

Borrisbeg Grid Connection

Chapter 6: Major Accidents and Natural Disasters

IE002700
Borrisbeg Grid Connection
F
08.09.2025

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
Final	For Submission	KM	PC	PC	08.09.2025

Approval for issue

PC	08.09.2025
----	------------

© Copyright RPS Group Limited. All rights reserved.

The report has been prepared for the exclusive use and benefit of our client, and for the sole and specific purpose for which it is provided. R P S Group Limited, any of its subsidiaries, or a related entity (collectively 'RPS') does not accept any liability if this report is used for an alternative purpose from which it is intended. The report does not account for any changes relating the subject matter of the report, or any legislative or regulatory changes that have occurred since the report was produced and that may affect the report.

RPS does not accept any responsibility for any documents or information supplied to RPS by others. It is expressly stated that no independent verification of any documents or information supplied by others has been made.

Unless otherwise agreed in writing by RPS no other party may use, make use of, or rely on the contents of this report. RPS does not accept any responsibility or liability for loss whatsoever to any third party caused by, related to, or arising out of any use or reliance on the report.

Prepared by:

RPS

Prepared for:

Buirios Ltd

Dublin | Cork | Galway | Sligo | Kilkenny
rpsgroup.com

RPS Group Limited, registered in Ireland No. 91911
RPS Consulting Engineers Limited, registered in Ireland No. 161581
RPS Engineering Services Limited, registered in Ireland No. 99795
The Registered office of each of the above companies is West Pier
Business Campus, Dun Laoghaire, Co. Dublin, A96 N6T7



Chapter 6 Major Accidents and Natural Disasters

Contents

6	Major Accidents and Natural Disasters	1
6.1	Introduction	1
6.1.1	Statement of Authority	1
6.2	Assessment Methodology	1
6.2.1	Legislation and Guidance	2
6.2.2	Characterisation of the Baseline Environment	3
6.2.3	Consultations	3
6.2.4	Site Specific Risk Assessment Methodology	4
6.3	Baseline Conditions	7
6.3.1	Identified Risks	8
6.4	Risk Assessment	13
6.4.1	Likely Significant Effects	13
6.4.2	Risk Assessment Summary	15
6.4.3	Contamination During Construction	26
6.4.4	Fire/Explosion During Construction	26
6.5	Mitigation Measures	26
6.5.1	Mitigation – Contamination During Construction and Operation	27
6.5.2	Mitigation – Fire/Explosion During Construction and Operation	27
6.6	Residual Effects	27
6.7	Monitoring	27
6.7.1	Monitoring During Construction	27
6.7.2	Monitoring During Operation	28
6.8	Cumulative Impact Assessment	28
6.9	References	29

Tables

Table 6-1:	Summary of Key Consultation Issues Raised	4
Table 6-2:	Classification of Likelihood (Department of the Environment, Heritage & Local Government, 2010)	5
Table 6-3:	Classification of Impact (Department of Environment, Heritage and Local Government, 2010)	6
Table 6-4:	Classification of Effect (Department of Environment, Heritage and Local Government, 2010)	7
Table 6-5:	Risk Register - Construction Phase	14
Table 6-6:	Risk Register During the Operational Phase	15
Table 6-7:	Risk Assessment Summary	16
Table 6-8:	Risk Scores	25
Table 6-9:	Risks Visualised within the Risk Matrix	26

Figures

Figure 6-1:	Magnetic Field from Overhead AC Lines Operating in Ireland	12
-------------	--	----

6 Major Accidents and Natural Disasters

6.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) describes the likely significant adverse effects on the environment arising from the vulnerability of the Proposed Grid Connection as detailed in Chapter 3, to risks of major accidents and/or natural disasters, as well as the potential of the Proposed Grid Connection 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’.

6.1.1 Statement of Authority

This section of the EIAR, has been prepared by Karen Mulryan and reviewed by Paul Chadwick, of RPS. Karen is a Senior Environmental Scientist with RPS with over 9 years’ experience in the consultancy sector. Karen holds a BA in International in Archaeology from NUI Galway and a MSc in Archaeology from the University of Edinburgh. Karen’s expertise is in project management, environmental impact assessment, wind energy site selection and feasibility assessment. Karen has experience managing wind farm Environmental Impact Assessment Report applications of various scales including SID applications across Ireland. Karen holds memberships with the Chartered Institute for Archaeologists (ACIfA) and the Institute of Archaeologists of Ireland (IAI).

