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TABLES

Acronyms and Abbreviations

AIL	Abnormal Indivisible Load
AP	Access Point
BA	Bachelor of Arts
BESS	Battery Energy Storage System
BSMP	Battery Safety Management Plan
CBRNE	Chemical, Biological, Radiological, Nuclear and Explosive
CEMP	Construction Environmental Management Plan
DoEHLG	Department of Environment, Heritage and Local Government
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EIERP	Environmental Incident Emergency Response Plan
EMS	Environmental Management System
EPA	Environmental Protection Agency
EU	European Union
GCR	Grid Connection Route
Grid Connection Route (GCR)	Refers to the proposed Grid Connection Route as defined in Chapter 1 of this EIAR.
HSA	Health and Safety Authority
HSE	Health Service Executive
ISO	International Organization for Standardization
km	Kilometre
kV	Kilovolt
Main Wind Farm Development Site	The site where the Proposed Development is located. As defined in Chapter 1 of this EIAR.
MSc	Master of Science
PHLRA	Peat Landslide Hazard & Risk Assessment
PRA	Principal Response Agency
Proposed Project	Refers to the Proposed Development including the GCR.
PSCS	Project Supervisor Construction Stage
PSDP	Project Supervisor Design Process
Seveso	EU Control of Major Accident Hazards Directive
SSFRA	Site-Specific Flood Risk Assessment
TCC	Temporary Construction Compound
Turbine Delivery Route (TDR)	Refers to the proposed turbine delivery route as defined in Chapter 1 of this EIAR.
WTG	Wind Turbine Generator

15. MAJOR ACCIDENTS AND DISASTERS

INTRODUCTION

Background

15.1 This chapter assesses the vulnerability of the Proposed Project to major accidents and natural disasters is 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."

15.2 The assessment also follows guidance set out by the Environmental Protection Agency (EPA) in 'Guidelines on Information to be contained in Environmental Impact Statements' (EPA, 2022) and the European Commission 'Guidance on the preparation of the Environmental Impact Assessment Report' (Directive 2011/92/EU, as amended by 2014/52/EU) (European Commission, 2017).

Statement of Authority

15.3 This assessment has been undertaken by Lauren Jones, a Consultant within SLR. Lauren joined SLR in March 2023 after graduating from Lancaster University with a BA in Geography. She has worked on a number of EIAs, producing Major Accidents and Natural Disasters chapters. Lauren is also a Graduate member of the Institute of Environmental Management and Assessment. Lynn Hassett has also provided input to the chapter. Lynn has extensive experience in the field of EIA, SEA/SA and in co-ordinating large multi-disciplinary teams for EIA projects. She has a BSc in Applied Ecology and a MSc in Environmental Impact Assessment.

14.1 This chapter was reviewed by Gareth Hughes, an EIA specialist with 18 years' experience in project management and EIA coordination. This chapter was also reviewed by Aislinn O'Brien. Aislinn is a chartered planner and has 18 years' experience in project management, EIA coordination, planning for large scale infrastructure and renewable energy projects and preparing environmental impact assessment chapters and reports for renewable energy and tourism projects.

14.2 The chapter has also been reviewed by Aislinn O'Brien, MSc, MCD, MIPI, MRTPI. Aislinn is a chartered town planner with over 20 years professional planning experience. During this time Aislinn has project managed and coordinated numerous planning applications and EIARs.

Scope and Consultation

Scope of the Assessment

15.4 The scope of the assessment has been informed by the contents of the EIA Directive and associated guidelines as identified in this chapter.

Consultation

15.5 A programme of public and stakeholder consultation is being implemented through the Applicant's appointed Community Liaison Officer. Details on communication with, and feedback from, the local community, is provided in **Technical Appendix 3-7** of this EIAR. The EIA Scoping process, which included consultation with Mayo County Council, various

Government departments, aviation and telecommunications operators and a range of other interested stakeholders is described in **Chapter 3** and is reported as appropriate in the relevant technical chapters of the EIAR. Any additional issues raised through consultation in relation to Major Accidents and Natural Disasters have been included in the assessment.

Proposed Project

15.6 The Proposed Project relates to the construction of a 13 no. turbine wind farm development and associated works. The Grid Connection Route (GCR) will be the subject of a separate planning application but is considered along with the Proposed Development as part of this EIAR. See **Chapter 2** of this EIAR for a full detailed description of the Proposed Project (the Proposed Development along with the GCR). See **Chapter 1** for a list of the defined terms used in this chapter.

Legislation, Guidance and Policy

15.7 The requirement for this assessment arises from the European Union Directive in relation to Environmental Impact Assessment of proposed developments (Directive 2011/92/EU, as amended by 2014/52/EU).

15.8 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 amended) is as follows:

"(8) A description of the expected significant adverse effects of the proposed development on the environment deriving from the vulnerability of the proposed development to risks of major accidents and/or disasters which are relevant to the proposed development 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".

15.9 Therefore, the following key issues were investigated in relation to the Proposed Project and the proposals for it:

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

14.3 The following guidance documents have been complied with for the purposes of this assessment:

- Department of Housing, Local Government and Heritage (2006) 'Framework for Major Emergency Management';
- Department of Environment, Heritage and Local Government (2010) 'A Guide to Risk Assessment in Major Emergency Management';
- Department of Housing, Planning and Local Government (2018) 'Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment';
- Environmental Protection Agency (2014) 'Guidance on Assessing and Costing Environmental Liabilities';

- Environmental Protection Agency (2022) 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports';
- European Commission (2017) Environmental Impact Assessment of Proposed Developments – 'Guidance on the preparation of Environmental Impact Assessment Reports'; and
- Mayo County Council (2021) 'Major Emergency Plan'.

15.10 Requirements of legislation contained in European Directive (2012/18/EU), i.e. the Seveso – III Directive and Irish regulation S.I. No. 209 of 2015 Control of Major Accident Hazards involving Dangerous Substances have also been complied with for the purpose of the assessment contained herein.

15.11 The Mayo County Council (2021) Major Emergency Plan has the objective of providing a co-ordinated response by the relevant agencies in the event of an emergency in the county. As alluded to in the Plan, their role in this should not restrict action by individual operators in such events. This assessment acknowledges the duty of the Applicant to ensure that all reasonable measures are taken to avoid the potential for any emergencies to arise.

15.12 In the unlikely event of a major emergency arising, An Garda Síochána, the Health Service Executive, and Mayo County Council are the principal response agencies (PRAs) charged with managing the response to emergency situations which arise in the county.

Approach and Methodology

15.13 This assessment is focused on an understanding that the Proposed Project has been designed, and will be built and operated in line with the methodologies and measures prescribed in **Chapter 2** of this EIAR.

