# 17. INTERACTIONS OF THE FOREGOING

## 17.1 Introduction

The preceding Chapters 5 to 16 of this EIAR identify the potential significant environmental effects that may occur in terms of Population and Human Health, Biodiversity (Flora and Fauna), Ornithology (Birds), Land, Soils and Geology, Hydrology & Hydrogeology (Water), Air Quality, Climate, Noise and Vibration, Landscape and Visual, Cultural Heritage (Archaeological, Architectural and Cultural Heritage), Material Assets (Roads and Traffic, Telecommunications, Aviation, Utilities and Waste Management), and Vulnerability to/from Major Accidents and Natural Disasters as a result of the Proposed Project, as described in Chapter 4 (Description of the Proposed Project) of this EIAR. All of the potential significant effects of the Proposed Project and the measures proposed to mitigate these have been outlined in the preceding chapters of this EIAR. Mitigation measures and best practice measures for the construction, operation and decommissioning of the Proposed Project are detailed in the accompanying Construction and Environmental Management Plan (CEMP) (Appendix 4-3), and Chapter 18 -Schedule of Mitigation and Monitoring Measures. However, for any development with the potential for significant environmental effects there is also the potential for interaction between these potential significant effects. The result of interactive effects may exacerbate the magnitude of the effects or ameliorate them or have a neutral effect.

A matrix is presented in Table 17-1 below to identify potential interactions between the various aspects of the environment already assessed in this EIAR. The matrix highlights the occurrence of potential positive or negative effects during both the construction (C) and operational (O) phases. It is considered that the potential effects during the decommissioning phase will be similar to the construction phase but of a lesser magnitude. . In Section 17.2 below, the potential interactions between each environmental component have been discussed in order of the relevant chapters of the EIAR. Once a potential interaction between two environmental components has been discussed, for example, Population & Human Health and Hydrology and Hydrogeology, the interaction will not be discussed again in the following relevant section, therefore there is no Hydrology and Hydrogeology and Population & Human Health section.

*Table 17-1 Interaction Matrix: Potential for Interacting Impacts*

| | Phase | Population and Human Health | Biodiversity | Ornithology | Land, Soils and Geology | Hydrology and Hydrogeology | Air Quality | Climate | Noise and Vibration | Landscape and Visual | Cultural Heritage | Material Assets | Major Accidents & Vulnerability to Natural Disasters |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Population and Human Health | C | | | | | | | | | | | | |
| | O | | | | | | | | | | | | |
| Biodiversity | C | | | | | | | | | | | | |
| | O | | | | | | | | | | | | |
| Ornithology | C | | | | | | | | | | | | |
| | O | | | | | | | | | | | | |
| Land, Soils and Geology | C | | | | | | | | | | | | |
| | O | | | | | | | | | | | | |
| Hydrology and Hydrogeology | C | | | | | | | | | | | | |
| | O | | | | | | | | | | | | |
| Air Quality | C | | | | | | | | | | | | |
| | O | | | | | | | | | | | | |
| Climate | C | | | | | | | | | | | | |
| | O | | | | | | | | | | | | |
| Noise and Vibration | C | | | | | | | | | | | | |
| | O | | | | | | | | | | | | |
| Landscape and Visual | C | | | | | | | | | | | | |
| | O | | | | | | | | | | | | |
| Cultural Heritage | C | | | | | | | | | | | | |
| | O | | | | | | | | | | | | |
| Material Assets | C | | | | | | | | | | | | |
| | O | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Major Accidents and Vulnerability to Natural Disasters | C | | | | | | | | | | | | |
| | O | | | | | | | | | | | | |

Legend: No Interacting Effect: Positive Effect:
Neutral Effect: Negative Effect:

The potential for interaction of effects has been assessed, throughout this EIAR, as part of the Impact Assessment process. While the work on all parts of the Environmental Impact Assessment Report (EIAR) were not carried out by MKO, the entire project and all the work of the sub-consultants was managed and coordinated by the company. The EIAR was edited and collated by MKO as an integrated report of findings from the impact assessment process, by all relevant experts, and effects that potentially interact have been assessed in detail in the individual chapters of the EIAR and summarised in Section 17.2 below.

Where any potential negative effects have been identified during the assessment process, these impacts have been avoided or reduced by design and the proposed mitigations measures, as presented throughout the EIAR.

