Planning and Environmental Consultants

Environmental Impact Assessment Report (EIAR)

Lackareagh Wind Farm, Co. Clare

Chapter 16 – Major Accidents and Natural Disasters

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16. MAJOR ACCIDENTS AND NATURAL DISASTERS

16.1 Introduction

This section of the Environmental Impact Assessment Report (EIAR) describes the likely significant adverse effects on the environment arising from the vulnerability of the Proposed Project as detailed in Chapter 4 to risks of major accidents and/or natural disasters, as well as the potential of the Proposed Project itself to cause potential 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 Statements'* (EPA, 2022) 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'.*

The assessment of the vulnerability of the Proposed Project to major accidents and/or natural disasters, as well as the risk of the Proposed Project itself causing major accidents and/ or natural disasters is carried out in compliance with the EIA Directive (2014/52/EU) 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 the Proposed Project.

> *"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, that the Proposed Project could be vulnerable to or could cause;
- 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.

The full description of the Proposed Project is provided in Chapter 4 of this EIAR.

As detailed in Section 1.1.1 in Chapter 1, for the purposes of this EIAR, the various project components are described and assessed using the following references: 'Proposed Project', 'the site', 'Proposed Wind Farm' and 'Proposed Grid Connection Route'.

16.1.1 Statement of Authority

This section of the EIAR has been prepared by Catherine Johnson and reviewed by Niamh McHugh and Sean Creedon. Catherine is an Environmental Scientist at MKO with over two years of consultancy experience in climate and sustainability. Prior to joining MKO in 2022, Catherine worked as an Environmental Social Governance (ESG) analyst for Acasta in Edinburgh. Catherine has expertise in international climate law and policy, earth science, and sustainability/ESG processes. Catherine has a BSc in Earth and Ocean Science and an LLM in Global Environment and Climate Change Law.

Niamh is an Environmental Scientist who has been working with MKO since June 2021. Niamh possesses a BSc (Hons) in Environmental Science from the National University of Ireland, Galway. Niamh has been involved in the compilation and production of a number of EIARs, mainly in the field of renewables. Sean is an Associate Director in the Environment Team at MKO. He oversees a team of highly skilled environmental professionals working on EIAR for large-and medium scale Renewable Energy infrastructure. Sean has directed and overseen multiple renewable energy projects across wind, solar, battery and hydrogen as well as a range of thermal and other energy related developments. He has worked on the planning and environmental impact elements within all stages of wind farm project delivery. He is a member of the MKO senior management team responsible for developing the business, mentoring team members, fostering a positive culture and promoting continuous employee professional development. Sean has over 22 years' experience in program and project development, holds an MSc from NUI Galway and a Diploma in Project Management from Institute of Project Management Ireland.

16.2 Assessment Methodology

16.2.1 General

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

- Census of Ireland 2016; 2022
- Mid-West Regional Planning Guidelines 2010-2022
- Regional Spatial and Economic Strategy (RSES) 2019-2031, adopted by the Eastern and Midland Regional Assembly (EMRA) in June 2019 and published by the Southern Regional Assembly (SRA) on 31st January 2020.
- Clare County Development Plan 2023-2029
- Clare County Council Website and
- Fáilte Ireland

Major accidents or natural disasters are hazards which have the potential to affect the Proposed Project and lead to environmental effects directly or indirectly. These include accidents during construction, operation and decommissioning of the Proposed Project caused by operational failure and/or natural hazards. The assessment of the risk of major accidents and/or natural disaster is considered in relation to the information required to be provided in the EIAR, i.e. population and human health, biodiversity, land, soil, water, air, climate and material assets, cultural heritage and the landscape.

16.2.2 Legislative Context

16.2.2.1 Legislation

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 potential to cause major accidents or disasters which pose a risk to human health, cultural heritage and/or the environment.

The information relevant to major accidents and/or disasters to be included in the EIAR is set out in Section 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".

16.2.2.2 Guidance Documents

The following guidance documents have been consulted in the preparation of this section:

- European Commission. (2017). Environmental Impact Assessment of Projects – Guidance on the preparation of Environmental Impact Assessment Reports
- Environmental Protection Agency (2022), Guidelines on the Information to be Contained in Environmental Impact Assessment Reports
- Department of Environment, Heritage and Local Government (2010) *A Guide to Risk Assessment in Major Emergency Management*
- Environmental Protect Agency (2014) Guidance on Assessing and Costing Environmental Liabilities
- Department of Defence (2020) A National Risk Assessment for Ireland
- Clare County Council Major Emergency Plan 2018
- HSE Emergency Management Area 3 Crisis Management Team Major Emergency Plan: Covering Geographical Areas of Counties Clare, Limerick and North Tipperary (November 2019)

On a regional scale, Clare falls under the scope of the HSE Area 3 Emergency Plan.[1]

16.2.3 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 develop an understanding of the vulnerability and resilience of the area to emergency situations.

Further detail on the baseline environment is provided in Section 16.3.

16.2.4 Impact Assessment Methodology

16.2.4.1 Introduction

A wind farm is not a recognised source of pollution. It is not subject to Industrial Emissions Directive regulation or any other Environmental Protection Agency 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.

[1] https://www.hse.ie/eng/services/list/3/emergencymanangement/area-mep/hse-emergency-management-area-3-emergency-plan.pdf

There is low potential for significant natural disasters to occur at the Proposed Project site. Ireland is a geologically stable country with a mild temperate climate. However, due to the nature of the Proposed Project site, the potential natural disasters that may occur include landslide, along with flooding and fire, which are all described in the sections below. Please see Appendix 8-1 for the Geotechnical and Peat Stability Assessment for the site.

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. The closest SEVESO site is the Smithstown Industrial Estate, located approximately 28.5km to the southwest of the Proposed Project site, therefore there are no potential effects from this source.

The Proposed Project has low potential to cause natural disasters or major accidents. As detailed in Section 8.3.3 in Chapter 8 of this EIAR, the EPA published soil map (www.epa.ie) and the GSI subsoil mapping (www.gsi.ie) for the area shows that the Proposed Project is overlain by a mosaic of soil types. Mapped soils within the Proposed Wind Farm site comprise acid deep and shallow well drained mineral soils (in the east and west respectively). The west of the Proposed Wind Farm site is underlain by till derived from Lower Palaeozoic sandstones and shales with much of the higher ground in the east mapped to be underlain by bedrock outcrop or subcrop. The majority of the Proposed Grid Connection Route is overlain by mainly acidic poorly drained mineral soils. Meanwhile, the northern section, in the vicinity of the Proposed Wind Farm site is overlain by shallow, well drained acidic mineral soils. (www.epa.ie).

Any risks associated with flooding, impacts on infrastructure, accidents etc are addressed in the sections below.

Current EIA practice already includes an assessment of some potential accidents and disaster scenarios such as pollution incidents to ground and watercourses as well as assessment of flooding events. These are described in detail in the relevant EIAR assessment chapters (Refer to Chapters 5 to 16 for further detail).

16.2.4.2 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 EPA '*Guidance on Assessing and Costing Environmental Liabilities'* document[2]. The following steps were taken as part of the site-specific risk assessment:

- Risk Identification
- Risk Classification, likelihood and consequence, and
- Risk Evaluation

16.2.4.2.1 *Risk Identification*

Risks have been reviewed through the identification of reasonably foreseeable risks in consultation with relevant contributors to this EIAR. The identification of risks has focused on non-standard but plausible incidents that could occur at the Proposed Project during construction, operation and decommissioning.

