# Environmental Impact Assessment Report (EIAR)

## Ballydermot Wind Farm, Co. Offaly & Co. Kildare

### Ch 17 - Major Accidents and Natural Disasters

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## GLOSSARY OF TERMS

| Term | Definition |
|---|---|
| Catchment Flood Risk Assessment Management | The Catchment Flood Risk Assessment and Management Programme is Ireland's largest-ever national flood study, commissioned by the Office of Public Works to assess 80% of the country's primary flood risk, develop detailed flood management Plans with tailored strategies for 300 communities to meet EU Directive requirements |
| Do Nothing Alternative | The environment of the Project Site and its environs should the Proposed Project not be developed |
| SEVESO Site | Industrial facilities storing potentially dangerous substances in high quantities under the EU SEVESO Directives |

## GLOSSARY OF ACRONYMS

| | |
|---|---|
| AEP | Annual Exceedance Probability |
| AERs | Annual Environmental Reports |
| AIP | Aeronautical Information Publication |
| AMSL | Above mean sea level |
| ATC | Air Traffic Control |
| BnM | Bord na Móna |
| CEMPs | Construction and Environmental Management Plans |
| CFRAM | Catchment Flood Risk and Management |
| COD | Chemical Oxygen Demand |
| COMAH | Control of Major Accidents and Hazards |
| DoD | Department of Defence |
| DoEHLG | Department of the Environment, Heritage and Local Government |
| EIA | Environmental Impact Assessment |
| EIAR | Environmental Impact Assessment Report |
| EPA | Environmental Protection Agency |
| ERP | Emergency Response Plan |
| GNI | Gas Networks Ireland |

| | |
|---|---|
| GPSR | Geotechnical and Peat Stability Report |
| GSI | Geological Survey of Ireland |
| HSE | Health Service Executive |
| IAA | Irish Aviation Authority |
| IEL | Industrial Emissions Licenced |
| IEMA | Institute for Environmental Management and Assessment |
| IFR | Instrument Flight Rules |
| INSN | Irish National Seismic Network |
| IPC | Integrated Pollution Control |
| ISEP | Institute of Sustainability and Environmental Professionals |
| LFTA | Low-flying training area |
| MOA | Military Operating Area |
| mOD | metres above Ordnance Datum |
| NCCs | National Control Centres |
| NIFM | National Indicative Fluvial Flood Mapping |
| NM | Nautical Miles |
| NOTAM | Notice to Airmen |
| NVG | Night Vision Goggles |
| OHL | overhead line |
| OPW | Office of Public Works |
| RMP | Risk Management Plan |
| RSES | Regional Spatial and Economic Strategy |
| RWCS | Reasonable Worst Case Scenario |
| SAR | Search and Rescue |
| SSFRA | Site Specific Flood Risk Assessment |
| VFR | Visual Flight Rules |

# 17. MAJOR ACCIDENTS AND NATURAL DISASTERS

## 17.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) describes the likely significant effects on the environment arising from the vulnerability of the proposed Ballydermot Wind Farm project (the "Proposed Project"), as detailed in Chapter 4: Description of the Proposed Project, to the risk of major accidents and/or natural disasters. It has been completed in accordance with the guidance set out by the Environmental Protection Agency (EPA) in "*Guidelines on Information to be contained in Environmental Impact Assessment Reports"* (EPA, 2022)[1] and the European Commission in relation to Environmental Impact Assessment of Projects (Directive 2011/92/EU, as amended by 2014/52/EU), namely "*Guidance on the preparation of the Environmental Impact Assessment Report"*[2].

The assessment of the vulnerability of the Proposed Project to major accidents and natural disasters, as well as the risk of the Proposed Project itself causing major accidents and/or natural disasters, has been carried out in compliance with the EIA Directive, as amended, which states the need to assess:

> *"The expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or natural disasters which are relevant to the project concerned."*

The objective of this assessment is to ensure that appropriate precautionary actions are taken for those projects,

> *"because of their vulnerability to major accidents and/or natural disasters, are likely to have significant adverse effects on the environment".*

Based on the requirements of the EIA Directive, this chapter seeks to determine:

- The relevant major accidents and/or natural disasters, if any, to which the Proposed Project could be vulnerable;
- The potential for these major accidents and/or natural disasters to result in likely significant adverse environmental effect(s); and
- The measures that are in place, or need to be in place, to prevent or mitigate the likely significant adverse effects of such events on the environment.

As detailed in Section 1.1.1 in Chapter 1: Introduction, for the purposes of this EIAR, the various project components are described and assessed using the following references: 'Proposed Project', 'Proposed Enhancement Areas', 'Proposed Construction Haul Routes', 'Proposed Turbine Delivery Route', 'Project Site', 'Proposed Wind Farm', 'Proposed Turbines', 'Proposed Grid Connection', 'Proposed Onsite Substation' and 'Proposed Offsite Substation'. Please see Section 1.1.1 of this EIAR for further details. A detailed description of the Proposed Project is provided in Chapter 4 of this EIAR.

[1] *EPA, 2022. Guidelines on Information to be contained in Environmental Impact Statements. Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf*
[2] *European Commission, 2017. Guidance on the preparation of Environmental Impact Assessment Reports. Available at: https://op.europa.eu/en/publication-detail/-/publication/2b399830-cb4b-11e7-a5d5-01aa75ed71a1*

## 17.1.1 Statement of Authority

This chapter of the EIAR has been prepared by Ciarán Fitzgerald with input from Lakshmi Priya Mohan, and reviewed by Catherine Johnson, Ellen Costello and Sean Creedon, all of MKO.

Lakshmi is an Environmental Scientist at MKO with over two years of consultancy experience. Lakshmi holds a master's degree in environmental science, a master's degree in Zoology and a bachelor's degree in Zoology. Prior to taking up her position with MKO in March 2026, Lakshmi worked as an Environmental Consultant in DNV, Ireland. Lakshmi has excellent report writing and research skills, experienced Production of EIARs, Construction and Environmental Management Plans (CEMPs), EIA Screenings, SEA Screening, GIS map outputs across various large infrastructure developments and land infill projects in Ireland.

Ciarán Fitzgerald is an Environmental Scientist who has been working with MKO since June 2024. Ciarán holds a B.Sc. (Honours) in Marine Science from the National University of Ireland Galway and a First-Class Honours PG. Dip in Geographic Information Systems from University College Cork. Ciarán works as part of the Environmental Renewables team as well as a larger multidisciplinary team. Ciarán's role involves undertaking tasks such as report writing, EIAR chapter writing, and QGIS mapping. Prior to joining MKO, Ciarán spent time aboard the research vessel "Celtic Explorer," working as part of a team undertaking chemical water data, pelagic species abundance and sorting, bathymetric GIS mapping, data collection, and report writing. Ciarán's key strengths lie in GIS mapping and communication. Since joining the company, Ciarán has been involved in a range of projects, including onshore wind, offshore wind, and solar, contributing by reviewing EIAR chapters and assisting with project development. Ciarán holds a membership from the Institute of Sustainability and Environmental Professionals (ISEP).

Catherine is a Project Environmental Scientist at MKO with over four years of consultancy experience in climate, renewable energy, and sustainability. Catherine possesses skills in mapping and design, which complement her experience in preparing comprehensive reports for EIAs. Catherine holds a BSc in Earth and Ocean Science and a LLM in Global Environment and Climate Change Law. Catherine has been involved in a myriad of environmental service offerings at MKO including EIA Screenings and Reports, climate and sustainability related work and renewable energy infrastructure projects, including both onshore and offshore wind energy developments.

Ellen Costello is a Senior Environmental Scientist with MKO with over six years' experience in private consultancy. Ellen holds a BSc (Hons) in Earth Science, and a MSc (Hons) in Climate Change: Integrated Environmental and Social Science Aspects where she focused her studies on renewable energy development in Europe and its implications on environment and society. Ellen's key strengths and expertise are Environmental Protection and Management, Environmental Impact Statements, Project Management, and GIS Mapping and Modelling. Since joining MKO, Ellen has been involved in a range of renewable energy infrastructure projects. In her role as a senior project manager, Ellen works with and co-ordinates large multidisciplinary teams including members from MKO's Environmental, Planning, Ecological and Ornithological departments.

This report has been reviewed by Sean Creedon (B.Sc., M.Sc.). Sean has twenty-three years' experience in planning and environmental impact elements within all stages of wind farm project delivery.

## 17.1.2 Study Area

In order to assess the potential effects arising from the Proposed Project on major accidents and natural disaster, the "**Major Accidents Study Area**" is defined to the spatial scope of the Major Emergency Plan

prepared by Offaly County Council (2019)[3] and the Major Emergency Plan prepared by Kildare County Council (2022)[4], which provides the strategic framework for emergency response and identify potential major emergency scenarios applicable each county and therefore to the study area. The Major Accidents Study Area is located within Co. Kildare and Co. Offaly. All aspects of the Proposed Project, i.e., the Proposed Wind Farm, Proposed Grid Connection, Proposed Enhancement Areas, Proposed Construction Haul Routes and Proposed Turbine Delivery Route, are considered within the Major Accidents Study Area, with the assessment further informed by the discipline-specific study areas established for the relevant EIAR disciplines.

The Proposed Turbine Delivery Route will exit off the motorway within Co. Westmeath (i.e., Junction 5 (Tullamore/Kilbeggan)) and traverse south on the N52 for approximately 1.7km before entering Co. Offaly. Additionally, 1 no. quarry and associated 800m of the Proposed Construction Haul Routes to the Project Site is located in Co. Westmeath. The European Communities Control of Major Accident Hazards Involving Dangerous Substance Regulations, 2000, applies to sites known as 'SEVESO sites', where certain quantities of specified dangerous substances are present. There is 1 no. lower tier SEVESO site located in Co. Westmeath (19.8km northwest from the Project Site). As no works are being proposed within Co. Westmeath for either the Proposed Construction Haul Routes or the Proposed Turbine Delivery Route, there is no potential for the Proposed Project to impact on this SEVESO site. Therefore, Co. Westmeath has been screened out of the Major Accidents Study Area for the purposes of the assessment.

Accordingly, consideration is given to the spatial extents and effects pathways defined in the following chapters, where relevant to major accidents and natural disaster outcomes:

- Chapter 5: Population and Human Health for effects on population and human health;
- Chapter 8: Land, Soils and Geology for effects on soil and ground contamination;
- Chapter 9: Water for effects on water quality;
- Chapter 10: Air Quality for effects from dust and exhaust emissions;
- Chapter 11: Climate for effects from greenhouse gas emissions;
- Chapter 12: Noise and Vibration for effects from noise and vibration;
- Chapter 13: Landscape and Visual for effects on visual amenity, landscape character, and tourism
- Chapter 15: Material Assets for effects on telecommunications as well as traffic and transport; and
- Chapter 16: Aviation for effects on aviation.

The major accidents and natural disaster assessment presented in Sections 17.4.1.2, 17.4.1.3 and 17.4.1.4 for the construction, operational and decommissioning phase respectively, integrates the results of these assessments to identify and evaluate potential effects on major accidents and natural disaster arising from the Proposed Project.

Figure 17-1 below identifies the Major Accidents Study Area for the Proposed Project.

[3] *Offaly County Council, 2019. Major Emergency Plan. Available at:* https://www.offaly.ie/app/uploads/Council/Council_Services_A-Z/Emergency_Services/Offaly-County-Major-Emergency-Plan-2019-1.pdf

[4] *Kildare County Council, 2022. Major Emergency Plan. Available at:* https://kildarecoco.ie/AllServices/FireService/MajorEmergencyManagement/MajorEmergencyPlanResources/KCC%20Major%20Emergency%20Plan.pdf

600000 650000 700000

750000

700000

N

Co. Westmeath

Co. Meath

Co. Offaly

Co. Kildare

Co. Laois

IRELAND

Mullingar

Tullamore

Portlaoise

Naas

Athy

Carlow

Wicklow

Meath

Westmeath

Offaly

N55 N61 N52 M3 M6 R148 M4 N7 N62 N80 E20 M9 N81 R756 N77 R747 N78 E201 R502

485 m 527 m 480 m 849 m 925 m

0 5 10 20 30 40

Kilometers

## Legend

- Project Site
- Proposed Construction Haul Routes
- Proposed Turbine Delivery Route
- Major Accidents Study Area
- County Boundaries

Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

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SITE LOCATION - NOT TO SCALE

Drawing Title
Major Accidents Study Area

Project Title
Ballydermot Wind Farm
Co. Offaly & Co. Kildare

| Project No. | Drawing No. | Scale |
|---|---|---|
| 250708 | 17-1 | 1:600,000 |
| Drawn By | Checked By | Date |
| LPM | EC | 16/09/2026 |

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## 17.1.3 Scoping and Consultation

Section 2.8 of Chapter 2: Background to the Proposed Project of this EIAR describes the scoping and consultation exercise undertaken for the Proposed Project. General scoping was initially conducted in May 2021. Further general scoping was conducted in December 2025 due to time elapsed from when previous scoping was carried out, updates in local and national policy and legislation, updates in relevant EIAR guidance, changes in the environmental baseline and refinement of the Proposed Project layout and design.

Copies of all scoping responses are included in Appendix 2-1 of this EIAR. The recommendations of the consultees have informed the EIAR preparation process and the contents of this chapter. Table 2-4 in Chapter 2 of this EIAR describes where the comments raised in the scoping responses received have been addressed in this assessment. Table 17-1 provides a list of the organisations consulted with regard to Major Accidents and Natural Disaster during the scoping process, and notes where scoping responses were received are detailed below.

*Table 17-1 Scoping Responses*

| Consultee | Date of Response 2021 | Date of Response 2025 |
|---|---|---|
| An Garda Síochána | Not included in 2021 Scoping | 14th April 2026 |
| Health Service Executive | 12th February 2021 | 29th January 2026 |
| Department of Defence | Acknowledgment email on 2nd February 2021 and formal response on 1st March 2021 | Response received on 30th December 2025.<br>Meeting held on 19th May 2026.<br>Please see Section 2.9.4.4 of Chapter 2 for further details. |
| EirGrid | Not included in 2021 Scoping | 4th December 2025 with initial feedback, followed by meeting on 16th December 2025. |
| Úisce Éireann | No Response Received | Acknowledgment email on 13th January 2026<br>Email from Data Requests on 14th April 2026<br>Final email on 21st April 2026 |

### An Garda Síochána

An Garda Síochána were not included to the initial scoping exercise issued in 2021. When contacted in December 2025, An Garda Síochána provided a response on 14th April 2026. An Garda Síochána acknowledged the receipt of submission and mentioned Offaly Gardai have no submissions to offer.

### Health Service Executive

Scoping responses were received from National Environmental Health Service Executive (HSE) on 12th February 2021, 22nd March 2021 and 29th January 2026. In both responses the HSE stated that the EIAR should examine all likely significant impacts and provide the following information for each:

- Description of the receiving environment;
- The nature and scale of the impact;
- An assessment of the significance of the impact;
- Proposed mitigation measures;
- Residual impacts.

In addition to any likely significant negative effects from the Proposed Project, any positive likely significant impacts should also be assessed.

Impacts from Major Accidents and Natural Disaster are assessed in Section 17.4.

### Department of Defence

Scoping responses were received from Department of Defence (DoD) on 1st March 2021 and 30th December 2025.

The DoD identified in 2025 response that a matter of practice, it does not provide observations or advice in the scoping process, except where the relevant parties have been directed by a planning authority to seek the Department's views.

Having consulted with our Air Corps colleagues, The DoD provided the following observations in 2021:

- The proposed development lies on lands underlying military airspace EI-R16 and MOA 4 within the 20 nautical miles (NM) area of Casement Aerodrome that is protected against tall structures. At its nearest, the wind farm boundary is 16NM from Casement Aerodrome. The approximate centre point is 19.5NM from Casement Aerodrome.
- The proposed development lies within the EI-R16 and Military Operating Area (MOA 4) and the Edenderry/Allenwood/Rathangan Low Flying Training Area. The proposed wind farm would negatively impact Air Corps low level pilot training in the area.
- The routes taken by Air Corps aircraft to multiple training areas in the MOA 4 and MOA 5 pass through the area of the proposed development. The proposed development will reduce aircraft navigability in a large portion the EI-R16 and MOA 4.
- Military and civil aircraft transiting the EI-16 are often instructed by Military Air Traffic Control (ATC) to track underneath the base level of the relevant EI-R16 sector to provide required separation from aircraft above that are flying under Instrument Flight Rules (IFR). This required standard aircraft separation is a minimum of 1000 feet with the base level of restricted airspace above the proposed wind farm at 1500ft above mean sea level (AMSL).
    - The proposed wind farm may impact the ability of aircraft to transit underneath and clear of military restricted airspace to provide IFR separation to traffic above.
- The Scoping document refers to other wind farms already in the Kildare/Offaly area in support of the development. Conversely the cumulative impact of wind farms will negatively affect navigability for civil and military aircraft operating underneath and in the EI-R16 and MOA's.

Having consulted with the Military authorities, the DoD provided the following observations in 2025:

- A portion of the proposed Ballydermot Wind Farm lies within 20NM of Casement Aerodrome DVOR/DME.
- The proposed development also lies within the Edenderry/Allenwood/Rathangan (Lullymore) Air Corps Low Flying Training Area. The cumulative effect of wind

turbines and meteorological masts will make the area unusable for Irish Air Corps low flying training.
- Development of wind turbines or other tall structures above 45m above ground level within the Edenderry/Allenwood/Rathangan (Lullymore) Air Corps Low Flying Training Area and within 20NM of Casement Aerodrome has the potential to significantly impact on Air Corps flight operations.
- The cumulative effect of renewable energy developments has the potential to impede the Irish Air Corps operability.