Study Area

15.14 As this chapter effectively represents an overview risk assessment of the potential for the Proposed Development to be either vulnerable to / cause major accidents or disasters, the Study Area covers the Proposed Project as a whole, taking into account the local wider context as relevant to the risk identified.

Information and Data Sources

15.15 A desk-study based on site knowledge, online mapping and consideration of the guidance identified above has been completed to establish the baseline environment for which the proposed risk assessment is being carried out. The baseline influences both the likelihood and the potential scale of impact of a major accident or natural disaster. Local and regional context has been established prior to undertaking the risk assessment to develop an understanding of the vulnerability and resilience of the area to emergency situations.

15.16 Other specialist chapters of this EIAR provide assessments of some potential accidents and disaster scenarios such as pollution incidents to ground and watercourses as well as assessment of flooding events (see **Chapter 7**) and ground stability (see **Chapter 6**, in particular **Technical Appendix 6-2** Peat Landslide and Hazard Risk Assessment). In relation to Human Health, please refer to **Chapter 4** and for built infrastructure, see **Chapter 13** for further detail.

15.17 With regard to the control of major accident hazards involving dangerous substances, an examination of upper and lower tier Seveso Establishments in the surrounding region of the Proposed Project identified no Seveso Establishments in immediate proximity to the Main Wind Farm Development Site (less than 5 km). The nearest Seveso Establishment to the Main Wind Farm Development Site is approximately 17 km to the north-east.

Assessment Methodology

15.18 The approach to identifying and quantifying risks associated with the Proposed Project by means of a risk assessment is based on the EPA 'Guidance on Assessing and Costing Environmental Liabilities' document, which recommends that the identification of environmental liabilities/risks should focus on unplanned, but possible and plausible events. In accordance with best practice, and as set out in Section 3.3 of the guidance, the following steps were taken as part of the site-specific risk assessment:

- risk identification;
- risk classification, likelihood and consequence; and
- risk evaluation.

15.19 The assessment includes the range of turbine models that have been modelled in the technical assessments, which have included the maximum parameters across three specific candidate models. Hence, any changed permutation within the range assessed will not give rise to different conclusions on significance of effect.

Risk Identification

15.20 Risks have been reviewed through the identification of reasonably foreseeable risks in consultation with relevant contributors to this EIAR (refer to Statements of Authority in **Chapters 4 to 14** 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 operation and decommissioning.

15.21 In accordance with the European Commission (2017) Guidance on Environmental Impact Assessment Reports, risks are identified in respect of the Proposed Project's:

- potential to cause accidents and/or disasters; and
- vulnerability to potential disaster/accident.

Risk Classification

Classification of Likelihood

15.22 After identifying the potential risks, the likelihood of occurrence of each risk has been assessed. An analysis of safety procedures and proposed environmental controls was considered when estimating likelihood of identified potential risks occurring. **Table 15-1** defines the likelihood ratings that have been applied. The approach adopted has assumed a 'risk likelihood' where one or more aspects of the likelihood description are met, in accordance with the definitions set out in Department of Environment, Heritage and Local Government (2010) guidance.

Table 15-1: Classification of Likelihood (Source: DoEHLG, 2010)

Ranking	Likelihood	Description
1	**Extremely Unlikely**	May occur only in exceptional circumstances; once every 500 years.
2	**Very Unlikely**	Is not expected to occur; and/or no recorded incidents or anecdotal evidence; and/or very few incidents in associated organisations, facilities or communities; and / or little opportunity, reason or means to occur; may occur once every 100-500 years.

Ranking	Likelihood	Description
3	**Unlikely**	May occur at some time; and /or few, infrequent, random recorded incidents or little anecdotal evidence; some incidents in associated or comparable organisation's worldwide; some opportunity, reason or means to occur; may occur once per 10-100 years.
4	**Likely**	Likely to or may occur; regular recorded incidents and strong anecdotal evidence and will probably occur once per 1-10 years.
5	**Very Likely**	Very likely to occur; high level of recorded incidents and/or strong anecdotal evidence. Will probably occur more than once a year.

Classification of Consequence

15.23 The consequence rating assigned to each risk has assumed that all proposed mitigation measures and/or safety procedures have failed to prevent the major accident and/or disaster, therefore it is a hypothetical, worst-case scenario. The consequence of the impact if the event occurs has been assigned as described in **Table 15-2**.

15.24 The consequence of a risk to/from the Proposed Project has been determined where one or more aspects of the consequence description are met, i.e., risks that have no consequence have been excluded from the assessment. Definitions of consequence ratings are also in accordance with the Department of Environment, Heritage and Local Government (2010) guidance.

Table 15-2: Classification of Impact (Source: DoEHLG, 2010)

Ranking	Classification	Impact	Description
1	**Minor**	Life, Health, Welfare	Small number of people affected; no fatalities and small number of minor injuries with first aid treatment.
		Environment	No contamination, localised effects.
		Infrastructure	<€0.5M
		Social	Minor localised disruption to community services or infrastructure (<6 hours).
2	**Limited**	Life, Health, Welfare	• Single fatality; limited number of people affected; a few serious injuries with hospitalisation and medical treatment required. • Localised displacement of a small number of people for 6-24 hours. Personal support satisfied through local arrangements.
		Environment	Simple contamination, localised effects of short duration.
		Infrastructure	€0.5-3M
		Social	Normal community functioning with some inconvenience.

Ranking	Classification	Impact	Description
3	**Serious**	Life, Health, Welfare	• Significant number of people in affected area impacted with multiple fatalities (<5), multiple serious or extensive injuries (20), significant hospitalisation. • Large number of people displaced for 6-24 hours or possibly beyond; up to 500 evacuated. • External resources required for personal support.
		Environment	Simple contamination, widespread effects or extended duration
		Infrastructure	€3-10M
		Social	Community only partially functioning, some services available.
4	**Very Serious**	Life, Health, Welfare	5 to 50 fatalities, up to 100 serious injuries, up to 2,000 evacuated.
		Environment	Heavy contamination, localised effects or extended duration.
		Infrastructure	Community functioning poorly, minimal services available.
		Social	Community functioning poorly, minimal services available.
5	**Catastrophic**	Life, Health, Welfare	Large numbers of people impacted with significant numbers of fatalities (>50), injuries in the hundreds, more than 2,000 evacuated.
		Environment	Very heavy contamination, widespread effects of extended duration.
		Infrastructure	>€25M
		Social	Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period. Community unable to function without significant support.

Risk Evaluation

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

15.26 The risk matrix derived from the DoEHLG "Guide to Risk Assessment in Major Emergency Management" (and as outlined in **Table 15-3**) indicates the critical nature of each risk. This risk matrix has therefore 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'.