[2] *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*

In accordance with the European Commission EIAR Guidance, risks are identified in respect of the Proposed Project:

1. *Potential to cause accidents and/or disasters,*
2. *Vulnerability to potential disaster/accident*

16.2.4.2.2 Risk Classification

Classification of Likelihood

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 16-1 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.

Table 16-1 Classification of Likelihood (Source: DoEHLG, 2010)

Ranking	Likelihood	Description
1	Extremely Unlikely	May occur only in exceptional circumstances; once every 500 or more 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.
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

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. Furthermore, the Clare County Council Major Emergency Plan (2018), will work to reduce the consequence of any major accident or disaster. The consequence of the impact if the event occurs has been assigned as described in Table 16-2.

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.

Table 16-2 Classification of Impact (Source: DoEHLG, 2010)

Ranking	Likelihood	Impact	Description
1	Minor	Life, Health, Welfare Environment Infrastructure Social	Small number of people affected; no fatalities and small number of minor injuries with first aid treatment. No contamination, localised effects <€0.5M Minor localised disruption to community services or infrastructure (<6 hours).
2	Limited	Life, Health, Welfare Environment Infrastructure Social	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. Simple contamination, localised effects of short duration €0.5-3M Normal community functioning with some inconvenience.
3	Serious	Life, Health, Welfare Environment Infrastructure Social	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. Simple contamination, widespread effects or extended duration €3-10M Community only partially functioning, some services available.
4	Very Serious	Life, Health, Welfare Environment Infrastructure	5 to 50 fatalities, up to 100 serious injuries, up to 2000 evacuated Heavy contamination, localised effects or extended duration

Ranking	Likelihood	Impact	Description
		Social	€10-25M Community functioning poorly, minimal services available
5	Catastrophic	Life, Health, Welfare Environment Infrastructure Social	Large numbers of people impacted with significant numbers of fatalities (>50), injuries in the hundreds, more than 2000 evacuated. Very heavy contamination, widespread effects of extended duration. >€25M 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

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.

The risk matrix sourced from the DoEHLG *Guide to Risk Assessment in Major Emergency Management* and as outlined in Table 16-3 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'.

Table 16-3 Classification of Impact (Source: DoEHLG, 2010)

		Consequence Rating				
		1.Minor	2.Limited	3. Serious	4.Very Serious	5.Catastrophic
Likelihood Rating	5.Very Likely					
	4. Likely					
	3. Unlikely					
	2. Very Unlikely					
	1. Extremely Unlikely					

16.3 Baseline Conditions

The functional area of Clare County Council falls under the HSE Area 3 Emergency Management Plan.

The Major Emergency Plan prepared by Clare County Council (2018) outlines the following potential site-specific risks within County Clare at the following sites:

1. *Shannon Airport Fuel Terminal, Shannon International Airport*
2. *ESB Moneypoint Power Generating Station, Kilrush, Co. Clare*
3. *Roche Ireland, Clarecastle, Co. Clare*
4. *ENVA Smithstown Industrial Estate, Shannon, Co Clare*
5. *Avara, Shannon Ind Est Shannon Co. Clare*
6. *Shannon International Airport, Shannon, Co. Clare*
7. *Shannon Estuary*

Please note, the Roche pharmaceutical manufacturing plant and Avara Shannon pharmaceutical manufacturing plant identified above are no longer operational (i.e. Roche Ireland site is currently undergoing remediation works as per the conditions of its EPA Licence, and the Avara site is currently undergoing repurposing, again as per its EPA licence conditions) and are examined in the below assessment.

As part of the Local Area Climate Action Plan[3] for County Clare (Clare LACAP) a Tier 1 climate change risk assessment (CCRA) was carried out; KPMG supported Clare County Council to build the adaptation baseline that formed part of the CCRA. This CCRA was undertaken in accordance with Technical Annex B of the Local Authorities Climate Action Plan and provides a qualitative assessment of climate risk for County Clare. In assessing climate change risk, the risk assessment framework of the Intergovernmental Panel on Climate Change (IPCC) was adopted. This framework identifies three key components of climate risk: hazard, exposure, and vulnerability. A profile of historical climate hazards in County Clare and assessment on future climate hazards is provided in the Clare LACAP. The Shannon Airport long term weather station was used for baseline 30- year average figures. Based on the climate hazard baseline, severe windstorm events have impacted upon County Clare most frequently

[3] *Clare County Council (2024) Local Area Climate Action Plan 2024-2029 <https://clarecoco.ie/climate/local-area-climate-action-plan>*

over the period 1986-2022, with heatwaves, flooding events (river, pluvial, groundwater, and coastal) and cold spells also affecting the County on several occasions. Coastal erosion, heavy snowfall, and droughts have also impacted Clare in the time period but have occurred less frequently. Future projections of climate change indicate that the risk of existing hazards such as river, pluvial and coastal flooding and coastal erosion are likely to increase in the future because of changes in both hazard frequency as a result of climate change and impact due to changes in exposure and vulnerability. Emerging risks for the region as a result of climate change include heatwaves and droughts as, although these are already experienced within County Clare, a greater impact is expected to occur as a direct result of climate change.

The risks which are most relevant to this assessment are described below in line with the specific sites identified above. General baseline conditions are also included as part of this assessment and include the following:

- Severe Weather
- Flooding
- Aircraft Collision/Loss
- Water Contamination
- Hazmat
- Rail Accident
- Industrial Fire/Explosion
- Loss of Critical Infrastructure
- Structural Collapse

These risks are further detailed below.

16.3.1 Location and Event Specific Risks in Co. Clare

Shannon Airport Fuel Terminal, Shannon International Airport

The fuel farm and fuel hydrant system to Shannon International Airport is an upper tier site classification under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015. Due to the nature of the fuel terminal, an external emergency plan has been developed for responding to emergencies at this location.

Risks that may to occur at this site:

- Flooding
- Water contamination
- Hazmat
- Industrial Fire/Explosion

Due to the location of the fuel terminal (i.e., 33.5km to the southwest of the Proposed Wind Farm site), it is not considered likely that any of the above identified risks will impact the Proposed Project if they were to occur.

ESB Moneypoint Power Generating Station, Kilrush, Co. Clare

ESB Moneypoint is Ireland's biggest electricity generation station with an installed capacity of 915MW. It has an upper tier site classification under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015. Due to the nature of the generating station, an external emergency plan has been developed for responding to emergencies at this location.

Risks that may occur at this site:

- Flooding
- Water contamination
- Hazmat
- Industrial Fire/Explosion
- Loss of Critical Infrastructure

Due to the location of the generating station (i.e., 79.9km to the southwest of the Proposed Wind Farm site), it is not considered likely that any of the above identified risks will impact the Proposed Project if they were to occur.

Roche Ireland, Clarecastle, Co. Clare

The Roche Ireland plant, located in Clarecastle, operated as a pharmaceutical plant for many years, and at the time of writing, is subject to a remediation operation. During its operational phase, the Roche Ireland plant was a lower tier site, classified under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015. Due to the nature of the pharmaceuticals plant, an external emergency plan has been developed for responding to emergencies at this location.

Risks that may occur at this site:

- Water contamination
- Hazmat
- Industrial Fire/Explosion

Due to the location of this pharmaceutical plant (i.e. c. 28km west of the Proposed Wind Farm site), it is not considered likely that any of the above identified risks will impact the Proposed Project if they were to occur.

ENVA Smithstown Industrial Estate, Shannon, Co Clare

ENVA Smithstown Industrial Estate is a waste treatment and disposal facility with a lower tier site classification under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015.

