and the cumulative interaction between rehabilitation measures and operational wind farm infrastructure.

This uncertainty is reinforced by Chapter 11. The Climate chapter states that:

“it is not possible to re-wet all areas within the site and hence create the optimum conditions for carbon sequestration.”

It further states that, in areas where optimum carbon sequestration conditions will be created by the rehabilitation plan:

“it will require time to transition to the desired habitat.”

Chapter 11 also states that:

“the cumulative carbon sequestration benefits associated with the Proposed Project and the future implementation of the Draft Rehabilitation Plan cannot be determined at this stage.”

This is significant because it acknowledges uncertainty regarding the long-term carbon consequences of combining:

- peatland rehabilitation,
- ecological transition,
- hydrological stabilisation,
- and permanent wind farm infrastructure.

The carbon implications are not theoretical. Chapter 11 confirms that:

“Peatland habitats have a significant capacity to store organic carbon”

and states that where wind farms are proposed in peatland areas:

“there will be direct impacts and loss of peat in the area of the development footprint.”

The EIAR also acknowledges that indirect impacts may occur where drainage is required and that construction works can directly or indirectly allow peat to dry out locally, causing decomposition of stored organic material and release of CO₂.

Chapter 11 calculates that the Proposed Project will give rise to 261,360 tonnes of CO₂ equivalent losses over its 35-year life. It also states that losses from soil organic matter, namely CO₂ loss from removed and drained peat, will equate to 37,622 tonnes, or 14% of the total.

The issue is therefore not whether renewable energy has climate benefits. The issue is whether the EIAR has adequately assessed the cumulative ecological and carbon trade-off involved in placing permanent infrastructure within a rehabilitating peatland system whose future carbon sequestration benefits are expressly stated to be unquantifiable at this stage.

The EIAR also states that PCAS comprises “enhanced peatland rehabilitation” above and beyond IPC licence requirements, and that PCAS has been cumulatively assessed although it does not form part of the Proposed Wind Farm application. Chapter 6 further states that PCAS involves peatland rehabilitation measures including “rewetting and revegetation” intended “to restore ecological function to degraded peatlands.”

Questions arise regarding whether the EIAR has fully reconciled these restoration objectives with the permanent loss of rehabilitation area and the introduction of infrastructure within

the peatland landscape. Chapter 8 states that, if the Proposed Project proceeds, 34.3ha “will no longer be available for rehabilitation”, although the EIAR concludes this is negligible due to the small footprint relative to the overall site.

That conclusion may understate the importance of spatial and functional connectivity in peatland recovery. Peatland rehabilitation depends not only on the percentage of land physically occupied, but also on the relationship between hydrology, drainage, habitat formation, ecological connectivity and long-term management. A 3% permanent infrastructure footprint may still have wider implications where roads, hardstanding, drainage systems and turbine foundations influence how water, vegetation and habitat recovery develop across the surrounding bog.

Chapter 7 Birds is also relevant because it confirms that rehabilitating cutover peatland habitats are dynamic and evolving over time. The EIAR states that rehabilitation schemes within some peatland habitats in the wider surroundings are likely to increase habitat quality for lapwing and snipe, while also noting that, over the lifetime of the Proposed Wind Farm, some areas are likely to become less suitable for open habitat species as succession to scrub mosaic occurs on shallower peat.

This illustrates that ecological change on rehabilitating cutover peatland is long-term and transitional in nature. It is therefore not sufficient to assess the site solely by reference to its present degraded condition. The assessment must also consider how habitat quality, species use, hydrology and carbon function may evolve over time as rehabilitation and natural revegetation progress.

The National Biodiversity Action Plan 2023–2030, referenced in Chapter 6, includes objectives relating to conservation and restoration, ecosystem resilience and strengthening the evidence base for biodiversity decision-making. Chapter 6 also notes that the Wildlife (Amendment) Act 2023 introduced a public sector duty requiring public bodies to have regard to the objectives and targets of the National Biodiversity Action Plan.

Article 3 of Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment of the direct, indirect and cumulative interaction of environmental factors including biodiversity, land, soil, water and climate. In circumstances involving a hydrologically sensitive, rehabilitating peatland landscape, the precautionary principle is of particular relevance where uncertainty remains regarding long-term ecological recovery, carbon sequestration and peatland functionality.

Uncertainty remains regarding the cumulative long-term interaction between:

- peat excavation,
- drainage alteration,
- habitat loss,
- ecological transition,
- rehabilitation compatibility,
- carbon sequestration uncertainty,
- permanent infrastructure development,

- and reduced peatland recovery potential

within the wider peatland landscape surrounding the Proposed Project.

4.8 Conclusion on Peatland and Water Protection

The EIAR confirms that the Proposed Project would involve:

- extensive peat excavation,
- drainage intervention,
- piling works,
- permanent hardstanding,
- access road construction,
- borrow pit excavation,
- groundwater interaction,
- surface water management,
- and long-term infrastructure installation

within a historically drained and industrially modified peatland environment.

Across Chapters 4, 6, 8, 9, 11 and 18, the EIAR repeatedly identifies potential effects relating to:

- peat disturbance,
- hydrological alteration,
- groundwater interaction,
- sediment mobilisation,
- water quality,
- peat stability,
- habitat change,
- ecological connectivity,
- and carbon release pathways.

The EIAR further recognises the interconnected nature of:

- peatland hydrology,
- ecological functionality,
- rehabilitation measures,
- drainage systems,
- and carbon sequestration processes.

Chapter 6 confirms that interaction pathways include:

“habitat condition and availability, hydrology and surface water quality, and indirect effects on downstream ecological receptors.”

Chapter 11 further acknowledges that:

“the cumulative carbon sequestration benefits associated with the Proposed Project and the future implementation of the Draft Rehabilitation Plan cannot be determined at this stage.”

The EIAR also acknowledges that:

- peatland rehabilitation depends upon rewetting and revegetation,
- ecological transition will occur gradually over time,
- not all areas can be rewetted to create optimum carbon sequestration conditions,
- and permanent areas of peatland would no longer remain available for rehabilitation.

Taken together, these statements demonstrate that the EIAR itself recognises:

- long-term ecological uncertainty,
- hydrological complexity,
- rehabilitation dependency upon water management,
- and uncertainty regarding future carbon sequestration benefits within the wider peatland system.

While the EIAR concludes that impacts can be managed through:

- drainage controls,
- settlement ponds,
- mitigation measures,
- construction methodologies,
- monitoring programmes,
- Environmental Clerk of Works oversight,
- hydrological management,
- and operational controls,

concern arises that significant elements of the assessment remain dependent upon:

- post-consent drainage design,
- construction-stage implementation,
- contractor compliance,
- long-term maintenance,
- monitoring effectiveness,
- and assumed future mitigation performance.

Questions therefore arise regarding whether the EIAR demonstrates with sufficient scientific certainty that:

- long-term hydrological integrity,
- peat stability,
- groundwater conditions,
- ecological recovery,
- water quality,

- carbon sequestration functionality,
- and rehabilitation objectives

can be maintained across the operational lifetime of the Proposed Project within a previously disturbed peatland landscape.

Particular concern arises regarding the cumulative interaction between:

- historical industrial peat extraction,
- existing artificial drainage systems,
- ongoing rehabilitation measures,
- permanent wind farm infrastructure,
- excavation and dewatering,
- altered runoff pathways,
- groundwater fluctuation,
- peatland rehabilitation constraints,
- and climate-related rainfall intensification.

The Application Site does not comprise an undisturbed natural peatland system. Rather, it forms part of a historically modified bog landscape already subject to significant hydrological and ecological alteration. In such environments, cumulative environmental responses may emerge gradually over time through the interaction of:

- drainage alteration,
- peat drying,
- groundwater movement,
- habitat transition,
- infrastructure loading,
- and long-term ecological change.

Article 3 of Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment of the direct, indirect and cumulative interaction of environmental factors including land, soil, water, biodiversity and climate. The Water Framework Directive further requires avoidance of deterioration in water body status and protection of hydrologically connected water systems.

Article 191(2) of the Treaty on the Functioning of the European Union further provides that Union environmental policy shall be based upon the precautionary principle.

In circumstances involving:

- hydrologically sensitive peatland systems,
- acknowledged uncertainty regarding future cumulative carbon sequestration benefits,
- long-term ecological transition,
- and cumulative interaction between rehabilitation and permanent infrastructure,

the precautionary principle is of particular relevance.

Accordingly, concern remains that the EIAR has not demonstrated with sufficient certainty that the cumulative long-term interaction between:

- peat excavation,
- drainage intervention,
- groundwater alteration,
- peat instability risk,
- ecological transition,
- water quality impacts,
- carbon release pathways,
- rehabilitation constraints,
- and permanent infrastructure development

would avoid significant long-term adverse effects upon the wider peatland, hydrological and ecological environment surrounding the Proposed Project.

5. Biodiversity, Peatland Ecology and Habitat Protection

5.1 Ecological Sensitivity of the Peatland Environment

5.1.1 Peatland Character and Existing Ecological Condition

The proposed development is located within a modified peatland landscape, but the EIAR does not support treating the receiving environment as ecologically insignificant. Chapter 11 describes the site as comprising “a mixture of bare cutaway peat, re-vegetated bare peat, degraded raised bog, scrub, low woodland and remnants of high bog”, with current land use including peat cutting in areas of active turbary together with natural recolonisation of degraded bog habitats.

Chapter 6 identifies a range of habitats within the EIAR site boundary, including cutover bog, raised bog, drainage ditches, artificial lakes and ponds, scrub, immature woodland, bog woodland, hedgerows and treelines. The EIAR further confirms that the Proposed Project would result in the loss of approximately 60.8ha of habitats, including approximately 50.6ha of bare cutover bog, 3.27ha of revegetating bog and 1.02ha of immature woodland.

The applicant repeatedly characterises much of the site as degraded due to historic drainage and peat extraction activities. However, Chapter 6 also acknowledges that portions of the cutover bog are developing as “a mosaic of pioneer dry heath type vegetation and poor fen communities and scrub.” This is significant because it indicates that ecological succession and habitat development are ongoing within parts of the peatland system despite historical industrial disturbance.

Accordingly, concern arises that the ecological sensitivity of the receiving environment may be understated if previous industrial use is relied upon to minimise the significance of further habitat disturbance. The EIAR itself demonstrates that the site continues to contain ecologically functioning peatland habitats undergoing varying stages of recolonisation and ecological transition.

5.1.2 Hydrological Dependency of Peatland Ecosystems

Peatland ecosystems are intrinsically dependent upon hydrological stability, groundwater interactions and peat moisture conditions. Chapter 9 confirms that the site contains an extensive existing drainage network and states that the existing drainage system will be maintained and expanded locally as required for the Proposed Project drainage system.

The Water chapter further assesses:

- surface water flows,
- groundwater conditions,
- excavation dewatering,
- suspended solids entrainment,
- hydrologically connected designated sites,
- and potential impacts on Water Framework Directive objectives.

Chapter 17 additionally acknowledges that construction activities may give rise to indirect effects associated with water pollution, habitat deterioration and changes to runoff behaviour arising from hard surfaces and drainage interactions.

These acknowledgements are important because peatland habitats are highly sensitive to even relatively small alterations in:

- drainage pathways,
- water table levels,
- surface water movement,
- groundwater interaction,
- and long-term peat saturation conditions.

Potential ecological effects therefore extend beyond direct habitat footprint loss alone and may include indirect degradation arising from drainage alteration, drying effects, sedimentation and disruption of ecological connectivity across the wider bog system.

Concern therefore arises that biodiversity, peat, hydrology and drainage are assessed in separate technical chapters despite functioning as interconnected environmental systems in reality. Consequently, uncertainty regarding drainage behaviour or hydrological alteration may also create uncertainty regarding ecological effects.

5.1.3 Peatland Rehabilitation and Recovery Trajectory

The EIAR repeatedly references peatland rehabilitation, ecological stabilisation and rewetting measures within the wider receiving environment. Chapter 6 states that Lemanaghan Bog is subject to a Draft Cutaway Decommissioning and Rehabilitation Plan intended to achieve environmental stabilisation, drainage management, reduction of suspended solids and protection of receiving water quality. The same chapter states that rehabilitation is expected to result in gradual ecological change through rewetting and natural revegetation processes.

Chapter 8 similarly states that the Draft Rehabilitation Plan aims to place existing peatland environments “on a path towards naturally functioning peatlands.”

The EIAR also identifies nearby Peatland Climate Action Scheme (PCAS) areas, including Curragalassa Bog and Derrynagun Bog, where rewetting and revegetation measures are intended to restore ecological function to degraded peatlands.

Concern therefore arises regarding the compatibility of introducing additional large-scale industrial infrastructure into a peatland landscape simultaneously undergoing rehabilitation and ecological transition. The Proposed Project would involve:

- turbine foundations,
- hardstanding,
- access roads,
- excavation works,
- drainage infrastructure,
- and grid infrastructure across peatland terrain.

The long-term interaction between such infrastructure and evolving peatland rehabilitation objectives remains uncertain, particularly where ecological recovery is dependent upon hydrological stability, rewetting and revegetation over extended timescales.

5.1.4 Carbon Storage and Ecosystem Function

Chapter 11 recognises the important climate and ecosystem functions performed by peatland habitats. The EIAR states that bogs and peatlands store large quantities of organic carbon and acknowledges that wind farm construction on peatland habitats may alter hydrological conditions, expose peat and increase peat drying and decomposition.

The chapter further acknowledges that peatland habitats possess significant carbon storage capacity and that direct and indirect drying of peat can result in the release of stored carbon as CO₂.

These acknowledgements are significant because they demonstrate that the receiving environment continues to perform important ecosystem and climate-regulation functions despite historical peat extraction and drainage activities.

Concern therefore arises that further fragmentation of the peatland system through turbine bases, hardstanding, road construction, drainage alteration and associated infrastructure may create long-term effects extending beyond direct habitat loss alone, including effects on:

- peat stability,
- hydrological regulation,
- carbon storage,
- and wider ecosystem functioning.

5.1.5 Conclusion on Peatland Sensitivity

The key issue arising from the EIAR is not whether the site represents pristine intact bog habitat; it clearly does not. Rather, the concern is that the receiving environment remains part of a wider peatland system characterised by:

- hydrological sensitivity,
- ecological interdependency,
- ongoing rehabilitation and revegetation,
- carbon storage function,
- and cumulative environmental pressure.

The EIAR itself acknowledges ongoing ecological transition, hydrological management and peatland rehabilitation measures across the wider bog landscape. Concern therefore arises that reliance upon the site's degraded industrial history may understate the environmental sensitivity of the receiving environment and the potential cumulative consequences of further peatland disturbance and fragmentation.

5.2 Protected Habitats, Designated Sites and Ecological Connectivity

5.2.1 Designated Sites within the Zone of Influence

Chapter 6 identifies a substantial number of European and nationally designated ecological sites within the wider zone of influence of the Proposed Project. The Biodiversity chapter specifically assesses Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) in the context of potential ecological effects associated with the Proposed Project.

Similarly, Chapter 7 identifies designated bird sites and assesses potential effects on protected avian receptors, including SPA-associated bird species and wider ornithological connectivity. Chapter 6 further acknowledges the role of habitats and species in providing supporting ecological networks associated with European sites and their Qualifying Interests (QIs) and Special Conservation Interests (SCIs).