15.27 The use of **Table 15-3** is intended as a framework for the objective assessment of predicted impacts based on informed judgements regarding their likelihood and potential consequences. The supporting text in this chapter provides clarity in instances where a predicted impact is deemed to be significant or not.

Table 15-3: Matrix for determining significance of effect (Source: DoEHLG, 2010)

Likelihood	Classification				
	1 Minor	**2 Limited**	**3 Serious**	**4 Very Serious**	**5 Catastrophic**
5 Very Likely	Low	Medium	High	High	High
4 Likely	Low	Medium	Medium	High	High
3 Unlikely	Low	Low	Medium	Medium	High
2 Very Unlikely	Low	Low	Low	Medium	Medium
1 Extremely Unlikely	Low	Low	Low	Low	Low
	Normal Emergency		**Major Emergency**		

15.28 The HSE, as one of the three principal response authorities1, has prepared Major Emergency Plans for areas of the State in accordance with the requirements set out in Section 4.4.1 of the National Framework for Major Emergency Management (2006). The Main Wind Farm Development Site is covered by the HSE West and North-West Interim Regional Major Emergency Plan, which covers County Mayo. The Emergency Plan identifies the relevant roles and responsibilities of the HSE in relation to major emergency types and the planned procedure in case of such events. The hazard categories include the four categories specified in the National Framework, i.e. Natural, Transportation, Technological and Civil. The hazard categories, types and subtypes of potential relevance to the Proposed Project are listed below in **Table 15-4** and are based on a review of those identified in overarching HSE and Mayo County Council Major Emergency Plans.

Table 15-4: HSE Emergency Plan Hazard Types (Source: HSE, 2022)

Category	Type	Subtype	Relevance to the Proposed Project
Natural Hazards			
Meteorological	Storm / Gale	Both coastal and inland areas can be affected by high winds.	• Poor driving conditions • Damage to/loss of infrastructure • Flooding • Falling trees/infrastructure

1 An Garda Síochána, the Health Service Executive and the Local Authorities are the Principal Response Agencies charged by Central Government with managing the response to emergency situations

Category	Type	Subtype	Relevance to the Proposed Project
	Heavy Snow	Blizzards – poor visibility	• Poor driving conditions
		Icy / impassable roads	• Poor driving conditions
		Hypothermia	• Public health risk
		Freezing of supply network	• Lack of road grit • Ice accumulation on blades
	Severe Cold and Frost or extremes of temperature	Icy / impassable roads	• Poor driving conditions
		Hypothermia	• Public health risk
		Freezing	• Ice accumulation on blades
	Thunder and lightning Dense and persistent fog	Road traffic collisions	• Damage to/loss of infrastructure • Poor driving conditions
	Heat wave / drought	Heat	• Public health risk • Water shortage
Hydrological	Flooding / heavy rain	Coastal / inland	• Potential for flooding • May lead to flooding in low lying areas or areas with poor drainage
Geological	Landslide / Mine Collapse / Rock Slide		• Damage to infrastructure
	Earthquake / Tsunami / Volcano		• Damage to infrastructure
	Forest / wilderness fire Air pollution	Fire	• Damage to adjacent forestry • Public health risk
Transportation hazards			
Aviation	Aircraft collision / loss	Mid-air and land	• Threat to/from high structures in flight path
Roads	Multiple road traffic collisions	Roads	• Accidents/injuries on public roads via which staff and materials access the Main Wind Farm Development Site.
	Hazmat		• Fuel transport to/from Main Wind Farm Development Site
	Bridges		• N/A
Rail	Collisions		• N/A
Water	Inland waterways	Pleasure craft / cruises	• N/A
	Coastal / Ship and Port	Car ferry / passenger ferries	• N/A
	Rescue		• N/A
Technological Hazards			

Category	Type	Subtype	Relevance to the Proposed Project
Industrial accidents	Explosions		• Damage to infrastructure, personal injuries / fatalities
	Petrochemical fires		• Personal injuries. Severe burns, fatalities, air pollution
	Industrial fires	Biomass source	• N/A
	Gas emission	Gas leak	• N/A
	Fluid / fuel emission	Accidental leak	• Damage to infrastructure, personal injuries / fatalities, ground/water pollution
Explosions	Domestic		• N/A
	Bomb		• N/A
	LPG		• N/A
	Pipeline	Gas Pipeline	• N/A
Fires			• Potential for spread, air pollution
Building Collapse			• Damage to/loss of infrastructure
Hazardous Substances	Biological	Accident at the Main Wind Farm Development Site	• N/A
		Transportation accident	• N/A
	Radiological	Weapons	• N/A
		Leak / weapons	• N/A
		“dirty bomb”	• N/A
		Industrial Accident	• N/A
		Health Facilities	• N/A
Pollution / Contamination	Air / Water Pollution		• Fire
			• Sediment laden water run off
			• Fuel / hydrocarbon spill / leak
Civil Hazards			
Major Crowd Safety	Movement, Crushing	Pop concerts, sports, events, firework displays, air shows	• N/A
Loss of Critical Infrastructure	Energy and Power Supply	Electricity	• Operational issues, disturbance to grid
		Natural gas	• N/A
		Fuel Oil	• N/A
		Communications	• Operational issues, disturbance to network
Food Situation Crisis		Food contamination or drought	• N/A

Category	Type	Subtype	Relevance to the Proposed Project
Water Supply		Shortage / contamination, freezing or flooding	• N/A
Epidemics and pandemic		Communicable diseases	• N/A
Animal Disease		Foot & Mouth, Avian Influenza	• N/A
Terrorism	Bombs Chemical, Biological, Radiological, Nuclear and high yield Explosives (CBRNE) disruption	Car bombs	• N/A
		Bombs in buildings	• N/A
		Firebombing	• N/A
		Bomb scares	• N/A

Assumptions, Limitations and Guidance

15.29 There is no specific guidance in relation to the assessment of Material Assets in EIA. Therefore, the assessment is based on a combination of the guidance referenced above and professional judgement based on the authors' combined years of experience across similar projects and the feedback obtained from consultees, in particular the telecommunications and aviation service providers. The structure of this EIAR chapter is slightly different from the other technical chapters to reflect the nature of the assessment.

Setting of Main Wind Farm Development Site

15.30 The Main Wind Farm Development Site is situated within a rural, coastal region of County Mayo. There are several smaller settlements within a 5 km radius, such as Tristia, Doolough, Gweesalia, Glencastle and Srah. These are sparsely populated, with limited services, but they attract visitors for sightseeing, hiking and beach activities.