Risks that may occur at this site:

- Flooding
- Water contamination
- Hazmat
- Industrial Fire/Explosion
- Loss of Critical Infrastructure

Due to the location of the waste treatment and disposal facility (i.e., 28.8km to the southwest of the Proposed Wind Farm site), it is not considered likely that any of the above identified risks will impact the Proposed Project if they were to occur.

Avara, Shannon Industrial Estate, Shannon, Co. Clare

The Avara pharmaceutical manufacturing and Research and Development facility is located in the Shannon Industrial Estate is classified as a lower tier site under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015.

Risks that may occur at this site include:

- Water contamination
- Hazmat
- Industrial Fire/Explosion

Due to the location of this pharmaceutical plant (i.e. c. 30km southwest of the Proposed Wind Farm site), it is not considered likely that any of the above identified risks will impact the Proposed Project if they were to occur.

Shannon International Airport, Shannon, Co. Clare

Shannon airport is the No. 1 designated airport for emergency landings for all air traffic over the Eastern half of the North Atlantic Ocean. The runway is capable of taking the largest type of aircraft now in operation. Shannon Airport is operated in accordance with ICAO (International Civil Aviation Organization) regulations and is a Category 9 airport under these regulations.

Risks that may to occur at this site include:

- Severe Weather
- Flooding
- Aircraft Collision/Loss
- Hazmat
- Industrial Fire/Explosion
- Loss of Critical Infrastructure
- Structural Collapse

Due to the location of the airport (i.e., 27.8km to the southwest of the Proposed Wind Farm site), it is not considered likely that any of the above identified risks will impact the Proposed Project if they were to occur.

Shannon Estuary

The Shannon Estuary is of major economic, commercial and environmental importance to the country of Ireland. The environmental importance of the Estuary is highlighted by the presence of six locations proposed as Special Protection Areas and Natural Heritage Areas.

Potential hazards located to the Shannon Estuary and surrounding areas are high volumes of bulk marine traffic, air traffic and the presence of heavy industry located adjacent to the Estuary. This includes power generation. Therefore, risk associated with the estuary include:

- Severe Weather
- Flooding
- Water Contamination

Due to the location of the Shannon Estuary (i.e., approximately 16.5 southwest of the Proposed Wind Farm site), it is not considered likely that any of the above identified risks will impact the Proposed Project if they were to occur.

16.3.2 General Baseline Conditions

Severe Weather

The climate change risk assessments included in the Clare LACAP detail the major risks posed from climate change relating to flooding, severe wind storms, extreme precipitation, 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.

Potential impacts that may occur on the identified road networks could be caused by an accident during the delivery of the turbines, collisions onsite and offsite with vehicles involved in construction and operation of Proposed Project, and damage to critical transport infrastructure caused by extreme weather i.e., periods of heavy rainfall, taking into account climate change and strong winds.

As detailed in Section 15.1 Traffic and Transport in Chapter 15 of this EIAR: Material Assets, the localised traffic disruptions as a result of other proposed 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)*'.

Flooding

Chapter 9 and the accompanying Appendix 9-1 Flood Risk Assessment (FRA), detail the flood risk of the Proposed Project site. Based on the information provided in the stated documents, the areas of the Proposed Project at risk of flooding were identified.

The National Indicative Fluvial Flood Map does not map any flood zones within the Proposed Wind Farm. The closest mapped historic flood event is located 1.5km to the west of the Proposed Wind Farm site along the Glenomra River, and the nearest recurring flood event downstream of the Proposed Wind Farm site is mapped at Parteen Weir, ~6km to the southeast. No National Catchment-based Flood Risk Assessment and Management (CFRAM) flood zones are mapped along any of the local watercourses draining the Proposed Grid Connection Route. Furthermore, the Proposed Wind Farm site is not mapped within any historic or modelled groundwater flood zones.

The overall risk of flooding posed at the Proposed Wind Farm site is assessed to be very low due to the elevated and sloping nature of the site and the high density of mountain streams which flow rapidly downslope, and the overall risk of flooding posed at the Proposed Grid Connection Route is assessed to be low. Along the Proposed Grid Connection Route there are areas which may be prone to flooding, principally along the Blackwater River. Please refer to the Chapter 9: Water and Appendix 9-1 Flood Risk Assessment of this EIAR for further details

Aircraft Collision/ Loss

The Proposed Project will not utilise air strips or aircraft for the delivery of turbine components. Delivery of turbines and their associated components will be via the national and local road network.

The Proposed Project has the potential to affect aviation due to the erection of manmade structure in excess of 45 metres that may constitute an obstacle to air navigation. These impacts are addressed in detail in Section 15.2 in Chapter 15 of this EIAR: Material Assets. The scoping response from the Irish Aviation Authority (IAA) set out that in the event of planning consent being granted, the applicant should be conditioned to contact the IAA to (1) agree an aeronautical obstacle warning light scheme for the wind development, (2) provide as-constructed coordinates in WGS84 format together with ground and blade tip height elevations at each wind turbine location and (3) notify the IAA of intention to commence crane operations with at least 30 days prior notification of their erection. The coordinates and elevations for built turbines will be supplied to the IAA, as is standard practice for wind farm developments.

Following the guidance above, consultation with the IAA has been carried out by MKO as part of the assessment of the Proposed Project and are summarised in Section 15.2.4.3 of Chapter 15 of this EIAR.

Chapter 15 and the accompanying Appendix 15-6 Aviation Review Statement (ARS) provides a qualitative evaluation of the Proposed Wind Farm's potential to impact airspace, civil and military flight following the framework outlined in the IAC Position Paper.[4]

A desktop assessment was carried out to determine which Assessment Zones from the IAA are applicable to the Proposed Wind Farm. The nearest radar surveillance sites to the Proposed Wind Farm site are the IAA Radar Station sites at Shannon Airport (PSR and SSR) and at Woodcock Hill (SSR), located approximately 28.2km and 13.9km southwest from the Proposed Wind Farm site, respectively. As was assessed in Section 2.6.1 of Appendix 15-6, a detailed technical assessment is not required for the Radar Station at Shannon Airport; however, it is required for the Radar Station at Woodcock Hill as the EUROCONTROL Guidelines for primary surveillance radar (PSR) and secondary surveillance radar (SSR) require a 16km safe distance for a "Zone 4 - No Assessment" condition and detailed assessments for any proposed wind farm within 16km of an SSR.

This Technical Safeguarding Assessment (TSA) is provided as Appendix E to Appendix 15-6; further information on the methodology used to conduct the TSA is provided in the paragraphs below.

In line with the EUROCONTROL Guidelines, it has been highlighted in the analysis of the TSA that turbines located at the Proposed Wind Farm would be located at a distance of 28 km from the Primary Surveillance Radar (PSR) station at Shannon Airport. At this distance the Proposed Wind Farm would be in Assessment Zone 4 of the EUROCONTROL Guidelines, for the radar station. As the Proposed Wind Farm would be located in Assessment Zone 4, a detailed impact assessment on Radar Surveillance Systems will not be required by the IAA. In the case of the Secondary Surveillance Radar (SSR) it has been highlighted that the Proposed Wind Farm is within 16km of the MSSR at the Woodcock Hill and the IAA are likely to request a further technical assessment; therefore, a detailed TSA was carried out as part of the assessment for the Proposed Wind Farm. This TSA is provided as Appendix E to Appendix 15-6 and is further detailed below. It should be noted that there are wind farm developments in the vicinity of the Proposed Wind Farm (e.g. the permitted Carrownagown Wind Farm and the permitted Fahy Beg Wind Farm) that have been assessed and have been deemed not to have any adverse impacts on the MSSR radar equipment and have received planning permission.