European sites and their qualifying interests are protected under the Habitats Directive and Birds Directive, which require assessment of potential direct, indirect and cumulative effects arising from proposed development. In this context, ecological effects on European sites may arise not only through direct habitat loss within designated boundaries, but also through:

- hydrological pathways,
- habitat fragmentation,
- ecological disturbance,
- interruption of habitat connectivity,
- and effects on supporting habitat used by qualifying interests outside formally designated areas.

Concern therefore arises that the ecological sensitivity of the wider peatland landscape cannot be assessed solely by reference to whether infrastructure is physically located within designated site boundaries.

5.2.2 Qualifying Interests and Supporting Habitat Functions

Chapter 6 states that particular attention has been paid to habitats and species of ecological importance, including their role in supporting European sites and designated ecological interests. This acknowledgement is significant because many protected habitats and species rely upon wider ecological systems extending beyond formally designated boundaries.

Supporting habitats may contribute to:

- foraging,
- dispersal,
- commuting,
- seasonal movement,
- hydrological buffering,
- and wider ecological resilience within peatland landscapes.

Ecological functionality is therefore not necessarily confined to the designated boundary itself, particularly within peatland environments where hydrological processes, habitat use and ecological movement patterns frequently extend across interconnected areas.

Similarly, Chapter 7 identifies “Key Ornithological Receptors” (KORs) as species occurring within the zone of influence of the Proposed Project upon which potential impacts are anticipated and assessed. The chapter further assesses impacts including habitat loss, disturbance/displacement and collision risk affecting protected bird species.

Concern therefore arises that assessment focused primarily upon direct habitat footprint loss may understate the wider functional importance of interconnected peatland habitats within the surrounding bog landscape.

5.2.3 Ecological Connectivity and Habitat Corridors

The EIAR repeatedly acknowledges ecological and hydrological interconnections throughout the receiving environment. Chapter 9 identifies existing drainage networks, surface water pathways and hydrologically connected designated sites associated with the Proposed Project area.

This is particularly relevant within fragmented peatland landscapes where remaining habitat areas may continue to retain ecological importance through their contribution to wider habitat networks, ecological movement and hydro-ecological functioning.

The Proposed Project would introduce:

- turbine infrastructure,
- internal access roads,
- excavation works,
- drainage management infrastructure,
- hardstanding,
- and grid connection infrastructure across parts of the peatland landscape.

Concern therefore arises regarding the cumulative fragmentation of ecological corridors and interconnected peatland habitats within a landscape already subject to extensive historical drainage, peat extraction and infrastructure development.

This concern is heightened by the fact that peatland systems frequently operate through interconnected hydrological and ecological processes extending beyond individual habitat parcels or mapped boundaries. Consequently, localised habitat fragmentation may contribute to wider indirect ecological effects when considered cumulatively across the broader bog landscape.

5.2.4 Hydrological and Ecological Linkages

The Water chapter specifically assesses hydrologically connected designated sites and acknowledges the potential for effects associated with excavation, drainage interaction, suspended solids entrainment and groundwater alteration.

These hydrological interactions are ecologically significant because peatland habitats and wetland ecosystems are highly dependent upon:

- water quality,
- water table stability,
- groundwater movement,
- and long-term hydrological conditions.

Chapter 17 further recognises interaction effects between biodiversity, water and land/peat conditions. However, concern arises that the compartmentalised structure of the EIAR may not fully capture the extent to which ecological receptors depend upon broader hydro-ecological functioning across the wider peatland system.

This concern is reinforced by the fact that the receiving environment is already subject to:

- historical drainage,
- peat extraction,
- rehabilitation measures,
- and cumulative environmental pressures.

Accordingly, even relatively localised hydrological alteration may contribute to wider indirect ecological effects when considered cumulatively alongside existing peatland disturbance and landscape fragmentation.

5.2.5 Conclusion on Designated Sites and Ecological Connectivity

The EIAR demonstrates that the receiving environment forms part of a wider interconnected peatland landscape containing designated ecological sites, hydrologically linked habitats and protected ecological receptors.

The key issue arising is not limited to direct overlap with designated areas, but rather the potential for indirect and cumulative effects on:

- ecological connectivity,
- supporting habitat functions,
- hydrological interactions,
- and wider peatland ecosystem functioning.

Concern therefore arises that assessment focused primarily upon designated boundaries may fail to fully account for the functional ecological connectivity and hydrological interdependency of the wider peatland landscape upon which many protected habitats and species depend.

5.3 Ecological Survey Methodology and Scientific Uncertainty

5.3.1 Ecological Survey Scope and Methodology

Chapter 6 states that the ecological assessment included:

- desk studies,
- consultation,
- multidisciplinary walkover surveys,
- habitat and vegetation surveys,
- terrestrial fauna surveys,
- aquatic surveys,
- and invasive species surveys.

The EIAR further states that ecological receptors were identified using a precautionary screening approach with reference to Key Ecological Receptors (KERs), including habitats and species protected under the Habitats Directive, Wildlife Acts and Flora Protection Order.

Similarly, Chapter 7 outlines ornithological methodologies including:

- vantage point surveys,
- flight activity surveys,
- collision risk assessment (CRA),

- desk studies,
- consultation,
- and identification of Key Ornithological Receptors (KORs).

Importantly, the concern arising is not that ecological surveys were absent. The EIAR contains extensive ecological and ornithological survey work. However, the reliability of ecological conclusions depends not only upon survey extent, but also upon:

- evolving habitat conditions,
- species mobility,
- hydrological variability,
- predictive modelling assumptions,
- and future mitigation effectiveness within a peatland landscape repeatedly described as undergoing rehabilitation, revegetation, hydrological transition and ecological succession.

Accordingly, uncertainty remains regarding the extent to which finite survey periods can fully capture longer-term ecological variability and evolving ecological usage within this transitional peatland environment.

This is particularly relevant because several ecological receptors identified within the EIAR are protected under Irish and European law. Chapter 6 states that all Irish bat species are protected under:

- the Habitats Directive,
- the Wildlife Acts,
- the Bonn Convention,
- and the Bern Convention.

Otter is identified as an Annex II and Annex IV Habitats Directive species associated with the River Shannon Callows SAC. Chapter 7 also records hen harrier, an Annex I Birds Directive species, within the wider receiving environment.

Where protected species and European sites are concerned, uncertainty itself becomes environmentally and legally significant.

5.3.2 Survey Limitations and Seasonal Constraints

Chapter 6 expressly acknowledges that species of conservation importance may not have been recorded during surveys because of:

“seasonal absence or nocturnal/cryptic habits.”

This acknowledgement is particularly relevant because many of the receptors assessed within the EIAR are inherently mobile, seasonal or difficult to detect, including:

- bats,
- otter,
- breeding and wintering birds,
- raptors,
- and aquatic-associated fauna.

The EIAR nevertheless concludes that:

“No limitations in the scope, scale or context of the assessment have been identified.”

At the same time, the EIAR repeatedly acknowledges that ecological conditions and species utilisation patterns may fluctuate within the transitional peatland environment depending upon:

- drainage conditions,
- vegetation structure,
- prey availability,
- hydrological conditions,
- and habitat recovery processes.

This creates uncertainty regarding the extent to which acknowledged limitations associated with:

- seasonal absence,
 - nocturnal behaviour,
 - cryptic species,
 - fluctuating habitat usage,
 - and changing peatland conditions
- are fully reflected within the overall certainty of the ecological conclusions.

This is particularly significant in the context of protected species and European sites. Under the precautionary approach underpinning Article 6(3) of the Habitats Directive, uncertainty regarding protected species usage, disturbance effects or mitigation effectiveness cannot ordinarily be resolved through speculative assumptions alone.

If seasonal or intermittent ecological usage has been underestimated, potential consequences could include:

- underestimation of bird activity within turbine influence areas,
- underestimation of bat commuting and foraging behaviour,
- disturbance of breeding or wintering bird usage,
- deterioration of supporting habitat function,
- interference with conservation objectives,
- and indirect impacts upon protected species and hydrologically connected European sites.

5.3.3 Reliance on Assumptions, Modelling and Predictive Assessment

The EIAR relies extensively upon predictive assessment methodologies and modelling approaches in order to assess ecological impacts.

Chapter 7 states that collision risk is calculated using:

“a mathematical model to predict the number of individual birds that may be killed by collision with moving wind turbine rotor blades.”

Importantly, the same section expressly acknowledges that collision risk outputs are:

“theoretical predictions”
which:
“must be interpreted with a degree of caution.”

The EIAR further acknowledges that:

“a majority of the recorded flight activity was likely in the lower reaches of the 25-200m height band, well below the actual turbine’s lowest swept height of 70m.”

At the same time, cumulative collision modelling predicts annual collisions for species including:

- golden plover,
- whooper swan,
- kestrel,
- lapwing,
- and buzzard.

For example, Chapter 7 records predicted cumulative annual collisions of:

- 17.409 for golden plover,
- 35.803 for wintering lapwing,
- and 10.789 for buzzard.

This is particularly relevant where protected and sensitive bird species are concerned. Chapter 7 records a confirmed hen harrier roost approximately 750m from the site together with 84 hen harrier observations during winter surveys. Golden plover were recorded within or partly within the site on 62 occasions, including county-important numbers on 15 occasions and a maximum flock size of 275 birds.

Similarly, Chapter 9 relies upon predictive source-pathway-receptor assessment to evaluate potential hydrological and hydrogeological effects associated with:

- excavation,
- suspended solids,
- drainage interaction,

- groundwater behaviour,
- and downstream water quality.

The relevance of this is heightened by Chapter 9 identifying hydrological connectivity between the site and the River Shannon Callows SAC/pNHA and Middle Shannon Callows SPA through the Ballynahown Stream, Boor River and Brosna River.

Accordingly, ecological conclusions remain substantially dependent upon predictive assumptions regarding:

- bird flight behaviour,
- habitat usage,
- hydrological interaction,
- mitigation effectiveness,
- and future environmental conditions within the transitional peatland environment.

Where protected species and European sites are concerned, reliance upon predictive modelling and theoretical assumptions is particularly significant because the precautionary approach requires the absence of reasonable scientific doubt regarding adverse effects.

If predictive assumptions prove inaccurate, potential consequences could include:

- underestimation of bird collision mortality,
- underestimation of disturbance and displacement effects,
- deterioration of water quality,
- indirect impacts upon hydrologically connected European sites,
- interference with supporting habitat function,
- adverse effects on protected species,
- and cumulative ecological effects extending beyond those predicted within the EIAR.

5.3.4 Mobile Species, Detection Limits and Incomplete Ecological Certainty

Importantly, this is not a case where ecological surveys were absent. The EIAR contains extensive survey work, including:

- five winter seasons of hen harrier roost surveys,
- bat activity surveys,
- otter surveys,
- badger surveys,
- and bird flight activity surveys.

However, the same EIAR repeatedly acknowledges that ecological usage of the site remains variable, mobile and capable of changing over time.

For example, Chapter 18 states that although no otter holts were identified within 150m of infrastructure during surveys, otter are highly mobile and:

“could migrate within the site”
requiring pre-commencement re-surveys prior to works at watercourse crossings.

Similarly, the EIAR states:

“the usage of the site by badgers can change over time”
requiring pre-construction re-surveys to identify additional setts or entrances.

Concern also arises regarding the adequacy of badger survey assessment within the EIAR documentation. Publicly available Department of Agriculture badger sett mapping reportedly identifies up to 27 badger setts within approximately 500 metres of the wider Lemanaghan bog area, whereas substantially fewer setts appear to have been identified within the applicant’s ecological assessment documentation.

In circumstances where extensive excavation works, access roads, turbine foundations, drainage infrastructure and prolonged disturbance are proposed across a large peatland environment, concern therefore arises regarding whether the full extent of protected badger activity and ecological sensitivity within the receiving environment has been fully identified and assessed.

Chapter 6 states that all Irish bat species are strictly protected under the Habitats Directive and Wildlife Acts. Chapter 18 nevertheless requires three years of post-construction bat monitoring together with additional mitigation measures “if necessary.”

At the same time, the EIAR acknowledges that collision modelling remains theoretical and subject to caution.

These examples demonstrate that:

- ecological usage patterns are not static,
- species movement may change over time,
- and aspects of ecological assessment remain dependent upon predictive assumptions and future verification.

This is particularly important in the context of protected species because disturbance, displacement, collision risk and habitat fragmentation may engage obligations arising under the Habitats Directive, Birds Directive and Wildlife Acts.

Accordingly, finite survey periods may not fully capture longer-term ecological utilisation of the transitional peatland environment.

If ecological utilisation of the site has been underestimated, potential consequences could include:

- underestimation of bird collision risk,
- disturbance or displacement of wintering and breeding birds,
- underestimation of bat activity within turbine influence areas,
- disruption of otter commuting routes,

- fragmentation of ecological connectivity,
- deterioration of supporting habitat function,
- interference with conservation objectives,
- and indirect impacts upon protected species and hydrologically connected European sites.

5.3.5 Retrospective and Transitional Baseline Conditions

The receiving environment is repeatedly characterised throughout the EIAR as a peatland landscape affected by historical drainage and peat extraction activities, but also undergoing rehabilitation, revegetation, hydrological transition and ecological succession.

Chapter 11 states that peat extraction ceased in June 2020 and that decommissioning and rehabilitation obligations apply under IPC Licence P0500-01. Chapter 8 further states that rehabilitation measures are intended to place peatland areas:

“on a path towards naturally functioning peatlands.”

This is important because the ecological baseline is not entirely static. Habitat condition, hydrology and species utilisation may continue to evolve through:

- rewetting,
- drainage management,
- vegetation succession,
- and ongoing rehabilitation activity.

Accordingly, uncertainty remains regarding the reliability of establishing a stable ecological baseline within the transitional peatland environment.

This is particularly relevant where protected species and hydrologically connected European sites are concerned because ecological conditions may continue to evolve during both construction and operational phases of the Proposed Project.

If ecological conditions alter over time differently from those predicted within the EIAR, potential consequences could include:

- changes in habitat suitability,
- altered species usage patterns,
- changes in hydrological connectivity,
- increased peat instability,
- deterioration of wetland habitat conditions,
- adverse effects on protected species,
- and indirect impacts upon recovering peatland habitats and associated ecological receptors.

A degraded or transitional baseline therefore does not necessarily reduce ecological uncertainty. In some circumstances, it may increase uncertainty regarding future ecological trajectories and long-term environmental interaction.

5.3.6 Reliance on Mitigation, Monitoring and Adaptive Management

Chapter 18 sets out a range of adaptive future management measures such as:

- hydrological monitoring,
- peat stability inspections,
- drainage management,
- ecological supervision,
- environmental auditing,
- sediment control measures,
- bat monitoring,
- pre-construction ecological re-surveys,
- and additional mitigation measures “if necessary.”

Importantly, the EIAR expressly acknowledges that drainage measures may require modification depending upon:

- weather conditions,
- drainage performance,
- and ground conditions encountered on-site.

The EIAR further states that additional interceptor drains, swales and check dams may be installed:

“as deemed necessary on-site.”

Similarly, Chapter 18 provides for ongoing peat stability inspections following commissioning of the wind farm, including monitoring of:

- peat deposition areas,
- borrow pits,
- drainage performance,
- and areas where drainage is:

“not functioning as intended.”