A dedicated meeting on the Proposed Project was held with the DoD and the Irish Air Corp on May 19th 2026. Please see Section 2.9.4.4 of Chapter 2: Background to the Proposed Project and Section 16.4.2 of Chapter 16: Aviation for further details on this meeting.

A dedicated aviation impact assessment has been completed and is provided as Chapter 16 to this EIAR. Consideration of major accidents relating to aviation is assessed in Section 17.4 below.

### EirGrid

EirGrid were not included to the initial scoping exercise issued in 2021. When contacted in December 2025, EirGrid provided a response on 4th December 2025. They shared the Engagement Protocol for underground grid connection cables in public roads. A dedicated meeting was conducted on 16th December 2025 to discuss the cumulative effects on disruption due to construction of the proposed uprating of the existing 110 kV OHL between the existing Cushaling 110 kV Substation in the townland of Ballykilleen, Co. Offaly, and the existing Portlaoise 110 kV Substation in the townlands of Clonminam and Kylekiproe, Co. Laois.

Please see Section 2.9.4.5 of Chapter 2: Background to the Proposed Project and Section 15.3.1.3 of Chapter 15: Material Assets for further details on this meeting.

### Uisce Éireann (Irish Water)

Uisce Éireann did not issue a response to the initial documentation issued in 2021. When contacted again in 2025, Uisce Éireann provided a response on 29th January 2026 and issued further detail on 21st April 2026, relating to the sewer network and water network to be considered in the scope of an Environmental Impact Assessment (EIA). Impacts on utilities including Uisce Éireann infrastructure are assessed in Section 15.3.5 of Chapter 15: Material Assets.

## 17.2 Assessment Methodology

### 17.2.1 General

The following sources of information and literature pertinent to the area were used in the preparation of this section:

- Census of Ireland[5];
- Offaly County Council - Major Emergency Plan (Offaly County Council ,2019)[6];
- Offaly County Council Website (Offaly County Council, 2026)[7];
- Offaly County Development Plan 2021-2027 (Offaly County Council, 2021)[8];

[5] *Central Statistics Office* https://www.cso.ie/en/census/
[6] *Offaly County Council Major Emergency Plan, 2019:* https://www.offaly.ie/app/uploads/Council/Council_Services_A-Z/Emergency_Services/Offaly-County-Major-Emergency-Plan-2019.pdf
[7] *Offaly County Council Website:* https://www.offaly.ie/
[8] *Offaly County Development Plan 2021-2027:* https://www.offaly.ie/c/county-development-plan/

- Kildare County Council - Major Emergency Plan (Kildare County Council ,2022)[9];
- Kildare County Council Website (Kildare County Council, 2026)[10];
- Kildare County Development Plan 2023- 2029 (Kildare County Council, 2023)[11];
- Health Service Authority advice for Health and Safety in the Renewable Sector[12] ;
- Rialtas na hÉireann 2024 National Risk Assessment: Overview of Strategic Risks[13];
- Regional Spatial and Economic Strategy (RSES) 2019-2031 (Eastern and Midland Regional Assembly, 2019)[14]; and
- Fáilte Ireland[15].

Major accidents or natural disasters are hazards which have the potential to affect the Proposed Project and consequently have potential impacts on the environment. These include accidents during construction, operation and decommissioning caused by operational failure and/or natural hazards. The assessment of the risk of major accidents and/or disasters considers all factors defined in the EIA Directive that have been considered in this EIAR, i.e., population and human health, biodiversity, land, soils (peat stability), water, air quality, climate, material assets, cultural heritage and the landscape.

## 17.2.2 Legislative Context

An assessment of the following key elements was undertaken in accordance with the EIA Directive (2014/52/EU):

- The vulnerability of the Proposed Project to potential accidents and disasters;
- The Proposed Project's potential to cause major accidents or disasters, which pose a risk to the environment.

The information relevant to major accidents and/or disasters to be included in the EIAR is set out in paragraph 8 of Annex IV of the EIA Directive, as follows:

> *"(8) A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies".*

## 17.2.3 Guidance Documents

In addition to the guidance documents described in Chapter 1 Section 1.2, the following guidance documents have been consulted in the preparation of this section:

[9] *Kildare County Council major Emergency Plan, 2022:* https://kildarecoco.ie/AllServices/FireService/MajorEmergencyManagement/MajorEmergencyPlanResources/KCC%20Major%20Emergency%20Plan.pdf
[10] *Kildare County Council Website:* https://kildarecoco.ie/
[11] *Kildare County Development Plan 2023- 2029:* https://kildarecoco.ie/AllServices/Planning/DevelopmentPlans/KildareCountyDevelopmentPlan2023-2029/
[12] *Health Service Authority advice for Health and Safety in the Renewable Sector* https://www.hsa.ie/eng/your_industry/renewable_energy/
[13] *Rialtas na hÉireann* https://assets.gov.ie/static/documents/national-risk-assessment-2024-overview-of-strategic-risks.pdf
[14] *RSES 2019-2031:* https://www.emra.ie/rses/
[15] *Fáilte Ireland* https://www.failteireland.ie/en

- A Guide to Regional Risk Assessment in Major Emergency Management (Department of Environment, Heritage and Local Government, 2024)[16];
- Department of Housing, Local Government and Heritage (2024*). A Framework for Major Emergency Management – A Guide to Regional Risk Assessment*[17]
- European Commission. (2017). Environmental Impact Assessment of Projects – Guidance on the preparation of Environmental Impact Assessment Reports[18].
- Guidance on Assessing and Costing Environmental Liabilities (Environmental Protection Agency, 2014)[19];
- Health Service Authority Advice for Health and Safety in the Renewable Sector[20];
- National Risk Assessment 2024: Overview of Strategic Risks (Government of Ireland, 2024)[21];
- The Planning System and Flood Risk Management: Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government (DoEHLG), 2009)[22];
- Major Accidents and Disasters in EIA: A Primer (Institute for Environmental Management and Assessment (IEMA), 2020; now the Institute of Sustainability and Environmental Professionals (ISEP))[23]*Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects*' (EPA, 2021)[24]
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Environmental Protection Agency, 2022)[25];
- Offaly County Council Major Emergency Plan (Offaly County Council, 2019)[26]
- Kildare County Council - Major Emergency Plan (Kildare County Council ,2022[27].

### 17.2.4 Categorisation of the Baseline Environment

A desk study has been completed to establish the baseline environment for which the proposed risk assessment is being carried out. This will influence both the likelihood and the impact of a major accident or natural disaster. Local and regional context has been established prior to undertaking the risk assessment to development an understanding of the vulnerability and resilience of the area to emergency situations.

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[16] *A Guide to Regional Risk Assessment in Major Emergency Management (2024):* https://assets.gov.ie/static/documents/Guide_to_Regional_Risk_Assessment_September_2024.pdf

[17] *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

[18] *EC (2017). Environmental Impact Assessment of Projects – Guidance on the preparation of Environmental Impact Assessment Reports. Available at:* https://albertslund.dk/media/4wyitnqv/eu_2017_environmental-impact-assessment-of-projects-guidance-on-the-preparation-of-the-environmental-impact-assessment-repo.pdf

[19] *Guidance on Assessing and Costing Environmental Liabilities (EPA, 2014):* https://www.epa.ie/publications/compliance--enforcement/licensees/reporting/financial-provisions/EPA_OEE-Guidance-and-Assessing-WEB.pdf

[20] *Health and Safety in the Renewable Secor (HSA, 2024):* https://www.hsa.ie/your_industry/renewable_energy/

[21] *Department of the Taoiseach (2024). National Risk Assessment 2024 – Overview of Strategic Risks. Available at:* https://assets.gov.ie/static/documents/national-risk-assessment-2024-overview-of-strategic-risks.pdf

[22] *The Planning System and Flood Risk Management: Guidelines for Planning Authorities (DoEHLG, 2009):* the-planning-system-and-flood-risk-management-guidelines-for-planning-authorities-nov-.pdf

[23] *Major Accidents and Disasters in EIA: A Primer (ISEP, 2020): https://www.isepglobal.org/content/major-accidents-and-disasters-in-eia-an-isep-primer-october-2020/*

[24] *Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects (EPA, 2021):* https://www.epa.ie/publications/circular-economy/resources/CDWasteGuidelines.pdf

[25] *EPA (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.:* https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf

[26] *Offaly County Council, 2019. Major Emergency Plan. Available at:* https://www.offaly.ie/app/uploads/Council/Council_Services_A-Z/Emergency_Services/Offaly-County-Major-Emergency-Plan-2019-1.pdf

[27] *Kildare County Council, 2022. Major Emergency Plan:* https://kildarecoco.ie/AllServices/FireService/MajorEmergencyManagement/MajorEmergencyPlanResources/KCC%20Major%20Emergency%20Plan.pdf

Further detail on the baseline environment is provided in Section 17.3. Please see Section 11.3 of Chapter 11: Climate of the EIAR for further information on the baseline environment and future environment relative to climate change.

## 17.2.5 Impact Assessment Methodology

### 17.2.5.1 Introduction

This assessment is based on an understanding that the Proposed Project will be designed, built and operated in line with the methodologies and measures prescribed in this EIAR.

A wind farm is not a recognised source of pollution. It is not subject to Industrial Emissions Directive regulation or any other EPA environmental regulatory consent. Should a major accident or natural disaster occur, the potential sources of pollution onsite during the construction, operational and decommissioning phases of this type of development are limited and of low environmental risk. Sources of pollution with the potential to cause significant environmental pollution and associated negative effects such as bulk storage of hydrocarbons or chemicals, storage of wastes, management of flammable materials etc. are limited and so there is an inherent low level of environmental risk associated with major accident or natural disaster impacting the Proposed Project and causing environmental damage.

The supporting CEMP (Appendix 4-4) details the environmental management, mitigation and monitoring measures to prevent and minimise impacts of the construction phase of the Proposed Project on environmental receptors such as air and water quality, noise emissions and ecological and archaeological receptors.

Major industrial accidents involving dangerous substances pose a significant threat to humans and the environment; such accidents can give rise to serious injury to people or serious damage to the environment, both on and off the site of the accident. As mentioned in Section 17.1.2, there are no major construction works proposed near to both the lower and upper tier SEVESO sites. Therefore, there are no potential effects from this source. Mitigation and monitoring measures to avoid the resale of fuels and hazardous materials at the Project Site during the construction phase are detailed below in Section 17.4.3, in the CEMP (Appendix 4-4), in Section 9.5.2.4 of Chapter 9: Water, and Chapter 19: Schedule of Mitigation and Monitoring Measures.

The Proposed Project has a low potential to cause natural disasters or major accidents. The Proposed Wind Farm is relatively flat and so there is low risk for peat failure. Elevations within the part of the Project Site located in part of the Allen Bog Group (hereafter referred to as the Proposed Wind Farm site) range between 82 metres above Ordnance Datum (mOD) at its highest point to approximately 68 mOD at its lowest point. Furthermore, Ireland is a geologically stable country with a mild temperate climate. According to the Irish National Seismic Network (INSN), earthquakes measuring approximately 2 on the Richter Scale are “normal” in terms of seismicity in Ireland. These are known as microearthquakes; they are not commonly felt by people and are generally recorded only on local seismographs. As such, buildings or structures in Ireland are extremely unlikely to be damaged or collapse due to seismic activity. Ireland’s geographic position (in particular the Irish Midlands) means that tsunamis, which may pose a risk to developments similar to the Proposed Project in other geographic locations, are of a low likelihood of occurrence, and are less likely to be of a significant magnitude in order to cause an accident or disaster.

The potential natural disasters and/or major accidents that may occur are therefore limited to issues such as flooding, storms, impacts on infrastructure, fire, etc., which are addressed in the sections below.

Current EIA Guidelines, as outlined in Section 17.2.2 above, already include an assessment of some potential accidents and disaster scenarios, such as pollution incidents to ground and watercourses as well as assessment of flooding events and peat instability. These are described in detail in the relevant EIAR assessment chapters (Refer to Chapters 5 to 17 for further detail).

## 17.2.5.2 Site-Specific Risk Assessment Methodology

A site-specific risk assessment identifies and quantifies risks, focusing on unplanned, but possible and plausible events occurring during the construction, operation and decommissioning of the Proposed Project. The approach to identifying and quantifying risks associated with the Proposed Project by means of a site-specific risk assessment is derived from the DoHLGH '*A Framework for Major Emergency Management – A Guide to Regional Risk Assessment'* 2024 document[28], and the EPA '*Guidance on assessing and costing environmental liabilities*' 2014 document[29] with consideration given to the ISEP '*Major Accidents and Disasters in EIA: A Primer (2020)'* document[30]. The following steps were taken as part of the site-specific risk assessment:

- Step 1: Risk identification;
- Step 2: Risk analysis of likelihood and consequence; and
- Step 3: Risk evaluation.

### 17.2.5.2.1 *Step 1: Risk Identification*

Risks have been reviewed through the identification of reasonably foreseeable risks in consultation with the relevant contributors to this EIAR and relevant major emergency response plans (refer to *Statements of Authority* in Chapters 5 to 17 of this EIAR). The identification of risks has focused on non-standard but plausible incidents that could occur at or as a result of the Proposed Project during construction, operation and decommissioning.

In accordance with the European Commission EIAR Guidance[31], risks are identified in respect of these projects:

1. *Potential to cause accidents and/or disasters; and*
2. *Vulnerability to potential disasters and/or accidents*

### 17.2.5.2.2 *Step 2: Risk Analysis of likelihood and consequence*

#### Identify the Reasonable Worst-Case Scenario

The Reasonable Worst-Case Scenario (RWCS) is defined in BS EN 31010:2010 p85/3 (noting that BS EN IEC 31010:2019 has been published) as "*The most serious credible outcomes consequences*" for each risk.

After identifying the potential risks and RWCS, the likelihood of occurrence of each risk has been assessed. An analysis of safety procedures and proposed environment controls was completed when estimating likelihood of identified potential risks occurring. Table 17-2 defines the likelihood criteria that have been applied.

The approach adopted has assumed a 'risk likelihood' where one or more aspects of the likelihood description are met.

[28] *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*
[29] *EPA (2014) Guidance on assessing and costing environmental liabilities. Available at https://www.epa.ie/publications/compliance--enforcement/licensees/reporting/financial-provisions/EPA_OEE-Guidance-and-Assessing-WEB.pdf*
[30] *Major Accidents and Disasters in EIA: A Primer (ISEP, 2020): https://www.isepglobal.org/content/major-accidents-and-disasters-in-eia-an-isep-primer-october-2020/*
[31] *European Commission, 2017. Guidance on the preparation of Environmental Impact Assessment Reports. Available at: https://op.europa.eu/en/publication-detail/-/publication/2b399830-cb4b-11e7-a5d5-01aa75ed71a1*

*Table 17-2 Classification of Likelihood (Source: DoHLGH, 2024)*

| Ranking | Classification | Average Recurrence Interval |
|---|---|---|
| 1 | Extremely Unlikely | 100 or more years between occurrences. |
| 2 | Very Unlikely | 51-100 years between occurrences. |
| 3 | Unlikely | 11-50 years between occurrences. |
| 4 | Likely | 1-10 years between occurrences. |
| 5 | Very Likely | Ongoing /Less than one year between occurrences. |

**Note: statistical [32] estimate of the average period of time between occurrences of an event of given scale*

## Classification of Impact

The impact rating assigned to each risk has been determined on a precautionary basis, assuming that all proposed mitigation measures and/or safety procedures within Section 17.4.3 below have failed to prevent the major accident and/or disaster. The consequence rating assigned in Table 17-3 therefore reflects the potential consequence of the event occurring before reliance is placed on external emergency response arrangements. The Offaly County Council Major Emergency Plan[33] and Kildare County Council Major Emergency Plan[34] are considered as part of the wider emergency preparedness and response context and would assist in reducing the actual consequences of a major accident or disaster, should one occur; however, they have not been used to reduce the impact ratings assigned in this assessment.

The impact of a risk to/from the Proposed Project has been determined where one or more aspects of the consequence of the impact description are met, i.e., risks that have no consequences have been excluded from the assessment. In determination of the consequence rating, the highest score under any of the impact categories (People, Environment, Essential Services or Social) is allocated, not the mean or aggregate.