The TSA was conducted by Cyrrus Limited (included as Appendix E to Appendix 15-6) to investigate the potential impact the Proposed Wind Farm will have on the Woodcock Hill MSSR. The TSA concludes that while a radar line of sight does exist between the Proposed Wind Farm and the Woodcock Hill MSSR, false targets due to bistatic reflections from the turbine towers will not occur. Furthermore, the volumes of shadow regions from the proposed turbines are relatively small and considered operationally tolerable; therefore, no mitigation measures are considered necessary for the Woodcock Hill MSSR.

Please refer to Appendix 15-6 for further detail.

Water Contamination

The Proposed Project has the potential to cause contamination and pollution of groundwater and surface water from potential release of silt and hydrocarbons, during earthworks and excavations on the Proposed Project site. These impacts are addressed in detail in Chapter 9 of this EIAR and are not related to either the vulnerability of the Proposed Project to natural disasters or major accidents nor the potential for the Proposed Project to cause natural disasters or accidents.

There is potential for hazardous materials in the form of hydrocarbons to be transported to and used on the Proposed Project. Mitigation measures as best practise as detailed in Chapter 9 Water and the Construction and Environmental Management Plan (CEMP) (Appendix 4-3), respectively, will minimise

[4] *Defence Forces Ireland (2014) Air Corps Wind Farm/Tall Structures Position Paper* < https://www.pleanala.ie/publicaccess/EAir%20Corps%20Position%20Paper.pdf>

the potential for leaks and will break the potential pathways between any source and receptor therefore resulting in no residual effects. The removal of hazardous materials will be done so by licenced operators for disposal at licensed waste facilities. There will be no potential for hazardous material release during the operational phase of the Proposed Project.

The release of wastewater in relation to the Proposed Project can pose a risk to down gradient groundwater wells, groundwater quality and surface water quality. Proven and effective methods to mitigate against these potential impacts have been outlined above which will break the potential pathways between any source and receptor therefore resulting in no residual effects. Indirect impacts associated with major accidents and/or natural disasters on contamination are considered further in Section 16.4.1.

Hazmat

The European Communities Control of Major Accident Hazards Involving Dangerous Substance Regulations, 2000, applies to sites where certain quantities of specified dangerous substances are present. These sites (SEVESO sites) are classified as upper tier and lower tier. At present, there are 3 no. SEVESO sites within County Clare. The 3 no. SEVESO sites within County Clare have specific External Emergency Plans for each site which are reviewed and tested on a three-year cycle. The closest SEVSO site to the Proposed Project is the ENVA Smithstown Industrial Estate, located approximately 23.6km to the southwest of the Proposed Project site at its closest point (the termination of the Proposed Grid Connection Route at the existing Ardnacrusha 110kV substation). Given the separation distance, it is considered that neither the Proposed Project nor the SEVESO site have the opportunity to negatively impact the other.

Rail Accident

The Galway to Limerick rail line runs approximately 16km to the west of the Proposed Wind Farm site in a general north to south orientation. The Proposed Project does not physically interact with the railway infrastructure.

The Limerick-to-Dublin rail line runs approximately 46.6km southeast of the Proposed Wind Farm at its closest point in a southwest to northeast orientation. The Proposed Project will not physically interact with the railway infrastructure.

In the case of the Proposed Project interfering with any non-Irish Rail railway infrastructure during the construction phase, the requirements for third parties as set out in 'CCE Department Technical Guidance Document CCE-TMS-310 Guidance on Third Party Works' and 'CCE Departmental and Multidisciplinary Standard I-DEP-0121 Third Party Works: Additional Details of Railway Safety Requirements' will be adhered to.

Industrial Fire / Explosion

The likelihood of fire or explosion occurring at the Proposed Project is anticipated to be low. The likelihood of fire or explosion occurring will be further lowered by the implementation of good site management practices during the construction, operational and decommissioning phases.

Loss of Critical Infrastructure

The Proposed Project will utilise the existing road network during the construction phase. Construction related traffic will originate from the delivery of materials to the Proposed Project and transport of employees to, from and throughout the Proposed Project.

It is proposed that large wind turbine components will be delivered to the Proposed Wind Farm under Garda escort.

Potential impacts that may occur on the identified road networks could be caused by an accident during the delivery of the turbines, collisions onsite and offsite with vehicles involved in construction and operation of Proposed Project, and damage to critical transport infrastructure caused by extreme weather i.e., periods of heavy rainfall, taking into account climate change and strong winds.

As detailed in Section 15.1 Traffic and Transport in Chapter 15 of this EIAR: Material Assets, the localised traffic disruptions as a result of other proposed 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)*'.

In regard to telecoms and other signalling infrastructure, the Proposed Project will have no impact as it will not physically interact with any infrastructure of this nature.

Gas Explosion on Mains Line from Galway to Cork

The Galway to Cork Gas line runs from Galway to Ennis, Limerick, and terminates in Cork. Offshoots of the line are provided into Shannon, Tipperary Town, and Kinsale, which are located approximately 28.8km southeast, 44.2km southeast, and 121.1km south of the Proposed Wind Farm, respectively. As such, it is considered that neither the Proposed Project nor the gas line have the opportunity to negatively impact the other.

Structural Collapse

Structural collapse in the surrounding areas of the Proposed Project may occur due to earthquake, landslide, extreme weather events, and/or vehicular collision due to driver negligence.

Due to the transport of abnormal loads, i.e., turbine components, there is potential for road infrastructure collapse during turbine delivery. This impact may be exacerbated by extreme weather i.e., severe winds, storms and heavy precipitation resulting from climate change. As outlined in Chapter 11 of this EIAR, due to Ireland's latitudinal position, the probability of extreme weather events posing a threat to the built environment are low. However, in the circumstance of such a weather event occurring at the site of the Proposed Project during the operational phase, the measures set out in the HSE Area 3 Major Emergency Plan will be followed.

Having regard to existing public speed limits within the Proposed Wind Farm site (i.e. along the L7080 Local Road), and the proposed speed limits along the internal wind farm roads, it is not predicted that any collision of vehicles and any infrastructure would result in significant damage/collapse.

The Proposed Project will utilise sections of the existing road network during the construction phase. Construction related traffic will originate from the delivery of materials to the Proposed Project and transport of employees to, from and throughout the Proposed Project. It is proposed that large wind turbine components will be delivered to the Proposed Wind Farm site under Garda escort.

Potential impacts that may occur on the identified road networks could be caused by an accident during the delivery of the turbines, collisions onsite and offsite with vehicles involved in construction and operation of Proposed Project, and damage to critical transport infrastructure and bridges, and structural collapse.

As detailed in Section 15.1 Traffic and Transport in Chapter 15 of this EIAR: Material Assets, the localised traffic disruptions as a result of other proposed 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)*'.

As detailed in Section 4.8.8.4 in Chapter 4 of this EIAR, the underground Proposed Grid Connection Route will involve 3 no. bridge crossings, the crossing methodologies to be used to traverse these watercourses are cable strapping and Horizontal Direction Drilling (HDD). The construction methodologies for both of these approaches are outlined in Section 5 and 6 of the report included in Appendix 4-5 of the EIAR

As detailed in Section 4.8.8.4 of Chapter 4 also, 1 no. bridge is proposed to be transversed by strapping the cable to the side of the Blackwater Bridge. A Principal Inspection Report, included as Appendix 4-6, found that the structure of the Blackwater Bridge was capable of carrying the required 40T structure (live loading assessment), and is deemed adequate in accordance with the TII Stage 1 Assessment of Road Bridges and Structures (AM-STR-06002-02).