The EIAR also requires three years of post-construction bat monitoring and states that:

“additional mitigation measures will be implemented if necessary” if monitoring identifies significant effects.

The reliance upon adaptive future management measures is particularly relevant because ecological conditions within the transitional peatland environment are not static. The EIA itself repeatedly acknowledges that species usage, drainage conditions and habitat function may change over time.

Accordingly, aspects of the ecological baseline relied upon within the EIA may alter following commencement of construction activity itself, particularly where:

- habitat disturbance,
- drainage alteration,
- vegetation clearance,
- excavation works,
- piling activity,
- noise,
- vibration,
- increased traffic,
- and ongoing peatland rehabilitation may influence species behaviour and habitat utilisation patterns.

This is particularly relevant in the context of:

- protected bat species,
- Annex II and Annex IV otter populations,
- Annex I bird species such as hen harrier,
- wintering bird usage,
- hydrologically connected habitats,
- and recovering peatland systems undergoing ecological succession.

In such circumstances, future monitoring may identify ecological change only after disturbance, displacement, habitat alteration or hydrological change has already occurred following commencement of construction activity itself. Potential consequences could therefore include:

- disturbance or displacement of protected species,
- alteration of commuting and foraging routes,
- bird and bat mortality,
- deterioration of wetland habitat conditions,
- altered drainage behaviour,
- increased suspended solids entering watercourses,
- indirect impacts upon the River Shannon Callows SAC/pNHA and Middle Shannon Callows SPA,
- interference with conservation objectives,
- and cumulative deterioration of ecological conditions within the wider bog landscape.

Under the precautionary approach underpinning Article 6(3) of the Habitats Directive, this reliance upon adaptive future management measures is particularly significant because uncertainty concerning protected species and European sites cannot ordinarily be deferred

into post-consent management where ecological effects remain uncertain at assessment stage.

This raises uncertainty regarding the extent to which adaptive future management can fully resolve uncertainty associated with baseline ecological conditions and long-term ecological response within a transitioning peatland landscape.

5.3.7 Conclusion on Ecological Uncertainty

The EIAR contains extensive ecological survey work and predictive assessment methodologies across biodiversity, ornithology, peatland and hydrological disciplines. However, the assessment also expressly acknowledges:

- seasonal variability,
- nocturnal and cryptic species behaviour,
- theoretical predictive modelling,
- evolving peatland conditions,
- hydrological complexity,
- future ecological re-surveys,
- and dependence upon adaptive future management measures.

Importantly, the strongest concern arising from the EIAR is not the absence of ecological surveys. Rather, the applicant's own chapters repeatedly demonstrate:

- mobility of ecological receptors,
- evolving habitat conditions,
- reliance upon predictive modelling,
- need for future ecological re-surveys,
- and dependence upon adaptive future management and post-consent monitoring.

This is particularly relevant where:

- protected species are concerned,
- hydrological pathways connect the site to European sites,
- peatland conditions continue to evolve through rehabilitation and ecological succession,
- and mitigation effectiveness remains dependent upon future intervention and monitoring.

Under the precautionary approach underpinning Article 6 assessment and the requirement established in Waddenzee for the absence of reasonable scientific doubt, uncertainty cannot ordinarily be resolved through reliance upon future adaptive management where ecological effects remain uncertain at assessment stage.

Accordingly, uncertainty remains regarding the extent to which ecological assessment within this fragmented, hydrologically modified and recovering peatland environment can reliably

predict long-term ecological response, particularly where ecological outcomes depend substantially upon predictive assumptions, mitigation effectiveness and adaptive future management.

5.4 Habitat Loss, Fragmentation and Disturbance Effects

5.4.1 Direct Habitat Loss and Physical Peatland Disturbance

Chapter 4 confirms that the Proposed Project would introduce extensive permanent and temporary infrastructure throughout the peatland landscape, including:

- 15 wind turbines,
- permanent turbine foundations,
- crane hardstanding areas,
- c.17.1km of new permanent internal roads,
- upgraded tracks,
- underground electrical cabling,
- a 220kV onsite substation,
- overhead line infrastructure,
- construction compounds,
- borrow pits,
- watercourse crossings,
- drainage infrastructure,
- peat deposition areas,
- and associated excavation works.

The EIAR further confirms removal of approximately:

- 1.02ha of immature woodland,
 - and 0.64ha of scrub vegetation,
- while Chapter 6 identifies approximately 60.8ha of habitat loss associated with the Proposed Project, including impacts upon:
- bare cutaway bog,
 - revegetating bog,
 - scrub,
 - drainage habitats,
 - and immature woodland.

Importantly, the receiving environment is not described as an ecologically inert industrial landscape. The EIAR identifies:

“a mixture of bare cutaway peat, re-vegetated bare peat, degraded raised bog, scrub, low immature woodland and remnants of high bog” with current land use including: “natural recolonisation of cutaway and degraded bog.”

Similarly, Chapter 6 identifies areas developing as:

“a mosaic of pioneer dry heath type vegetation and poor fen communities and scrub.”

This is particularly significant because recovering peatland systems remain dependent upon stable hydrological and surface conditions over extended periods. Physical disturbance associated with:

- road construction,
 - excavation,
 - crane hardstanding,
 - spoil deposition,
 - cable trenching,
 - and drainage infrastructure
- may therefore contribute not merely to direct habitat removal, but also to interruption of ongoing revegetation and ecological recovery processes across the wider bog landscape.

This concern is reinforced by official peatland rehabilitation frameworks. Bord na Móna’s Peatlands Climate Action Scheme (PCAS) identifies rewetting, restoration of hydrological conditions and re-establishment of wet peatland conditions as central objectives of peatland rehabilitation and compatible wetland habitat redevelopment (Bord na Móna, Peatlands Climate Action Scheme (PCAS), 2021).

Accordingly, the cumulative infrastructure footprint may contribute to:

- direct habitat severance,
- interruption of revegetation processes,
- exposure and drying of peat surfaces,
- localised habitat degradation surrounding infrastructure corridors,
- increased erosion vulnerability,
- altered peat moisture conditions,
- and long-term modification of recovering cutaway habitats.

5.4.2 Fragmentation of Peatland Habitats and Ecological Connectivity

The Proposed Project is not limited to a small number of isolated turbine locations. Rather, the EIAR confirms that the development would introduce an extensive network of:

- turbines,
- turbine hardstands,
- internal roads,
- amenity tracks,
- drainage systems,
- underground cabling,
- overhead line infrastructure,

- borrow pits,
- construction compounds,
- watercourse crossings,
- and associated excavation works throughout a large peatland landscape.

Fragmentation within peatland systems is particularly significant because peatlands do not function as isolated habitat parcels. Ecological condition within raised bog and recovering cutaway systems depends upon:

- hydrological continuity,
- shallow surface water movement,
- stable peat moisture conditions,
- interconnected wetland surfaces,
- and large-scale ecosystem functioning across the wider bog unit.

NPWS Raised Bog Restoration Best Practice Guidance identifies the importance of maintaining hydrological integrity across the wider bog system and recognises that areas outside actively peat-forming habitat may still remain ecologically important as part of the wider hydrological unit (NPWS, Raised Bog Restoration Best Practice Guidance, 2017).

This is especially relevant within the receiving environment identified in the EIAR, which comprises:

“a mixture of bare cutaway peat, re-vegetated bare peat, degraded raised bog, scrub, low immature woodland and remnants of high bog”

with current land use including:

“natural recolonisation of cutaway and degraded bog.”

The EIAR also acknowledges that portions of the site are developing as:

“a mosaic of pioneer dry heath type vegetation and poor fen communities and scrub.”

Accordingly, concern arises that fragmentation within the peatland environment may contribute not merely to physical habitat loss, but also to:

- interruption of shallow surface water movement,
- localised drying adjacent to roads and drainage corridors,
- altered peat moisture conditions,
- changes in vegetation composition,
- edge effects surrounding disturbed infrastructure corridors,
- interruption of revegetation processes,
- increasing isolation of recovering wetland habitat patches,
- reduced hydrological connectivity between wetland surfaces,
- and progressive compartmentalisation of the wider bog system.

This concern is reinforced by the EIAR itself, which acknowledges:

“the potential for the Proposed Project to result in indirect effects on cutover bog habitats immediately adjoining the footprint through drainage impacts.”

Importantly, the receiving environment is already characterised by:

- historical drainage,
- peat extraction,
- existing drainage corridors,
- active and historic turbary,
- and extensive historical landscape modification.

Additional fragmentation arising from roads, drainage systems and associated infrastructure may therefore interact cumulatively with pre-existing peatland disturbance and hydrological compartmentalisation.

This concern is further strengthened by Chapter 9, which confirms that:

“the proposed drainage system will be fully integrated into the existing bog drainage systems.”

The Water chapter additionally identifies:

- interceptor drains,
- collector drains,
- settlement ponds,
- culverts,
- check dams,
- over-the-edge drainage,
- and routing of runoff through existing field drains and bog settlement ponds as part of the proposed drainage strategy.

Chapter 8 also confirms that floating roads are proposed across sections of peatland “where possible” in order to reduce excavation and spoil generation, further demonstrating the scale of engineered intervention proposed across the bog surface itself.

Taken cumulatively, this demonstrates that the Proposed Project represents not merely a surface infrastructure development, but a substantial engineered interaction with the hydrological functioning of the bog landscape itself.

The ecological effects of fragmentation may therefore extend beyond direct habitat footprint loss and contribute to:

- severance of ecological movement pathways,
- reduced habitat continuity,
- localised habitat avoidance,
- disturbance along infrastructure corridors,
- altered wetland conditions,
- progressive drying adjacent to engineered corridors,

- increasing isolation of revegetating peatland patches,
- disruption of recovering bog habitat structure,
- and cumulative alteration of the wider peatland mosaic.

This is particularly significant in circumstances where Bord na Móna's own peatland rehabilitation frameworks, including the Peatlands Climate Action Scheme (PCAS), identify rewetting, hydrological restoration and restoration of wet peatland conditions as central principles of peatland recovery and ecological rehabilitation (Bord na Móna, Peatlands Climate Action Scheme (PCAS), 2021).

5.4.3 Roads, Drainage Corridors and Barrier Effects

The proposed road network is especially significant given the scale of approximately 17.1km of new permanent internal roads identified within the EIAR. Within peatland environments, roads may function not merely as access routes, but also as long-term ecological and hydrological barriers.

Roads, crane hardstanding areas and associated infrastructure corridors may contribute to:

- interruption of shallow surface water movement,
- localised drying along road edges,
- compaction and reduced permeability,
- increased runoff from engineered surfaces,
- altered drainage behaviour through culverts and drains,
- fragmentation of revegetating bog,
- severance of ecological movement pathways,
- behavioural avoidance by fauna,
- and expansion of disturbed linear corridors across the bog landscape.

This is particularly relevant because roads and hardstanding introduce:

- compacted surfaces,
 - engineered drainage controls,
 - embankments,
 - culverts,
 - and altered surface gradients
- within a peatland environment dependent upon stable hydrological continuity.

Chapter 9 identifies:

“development interaction with the existing bog drainage network.”

Drainage corridors and associated excavation may therefore generate ecological edge effects extending beyond the immediate excavation footprint. Localised lowering of peat moisture conditions adjacent to roads, drains and excavation corridors may alter vegetation structure,

interrupt wetland recovery processes and contribute to progressive drying of surrounding peatland habitats.

This concern is reinforced by Bord na Móna's peatland restoration frameworks, which identify drain-blocking, rewetting and restoration of wet hydrological conditions as central components of peatland recovery and ecological rehabilitation (Bord na Móna, Peatland Restoration Programme; Bord na Móna, PCAS, 2021).

Concern therefore arises that the cumulative network of:

- roads,
 - drainage corridors,
 - hardstanding,
 - cable routes,
 - and associated infrastructure
- may progressively reorganise the bog into engineered and hydrologically managed infrastructure compartments rather than an interconnected recovering peatland system.

5.4.4 Construction Disturbance and Physical Ecological Pressure

Chapter 4 describes construction activity associated with:

- turbine foundation excavation,
- crane pad installation,
- road construction,
- cable trenching,
- drainage installation,
- watercourse crossings,
- borrow pits,
- peat excavation,
- and construction compounds.

Similarly, Chapters 8 and 9 identify potential construction-phase effects associated with:

- exposed peat and subsoil,
- sediment mobilisation,
- excavation dewatering,
- suspended solids entrainment,
- drainage interaction,
- piling works,
- and peat instability.

The ecological consequences of these works may include:

- temporary displacement of fauna,

- interruption of commuting and foraging routes,
- disturbance of wintering bird activity,
- localised habitat avoidance,
- exposure of peat surfaces,
- sediment movement into drains and watercourses,
- disturbance to recovering vegetation,
- and physical disruption of wetland habitat continuity.

This is particularly significant because Bord na Móna rehabilitation frameworks identify stable hydrological and surface conditions as important for natural recolonisation and ecological recovery within rehabilitated cutaway peatlands (Bord na Móna, PCAS Rehabilitation Frameworks, 2021).

Repeated construction disturbance, compaction, drainage alteration and peat handling may therefore undermine the same recovery conditions that rehabilitation programmes seek to establish.

5.4.5 Operational Fragmentation and Long-Term Ecological Pressure

The ecological effects of the Proposed Project would continue beyond construction through the long-term presence of:

- turbines,
- roads,
- hardstanding,
- overhead line infrastructure,
- drainage systems,
- maintenance activity,
- and associated operational infrastructure.

Chapter 6 and Chapter 7 assess operational effects including:

- habitat disturbance,
- displacement effects,
- collision risk,
- and impacts upon fauna and ecological receptors.

Operational infrastructure may contribute to:

- long-term behavioural avoidance,
- disturbance associated with turbine movement,
- interruption of ecological movement patterns,
- fragmentation of foraging areas,
- edge effects along roads and drains,
- reduced habitat continuity,
- and ongoing maintenance-related disturbance.

This is particularly relevant where infrastructure corridors intersect habitats utilised for:

- foraging,
- commuting,
- wetland connectivity,
- and ecological dispersal across the wider peatland system.

The concern is not merely that habitat is removed once. Rather, an engineered infrastructure network would remain in place throughout the operational lifetime of the development and may continue to influence:

- hydrology,
- vegetation recovery,
- habitat structure,
- ecological movement,
- and peatland functionality over time.

5.4.6 Conclusion on Habitat Fragmentation and Disturbance Effects

The EIAR demonstrates that the Proposed Project would introduce an extensive infrastructure network into a recovering peatland system. The ecological effects are therefore not limited to direct land take alone, but include:

- habitat severance,
- fragmentation of peatland mosaics,
- road and drainage barrier effects,
- edge drying,
- interrupted revegetation,
- altered water movement,
- construction disturbance,
- operational displacement,
- and cumulative compartmentalisation of the bog landscape.

This is particularly significant because official peatland restoration guidance, including Bord na Móna's peatland rehabilitation frameworks and NPWS Raised Bog Restoration Best Practice Guidance, identifies hydrological continuity, rewetting, wetness and ecological connectivity as central components of peatland recovery and wetland habitat function (Bord na Móna, PCAS, 2021; NPWS, Raised Bog Restoration Best Practice Guidance, 2017).