### 17.1.1 Statement of Authority

This section of the EIAR has been drafted by Sophie O'Rourke and Robert Kennedy and reviewed by Eoin McCarthy, all of MKO.

Sophie O'Rourke is an Environmental Scientist with MKO. Sophie holds a first-class honours master's degree in environmental science at Trinity College Dublin. As part of MKOs environmental renewables team Sophie is involved with the production of EIARs for a variety of wind energy projects. Sophie's areas of expertise include environmental policy, high quality report writing, and geographic information systems. Robert is a Project Environmental Scientist working as part of MKO's Renewables Team, having joined the company in June 2022. Robert holds a BSc in Environmental Biology and an MSc in Environmental Policy, both from University College Dublin. Robert's key strengths and areas of expertise are in project management, environmental impact assessment, renewable energy, report writing, and research. Since joining MKO, Robert has worked with and coordinated large multi-disciplinary teams involved in the production of EIA Reports for large-scale renewable energy developments. Robert's experience spans a broad range of wind energy developments, including applications for new onshore and offshore wind farms, lifetime extension projects, and substitute consent. Robert also played a role in developing MKO's new service offering around Biodiversity Net Gain and other nature-positive mechanisms. Prior to taking up his position with MKO, Robert worked in various roles in Canada and Ireland, giving him a broad mix of skills and experience to apply to his current role with MKO. Robert also holds a membership with the Institute of Sustainability and Environmental Professionals (ISEP). Eoin is a Project Director within the Environment Renewables team of MKO with over 14 years of environmental consultancy experience. Eoin holds a B.Sc. (Hons) in Environmental Science from NUI, Galway. Eoin took up his position with McCarthy Keville O'Sullivan in June 2011. Eoin's key strengths and areas of expertise are in project management, environmental impact assessment, wind energy site selection and feasibility assessment. Since joining MKO, Eoin has progressed from Graduate to Senior level and has been heavily involved on a significant range of energy infrastructure, tourism, waste permit, flood relief scheme and quarrying projects. He has overseen the design phase and applications of some of the largest wind energy projects in Ireland. In his role as project manager, Eoin works with and co-ordinates large multidisciplinary teams including members from MKO's Environmental, Planning, Ecological and Ornithological departments as well as sub-contractors from various fields in the preparation and production of EIARs.

Eoin is also involved in the development of project strategy for the projects that he manages. He has held the role of project manager and EIAR co-ordinator on over 700MW worth of wind energy projects. Within MKO Eoin plays a large role in the management of and sharing of knowledge with junior members of staff and works as part of a large multi-disciplinary team to produce EIA Reports.

## 17.2 Impact Interactions

### 17.2.1 Population and Human Health

#### Population and Human Health and Land, Soils & Geology

**Construction Phase**

During the construction phase, the use of plant machinery on site during excavation works and the movement of peat and spoil may result in the potential for soil and ground contamination. With the implementation of mitigation and monitoring measures detailed in Section 8.6.2 of Ch. 8: Lands, Soils & Geology and the CEMP (Appendix 4-3), the potential for residual effects associated with soil or ground contamination during the construction and subsequent health effects are negative, imperceptible, indirect, long-term, and unlikely.

**Operation Phase**

A wind farm and associated grid infrastructure is not a recognised source of pollution and so the potential for effects during the operational phase are imperceptible. With the implementation of mitigation and monitoring measures detailed in Section 8.6.3 of Ch. 8: Lands, Soils & Geology and the CEMP (Appendix 4-3), the potential for residual effects associated with soil or ground contamination during the operational phases and subsequent health effects are negative, imperceptible, indirect, long-term, and unlikely.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration,

On this basis, the identified interaction is Not Significant.

#### Population and Human Health, and Hydrology and Hydrogeology

**Construction Phase**

There are no underground water or sewerage networks at Proposed Wind Farm infrastructure locations. There are no Group Water Schemes located within and in close proximity to the Site. A search of private well locations on GSI well database (www.gsi.ie) reveal no mapped private wells within 5km of the Proposed Wind Farm site. With respects to the Proposed Grid Connection, there is no. 1 a private well mapped ~1.3km east of the Proposed Grid Connection route at Dunmanway.