15.31 The Main Wind Farm Development Site predominately consists of cutover lowland blanket bog, which has been extensively drained. Conifer plantation and peatland habitats surround the Main Wind Farm Development Site.

Vulnerability to Major Accidents and Natural Disasters

15.32 The recitals to the EU Directive 2014/52/EU which amends Directive 2011/92/EU states the following in relation to vulnerability of a proposed development to natural disaster:

"In order to ensure a high level of protection of the environment, precautionary actions need to be taken for certain proposed developments which, because of their vulnerability to major accidents, and/or natural disasters (such as flooding, sea level rise, or earthquakes) are likely to have significant adverse effects on the environment. For such proposed developments, it is important to consider their vulnerability (exposure and resilience) to major accidents and/or disasters, the risk of those accidents and/or disasters occurring and the implications for the likelihood of significant adverse effects on the environment."

15.33 The following section considers the current situation at the Main Wind Farm Development Site, its vulnerability to major accidents and natural disasters, and the potential of those inherent conditions to contribute to major accidents or disasters which pose a risk to the environment.

Environment Management System

14.4 An Environmental Management System (EMS) will be put in place for the Proposed Project. The operator shall develop the EMS in accordance with ISO14001:2015, applying for accreditation when operational. The purpose of the EMS is to control and mitigate the environmental impacts of the Proposed Project and will include, but not be limited to, the following:

- Materials Acceptance Procedures;
- Standard Operating Procedures;
- Measures to comply with the corporate sustainability goals (e.g., reducing water and energy consumption);
- Accident prevention and emergency response procedures; and
- Complaints Register.

15.34 The scope of the EMS will extend to the procurement of external sub-contractors with good health, safety and environmental practices in place.

15.35 The implementation of the EMS will reduce the vulnerability of the Proposed Project to major accidents and disasters. Its implementation will also reduce the potential for major accidents or disasters to arise as a result of the Proposed Project.

Sources of Vulnerability

15.36 Ireland has historically not suffered from extreme temperatures like that of many countries at a similar latitude due to the dominant influence of the Gulf Stream. This has provided Ireland with a mild temperate climate, even as climate change trends began to appear in the last decade. Recent studies from the Potsdam Institute in Germany2 suggest that northwest Europe, including Ireland, is on course for a dramatic drop in temperatures associated with earlier than predicted changes to the Gulf Stream if greenhouse gas emissions are not lowered in time to prevent an average global temperature rise. The risk of other natural disasters such as earthquakes is still low. Potential vulnerabilities are considered as follows:

- Extreme temperatures (especially cold);
- Flooding;
- Fire;
- Land instability;
- Major incidents involving dangerous substances; and
- Other potential catastrophic events.

Extreme Temperatures

15.37 The potential vulnerability of the Proposed Project to extreme temperatures is predominantly linked to the resilience / capacity for adaptation of the built infrastructure to the possible changes.

[2] https://www.pik-potsdam.de/en/news/latest-news/possible-north-atlantic-overturning-circulation-shutdown-after-2100-in-high-emission-future

15.38 Regular checks and maintenance of the wind turbines and ancillary hardware (such as cable connections) will be carried out to ensure that any potential damage from extreme temperatures is rectified.

15.39 Operational safeguards against the effects of extreme temperatures will be incorporated into the design in the form of anti-vibration sensors to detect any imbalance resulting from ice formation on the blades and delay the turbine's operation until the blades have been de-iced.

15.40 In the event of extreme heat-induced fires, the local fire station will be contacted, and internal emergency response procedures will be implemented.

15.41 The relevant chapters of this EIAR (in particular **Chapter 6** and **Chapter 7**) identify any potential vulnerabilities of the ground and water conditions at the Main Wind Farm Development Site and their suitability for the proposed use.

Flooding (Meteorological and Hydrological)

15.42 The risk of flooding is addressed in **Chapter 7**, which presents the findings of a Site Specific Stage 1 Flood Risk Assessment (SSFRA) undertaken for the Main Wind Farm Development Site.

Fire

15.43 A review of surrounding land uses, activities and proposed activities at the Main Wind Farm Development Site has not identified any particular vulnerability to fire risks.

14.5 The Battery Safety Management Plan (BSMP) set out in **Technical Appendix 4-1** provides details of the safety management processes and procedures which will be implemented to satisfy the prevailing safety requirements for the BESS element of the Proposed Project. The BSMP will focus on identifying and controlling battery specific hazards, in the event of fire or heat exposure.

15.44 The risk of fire has been considered within the design of the Proposed Project. The BESS is a containerised system with inbuild fire detection and aerosol/gas suppression systems. In addition, a water storage tank in included in the design for damping of the boundary, along with a perimeter drainage channel and attenuation basin to contain any runoff in the event of any extinguishment event.

15.45 Furthermore and in the unlikely event that a fire should occur, the operator’s internal health and safety management procedures will be followed, and the local fire station will be contacted.

14.6 Accident prevention measures have been incorporated into the design of the Proposed Project and are included within the mitigation measures of the technical chapters of this EIAR. General emergency response procedures are specified in Section 6.1 of the Construction and Environmental Management Plan (CEMP) in **Technical Appendix 2-1** of this EIAR and further detail will be added as the CEMP is updated throughout the construction of the Proposed Project. Emergency response procedures will highlight fire safety and fire prevention, including risks of and control measures to prevent fire outbreak, evacuation procedures and those responsible for their implementation, and the use of firefighting equipment, in line with 2017 HSA Guidelines on the Procurement, Design and Management Requirements of the Safety Health and Welfare at Work (Construction) Regulations 2013.

Land Instability

15.46 Ground Investigation conducted by SLR confirmed the presence of variable peat thickness overlying till deposits. **Chapter 6** of this EIAR provides a detailed assessment on the potential for instability and mitigation measures for the avoidance of this effect. It concludes that the

potential for peat sliding is negligible, referring to a Peat Landslide Hazard & Risk Assessment (PHLRA) (**Technical Appendix 6-2**), which found no evidence of historical or current peat slide activity at the Main Wind Farm Development Site. The CEMP contains details of specialised floating construction techniques which will be used for the internal access tracks to minimize excavation in peat and to preserve the existing ground and hydrological conditions. Where lateral stability controls are needed, pressure berms (stabilising berms) may be constructed locally to increase stability against slip and to facilitate beneficial reuse of excavated peat. This is expected to be an infrequent requirement given the generally flat topography, but it remains available as a contingency where ground conditions dictate.

15.47 In areas of deeper peat and low bearing capacity, the principal outrigger zone may incorporate a piled or locally founded solution to control settlement, with the remainder of the hardstanding formed as a floated, geogrid-reinforced platform to minimise excavation and peat disturbance.