[32] *Australian National Emergency Risk Assessment Guidelines (2020) Available at: https://knowledge.aidr.org.au/resources/handbook-nationalemergency-risk-assessment-guidelines/*
[33] *Offaly County Council (2019) Major Emergency Plan <https://www.offaly.ie/app/uploads/Council/Council_Services_A-Z/Emergency_Services/Offaly-County-Major-Emergency-Plan-2019-1.pdf>*
[34] *Kildare County Council (2022) Major Emergency Plan https://kildarecoco.ie/AllServices/FireService/MajorEmergencyManagement/MajorEmergencyPlanResources/KCC%20Major%20Emergency%20Plan.pdf*

*Table 17-3 Classification of Impact (Source: DoHLGH, 2024)*

| Impact Category | Correlation to Significance of Effects (EPA, 2022) | People | Environment | Essential Services | Social |
|---|---|---|---|---|---|
| 1 Very Low Impact | Slight | Deaths less than 1 in 250,000 people for population of interest<br><br>OR<br><br>Critical injuries/illness less than 1 in 250,000<br><br>OR<br><br>Serious injuries less than 1 in 100,000<br><br>OR<br><br>Minor injuries only | Simple localised contamination | Very low disruption to the delivery of services essential for the maintenance of vital societal functions or economic activities | Limited disruption to community |
| 2 Low Impact | Moderate | Deaths greater than 1 in 250,000 people for population of interest<br><br>OR<br><br>Critical injuries/illness greater than 1 in 250,000<br><br>OR<br><br>Serious injuries greater than 1 in 100,000 | Simple, regional contamination, effects of short duration | Low disruption to the delivery of services essential for the maintenance of vital societal functions or economic activities | Community functioning with considerable inconvenience |

| Impact Category | Correlation to Significance of Effects (EPA, 2022) | People | Environment | Essential Services | Social |
|---|---|---|---|---|---|
| 3 Moderate Impact | Significant | Deaths greater than 1 in 100,000 people for population of interest<br><br>OR<br><br>Critical injuries/illness greater than 1 in 100,000<br><br>OR<br><br>Serious injuries greater than 1 in 40,000 | Heavy contamination localised effects of extended duration | Medium disruption to the delivery of services essential for the maintenance of vital societal functions or economic activities | Community functioning poorly |
| 4 High Impact | Very Significant | Deaths greater than 1 in 40,000 people for population of interest<br><br>OR<br><br>Critical injuries/illness greater than 1 in 40,000<br>OR<br><br>Serious injuries greater than 1 in 20,000 | Heavy contamination, widespread effects or extended duration | High disruption to the delivery of services essential for the maintenance of vital societal functions or economic activities | Community only partially functioning |
| 5 Very High Impact | Profound | Deaths greater than 1 in 20,000 people for population of interest<br><br>OR<br><br>Critical injuries/illness greater than 1 in 20,000 | Very heavy contamination, widespread effects of extended duration | Loss of delivery of services essential for the maintenance of vital societal functions or economic activities | Community unable to function without support |

#### 17.2.5.2.3 Step 3: Risk Evaluation

Once classified, the likelihood and consequence ratings have been multiplied to establish a 'risk score' to support the evaluation of risks by the means of a risk matrix.

The risk matrix sourced from the DoHLGH (2024) '*A Framework for Major Emergency Management – A Guide to Regional Risk Assessment*' has been amended to align with the EPA (2014) *Guidance on assessing and costing environmental liabilities*' risk matrix (and as outlined in

Table 17-4 below) indicates the critical nature of each risk. This risk matrix has then been applied to evaluate each of the risks associated with the Proposed Project. The risk matrix is colour coded to provide a broad indication of the critical nature of each risk:

- The red zone represents 'high risk scenarios';
- The amber zone represents 'medium risk scenarios'; and
- The green zone represents 'low risk scenarios.'

*Table 17-4 Risk Matrix (Source: EPA, 2014)*

| | | Consequence Rating | | | | |
|---|---|---|---|---|---|---|
| | | 1.Very Low | 2.Low | 3. Moderate | 4. High | 5.Very High |
| Likelihood Rating | 5.Very Likely | | | | | |
| | 4. Likely | | | | | |
| | 3. Unlikely | | | | | |
| | 2. Very Unlikely | | | | | |
| | 1. Extremely Unlikely | | | | | |

# 17.3 Baseline Environment

## 17.3.1 Offaly Major Emergency Plan

The Major Emergency Plan prepared by Offaly County Council (2019)[35] outlines a series of potential major emergency scenarios in County Offaly. The risks that are most relevant to this assessment, and the areas to which they are relevant, are outlined below:

1. **Flooding –** Offaly County Council Functional Areas;
2. **Major Road Traffic Accident –** M6 motorway, National Primary Routes, National Secondary Roads, Regional Roads, Local Roads and Irish Rail;

[35] *Offaly County Council, 2019. Major Emergency Plan. Available at: https://www.offaly.ie/app/uploads/Council/Council_Services_A-Z/Emergency_Services/Offaly-County-Major-Emergency-Plan-2019-1.pdf*

3. **Chemical Incident at Any industrial premises –** The Project Site is not regulated by or connected to any SEVESO sites.
    a. The closest lower tier SEVESO site within Co. Offaly is Synergy Health Ireland Ltd., located approximately 30.5km west of Proposed Turbine T22. Another lower tier SEVESO site within Co. Offaly is West Offaly Power Power Station, Shannonbridge located approximately 63.9km west of the Project Site (i.e., T22).
    b. The closest upper tier SEVESO site within Co. Offaly is William Grant & Sons Irish Brands Ltd located approximately 29.8km southwest of Proposed Turbine T20. The closest upper tier SEVESO to the Project Site is the Intel Ireland Limited in Collinstown Industrial Park, Leixlip, Co. Kildare, located within the Major Accidents Study Area and approximately 18.7km to the northeast of the Proposed Offsite Substation
4. **Major Fire –** Offaly County Council Functional Areas;
5. **Civil disorder at larger events –** Offaly County Council Functional Areas; and
6. **Adverse weather conditions –** Offaly County Council Functional Area.

### 17.3.2 Kildare Major Emergency Plan

The Major Emergency Plan prepared by Kildare County Council (2022)[36] outlines a series of potential major emergency scenarios in County Kildare. The risks that are most relevant to this assessment, and the areas to which they are relevant, are outlined below:

1. **Civil - Major Crowd Safety – Crushing**- Terrorism, Large Crowd Events;
2. **Civil – Utilities – Loss of water** - Bord Gáis Networks, E.S.B. Networks;
3. **Natural – Meteorological – Severe Cold/Snow –** Flooding, Severe Weather, Landslide/ Tsunami;
4. **Technological – Fire – Nursing Home** - Large Fires/Lakes;
5. **Technological – Industrial Incident – Explosion** - Control of Major Accident Hazards (COMAH) Sites, Hazardous Materials Incidents; The closest upper tier SEVESO site to the Project Site is the Intel Ireland Limited in Collinstown Industrial Park, Leixlip, Co. Kildare, located within the Major Accidents Study Area and approximately 18.7km to the northeast of the Proposed Offsite Substation. No lower tier SEVESO sites identified within Co. Kildare.
6. **Transportation – Rail – Collision** - Irish Rail;
7. **Transportation – Road – Motorway Accident**- M4 and M7 motorway, National Primary Routes, National Secondary Roads, Regional Roads, Local Roads.

### 17.3.3 Site Specific Potential Major Emergency Scenarios

In addition to the potential major emergency scenarios identified in the Offaly County Council Major Emergency Plan and Kildare County Council Major Emergency Plan, a number of other potential scenarios are identified of relevance to the Proposed Project. These are described in further detail below:

1. **Contamination Event –** In addition to incidents at SEVESO sites, chemical and other contamination incidents at the Project Site;
2. **Bog Fire –** In addition to major fires relating to accidents and industrial incidents, spontaneous fires at the part of the Project Site located on part of the Allen Bog Group;
3. **Loss of Critical Infrastructure** – At the Project Site; and
4. **Peat Stability –** At the Proposed Wind Farm site.

[36] *Kildare County Council, 2022. Major Emergency Plan: https://kildarecoco.ie/AllServices/FireService/MajorEmergencyManagement/MajorEmergencyPlanResources/KCC%20Major%20Emergency%20Plan.pdf*

5. **Aviation –** Aviation designations at the Proposed Wind Farm site.

## 17.3.4 Baseline Risks to the Proposed Project

The following baseline risks have been identified, considering the Offaly County Council Major Emergency Plan, Kildare County Council Major Emergency Plan and the Project Site specific potential major emergency scenarios.

### 17.3.4.1 Flooding

Chapter 9: Water of this EIAR provides detailed assessment regarding the susceptibility of the Proposed Project to flooding. A flood risk identification study was undertaken in Chapter 9 to identify existing potential flood risks associated with the Proposed Project, with a site-specific flood risk assessment (SSFRA) provided as Appendix 9-1 (assessing the Proposed Wind Farm and Proposed Onsite Substation) and Appendix 9-2 (assessing the Proposed Grid Connection underground electrical cabling route and Proposed Offsite Substation). As detailed in Section 9.3.7.1 of Chapter 9: Water, there are no recurring or historic flood incidents recorded within the Proposed Wind Farm site. However, there are few recurring flood events and a past flood event mapped within the Proposed Wind Farm site. According to the Office of Public Works's (OPW) Past Flood Events Map (www.floodinfo.ie), a recurring flood event is located approximately 1.9km northwest of the Proposed Wind Farm site, i.e., Ticknevin Bog at Blundell Aqueduct (Flood ID: 2785), mapped in a pastoral field along the L1001 Local Road, situated on the norther bank of Grand Canal. This flood event is attributed to the Barrow and its tributaries.

The Proposed Wind Farm site is mapped in National Indicative Fluvial Flood Mapping (NIFM) Fluvial Flood Zones A and B. In terms of the Proposed Wind Farm infrastructure, 6 no. turbine/turbine hardstands (T10, T22, T38, T42, T45 and T46) are mapped in the fluvial flood zones.

The National Catchment Flood Risk and Management (CFRAM)[37] mapping has been completed for the Figile River to the west of the Proposed Wind Farm site and along the Slate River to the south/southeast. More widespread flooding is located along the Figile River to the west but these flood zones are distant from the Proposed Wind Farm site. The accommodation works along the Proposed Turbine Delivery Route are located in the Figile_010 and Figile_020 river sub-catchments and the Figile_030 and Figile_040 WFD river sub-basins. The Proposed Turbine Delivery Route accommodation works are not located in the proximity of any EPA mapped watercourses.

The NIFM (www.floodinfo.ie) shows probabilistic fluvial flood zones for catchments greater than 5km$^2$ for which flood maps were not produced under the CFRAM Programme. For the present-day scenario, low (1,000-year flood event) and medium (100-year flood event) probability fluvial flood zones are recorded along the Figile River and its tributaries in the immediate vicinity of the Proposed Wind Farm site.

The Geological Survey Ireland (GSI) Historical Groundwater flood map and the modelled groundwater flood extents map (www.floodinfo.ie) do not show the occurrence of any groundwater flooding within the site.

There are three types or levels of flood zones defined within the Flood Risk Management Guidelines (DoEHLG, 2009)[38]:

[37] *CFRAM is Catchment Flood Risk Assessment and Management. The national CFRAM programme commenced in Ireland in 2011 and is managed by the OPW. The CFRAM Programme is central to the medium to long-term strategy for the reduction and management of flood risk in Ireland.*
[38] *The Planning System and Flood Risk Management: Guidelines for Planning Authorities (DoEHLG, 2009): the-planning-system-and-flood-risk-management-guidelines-for-planning-authorities-nov-.pdf*

- **Flood Zone A** – where the probability of flooding from rivers and the sea is highest (greater than 1% Annual Exceedance Probability (AEP) or 1 in 100 for river flooding or 0.5% (AEP) or 1 in 200 for coastal flooding);
- **Flood Zone B** – where the probability of flooding from rivers and the sea is moderate (between 0.1% (AEP) or 1 in 1000 and 1% (AEP) or 1 in 100 for river flooding and between 0.1% (AEP) or 1 in 1000 year and 0.5% (AEP) or 1 in 200 for coastal flooding); and,
- **Flood Zone C** – where the probability of flooding from rivers and the sea is low (less than 0.1% (AEP) or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all areas of the plan which are not in zones A or B.

As outlined above, the SSFRA for the Proposed Project has been undertaken, comprising two separate assessments:

- A Site-Specific Flood Risk Assessment (SSFRA) for the Proposed Wind Farm and Proposed Onsite Substation (Appendix 9-1); and
- A SSFRA for the Proposed Grid Connection underground electrical cabling route and Proposed Offsite Substation (Appendix 9-2).

The SSFRA for the Proposed Wind Farm site identifies that the Proposed Onsite Substation, located in the northeast of Lodge Bog, is not mapped in any flood zone from the available flood mapping NIFM, CFRAM, GSI Groundwater flood mapping). The SSFRA states that, as long as the main drains east and west of the Proposed Onsite Substation and the south-eastern outfall drain from Lodge Bog are maintained, there will be positive drainage in this area and the risk of flooding at the Proposed Onsite Substation is negligible.

The SSFRA at the Proposed Offsite Substation was carried out and identified that no instances of historical fluvial flooding were identified from historic OS maps, and no recurring or historic flood events are mapped by the OPW in the local area or immediately downstream of the Proposed Offsite Substation. The GSI Historic Surface Water Flood Map does not record any historic flood zones in the area of the Proposed Offsite Substation.

In relation to the Proposed Grid Connection underground electrical cabling route, due to the relatively small footprint of proposed works and given that the only portions of the route modelled within flood zones are at existing watercourse crossings (approximately 5 no.) or along existing public roads (approximately 350m along the R414), the Proposed Grid Connection underground electrical cable route is predicted to have no impact on flood water levels downstream.

The detailed Flood Risk Assessment for the Project Site, supplied as Appendix 9-1 and Appendix 9-2, has demonstrated that the risk of the Proposed Project contributing to downstream flooding is very low.

A full assessment of flooding has been conducted in Appendix 9-1 and Appendix 9-2 of Chapter 9: Water. Please see Section 5 of the SSFRA (Appendix 9-1 and Appendix 9-2) and Section 9.5 of Chapter 9: Water for information on flood impact prevention and associated mitigation measures.

### 17.3.4.2 Major Road Traffic Accident

As detailed in Section 15.1.13 of Chapter 15: Material Assets, the Proposed Project will utilise the M6 Motorway, N6 National Road and R336 Regional Road from the Port of Galway in order to facilitate the delivery of abnormal indivisible loads to the Project Site. There are no borrow pits proposed as part of the Proposed Project. In order to facilitate the construction of the Proposed Project, all crushed stone, hardcore materials and ready-mix concrete that will be required during the construction phase will be sourced from 9 no. local, appropriately authorised quarries within 20km of the Project Site. Please see Chapter 4: Description of the Proposed Project Section 4.5.2 for further information of construction material delivery.

Galway Port in Galway City is the proposed point of arrival for the large turbine components for the Proposed Wind Farm. The port is a well-established point of arrival for wind turbine components of similar scale into the State on a regular basis, as is the road network between the port and the national road network. For the purposes of this EIAR only the Port of Galway has been considered. Section 15.1.14.5.2 of Chapter 15 details the mitigation measures for the delivery of abnormal sized loads.

For the section of the Proposed Turbine Delivery Route approaching the Project Site from the exit off the M6 junction 5 onto the N52 and towards Site Entrance 1A on the R401, a swept path assessment was undertaken at the locations shown in Figure 15-3 of Chapter 15. The assessment was undertaken in order to establish the locations where the wind turbine transporter vehicles will be accommodated, and the locations where some form of remedial measure may be required.

#### 17.3.4.3 Contamination Event

The European Communities Control of Major Accident Hazards Involving Dangerous Substance Regulations, 2000, applies to sites known as 'SEVESO sites', where certain quantities of specified dangerous substances are present. The Proposed Project is not connected to or in the direct vicinity of any SEVESO Sites.

The closest SEVESO site is the Intel Ireland Limited in Collinstown Industrial Park, Leixlip, Co. Kildare. This upper tier SEVESO site is located approximately 18.7km to the northeast of the Proposed Offsite Substation. The closest lower tier SEVESO site to the Project Site is Castlelost FlexGen Ltd[39] in Rochfordbridge, Co. Westmeath, located approximately 19.8km northwest of the Project Site at its closest point (i.e., T32). The second closest lower tier SEVESO site is Great Northern Distillery[40] in Cloncowan, Kill, Trim, Co, Meath, located approximately 20.1km northeast of the Project Site at its closest point (i.e., T30). As there are no works proposed in both Co. Meath and Co. Westmeath, these two lower SEVESO sites are screened out of the assessment. Overall, there are two lower tier SEVESO sites and two upper tier SEVESO sites present in the Major Accidents Study Area which are detailed in Section 17.3.1 and 17.3.2. Due to distance between the nearest SEVESO sites and the Project Site, the probability of a major emergency at any of these sites having an effect on the Proposed Project, whether during the construction, operational or decommissioning phase, under a precautionary approach, is low.

Peat extraction undertaken under Integrated Pollution Control (IPC) Licence P0503-01 at the Allen Bog Group permanently ceased in June 2020, since then no significant effects on bog hydrogeology have been observed. Prior to cessation, an extensive drainage network had been established and maintained across the Proposed Wind Farm site, resulting in a long-established and stable hydrogeological regime.. Since the cessation of peat extraction in June 2020, activities within the Proposed Wind Farm site include decommissioning, maintenance and environmental monitoring undertaken in accordance with the requirements of IPC Licence P0503-01.

As detailed in Chapter 8 Section 8.3.6, during the site walkover surveys, no areas of contamination concern were identified within the Project Site. Some minor fly-tipping was noted along the edge of access tracks within the Proposed Wind Farm site.