The Proposed Project design and mitigation measures detailed in Ch. 9: Hydrology and Hydrogeology and the CEMP (Appendix 4-3) ensures that the potential for effects on the water environment are not significant. A comprehensive suite of surface water mitigation measures and controls are outlined in Ch. 9: Hydrology and Hydrogeology to ensure protection of all downstream receiving waters. Mitigation measures will ensure that surface runoff from the developed areas of the Site will be of a high quality and will therefore not impact on the quality of downstream surface water bodies, no impact on group water schemes.

**Operation Phase**

During the operational phase, all permanent drainage controls will be in place and the disturbance of ground and excavation works will be complete. Only minor maintenance works may be completed and would be very infrequent. It is not envisaged that any significant refuelling works will be undertaken on site during the operational phase. There will be a temporary imperceptible negative impact on human health due to water quality.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration.

On this basis, the identified interaction is Not Significant.

### Population and Human Health, and Air Quality

**Construction Phase**

During the construction phase, the excavation and movement of peat and spoil during the construction phase of the Proposed Project is likely to create dust and result in the emission of air pollutants which will result in a short-term, slight, negative effect on local air quality. Mitigation measures to reduce dust and exhaust emissions generated during the construction phase of the Proposed Project are presented in Chapter 10 (Air Quality).

**Operational Phase**

During the operational phase, the Proposed Project will generate additional traffic to the area in the form of light goods vehicles (LGVs) visiting the Site 1-2 times per day for inspections and maintenance, giving rise to a long-term imperceptible negative impact on air quality. However, wind turbines are not a recognised source of pollution and will instead be providing clean energy into the National Grid. This will have a long-term moderate positive effect on human health.

By providing an alternative to electricity derived from coal, oil or gas-fired power stations during the operational phase, the Proposed Project will result in emission savings of carbon dioxide ($CO_2$), oxides of nitrogen ($NO_x$), and sulphur dioxide ($SO_2$). The production of renewable energy from the Proposed Project will have a long-term, moderate, positive impact on air quality.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration, On this basis, the identified interaction is Not Significant.

### Population and Human Health, and Climate

**Construction Phase**

The construction of the Proposed Project will have a long-term, imperceptible, negative effect on climate and will be restricted to the duration of the construction phase. However, once emitted to the atmosphere, the greenhouse gas emissions that will arise from construction phase activities will have a permanent imperceptible negative effect on Climate and therefore population and human health.

**Operational Phase**

The Proposed Project when in operation, will reduce the input of carbon intensive energy into the national grid and reduce the amount of greenhouse gas emissions being released to the atmosphere. Harnessing more energy by means of renewable sources will reduce dependency on fossil fuels, thereby resulting in a reduction in harmful emissions that can be damaging to human health and the environment. The rated output of 4.8MW per turbine for the Proposed Project would means that the proposed 14 no. wind turbines would have a combined generating capacity of 67.2MW.

The Proposed Project will displace 44,498 tonnes of carbon dioxide per annum (1,557,430 tonnes over the 35-year operational life) (search tonnes) tonnes of carbon emissions per annum from the largely carbon-based traditional energy mix, the detail of which is presented in Section 11.4. This will have a long-term moderate positive effect on climate and therefore a long-term moderate positive effect on health.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration,

On this basis, there identified interaction is Not Significant.

### Population and Human Health and Noise and Vibration

**Construction Phase**

As identified in Chapter 5 (Population & Human Health) of this EIAR, the construction phase will generate an increase in noise levels in the vicinity of the Site which has the potential to cause a nuisance to sensitive receptors in the area. The contractor undertaking the construction of the works will be obliged to take specific noise abatement measures and comply with the recommendations of British Standard BS 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites – Noise* and all mitigation measures, as detail in Chapter 12 (Nosie & Vibration) and the CEMP, will be implemented. The construction phase will likely create a short-term slight to moderate negative effect on human health due to the nuisance caused by construction plant and vehicle noise emissions.

**Operational Phase**

As detailed in Chapter 12 (Noise & Vibration), the predicted noise emissions during the operational phase, once the appropriate mitigation measures are implemented, will be long-term negative and not significant. Furthermore, as noise emissions from turbines are controllable via inbuilt technologies, the Proposed Project will be able to comply with the Guidelines (DoEHLG, 2006) and future iterations should they come into effect before a decision is made on this application. Likewise, the proposed turbines will be capable of achieving compliance with noise conditions imposed should the Proposed Project receive a grant of planning permission.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration,

On this basis, the identified interaction is Not Significant.