Accordingly, concern arises that the cumulative interaction between:

- turbine infrastructure,
- roads,
- crane hardstanding,
- drainage systems,
- cable corridors,

- overhead line infrastructure,
 - substation development,
 - borrow pits,
 - excavation works,
 - and associated operational infrastructure
- may contribute to long-term fragmentation and ecological degradation within a peatland landscape already subject to historical disturbance and ongoing environmental transition.

5.5 Ornithological Impacts and Bird Conservation Concerns

Chapter 7 of the EIAR confirms that the proposed development has been assessed in relation to bird species protected under the Wildlife Acts 1976–2022 and the Birds Directive. The chapter identifies the principal ornithological risks associated with wind farm development as:

“Direct habitat loss due to wind farm infrastructure”,

“Disturbance/displacement”

and:

“Death through collision or interaction with turbine blades and other infrastructure.”

Importantly, Chapter 7 further states that displacement effects may include:

“barrier effects in which birds are deterred from using normal routes to feeding or roosting grounds.”

These acknowledgements are significant because they confirm that ornithological effects are not confined to direct bird mortality alone. Potential effects also include behavioural avoidance, interruption of movement corridors, functional habitat loss and cumulative disturbance across the wider peatland landscape.

The Birds Directive (2009/147/EC) and the European Communities (Birds and Natural Habitats) Regulations 2011 require protection of wild birds and their habitats, including Special Protection Areas (SPAs) and supporting habitat utilised by protected species. The Habitats Directive further requires appropriate assessment where a project may significantly affect a European site. In *Waddenzee* (Case C-127/02), the Court of Justice held that consent may only be granted where there is “no reasonable scientific doubt” as to the absence of adverse effects on site integrity.

Chapter 7 identifies designated SPAs within the Zone of Influence of the Proposed Project and assesses species including whooper swan, lapwing, golden plover and other wetland-

associated birds. The chapter also acknowledges the importance of “Assessing Connectivity with Special Protection Areas” guidance and specifically references the potential for bird movement beyond designated boundaries.

This is particularly relevant within peatland and wetland landscapes where bird usage patterns are not necessarily confined to mapped SPA boundaries, but may involve wider supporting habitat used for:

- foraging,
- roosting,
- commuting,
- seasonal movement,
- and dispersal.

Concern therefore arises that assessment focused primarily upon designated boundaries or predicted core foraging distances may understate the wider functional connectivity of the receiving peatland landscape for protected bird species.

The EIAR states that ornithological surveys were undertaken between October 2020 and March 2025, covering four breeding seasons and five wintering seasons. It concludes that the survey results are “robust” and allow “clear, precise and definitive conclusions” to be made.

However, while the survey effort is extensive, the assessment’s ultimate conclusions remain dependent upon:

- predictive modelling,
- assumptions regarding future habitat succession,
- interpretation of behavioural responses,
- collision-risk calculations,
- species avoidance assumptions,
- and the anticipated effectiveness of mitigation and enhancement measures over the operational lifetime of the development.

This is particularly significant because Chapter 7 expressly acknowledges that collision risk is calculated using:

“a mathematical model to predict the number of individual birds that may be killed by collision with moving wind turbine rotor blades.”

The EIAR further acknowledges that collision-risk outputs are:

“theoretical predictions”

which:

“must be interpreted with a degree of caution.”

Accordingly, concern arises that conclusions of no significant residual ornithological effects may depend heavily upon predictive assumptions regarding future bird behaviour, collision avoidance rates, habitat usage and mitigation success over a proposed operational lifespan of approximately 35 years.

Particular concern arises regarding whooper swan usage of the site. Chapter 7 records that whooper swan were observed within, or partially within, 500m of proposed turbines on 156 occasions over the 4.5-year survey period. It further records regular roosting activity across five areas within the Proposed Project site.

The EIAR assesses displacement and barrier effects on whooper swan as being of “Medium effect significance” and proposes enhancement measures intended to offset these effects.

This is significant because it demonstrates that the receiving environment is not merely occasionally used by whooper swan, but forms part of an actively utilised wetland landscape containing recorded roosting behaviour over multiple winter seasons. Questions therefore arise regarding the extent to which replacement or enhancement habitat can reliably replicate existing behavioural usage patterns over time, particularly where disturbance, turbine movement and cumulative landscape change may alter bird movement and habitat selection behaviour.

Lapwing also requires careful consideration. Chapter 7 identifies displacement and barrier effects for breeding lapwing and acknowledges the requirement for a specific “Lapwing, Waterfowl and Wader Habitat Enhancement Plan” as mitigation.

The EIAR further acknowledges cumulative collision and displacement assessment for wintering lapwing in relation to surrounding wind energy developments within 25km of the Proposed Project.

This cumulative context is important because Chapter 7 repeatedly assesses the Proposed Project alongside existing, permitted and proposed wind farms including:

- Derrinlough,
- Leabeg,
- Cloghan,
- Cush,
- Meenwaun,
- Bellair,
- and Umma More.

Concern therefore arises not merely regarding individual turbine effects in isolation, but regarding the cumulative interaction of:

- repeated turbine landscapes,
- displacement pressure,
- collision risk,
- movement corridor interruption,

- and progressive fragmentation of wetland and peatland habitat usage across the wider Offaly bog landscape.

This concern is heightened by the fact that Chapter 7 itself repeatedly references:

- displacement,
- barrier effects,
- collision mortality,
- habitat alteration,
- operational disturbance,
- and cumulative effects.

The EIAR also relies substantially upon future monitoring and adaptive mitigation measures. Chapter 7 repeatedly states that post-construction monitoring may: “inform additional mitigation or adaptation if required.”

Concern therefore arises that aspects of the ornithological assessment rely upon future monitoring and operational management responses to address uncertainty that may remain at application stage.

Overall, the concern arising is not that Chapter 7 lacks ornithological survey work. The EIAR clearly contains extensive bird surveys and technical assessment. Rather, the concern is that conclusions of no significant residual effects depend upon a chain of assumptions relating to:

- future bird behaviour,
- theoretical collision modelling,
- displacement responses,
- habitat enhancement success,
- cumulative turbine interaction,
- future habitat succession,
- and long-term operational mitigation effectiveness within a peatland and wetland landscape already subject to historical disturbance, rehabilitation transition and cumulative environmental pressure.

Accordingly, concern remains regarding whether sufficient scientific certainty has been established in relation to long-term ornithological effects, particularly regarding:

- whooper swan,
- lapwing,
- wetland-associated bird species,
- SPA connectivity,
- collision risk,
- displacement,
- and cumulative turbine landscape effects within the wider Offaly peatland landscape.

5.6 Bat Impacts and Protected Species Concerns

Chapter 6 of the EIAR and Appendix 6-1 Bat Survey Report confirm that bats are recognised as Key Ecological Receptors (“KERs”) within the Zone of Influence of the Proposed Project. The EIAR further acknowledges that all Irish bat species are protected under the Habitats Directive and the Wildlife Acts, with all Irish bat species listed under Annex IV of the Habitats Directive requiring strict protection.

Appendix 6-1 states:

“All Irish bats are protected under European legislation, namely the Habitats Directive (92/43/EEC). All Irish species are listed under Annex IV of the Directive, requiring strict protection for individuals, their breeding sites and resting places.”

The report further acknowledges that under Irish legislation:

“it is an offence to intentionally disturb, injure or kill a bat, or disturb its roost.”

These protections are significant because bats are particularly vulnerable to:

- habitat fragmentation,
- operational lighting,
- turbine collision,
- barotrauma,
- commuting corridor disruption,
- and cumulative landscape alteration.

Appendix 6-1 expressly acknowledges that:

“Wind energy development can impact wildlife, directly through mortality and indirectly through disturbance and habitat loss.”

The report further states that bat fatalities at wind energy facilities have raised concern regarding:

“the cumulative impacts of such developments on bat populations.”

Importantly, Appendix 6-1 identifies the principal mechanisms of turbine-related bat mortality as:

- “direct collision with moving turbine blades”
and:
- “barotrauma”
being:
“internal injuries caused by air pressure changes.”

The EIAR states that extensive bat surveys were undertaken during 2022 and 2024 using:

- habitat appraisal,
- roost inspections,
- manual activity surveys,
- static detector surveys,
- and activity analysis.

The report further states that the survey methodology and mitigation approach were prepared in accordance with NatureScot (2021) guidance and Northern Ireland Environment Division guidance.

However, while predictive modelling, detector surveys, activity categorisation and risk matrices are standard components of contemporary bat impact assessment, concern nonetheless arises regarding the degree of certainty with which long-term operational effects are excluded within a dynamic peatland landscape undergoing ongoing rehabilitation and ecological transition.

Appendix 6-1 itself acknowledges that bat behaviour around turbines may be influenced by:

“habitat associations, weather conditions and species ecology.”

This is significant because the receiving environment is not a static landscape. As identified elsewhere within the EIA, the wider peatland environment is subject to continuing rehabilitation measures, habitat transition, hydrological change and biodiversity enhancement initiatives. Bat commuting behaviour, foraging intensity and habitat usage patterns may therefore evolve over time in response to:

- changing vegetation structure,
- maturing scrub and woodland edge habitat,
- altered hydrological conditions,
- changing prey availability,
- rehabilitation measures,
- and cumulative landscape alteration associated with surrounding infrastructure projects.

Concern therefore arises that finite pre-construction survey periods, while extensive, may not fully predict how bat activity patterns could change over the proposed operational lifespan of approximately 35 years, particularly within a rehabilitating peatland landscape that the EIA itself repeatedly characterises as undergoing ecological transition.

Appendix 6-1 further acknowledges that:

“No large-scale studies have been undertaken in Ireland to date.”

This is an important qualification because it demonstrates that aspects of Irish bat interaction with large-scale wind energy infrastructure remain dependent upon extrapolation from UK and international datasets, notwithstanding the use of recognised guidance such as NatureScot (2021). While such guidance represents accepted professional practice, concern nonetheless arises regarding the extent to which predictive risk modelling can fully account

for site-specific and cumulative behavioural responses within Irish peatland landscapes over time.

The precautionary principle embedded within Article 6 of the Habitats Directive is particularly relevant in this regard. All Irish bat species are protected under Annex IV of the Habitats Directive, requiring strict protection of individuals, breeding sites and resting places. Under the European Communities (Birds and Natural Habitats) Regulations 2011 and the Wildlife Acts 1976–2022, disturbance, injury or destruction of protected bat species or their roosts is prohibited. The Court of Justice in Waddenzee Case C-127/02 further confirmed that consent should only be granted where there is “no reasonable scientific doubt” regarding the absence of adverse effects on protected European sites and species interests.

Appendix 6-1 confirms the presence of multiple bat species within and around the Proposed Project site, including:

- Leisler’s bat,
- common pipistrelle,
- soprano pipistrelle,
- Nathusius’ pipistrelle,
- Daubenton’s bat,
- whiskered bat,
- Natterer’s bat,
- brown long-eared bat,
- and lesser horseshoe bat within Ireland generally.

The report also acknowledges that “Nathusius’ pipistrelle” is associated in NPWS Article 17 reporting with:

“Wind, wave and tidal power (including infrastructure)”

while “Leisler’s bat” is similarly associated with:

“Wind, wave and tidal power.”

These acknowledgements are important because they demonstrate that wind energy infrastructure is itself recognised within official conservation reporting as a pressure pathway for certain Irish bat species.

The report also relies substantially upon operational mitigation and monitoring measures, including:

- lighting restrictions,
- blade feathering,
- bat buffers,
- biodiversity enhancement measures,
- and multi-year operational monitoring programmes.

While such measures may reduce operational risk, concern nonetheless arises where aspects of ecological uncertainty appear to be managed through future mitigation and adaptive monitoring rather than being fully resolved at assessment stage. Questions therefore arise regarding the extent to which acceptable residual effects depend upon:

- the long-term effectiveness of mitigation,
- future operational compliance,
- adaptive management responses,
- and post-construction monitoring outcomes after turbine operation has commenced.

Appendix 6-1 further includes a dedicated cumulative effects section recognising the need to assess additional projects within the wider landscape. This cumulative context is important because bat populations may be affected not merely by one development in isolation, but through the interaction of:

- multiple wind farm developments,
- habitat fragmentation,
- turbine mortality risk,
- lighting pressure,
- transport infrastructure,
- and progressive alteration of ecological corridors across the wider Offaly peatland landscape.

Overall, the concern arising is not that the EIAR lacks bat survey information. The EIAR clearly contains extensive bat surveys and technical assessment. Rather, the concern is that conclusions regarding acceptable residual bat effects depend upon:

- predictive modelling,
- behavioural assumptions,
- finite survey periods,
- future habitat conditions,
- mitigation effectiveness,
- operational monitoring,
- and cumulative landscape interaction within a peatland environment already undergoing substantial ecological transition and cumulative environmental pressure.

Accordingly, concern remains regarding whether sufficient scientific certainty has been established in relation to:

- long-term bat mortality risk,
- collision and barotrauma effects,
- habitat fragmentation,
- commuting corridor disruption,
- cumulative operational impacts,

- and the long-term effectiveness of mitigation measures over the operational lifetime of the Proposed Project.

5.7 Cumulative Ecological Degradation and Industrialisation of the Bog Landscape

The cumulative ecological effects of the Proposed Project cannot be assessed in isolation from the wider environmental trajectory of the receiving peatland landscape. Chapters 6, 8, 9 and 17 of the EIAR repeatedly acknowledge interaction between:

- hydrology,
- biodiversity,
- peat stability,
- rehabilitation measures,
- landscape character,
- and cumulative environmental effects.

Chapter 17 expressly states that:

“for any development with the potential for significant environmental effects there is also the potential for interaction between these potential significant effects”

and further acknowledges that:

“The result of interactive effects may exacerbate the magnitude of the effects or ameliorate them or have a neutral effect.”

This acknowledgement is particularly significant within peatland systems because the EIAR itself repeatedly recognises that peatland ecology, hydrology, peat condition, habitat recovery and carbon function are closely interconnected. Consequently, alteration affecting one environmental receptor may create secondary or cumulative consequences across multiple ecological and hydrological pathways.

The receiving environment is also not described within the EIAR as an ecologically inert industrial landscape. Chapter 11 describes the site as comprising:

“a mixture of bare cutaway peat, re-vegetated bare peat, degraded raised bog, scrub, low woodland and remnants of high bog”

together with:

“natural recolonisation of cutaway and degraded bog.”

Similarly, Chapter 6 identifies parts of the site developing as:

“a mosaic of pioneer dry heath type vegetation and poor fen communities and scrub.”

These descriptions are important because they demonstrate that the site is not simply a static degraded industrial surface, but a peatland landscape undergoing ongoing ecological transition and partial habitat redevelopment following decades of industrial peat extraction.

Chapter 8 states that implementation of the Draft Bord na Móna Cutaway Bog Decommissioning and Rehabilitation Plan would have a:

“positive, direct, moderate, permanent effect on peat”

because peat would become:

“wetter and closer to its natural condition with increases in vegetation cover.”

However, the same chapter also identifies a:

“negative, moderate, direct, likely, permanent effect on peat and spoil”

arising from peat disturbance and relocation associated with the Proposed Project.

The issue arising is therefore not the absence of cumulative assessment, but rather the degree of certainty with which long-term coexistence between:

- peatland rehabilitation,
 - hydrological stabilisation,
 - biodiversity recovery,
 - and industrial-scale infrastructure
- is ultimately presented within a recovering peatland landscape characterised by long-term ecological transition and hydrological sensitivity.