As detailed above, the avoidance of structural collapse has been a key consideration of the Proposed Project design. The likelihood of structural collapse will be further lowered by the implementation of good site management practices during the construction, operational and decommissioning phases.

16.4 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 16-1 and 16-2.

As outlined in Section 16.2.4.2.2, 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 i.e., pre-mitigation.

16.4.1 Likely Significant Effects

16.4.1.1 Do-Nothing Scenario

If the Proposed Project were not to proceed, the existing land use of coniferous forestry and agriculture would continue, and the public roads in which the Proposed Grid Connection Route cabling is proposed to be buried, would remain undisturbed.

If the Proposed Wind Farm were not to proceed, the opportunity to capture part of County Clare'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. The opportunity to generate local employment and investment and to diversify the local economy would also be lost.

16.4.1.2 Identification 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. Seven risks specific to the construction of the Proposed Project have been identified and are presented in Table 16-4.

Table 16-4 Risk Register - Construction Phase

Risk ID	Potential Risk	Possible Cause
Potential vulnerability to disaster risks		
A	**Critical Infrastructure Emergencies** Risk of delivery of turbines and infrastructure to site.	Traffic accident during turbine delivery or extreme weather periods of heavy rainfall, taking into account climate change and strong winds
B	**Severe Weather** Risk to construction activity on site	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds
C	**Flooding** Risk of flooding in areas surrounding the Proposed Project impacting the construction phase and leading to environmental emissions	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds
Potential to cause accidents and / or disasters.		
D	**Utility emergencies** Risk of construction activity along the Proposed Grid Connection Route.	Construction activity along Proposed Grid Connection Route and road network impacting on local services and utilities
E	**Traffic Incident** Collisions onsite and offsite with vehicles involved in construction of Proposed Project.	Driver negligence or failure of vehicular operations on Proposed Project roads (Proposed Wind Farm access roads and public road network in which Proposed Grid Connection Route is proposed). Traffic Management not implemented
F	**Contamination** Discharge or spillage of fuel, chemical solvents into watercourse or percolated to groundwater. Discharge due to horizontal directional drilling (HDD) frack out on Proposed Grid Connection Route works area.	Accidental fuel spillage during delivery to site. Failure of fuel storage tank or tanks in plant and machinery and vehicles leading to uncontrolled emissions. Drainage and seepage water resulting from accident during infrastructure excavation; Stockpiled excavated material becoming unstable and providing a point source of exposed sediment; Excavation works during the construction of the Proposed Project which may result

Risk ID	Potential Risk	Possible Cause
		in entrainment of sediment from the excavations during construction; and, Frack Out associated with HDD along Proposed Grid Connection Route underground electrical cabling route which may result in sediment release to surface water.
G	**Fire / Gas Explosion**	Equipment or infrastructure failure; Electrical problems; and Employee negligence.
H	**Collapse / damage to structures**	Earthquake, land slide, extreme weather events; and Vehicular collisions due to driver negligence on public roads. Traffic Management not implemented

16.4.1.3 Identification of Effect During Operation

Six risks specific to the operation of the Proposed Project have been identified and are presented in Table 16-5.

Table 16-5 Risk Register – Operational Phase

Risk ID	Potential Risk	Possible Cause
Potential vulnerability to disaster risks		
I	**Severe Weather** Risk to operational activity on site, blade or turbine damage	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds.
J	**Flooding** Risk of flooding in areas surrounding the Proposed Project impacting the operational phase and leading to environmental emissions	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds
K	**Contamination** Discharge or spillage of fuel, chemical solvents, sewage or wastewater into watercourse or percolated to groundwater	A vehicular incident on the public road involving fuel, wastewater or sewage transportation in the operational phase. Spill or leak of oil during operational maintenance.

Risk ID	Potential Risk	Possible Cause
L	**Fire / Gas Explosion**	Equipment or infrastructure failure; Electrical problems; and Employee negligence.
Potential to cause accidents and / or disasters.		
M	**Collapse / damage to structures**	Earthquake, land slide, extreme weather events; and Vehicular collisions due to driver negligence on public roads.
N	**Traffic Incident** Collisions onsite and offsite with vehicles involved in operation of Proposed Project.	Driver negligence or failure of vehicular operations on Proposed Wind Farm roads. Traffic Management not implemented

Please note, the Proposed Project poses a potential risk to aviation, specifically the SSR at Woodcock Hill. While this section details the risks with the potential to impact the Proposed Project, Appendix 15-6 of this EIAR details the risk that the Proposed Project will pose on this radar station. Further information on this impact is provided in Section 16.3.2 above. It has been concluded that the Proposed Wind Farm will not have an impact on aviation in the area to any degree that may be deemed unsafe or inconvenient to users.

16.4.1.4 Identification of Effect During Decommissioning

Five risks specific to the decommissioning of the Proposed Project have been identified and are presented in Table 16-6.

Table 16-6 Risk Register – Decommissioning Phase

Risk ID	Potential Risk	Possible Cause
Potential vulnerability to disaster risks		
O	**Severe Weather** Risk to decommissioning activity on the Proposed Project leading to environmental emissions	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds.
P	**Flooding** Risk of flooding in areas surrounding the Proposed Project impacting the decommissioning phase and leading to environmental emissions	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds.
Potential to cause accidents and / or disasters.		

Risk ID	Potential Risk	Possible Cause
Q	**Traffic Incident** Collisions onsite and offsite with vehicles involved in decommissioning of Proposed Project.	Driver negligence or failure of vehicular operations on Proposed Wind Farm roads. Traffic Management not implemented.
R	**Contamination** Discharge or spillage of fuel, chemical solvents into watercourse or percolated to groundwater	Accidental fuel spillage during delivery to the Proposed Project. Failure of fuel storage tank or tanks in plant and machinery and vehicles leading to uncontrolled emissions.
S	**Collapse / damage to structures**	Earthquake, land slide, extreme weather events; and Vehicular collisions due to driver negligence on public roads.

These risks have been assessed in accordance with the relevant classification (Refer to Table 16-1 and Table 16-2) and the resulting risk analysis is given in Table 16-7.

The risk register is based upon possible risks associated the Proposed Project. As outlined in Section 16.2.4.2.2, 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.