Major Accidents Involving Dangerous Substances

15.48 Major industrial accidents involving dangerous substances pose a significant risk to human health and to the environment both on and off the site of the accident. The Health and Safety Authority (HSA) of Ireland list all upper and lower tier Seveso establishments throughout Ireland. The Main Wind Farm Development Site is, at its nearest, c. 17 km south-west of the nearest site regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations i.e. Seveso site, Vermillion Energy Inc (upper tier Seveso site). It is well outside the specified consultation distance of 700m for the Main Wind Farm Development Site and all other closest Seveso sites identified in Table 13, Volume 2 (Development Management Standards) of the Mayo County Development Plan 2022-2028.

15.49 The Proposed Project does not involve the use of substances / chemicals that require special control or licensing. Usually, the primary sources with the potential to cause significant environmental pollution and associated negative effects on human health and the environment include the bulk storage of hydrocarbons, chemicals and wastes. In the case of the Proposed Project, the storage of materials of this kind are very limited.

Other Potential Catastrophic Events

15.50 A review of **Table 15-4** enables identification of vulnerability to other potential catastrophic events that could reasonably be considered for the Main Wind Farm Development Site, based on its location, baseline conditions, surrounding uses and the Proposed Development. Risks associated with potential heat extremes (such as hypothermia or dehydration) as well as health risks arising from diseases/epidemics pose a potential risk to the workforce associated with the proposals as a whole. All persons who have control to any extent over the Proposed Project have duties to ensure, so far as reasonably practicable, that the facility does not pose a risk to those working there or to anyone not employed there but who may be affected by activities on the Main Wind Farm Development Site. The rights and obligations of employers and employees are set out in domestic legislation (in particular the Safety, Health and Welfare at Work Act 2005 (as amended)), which require to be followed in the event of such circumstances. Also, in the event of operational failures, the employer will have duties in relation to the protection of staff.

15.51 The Main Wind Farm Development Site is not situated in close proximity to any strategic infrastructure hence no particular vulnerability in terms of impacts on wider infrastructure has been identified.

15.52 In terms of crowd safety and terrorism risks the Main Wind Farm Development Site is not open to the public so is not considered to attract visitors, nor is it considered to be a target for any political or other activists.

Health and Safety

15.53 Health and safety measures will be implemented as part of the Proposed Project and will encompass the use of all necessary Personal Protective Equipment and adherence to the Applicant's internal Health and Safety policies.

15.54 Health and safety procedures will also be developed as part of the Environmental Management System. This will provide details of procedures to be adopted in the event of an emergency in terms of site health and safety and environmental protection.

Conclusion Regarding Vulnerability

15.55 Considering the information set out above, and that stringent health and safety and climate resilient design features are inbuilt to the project, it is considered that the overall vulnerability of the Proposed Project to risks of major accidents and natural disasters is low.

Risk Assessment

15.56 This section provides a breakdown of the possible risks associated with the Proposed Project for the construction, operation and decommissioning phases. These risks have been assessed in accordance with the relevant classification as outlined in **Table 15-1** and **Table 15-2**.

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

Future Baseline

15.58 Without the Proposed Project, the renewable energy capacity in County Mayo will not be increased. This would subsequently result in a lost opportunity to reduce the carbon emissions currently associated with energy production in Ireland.

15.59 The potential risks in terms of major accidents and disasters identified in this chapter would therefore be null.

Assessment of Effects During Construction

15.60 Six potential risks specific to the operation of the Proposed Project have been identified and are presented in **Table 15-5**.

Table 15-5: Risk Register- Construction Phase

Risk ID	Potential Risk	Potential Cause
Potential Vulnerability to disaster risk		
A	Severe Weather / Extreme Temperatures	• extreme weather/temperatures - periods of heavy rainfall, taking into account climate change and strong winds.
B	Flooding - high levels of surface water on the Main Wind Farm Development Site	• extreme weather - periods of heavy rainfall, taking into account climate change and strong winds.
Potential to cause accidents and / or disasters		
C	Industrial Accident - Fluid/fuel emission, Fire	• maintenance work. • vehicle use. • inadvertent human error. • failures in BSMP for example in extreme heat.
D	Collapse/ damage to structures	• vehicular collisions due to driver negligence on public roads. • weather conditions. • aircraft collision due to aircraft emergencies. • potential peat instability.
E	Traffic Incident - Collisions onsite and offsite with vehicles involved in operation of the Proposed Project.	• driver negligence or failure of vehicular operations on site roads. • traffic management not implemented.
F	Water contamination - Fluid/fuel emission	• maintenance work. • vehicle use. • employee negligence.

Assessment of Effects During Operation

15.61 Six potential risks specific to the operation of the Proposed Project have been identified and are presented in **Table 15-6**.

Table 15-6: Risk Register- Operational Phase

Risk ID	Potential Risk	Potential Cause
Potential Vulnerability to disaster risk		
G	Severe Weather / Extreme Temperatures	• extreme weather/temperatures - periods of heavy rainfall, taking into account climate change and strong winds.
H	Flooding- high levels of surface water on the Main Wind Farm Development Site	• increased hardstanding on Main Wind Farm Development Site potentially increasing surface water run-off
Potential to cause accidents and / or disasters		
I	Industrial Accident - Fluid/fuel emission, Fire	• maintenance work. • vehicle use. • employee negligence.

Risk ID	Potential Risk	Potential Cause
		• failures in BSMP for example in extreme heat.
J	Collapse/ damage to structures	• vehicular collisions due to driver negligence on public roads. • weather conditions. • aircraft collision due to aircraft emergencies. • potential peat instability. • fire (substation / BESS).
K	Traffic Incident - Collisions onsite and offsite with vehicles involved in operation of the Proposed Project.	• driver negligence or failure of vehicular operations on site roads. • traffic management not implemented.
L	Water contamination - Fluid/fuel emission	• maintenance work. • vehicle use. • employee negligence. • firefighting.

Assessment of Effects During Decommissioning

15.62 Five specific risks to the decommissioning of the Proposed Project have been identified and are presented in **Table 15-7**.

Table 15-7: Risk Register- Decommissioning Phase

Risk ID	Potential Risk	Potential Cause
Potential Vulnerability to disaster risk		
M	Severe Weather / Extreme Temperatures	• extreme weather/temperatures - periods of heavy rainfall, taking into account climate change and strong winds.
N	Flooding- high levels of surface water on the Main Wind Farm Development Site	• extreme weather - periods of heavy rainfall, taking into account climate change and strong winds.
Potential to cause accidents and / or disasters		
O	Industrial Accident - Fluid/fuel emission, Fire	• decommissioning work. • vehicle use. • employee negligence. • failures in BSMP for example in extreme heat.
P	Traffic Incident - Collisions onsite and offsite with vehicles involved in operation of the Proposed Project.	• driver negligence or failure of vehicular operations on site roads. • traffic management not implemented.
Q	Water contamination - Fluid/fuel emission	• decommissioning work • vehicle use

15.63 The risk register is based upon possible risks associated with the Proposed Project. As outlined previously, 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.