This concern is reinforced by the substantial level of engineered infrastructure and intervention proposed throughout the EIAR, including turbine infrastructure, floating roads, drainage systems, substations, cable corridors, watercourse crossings and associated excavation works.

The EIAR repeatedly acknowledges that the Proposed Project has the potential to interact with:

- existing bog drainage networks,
- groundwater systems,
- hydrologically connected habitats,
- surface water quality,
- peat stability,
- and rehabilitation measures.

Chapter 9 also includes cumulative assessment sections addressing:

- substitute consent activities,
- EPA licensed activities,

- PCAS rehabilitation measures,
- turbary peat extraction,
- agriculture,
- and other wind farm developments.

This cumulative framework is important because it demonstrates that the applicant itself accepts that the receiving environment cannot be assessed as a standalone development site divorced from wider industrial, hydrological and rehabilitation pressures.

Concern also arises regarding the extent to which historic industrial modification of the peatland landscape is relied upon within the EIAR in support of further infrastructure development. The EIAR repeatedly characterises the receiving environment as a historically modified peat extraction landscape comprising cutaway peatland and rehabilitating bog habitats.

While the historic industrial character of the site is acknowledged, concern nonetheless arises that repeated reliance upon existing degradation as justification for additional infrastructure risks creating a cumulative planning trajectory whereby:

- historic disturbance facilitates further disturbance;
- existing infrastructure facilitates additional infrastructure; and
- ongoing ecological degradation becomes progressively normalised within environmental assessment processes.

This concern is particularly relevant where the same landscape is simultaneously identified within the EIAR, the substitute consent documentation submitted under Case Reference SU19.323676, the Draft Rehabilitation Plan prepared pursuant to IPC Licence P0500-01 and the Peatlands Climate Action Scheme (“PCAS”) as requiring:

- hydrological stabilisation;
- ecological recovery;
- rehabilitation management; and
- long-term peatland recovery measures.

In this context, Chapter 8 states that:

“both peatland rehabilitation and renewable energy can coexist harmoniously onsite.”

However, concern arises regarding the degree of scientific certainty underlying that conclusion in circumstances where the EIAR simultaneously acknowledges:

- ongoing hydrological management requirements;
- continuing rehabilitation obligations;
- interaction between ecological and hydrological receptors;
- reliance upon mitigation and monitoring measures; and
- long-term ecological transition within the receiving peatland landscape.

While coexistence may be presented within the EIAR as achievable through mitigation measures, hydrological controls, rehabilitation frameworks and environmental management measures, concern nonetheless arises regarding whether the cumulative interaction between:

- ongoing peatland recovery processes,
 - industrial-scale infrastructure,
 - hydrological intervention,
 - habitat fragmentation; and
 - long-term operational disturbance
- can be predicted with sufficient certainty over the operational lifetime of the Proposed Project.

This is particularly relevant where the EIAR itself repeatedly relies upon:

- mitigation measures,
 - drainage management,
 - hydrological controls,
 - rehabilitation frameworks,
 - adaptive management; and
 - monitoring regimes
- in support of conclusions regarding acceptable residual cumulative effects.

Chapter 6's cumulative assessment of the proposed Bellair Wind Farm further illustrates the evolving cumulative infrastructure pressure within the wider bog landscape. The EIAR notes that Bellair Wind Farm is proposed within cutover bog approximately 2.5km north of the Proposed Project and within the same hydrological sub-catchment. However, because no EIAR or NIS was available at the time of assessment, the chapter concludes that there is:

"no potential for significant cumulative effects at this time."

Public consultation has since commenced in relation to the Bellair proposal. Concern therefore arises regarding whether cumulative ecological and hydrological pressures within the wider peatland landscape may continue to evolve beyond the assessment baseline available at the time the EIAR conclusions were reached.

The Environmental Impact Assessment Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment not merely of isolated direct effects, but also:

- cumulative effects,
- indirect effects,
- interaction between environmental factors; and
- long-term effects on biodiversity, land, soil, water, climate and landscape.

Similarly, Article 191(2) TFEU provides that Union environmental policy shall be based upon the precautionary principle.

In circumstances where:

- substantial historical ecological alteration has already occurred;
- rehabilitation and hydrological management remain ongoing;
- peatland recovery remains ongoing;
- interaction effects between hydrology, biodiversity, peat stability and infrastructure are expressly acknowledged within the EIAR itself; and
- cumulative infrastructure pressure within the wider bog landscape continues to evolve, concern therefore arises regarding whether sufficient scientific certainty exists concerning the long-term cumulative ecological consequences of continued industrial-scale development within this recovering peatland landscape.

Accordingly, concern remains regarding whether the continued concentration of industrial and energy infrastructure within rehabilitating peatland systems is compatible with long-term ecological recovery; hydrological stabilisation; peatland rehabilitation objectives; biodiversity protection; and the proper planning and sustainable development of the wider Offaly bog landscape.

5.8 Peatland Ecosystem Function, Carbon Stability and Climate Contradictions

5.8.1 Peatlands as Carbon-Rich Functional Ecosystems

Chapter 11 of the EIAR acknowledges the climate-related importance of the receiving peatland environment and confirms that the site contains a mixture of:

- “bare cutaway peat”,
- “re-vegetated bare peat”,
- “degraded raised bog”,
- “scrub”,
- “low woodland”
- and “remnants of high bog.”

This is significant because it confirms that, notwithstanding historic industrial peat extraction, the receiving environment continues to comprise an evolving peatland landscape undergoing ongoing revegetation and ecological change.

Chapter 11 further confirms that the EIAR includes:

“A detailed carbon assessment, which considers how the Proposed Project will affect Ireland’s national greenhouse gas emissions as a result of its construction, operation, and decommissioning phase activities (inclusive of both carbon losses and carbon savings).”

The inclusion of a detailed carbon assessment is itself significant because it recognises that disturbance of peat soils may influence greenhouse gas emissions and affect stored carbon within the wider peatland environment.

The National Peatlands Strategy similarly identifies peatlands as important long-term carbon stores and supports peatland restoration, hydrological recovery and rewetting as part of Ireland’s climate and environmental policy framework. Likewise, the Peatlands Climate Action

Scheme (“PCAS”) identifies the optimisation of climate benefits through peatland rehabilitation and rewetting as a significant national objective.

Importantly, peatlands operate through interconnected ecological and water-dependent processes rather than as isolated habitat fragments. Water-table conditions, peat saturation, vegetation succession and ecological recovery patterns remain closely linked across wider landscape-scale peat systems.

In such circumstances, the implications of continued large-scale infrastructural intervention may extend beyond direct habitat disturbance and influence the long-term functional integrity of adjoining peatland areas whose ecological and climate-regulation functions remain actively evolving.

5.8.2 Peat Disturbance, Drainage and Carbon Stability

Chapter 11 confirms that the Climate assessment includes examination of:

“carbon losses and carbon savings”

associated with the Proposed Project.

Similarly, Chapter 8 identifies that the Proposed Project includes substantial engineering and excavation works including:

- “peat and subsoil excavation,”
- “borrow pits,”
- “internal roads,”
- “hardstanding,”
- “grid connection infrastructure,”
- “drainage,”
- and “ancillary engineering works.”

The chapter further identifies:

“Potential Effects from Peat and Subsoil Excavation”,
“Potential Effects from the Erosion of Exposed Subsoils and Peat”,
and:
“Potential Effects from Peat Instability and Failure.”

These acknowledgements are important because peatland carbon storage depends heavily upon the maintenance of saturated and oxygen-limited peat conditions. Disturbance of peat profiles, drainage alteration and exposure of peat surfaces may alter these conditions and contribute to drying, oxidation and decomposition processes over time.

Environmental Protection Agency guidance and wider peatland research have consistently recognised that drainage and disturbance of peat soils may contribute to greenhouse gas release from previously waterlogged peat systems.

The implications of this may not remain confined to directly excavated areas alone. Infrastructure elements such as roads, cable trenches, turbine foundations and drainage systems may alter lateral water movement within adjoining peat masses and contribute to localised drying effects extending beyond the immediate infrastructure footprint.

Similarly, engineered infrastructure and associated drainage controls may create hydrological compartmentalisation within partially rehabilitated peatland areas by interrupting natural water movement pathways across the wider bog landscape. Over time, such changes may influence peat moisture conditions, vegetation establishment patterns and longer-term carbon stability within adjacent peat soils.

This becomes particularly relevant given the extensive drainage and environmental management measures proposed throughout the EIAR. Chapter 18 contains a substantial schedule of mitigation and drainage-control measures including interceptor drains, settlement ponds, drainage inspection regimes, sediment management, water quality monitoring, supervision and ongoing maintenance requirements.

The extensive reliance upon continuing inspection, supervision and maintenance measures suggests that long-term environmental stability may remain substantially dependent upon ongoing engineered management throughout the operational lifespan of the Proposed Project.

Uncertainty therefore remains regarding how partially rehabilitated peatland areas may respond over time to the combined interaction between infrastructure, drainage management, changing peat conditions and ecological recovery processes.

5.8.3 Interaction Between Climate, Hydrology and Ecological Function

Chapter 17 of the EIAR expressly recognises that environmental effects may interact across multiple environmental receptors. The chapter states:

“The result of interactive effects may exacerbate the magnitude of the effects or ameliorate them or have a neutral effect.”

The chapter further defines interaction effects as:

“The combined, indirect, or secondary impacts that arise from the interaction between different environmental factors.”

These acknowledgements are particularly relevant within peatland environments because peatland function is closely influenced by interaction between water movement, vegetation dynamics, peat chemistry, land stability and carbon storage processes.

Chapter 17 specifically identifies interaction pathways between:

- Biodiversity,
- Land, Soils and Geology,
- Water,
- Climate,
- Landscape and Visual,
- and Vulnerability to Natural Disasters.

The National Peatlands Strategy similarly recognises the importance of maintaining ecological and hydrological integrity in order to support long-term peatland resilience and climate function.

Importantly, the receiving environment is not a static landscape. The EIAR repeatedly refers to rehabilitation, revegetation and ecological transition occurring across the wider bog environment. As these recovery processes continue, vegetation patterns, peat moisture conditions and drainage behaviour may continue to evolve over time.

This introduces uncertainty regarding the extent to which finite baseline surveys and predictive modelling can reliably anticipate the long-term interaction between:

- infrastructure-related fragmentation,
- changing water conditions,
- ecological succession,
- climate variability,
- and carbon stability

across the proposed operational lifespan of approximately 35 years.

Small alterations within peatland systems may generate wider secondary effects over time because peatland processes are closely interconnected. In such circumstances, environmental effects may emerge gradually through cumulative interaction between multiple processes rather than through isolated individual impacts alone.

The long-term implications of these interacting processes within a dynamic post-extraction peatland landscape therefore remain difficult to predict with complete scientific certainty.

5.8.4 Tension Between Climate Mitigation Objectives and Peatland Disturbance

Chapter 11 repeatedly presents the Proposed Project as contributing towards national climate mitigation objectives through renewable energy generation and reduced fossil-fuel dependency. The EIAR states:

“The aim of the Proposed Project when in operation is to reduce the requirement for carbon-intensive, fossil fuel-based energy supply to the national grid and thereby reduce the amount of greenhouse gas emissions being released to the atmosphere.”

The chapter further states:

“Harnessing more energy by means of renewable sources will reduce dependency on fossil fuels...”

The importance of renewable energy development and national decarbonisation objectives is fully acknowledged. However, the same EIAR simultaneously identifies:

- peat disturbance,
- carbon losses,
- drainage management,
- peat excavation,
- water-control measures,
- and extensive mitigation requirements associated with the Proposed Project.

At the same time, national peatland and climate policy increasingly emphasises:

- peatland restoration,
- rewetting,
- ecological recovery,
- carbon stabilisation,
- and long-term ecosystem rehabilitation

within former industrial peatland environments.

The Peatlands Climate Action Scheme specifically identifies:

“The primary aim of the Peatlands Climate Action Scheme is to optimise climate action benefits of re-wetting the former industrial peat production areas.”

Similarly, the National Peatlands Strategy recognises peatlands as important long-term carbon stores and supports peatland rehabilitation as part of Ireland’s wider climate and environmental objectives.

This creates a degree of tension between:

- renewable energy generation objectives,
- peatland rehabilitation objectives,
- climate-related carbon protection,
- and the long-term restoration of peatland ecosystem function

within the same recovering bog landscape.

This becomes especially relevant where the receiving environment remains subject to ongoing ecological transition, recovery measures and climate-related rehabilitation initiatives associated with the wider post-extraction peatland landscape.

While the importance of renewable energy development is fully recognised, uncertainty remains regarding whether a recovering and water-sensitive peatland environment can accommodate further long-term industrial-scale infrastructure development without influencing the future climate-regulation and recovery functions of the wider peatland system.

5.9 Reliance on Mitigation, Monitoring and Adaptive Management

5.9.1 Extensive Reliance on Mitigation and Environmental Management

Chapter 18 of the EIAR contains an extensive schedule of mitigation and monitoring measures proposed across the pre-construction, construction, operational and decommissioning phases of the Proposed Project. The chapter states:

“All mitigation and monitoring measures relating to the pre-commencement, construction, operational and decommissioning phases of the Proposed Project are set out in the relevant chapters of this EIAR.”

The chapter further states that:

“It is intended that the CEMP will be updated where required prior to the commencement of construction to include all mitigation and monitoring measures, planning conditions and/or alternative monitoring and mitigation measures should they emerge during the course of the planning process...”

This is significant because it indicates that aspects of the environmental management framework may continue to evolve beyond the current application stage.

The proposed ability to update the CEMP and incorporate “alternative monitoring and mitigation measures” at a later stage suggests that aspects of the environmental management framework may continue to develop following the current assessment process. This may limit the extent to which the final operational form and effectiveness of certain mitigation measures can be fully assessed at consent stage.

The EIAR identifies a substantial range of environmental management and control measures including:

- interceptor drains,
- settlement ponds,
- drainage inspection regimes,
- sediment controls,
- water-quality monitoring,
- peat and spoil management measures,
- vegetation protection measures,
- inspection and maintenance plans,
- and ongoing environmental supervision.

Similarly, the EIAR proposes the appointment of an Environmental Clerk of Works (“EnvCoW”) responsible for:

- overseeing implementation of mitigation measures,
- conducting inspections,
- monitoring environmental performance,
- reviewing drainage controls,
- preparing contingency measures,
- and suspending works where environmental risk is identified.

The extent and complexity of these proposed measures suggests that the environmental acceptability of the Proposed Project is substantially dependent upon continuing environmental management, inspection and operational compliance over an extended period.

This becomes particularly relevant in circumstances where the receiving environment comprises a dynamic peatland landscape subject to ongoing rehabilitation, revegetation and changing environmental conditions over time.

5.9.2 Monitoring and Adaptive Management

The EIAR repeatedly relies upon monitoring and ongoing management measures as mechanisms for identifying, controlling and responding to potential environmental effects throughout the lifespan of the Proposed Project.

Chapter 18 refers to:

- “daily visual inspections,”
- “weekly inspections,”
- “water quality field testing,”
- “baseline sampling,”
- “ongoing audit findings,”
- “monitoring results,”
- and “immediate remedial measures.”