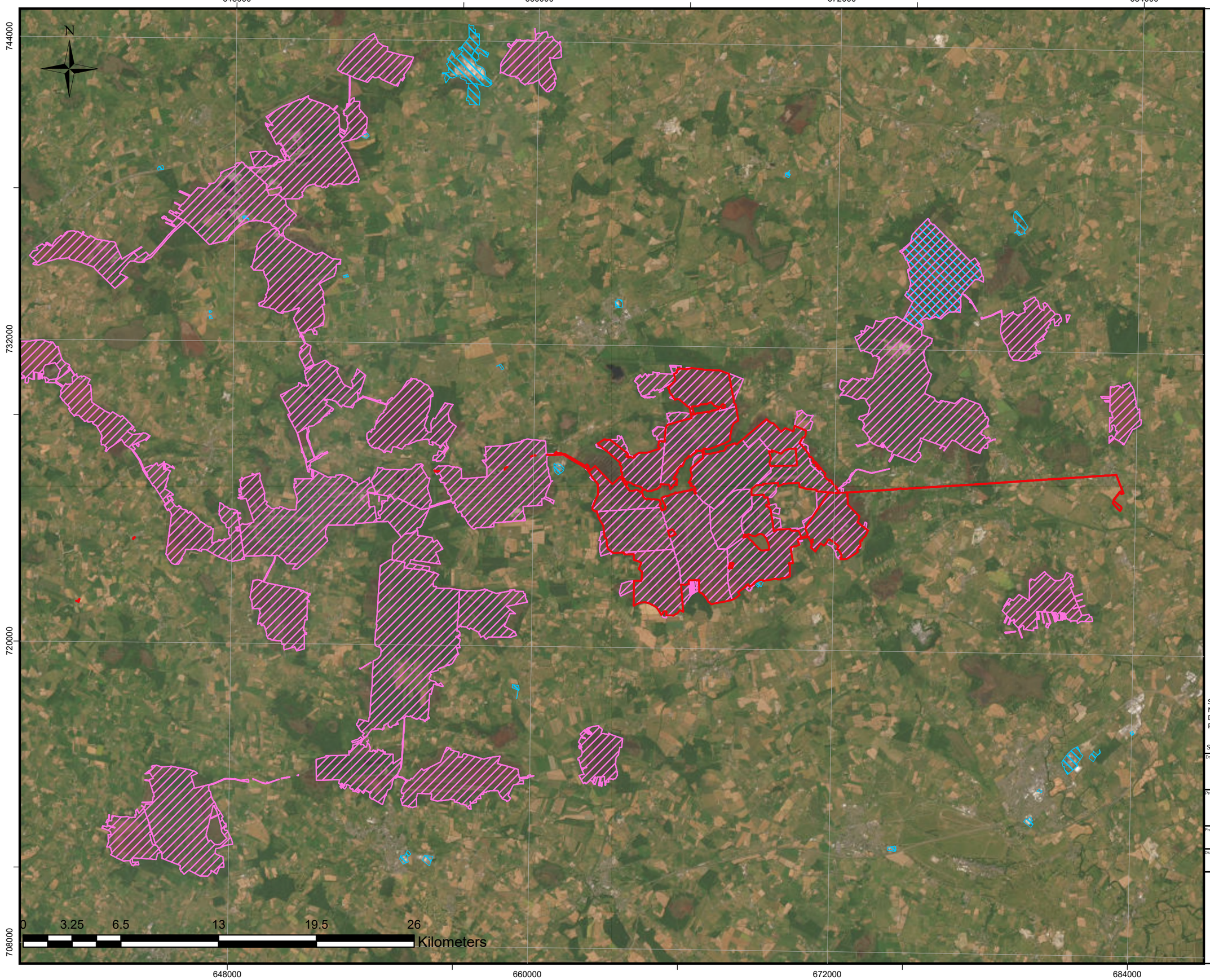
According to the EPA online mapping (www.epa.ie), there are no licenced waste facilities or dump sites within the Project Site. The EPA map several Industrial Emissions Licenced (IEL) facilities and Integrated Pollution Control sites (IPC sites) in the vicinity of the part of the Project Site located on part of the Allen Bog Group. Figure 17-2 below shows the IE and IPC facilities near to the Project Site. The IEL/IPC licenced sites located in the close proximity are JMW Farms (IRL) Limited (IEL Licence No: P0702) located in immediately to the south of Barnaran Bog, Edenderry Power Limited (P0482) located approximately 600m west of the Proposed Wind Farm (Codd South Bog) and Clonbullogue Ash

[39] https://www.hsa.ie/media/sd0dbxqj/1447-castlelost-flexgen-lt.pdf
[40] https://www.hsa.ie/media/r2bf5ors/1406-gnd-cloncowan-ltr25.pdf

Repository (IEL Licence No: P0049) located approximately 3m west of the Proposed Wind Farm (Codd South Bog). IEL licences are also associated with the Drehid Mechanical Biological Treatment Facility (W0283).

BnM was granted an IPC Licence (Ref. P0503-01) for peat extraction activities from the EPA for the Allen Bog Group, in May 1999 for the area encompassing the Proposed Wind Farm site. BnM's statutory duties to discharge the conditions of its IPC Licence remains on-going. These ongoing duties such as environmental monitoring, decommissioning and site management do not facilitate the continuation of peat extraction, but rather ensure compliance with BnM's IPC Licence.

EPA compliance monitoring undertaken under IPC Licence P0503-01 identified a small number of exceedances of the licensed discharge limit for Chemical Oxygen Demand (COD) in wastewater monitoring samples at Glashabaun South bog in 2020 and 2022, and at Codd 1 bog in 2024. Subsequent investigations did not identify a specific contaminant source, and corrective actions were implemented by BnM in response to the exceedances. Annual Environmental Reports (AERs) submitted under the IPC Licence indicate that all storm water monitoring results were compliant with the applicable licence limits during the period 2020 to 2024 inclusive.




# Legend

- Project Site
- IPC Licensed Peat Extraction Boundaries
- IE and IPC Licensed Facilities

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Spatial Reference
Name: WGS 1984 Web Mercator Auxiliary Sphere
Datum: WGS 1984
Projection: Mercator Auxiliary Sphere

SITE LOCATION - NOT TO SCALE

| Drawing Title | | |
|---|---|---|
| IE and IPC Licensed Facilities in and around Project Site | | |
| **Project Title** | | |
| Ballydermot Wind Farm<br>Co. Offaly & Co. Kildare | | |
| Project No. | Drawing No. | Scale |
| 250708 | 17-2 | 1:230,000 |
| Drawn By | Checked By | Date |
| TI | CF | 08/10/2026 |

MKO
Email: info@mkoireland.ie/ Website: www.mkoireland.ie

### 17.3.4.4 Fire

Fire is recognised as a potential hazard within both the Counties Offaly and Kildare Major Emergency Plans, which identify fire-related incidents among the risks requiring emergency preparedness and response arrangements within their respective administrative areas.

Given the nature of the Proposed Project and its location across cutaway peatlands and agricultural lands, major fire risk and bog fire risk have been considered as part of the baseline major accident and natural disaster assessment.

#### 17.3.4.4.1 *Major Fire*

The Major Accident Study Area is located within Counties Offaly and Kildare, where fire-related emergencies are recognised within the Major Emergency Plans prepared by the Principal Response Agencies. Fire incidents may arise from a range of sources including electrical faults, machinery failure, vehicle incidents, agricultural activities, accidental ignition and human activity. Such incidents have the potential to affect people, property, infrastructure and the environment and therefore form part of the baseline major accident profile of the receiving environment.

The Project Site is comprised of cutaway peatland together with existing site access tracks, drainage infrastructure, ancillary site facilities and agricultural lands. Agricultural areas may be susceptible to fire incidents associated with vehicle movements, electrical equipment, fuel storage and vegetation fires during periods of prolonged dry weather.

Based on the existing land uses within the Project Site and surrounding area, the baseline risk of a major fire event is considered to be low.

#### 17.3.4.4.2 *Bog Fire*

The Proposed Wind Farm site is located predominantly on rehabilitating and active cutaway peatlands. Peatlands are recognised as environments that can be susceptible to fire during prolonged periods of dry weather, particularly where dry surface vegetation, exposed peat, human activity or adjacent land uses provide an ignition source. Potential causes of fire within peatland environments include accidental ignition, deliberate ignition, spread from adjoining lands and, in rare cases, autoignition of dry peat materials.

The Proposed Wind Farm site is located on part of the Allen Bog Group, comprising 14 No. bogs. The bogs include: Ticknevin, Glashabaun North, Glashabaun South, Codd 1, Codd 2, Ballydermot North, Ballydermot South, Blackriver, Lullymore, Lullybeg, Barnaran, Killina, Derrybrennan and Lodge.

During the peat extraction at the Proposed Wind Farm site, there was an elevated risk of fire outbreak due to the volume of vehicles and regular use of locomotives across the bogs. However, industrial scale peat extraction and ancillary activities ceased in June 2020 greatly reducing the risk of a fire outbreak when compared to the volume of activity observed during the peat extraction. Since peat extraction ceased in June 2020, all existing stockpiles of peat were removed off the bogs by 2021. As part of Condition 10 attached to BnM's IPC licence (Ref. P0503-01), ongoing site management, environmental monitoring, and decommissioning works are currently being carried out on the Proposed Wind Farm site.

Bog fires occurred within the Proposed Wind Farm site during the historical peat extraction activities. The AERs report 19 no. bog fires occurring on unspecified BnM boglands within the Allen Bog Group (within which the Proposed Wind Farm site is located) in the years 2004, 2005, 2008, 2009, 2011, 2016 and 2020. Sparks from machinery, windy weather and dry weather are cited in some cases as causes of fires. In all cases, the EPA was contacted, and corrective measures were put in place and the fires were

brought under control. No BnM staff were involved in the outbreak of the fires and the fires were contained by BnM staff within the Proposed Wind Farm site. No bog fires were recorded within the Proposed Wind Farm site since June 2020.

As industrial scale peat extraction no longer occurs at the Proposed Project, the potential for human-related fire outbreak (major or bog) at the Project Site has decreased significantly and is considered to be a slight risk.

### 17.3.4.5 Civil Emergencies

The likelihood of a civil emergency occurring at the Project Site is anticipated to be low, as only authorised personnel will be permitted to access the Project Site during construction and decommissioning. During construction of the infrastructure associated with the Proposed Wind Farm, there is a possible risk of contamination of drinking water supplies in the absence of mitigation; all mitigation is detailed in Section 9.5.2 of Chapter 9: Water and Chapter 19: Schedule of Mitigation and Monitoring Measures of this EIAR.

The Proposed Project will utilise the M6 Motorway, as well as the national, regional, and local road network during the construction phase and operational phase to facilitate abnormal load delivery and construction materials to the Project Site. Construction related traffic will originate from the delivery of materials to the Project Site and transport of employees to, from and throughout the Proposed Project.

It is proposed that large wind turbine components will be delivered to the Project Site under Garda escort.

As detailed in Section 15.1 Traffic and Transport in Chapter 15: Material Assets of this EIAR, the localised traffic disruptions as a result of Proposed Grid Connection construction works will be mitigated through the use of industry standard traffic management measures. These traffic management measures will be designed in accordance with the Department of Transport's '*Guidance for the Control and Management of Traffic at Roadworks – Second Edition (2010)*'.

During the operational phase, the Proposed Wind Farm will facilitate amenity access for pedestrians, cyclists and equestrian users. Therefore, major crowd safety and civil disorder at large events (e.g. sports events) are not relevant to the Proposed Project and have not been progressed for assessment in Section 17.2.5.2.1 below. Access to the Project Site will be to authorised personnel and local landowners only during the construction, and decommissioning phases. Access to the Project Site will be open to the public during the operational phase for amenity use as detailed in Appendix 4-2.

### 17.3.4.6 Adverse Weather Conditions

Ireland has a temperate, oceanic climate, resulting in mild winters and cool summers. The dominant influence on Ireland's climate is the Atlantic Ocean and Gulf Stream. Therefore, Ireland does not suffer from the extremes of temperature experienced by many other countries at similar latitude.

Chapter 11: Climate of this EIAR provides a full description of the baseline environment in relation to weather. In terms of adverse weather conditions, in late 2023 and early 2024, Ireland experienced a very active storm season; the country was affected by 13-14 severe storms[41]. In the 2024/2025 storm season there were 6 no. named storms, with Storm Eowyn, occurring in January 2025, reaching hurricane force winds (maximum wind speed recorded as 184km/h). In the 2025/2026 storm season there were 5 no. named storms. At the time of writing there has been 1 no. named storm in the 2026/2027 storm season.[42] These storm events are typically characterised by combinations of strong

[41] *Met Éireann, 2024. Human-caused Climate Change Brings Increased Storm Rainfall. Available at: https://www.met.ie/human-caused-climate-change-brings-increased-storm-rainfall*
[42] *https://www.met.ie/climate/storm-centre*

winds, intense rainfall, and localised flooding, which can act individually or cumulatively to increase the risk of major accidents or natural disasters at and around the Proposed Project. Climate change is impacting weather patterns in the Northern European region with a range of observable effects including increased wind speeds, increased precipitation, more extreme precipitation events, changes in wind direction and seasonal variations[43].

The climate change risk assessments included in the Offaly Local Authority Climate Action Plan[44] and Kildare Local Authority Climate Action Plan[45] detail the major risks posed from climate change, being river flooding, pluvial flooding, severe wind storms, heatwaves, and drought. The changes in frequency in intensity of weather patterns as a result of climate change will continue to influence the wide range of functions caried out by Local Authorities. The identification of future risks is critical to enable the progression of adaptation and mitigation measures in the development and execution of plans and policies. Please see Section 11.3 of Chapter 11: Climate of the EIAR for further information on the baseline environment and future environment relative to climate change (i.e., vulnerability within Ireland to air temperature, precipitation, flood risk, wind and storms).

Please see Section 17.3.4.2 above for further information on potential impacts associated with major road traffic accidents.

### 17.3.4.7 Loss of Critical Infrastructure

EirGrid operates and develops Ireland's electricity grid. This includes interconnecting to neighbouring grids and running the wholesale electricity market. The grid safely brings power from generators such as wind farms to the ESB network that supplies homes and business in Ireland. It also brings power directly to large energy users. EirGrid operates the grid from National Control Centres (NCCs) in Dublin and Belfast, matching electricity production to customer demand, switching from different electricity generators where required to ensure no power outages. Therefore, any technical fault at the Proposed Project is unlikely to significantly impact the local or national electricity supply.

The Proposed Project will connect to the national electricity grid via the Proposed Onsite Substation, which is located in the townland of Allenwood South, Co. Kildare and the Proposed Offsite Substation which is located in the townland of Killybegs, Co. Kildare. The two substations will be connected via 13.1km of underground electrical cabling primarily located in the public road network. Full details of the Proposed Grid Connection are provided in Section 4.4.2 of Chapter 4: Description of the Proposed Project.

### 17.3.4.8 Peat Stability

A comprehensive and robust Geotechnical and Peat Stability Report (GPSR) was undertaken by Fehily Timoney (refer to Appendix 8-1) for the Proposed Project and used to inform the design process including the siting of all proposed main infrastructure locations and drainage control measures. The GPSR was informed by the Scottish Government's 2017 guidance document, "*Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments*". Intrusive ground investigation works were carried out as part of the GPSR included peat depth probing, shear strength testing, stability analysis. The extensive suite of ground investigations, the robust GPSR and the lessons learned from previous peat slide events on similar sites will ensure that the risk of such an event, occurring during the construction, operation or decommissioning of the Project Site is minimised.

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[43] *IPCC, 2021. Climate Change 2021: The Physical Science Basis. Available at: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_FullReport.pdf*
[44] *Offaly County Council, 2023. Climate Change Risk Assessment. Available at: https://www.offaly.ie/app/uploads/KPMG_OffalyCoCo_LACAP_Final-Report_20230202-1.pdf*

[45] *Kildare Local Authority Climate Action Plan: Kildare Climate Action Office, Local Authority Climate Action Plan 2024 to 2029*

The findings of the peat assessment showed that the Project Site has a low risk of peat failure and is suitable for the Proposed Project. The findings include recommendations and control measures for construction work in peat lands, all of which will be implemented in full to ensure that all works adhere to an acceptable standard of safety as identified in Appendix 8-1 and discussed below.

The Proposed Wind Farm site, which is typically flat consists predominantly of bare locally re-vegetated cut-away peat and intact shallow peat. The Proposed Wind Farm site is located on BnM cutover peat bogs, which, have been extensively modified and drained as a result of historical industrial peat extraction. Peat thicknesses recorded during the site walkover and from the ground investigation ranged from 0.1 to 5.8m with an average peat depth of 1.6m. 40% of the probes recorded peat depths of less than 1.0m, with 70% of peat depth probes recorded peat depths of less than 2.0m and 90% of peat depth probes recorded peat depths of less than 3.0m. A number of localised readings recorded peat depths from 3.5 to 5.8m.

The peat stability risk assessment at each infrastructure location identified a number of mitigation/control measures to reduce the potential risk of peat failure. Please see Chapter 8: Land, Soils and Geology and Appendix 8-1: Peat Stability Assessment for more details and mitigation/control measures for each infrastructure element.

#### 17.3.4.9 Aviation

Irish airspace incorporates designated Restricted Areas (EIR zones) and Military Operational Areas (MOAs). These are defined under the Irish Aviation Authority (IAA) (Designated Areas) Orders, where MOAs are restricted areas for Defence Forces training and operations. Civil aircraft may only enter with permission, and activities inside may involve high-energy manoeuvres, low-altitude flight, and military exercises.[46]

As set out in the Chapter 16: Aviation, the Project Site lies within EI-R16C and EI-R16H restricted airspace, military operating area (MOA) 4, and within an Annex A low-flying training area (LFTA) used by the Air Corps for operations in the Edenderry/Allenwood/Rathangan region. These areas are designated by the DoD as locations where military aircraft undertake manoeuvres at low altitude, and where tall structures may create constraints or hazards to Defence Forces aviation activities.

As outlined in Section 16.10.1 of Chapter 16: Aviation, the Proposed Turbines do not penetrate the restricted airspace above it in EI-R16 Section C or Section H. However, the physicality of the Proposed Turbines would create an 'obstacle field' in the airspace below the Restricted Airspace which would require notification to the IAA as well as being subject to lighting regulation.

The Proposed Turbines are located in MOA 4 where Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) flying occurs. For VFR flight, a minimum of 500 feet clearance above an obstacle is required. IFR requires flying 1,000 feet above known recorded obstacles. Combined with the Proposed Turbine heights, VFR and IFR flight in these airspaces would need to be at a minimum of approximately 1,465 feet and 1,965 feet AMSL in order to comply with 'Minimum Heights' regulation. It is determined that a theoretical VFR flight or a IFR flight could pass over the Proposed Turbine in full compliance of Minimum Heights regulation and not be in the Restricted Airspace above.