15.64 **Table 15-8** sets out a reasoned 'Risk Score' for each potential risk, which is a factor of the allocated 'Risk Likelihood' based on the definitions set out in **Table 15-1** and the allocated 'Risk Consequence' as defined in **Table 15-3**.

Table 15-8: Assessment of Effects - Summary

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Classification	Risk Score (Consequence x Likelihood)
Construction Phase								
A	**Severe Weather / Extreme Temperatures**	• extreme weather- extreme heat/ extreme cold, periods of heavy rainfall, taking into account climate change and strong winds.	• illness or loss of life • sedimentation of nearby watercourse • damage to, or depletion of aquatic habitats and species	4	The risk of severe weather is very unlikely when considering the assessment in **Chapter 8** of this EIAR and weather conditions recorded over the last 30 years within the area, however it is assessed here as 'unlikely' given that trends are changing[3] rapidly and there remain uncertainties in climate science[4].	1	The risk of severe weather conditions during the construction phase will result in a minor classification in that 'small number of people would be affected' (given low workforce numbers involved and low number of immediate neighbours) should a severe weather occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. Potential localised contamination. Minor localised disruption to community services or infrastructure (<6 hours).	4
B	**Flooding**	• extreme weather- periods of heavy rainfall, taking into	• illness or loss of life	2	The risk of flooding is considered very unlikely when taking	1	The risk of flooding during the construction phase will result in a minor	2

[3] https://teagasc.ie/news--events/daily/how-weather-patterns-are-changing-what-are-we-adapting-to/

[4] https://news.climate.columbia.edu/2023/01/12/what-uncertainties-remain-in-climate-science/

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Classification	Risk Score (Consequence x Likelihood)
		account climate change and strong winds.	• sedimentation of nearby watercourse • damage to, or depletion of aquatic habitats and species		into account the assessment in **Chapter 7** of this EIAR.		classification in that 'small number of people would be affected' (given low workforce numbers involved and low number of immediate neighbours) should a severe weather event occur, with 'no fatalities and a small number of minor injuries with first aid treatment' Potential localised contamination. Minor localised disruption to community services or infrastructure (<6 hours).	
C	**Industrial Accident - Fluid/fuel emission**	• equipment or infrastructure failure • fuel spillage/storage • electrical problems • employee negligence.	• illness or loss of life • damage to, or depletion of habitats and species • impacts on ambient air quality.	2	Considered very unlikely due to in-built design with fire safety etc.	2	Should a leak/fire/explosion occur at the Main Wind Farm Development Site, this should result in a limited classification in that 'limited number of people would be affected' (given low workforce numbers involved and low number of immediate neighbours) and infrastructure damage would likely be of the €0.5-3M scale. Localised contamination possible.	4

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Classification	Risk Score (Consequence x Likelihood)
D	**Collapse/ damage to structures**	• extreme weather conditions such as flooding and storms • Potential peat instability • vehicular collisions due to driver negligence.	• injury or loss of life • sedimentation of nearby watercourse • damage to, or depletion of aquatic habitats and species	2	Extreme weather conditions could cause damage to wind turbines but is very unlikely given in-built mechanisms. The implementation of Peat Management Plan and ground condition monitoring to be undertaken periodically and after heavy rainfall will make damage as a result of instability very unlikely. Having regard to public speed limits within the Main Wind Farm Development Site, it is not predicted that any collision of vehicles and any infrastructure would result in significant damage/collapse.	1	The risk of infrastructure collapse or damage to structures could result in a minor classification in that 'small number of people would be affected, with 'no fatalities and a small number of minor (given low workforce numbers involved and low number of immediate neighbours) injuries with first aid treatment'. Potential localised contamination. Unlikely to be wider impact to community services.	2
E	**Traffic Incident**	• driver negligence or failure of vehicular	• injury or loss of life.	2	Vehicles will be permitted on the Main Wind Farm Development Site	1	A minor classification is predicted. Having regard to relatively small site area and lack of potential to gain	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Classification	Risk Score (Consequence x Likelihood)
		operations on site roads. • traffic management not Implemented.			as part of the construction phase. 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.' A very unlikely risk is predicted given the low speeds involved.		speed, on-site speed limits and, a 'small number of people would be affected' should a vehicular collision occur, with 'no fatalities and small number of minor injuries with first aid treatment.' Unlikely to cause widespread community disruption.	
F	**Water contamination**	• Potential leaks from vehicles • Potential leaks from machinery • Potential spills during refuelling of machinery	• damage to, or depletion of aquatic habitats and species. • sedimentation of nearby watercourse.	2	Classed very unlikely as very few incidents in associated organisations, facilities or communities.	2	The risk of a fuel spillage or impact on surrounding drainage during the construction stage will result in a limited classification in that there would be 'a limited number of people affected' (given low workforce numbers involved and low number of immediate neighbours) with 'localised effects of short duration'. Localised contamination possible. The levels of potential chemicals /hydrocarbons involved in the nature of the Proposed Project are very low and therefore very unlikely to	4