16.4.1.5 Assessment of Effect – Summary

Table 16-7 Risk Assessment

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
Construction Phase								
A	**Critical Infrastructure Emergencies**	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds	Illness or loss of life;	2	The risk of traffic accident during turbine delivery and severe weather conditions severely impacting the identified road network is very unlikely when considering the assessment in Chapter 11 Climate (weather conditions recorded over the last 30 years within the area) and Chapter 15.1 – Traffic Assessment (turbine delivery occurring during the night, Garda patrolled, etc). In the case of severe weather being forecasted, the delivery schedule may be postponed to avoid these conditions. The risk of the loss of grid connection infrastructure could occur due to severe weather such as strong winds.	1	The risk of a traffic accident due to severe weather conditions during the construction phase will result in a minor consequence in that 'small number of people would be affected' should a severe weather occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. The risk of the loss of grid connection infrastructure will result in a minor consequence in that a 'small number of people' would be affected' with no fatalities and any minor injuries being	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
							treated by first aid treatment.	
B	**Severe Weather**	Extreme weather-periods of heavy rainfall, taking into account climate change and strong winds	Illness or loss of life; Damage to, or depletion of aquatic habitats and species;	2	The risk of severe weather is very unlikely when considering the assessment in Chapter 11 and weather conditions recorded over the last 30 years within the area. The works programme for the groundworks part of the construction phase of the Proposed Project will take account of weather forecasts and predicted rainfall in particular and construction will be paused if required.	1	The risk of severe weather conditions during the construction phase will result in a minor consequence in that 'small number of people would be affected' should a severe weather occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. Severe weather may cause increased mobilisation of sediment which will be controlled via the Proposed Project design and mitigation measures.	2
C	**Flooding**	Extreme weather-periods of heavy rainfall, taking into	Illness or loss of life; Groundwater Flooding	2	As detailed in Appendix 9-1, a flood risk identification study was undertaken to identify existing potential flood risks associated with the Proposed Project. In	1	The risk of flooding during the construction phase will result in a minor consequence in that 'small number of	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
		account climate change and strong winds	Flooding to surrounding properties. Damage to, or depletion of aquatic habitats and species;		relation to the Proposed Wind Farm, the closest mapped historic flood event is located 1.5km to the west of the Proposed Wind Farm site along the Glenomra River, and the nearest recurring flood event downstream of the Proposed Wind Farm site is mapped at Parteen Weir, ~6km to the southeast. The Proposed Project is also not mapped within any OPW/CFRAM flood zones.		people would be affected' should a severe weather occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. Flooding has the potential to cause increased sediment mobilisation however flooding is not anticipated and should any flooding occur, it would be localised.	
D	**Utility emergencies**	Construction activity along road network during the Proposed Grid Connection Route installation impacting on local services and utilities	Illness or loss of life; Disruption to services	2	Confirmatory surveys will be carried out by the Contractor to ensure that the Proposed Grid Connection Route is designed to take into consideration any services and utilities with the road network. As such the risk of a utility emergency occurring during the construction of the Proposed Grid Connection Route is considered very unlikely.	1	The risk of impact on utilities and services during the construction phase will result in a minor consequence in that 'small number of people would be affected, with 'no fatalities and a 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 Consequence	Risk Score (Consequence x Likelihood)
E	**Traffic Incident**	Driver negligence or failure of vehicular operations on the Proposed Project roads (Proposed Wind Farm access roads and public road network in which Proposed Grid Connection Route is proposed). Traffic Management not implemented	Injury or loss of life.	3	Construction vehicles, HGVs and staff vehicles will be present within the Proposed Project during the construction phase. They will utilise existing third-party forestry tracks and the public road network and will therefore interact with local road users. As such, it can be determined that there is some 'opportunity, reason or means' for a vehicle collision during the construction of the Proposed Project, 'at some time.' Throughout the construction phase, traffic management measures will be implemented as outlined in the Traffic Management Plan (Appendix 15-2). An unlikely risk is therefore predicted.	1	A minor consequence is predicted. Having regard to on-site speed limits and vehicular movements, 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.'	3
F	**Contamination – Fuel storage and handling**	Fuel spillage during delivery to the Proposed Project.	Release of suspended solids to groundwater.	2	As outlined in Chapter 4, fuel will be stored onsite at the Proposed Wind Farm but in a bunded area to ensure containment and prevent spillages of fuel. No fuels,	2	The risk of a fuel spillage or impact on surround drainage during the construction will result in a limited consequence in	4

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
	-General Construction	Failure of fuel storage tank or tanks in plant and machinery and vehicles. Drainage and seepage water resulting from infrastructure excavation. Stockpiled excavated material providing a point source of exposed sediment. Works during the construction of the Proposed Project which may result in entrainment of	Contamination of local drinking water supplies and groundwater aquifers. Groundwater and surface water emissions from construction activities including trench excavations and HDD (frack out)		chemicals or solvents will be stored outside of the confines of the Proposed Wind Farm. Setback distances from sensitive hydrological features means that adequate room is maintained for the proposed drainage mitigation measures as detailed in Chapter 9. Detailed mitigation measures and methodologies for the control of emissions from Proposed Grid Connection Route works as described in the EIAR. Standard and specific mitigation to prevent accidents and indirect effects of accidents are included in the Proposed Project design and will be implemented.		that there would be 'a limited number of people affected' with 'localised effects of short duration' on environmental receptors through the use of bunded containment areas during construction. The Proposed Grid Connection Route is located in the existing road network which is of low value environmental receptor. Horizontal Directional Drilling (HDD) and cable strapping is planned for a limited number of locations and will be controlled to prevent significant environmental effects should frack out during the HDD construction process occur.	

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
		sediment from the excavations, HDD, or cable strapping.					The potential residual environmental effects are described in detail in Chapter 8 which concludes that there will be no significant environmental effects.	
G	**Fire / Gas Explosion**	Equipment or infrastructure failure; Fuel spillage/ storage Electrical problems; and Employee negligence	Illness or loss of life; Damage to, or depletion of habitats and species; and Impacts on ambient air quality.	2	As outlined in Chapter 4, fuel will be stored on-the Proposed Wind Farm 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. 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, and mitigation of the same during operation.	2	Should a fire/explosion occur at the Proposed Project, a limited consequence in that there would be 'a limited number of people affected' with 'localised effects of short duration' on people and environmental receptors 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. There will be 'normal community functioning'	4

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
							in the area with 'some inconvenience' The 'generic command, control & co-ordination systems' as well as the 'common elements of response' detailed in the Clare County Council Major Emergency Plan will work to reduce the consequence (both on people and the environment) of potential fire/explosions at the Proposed Project.	
H	**Collapse/ damage to structures**	Earthquakes, landslides, extreme weather events; and Vehicular collisions due to driver negligence on public roads.	Injury or loss of life.	1	According to the Irish National Seismic Network (INSN), earthquakes measuring ~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 in Ireland are extremely unlikely to be damaged or collapse due to seismic activity.	2	The risk of infrastructure collapse during the construction phase will result in a limited consequence in that 'a limited number of people affected' with 'localised effects of short duration' on people and environmental receptors due to the nature of the Proposed Project.	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
					Due to the transport of abnormal loads, i.e., turbine components, there is potential for road infrastructure collapse during turbine delivery. This impact may be exacerbated by extreme weather i.e., severe wind storms and heavy precipitation resulting from climate change. The Proposed Project will utilise the existing road network during the construction phase. It is proposed that large wind turbine components will be delivered to the Proposed Wind Farm under Garda escort. Having regard to public speed limits within the surrounding area of the Proposed Project, it is not predicted that any collision of vehicles and any infrastructure would result in significant damage/collapse. The risk of damage and collapse to the structure of the Blackwater			

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
					Bridge during the construction of the strapping has been assessed and will be overseen by a project archaeologist and conducted by a suitably qualified contractor in order to avoid any damage to the structure. The avoidance of structural collapse has been a key consideration of the Proposed Project design.			
Operational Phase								
I	**Severe Weather**	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds	Illness or loss of life;	2	The risk of severe weather is very unlikely when considering the assessment in Chapter 11 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 minor consequence in that 'small number of people would be affected' should a severe weather occur, with 'no fatalities and a 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 Consequence	Risk Score (Consequence x Likelihood)
J	**Flooding**	Extreme weather-periods of heavy rainfall, taking into account climate change and strong winds	Illness or loss of life; Groundwater Flooding Flooding to surrounding properties Damage to, or depletion of aquatic habitats and species;	2	As detailed in Appendix 9-1, a flood risk identification study was undertaken to identify existing potential flood risks associated with the Proposed Project. In relation to the Proposed Wind Farm, the closest mapped historic flood event is located 1.5km to the west of the Proposed Wind Farm site along the Glenomra River, and the nearest recurring flood event downstream of the Proposed Wind Farm site is mapped at Parteen Weir, ~6km to the southeast. The Proposed Project is also not mapped within any OPW/CFRAM flood zones	1	The risk of flooding during the construction phase will result in a minor consequence in that 'small number of people would be affected' should a severe weather occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. Flooding has the potential to cause increased sediment mobilisation however flooding is not anticipated and should any flooding occur, it would be localised.	2
K	**Contamination**	A vehicular incident on the public road or Proposed Wind Farm internal road network	Damage to, or depletion of aquatic habitats and species Contamination of local	2	As outlined in Chapter 4, fuel will not be stored on-site post construction therefore contamination caused by fuel stored on site is not considered to be a significant contamination risk. However, due to the presence of maintenance and	2	The risk of a fuel spillage or impact on surrounding drainage during the operational stage will result in a limited consequence in that there would be 'a limited number of people	4