The draft Air Corps Wind Farm/Tall Structures Position Paper (2014)[47] identifies MOA4 as an area where wind turbines or structures over 45 m above ground level must be referred to the Air Corps for safeguarding review due to potential effects on military training, operational safety and navigational predictability. The Proposed Turbines (up to 220 m tip height) therefore constitute aeronautical obstacles requiring statutory aviation referral. However, the Proposed Turbines are located well outside

[46] S.I. No. 140/2002 - Irish Aviation Authority (Designated Areas) Order, 2002
[47] https://www.pleanala.ie/publicaccess/EIAR-NIS/311565/4.%20EIAR%20Volume%20II/Annex%2013.2%20-%20Air%20Corps%20Position%20Paper.pdf

of any technically safeguarded area and therefore would not impact any of the navigational aids at Casement Aerodrome which is the nearest airport to have such aids.

The Proposed Wind Farm is located within a large portion of an area identified as Edenderry/Allenwood/Rathangan LFTA. Through detailed review and consultation with the DoD, IAA, and Irish Air Corp, it has been established that the Edenderry/Allenwood/Rathangan LFTA has been in use primarily for military training of helicopters below 500ft. The LFTAs are not formally regulated airspaces but have been 'identified' as a result of an internal Air Corps process. The areas are of unknown precise vertical and lateral dimensions and the extent and type of flight within these areas is difficult to ascertain.

The closest international airport is Dublin Airport located approximately 45.3 km northeast of the Project Site at its closest point (T46). The Lowtown Airfield is located approximately 5.7km west of the Project Site at its closest point (T19).

To date, several wind farms have been consented and are operational or under construction within EI-R16 and/or MOA 3 and 4 and the Edenderry/Allenwood/Rathangan LFTA. Notably, the existing Cushaling Wind Farm is located within the Edenderry/Allenwood/Rathangan LFTA and, along with the existing Cloncreen Wind Farm, under EI-R16 and MOA. The existing Cushaling Wind Farm and existing Cloncreen Wind Farm are located adjacent to the Project Site and are 0.7km, and 2.85km away from the nearest Proposed Turbines, respectively.

### 17.3.5 Likely Future Receiving Environment

This section considers the future receiving environment relating to major accidents and natural disaster likely to exist at the Proposed Wind Farm site at the commencement of the construction phase. In accordance with the approach set out in Section 1.8.4 of Chapter 1, the likely future receiving environment has been established having regard to the existing major accidents and natural disaster baseline presented in Section 17.3 and uses observed change over the survey period (i.e., 2020 to 2026) to inform the likely future receiving environment.

The Project Site is located predominantly on former industrial peat extraction lands within the Allen Bog Group. Industrial peat extraction ceased in June 2020. Since then, environmental conditions across these lands have continued to develop through natural revegetation, alongside ongoing site management, decommissioning works and environmental monitoring undertaken in accordance with IPC Licence P0503-01.

Continued natural revegetation, and existing site management, decommissioning works, and environmental monitoring would not establish new industrial activities, hazardous installations, significant transport infrastructure or other developments with the potential to alter the existing risk profile within the Major Accidents Study Area as established in Section 17.3 above.

On this basis, the likely future receiving environment of the Proposed Wind Farm site at the commencement of the construction phase will be a former industrial peat-extraction landscape with a developing but spatially variable cover of natural revegetation, managed and monitored under IPC Licence Reg. No. P0503-01, with the principal hazards identified i.e., flooding, severe weather events, major fire, bog fire, peat instability, major road traffic accident, contamination events, civil emergencies, and aviation, anticipated to remain materially comparable to the existing baseline as established in Section 17.3

The assessment of likely significant effects presented in Section 17.4.1 below has therefore been undertaken against this likely future receiving environment. As the conditions predicted at commencement of construction are materially comparable to those described in the existing major accidents and natural disasters baseline, the information presented in Section 17.3 remains representative of the likely future major accidents and natural disasters receiving environment against which the Proposed Project is assessed.

#### 17.3.5.1 Future Environmental Trends

This section identifies the future environment trends relating to major accidents and natural disasters likely to exist at the Proposed Wind Farm site following implementation targeted rehabilitation within the Draft Rehabilitation Plans throughout the operational phase.

Continued natural revegetation, ongoing site management, decommissioning works, and environmental monitoring, and implementation of the Draft Rehabilitation Plans are not anticipated to establish new industrial activities, hazardous installations, significant transport infrastructure or other developments with the potential to alter the existing risk profile within the Major Accidents Study Area. There is therefore no pathway through which these processes could materially alter future environmental trends relating to major accidents or natural disasters.

Accordingly, notwithstanding the continued natural revegetation, and implementation of the targeted rehabilitation measures, the future trends of the receiving environment for major accidents and natural disasters will remain materially comparable to the conditions described above and do not require separate consideration elsewhere in the major accidents and natural disasters impact assessment.

The continuation of the aforementioned activities in the absence of the Proposed Project is considered in the Do-Nothing Scenario in Section 17.4.1.1 and in the cumulative assessment in Section 17.4.6.

## 17.4 Risk Assessment

This section outlines the possible risks associated with the Proposed Project for the construction, operational and decommissioning phases.

These risks have been assessed in accordance with the relevant classification as outlined in Table 17-2 and Table 17-3.

As outlined in Section 17.2.5.2.2, the consequence rating assigned to each potential risk assumes that all proposed mitigation measures and safety procedures have failed to prevent the major accident and/or disaster.

### 17.4.1 Likely Significant Effects

#### 17.4.1.1 Do-Nothing Scenario

If the Proposed Project were not to proceed, part of the Project Site would continue to be managed under the requirements of the IPC licence (P0503-01) and therefore the ongoing decommissioning activities, site management and environmental monitoring would continue.

The lands required for the Proposed Project not located within lands under IPC License would continue to function as it does at present, with no changes to the current land-use.

As peatland rehabilitation progresses, the rewetting of peat soils and restoration of vegetation cover is anticipated to improve peat stability and reduce the likelihood of bog fire occurrence relative to the baseline environment. Consequently, the Project Site's vulnerability to certain natural disaster and major accident scenarios likely reduce under a Do-Nothing Scenario.

Therefore, under a 'Do-Nothing' scenario, the Proposed Wind Farm site would continue to be managed as per the requirements of the IPC licence as detailed in Chapter 4, Section 4.6.7. These rehabilitation works are mandatory and will proceed irrespective of whether the Proposed Project is permitted, in order to ensure compliance with the IPC Licence.

If the Proposed Project were not to proceed, the opportunity to capture a significant part of County Offaly's, County Kildare's and Ireland's valuable renewable energy resource would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions if the Proposed Project was not to proceed. The opportunity to generate local employment and investment and to diversify the local economy would also be lost.

### 17.4.1.2 Assessment of Effects During Construction

A risk register has been developed which contains all potentially relevant risks identified during the construction phase of the Proposed Project, with consideration of the risks identified in the Major Emergency Plan prepared by Offaly County Council (2019) and the Major Emergency Plan prepared by Kildare County Council (2022). A total of ten risks specific to the construction of the Proposed Project have been identified and are presented in Table 17-5.

*Table 17-5 Risk Register - Construction Phase*

| Risk ID | Potential Risk | Possible Cause |
|---|---|---|
| **Potential vulnerability to disaster risks** | | |
| A | **Adverse Weather Conditions**<br><br>Risk to construction activity on Project Site. | Extreme weather- periods of heavy rainfall, storms, taking into account climate change vulnerability (i.e., increased storm events, air temperature and precipitation). |
| B | **Flooding**<br><br>Risk of high levels of surface water on Project Site impacting the construction phase and leading to environmental emissions (e.g. sediment emissions). | Extreme weather- periods of heavy rainfall, taking into account climate change vulnerability (i.e., precipitation and flood risk). |
| C | **Loss of Critical Infrastructure**<br><br>Risk to delivery of Proposed Turbines and infrastructure to the Proposed site. | Traffic accident during turbine delivery or extreme weather periods of heavy rainfall, taking into account climate change vulnerability (i.e., increased storm events) . |
| **Potential to cause accidents and / or disasters.** | | |
| D | **Major Road Traffic Incident**<br><br>Collisions onsite and offsite with vehicles involved in construction of the Proposed Project.<br><br>Localised Traffic Disruptions.<br><br>Leaks of hazardous materials which are being transported on and used onsite. | Driver negligence or failure of vehicular operations on Proposed Project roads and the public road network.<br><br>Traffic Management Plan not implemented.<br><br>Not following best practice for transporting hazardous materials. |

| Risk ID | Potential Risk | Possible Cause |
|---|---|---|
| E | **Contamination Event**<br><br>Discharge or spillage of fuel, chemical solvents, sewage or wastewater into surface water, groundwater or percolated to groundwater.<br><br>Groundwater and surface water emissions from construction activities.<br><br>Risk of sediment-laden run off reaching the groundwater system | Fuel emissions, leakages and spillages could occur at SEVESO sites nearest to the Proposed Project (Potential Vulnerability to Disaster Risks).<br><br>Accidental fuel spillage during delivery to site. Large spills or leaks have the potential to contaminate subsoils and pollution of the underlying aquifer) on the geological and water environment.<br><br>Failure of fuel storage tank or tanks in plant machinery and vehicles leading to uncontrolled emissions.<br><br>Transport to and use of hazardous materials in the form of hydrocarbons at the Project Site.<br><br>Drainage and seepage water resulting from infrastructure excavation.<br><br>Stockpiled excavated material from the construction phase providing a point source of exposed sediment.<br><br>Erosion of sediment from emplaced site drainage channels.<br><br>Excavation works during the construction of the Proposed Project which may result in entrainment of sediment from the excavations during construction. |
| F | **Major Fire**<br><br>Fires from accidents causing personal injury and structural damage. | Equipment or infrastructure failure.<br><br>Electrical problems.<br><br>Employee negligence. |
| G | **Bog Fire**<br><br>Spontaneous fire or fire spread from adjacent lands. | Lowered water tables.<br><br>Extreme dry weather events.<br><br>Autoignition and human interference |
| H | **Peat Stability**<br><br>Movement of peat within the part of the Project Site located on part of the Allen Bog Group during construction. | Peat instability or failure of excavated peat/material stockpiles during construction.<br><br>Extreme weather conditions. |

| Risk ID | Potential Risk | Possible Cause |
|---|---|---|
| I | **Utility emergencies**<br><br>Risk of construction activity along the Proposed Project | Construction activity along the Proposed Grid Connection underground electrical cabling route and road network impacting on local services and utilities. |
| J | **Aviation**<br><br>Construction activities, including Proposed Turbine erection and use of tall cranes may present a temporary collision risk to low-altitude aviation and military flight operations within MOA4 and EI-R16 (Sectors C and H) restricted airspace. | Project Site lies within restricted airspace EI-R16 (Sectors C and H), MOA4 and within an Annex A low-flying training area used by the Air Corps can lead to collision with Proposed Turbines |

### 17.4.1.3 Assessment of Effect During Operation

A total of nine risks specific to the operation of the Proposed Project have been identified and are presented in Table 17-6.

*Table 17-6 Risk Register – Operational Phase*

| Risk ID | Potential Risk | Possible Cause |
|---|---|---|
| **Potential vulnerability to disaster risks** | | |
| K | **Adverse Weather Conditions**<br><br>Risk to operational activity on site, blade or turbine damage. | Extreme weather- periods of heavy rainfall, storms, taking into account climate change vulnerability (i.e., increased storm events, air temperature and precipitation). |
| L | **Loss of Critical Infrastructure**<br><br>Risk to infrastructure onsite. | Equipment or infrastructure failure.<br><br>Electrical problems.<br><br>Employee negligence.<br><br>Earthquake.<br><br>Extreme weather conditions such as periods of heavy rainfall, storms taking into account climate change vulnerability (i.e., increased storm events). |
| M | **Flooding**<br><br>Risk of high levels of surface water on site impacting the operational phase. | Extreme weather- periods of heavy rainfall, taking into account climate change vulnerability (i.e., increased precipitation and flood risk). |

| Risk ID | Potential Risk | Possible Cause |
|---|---|---|
| Potential to cause accidents and / or disasters. | | |
| N | **Major Road Traffic Incident**<br><br>Collisions onsite and offsite with vehicles involved in the operation of the Proposed Project, and public vehicles visiting the Proposed Wind Farm for amenity use. | Driver negligence or failure of vehicular operations on site roads or surrounding road network. |
| O | **Contamination Event**<br><br>Discharge or spillage of fuel, chemical solvents, sewage or wastewater into groundwater or percolated to groundwater. | Fuel emissions, leakages and spillages could occur at SEVESO sites nearest to the Project Site (Potential Vulnerability to Disaster Risks).<br><br>A vehicular incident on the public road involving fuel, wastewater or sewage transportation in the operational phase.<br><br>Spill or leak of oil/fuel during operational maintenance. |
| P | **Major Fire**<br><br>Fires causing personal injury and structural damage. | Equipment or infrastructure failure.<br><br>Human interference, including inappropriate use of amenity areas by visitors, which could provide a potential ignition source during periods of dry weather.<br><br>Electrical problems.<br><br>Employee negligence. |
| Q | **Bog Fire***<br><br>Spontaneous fire or fire spread from adjacent land. | Low water tables.<br><br>Extreme dry weather events.<br><br>Autoignition and human interference |
| R | **Peat Stability**<br><br>Movement of peat within the part of the Project Site located on part of the Allen Bog Group during operation. | Extreme weather conditions. |
| S | **Aviation**<br><br>Risk of collision with the Proposed Turbines during the operational phase | Project Site lies within restricted airspace EI-R16 (Sectors C and H), MOA4 and within an Annex A LFTA used by the Air Corps can lead to collision with Proposed Turbines |

**During the operational phase, the peatland rehabilitation measures as required under IPC license will be implemented within the Proposed Wind Farm site. These rehabilitation measures comprise the rewetting of the bogs through drainage blocking which will subsequently encourage the recolonisation of bog vegetation at the Proposed Wind Farm site. The restoration of the natural conditions will continue over the lifetime of the operational phase. An indirect benefit of the peatland rehabilitation measures is that the potential for fire outbreak is considerably reduced.*

### 17.4.1.4 Assessment of Effect During Decommissioning

A total of eight risks specific to the decommissioning of the Proposed Project have been identified and are presented in Table 17-7.

*Table 17-7 Risk Register – Decommissioning Phase*

| Risk ID | Potential Risk | Possible Cause |
|---|---|---|
| **Potential vulnerability to disaster risks** | | |
| T | **Adverse Weather Conditions**<br><br>Risk to decommissioning activity on site. | Extreme weather- periods of heavy rainfall, storms taking into account climate change vulnerability (i.e., increased storm events, air temperature and precipitation). |
| U | **Flooding**<br><br>Risk of high-level surface water on site and in areas surrounding the Project Site impacting the decommissioning phase and leading to environmental emissions. | Extreme weather- periods of heavy rainfall, taking into account climate change vulnerability (i.e., precipitation and flood risk). |
| **Potential to cause accidents and / or disasters.** | | |
| V | **Major Road Traffic Incident**<br><br>Collisions onsite and offsite with vehicles involved in the decommissioning of Proposed Wind Farm.<br><br>Localised Traffic Disruptions.<br><br>Leaks of hazardous materials which are being transported on and used on site. | Driver negligence or failure of vehicular operations on site roads.<br><br>Traffic Management Plan not implemented.<br><br>Concurrent decommissioning activities within the Proposed Project.<br><br>Not following best practice for transporting hazardous materials. |
| W | **Contamination Event**<br><br>Discharge or spillage of fuel, chemical solvents, sewage or wastewater into groundwater or percolated to groundwater. | Fuel emissions, leakages and spillages could occur at SEVESO sites nearest to the Proposed Project (Potential Vulnerability to Disaster Risks).<br><br>Accidental fuel spillage during delivery to site.<br><br>Failure of fuel storage tank or tanks in plant and machinery and vehicles.<br><br>Drainage and seepage water resulting from infrastructure excavation. |

| Risk ID | Potential Risk | Possible Cause |
|---|---|---|
| | | Erosion of sediment from emplaced site drainage channels. |
| X | **Major Fire**<br><br>Fires causing personal injury, structural damage and forest fires. | Equipment or infrastructure failure.<br><br>Electrical problems.<br><br>Employee negligence. |
| Y | **Bog Fire***<br><br>Spontaneous fire or fire spread from adjacent land. | Low water tables.<br><br>Extreme dry weather events.<br><br>Autoignition and human interference |
| Z | **Peat Stability**<br><br>Movement of peat within the Proposed Wind Farm during decommissioning. | Extreme weather conditions. |
| AA | **Aviation**<br><br>Decommissioning activities, including Proposed Turbine dismantling, use of tall cranes, and removal of blade and tower components, may present a temporary collision risk to low-altitude aviation and military flight operations within MOA4 and EI-R16 restricted airspace. | Damage to infrastructure.<br><br>Risk to human health (injury or loss of life). |

**The potential for bog fires during the decommissioning phase is considered to be lower than the risk during the construction phase as some infrastructure, e.g., the Proposed Onsite Substation and Proposed Offsite Substation will remain in situ and some elements of the construction phase will not be required to be decommissioned and therefore the associated construction works will not be needed. More specifically, the implementation of the Draft Rehabilitation Plans during the operational phase will result in reduced potential for bog fires during the decommissioning phase. All mitigation measures are outlined below in 17.4.3.2 will be adhered and all best practice measures and monitoring as detailed in the accompanying CEMP (Appendix 4-4) will be implemented.*

## 17.4.2 Risk Assessment Summary

These risks have been assessed in accordance with the relevant classification (Refer to Table 17-2 and Table 17-3) and the resulting risk analysis is given in Table 17-8.

The risk register is based upon possible risks associated the Proposed Project. As outlined in Section 17.2.5, the likelihood of occurrence of each risk incorporates any safety procedures and proposed environment controls. The consequence rating assigned to each potential risk assumes that all proposed mitigation measures and safety procedures have failed to prevent the major accident and/or disaster.