The chapter further states:

“Works will be temporarily ceased if a retained stormwater/sediment load is identified to have the potential to migrate from the site.”

Similarly, the EnvCoW is proposed to:

“Suspend work where potential risk to water from siltation and pollution is identified, or where operational methods and mitigation measures are not specified or agreed.”

These provisions are important because they indicate that aspects of environmental control may depend upon future monitoring outcomes, operational responses and adaptive intervention during construction and operation.

While the EIAR contains extensive inspection, monitoring and remedial procedures, the documentation is less clear regarding the escalation mechanisms, intervention thresholds and long-term remedial pathways that would apply if environmental conditions evolve differently than predicted over the operational lifespan of the Proposed Project. Although temporary cessation powers are referenced during construction-stage environmental incidents, it is less apparent what criteria would trigger more significant operational intervention, additional mitigation requirements, curtailment measures or suspension of activities should gradual or cumulative environmental deterioration emerge over time.

Similarly, while the EIAR refers to ongoing monitoring, supervision and remedial responses, it is not always apparent how the long-term effectiveness of mitigation measures would be evaluated where evolving peat conditions, changing moisture levels or cumulative secondary effects emerge gradually over several decades.

The EIAR also repeatedly refers to the updating, refinement and implementation of management measures throughout the lifespan of the Proposed Project. In this regard, the environmental management framework appears dependent not solely upon the mitigation measures currently specified within the EIAR itself, but also upon future monitoring, supervision, maintenance and adaptive response mechanisms.

This becomes particularly significant where the receiving environment is characterised by evolving peat conditions, changing moisture levels, ongoing ecological recovery and complex interaction between environmental systems over time.

In such circumstances, the effectiveness of mitigation may not depend solely upon the initial design of the Proposed Project, but also upon the long-term performance, maintenance and operational management of environmental control systems over several decades.

5.9.3 Scientific Certainty and Predictive Limitations

The precautionary principle and relevant European case law require that significant environmental effects be assessed with sufficient scientific certainty prior to the granting of development consent.

In Case C-127/02 Waddenvereniging and Vogelbeschermingsvereniging (“Waddenzee”), the Court of Justice of the European Union held that competent authorities must be satisfied that no reasonable scientific doubt remains regarding the absence of adverse effects on protected European sites.

While the present section relates more broadly to environmental assessment and mitigation reliance, the principles underpinning scientific certainty and precaution remain relevant

where environmental conclusions depend heavily upon future monitoring, management and adaptive intervention.

The EIAR repeatedly acknowledges interaction between environmental systems, ongoing rehabilitation processes and the need for extensive environmental controls and monitoring measures throughout the lifespan of the Proposed Project.

At the same time, the receiving environment is described throughout the EIAR as undergoing ongoing ecological transition, revegetation and rehabilitation processes within a wider recovering peatland landscape.

In such circumstances, uncertainty may arise regarding the extent to which finite baseline surveys, predictive modelling and mitigation assumptions can fully anticipate the long-term interaction between:

- changing peat conditions,
- evolving ecological recovery patterns,
- infrastructure-related fragmentation,
- water-management systems,
- climate variability,
- and ongoing operational intervention

across the proposed lifespan of the development.

This is particularly relevant where environmental stability appears substantially dependent upon:

- continuing inspections,
- drainage maintenance,
- monitoring regimes,
- operational compliance,
- remediation measures,
- and adaptive environmental management.

The long-term environmental implications of these interacting processes may therefore prove difficult to predict with complete certainty at application stage, particularly within a recovering peatland landscape whose ecological and hydrological conditions remain actively evolving over time.

5.9.4 Implications for Environmental Assessment

The EIAR undoubtedly contains an extensive range of mitigation, monitoring and environmental management proposals intended to reduce potential environmental effects associated with the Proposed Project. The importance of such measures within large-scale infrastructure projects is acknowledged.

However, the scale of the proposed monitoring, supervision, drainage management and adaptive intervention measures also indicates that environmental acceptability may remain heavily dependent upon the successful long-term operation of engineered control systems and ongoing management responses throughout the lifespan of the development.

This becomes particularly significant within a recovering peatland environment characterised by evolving ecological conditions, interaction between environmental systems and continuing rehabilitation processes.

Accordingly, uncertainty remains regarding the extent to which the future environmental behaviour of this dynamic peatland landscape can be fully predicted, controlled and managed in advance through the mitigation measures currently identified within the EIAR.

5.10 Conclusion on Biodiversity and Ecological Protection

The EIAR demonstrates that the receiving environment comprises a recovering and hydrologically interconnected peatland landscape containing:

- revegetating bog habitats,
- recovering wetland systems,
- designated ecological interests,
- protected species,
- hydrologically connected habitats,
- and ongoing rehabilitation processes.

Importantly, the principal concern arising is not that the receiving environment represents pristine intact bog habitat. Rather, the concern is that the wider peatland system remains environmentally dynamic, ecologically interconnected and subject to continuing hydrological and ecological transition following decades of industrial disturbance. The EIAR itself repeatedly acknowledges ongoing revegetation, rehabilitation, drainage management, ecological succession and evolving peatland conditions throughout the wider bog landscape.

The Proposed Project would introduce extensive long-term infrastructure into this transitional and partially rehabilitating peatland environment whose ecological and hydrological conditions continue to evolve over time, including:

- turbines,
- roads,
- hardstanding,
- drainage systems,
- cable corridors,
- excavation works,
- borrow pits,
- substations,
- and associated operational infrastructure.

As identified throughout Chapters 5.1–5.9, the ecological implications of such development are not confined to direct habitat loss alone, but extend to:

- habitat fragmentation,
- hydrological alteration,
- ecological connectivity,
- disturbance and displacement,
- peatland compartmentalisation,
- carbon stability,
- operational pressure,
- and cumulative interaction between environmental systems over time.

The EIAR also repeatedly acknowledges interaction between biodiversity, peat, water, climate and rehabilitation processes, while simultaneously relying heavily upon:

- predictive modelling,
- mitigation measures,
- drainage controls,
- monitoring regimes,
- adaptive management,
- ecological re-surveys,
- and future operational intervention
in support of conclusions regarding acceptable residual effects.

This is particularly significant because the receiving environment is repeatedly characterised throughout the EIAR as a landscape undergoing continuing ecological transition and hydrological recovery. In such circumstances, uncertainty remains regarding the extent to which finite baseline surveys, predictive modelling and mitigation assumptions can fully anticipate the long-term ecological response of this recovering peatland system over the operational lifespan of the Proposed Project.

The precautionary principle is particularly relevant in this regard. The Habitats Directive, Birds Directive and the principle established in Waddenzee require that significant environmental effects, particularly those affecting protected species and European ecological interests, be assessed with sufficient scientific certainty prior to the granting of consent.

Accordingly, concern remains regarding whether the cumulative interaction between:

- ongoing peatland rehabilitation,
- hydrological sensitivity,
- habitat fragmentation,
- long-term operational infrastructure,
- cumulative ecological pressure,
- and dependence upon adaptive future management
can be predicted with sufficient certainty within this recovering and environmentally sensitive peatland landscape.

6. Heritage, Landscape and Cultural Loss

6.1 Landscape Transformation and Visual Dominance

The proposed development would introduce industrial-scale turbines of approximately 220 metres in height into an open, low-lying peatland landscape characterised by expansive visibility, broad horizons and limited topographical containment. In the context of the surrounding Midlands boglands, the proposed turbines would become exceptionally dominant vertical structures extending substantially above surrounding vegetation, agricultural fields, settlement patterns and existing landscape features.

The scale of the proposed turbines is particularly significant within this receiving environment. The surrounding landscape is generally flat or gently undulating and lacks substantial natural screening landforms. Unlike mountainous or enclosed landscapes where topography may partially absorb large infrastructure, the Lemanaghan boglands form a visually open landscape across which vertical structures may project over extensive distances.

This is reflected within the applicant's own LVIA material. Appendix 14-5 confirms that extensive photowire modelling, photomontage assessment and viewpoint analysis were required across a broad landscape study area. The appendix further explains that the proposed turbines were accurately scaled and positioned within a digital elevation model in order to assess visibility across numerous viewpoints within the wider landscape. The LVIA baseline mapping likewise demonstrates the extensive openness of the receiving environment and the broad landscape envelope within which the proposed turbines would be experienced.

The exceptional scale of the proposed turbines can also be illustrated through standard horizon-distance calculations commonly used in visibility analysis. Using the recognised formula:

Distance to horizon (km) = $3.57 \times \sqrt{\text{height in metres}}$

a 220m turbine produces a theoretical horizon distance of approximately 52.9km. When combined with ordinary viewer eye height of approximately 1.6m, the total theoretical line-of-sight visibility extends to approximately 57.4km.

While actual visibility varies depending on vegetation, buildings, weather conditions and local screening, this calculation nevertheless demonstrates the extraordinary vertical scale of the proposed turbines relative to the low-lying Midlands peatland landscape. The turbines would comprise some of the tallest structures within the receiving environment and possess the capacity to influence views across a broad visual envelope, particularly from:

- open bogland;
- elevated local viewpoints;
- roads and routeways;
- bridges;
- heritage sites;

- and areas where screening is absent or intermittent.

The applicant's own LVIA acknowledges that visibility may occur from elevated locations and that ZTV mapping demonstrates wider theoretical visibility across the receiving environment. Although the EIAR frequently emphasises localised vegetation screening and intervening land cover, such screening conditions are inherently variable and may change over time due to:

- seasonal vegetation change;
- forestry management;
- hedge removal;
- land use change;
- storm damage;
- or future development pressure.

The assessment therefore appears to place disproportionate emphasis upon localised screening while insufficiently addressing the broader long-term landscape implications of introducing turbines of this scale into an historically open peatland environment.

Concern also arises regarding the potential night-time visual effects associated with aviation warning lighting on turbines of the scale proposed. In circumstances where the receiving environment consists largely of open peatland landscape characterised by relatively limited artificial lighting, questions arise regarding whether the cumulative effects of persistent aviation lighting upon the nocturnal character, visual amenity and wider rural landscape setting have been fully assessed within the EIAR.

This is particularly relevant having regard to:

- the European Landscape Convention, which recognises landscape as:

“an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.”

This is particularly relevant in the present case where the Lemanaghan boglands comprise not merely a visual landscape, but a cultural and experiential landscape shaped by archaeology, monastic history, peatland traditions, historic routeways and long-standing community relationships with the bog environment;

- Section 10(2)(e) of the Planning and Development Act 2000 (as amended), requiring planning authorities to preserve the character of the landscape where appropriate;
- and the National Planning Framework, which emphasises protection of landscape character, cultural heritage and environmental quality.

Importantly, the issue is not simply whether turbines are technically visible from individual viewpoints. The more fundamental issue concerns the long-term transformation of landscape character itself. The proposed turbines would have the capacity to substantially alter the perceived visual scale, skyline and character of substantial parts of the surrounding boglands and rural environment.

6.2 Peatland Character, Cultural Landscape and Archaeological Loss

The Lemanaghan boglands are not merely former industrial peat extraction lands. They are an archaeologically rich peatland landscape, with extensive evidence of human activity, movement, settlement, routeways and material culture across a very long period.

The applicant's own material confirms the scale of this archaeological resource. Chapter 13 states that the Irish Archaeological Wetland Unit surveyed Lemanaghan Bog during 1993–1994 and that 470 known sightings of archaeological material are recorded within the wider substitute consent area. Chapter 13 further identifies numerous roads, including Class 1, 2 and 3 toghers and gravel or stone trackways, together with peatland structures, platforms, post rows and enclosures distributed throughout the wider bog landscape.

This is not a minor or speculative archaeological issue. The applicant's own documentation confirms a dense archaeological landscape.

The findings are also not limited to mapped records. Appendix 13-7 records that 28 archaeological sightings were excavated as part of the Peatland Excavations Programme 1999–2000, and that 47 archaeological objects from the substitute consent area have been removed to the National Museum of Ireland. Reported finds include leather shoes and shoe fragments, wooden vessel parts, wooden shafts, rods, a copper dagger, amber beads, bronze axe heads, an iron sword, stone axes, a stone ball, whetstone fragments and crozier material.

This gives the bog landscape exceptional evidential value. It demonstrates that Lemanaghan Bog has preserved not only structural remains such as toghers and platforms, but also artefacts that speak to everyday life, movement, ritual, craftsmanship, ecclesiastical activity and long-term human interaction with the bog.

The archaeological record also directly undermines any simple characterisation of the site as merely “degraded” or “modified” industrial peatland. While peat extraction has undoubtedly altered the landscape, that history makes further caution more necessary, not less. Chapter 13 states that a Class 1 togher previously recorded within the Proposed Project site is likely to have been removed by peat production, and that another Class 2 togher was described as poorly preserved and having suffered extensive machine damage.

This is a very serious point. It means that archaeological loss has already occurred, or is at least strongly indicated, as a result of previous industrial activity. Further industrialisation should therefore be assessed against a background of cumulative archaeological depletion, not treated as if the surviving record is complete, stable or fully understood.

The applicant's own material also acknowledges that there remains “moderate to high potential” for archaeological heritage to be uncovered during future development works within Lemanaghan Bog, and further states that there is “still a high potential” for additional archaeological finds, features and structures within the peat. In that context, a methodology focused mainly on avoiding mapped monuments risks understating the potential for surviving buried, fragmentary or undocumented archaeology within the wider peatland body.

Additional ground disturbance associated with turbine bases, crane hardstands, access roads, cabling, drainage works, peat excavation, substation infrastructure and construction compounds therefore raises a broader cumulative concern. The issue is not simply whether each known monument has been avoided on a layout drawing. The issue is whether continued industrial intervention into this peatland landscape risks further irreversible loss of archaeological, palaeoenvironmental and cultural evidence.

This is particularly important because Appendix 13-5 links the bog archaeology to the wider Lemanaghan monastic landscape. It refers to toghers within and around the Proposed Project site, including early medieval examples dating to the period around the foundation of St Manchán's monastery, and notes that excavated and material evidence from Lemanaghan Bog points to continuous occupation in the area from c. 3000 BC to the present.

These issues engage:

- the National Monuments Acts 1930 to 2014;
- Section 10 of the Planning and Development Act 2000 (as amended);
- Article 3 of the Valletta Convention, requiring protection and conservation of archaeological heritage;
- and the EIA Directive 2011/92/EU (as amended by Directive 2014/52/EU), which expressly requires assessment of effects on cultural heritage and landscape.

Accordingly, the bog should not be treated as a blank industrial platform. It is a layered archaeological and cultural landscape where past peat extraction may already have damaged or removed parts of the record, and where further large-scale infrastructure risks compounding that loss.

Archaeological heritage constitutes a finite and non-renewable resource. Both the National Monuments Acts 1930 to 2014 and the Valletta Convention place emphasis upon the protection and preservation of archaeological heritage, including archaeological landscapes and buried archaeological material, wherever feasible in situ. This is particularly important within peatland environments where archaeological material may survive in fragile anaerobic conditions and where industrial disturbance may result in irreversible loss of archaeological, palaeoenvironmental and historical evidence.

6.3 St Manchan / Lemanaghan Monastic Landscape

The Lemanaghan Monastic Complex is not simply an isolated archaeological site. It forms part of a wider historic, spiritual, visual and cultural landscape deeply connected with the surrounding boglands.