## Population and Human Health, and Landscape and Visual

**Construction Phase**

The construction phase of the Proposed Project will see the temporary introduction of construction machinery and the erection of wind turbines into a natural, but already modified landscape. The erection of the proposed turbines in particular will change the existing landscape. The construction activities may potentially cause temporary impacts on the landscape such as the creation of temporary structures, dust, soil erosion and alterations to drainage. It is considered that the construction phase will have a 'Moderate', 'Short-term', 'Negative' effect in terms of direct landscape effects

**Operational Phase**

As detailed in Ch. 13: Landscape and Visual the landscape character of the Proposed Wind Farm site will undergo major changes in the landscape by the introduction of vertical man-made structures and ancillary infrastructure. As outlined in Section 13.4.3; Ch. 13: Landscape and Visual these changes amount to long-term landscape effects of 'Significant' upon the physical fabric of the landscape of the Site. These direct landscape effects will be highly localised to the footprint of the Proposed Wind Farm. Effects on the perceptual and aesthetic character of the Proposed Wind Farm site are also deemed to be of 'Significant'.

Within the LVIA Study Area, the visual impact on residential receptors ranges from 'Imperceptible' to 'Significant' (for a small number of residences in very close proximity). Given the adherence to the 4x tip height set -back distance to protect visual amenity, on balance, effects on residential receptors are mitigated and are therefore not significant.

**Decommissioning Phase**

Turbine foundations would remain in place underground and would be covered with earth and allowed to revegetate. This naturalisation process shall revert the landscape of the Proposed Wind Farm site back to a condition similar to the current landscape baseline. Removal of the proposed turbines and ancillary infrastructure (except the proposed substation) from the Wind Farm site during decommissioning will result in 'Short-Term', 'Slight', 'Negative' visual effects.

On this basis, while Significant effects are identified at two viewpoint locations, these effects are very localised. On balance the overall effect on Scenic Routes, Views and Prospects are not significant.

## Population, and Human Health and Material Assets

**Construction Phase**

During the construction phase, the Proposed Project will give rise to traffic movements of abnormal loads and increased traffic volumes on the local road network and, therefore, is likely to create some short-term slight negative effect inconvenience for other road users as well as dust and exhaust emissions. A Traffic Management Plan is included as Appendix 15-2 and will be updated and agreed with the county council prior to construction to minimise all disruption, as described in Chapter 15 (Material Assets) and the CEMP (Appendix 4-3). It is considered that the construction phase will have a 'Short -Term, Slight to Moderate 'Negative' effect as a result of traffic movements.

**Operational Phase**

During the operational phase, impacts on the surrounding local highway network will be long term negative imperceptible impact. With the implementation of measures detailed in Chapter 5 (Population & Human Health) and the CEMP (Appendix 4-3) dust and exhaust emission will be contained and the potential for impact on health will be imperceptible.

During the operational phase, there will be no impacts or associated effects on built services or telecommunications associated with the Proposed Project. The Proposed Project will have a long-term imperceptible neutral residual effect on telecommunications and aviation assets during the operational phase.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration,

On this basis, the identified interaction is Not Significant.

## 17.2.2 Biodiversity

### Biodiversity, and Ornithology

**Construction Phase**

Site activities during the construction phase of the Proposed Project may have the potential to give rise to disturbance and deterioration of habitat to birds and their prey species. An overview of survey data is included in Appendix 7-3 (Summary Data) with detailed maps provided in Appendix 7-4 (Survey Data). Survey data and maps relating to roost sites are provided in Appendix 7-5 (Confidential Survey Data). Potential impacts on Key Ornithological Receptors (KORs) are included in Section 7.5 of Ch. 7: Ornithology. Potential effects during the construction phase range only from imperceptible to slight, negative and long term during the construction phase

**Operational Phase**

A Biodiversity Management and Enhancement Plan (BMEP) is included in this EIAR (see Appendix 6-4). It is proposed to enhance and manage 5.3 ha of peatland habitats, which will involve felling of forestry. It is also proposed to utilise the required bat felling buffers for the proposed turbines for the Kerry slug habitat. The felling of forestry and the planting of native woodland over 0.54 ha next to the substation is also proposed as a biodiversity enhancement measure, as is the planting of hedgerows. The BMEP works will have a positive, slight, direct, permanent likely effect on the land environment which will have a subsequent indirect slight positive long term impact on birds.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

### Biodiversity and Land, Soils & Geology

**Construction Phase**

The removal of forestry and hedgerow and the excavation of peat and spoil during the construction phase of the Proposed Project is likely to result in the disturbance of flora and fauna in and adjacent to the Proposed Project footprint thereby, potentially causing a long term, slight, negative effect on flora and fauna. These potential impacts have been assessed in Ch. 6: Biodiversity of this EIAR, and excavated peat and spoil will be contained on site in the designated peat and spoil management areas or used for landscaping (Appendix 4-2 contains the Peat and Spoil Management Plan).