*Table 17-8 Risk Assessment of the Proposed Project*

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| **Construction Phase** | | | | | | | | |
| A | Adverse Weather Conditions | Extreme weather-periods of heavy rainfall, storms taking into account climate change vulnerability (i.e., increased storm events, air temperature and precipitation). | Illness or loss of life.<br><br>Sedimentation of nearby watercourse.<br><br>Damage to, or depletion of aquatic habitats and species. | 3 | The risk of severe weather is unlikely when considering the assessment in Chapter 11: Climate of this EIAR and local weather conditions recorded over the last 30 years.<br><br>Potential impacts that may occur on the identified road networks could be caused by an accident during the delivery of turbines, collisions onsite and offsite with vehicles involved in construction phase of Proposed Project, and damage to critical transport infrastructure caused by extreme weather, i.e., periods of heavy rainfall, taking into account | 1 | The risk of adverse weather conditions during the construction phase will result in a **Very Low Impact** in that a '*very low disruption to the delivery of services essential for the maintenance of vital societal functions or economic activities'* should a severe weather event occur, with 'minor injuries only' or *'serious injuries less than 1 in 100,000'.*<br><br>Severe weather may cause increased mobilisation of sediment or *'simple localised contamination'* which would be limited in extent and duration. | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | climate change vulnerability.<br><br>The works programme for the groundworks part of the construction phase of the Proposed Project, which is laid out in detail in the CEMP, (Appendix 4-4) will take account of weather forecasts and predicted rainfall in particular and construction will be paused if required.<br><br>All construction works will be paused during a Red Weather Warning as issued by Met Éireann and will not recommence until the weather warning has been lifted and it has been deemed safe to do so. | | | |
| B | Flooding | Extreme weather-periods of heavy rainfall, taking into | Illness or loss of life, | 3 | CFRAM mapping shows fluvial flood zones on the Figile | 1 | The risk of flooding during the construction phase will result in a **Very Low Impact**. There will be a *'limited* | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | account climate change vulnerability (i.e., precipitation and flood risk). | Sedimentation of nearby watercourse.<br><br>Damage to, or depletion of aquatic habitats and species. | | River downstream of the Proposed Wind Farm and along the Slate River immediately to the south of the Proposed Wind Farm.<br><br>The National Indicative Fluvial Flood Mapping records the presence of surface water flooding along the Figile River and its tributaries in the area of the Proposed Wind Farm.<br><br>It may be considered that the Proposed Wind Farm and Proposed Offsite Substation can be categorised as "Highly Vulnerable Development".<br><br>Some CFRAM and NIFM fluvial flood zones are mapped along the Proposed | | *disruption to community'* should a severe weather event occur, with *'minor injuries only'*.<br><br>Flooding has the potential to cause increased sediment mobilisation however flooding is not anticipated and should any flooding occur, it would be localised. | |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | Grid Connection underground electrical cable route.<br><br>The Proposed Grid Connection underground electrical cable route is largely located in Flood Zone C.<br><br>The risk of the Proposed Wind Farm contributing to downstream flooding is very low, when taking into account the baseline assessment in Chapter 9: Water of the EIAR. | | | |
| C | Loss of Critical Infrastructure | Traffic accident during turbine and construction material delivery, or extreme weather periods of heavy rainfall, taking into account climate change vulnerability (i.e., increased storm events). | Injury or loss of life.<br><br>Disruption to services. | 1 | The risk of traffic accident during turbine delivery and severe weather conditions impacting the identified road network is extremely unlikely when considering the assessment in Chapter 11: Climate (baseline | 1 | The risk of a traffic accident due to severe weather conditions during the construction phase will result in a **Very Low Impact** in that a '*Very low disruption to the delivery of services essential for the maintenance of vital societal functions or economic activities'* should a severe weather event occur, with '*minor injuries only'*. | 1 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | Construction activity along road network during the Proposed Grid Connection installation impacting on local services and utilities.<br><br>The Proposed Grid Connection, i.e., Proposed Onsite Substation, underground 220kV connection to the Proposed Offsite Substation, and associated overhead line (OHL) connection into the Existing Maynooth-Dunstown 220kV OHL. | | | environment and future environment (Section 11.3)) and Section 15.1.5 – Traffic Assessment (turbine delivery occurring during the night, Garda patrolled, etc.)<br><br>Confirmatory surveys will be carried out by the Contractor to ensure that the Proposed Project is designed to take into consideration any services and utilities with the road network. Therefore, impacts resulting from the Proposed Grid Connection underground electrical cabling route are considered "extremely unlikely". | | | |
| D | Major Road Traffic Incident | Driver negligence or failure of vehicular operations on site roads. | Injury or loss of life. | 3 | The Traffic and Transport section of Chapter 15: Material Assets of this EIAR | 1 | A **Very Low Impact** is predicted. Assuming a vehicular collision occurs, the likely consequences would be limited to those directly involved, with no | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | Traffic Management Plan not implemented.<br><br>Not following best practice for transporting hazardous materials. | | | details traffic movements which relate to the construction phase of the Proposed Project. The Traffic Management Plan included as Appendix 15-2 details proposals for traffic movements entering and leaving the site, and within the internal site access roads.<br><br>Approximately 55.2km of amenity track will be constructed in order to facilitate the Proposed Project. It is proposed to construct 42 no. passing bays along the proposed road network. The proposed new internal roads will be approximately 6m in width, which will reduce the likelihood of a traffic incident or collision occurring | | significant effects on the wider environment, population or essential services. The impact is therefore classified as *'Serious injuries less than 1 in 100,000'* and the impact on essential services is classified as '*Very low disruption to the delivery of services essential for the maintenance of vital societal functions or economic activities'.* | |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | within the Proposed Wind Farm.<br><br>There will also be a speed limit imposed on the internal Proposed Wind Farm Road network, which will also reduce the likelihood and severity of any traffic incident or collision. A limited number of vehicles will be permitted on the site as part of the construction phase.<br><br>As such, it can be determined that there is some 'opportunity, reason or means' for a vehicle collision to occur on site, 'at some time.' An unlikely risk is therefore predicted. | | | |
| E | Contamination Event | Fuel emissions, leakages and spillages could occur at SEVESO sites nearest to the Project Site | Damage to, or depletion of aquatic habitats and species, | 2 | As outlined in Chapter 4: Description of the Proposed Project, fuel will be stored on-site in a bunded area to ensure | 2 | The risk of a fuel spillage is considered as **Low Impact**. There would be '*Simple, regional contamination, effects of short duration'* | 4 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | (Potential Vulnerability to Disaster Risks).<br><br>Fuel spillage during delivery to the Project Site.<br><br>Failure of fuel storage tank or tanks in plant and machinery and vehicles.<br><br>Drainage and seepage water resulting from infrastructure excavation.<br><br>Stockpiled excavated construction material providing a point source of exposed sediment.<br><br>Construction of the Proposed Project internal cable trench resulting in entrainment of | Release of suspended solids to surface watercourses could result in an increase in the suspended sediment load, leading to increased turbidity which in turn could affect the water quality and fish stocks of downstream water bodies.<br><br>Contamination of local drinking water supplies and groundwater aquifers.<br><br>Groundwater and surface water emissions from construction activities.<br><br>Accidental spillage during refuelling. | | containment and prevent spillages of fuel. No fuels, chemicals or solvents will be stored outside of the confines of the Project Site.<br><br>Setback distances from sensitive hydrological features means that adequate room is maintained for the proposed drainage measures as detailed in Chapter 9: Water.<br><br>Therefore, contamination events are very unlikely to occur. | | The majority of the infrastructure associated with the Proposed Grid Connection underground electrical cabling is located in the existing road network which is a low value environmental receptor.<br><br>HDD is planned at 1 no. locations along the Proposed Grid Connection underground electrical cabling route under the Grand Canal.<br><br>Should impacts to drinking water occur as a result of construction activities at the Project Site, a **Low Impact** would occur in that there would be '*Simple, regional contamination, effects of short duration*' on people and environmental receptors due to the nature of the Proposed Project. | |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | sediment from the excavations during construction.<br><br>Erosion of sediment from emplaced site drainage channels. | | | | | | |
| F | Major Fire | Equipment or infrastructure failure.<br><br>Electrical problems.<br><br>Employee negligence. | Injury or loss of life.<br><br>Structural damage.<br><br>Air Pollution.<br><br>Damage to, or depletion of habitats and species.<br><br>Contamination. | 2 | The likelihood of a major fire occurring at the Proposed Project is anticipated to be low due to best practice measures of storing fuel in bunded containers during the construction phase. As outlined in Chapter 4: Description of the Proposed Project, fuel stored onsite during the construction phase of the Proposed Project and will be stored in bunded areas. Therefore, fuel leakage/spillage is considered to be a very unlikely risk.<br><br>In accordance with Chapter 19 of the | 2 | Should a fire/explosion occur at the Project Site, a **Low Impact** would apply in that there would be '*Community functioning with considerable inconvenience'* due to the nature of the Proposed Project and the lack of infrastructure or fuel storage during operation that would result in any such incident. | 4 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | Safety, Health and Welfare at Work Act 2005 (the 2005 Act), the Proposed Project shall be subject to a fire safety risk assessment which would assist in the identification of any major risks of fire on site, and mitigation of the same during operation. | | | |
| G | Bog Fire | Lowered water tables.<br><br>Extreme dry weather events.<br><br>Autoignition and human interference | Illness or loss of life.<br><br>Damage to, or depletion of habitats and species.<br><br>Impacts on ambient air quality. | 3 | Spontaneous bog fires/bog fire spread is unlikely. Peat production has ceased at the Proposed Wind Farm, and all peat stockpiles have been removed. An indirect benefit of the peatland rehabilitation measures (under the Draft Rehabilitation Plans) is the potential for fire outbreak is considerably reduced.<br><br>Best practice measures as detailed in the | 1 | Bog fires caused by autoignition or due to spread from adjacent lands tend to be **Very Low Impact** in nature which would be '*serious injuries less than 1 in 100,000*' and can be contained much more easily than fires caused by explosion.<br><br>Negligible contamination of environment (e.g., watercourses), 'simple localised contamination'. | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | CEMP (Appendix 4-4) will be implemented during the construction phase. | | | |
| H | Peat Stability | Ground disturbance from excavations, earthworks and other construction activities.<br><br>Extreme weather-periods of heavy rainfall, taking into account climate change vulnerability (i.e., increased precipitation).<br><br>Deep peat, subsurface weakness such as karst areas. | Movement of peat within the part of the Project Site located on part of the Allen Bog Group.<br><br>Sedimentation of nearby watercourse.<br><br>Damage to, or depletion of aquatic habitats and species. | 1 | The Proposed Wind Farm is flat in nature and has undergone extensive drainage and peat extraction over an extended period of time with significant volumes of peat being removed from the Proposed Wind Farm site. The Proposed Project has been designed to minimise the potential for peat instability and failure, with peat instability considered extremely unlikely. Refer to Appendix 8-1: GPSR for further detail. | 2 | The risk of peat instability during the construction phase will result in a **Low Impact** in that there would be '*Simple, regional contamination, effects of short duration*'. | 2 |
| I | Utility emergencies | Construction activity along road network during the Proposed Grid Connection | Illness or loss of life;<br><br>Disruption to services | 2 | Confirmatory surveys will be carried out by the Contractor to ensure that the Proposed Project is | 1 | The risk of impact on utilities and services during the construction phase will result in a **Very Low Impact** in that a there would be '*Limited disruption to community*' | 2 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | installation impacting on local services and utilities.<br><br>The Proposed Grid Connection, i.e., Proposed Onsite Substation, underground 220kV connection to the Proposed Offsite Substation, and associated OHL connection into the Existing Maynooth-Dunstown 220kV OHL. | | | designed to take into consideration any services and utilities with the road network. | | | |
| J | Aviation | Construction activities, including Proposed Turbine erection and use of tall cranes may present a temporary collision risk to low-altitude aviation and military flight operations within MOA4 and EI-R16 restricted airspace. | Damage to infrastructure<br><br>Illness or loss of life. | 2 | Consultation will be undertaken with the relevant aviation and defence authorities to confirm turbine locations, heights, and operational parameters. The Proposed Project will be designed to comply with aviation safeguarding requirements, including obstacle | 2 | In the **Low Impact** event of an aviation incident, impacts would be '*low disruption to the delivery of services essential for the maintenance of vital societal functions or economic activities*' should a severe aviation incident occur, with *'serious injuries greater than 1 in 100,000'*, due to adherence to aviation safety and military operational controls. | 4 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | limitation surfaces and lighting specifications, thereby reducing the likelihood of interaction with aviation activities.<br><br>Aviation related details and measures are detailed in Chapter 16: Aviation. | | | |
| **Operational Phase** | | | | | | | | |
| K | Adverse Weather Conditions | Extreme weather-periods of heavy rainfall, taking into account climate change vulnerability (i.e., increased storm events, air temperature and precipitation). | Illness or loss of life.<br><br>Sedimentation of nearby watercourse.<br><br>Damage to, or depletion of aquatic habitats and species. | 3 | The risk of severe weather is unlikely when considering the assessment in Chapter 11: Climate and weather conditions recorded over the last 30 years within the area. | 1 | The risk of severe weather conditions during the operational phase will result in a **Very Low Impact** in that a '*Serious injuries less than 1 in 100,000'* would occur should a severe weather event occur resulting in a '*very low disruption to the delivery of services essential for the maintenance of vital societal functions or economic activities'* | 3 |
| L | Flooding | Extreme weather-periods of heavy rainfall, taking into account climate change vulnerability | Illness or loss of life.<br><br>Sedimentation of nearby watercourse. | 3 | CFRAM mapping shows fluvial flood zones on the Figile River downstream of the Proposed Wind Farm and along the | 1 | The risk of flooding during the operational phase will result in a **Very Low Impact** in that there would be a '*Limited disruption to community'* should a severe weather event occur. With '*Minor injuries only'*. | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | (i.e., precipitation and flood risk). | Damage to, or depletion of aquatic habitats and species. | | Slate River immediately to the south of the Proposed Wind Farm.<br><br>The National Indicative Fluvial Flood Mapping records the presence of surface water flooding along the Figile River and its tributaries in the area of the Proposed Wind Farm.<br><br>It may be considered that the Proposed Wind Farm and Proposed Offsite Substation can be categorised as “Highly Vulnerable Development”.<br><br>Some CFRAM and NIFM fluvial flood zones are mapped along the Proposed Grid Connection underground electrical cable route. During | | | |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | operational phase, flooding could potentially affect the integrity of the buried infrastructure through mechanisms such as erosion, or exposure of the cable at watercourse crossings. However, the cable will be designed and installed in accordance with relevant engineering standards, and therefore the risk of flood-related damage is considered to be low.<br><br>The Proposed Grid Connection underground electrical cable route is largely located in Flood Zone C.<br><br>The risk of the Proposed Wind Farm contributing to downstream flooding is very low, when | | | |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | taking into account the baseline assessment in Chapter 9: Water of the EIAR. | | | |
| M | Loss of Critical Infrastructure | Equipment or infrastructure failure.<br><br>Electrical problems.<br><br>Employee negligence.<br><br>Earthquake.<br><br>Extreme weather conditions such as periods of heavy rainfall, storms taking into account climate change vulnerability (i.e., increased storm events) and strong winds.. | Injury or loss of life. | 1 | EirGrid operates the grid from National Control Centres matching electricity production to customer demand, switching from synchronous to non-synchronous where required to ensure no power outages.<br><br>The Proposed Project will be connected to the Proposed Onsite Substation which in turn will connect to the Proposed Offsite Substation, via underground cabling connection and OHL connecting to the existing Maynooth-Dunstown 220kV OHL. | 2 | The risk of infrastructure collapse during the operational phase will result in a **Low Impact** in that there would be '*Serious injuries greater than 1 in 100,000*' and no real likelihood of any impact on any environmental receptors.<br><br>In the event of an adverse weather event, all stipulations outlined in the Major Emergency Plans for Co. Offaly and Co. Kildare will be followed explicitly. | 2 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | According to the Irish National Seismic Network (INSN), earthquakes measuring approximately 2 on the Richter Scale are "normal" in terms of seismicity in Ireland. These are known as microearthquakes; they are not commonly felt by people and are generally recorded only on local seismographs. As such, structures and infrastructure (e.g. turbines, met mast) in Ireland are extremely unlikely to be damaged or collapse due to seismic activity.<br><br>As outlined in Chapter 11: Climate of this EIAR, due to Ireland's latitudinal position, the probability of extreme | | | |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | weather events posing a threat to human life are low. However, in the circumstance of such a weather event occurring at the Project Site during the operational phase, the Severe Weather Plan as set out in the Offaly County Major Emergency Plan and Kildare County Major Emergency Plan will be followed for restoration of services.<br><br>Having regard to speed limits within the Project Site, it is not predicted that any collision of vehicles and any infrastructure would result in significant damage/collapse. | | | |
| N | Major Road Traffic Incident | Driver negligence or failure of vehicular operations on site roads. | Injury or loss of life. | 3 | The Traffic and Transport section of Chapter 15: Material Assets of these EIAR details traffic | 1 | A **Very Low Impact** is predicted. Having regard to on-site speed limits and vehicular movements, there would be '*Serious injuries less than 1 in 100,000*' should a vehicular collision occur. | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | movements which relate to the operational phase of the Proposed Project.<br><br>Approximately 55.2km of amenity track will be constructed in order to facilitate the Proposed Project. It is proposed to construct 42 no. passing bays along the proposed road network. The proposed new internal roads will be approximately 6m in width, which will reduce the likelihood of a traffic incident or collision occurring within the Proposed Wind Farm.<br><br>Approximately 1 to 2 site staff and approximately 50 amenity users per day will be present on the Project Site as part of the operational phase. | | | |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | As such, it can be determined that there is some 'opportunity, reason or means' for a vehicle collision to occur on site, 'at some time.' An unlikely risk is therefore predicted. | | | |
| O | Contamination Event | Fuel emissions, leakages and spillages could occur at SEVESO sites nearest to the Project Site (Potential Vulnerability to Disaster Risks).<br><br>A vehicular incident on the public road involving fuel, wastewater or sewage transportation in the operational phase. | Illness or loss of life.<br><br>Damage to, or depletion of habitats and species.<br><br>Impacts on ambient air quality. | 2 | As outlined in Section 8.5.3.2, Chapter 8: Land, Soils and Geology, it is not envisioned that fuel will be stored on-site post construction. Therefore, contamination events are very unlikely to occur. | 2 | The risk of a fuel spillage or impact on surrounding drainage during the operational phase will result in a **Low Impact** in that there would be '*Simple, regional contamination, effects of short duration'* with '*Limited disruption to community'*, through the use of bunded containment areas during operation. The potential residual environmental effects are described in detail in Chapter 9: Water which concludes that there will be no significant environmental effects. | 4 |
| P | Major Fire | Equipment or infrastructure failure. | Injury or loss of life.<br><br>Structural damage. | 2 | As outlined in Chapter 4: Description of the Proposed Project, it is not | 2 | Should a fire/explosion occur at the Project Site there would be a **Low Impact** in that there would be '*Community functioning with considerable* | 4 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | Electrical problems.<br><br>Employee negligence.<br><br>Human interference, including inappropriate use of amenity areas by visitors, which could provide a potential ignition source during periods of dry weather. | Air Pollution.<br><br>Damage to, or depletion of habitats and species.<br><br>Contamination. | | envisioned that fuel will be stored on-site post construction. Therefore, the risk of fire due to fuel is considered to be very unlikely.<br><br>In accordance with Chapter 19 of the Safety, Health and Welfare at Work Act 2005 (the 2005 Act), the Proposed Project shall be subject to a fire safety risk assessment which would assist in the identification of any major risks of fire on site.<br><br>Therefore, contamination events are very unlikely to occur. | | *inconvenience'* due to the nature of the Proposed Project and the lack of infrastructure or fuel storage during operation that would result in any such incident.<br><br>As modern turbine blades are composite structures, the risk of injury arising from the malfunction of a turbine is low. Additionally, all turbines are located in excess of 500m from the nearest dwellings in line with the WEDG 2006 and 4 times tip height (i.e., 880m) in line with the Draft WEDGs 2019, again minimising the risk of injury and threat to human life. | |
| Q | Bog Fire | Lowered water tables.<br><br>Extreme dry weather events. | Illness or loss of life.<br><br>Damage to, or depletion of | 3 | Peatland rehabilitation measures in the form of bog rewetting reduces the potential | 1 | The impact by bog fire is considered as **Very Low Impact** with '*serious injuries less than 1 in 100,000'*. | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | Autoignition and human interference | habitats and species.<br><br>Impacts on ambient air quality. | | for bog fires considerably.<br><br>Spontaneous bog fires/bog fire spread is unlikely. An indirect benefit of the peatland rehabilitation measures (under the Draft Rehabilitation Plans) is the potential for fire outbreak is considerably reduced. | | | |
| R | Peat Stability | Extreme weather conditions. | Movement of peat within the part of the Project Site located within part of the Allen Bog Group.<br><br>Sedimentation of nearby watercourse.<br><br>Damage to, or depletion of aquatic habitats and species. | 1 | The Proposed Wind Farm has undergone extensive drainage and peat extraction over an extended period of time and significant volumes of peat have been removed from the Proposed Wind Farm.<br><br>The Proposed Wind Farm is flat in nature and the Proposed Project has been designed to minimise the potential for peat instability and failure, | 2 | The risk of peat instability during the operational phase will result in a **Low Impact** in that there would be '*Simple, regional contamination, effects of short duration'.* | 2 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | with peat instability considered extremely unlikely. Refer to Appendix 8-1: GPSRA for further detail. | | | |
| S | Aviation | The Proposed Turbines may result in collision risk to the low altitude flight, and military operated flight within the MOA4 and EI-R16 restricted airspace. | Damage to infrastructure<br><br>Illness or loss of life. | 2 | The Proposed Project will be designed to comply with aviation safeguarding requirements, including obstacle limitation surfaces and lighting specifications, thereby reducing the likelihood of interaction with aviation activities.<br><br>Aviation related details and measures are detailed in Chapter 16: Aviation. | 2 | In the **Low Impact** event of an aviation incident, impacts would be '*low disruption to the delivery of services essential for the maintenance of vital societal functions or economic activities*' should a severe weather event occur, with '*serious injuries greater than 1 in 100,000*', due to adherence to aviation safety and military operational controls. | 4 |
| **Decommissioning Phase** | | | | | | | | |
| T | Adverse weather conditions | Extreme weather-periods of heavy rainfall, taking into account climate | Illness or loss of life. | 3 | The risk of severe weather is unlikely when considering the assessment in Chapter 11: Climate and | 1 | The risk of severe weather conditions during the decommissioning phase will result in a **Very Low Impact** in that a '*Limited disruption to community*' should | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | change vulnerability. | Sedimentation of nearby watercourse.<br><br>Damage to, or depletion of aquatic habitats and species. | | weather conditions detailed for the future environment (Section 11.3). | | a severe weather event occur, with '*Minor injuries only*'.<br><br>Decommissioning will not require significant excavations works. | |
| U | Flooding | Extreme weather-periods of heavy rainfall, taking into account climate change vulnerability. | Illness or loss of life.<br><br>Sedimentation of nearby watercourse.<br><br>Damage to, or depletion of aquatic habitats and species. | 3 | CFRAM mapping shows fluvial flood zones on the Figile River downstream of the Proposed Wind Farm and along the Slate River immediately to the south of the Proposed Wind Farm.<br><br>The National Indicative Fluvial Flood Mapping records the presence of surface water flooding along the Figile River and its tributaries in the area of the Proposed Wind Farm. | 1 | The risk of flooding during the decommissioning phase will result in a **Very Low Impact** in that a '*Limited disruption to community*' should a severe weather event occur, with '*minor injuries only*'. | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | It may be considered that the Proposed Wind Farm and Proposed Offsite Substation can be categorised as "Highly Vulnerable Development".<br><br>Some CFRAM and NIFM fluvial flood zones are mapped along the Proposed Grid Connection underground electrical cable route. Flooding has the potential to temporarily affect access to infrastructure and decommissioning activities and, under a precautionary scenario, could result in erosion of exposed ground. However, the majority of the Proposed Grid Connection underground electrical cabling route is located within Flood | | | |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | Zone C and the risk of significant damage to infrastructure remains low.<br><br>The risk of the Proposed Wind Farm contributing to downstream flooding is very low, when taking into account the baseline assessment in Chapter 9: Water of the EIAR. | | | |
| V | Major Road Traffic Incident | Driver negligence or failure of vehicular operations on site roads.<br><br>Traffic Management Plan not implemented.<br><br>Result of other proposed works.<br><br>Not following best practice for | Injury or loss of life. | 3 | The Traffic Management Plan included as Appendix 15-2 details proposals for traffic movements entering and leaving the Project Site, and within the internal site access roads.<br><br>The Proposed Project includes 55.2km of amenity track which includes 13.4km of a new dedicated internal | 1 | A **Very Low Impact** is predicted. Should a vehicular collision occur, there is potential for minor damage to vehicles or infrastructure and a low risk of injury to site users there is a risk of '*serious injuries less than 1 in 100,000*' should a vehicular collision occur.' | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | transporting hazardous materials. | | | amenity access track and 40km of proposed internal site access road that will be available for the purposes of amenity. It is proposed to construct 42 no. passing bays along the proposed road network. The proposed new internal roads will be approximately 6m in width, which will reduce the likelihood of a traffic incident or collision occurring within the Proposed Wind Farm.<br><br>There will also be a speed limit imposed on the internal Proposed Wind Farm internal road network, which will also reduce the likelihood of any traffic incident or collision. A limited number of vehicles will be permitted on the site as part of the | | | |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | decommissioning phase.<br><br>As such, it can be determined that there is some 'opportunity, reason or means' for a vehicle collision to occur on Project Site, 'at some time.' The risk of vehicle collision is therefore considered to be unlikely. | | | |
| W | Contamination Event | Fuel emissions, leakages and spillages could occur at SEVESO sites nearest to the Proposed Project (Potential Vulnerability to Disaster Risks).<br><br>Accidental fuel spillage during delivery to site.<br><br>Failure of fuel storage tank or tanks in plant and | Injury or loss of life. | 2 | As outlined in Chapter 4: Description of the Proposed Project, fuel will be stored on-site but in a bunded area to ensure containment and prevent spillages of fuel. No fuels, chemicals or solvents will be stored outside of the confines of the site.<br><br>Setback distances from sensitive hydrological features means that adequate | 2 | The risk of a fuel spillage or impact on surrounding drainage during the decommissioning pahse will result in a **Low Impact** in that there would be '*Simple, regional contamination, effects of short duration'* through the use of bunded containment areas during decommissioning. The potential residual environmental effects are described in detail in Chapter 9: Water which concludes that there will be no significant environmental effects<br><br>Should impacts to drinking water occur as a result of decommissioning activities at the Project Site, the consequence would be a **Low Impact**, characterised by *'limited disruption to community'* and | 4 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | machinery and vehicles.<br><br>Erosion of sediment from emplaced site drainage channels. | | | room is maintained for the proposed drainage measures as detailed in Chapter 9: Water.<br><br>Therefore, contamination events are very unlikely to occur. | | *'simple localised contamination'*, reflecting the localised and short-term nature of the potential effect on drinking water receptors. | |
| X | Major Fire | Equipment or infrastructure failure,<br><br>Electrical problems,<br><br>Employee negligence,<br><br>Extreme dry weather events. | Injury or loss of life.<br><br>Structural damage.<br><br>Air pollution.<br><br>Damage to, or depletion of habitats and species.<br><br>Contamination. | 2 | As outlined in Chapter 4: Description of the Proposed Project, fuel stored onsite during the decommissioning phase of the Proposed Project will be stored in bunded areas. Therefore, fuel leakage/spillage is considered to be a very unlikely risk.<br><br>In accordance with Chapter 19 of the Safety, Health and Welfare at Work Act 2005 (the 2005 Act), the Proposed Project shall be subject to a | 2 | Should a fire/explosion occur at the Project Site there would be a **Low Impact** in that there would be '*Community functioning with considerable inconvenience'* due to the nature of the Proposed Project and the lack of infrastructure or fuel storage during decommissioning that would result in any such incident. | 4 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | fire safety risk assessment which would assist in the identification of any major risks of fire on site, and mitigation of the same during decommissioning. | | | |
| Y | Bog Fire | Lowered water tables.<br><br>Extreme dry weather events.<br><br>Autoignition and human interference | Illness or loss of life.<br><br>Damage to, or depletion of habitats and species.<br><br>Impacts on ambient air quality. | 3 | Peatland rehabilitation measures in the form of bog rewetting reduce the potential for bog fires considerably.<br><br>Spontaneous bog fires/bog fire spread is unlikely. An indirect benefit of the peatland rehabilitation measures (under the Draft Rehabilitation Plans) is the potential for fire outbreak is considerably reduced.<br><br>Best Practice measures as detailed in the CEMP will be implemented during | 1 | Bog fires caused by autoignition or due to spread from adjacent lands tend to have **Very Low Impact** in nature and can be contained much more easily than fires caused by explosion.<br><br>The Impact will be '*minor injuries only*' and it will be '*simple localised contamination.* | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | the decommissioning phase. | | | |
| Z | Peat Stability | Mismanagement of excavated material on site,<br><br>Extreme weather conditions. | Movement of peat within the part of the Project Site located on part of the Allen Bog Group.<br><br>Sedimentation of nearby watercourse.<br><br>Damage to, or depletion of aquatic habitats and species. | 1 | The Proposed Project has been designed to minimise the potential for peat instability and failure, with peat instability considered extremely unlikely. Refer to Appendix 8-1: GPSRA for further detail. | 2 | The risk of peat instability during the decommissioning phase will result in a **Low Impact** in that there would be '*serious injuries greater than 1 in 100,000*' with '*simple, regional contamination, effects of short duration*'. | 2 |
| AA | Aviation | Decommissioning activities, including turbine dismantling, use of tall cranes, and removal of blade and tower components, may present a temporary collision risk to low-altitude aviation and military flight operations within the MOA. | Damage to infrastructure<br><br>Illness or loss of life. | 1 | Decommissioning works will be temporary and managed in consultation with the relevant aviation and defence authorities. Activities will be subject to aviation safeguarding procedures, including notification of works, height controls for | 2 | In the **Low Impact** event of an aviation incident, impacts would be '*low disruption to the delivery of services essential for the maintenance of vital societal functions or economic activities*' should a severe weather event occur, with '*serious injuries greater than 1 in 100,000*', due to adherence to aviation safety and military operational controls. | 2 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Impact Rating | Basis of Impact | Risk Score (Impact x Likelihood) |
|---|---|---|---|---|---|---|---|---|
| | | | | | cranes, and adherence to agreed operational restrictions, thereby reducing the likelihood of interaction with aviation activities. | | | |