This is expressly acknowledged within the applicant's own appendices. Appendix 13-5 is specifically titled "Lemanaghan Monastic Complex: Historical, Landscape and Visual Context" and repeatedly examines the wider relationship between the monastic complex, the surrounding bog landscape, historic routeways, visitor experience and visual setting.

The appendix states that the monastery was founded during the seventh century by Manchán of Clonmacnoise on “an island of dry land surrounded by bogs.” It further acknowledges that isolation or seclusion likely formed part of the rationale for selecting the site, providing “a place of quiet for the monks’ work and prayers.”

These observations are highly significant because they demonstrate that the importance of Lemanaghan does not derive solely from the surviving physical monuments themselves. The wider bog landscape, openness, remoteness and experiential qualities of the setting form part of the historic and cultural significance of the monastic complex.

Appendix 13-5 also identifies Togher OF015-084 as “the most prominent togher in the current landscape” and states that it likely formed part of ancient pathways connecting the monastic complex with the wider cultural landscape to the north-east and beyond. The surrounding bog landscape is therefore not incidental background scenery. It forms part of the cultural and historical framework through which the monastic complex was historically approached, experienced and understood.

The applicant’s own assessment identifies the Monastic Site as a receptor of high sensitivity and acknowledges theoretical visibility of multiple turbines from the wider setting. However, the conclusion that no significant visual impacts or material alteration of key characteristics would arise appears overly narrow and insufficiently reflective of the broader evidence contained within the applicant’s own appendices.

The applicant’s own analysis repeatedly frames the issue in terms of:

- historical context;
- landscape context;
- visual context;
- visitor experience;
- and relationships between the monastic complex and the wider boglands.

The assessment methodology nevertheless appears more effective at analysing isolated monument receptors than at evaluating the broader cultural landscape as an interconnected historic environment.

The assessment framework adopted within the EIAR appears to fragment the landscape into separate monument receptors while insufficiently addressing the cumulative relationship between:

- the monastic complex;
- the surrounding boglands;
- historic routeways and toghers;
- openness and remoteness;
- archaeological continuity;
- and the broader experiential landscape setting.

This methodological tension is particularly important because the broader heritage narrative contained within Appendix 13-5 repeatedly emphasises landscape relationships, movement

through the boglands, visual context and experiential qualities, yet the ultimate impact conclusions revert toward a narrower assessment of the “immediate setting” of individual monuments.

The proposed turbines, at approximately 220 metres in height, would introduce exceptionally large vertical industrial structures into a historically low-lying and visually open peatland landscape. The applicant’s own LVIA material demonstrates that visibility extends across a broad landscape envelope requiring extensive ZTV analysis, photowire modelling and photomontage assessment.

In such circumstances, it is difficult to reconcile:

- the acknowledged openness of the landscape;
- the recognised visual and historic relationship between the monastic complex and surrounding boglands;
- the exceptional scale of the proposed turbines;
- the acknowledged wider visibility envelope;
- and the identified experiential qualities of isolation and seclusion,

with a conclusion that impacts upon the wider setting would not be significant.

This is particularly important having regard to:

- the National Monuments Acts 1930 to 2014;
- the obligation under the Planning and Development Act 2000 (as amended) to protect architectural and archaeological heritage;
- the European Landscape Convention;
- and the EIA Directive requirement to assess indirect and cumulative effects on cultural heritage and landscape.

The more fundamental issue is not confined to direct physical impacts upon archaeological structures. Rather, it concerns whether the cumulative introduction of industrial-scale energy infrastructure would materially alter:

- the historic landscape context;
- experiential qualities;
- perceived remoteness;
- visual coherence;
- and broader cultural meaning of the Lemanaghan monastic landscape as a whole.

Article 3 of the EIA Directive 2011/92/EU (as amended by Directive 2014/52/EU) requires assessment not only of direct effects, but also indirect, cumulative and interaction effects on population, cultural heritage, landscape and material assets. In circumstances where the applicant’s own appendices repeatedly emphasise relationships between archaeology, routeways, landscape setting, visibility and experiential qualities, the broader cumulative cultural landscape implications may not be fully captured through a predominantly receptor-based methodology.

6.4 Cumulative Industrialisation of the Wider Landscape

The proposed development must also be assessed within the broader context of cumulative industrialisation across the Midlands peatland landscape.

The issue is not the proposed development viewed in isolation. Rather, it concerns the progressive layering over time of:

- industrial peat extraction;
- wind energy development;
- substations;
- overhead transmission infrastructure;
- solar infrastructure;
- access roads;
- drainage systems;
- rehabilitation infrastructure;
- and associated industrial land use change.

Chapter 5 and Chapter 14 acknowledge cumulative assessment requirements in relation to existing, permitted and proposed developments within the wider region. Appendix 2-3 further demonstrates the extensive volume of planning and infrastructure activity occurring across the wider Midlands area, including renewable energy infrastructure, solar development, transmission-related infrastructure and associated land use change.

The cumulative issue therefore extends beyond the visibility or impact of any single project. What is increasingly emerging across the Midlands boglands is a broader regional transformation toward an energy landscape characterised by repeated industrial infrastructure layering.

This issue is especially important within landscapes such as Lemanaghan where:

- substantial peat extraction has already occurred;
- ecological rehabilitation is ongoing;
- archaeological sensitivity remains high;
- cultural landscape significance persists;
- and communities continue to associate the landscape with historical, ecological and cultural identity beyond its industrial history.

The EIAR appears to assess cumulative effects primarily through technical matrices, receptor tables and project-by-project interactions. While technically extensive, this methodology appears more effective at cataloguing individual interactions than at evaluating the broader qualitative transformation of the landscape itself.

While the EIAR contains extensive technical cumulative assessment material, the methodology adopted appears more effective at cataloguing individual project interactions than at evaluating the broader cumulative transformation of the Lemanaghan boglands as an interconnected cultural, archaeological and experiential landscape. This is particularly

important having regard to the EIA Directive requirement to assess indirect, cumulative and interaction effects across environmental factors rather than viewing impacts in isolation.

The cumulative transformation experienced by communities is not limited to individual planning files or isolated visual receptors. Rather, it is experienced through:

- progressive skyline change;
- increasing infrastructure presence;
- repeated industrial layering;
- erosion of openness;
- industrialisation of rural character;
- and gradual alteration of landscape identity over time.

This broader issue is directly relevant to:

- the National Planning Framework;
- Regional Spatial and Economic Strategy objectives concerning landscape and heritage protection;
- the European Landscape Convention;
- and the requirement under the EIA Directive to assess cumulative and indirect environmental effects.

The broader cumulative implications for landscape identity, cultural continuity and long-term peatland character therefore appear substantially more significant than the EIAR conclusions suggest.

6.5 Conclusion on Heritage and Landscape

Overall, the evidence contained within the EIAR and appendices indicates that the proposed development would contribute toward substantial long-term transformation of the Lemnaghan boglands and surrounding rural landscape.

The receiving environment is:

- visually open and low-lying;
- archaeologically rich;
- culturally significant;
- historically connected to monastic and peatland heritage;
- and already subject to extensive historical industrial pressure.

The applicant's own archaeological material confirms:

- 470 known archaeological sightings within the wider bog landscape;
- extensive roads, toghers and trackways;
- peatland structures and enclosures;
- excavated archaeological sites;
- and archaeological objects removed to the National Museum of Ireland.

The applicant's own monastic landscape appendix further confirms the historic, visual and experiential relationship between the Lemanaghan Monastic Complex and the surrounding boglands.

At the same time, the proposed turbines would comprise exceptionally large vertical industrial structures within an open peatland landscape where extensive visibility is inherent to the character of the receiving environment.

Taken together, the evidence suggests that the proposed development would not simply introduce turbines into an already modified landscape. Rather, it would contribute toward the continuing cumulative transition of the wider boglands toward a permanently industrialised energy landscape.

The principal issue therefore concerns:

- cumulative landscape transformation;
- erosion of peatland character;
- degradation of experiential heritage;
- increased industrialisation of historically open boglands;
- cumulative pressure upon archaeological landscapes;
- and long-term alteration of cultural identity and sense of place.

In those circumstances, the EIA appears to understate the broader cumulative implications of the proposed development for the historic landscape, archaeological continuity and cultural coherence of the Lemanaghan boglands and surrounding monastic landscape.

7. Planning, Assessment and Procedural Concerns

The preceding chapters of this submission have identified extensive concerns relating to cumulative industrialisation of peatland landscapes, historic hydrological alteration, retrospective environmental assessment limitations, rehabilitation and environmental stabilisation objectives, landscape transformation, ecological recovery and the long-term interaction between historic and proposed industrial activity within the receiving environment.

In this context, the issues arising are no longer confined solely to individual environmental effects considered in isolation. Rather, concern arises regarding whether the Environmental Impact Assessment process, when considered as a whole, has sufficiently resolved the cumulative complexity and long-term uncertainty associated with the Proposed Project and the receiving peatland environment.

Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment not only of direct environmental effects, but also indirect, cumulative and interaction effects arising between environmental factors. Annex IV of the Directive further requires assessment of likely significant effects, interaction between factors, mitigation measures, residual effects and the forecasting methods used within the assessment process.

The Environmental Protection Agency Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022) similarly emphasise the importance of transparency, cumulative assessment, interaction assessment and clear identification of residual environmental effects and uncertainty.

Against this background, questions arise regarding whether the assessment framework sufficiently captures the interconnected and evolving nature of the receiving environment in a coherent and scientifically robust manner.

7.1 Adequacy and Coherence of the Environmental Assessment Framework

Article 3 of Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment not only of individual environmental effects in isolation, but also the direct, indirect, cumulative and interaction effects arising between environmental factors.

Similarly, Annex IV of the Directive requires an Environmental Impact Assessment Report to include likely significant effects, interaction between environmental factors, forecasting methods, mitigation measures and residual effects.

The Environmental Protection Agency Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022) further emphasise the importance of transparency, interaction assessment, cumulative assessment and clear identification of uncertainty and residual effects within the environmental assessment process.

As discussed throughout earlier chapters of this submission, substantial concerns have already been identified regarding:

- retrospective assessment limitations;
- hydrological sensitivity;
- rehabilitation and environmental stabilisation objectives;
- cumulative interaction between environmental receptors;
- and the complexity of assessing ongoing environmental transition within rehabilitating peatland environments.

Those matters are not repeated here.

The issue arising in this section is whether the Environmental Impact Assessment process has sufficiently resolved these interacting and evolving environmental issues in a coherent and scientifically robust manner.

Chapter 17 of the EIAR expressly acknowledges that:

“for any development with the potential for significant environmental effects there is also the potential for interaction between these potential significant effects”

and further states that:

“The result of interactive effects may exacerbate the magnitude of the effects or ameliorate them or have a neutral effect.”

The same chapter defines interaction effects as: “the combined, indirect, or secondary impacts that arise from the interaction between different environmental factors.”

While the EIAR acknowledges interaction between environmental receptors, uncertainty nevertheless remains regarding whether the compartmentalised structure of the assessment sufficiently captures the interaction between rehabilitation processes, hydrological recovery objectives, biodiversity mitigation, drainage management systems and long-term infrastructure operation within a single interconnected peatland environment.

This concern is reinforced by the extent to which the EIAR relies upon future mitigation, monitoring and adaptive environmental management measures throughout the lifecycle of the Proposed Project.

Chapter 18 confirms reliance upon environmental management systems, inspection regimes, drainage monitoring, environmental auditing, adaptive mitigation, construction oversight and ongoing monitoring during the pre-construction, construction, operational and decommissioning phases of the Proposed Project.

The EIAR further states that: “It is intended that the CEMP will be updated where required prior to the commencement of construction to include all mitigation and monitoring measures, planning conditions and/or alternative monitoring and mitigation measures should they emerge during the course of the planning process.”

Questions therefore arise regarding the extent to which environmental acceptability depends upon future management intervention within a receiving environment already acknowledged to be hydrologically altered, environmentally sensitive and subject to ongoing rehabilitation and environmental transition.

While mitigation and monitoring form recognised components of environmental assessment, procedural concern nevertheless arises where substantial aspects of environmental protection appear dependent upon adaptive management processes rather than fully resolved environmental certainty at assessment stage.

Concern additionally arises where substantial reliance is placed upon future monitoring and management responses without clearly defined thresholds governing when construction activities would require suspension, modification or cessation in the event of environmental deterioration, mitigation failure or unforeseen interaction effects.

The precautionary principle is particularly relevant in circumstances where:

- interaction effects are expressly acknowledged;
- environmental systems are heavily interconnected;
- rehabilitation and hydrological recovery processes remain ongoing;
- retrospective assessment limitations have been acknowledged;
- and future mitigation and monitoring remain central to the environmental management framework.

In Waddenzee (Case C-127/02), the Court of Justice of the European Union confirmed that authorisation should not be granted where reasonable scientific doubt remains regarding the absence of adverse environmental effects.

In this context, uncertainty remains regarding whether sufficient scientific certainty has been established concerning the long-term interaction between historic peatland alteration, rehabilitation processes, hydrological recovery and continued industrial-scale infrastructure development within the same receiving environment.

Accordingly, concern arises regarding whether the Environmental Impact Assessment process ultimately resolves environmental uncertainty at assessment stage, or instead defers substantial aspects of environmental protection to future management, monitoring and operational control processes.

7.2 Connected Infrastructure and Project Segmentation Concerns

As discussed throughout earlier chapters of this submission, substantial concerns have already been identified regarding:

- cumulative infrastructure concentration;
- grid infrastructure expansion;
- cumulative landscape transformation;
- and the increasing concentration of energy-related infrastructure across the wider Midlands peatland landscape.

Those matters are not repeated here.

The issue arising in this section is whether the Proposed Project and its associated infrastructure have been assessed as a sufficiently integrated and interconnected infrastructure system.

Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment not only of the direct effects of a project, but also the indirect, cumulative and interaction effects arising between connected infrastructure, associated development and the wider receiving environment.

The Environmental Impact Assessment Report (“EIAR”) submitted under Case Reference PAC19.324161 confirms that the Proposed Project includes not merely turbines, but also associated infrastructure including:

- a permanent 220kV on-site substation;
- overhead line infrastructure;
- internal access roads;
- underground cabling;
- drainage infrastructure;
- borrow pits;
- construction compounds;

- peat and spoil management areas;
- and associated enabling works.

The EIAR further confirms that the Proposed Grid Connection would involve a new permanent “loop-in/loop-out” connection into the existing Shannonbridge–Maynooth 220kV transmission line.

The cumulative infrastructural footprint of the Proposed Project therefore extends beyond the turbine locations themselves. The operational functionality of the Proposed Project is intrinsically dependent upon a wider network of transmission, access, drainage and enabling infrastructure, such that the turbines represent only one component of a broader interconnected infrastructure system extending across the receiving environment.

Chapter 17 of the EIAR expressly acknowledges interaction between material assets, utilities, roads and traffic, electricity infrastructure and other environmental receptors.

However, uncertainty nevertheless remains regarding whether the interaction between transmission infrastructure, substations, overhead lines, road infrastructure, drainage systems, enabling works and wider infrastructure concentration has been sufficiently assessed as part of a single evolving infrastructural landscape rather than as a series of discrete technical components.

This concern is particularly significant in circumstances where the wider Midlands peatland landscape is already subject to continuing renewable energy and infrastructure expansion pressures, including additional wind energy proposals and emerging infrastructure development on Bord na Móna peatlands within the wider surrounding area.