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Classification	Risk Score (Consequence x Likelihood)
							result in widespread contamination.	
Operational Phase								
G	**Severe Weather / Extreme Temperatures**	• extreme weather- extreme heat/ extreme cold, periods of heavy rainfall, taking into account climate change and strong winds.	• illness or loss of life. • sedimentation of nearby watercourse. • damage to, or depletion of aquatic habitats and species.	4	The risk of severe weather is very unlikely when considering the assessment in **Chapter 8** of this EIAR and weather conditions recorded over the last 30 years within the area, however it is assessed here as 'unlikely' given that trends are changing.	1	The risk of severe weather conditions during the operational phase will result in a minor classification in that 'small number of people would be affected' (given low workforce numbers involved and low number of immediate neighbours) should a severe weather occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. Potential localised contamination. Minor localised disruption to community services or infrastructure (<6 hours).	4
H	**Flooding**	• extreme weather- periods of heavy rainfall, taking into account climate change and strong winds.	• illness or loss of life. • sedimentation of nearby watercourse. • damage to, or depletion of aquatic habitats and species.	2	The risk of flooding is considered very unlikely when taking into account the assessment in **Chapter 7** of this EIAR.	1	The risk of flooding during the operational phase will result in a minor classification in that 'small number of people would be affected' (given low workforce numbers involved and low number of immediate neighbours) should a severe weather	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Classification	Risk Score (Consequence x Likelihood)
							event occur, with 'no fatalities and a small number of minor injuries with first aid treatment.' Potential localised contamination. Minor localised disruption to community services or infrastructure (<6 hours).	
I	**Industrial Accident - Fluid/fuel emission**	• equipment or infrastructure failure. • fuel spillage/storage. • electrical problems. • employee negligence.	• illness or loss of life. • damage to, or depletion of habitats and species. • impacts on ambient air quality.	2	Considered very unlikely due to in-built design with fire safety etc.	2	Should a leak/ fire/explosion occur at the Main Wind Farm Development Site, this should result in a limited classification in that 'limited number of people would be affected' (given low workforce numbers involved and low number of immediate neighbours) and infrastructure damage would likely be of the €0.5-3M scale. Localised contamination possible.	4
J	**Collapse/ damage to structures**	• extreme weather conditions such as flooding and storms. • Potential peat instability	• injury or loss of life. • sedimentation of nearby watercourse. • damage to, or depletion of aquatic habitats and species.	2	Extreme weather conditions could cause damage to wind turbines but is very unlikely given in-built mechanisms. The implementation of Peat Management	1	The risk of infrastructure collapse or damage to structures could result in a minor classification in that 'small number of people would be affected, with 'no fatalities and a small number of minor (given low workforce numbers involved	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Classification	Risk Score (Consequence x Likelihood)
		• vehicular collisions due to driver negligence.			Plan and ground condition monitoring to be undertaken periodically and after heavy rainfall will make damage as a result of instability very unlikely. Having regard to public speed limits within the Main Wind Farm Development Site, it is not predicted that any collision of vehicles and any infrastructure would result in significant damage/collapse.		and low number of immediate neighbours) injuries with first aid treatment'. Potential localised contamination. Unlikely to be wider impact to community services.	
K	**Traffic Incident**	• driver negligence or failure of vehicular operations on site roads. • traffic management not Implemented.	• injury or loss of life.	2	Vehicles will be permitted on site as part of the operational phase. 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.'	1	A minor classification is predicted. Having regard to relatively small site area and lack of potential to gain speed, on-site speed limits and, a 'small number of people would be affected' should a vehicular collision occur, with 'no fatalities and small number of minor injuries with first aid treatment.'	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Classification	Risk Score (Consequence x Likelihood)
					A very unlikely risk is predicted given the low speeds involved.		Unlikely to cause widespread community disruption.	
L	**Water contamination**	• Potential leaks from vehicles • Potential leaks from machinery • Potential oil spills during maintenance works	• damage to, or depletion of aquatic habitats and species. • sedimentation of nearby watercourse.	2	Classed very unlikely as very few incidents in associated organisations, facilities or communities.	2	The risk of a fuel spillage or impact on surrounding drainage during the operational stage will result in a limited classification in that there would be 'a limited number of people affected' (given low workforce numbers involved and low number of immediate neighbours) with 'localised effects of short duration'. Localised contamination possible. The levels of potential chemicals /hydrocarbons involved given the nature of the Proposed Project are very low and therefore very unlikely to result in widespread contamination.	4
Decommissioning Phase								
M	**Severe Weather / Extreme Temperatures**	• extreme weather-intense heat/cold, periods of heavy rainfall, taking into account climate	• illness or loss of life. • sedimentation of nearby watercourse.	4	The risk of severe weather is very difficult to predict for 30 years in future. However, on the basis that the previous phases	1	The risk of severe weather conditions during the decommissioning phase will result in a minor classification in that 'small number of people would be affected' (given low	4

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Classification	Risk Score (Consequence x Likelihood)
		change and strong winds.	• damage to, or depletion of aquatic habitats and species.		identified the risk as 'unlikely' to reflect the observed changing weather patterns mixed with prediction uncertainties it is considered appropriate to adopt the same approach for the decommissioning stage.		workforce numbers involved and low number of immediate neighbours) should a severe weather occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. Potential localised contamination. Minor localised disruption to community services or infrastructure (<6 hours).	
N	**Flooding**	• extreme weather-periods of heavy rainfall, taking into account climate change and strong winds.	• illness or loss of life. • sedimentation of nearby watercourse. • damage to, or depletion of aquatic habitats and species.	2	The risk of flooding is considered very unlikely when taking into account the assessment in **Chapter 7** of this EIAR.	1	The risk of flooding during the decommissioning phase will result in a minor classification in that 'small number of people would be affected' (given low workforce numbers involved and low number of immediate neighbours) should a severe weather occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. Potential localised contamination. Minor localised disruption to community services or infrastructure (<6 hours).	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Classification	Risk Score (Consequence x Likelihood)
O	**Industrial Accident - Fluid/fuel emission**	• equipment or infrastructure failure. • fuel spillage/storage. • electrical problems. • employee negligence.	• illness or loss of life. • damage to, or depletion of habitats and species. • impacts on ambient air quality.	2	Considered very unlikely due to in-built design with fire safety etc.	2	Should a leak/ fire/explosion occur at the Main Wind Farm Development Site, this should result in a limited classification in that 'limited number of people would be affected' (given low workforce numbers involved and low number of immediate neighbours) and infrastructure damage would likely be of the €0.5-3M scale. Localised contamination possible.	4
P	**Traffic Incident**	• Driver negligence or failure of vehicular operations on site roads. • traffic management not implemented.	• injury or loss of life.	2	Additional vehicles permitted on the Main Wind Farm Development Site as part of the decommissioning phase. 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.' A very unlikely risk is predicted given the low speeds involved.	1	A minor classification is predicted. Having regard to relatively small site area and lack of potential to gain speed, on-site speed limits and, a 'small number of people would be affected' should a vehicular collision occur, with 'no fatalities and small number of minor injuries with first aid treatment.' Unlikely to cause widespread community disruption.	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Classification	Risk Score (Consequence x Likelihood)
Q	**Water contamination**	• Potential leaks from vehicles • Potential leaks from machinery • Potential spills during refuelling of machinery	• damage to, or depletion of aquatic habitats and species. • sedimentation of nearby watercourse.	2	Classed very unlikely as very few incidents in associated organisations, facilities or communities.	2	The risk of a fuel spillage or impact on surrounding drainage during the decommissioning stage will result in a limited classification in that there would be 'a limited number of people affected' (given low workforce numbers involved and low number of immediate neighbours) with 'localised effects of short duration'. Localised contamination possible. The levels of potential chemicals /hydrocarbons involved in the nature of the Proposed Project are very low and therefore very unlikely to result in widespread contamination.	4

15.65 The risk assessment for each of the potential risks identified during construction, operation and decommissioning of the Proposed Project are consolidated in **Table 15-9** which provides their 'risk score.' All risks identified can be classified as 'low risk scenarios'.