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
		involving fuel, wastewater or sewage transportation in the operational phase.	drinking water supplies and groundwater aquifers.		monitoring vehicles, fuel leakage from onsite vehicle during the operational phase may occur. As such the likelihood of fuel leakages occurring is very unlikely.		affected' with 'localised effects of short duration' through the use of bunded containment areas during operation. The potential residual environmental effects are described in detail in Chapter 8 which concludes that there will be no significant environmental effects.	
L	**Fire / Gas Explosion**	Equipment or infrastructure failure; Fuel spillage/ storage Electrical problems; and Employee negligence	Illness or loss of life; Damage to, or depletion of habitats and species; and Impacts on ambient air quality.	2	As outlined in Chapter 4, fuel will not be stored on-site post construction therefore fuel is not considered to be a significant fire risk. 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, and mitigation of the same during operation.	2	Should a fire/explosion occur at the Proposed Project, a limited consequence is that there would be 'a limited number of people affected' with 'localised effects of short duration' on people and environmental receptors due to the nature of the Proposed Project and the lack of infrastructure or fuel storage during operation that would result in any such	4

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
							incident. There will be 'normal community functioning' in the area with 'some inconvenience' The 'generic command, control & co-ordination systems' as well as the 'common elements of response' detailed in the Clare County Council Major Emergency Plans will work to reduce the consequence (both on people and the environment) of potential fire/explosions at the Proposed Project site.	
M	**Collapse/ damage to structures**	Earthquakes, landslide, extreme weather events; and Vehicular collisions due to driver	Injury or loss of life.	1	According to the Irish National Seismic Network (INSN), earthquakes measuring ~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	2	The risk of infrastructure collapse during the operational phase will result in a limited consequence in that 'a limited number of people affected' with 'localised effects of short duration' on people and	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
		negligence on public roads.			seismographs. As such, buildings in Ireland are extremely unlikely to be damaged or collapse due to seismic activity. Having regard to public speed limits within the Proposed Wind Farm, it is not predicted that any collision of vehicles and any infrastructure would result in significant damage/collapse. As outlined in Chapter 11 of this EIAR, due to Ireland's latitudinal position, the probability of extreme weather events posing a threat to the built environment are low. However, in the circumstance of such a weather event occurring at the site of the Proposed Project during the operational phase, the measures set out in the HSE Area 3 Major Emergency Plan will be followed. Having regard to public speed limits within the Proposed Wind Farm site, it is not predicted that any collision of vehicles and any		environmental receptors due to the nature of the Proposed Project.	

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
					infrastructure would result in significant damage/collapse.			
N	**Traffic Incident**	Driver negligence or failure of vehicular operations on the Proposed Wind Farm roads. Traffic Management not implemented	Injury or loss of life.	3	Maintenance vehicles, LGVs and staff vehicles will be present within and around the Proposed Project during the operational phase. They will access the Proposed Wind Farm via the public road network and will therefore interact with local road users. As such, it can be determined that there is some 'opportunity, reason or means' for a vehicle collision during the operation of the Proposed Project, 'at some time.' Throughout the operational phase, traffic management measures will be implemented as outlined in the Traffic Management Plan (Appendix 15-2). An unlikely risk is therefore predicted.	1	A minor consequence is predicted. Having regard to on-site measures which will severely restrict vehicle speeds, 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.'	3
Decommissioning Phase								

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
O	**Severe Weather**	Extreme weather-periods of heavy rainfall, taking into account climate change and strong winds	Illness or loss of life; Damage to, or depletion of aquatic habitats and species;	2	The risk of severe weather is very unlikely when considering the assessment in Chapter 11 and weather conditions recorded over the last 30 years within the area. Certain decommissioning works (i.e. working at height, any major groundworks, etc) will be paused should a Status Orange weather warning be issued by Met Eireann, and all decommissioning works will be paused in the event of a Red weather warning alert be issued by Met Eireann as is standard practice	1	The risk of severe weather conditions during the decommissioning phase will result in a minor consequence in that 'small number of people would be affected' should a severe weather occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. Decommissioning will not require significant excavations works. There is no real likelihood of any impact on any environmental receptors	2
P	**Flooding**	Extreme weather-periods of heavy rainfall, taking into account climate change	Illness or loss of life; Groundwater Flooding	2	As detailed in Appendix 9-1, a flood risk identification study was undertaken to identify existing potential flood risks associated with the Proposed Project. In relation to the Proposed Wind Farm, the closest mapped historic flood event is located 1.5km to	1	The risk of flooding during the decommissioning phase will result in a minor consequence in that 'small number of people would be affected' should a severe weather occur,	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
		and strong winds	Flooding to surrounding properties Damage to, or depletion of aquatic habitats and species;		the west of the Proposed Wind Farm site along the Glenomra River, and the nearest recurring flood event downstream of the Proposed Wind Farm site is mapped at Parteen Weir, ~6km to the southeast. The Proposed Project is also not mapped within any OPW/CFRAM flood zones.		with 'no fatalities and a small number of minor injuries with first aid treatment'. Flooding has the potential to cause increased sediment mobilisation however flooding is not anticipated and should any flooding occur, it would be localised.	
Q	**Traffic Incident**	Driver negligence or failure of vehicular operations on the Proposed Wind Farm roads. Traffic Management not implemented	Injury or loss of life.	3	A limited number of vehicles will be permitted on the Proposed Project 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 the Proposed Project site, 'at some time.' An unlikely risk is therefore predicted.	1	A minor consequence is predicted. Having regard to on-site measures which will severely restrict vehicle speeds, 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.'	3

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
R	**Contamination**	Fuel spillage during delivery to the Proposed Project. Failure of fuel storage tank or tanks in plant and machinery and vehicles.	Damage to, or depletion of aquatic habitats and species Discharge to groundwater	2	As outlined in Chapter 4, fuel will be stored on-the Proposed Project 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. Setback distances from sensitive hydrological features means that adequate room is maintained for the proposed drainage measures as detailed in Chapter 9	2	The risk of a fuel spillage or impact on surrounding drainage during decommissioning will result in a limited consequence where 'a limited number of people affected' with 'localised 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 which concludes that there will be no significant environmental effects.	4
S	**Collapse/ damage to structures**	Earthquakes, landslide, extreme weather events; and	Injury or loss of life.	1	According to the Irish National Seismic Network (INSN), earthquakes measuring ~2 on the Richter Scale are "normal" in terms of seismicity in Ireland. These are known as microearthquakes; they are not	2	The risk of infrastructure collapse during the operational phase will result in a limited consequence in that 'a limited number of people affected' with 'localised effects of short duration'	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
		Vehicular collisions due to driver negligence on public roads.			commonly felt by people and are generally recorded only on local seismographs. As such, buildings in Ireland are extremely unlikely to be damaged or collapse due to seismic activity. Due to the transport of abnormal loads, i.e., turbine components, there is potential for road infrastructure collapse during turbine delivery. This impact may be exacerbated by extreme weather i.e., severe wind storms and heavy precipitation resulting from climate change. The Proposed Project will utilise the existing road network during the decommissioning phase. It is proposed that large wind turbine components will be removed from the Proposed Wind Farm to an appropriate recovery/disposal location. The components will be removed under Garda escort if required.		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	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
					Having regard to public speed limits within the surrounding area of the Proposed Project, it is not predicted that any collision of vehicles and any infrastructure would result in significant damage/collapse.			