It is proposed to enhance and manage 5.3 ha of peatland habitats, which will involve felling of forestry and using peat from construction of the Proposed Project. It is also proposed to manage and enhance the necessary bat felling buffers for the Proposed Project for the Kerry slug habitat. The felling of forestry and the planting of native woodland over 0.54 ha next to the substation is also proposed as a biodiversity enhancement measure, as is the planting of hedgerows.

Some of the BMEP proposals outlined in the BMEP (Appendix 6-4) will disturb local peat, soil and subsoil deposits and increase the likelihood of erosion of peat and subsoils. However, due to the largely non-invasive nature of the works the potential for effects on the soils and geological environment are limited.

**Operational Phase**

The BMEP works will have a positive, slight, direct, permanent likely effect on the land environment. Please see Ch. 6: Biodiversity and Appendix 6-4 Biodiversity Management and Enhancement Plan (BMEP) for details.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase to a lesser extent and lesser duration, with the exception of the implementation of the BMEP works which are intended to be permanent.

On this basis, the identified interaction is Not Significant.

### Biodiversity and Hydrology and Hydrogeology

**Construction Phase**

Site activities during the construction phase of the Proposed Project may have the potential to give rise to water pollution, and consequential indirect effects (such as disturbance and deterioration of habitat quality) on flora and fauna that use that water within the same catchment. These potential impacts have been assessed in Ch. 6: Biodiversity and Ch. 9: Hydrology and Hydrogeology and the relevant mitigation measures outlined in these chapters and the CEMP (Appendix 4-3) will be in place to avoid any water pollution and subsequent effect on flora and fauna.

As part of the Proposed Project, enhancement measures (management of 5.3 ha of peatland habitats and planting over 0.54 ha of native woodland) have the potential to impact downstream surface water quality. These works will begin in the pre-construction stage and will have negative, temporary, direct, imperceptible, unlikely effect on surface water quality, aquatic fauna and aquatic habitats.

**Operational Phase**

The potential for increased surface water runoff is the primary potential impact during the operational phase of the Proposed Wind Farm. This is considered to have possible negative effect on biodiversity.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

## Biodiversity and Air Quality

**Construction Phase**

During the construction phase of the Proposed Project, increased vehicular and dust emissions within and around the Site have the potential to be a nuisance to flora and fauna, thereby having a short-term, slight, negative effect. The mitigation measures outlined in Ch. 10: Air Quality and the CEMP (Appendix 4-3) of the EIAR will ensure that the potential for negative effects is reduced or eliminated.

**Operational Phase**

During the operational phase, the potential for effects on biodiversity from vehicular and dust emissions are imperceptible, however the overall displacement of fossil fuel emissions resulting from the operation of the Proposed Project will have a long-term moderate positive effect on air quality for biodiversity.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

## Biodiversity and Climate

**Construction Phase**

The construction of the Proposed Project will result in greenhouse gas emissions associated with tree felling, production of Proposed Project infrastructure and construction materials, and operation of vehicles and plant. As well, the Proposed Project footprint will result in the loss of carbon fixing vegetation within the Proposed Wind Farm site. The impact on biodiversity will be negative and slight only given the quantity of greenhouse gases that will be emitted to the atmosphere and will be restricted to the duration of the construction phase. However, once emitted to the atmosphere, the greenhouse gas emissions that will arise from construction phase activities will have a permanent imperceptible, negative effect on the climate and therefore biodiversity. This is assessed further in Chapter 11 (Climate) of this EIAR, and mitigation measures are presented to minimise any potential effects.