Table 15-9: Consolidated Risk Score

Risk ID	Potential Risk	Likelihood Rating	Classification Rating	Risk Score
Construction Phase				
A	Severe weather	4	1	4
B	Flooding	2	1	2
C	Industrial accident	2	2	4
D	Collapse/ damage to structures	2	1	2
E	Traffic incident	2	1	2
F	Water contamination	2	2	4
Operational Phase				
G	Severe weather	4	1	4
H	Flooding	2	1	2
I	Industrial accident	2	2	4
J	Collapse/ damage to structures	2	1	2
K	Traffic incident	2	1	2
L	Water contamination	2	2	4
Decommissioning Phase				
M	Severe weather	4	1	4
N	Flooding	2	1	2
O	Industrial accident	2	2	4
P	Traffic incident	2	1	2
Q	Water contamination	2	2	4

14.7 A corresponding risk matrix is provided in **Table 15-10** which is colour coded in order to provide an indication of the critical nature of each risk. As outlined earlier in the chapter, the red zone represents 'high risk' scenarios', the amber zone represents 'medium risk scenarios and the green zone represents 'low risk' scenarios. The rationale for the classification of risks in this way is in accordance with the DoEHLG (2010) Guidance which is used as a best practice guidance framework in the absence of specialist guidelines for EIA. The DoEHLG guidance uses a similar matrix to that set out below in which 'emergencies' are classified as either 'Normal' or 'Major'. Within the so-called 'Major' emergency zone, where hazards are extremely/ very unlikely it is stated that they do not warrant specific preparedness and that preparation by emergency agencies should select a scenario of a more extreme version of a more likely event to prepare for such risk. On this basis, the risk score matrix below categorises extremely likely and unlikely events within the 'green' 'low risk scenario'.

Table 15-10: Risk Score Matrix

Consequence						
Likelihood		**1** Minor	**2** Limited	**3** Serious	**4** Very Serious	**5** Catastrophic
	5 Very Likely					
	4 Likely	A, G, M				
	3 Unlikely					
	2 Very Unlikely	B, D, E, H, J, K, N, P	C, F, I, L, O, Q			
	1 Extremely Unlikely					
		Normal Emergency		**Major Emergency**		

Mitigation Measures

15.66 Although indicated as low risk, the highest-risk scenarios regarding the occurrence of major accidents or disasters in the construction, operation and decommissioning phases of the Proposed Project are identified as the risks of 'industrial accident', 'water contamination' and 'severe weather'. Industrial accident and water contamination risks are associated with most development if appropriate management practices are not implemented. The potential for risks associated with severe weather events is a universal one given the increasingly common trends that are being observed and accepted as a consequence of climate change.

14.8 The design of the Proposed Project adheres to the best practices outlined in this EIAR, incorporating mitigation measures to address the risk of vulnerability to / cause of major accidents or disasters. **Chapter 2** contains details of inherent design features to protect against severe weather, such as the yaw mechanism to control wind turbine orientation, lightning protection mast, earthing cable and anti-vibration sensors to cope with any imbalances from ice formation. **Chapter 7** of this EIAR **Technical Appendix 7.4**provides an assessment of the receiving waterbodies and the potential for these to be impacted, thereby enabling an emphasis to be provided on the most important water management measures to be employed as part of the Proposed Project.

15.67 The Battery Safety Management Plan set out in **Technical Appendix 4-1** focuses on identifying and controlling battery specific hazards, in the event of fire or heat exposure.

14.9 The CEMP presented in **Technical Appendix 2-1** identifies a range of measures through which health and safety will be safeguarded through the construction of the Proposed Project, and the risks of major accidents and disasters minimised. General emergency response procedures are specified in Section 6.1 of the CEMP. Emergency response procedures will highlight fire safety and fire prevention, including risks of and control measures to prevent fire outbreak, evacuation procedures and those responsible for their implementation, and the use of firefighting equipment, in line with 2017 HSA Guidelines on the Procurement, Design and Management Requirements of the Safety Health and Welfare at Work (Construction) Regulations 2013.

14.10 For future mitigation, the CEMP confirms that once planning permission is granted, the Environmental Incident Emergency Response Plan (EIERP) contained in the CEMP in **Technical Appendix 2-1** will be be implemented and further developed by the Project Supervisor Construction Stage (PSCS). The EIERP will be agreed by the Applicant and Project Supervisor Design Process (PSDP) prior to construction and will include evidence of training of site staff / plant operators in emergency response procedures and key staff contacts for environmental management and emergency response.

Residual Effects

15.68 As with the DoEHLG guidance, an element of professional judgement has been used to inform the assessments of risk likelihoods and consequences presented in this chapter. The risks identified have all been categorised as low.

14.11 Given that the risks are identified as 'low' it can be inferred that the risk of major accidents does not represent a significant effect in the context of the Proposed Project. Mitigation measures have been identified in each of the technical chapters of this EIAR to reduce the potential for environmental impacts that could lead to major accidents or disasters. It is anticipated that these measures will be implemented and strictly adhered to during all stages of the Proposed Project. These measures have not been taken into account in the conservative assessment of risks set out herein. It is reasonable to conclude that the implementation of these measures will reduce the potential risks further than the low levels already identified. This will effectively eliminate any significant residual risk related to the construction, operation and decommissioning of plant of the Proposed Project.

Cumulative Effects

15.69 For the assessment of cumulative effects, other similar operational developments and any other permitted or proposed and unbuilt proposed developments in proximity to the Main Wind Farm Development Site have been considered where they have the potential to generate an in-combination or cumulative impact with the Proposed Project.

15.70 The proposed and permitted projects that are identified in **Table 2-5, Chapter 2** of this EIAR relate to wind farms and energy infrastructure upgrades as well as one project relating to the infill of agricultural land c. 13.1 km to the north-west of the Proposed Project.

14.12 A review of the planning documentation available publicly online in relation to these proposals has not revealed any information that would cause concerns in relation to vulnerability or potential source of major accidents or disasters. Given these facts and that the risk from the Proposed Project is also low, it is not considered that there is potential for cumulative effects from the Proposed Project.

Conclusion and Statement of Significance

15.71 It is assessed that the Proposed Project carries **no significant effects** in terms of the EIA regulations with respect to major accidents or disasters, nor is it vulnerable to potential disasters or accidents, including both natural and man-made incidents.

15.72 The construction, operation and decommissioning stages pose similar risks in terms of major accidents and disasters.

References

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