The risk assessment for each of the potential risks identified are consolidated in Table 16-8 which provides their 'risk score.' A corresponding risk matrix is provided in Table 16-9, which is colour coded in order to provide an indication of the critical nature of each risk. As outlined in Section 16.2.4.2, the red zone represents 'high risk' scenarios', the amber zone represents 'medium risk scenarios' and the green zone represents 'low risk' scenarios.

Table 16-8 Risk Scores

Risk ID	Potential Risk	Likelihood Rating	Consequence Rating	Risk Score
Construction Phase				
A	Critical Infrastructure Emergencies	2	1	2
B	Severe Weather	2	1	2
C	Flooding	2	1	2
D	Utility company emergencies	2	1	2
E	Traffic Incident	3	1	3
F	Contamination	2	2	4
G	Fire / Gas Explosion	2	2	4
H	Collapse/ damage to structures	1	2	2
Operational Phase				
I	Severe Weather	2	1	2
J	Flooding	2	1	2
K	Contamination	2	2	4
L	Fire / Gas Explosion	2	2	4
M	Collapse/ damage to structures	1	2	2
N	Traffic Incident	3	1	3
Decommissioning Phase				
O	Severe Weather	2	1	2
P	Flooding	2	1	2
Q	Traffic Incident	3	1	3
R	Contamination	2	2	4
S	Collapse/ damage to structures	1	2	2

Table 16-9 Risk Matrix

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

Table 16-9 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.

The scenario with the highest risk score in terms of a major accident and/or natural disaster during the construction, operation and decommissioning phase of the Proposed Project is identified below.

16.4.1.6 Contamination During Construction, Operation and Decommissioning

There is a potential risk of contamination from Proposed Project site activities during the construction, operational and decommissioning phases from potential release of hydrocarbons. The risk of contamination was given a risk score of 4 on a very precautionary basis. However, as outlined in Chapter 8, Section 8.5.2.4 and Chapter 9, Section 9.5.2.6, measures 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 'limited' consequences should it do so, representing a 'low-risk scenario' during the construction and decommissioning phases.

The conclusions in the relevant chapters of the EIAR conclude that there will be no significant residual effects associated with this potential impact.

16.4.1.7 Fire/Explosion During Construction, Operation and Decommissioning

There is a potential risk of fire/explosion at the Proposed Project. However, as outlined in Section 16.2.1, 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 practice. Further, in accordance with Chapter 19 of 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 Proposed Project, and mitigation of the same during operation.

16.4.1.8 Collapse/Damage to Structures During the Construction Phase

There is potential for damage or collapse to the Blackwater Bridge during the construction phase of the Proposed Grid Connection. As outlined in Chapter 4 and Chapter 14 of this EIAR, all construction works relating to the potential strapping of the Proposed Grid Connection Route cable to the side of the Blackwater Bridge will be supervised by a Project Archaeologist and will be carried out by a suitably qualified contractor with previous experience of carrying out such works. A pre-commencement survey will be carried out by Clare County Council Heritage Department. All mitigation and enhancement measures as outlined in Chapter 4, Appendix 4-3 and Chapter 14 will be implemented.

16.4.1.9 Traffic Accident During the Operational Phase

There is potential for traffic accident during the operational phase of the Proposed Project due to the presence of maintenance vehicles and the presence of private vehicles on public roads. There is the potential for incident relating to traffic accidents along the Blackwater Bridge where the Proposed Grid Connection Route cable could be disturbed. As is standard practice for all ESB infrastructure, any interference with the cable will cause the power to drop out immediately.

16.4.2 Mitigation Measures

As outlined in Section 16.4.1, the scenario with the highest risk score in terms of the occurrence of major accident and/or disaster during construction, operation and decommissioning was identified as 'Contamination' of the site and risk of 'Fire/Explosion' occurring at the Proposed Project.

The Proposed Project has been designed and will be 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*', a Risk Management Plan will be prepared and implemented at the Proposed Project to ensure an effective response to disasters or the risk of accidents. The plan will include sufficient preparedness and emergency planning measures.

16.4.2.1 Mitigation – Contamination During Construction, Operation and Decommissioning

Potential effects associated with contamination during construction, operation and decommissioning are addressed fully in Chapter 8 Land, Soils and Geology, and Chapter 9 Water. The mitigation measures outlined in Chapter 9 to protect environmental receptors as well as the procedures and measures described in the Construction Environmental Management Plan (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 4-3 of this EIAR. 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 4-3 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 18: Schedule of Mitigation.

16.4.2.2 Mitigation – Fire/Explosion During Construction, Operation and Decommissioning

The Proposed Project will also be subject to a fire safety risk assessment in accordance with Chapter 19 of the Safety, Health and Welfare at Work Acts 2005 to 2014, which will assist in the identification of any major risks of fire on the Proposed Project, and mitigation of the same during operation.

As outlined in Section 4.4.5.1 and 4.7.10 of the EIAR, a detailed CEMP will be prepared prior to the commencement of any works. 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 4-3 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 18: Schedule of Mitigation.

16.4.3 Residual Effects

The risk of a major accident and/or disaster during the construction of the Proposed Project is considered 'low' in accordance with the '*Guide to Risk Assessment in Major Emergency Management*' (DoEHLG, 2010).

It is considered that when the above mitigation is implemented, and all mitigation detailed in the EIAR is implemented, there will not be significant residual effect(s) associated with the construction, operation and decommissioning of the Proposed Project.

16.4.4 Monitoring

Please refer to Chapter 18 Schedule of Mitigation and Monitoring Measures which details all proposed mitigation and monitoring measures for the construction, operation and decommissioning of the Proposed Project.

16.4.4.1 Monitoring During Construction

As outlined in Section 4.4.5.1 and 4.7.10 of the EIAR, a detailed CEMP will be prepared prior to the commencement of any works. 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 4-3 for the CEMP that sets out the minimum standards to be employed by the contractor.

16.4.4.2 Monitoring During Operation

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

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

16.4.4.3 Monitoring During Decommissioning

As outlined in Section 4.10 of the EIAR, a Decommissioning Plan has been prepared (Appendix 4-7) the final detail of which will be agreed with the local authority prior to any decommissioning. The Decommissioning Plan will be updated prior to the end of the operational period in line with

decommissioning methodologies that may exist at the time and will be agreed with the competent authority at that time. 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 18 Schedule of Mitigation and Monitoring Measures which sets out all proposed Mitigation and Monitoring Measures for all three phases of the Proposed Project.

16.4.5 Impacts of Cumulative and In Combination Impacts

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 was 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 2.9 in Chapter 2 of this EIAR, along with Appendix 2-3 of this EIAR.

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 set out in Chapter 2, Section 2.9 and Appendix 2-3, the Proposed Project, with mitigation measures in place, was found to have no potential for significant in-combination or cumulative effects associated with the potential for the project to be impacted by major accidents or natural disasters or the Proposed Project potential to cause major accidents 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 surrounding land uses and projects existing or intended in the surrounding area. Therefore, the cumulative residual effect of the Proposed Project to cause or be impacted by major accidents and natural disasters is not significant.