**Operational Phase**

During operational phase, the Proposed Project will displace carbon dioxide from fossil fuel-based electricity generation, over the proposed 35-year operational lifespan due to the provision of clean renewable energy to the national grid, consequently, in combination with other renewable energy projects, the Proposed Project will have a long term, moderate positive effect on flora and fauna.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

## Biodiversity and Noise & Vibration

**Construction Phase**

Site activity during the construction phase could give rise to noise that could be a nuisance for fauna, which use the Site. Best practice mitigation measures are included in Ch. 6: Biodiversity and Ch. 12: Noise & Vibration and the CEMP (Appendix 4-3) to minimise the potential negative effect of noise generated during the construction phase on biodiversity. Taking into account the mitigation measures the effect of noise on biodiversity is considered to be negative, slight and short term.

**Operational Phase**

The predicted noise levels associated with the proposed turbines are within best practice noise criteria therefore it is not considered that a significant effect is associated with turbine noise from the Proposed Wind Farm. The limited onsite noise activity generated by the Proposed Project during the operational phase will have a negative, imperceptible and permanent effect on biodiversity.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

## 17.2.3 Ornithology

### Ornithology and Land, Soils & Geology

**Construction Phase**

The removal of hedgerows and soil, during construction phase of the Proposed Project is likely to result in some disturbance of flora and fauna, including birds, in the areas surrounding the Proposed Project works area. During the construction and operational phase, there will be a short-term to long-term, slight, negative effect on birds. The relevant mitigation measures outlined in Ch. 7: Ornithology, Ch. 8: Lands, Soils & Geology and the CEMP (Appendix 4-3) will be in place to avoid any potential significant effect on birds.

**Operational Phase**

A wind farm and associated grid infrastructure is not a recognised source of pollution and so the potential for effects during the operational phase are imperceptible. With the implementation of mitigation and monitoring measures detailed in Section 8.6.3 of Ch. 8: Lands, Soils & Geology and the CEMP (Appendix 4-3), the potential for residual effects associated with soil or ground contamination during the operational phases and subsequent health effects are negative, imperceptible, indirect, long-term, and unlikely.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

### Ornithology and Hydrology and Hydrogeology

**Construction Phase**

Site activities during the construction phase of the Proposed Project may have the potential to give rise to some water pollution, and consequential short term negative effects on birds and their prey species (such as disturbance and deterioration of habitat quality) that use that water within the same catchment. With the implementation of mitigation and monitoring measures outlined in Ch. 7: Ornithology, Ch. 9: Hydrology and Hydrogeology and the CEMP (Appendix 4-3), the effects during the construction an

**Operational Phase**

The potential for increased surface water runoff is the primary potential impact during the operational phase of the Proposed Wind Farm. This is considered to have a possible negative effect on birds.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

### Ornithology and Air Quality

**Construction Phase**

During the construction phase of the Proposed Project, increased vehicular and dust emissions within and around the Site have the potential to be a nuisance to birds, thereby having a short-term, slight, negative effect. The mitigation measures outlined in Ch. 10: Air Quality and the CEMP (Appendix 4-3) of the EIAR will ensure that the potential for negative effects is reduced or eliminated.

**Operational Phase**

During the operational phase, the potential for effects on birds from vehicular and dust emissions are imperceptible, however the overall displacement of fossil fuel emissions resulting from the operation of the Proposed Project will have a long-term moderate positive effect on air quality for biodiversity.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

### Ornithology and Climate

**Construction Phase**

The construction of the Proposed Project will result in greenhouse gas emissions associated with tree felling, production of Proposed Project infrastructure and construction materials, and operation of vehicles and plant. As well, the Proposed Project footprint will result in the loss of carbon fixing vegetation within the Proposed Wind Farm site. This impact on Ornithology' ranges from a negative slight to imperceptible, long term, indirect effect, given the quantity of greenhouse gases that will be emitted to the atmosphere and will be restricted to the duration of the construction phase. Once emitted to the atmosphere, the greenhouse gas emissions that will arise from construction phase activities will have a permanent imperceptible negative effect on Climate.

**Operational Phase**

During operational phase, the Proposed Project will displace carbon dioxide from fossil fuel-based electricity generation, over the proposed 35-year operational lifespan due to the provision of clean renewable energy to the national grid, consequently, in combination with other renewable energy projects, the Proposed Project will have a long term, moderate positive effect on flora and fauna.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

### Ornithology and Noise & Vibration

**Construction Phase**

Site activity during the construction phase could give rise to noise and vibration that could be a nuisance for birds, which use the Site. Best practice mitigation measures are included in Ch. 7: Ornithology and Ch.12: Noise & Vibration and the CEMP (Appendix 4-3) to minimise the potential negative effect of noise generated during the construction phase. Accounting for the mitigation measured mentioned above, the residual effect of noise and vibration during construction on birds is considered to be negative, short term, and not significant.