The risk assessment for each of the potential risks identified are consolidated in Table 17-9 which provides their risk score. A corresponding risk matrix is provided in Table 17-10, which is colour coded in order to provide an indication of the critical nature of each risk. As outlined in Section 17.2.5.2.2 the red zone represents 'high risk' scenarios, the amber zone represents 'medium risk' scenarios and the green zone represents 'low risk' scenarios.

*Table 17-9 Risk Scores*

| Risk ID | Potential Risk | Likelihood Rating | Consequence Rating | Risk Score |
|---|---|---|---|---|
| **Construction Phase** | | | | |
| A | Adverse Weather Conditions | 3 | 1 | 3 |
| B | Flooding | 3 | 1 | 3 |
| C | Loss of Critical Infrastructure | 1 | 1 | 1 |
| D | Major Road Traffic Incident | 3 | 1 | 3 |
| E | Contamination Event | 2 | 2 | 4 |
| F | Major Fire | 2 | 2 | 4 |
| G | Bog Fire | 3 | 1 | 3 |
| H | Peat Stability | 1 | 2 | 2 |
| I | Utility emergencies | 2 | 1 | 2 |
| J | Aviation | 2 | 2 | 4 |
| **Operational Phase** | | | | |
| K | Adverse Weather Conditions | 3 | 1 | 3 |
| L | Flooding | 3 | 1 | 3 |
| M | Loss of Critical Infrastructure | 1 | 2 | 2 |
| N | Major Road Traffic Incident | 3 | 1 | 3 |
| O | Contamination Event | 2 | 2 | 4 |
| P | Major Fire | 2 | 2 | 4 |
| Q | Bog Fire | 3 | 1 | 3 |
| R | Peat Stability | 1 | 2 | 2 |
| S | Aviation | 2 | 2 | 4 |
| **Decommissioning Phase** | | | | |

| Risk ID | Potential Risk | Likelihood Rating | Consequence Rating | Risk Score |
|---|---|---|---|---|
| T | Adverse weather conditions | 3 | 1 | 3 |
| U | Flooding | 3 | 1 | 3 |
| V | Major Road Traffic Incident | 3 | 1 | 3 |
| W | Contamination Event | 2 | 2 | 4 |
| X | Major Fire | 2 | 2 | 4 |
| Y | Bog Fire | 3 | 1 | 3 |
| Z | Peat Stability | 1 | 2 | 2 |
| AA | Aviation | 1 | 2 | 2 |

Table 17-10 presents the potential risks identified during the construction, operation and decommissioning of the Proposed Project, all of which can be classified as 'low-risk' scenarios. On this basis none of the assessed risks have the potential to have a significant effect on the environment. Therefore, the overall effect is Not Significant.

*Table 17-10 Risk Matrix*

| | | Consequence Rating | | | | |
|---|---|---|---|---|---|---|
| | | 1. Very Low | 2. Low | 3. Moderate | 4.High | 5. Very High |
| Likelihood Rating | 5. Very Likely | | | | | |
| | 4. Likely | | | | | |
| | 3. Unlikely | A, B, D, G, K, L, N, Q, T, U, V, Y | | | | |
| | 2. Very Unlikely | I | E, F, J, O, P, S, W, X | | | |
| | 1. Extremely Unlikely | C | H, M, R, Z, AA | | | |

The scenarios with the highest risk score (risk scores of 4 or higher) in terms of a major accident and/or natural disaster during the construction, operation and decommissioning phase of the Proposed Project are identified below. It should be noted specific mitigation measures are proposed for the lower risk score scenarios (risk score of 3 or below) and are described in detail in their relevant chapters.

### Contamination Events During Construction, Operation and Decommissioning (E, O, W)

There is a potential risk of contamination from site activities during the construction, operation and decommissioning phases from potential release of hydrocarbons. Hydrocarbons, in the form of fuel, hydraulic fluids, lubricants, oils etc. may result from improper storage or activities such as refuelling. The risk of contamination was given a risk score of 4 on a precautionary basis. However, as outlined in Chapter 8: Land, Soils and Geology Section 8.5.2, and Chapter 9: Water, Section 9.5.2, measures are proposed and will be put in place to reduce the risk of accidental spillage and contamination of pollution risk to groundwater, surface water and associated ecosystems, and to terrestrial ecology.

The risk of contamination is 'very unlikely' to occur and will have Low Impact when considering the RWCS, representing a 'low-risk scenario' during the construction, operation and decommissioning phases.