Questions additionally arise regarding whether the discrete treatment of interconnected infrastructure components across separate technical assessments risks understating the cumulative extent of infrastructural transformation occurring across the receiving environment.

This concern is particularly relevant in circumstances where:

- existing transmission infrastructure already traverses the wider landscape;
- additional renewable energy projects are identified across Bord na Móna lands;
- and further grid reinforcement, transmission upgrades or associated infrastructure expansion may reasonably be anticipated in response to continuing large-scale renewable energy development within the region.

Accordingly, concern remains regarding whether the Proposed Project and its associated infrastructure have been assessed as part of a genuinely integrated cumulative infrastructure system, or whether segmentation and the discrete treatment of interconnected infrastructure components risks obscuring the full long-term infrastructural implications of continuing energy development across the receiving peatland environment.

8. Grid Capacity, Curtailment and Strategic Infrastructure Efficiency

As discussed throughout earlier chapters of this submission, substantial concerns have already been identified regarding:

- cumulative infrastructure concentration;
- transmission infrastructure expansion;
- substations and associated enabling works;
- and the increasing concentration of energy-related infrastructure across the wider Midlands peatland landscape.

Those matters are not repeated here.

The issue arising in this chapter is whether the continuing clustering of large-scale renewable energy generation within already infrastructure-intensive peatland regions represents the most strategically coherent and infrastructure-efficient long-term approach from a transmission and national infrastructure perspective.

The Environmental Impact Assessment Report confirms that the Proposed Project would require substantial associated grid infrastructure, including a permanent 220kV substation and a new “loop-in/loop-out” connection into the existing Shannonbridge–Maynooth 220kV transmission line.

The operational functionality and strategic viability of the Proposed Project are therefore intrinsically dependent upon wider transmission infrastructure and long-distance electricity export capability extending beyond the turbine locations themselves.

Concern therefore arises regarding whether the continuing concentration of large-scale generation infrastructure within the Midlands peatland region may contribute to increasing transmission dependency, grid reinforcement pressures and further strategic infrastructure expansion requirements over time.

This concern is particularly relevant in circumstances where:

- additional renewable energy proposals continue to emerge across Bord na Móna peatlands;
- substantial transmission infrastructure already traverses the wider landscape;
- and further infrastructure expansion may ultimately be required to facilitate increasing electricity export capacity from the region.

In that context, concern arises regarding whether the cumulative strategic implications of repeatedly concentrating generation infrastructure within the same receiving environment have been sufficiently examined from a national network planning perspective.

Curtailment, transmission congestion and grid reinforcement pressures are recognised challenges within electricity systems undergoing rapid renewable energy expansion, particularly where substantial generation capacity becomes concentrated within specific

regions. In this context, questions arise regarding whether the cumulative implications of concentrating large-scale renewable generation within already infrastructure-intensive peatland regions have been sufficiently considered from a long-term strategic infrastructure perspective.

The concern arising is not opposition to renewable energy development in principle. Rather, concern relates to whether continuing infrastructure concentration within the same receiving environment may contribute to increasingly self-reinforcing transmission and infrastructure expansion requirements over time.

Accordingly, concern remains regarding whether the Proposed Project represents the most strategically coherent and infrastructure-efficient long-term approach when considered within the wider cumulative context of:

- existing transmission infrastructure;
- continuing renewable energy expansion;
- cumulative infrastructure concentration;
- and the long-term strategic development of Ireland's national electricity network.

9. Public Safety, Aviation and Technical Risks

The purpose of this chapter is not to suggest that wind energy development is inherently unsafe. Rather, the concern arising is that the Proposed Project involves very large-scale industrial infrastructure, extensive construction activity, electrical infrastructure, abnormal-load movements, aviation lighting requirements, telecommunications considerations and long-term operational risk-management obligations. These matters require careful and proportionate assessment within the overall planning balance.

Directive 2011/92/EU, as amended by Directive 2014/52/EU, expressly requires assessment of the likely significant effects arising from the vulnerability of a project to risks of major accidents and/or natural disasters. Chapter 16 of the EIAR acknowledges this requirement and states that the assessment seeks to identify relevant major accidents and natural disasters, assess the potential for such events to result in likely significant adverse environmental effects, and identify the measures proposed to prevent or mitigate such effects.

The Proposed Project is not a minor or low-complexity development. Chapter 4 confirms that it would include 15 turbines with a maximum tip height of 220 metres, a rotor diameter of 150 metres and a hub height of 145 metres. The development would also include permanent turbine foundations and hardstanding areas, underground electrical and communications cabling, a permanent 220kV electrical substation, a 36-metre telecommunications tower, approximately 800 metres of 220kV overhead line, new steel masts, a 145-metre meteorological mast, extensive internal road infrastructure, temporary access tracks, crane pads, construction compounds, borrow pits and associated enabling works.

In that context, public safety and technical risk should not be assessed solely by reference to the normal operation of turbines themselves, but by reference to the combined scale,

complexity and interaction of the infrastructure across its construction, operational and decommissioning phases.

Chapter 16 identifies a range of relevant risk scenarios including flooding, major road traffic accident, contamination event, major fire, bog fire, adverse weather conditions, loss of critical infrastructure and peat stability. While the EIAR concludes that these risks are generally low or not significant following mitigation, the identification of these scenarios confirms that the Proposed Project depends upon the effective implementation of monitoring systems, mitigation measures, operational procedures, emergency-response frameworks and long-term management controls.

This is particularly relevant where Chapter 16 identifies contamination events and major fire as requiring specific mitigation and emergency-response measures. The EIAR states that a Risk Management Plan and Emergency Response Plan will form part of the Construction and Environmental Management Plan ("CEMP"). Chapter 18 further states that:

"It is intended that the CEMP will be updated where required prior to the commencement of construction to include all mitigation and monitoring measures, planning conditions and/or alternative monitoring and mitigation measures should they emerge during the course of the planning process..."

Concern therefore arises regarding the extent to which the effectiveness, enforceability and operational detail of these measures can be fully evaluated at the consent stage. The repeated reliance upon language such as "it is intended" indicates that important elements of operational control, environmental management and emergency-response implementation remain subject to future updating, refinement and operationalisation following consent.

The EIA process is intended to ensure that likely significant effects, mitigation measures and environmental safeguards are identified and assessed prior to development consent being granted. The EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022) emphasise the need for mitigation measures to be clearly described, specific, capable of implementation and capable of evaluation by the competent authority. In circumstances where important operational and emergency-response measures remain dependent upon future updating, implementation and operational compliance frameworks, concern arises regarding whether sufficient certainty exists concerning the long-term effectiveness, governance and enforceability of those measures across the full lifecycle of the Proposed Project.

In particular, the EIAR does not fully establish:

- the precise trigger thresholds for escalation or cessation of works;
- the circumstances in which operational activity would be halted;
- the enforcement mechanisms applicable in the event of non-compliance;
- or the long-term governance arrangements responsible for ensuring continued implementation of operational and emergency-response measures throughout the operational lifetime of the Proposed Project.

Construction-phase safety also represents a significant consideration. Chapter 15 confirms that, for developments of this nature, the construction phase is the critical period in traffic terms due to both increased traffic volumes and the geometric requirements associated with abnormal-load transport of turbine components. Chapter 16 additionally identifies major road traffic accident as a relevant risk scenario.

The EIAR identifies mitigation through Traffic Management Plans, road safety assessments, internal road design measures and construction-management procedures. However, concern remains that the construction phase would involve extensive heavy vehicle movements, abnormal-load deliveries, temporary traffic-management measures, upgraded site entrances and substantial interaction with a rural road network used by local residents, agricultural traffic and the wider community.

The EIAR also confirms that the scale and complexity of the Proposed Project requires the appointment of a Project Supervisor Design Process and Project Supervisor Construction Stage pursuant to the Safety, Health and Welfare at Work (Construction) Regulations 2013. These responsibilities include hazard identification, safety coordination, preparation of safety procedures and ongoing management of construction-related risks. This further demonstrates that the Proposed Project involves a level of operational and construction complexity requiring extensive and ongoing safety governance arrangements.

Technical infrastructure risk is also relevant. Chapter 18 includes mitigation measures concerning works near overhead electricity lines, including fencing, warning signage, risk assessment procedures, minimum separation distances, machinery controls and site-specific safety assessments. These measures are important. However, they also demonstrate that the Proposed Project would involve construction and operational activity in proximity to high-voltage electrical infrastructure requiring strict operational compliance and long-term safety management.

Aviation and telecommunications considerations further reinforce the technical complexity of the Proposed Project. Chapter 15 confirms that the assessment includes telecommunications and aviation infrastructure and that consultation with telecommunications operators and aviation bodies informed the constraints mapping and layout process for the Proposed Wind Farm. Chapter 5 additionally states that aviation lighting is a standard requirement of the Irish Aviation Authority and that engagement with the IAA will continue as required.

While the EIAR concludes that no significant residual aviation or telecommunications effects are expected, concern nevertheless arises regarding the extent to which the adequacy of these safeguards depends upon ongoing compliance, operational monitoring, future consultation outcomes and the continued implementation of technical mitigation measures over the operational lifespan of the Proposed Project.

The EIAR also refers to turbine safety and acknowledges the possibility, albeit remote, of injury arising from flying fragments of ice or damaged blades, while relying upon modern turbine design standards, anti-vibration systems, icing controls and lightning protection measures. This should not be interpreted as establishing that such events are likely to occur.

However, it does confirm that turbine safety, icing, lightning and blade integrity are recognised operational considerations requiring ongoing monitoring and technical safeguards.

Accordingly, the concern arising is not that the Proposed Project necessarily presents an unacceptable safety risk during ordinary operation. Rather, the concern is that the scale, height, electrical infrastructure, abnormal-load transport, overhead-line works, aviation requirements, construction activity and long operational lifespan of the Proposed Project create a complex operational and risk-management environment substantially dependent upon future compliance, mitigation implementation, monitoring and long-term governance arrangements.

In circumstances where the Proposed Project would be located within a rural peatland landscape already subject to cumulative infrastructure pressure, concern remains regarding whether sufficient certainty has been provided concerning the long-term effectiveness, enforceability and operational oversight of the public safety, aviation, emergency-response and technical risk-management measures relied upon throughout the EIAR.

10. Decommissioning and Long-Term Legacy

The issue arising in this chapter is not whether wind energy infrastructure can eventually be removed following the operational lifespan of a development. Rather, the concern relates to the long-term stewardship implications, restoration certainty and future industrial legacy associated with another multi-decade cycle of large-scale infrastructure development within a recovering peatland landscape already subject to historic industrial alteration, rehabilitation obligations and cumulative infrastructure pressure.

Chapter 4 confirms that the Proposed Project seeks a 10-year planning permission and a 35-year operational lifespan from the date of commissioning. The EIAR further confirms that the Proposed Project would include 15 turbines with a maximum tip height of 220 metres, permanent turbine foundations and hardstanding areas, extensive new internal roads and tracks, a permanent 220kV electrical substation, overhead line infrastructure, underground electrical and communications cabling, crane pads, borrow pits, drainage infrastructure and associated enabling works.

Accordingly, the Proposed Project should not be viewed solely as a temporary or readily reversible intervention within the receiving environment. Even prior to operation, the Proposed Project would involve substantial physical alteration of the site through excavation works, permanent foundations, drainage interventions, road construction, electrical infrastructure and associated engineering works extending across a peatland landscape already identified within other environmental and rehabilitation frameworks as requiring long-term ecological and hydrological recovery measures.

While Chapter 4 includes a section relating to decommissioning, the EIAR provides comparatively limited detail regarding:

- the final restoration condition proposed for the site following decommissioning;

- the extent of permanent infrastructure removal;
- the treatment of turbine foundations and hardstanding areas;
- the long-term aftercare and monitoring obligations following cessation of operation;
- or the criteria by which restoration success would ultimately be assessed.

Concern therefore arises regarding the degree of certainty presently available concerning the long-term condition of the site following eventual decommissioning of the Proposed Project.

This issue is particularly relevant within peatland environments, where hydrology, drainage patterns, peat stability and ecological recovery may continue to evolve over extended time periods. Throughout earlier chapters of this submission, substantial concerns have already been identified regarding:

- peatland rehabilitation;
- hydrological management;
- cumulative industrialisation;
- drainage intervention;
- and long-term ecological recovery trajectories across the wider landscape.

In that context, concern arises regarding whether another 35-year cycle of industrial infrastructure development may further complicate or prolong future restoration trajectories within the receiving environment.

The EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022) emphasise that the EIAR should identify the likely significant effects of a project throughout its full lifecycle, including, where relevant, demolition, restoration and post-operational effects. Similarly, Directive 2011/92/EU, as amended by Directive 2014/52/EU, requires assessment not merely of operational effects, but of the likely significant environmental effects associated with the full lifecycle of a project.

While the EIAR refers to mitigation, monitoring and management measures during the operational and decommissioning phases, substantial reliance is again placed upon future plans, future implementation frameworks and operational management measures extending decades beyond the consent stage. Chapter 18 states that mitigation and monitoring measures apply during the pre-commencement, construction, operational and decommissioning phases of the Proposed Project and are intended to be incorporated within relevant management and monitoring frameworks.

Concern therefore arises regarding the extent to which the long-term effectiveness, enforceability and governance of these future restoration and decommissioning obligations can presently be evaluated with sufficient certainty, particularly over a project lifespan extending potentially four decades from the grant of permission to eventual site restoration.

The issue of long-term material and waste management also remains relevant. Chapter 15 acknowledges that waste management forms part of the material assets assessment and refers to waste arising during the construction, operational and decommissioning phases of

the Proposed Project. However, comparatively limited detail is provided regarding the final treatment, recovery or disposal pathways for major turbine components at end-of-life stage.

This is particularly relevant in relation to composite turbine blades and associated infrastructure materials. While turbine component recycling technologies continue to evolve, end-of-life management of composite turbine blades remains an ongoing international waste-management challenge, with landfill disposal historically utilised in some jurisdictions where alternative recovery pathways remain limited or commercially constrained. Concern therefore arises regarding the extent to which fully circular or long-term sustainable recovery pathways for all major turbine components can presently be assured over the full lifecycle of the Proposed Project.

The issue arising is not that decommissioning is impossible, nor that future technologies may not improve. Rather, concern relates to the level of long-term certainty currently available regarding:

- final site restoration outcomes;
- long-term waste-management obligations;
- infrastructure removal standards;
- and the future environmental condition of the site following cessation of operation.

This concern is reinforced by the broader cumulative context identified throughout this submission, whereby the wider peatland landscape has already experienced:

- decades of industrial peat extraction;
- substantial hydrological alteration;
- retrospective rehabilitation obligations;
- and continuing large-scale infrastructure concentration.

In that context, concern arises regarding whether the Proposed Project may contribute to the continuation of a long-term cycle of industrialisation, infrastructure replacement and future decommissioning obligations within a landscape that is simultaneously identified within national and regional policy as requiring environmental rehabilitation, climate transition and ecological recovery.

Accordingly, concern remains regarding whether sufficient certainty has been provided concerning the long-term stewardship, restoration and decommissioning implications of the Proposed Project when assessed across its full operational lifecycle and within the wider cumulative context of ongoing peatland rehabilitation and infrastructure concentration across the Midlands region.