**Operational Phase**

The limited onsite noise activity generated by the Proposed Project during the operational phase could be a nuisance for birds. Operational noise could have a negative, imperceptible and long term effect on Ornithology.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

## 17.2.4 Land, Soils and Geology

### Land, Soils & Geology, and Hydrology and Hydrogeology

**Construction Phase**

As identified in Ch. 9: Hydrology and Hydrogeology, 44 ha of conifer forestry will be felled to accommodate the Proposed Project, of which approximately 2.2 ha is located inside a 50m watercourse buffer zone. This has the potential to have indirect, negative, temporary, likely effect on surface water. Proven forestry best practice measures to mitigate the risk of releases of sediment have been proposed to ensure that the deforestation activities have no potential impact on the status, ecology or hydro morphology of downstream waters. The residual effect of the Proposed Wind Farm will be negative, imperceptible, indirect, temporary, likely effect on downstream water quality and aquatic habitats.

**Operational Phase**

As identified in Ch. 8: Lands, Soils & Geology of this EIAR, the erosion of soil/subsoil can have the effect of reducing the overall volume of soil/subsoil at the Site, with the potential for some eroded subsoils to reach watercourses, leading to water quality issues such as high turbidity. This has the potential to have a slight short term negative effect on water quality. Mitigation measures to ensure there are not significant, negative effects on water quality are presented in Ch. 8: Lands, Soils & Geology, Ch. 9: Hydrology and Hydrogeology, and the CEMP (Appendix 4-3).

On this basis, the identified interaction is Not Significant.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

### Land, Soils & Geology and Air Quality

**Construction Phase**

The excavation works and transportation of vehicles to/from and around the Site will give rise to dust, which is considered a short-term, slight, negative impact on air quality. Mitigation measures outlined in Chapter 10 (Air Quality) will reduce the potential for negative effects on land, soils, and geology, including includes dust suppression measures which is further outlined in the CEMP (Appendix 4-3).

**Operational Phase**

No anticipated interactive effect.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

### Land, Soils & Geology and Climate

**Construction Phase**

Bogs and peatlands are known to store large amounts of carbon. Due to the waterlogged nature of these habitats, stored carbon is not broken down and released into the atmosphere. The construction of wind farms on bog and peat habitats may affect the natural hydrological regime, thus exposing and drying out the peat and allowing the decomposition of carbon.

**Operation Phase**

No interactive impact anticipated

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

### Land, Soils & Geology and Cultural Heritage

**Construction Phase**

The construction of the Proposed Project will not result in any direct, negative effects on the recorded archaeological, architectural or cultural heritage resource as none of these sites are located within the footprint of the development that require excavations and ground works. However, the removal of peat and spoil during the construction phase is likely to have a permanent, slight, negative effect on any previously unrecorded sub-surface archaeological site and/or artefacts after mitigation is applied. Mitigation measures outlined in Chapter 14 (Cultural Heritage) will reduce the potential for negative effects on unrecorded sites and artefacts during excavations.

**Operation Phase**

During the operational phase, there is no potential for impacts on cultural heritage from a land soils and geology perspective as there will be no groundworks ae excavations associated with this phase.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

## 17.2.5 Air Quality

### Air Quality and Material Assets

**Construction Phase**

The transportation of vehicles to/from and around the Proposed Project during the construction phase will give rise to dust emissions which is considered a short-term, slight, negative impact on air quality. Following implementation of mitigation measures as outlined in Chapter 10 (Air Quality), Chapter 15 (Material Assets) and the CEMP (Appendix 4-3) there will be a short-term, imperceptible, negative effect on air quality due to transportation movements.

On this basis, the identified interaction is Not Significant.