With consideration given to the EPA classification terminology as outlined in Table 17-3, it is therefore considered that there will be temporary, moderate, negative effect, which is Not Significant associated with contamination events during the construction, operation and decommissioning of the Proposed Project.

### Major Fire During Construction, Operation and Decommissioning (F, P, X)

There is a potential risk of fire at the Project Site. However, as outlined in Section 17.3.4.4, the scope of this assessment has been based on the understanding that the Proposed Project will be designed, built and operated in line with current best practices in wind energy development. Further, in accordance with Chapter 19: Schedule of Mitigation and Monitoring Measures and the Safety, Health and Welfare at Work Acts 2005 to 2014, the Proposed Project shall be subject to a fire safety risk assessment which will assist in the identification of any major risks of fire on site.

Therefore, the risk of fire occurring at the Proposed Project resulting in a major accident and/or disaster was given a risk score of 4 on a precautionary basis. This indicates a scenario that is 'very unlikely' to occur and having 'Low Impact' when considering the RWCS, representing a 'low-risk scenario' during the construction, operational and decommissioning phases.

It is therefore considered that there will be temporary, moderate, negative effect, which is Not Significant associated with major fire during the construction, operation and decommissioning of the Proposed Project.

### Aviation During Construction, Operation and Decommissioning (J, S, AA)

There is a potential risk to aviation during the construction and operational phases of the Proposed Project arising from the installation and presence of tall structures within Edenderry/Allenwood/Rathangan LFTA, MOA4, and the EI-R16 restricted airspace. During construction, risks are associated with the erection of tall structures, the use of cranes, and increased site activity, which could interact with low-altitude aviation activities, including military training exercises. During the operational phase, risks relate to the permanent presence of turbine towers and rotating blades, which may present an obstacle to aviation if not appropriately safeguarded.

The aviation risk identified in Section 17.4.1 above during both the construction and operational phases is 'very unlikely' to occur and will have Low Impact when considering the RWCS, representing a 'low-risk scenario' during the construction and operation. During the decommissioning phase, it is 'Extremely Unlikely' to occur and will have Low Impact when considering the RWCS. This score reflects a precautionary assessment recognising the location of the Proposed Project within Edenderry/Allenwood/Rathangan LFTA, MOA4, and the EI-R16 restricted airspace, while also acknowledging that such interactions are very unlikely due to established aviation control measures.

Chapter 16: Aviation does identify a hazard on the training activities located within the Edenderry/Allenwood/Rathangan LFTA, however the risk pertaining to major accidents remains to be very unlikely' to occur and with a Low Impact when considering the RWCS, representing a 'low-risk scenario' during the construction and operation. During the decommissioning phase, it is 'Extremely Unlikely' to occur and will have Low Impact when considering the RWCS.

## 17.4.3 Mitigation Measures During Construction, Operation and Decommissioning

As outlined in 17.4.1Section 17.4.2, the scenarios with the highest risk scores in terms of the occurrence of major accident and/or disaster during construction, operation and decommissioning were identified as 'Contamination Events', 'Major Fire' and 'Aviation' risk.

The Proposed Project will be designed and built in line with current best practice and, as such, mitigation against the risk of major accidents and/or disasters will be embedded through the design. In accordance with the provision of the European Commission "*Guidance on the preparation of Environmental Impact Assessment Reports*"[48], a Risk Management Plan (RMP) will be prepared and implemented on the Project Site to ensure an effective response to disasters or the risk of accidents. The RMP will include sufficient preparedness and emergency planning measures.

### 17.4.3.1 Contamination Events

Potential effects associated with contamination during construction, operation and decommissioning are addressed fully in in Section 8.5 of Chapter 8: Land, Soils and Geology and Section 9.5 of Chapter 9: Water. The mitigation measures outlined in Chapter 8 and Chapter 9 to protect environmental receptors as well as the procedures and measures described in the CEMP will ensure that the risk from these sources is low.

A CEMP has been prepared for the Proposed Project and is included in Appendix 4-4 of this EIAR. The above Major Accidents and Natural Disaster Risk Assessment forms the basis of the Emergency Response Plan (ERP) which is contained within the CEMP. Upon a grant of planning permission for the Proposed Project, the CEMP will be updated to reflect the conditions stipulated in the consent prior to the commencement of the development. The CEMP will be a live document, maintained by the contractor, that will work to ensure that potential risks of major accident and/or disaster are identified, avoided and mitigated, as necessary. Refer to Appendix 4-4 for the CEMP that sets out the minimum standards to be employed by the contractor.

All mitigation measures proposed as part of this project are also listed in Chapter 19: Schedule of Mitigation and Monitoring Measures.

### 17.4.3.2 Major Fire

The Proposed Project will also be subject to a fire safety risk assessment in accordance with Chapter 19 and the Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013[49], which will assist in the identification of any major risks of fire on Project Site, and mitigation of the same during construction, operation and decommissioning. The ERP includes hazard identification procedures and mitigation measures which the site Supervisor/Construction Manager will carry out in case of a fire/explosion at the Project Site.

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[48] *European Commission, 2017. Guidance on the preparation of Environmental Impact Assessment Reports. Available at: https://op.europa.eu/en/publication-detail/-/publication/2b399830-cb4b-11e7-a5d5-01aa75ed71a1*

[49] *Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations (HAS, 2013): https://www.hsa.ie/media/eq3dfjxk/103525-hsa-3-procurement-guideline-brochure.pdf*

Refer to Appendix 4-4 for an outline CEMP that sets out the minimum standards to be employed by the contractor.

All mitigation measures proposed as part of this project are also listed in Chapter 19: Schedule of Mitigation & Monitoring Measures.

#### 17.4.3.3 Aviation

Potential effects associated with aviation during construction, operation and decommissioning are addressed fully in in Section 16.9 of Chapter 16: Aviation. During the construction phase, any use of tall structures including cranes above 45m such are subject to notification to the Irish Aviation Authority (IAA) 30 days prior to erection. Flight within the airspace above the Aviation Study Area would be conducted via IFR or VFR, both require following the regulation applicable to IFR or VFR Flight.

During the operational phase, the IAA will be contacted to:

- agree an aeronautical obstacle warning light scheme for the Proposed Wind Farm
- provide as constructed coordinates in WGS84 format together with ground and tip height elevations at each wind turbine location

The Proposed Turbines will be subject to an approved lighting scheme being established and final positions and heights will be forwarded to the IAA for publishing in the Aeronautical Information Publication (AIP). Should the Irish Air Corps require the fitment of Infra-Red lighting compatible with the use of Night Vision Goggles (NVG), there are many types available, and a list of compatible lighting should be obtainable from the Air Corps technical services command. It is not known whether the Air Corps use NVG systems operationally, or during training, but their popularity in military, medevac and search and rescue (SAR) missions would suggest there is a high probability of use.

In addition to the above measures, pilots of both VFR and IFR flights are required by the National Regulator to make themselves familiar with their route, airspace they will be flying within, and current Notice To Airmen (NOTAM) and AIP information.

The location of the Edenderry low flying training area will be subject to further engagement with the DoD/Irish Air Corp to facilitate an alternative location for low flying training areas if feasible. Any areas proposed for an alternative location will be subject to the following criteria:

1. A relatively low population density for public safety and minimise noise emission impacts.
2. Predominately obstacle-free i.e., no masts, power lines, wind turbines.
3. No airfields (especially ones that cater for drone, model aircraft, micro light activities).
4. *An area that is not conducive to the formation of local adverse weather such as fog, low cloud, or abnormal turbulence; and*
5. *Terrain that may be able to accommodate a forced landing with a reasonable possibility of a successful outcome i.e., no large expanse of heavily wooded or rocky terrain.*

All mitigation measures proposed as part of this project are also listed in Chapter 19: Schedule of Mitigation & Monitoring Measures.

### 17.4.4 Residual Effects

In accordance with the Risk Evaluation process outlined in Section 17.2.5.2.2, and considering the Risk Matrix in Table 17-10, the risk of a major accident and/or disaster during the construction, operation

and decommissioning of the Proposed Project is considered 'low' in accordance with *'A Framework for Major Emergency Management – A Guide to Regional Risk Assessment' (DoEHLG* 2024)[50]

It is considered that when the mitigation and monitoring measures outlined in the Section 17.4.3 and in Section 16.11 of Chapter 16: Aviation are implemented and adhered to there the residual effects associated with the construction, operation and decommissioning of the Proposed Project in relation to contamination events, major fire risk, and aviation will be unlikely, long-term, slight, negative effects, which are Not Significant.

## 17.4.5 Monitoring

### 17.4.5.1 Monitoring During Construction

The CEMP will be prepared/revised prior to the commencement of any works and will be a live document maintained by the contractor that will work to ensure that potential risks of major accident and/or disaster are identified, avoided and mitigated, as necessary. Refer to Appendix 4-4 for the CEMP that sets out the minimum standards to be employed by the contractor.

### 17.4.5.2 Monitoring During Operation

The operator of the Proposed Project will continue to assess the risk of major accidents and/or disasters on site on an ongoing basis during operation.

The maintenance programme, record of reported incidents, as well as general site activities will be monitored on an ongoing basis to ensure risk of major accidents does not increase over time.

### 17.4.5.3 Monitoring During Decommissioning

A Decommissioning Plan has been prepared (Appendix 4-7) the detail of which will be agreed with the local authority prior to any decommissioning. The Decommissioning Plan will be updated before the end of the 35-year operational period of the Proposed Wind Farm, in line with best practice decommissioning methodologies that are in place at the time of decommissioning and will be agreed with the competent authority prior to implementation. The Decommissioning Plan includes mitigation and monitoring measures that will be in place during the decommissioning phase. These can also be found in a Chapter 19: Schedule of Mitigation and Monitoring Measures which sets out all proposed Mitigation and Monitoring Measures for all three phases of the Proposed Project.

## 17.4.6 Assessment of Cumulative Effects

A search in relation to plans and projects that may have the potential to result in a cumulative impact with the Proposed Project on the environment has been carried out as part of the EIAR. The Proposed Project has been considered, in combination with existing, permitted and proposed projects and plans (wind energy or otherwise), as set out in Section 2.10 in Chapter 2: Background to the Proposed Project of this EIAR.

In addition to the projects identified in Chapter 2, consideration has also been given to nearby operational infrastructure which may contribute to cumulative effects in the context of major accidents and natural disasters. The existing Cushaling Wind Farm is located approximately 0.7km from the nearest Proposed Turbine (T25) and is situated between a number of Proposed Turbines including T25, T26, T24, T23, T41, T39, T10, T17, T21 and T22. The existing Cloncreen Wind Farm is located

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

approximately 2.85km west of the nearest Proposed Turbine (T22). In addition, the proposed gas pipeline project (Gas to Bord na Móna, Edenderry), located to the west of the Project Site, is within the Major Accidents Study Area, which interacts with the proposed internal site access road network. This proposed development has been considered as part of the cumulative assessment due to its nature as linear energy infrastructure.

All elements of the Proposed Project were assessed in order to identify any cumulative effects.

### Other Wind Farms

A wind farm including all of its various components including cabling, substation, roads, turbines, etc., is not a recognised source of pollution. It is not subject to Industrial Emissions Directive regulation or any other EPA environmental regulatory consent. Should a major accident or natural disaster occur, the potential sources of pollution onsite during the construction, operational and decommissioning phases are limited and of low environmental risk. Sources of pollution with the potential to cause significant environmental pollution and associated negative effects such as bulk storage of hydrocarbons or chemicals, storage of wastes, management of flammable materials, etc., are limited, and so there is an inherent low level of environmental risk associated with major accident or natural disaster impacting the Proposed Project and causing environmental damage. The proximity of the existing Cushaling Wind Farm and Cloncreen Wind Farm results in a degree of overlap in terms of wind energy infrastructure within the wider area; however, as stated above, wind farms are not significant sources of pollution and are not subject to SEVESO regulations. The potential for cumulative major accident risk is therefore limited to scenarios such as aviation interactions, infrastructure failure or traffic-related incidents during construction or maintenance activities. These risks are inherently low in likelihood and consequence and are managed through established design standards and operational controls.

### Contamination

Major industrial accidents involving dangerous substances pose a significant threat to humans and the environment. Such accidents can give rise to serious injury to people or serious damage to the environment, both on and off the site of the accident. The Proposed Project is not regulated or connected to, or close to, any site regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations, i.e., SEVESO sites. As described in Section 17.3.4.3, the nearest SEVESO site is the Intel Ireland Limited in Collinstown Industrial Park, Leixlip, Co. Kildare, an upper tier SEVESO site located approximately 18.7km to the northeast of the Proposed Offsite Substation. Therefore, there are no potential effects from these sources. There is no likelihood of significant environmental effects cumulatively associated with major accidents.

### Gas to Bord na Móna, Edenderry

The proposed Gas to Bord na Móna, Edenderry pipeline, located to the west of the Proposed Wind Farm, lies within the Major Accidents Study Area and intersects sections of proposed internal site access road. The proposed development is currently anticipated to be constructed over a 22-month period commencing in Q1 2028, whereas the Proposed Project assumes an indicative construction start date of Q1 2030. As such, there is no anticipated overlap in the main construction programmes of the two developments and therefore limited potential for cumulative construction-phase effects associated with major accidents or natural disasters. Prior to construction, the Applicant (Bord Na Mona Powergen Ltd.) will engage with Gas Networks Ireland (GNI) via the 'Dial Before You Dig' procedure online. GNI will be contacted on 1800 42 77 47 before excavating near the proposed pipeline. Furthermore, the '*Safety advice for working in the vicinity of natural gas pipelines'* guidance document and the GNI '*Code of Practice*' standards will be adhered to during all proposed upgrades to existing roads along the east of the Proposed Wind Farm.

## Eastern and Midlands Region Water Supply Project

The proposed Uisce Éireann Eastern and Midlands Region Water Supply Project (Case Ref: PA92.323980) includes a proposed water pipeline from a new water treatment plant near Birdhill, Co. Tipperary to a termination point reservoir at Peamount, Co. Dublin, traverses the Project Site in an east-west direction across Codd Bogs 1 & 2, Glashabaun North and South Bogs, and Derrybrennan Bog. The planning application was submitted to ACP in December 2025, and the construction phase will commence in Q1 of 2028 and completes at Q4 of 2032, subject to planning approval. The Water Supply Project has been considered in the design of the Proposed Project and is considered in the cumulative impact assessments of this EIAR chapter. This approach has been adopted due to the potential for temporal overlap between the construction phases of the Proposed Project and the Water Supply Project, resulting in the possibility of concurrent construction activities within the Major Accidents Study Area. Given the nature of the Water Supply Project as linear utility infrastructure, and subject to its own design, consenting, construction management and operational controls, no credible pathway has been identified whereby the Water Supply Project would interact with the Proposed Project to give rise to significant cumulative effects in terms of major accidents or natural disasters.

## 110kV OHL Between Cushaling 110kV and Portlaoise 110kV Substation

A planning application (Ref. 2560087) has been submitted for the proposed uprating of the existing 110 kV OHL between the existing Cushaling 110 kV Substation in the townland of Ballykilleen, Co. Offaly, and the existing Portlaoise 110 kV Substation in the townlands of Clonminam and Kylekiproe, Co. Laois. The proposed development has been considered as part of the cumulative assessment for the Proposed Project. Based on discussions held during the EirGrid scoping meeting on 16th December 2025, there is currently no anticipated overlap between the construction programme of the Proposed Project and that of the proposed OHL uprating project, with the final phase of the EirGrid project currently expected to extend to 2029. Given the nature of the proposed OHL uprating works and the absence of a significant temporal overlap in construction activities, no significant cumulative effects in relation to major accidents or natural disasters are anticipated. Should material changes occur to the EirGrid project programme or design during the planning process, EirGrid has indicated that such changes can be communicated to Bord na Móna (BnM) and MKO and considered, where relevant, in any updates to the EIAR.

## Natural Disasters / Peat Stability

There is low potential for significant natural disasters to occur at the Project Site. Ireland is a geologically stable country with a mild temperate climate. The potential natural disasters that may occur are therefore limited and these have been assessed in the context of the whole project, cumulatively in this chapter and in the wider EIAR

The Proposed Project has low potential to cause natural disasters or major accidents. The Proposed Wind Farm site is relatively flat so there is low/no potential for peat slides or landslides. Any risks associated with flooding, impacts on infrastructure, accidents, etc., are addressed in the sections above. There is a low likelihood of significant cumulative environmental effects associated with the Proposed Project's potential to cause accidents or natural disasters.

## EPA Licence Activities

Bog fires are a rare occurrence but can occur on peatlands due to spread from adjacent lands, human interference and autoignition during prolonged dry periods. Independently of the Proposed Project, the implementation of Draft Rehabilitation Plans under IPC Licence Condition 10 can reduce the susceptibility of the peatland to bog fire through rewetting measures which raise the water table and promote the re-establishment of vegetation cover on the Project Site. In undertaking the cumulative assessment, consideration has been given to the interaction between the Proposed Project and the measures proposed in the Draft Rehabilitation Plans. As the permanent infrastructure covers

approximately 2.9% of the Project Site, there will be no significant negative cumulative effects associated with the Draft Rehabilitation Plans and the Proposed Project.

#### 17.4.6.1 Summary

Following a detailed assessment of the potential for any further impact when considered in combination with any or all of the plans and projects set out in Chapter 2: Background to the Proposed Project, with mitigation measures in place, was found to have no potential for significant in-combination or cumulative increase in the vulnerability of the Proposed Project or adjacent areas to major accidents and/or natural disasters. This is based on the low risk associated with the Proposed Project described in this Chapter of the EIAR and a review of the nature of the adjacent land uses and projects existing or intended in the adjacent areas.