**Operation Phase**

The effects on air quality due to dust emission will be negligible during the operation phase given that there will only be an average of approximately 1 to 2 trips made to the Proposed Wind Farm by car or light goods vehicle per day, with no regular visits required for the Proposed Grid Connection. The effects of the maintenance traffic on air quality will therefore be imperceptible, negative and long term.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

## 17.2.6 Climate

### Climate and Material Assets

**Construction Phase**

The construction of the Proposed Project will result in greenhouse gas emissions associated with tree felling, production of Proposed Project infrastructure and construction materials, and operation of vehicles and plant. As well, the Proposed Project footprint will result in the loss of carbon fixing vegetation within the Proposed Wind Farm site. This negative impact will be negative, imperceptible, and permanent given the quantity of greenhouse gases that will be emitted to the atmosphere and will be restricted to the duration of the construction phase. However, once emitted to the atmosphere, the greenhouse gas emissions that will arise from construction phase activities will have a permanent imperceptible negative effect on Climate and therefore material assets. This is assessed further in Ch. 11: Climate of this EIAR, and mitigation measures are presented to minimise any potential effects.

**Operation Phase**

During the operational phase, the Proposed Project will displace carbon dioxide from fossil fuel-based electricity generation, over the proposed 35-year lifespan of the Proposed Project. Therefore, while there will be greenhouse gas emissions associated with the operation of the Proposed Project, this will be offset by the operation of the Proposed Project which will offset 44,498 tonnes of carbon dioxide per annum or 1,557,430 tonnes over its operational life from traditional carbon-based electricity generation. Subsequently, this will cause a long-term moderate positive effect on Climate as a result of reduced greenhouse gas emissions.

On this basis, the identified interaction is Not Significant.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

## 17.2.7 Landscape and Visual

### Landscape & Visual and Cultural Heritage

**Construction Phase**

The construction activities may potentially cause temporary impacts on the landscape setting of recorded sites and monuments in the wider area through the creation of temporary structures, dust, soil erosion and alterations to drainage. It is considered that the changes in landscape construction phase will have a slight, short-term, negative effect in terms of direct landscape effects.

**Operation Phase**

As described in Ch. 13: Landscape & Visual of this EIAR, the proposed turbines have the potential to change the landscape setting of recorded sites and monuments in the wider area. However, it is concluded in Ch. 13: Landscape and Visual that any potential, indirect, visual effect of the proposed turbines on sites and monuments range from imperceptible to moderate. In reality the effect will be less severe due to natural screening, boundaries, buildings and vegetation, which will alleviate if not remove the impact on setting altogether. Furthermore, some monuments may not be readily visible in the landscape which further ameliorates potential effects on setting. Additionally, many of these monuments are located on private land which are not formally accessible to the public.

**Decommissioning Phase**

Any interactive impact and consequential effect that occurs during the decommissioning phase will be similar to that which occurs during the construction phase, however to a lesser extent and lesser duration

On this basis, the identified interaction is Not Significant.

### 17.2.8 Vulnerability to Natural Disasters

**Construction, Operation and Decommissioning Phase**

As described in Ch. 16: Major Accidents and Natural Disasters, major accidents or natural disasters are hazards which have the potential to affect the Proposed Project and lead to environmental effects both directly and indirectly. These include accidents during construction, operation and decommissioning of the Proposed Project caused by operational failure and/or natural hazards. The assessment of the potential for significant accidents or disasters is conducted in connection with the information that must be included in the EIAR. This includes aspects such as population and human health, biodiversity, ornithology, land and soil, Hydrology and Hydrogeology, air quality, climate, cultural heritage, the landscape and material assets. The risk of a major accident and/or disaster during the construction of the Proposed Project is considered 'low' in accordance with the *'A Framework for Major Emergency Management – A Guide to Regional Risk Assessment*[1] (2024, DoHLGH)

When the above mitigation is implemented, and all mitigation detailed in the EIAR is implemented, the residual effect(s) associated with the construction, operation and decommissioning of the Proposed Project are Not Significant.

## 17.3 Mitigation and Residual Effects

Where any potential interactive negative effects have been identified in the above, a full suite of appropriate mitigation measures has already been included in the relevant sections (Chapters 5 – 16) of the EIAR and are detailed in the CEMP (Appendix 4-3). The implementation of these mitigation measures will reduce or remove the potential for there to be effects. Information on potential residual effects and the significance of effects, is also presented in each relevant chapter. On this basis the effects arising from the identified interactions are Not Significant.

[1] *DoHLGH (2024) A Framework for Major Emergency Management – A Guide to Regional Risk Assessment. Available at: https://assets.gov.ie/static/documents/Guide_to_Regional_Risk_Assessment_September_2024.pdf*