Paul is a Technical Director with the Energy, Environment and Resources Sector and leads the team responsible for environmental, waste and resource management and assessment of infrastructural and industrial projects for RPS in Ireland. Paul specialises in the fields of air quality and climate. He has considerable experience, both academic and professional, in ambient air quality and a wide range of atmospheric pollutants from waste / wastewater, road traffic, air traffic, industrial and stationary sources. As a result of two years research in atmospheric chemistry, he has an in-depth knowledge of the chemical and physical transformations associated with local and regional air pollution and climate change. Paul is a trained and experienced expert witness and is supported by a team of multidisciplinary environmental experts across RPS in Ireland.

6.2 Assessment Methodology

The methodology for this risk assessment includes:

- Review of relevant legislation and Guidance
- Characterisation of the Baseline Environment: Baseline information gathering, including review of available maps and published information
- Review of Scoping Responses received from relevant Stakeholders
- Site Specific Risk Assessment:
 - Risk Identification
 - Risk Classification
 - Risk Evaluation
 - Risk Assessment
- Impact Assessment

Chapter 6 Major Accidents and Natural Disasters

6.2.1 Legislation and Guidance

The following sources of information were used in the preparation of this Chapter:

6.2.1.1 Legislation

Article 3 of the EIA Directive (as amended) requires the assessment of expected effects of major accidents and/or disasters within EIA. Article 3(2) of the Directive states that the:

“... effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned.”

Annex IV (information for the EIAR) of the 2014 EIA Directive requires:

“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.”

The 2014 EIA Directive also states:

“In order to ensure a high level of protection of the environment, precautionary actions need to be taken for certain projects 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 projects, 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.”

The Major Accidents (Seveso III) Directive (2012/18/EU) is an EU Directive that seeks to prevent major industrial accidents involving dangerous substances and to limit the consequences of such accidents on people and the environment. In Ireland, the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the ‘Control of Major Accident Hazards Involving Dangerous Substances (COMAH) Regulations’), implements the Seveso III Directive. The directive addresses Seveso sites, where hazardous substances are produced, used or stored. Any Seveso sites in proximity to the Proposed Grid Connection are considered in Section 6.3.1.4.

6.2.1.2 Guidance

Consideration has been given to the following relevant policy documents in the preparation of this chapter:

- Census Statistics 2016 and 2022 (Census Statistics Office, 2022).
- Mid-West Regional Planning guidelines 2010 – 2022 (Mid West Regional Authority, 2010).
- Regional Spatial and Economic Strategy for the Southern (RSES) Region 2020 (Southern Regional Assembly, 2020).
- A Framework for Major Emergency Management (Department of Environment, Heritage and Local Government, 2010).
- Guidance on assessing and costing environmental liabilities (EPA, 2014).
- National Risk Assessment 2024 Overview of Strategic Risks (Department of Taoiseach, 2024).
- Tipperary County Council (TCC)– Major Emergency Plan (Tipperary County Council, 2014).

Chapter 6 Major Accidents and Natural Disasters

- A National Risk Assessment for Ireland (Department of Defence, 2020).

There is no specific national guidance with regard to the assessment of major accidents and/or disasters, however, for the purposes of the EIA, the more general guidance as listed below have been considered:

- EPA, 2022 states: *“To address unforeseen or unplanned effects the Directive further requires that the EIAR takes account of the vulnerability of the project to risk of major accidents and/or disasters relevant to the project concerned and that the EIAR therefore explicitly addresses this issue. The extent to which the effects of major accidents and / or disasters are examined in the EIAR should be guided by an assessment of the likelihood of their occurrence (risk).”* (section 3.7.3 of EPA, 2022).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018) which state that there are two key considerations under this requirement, namely:
 - *“The potential of the project to cause accidents and/or disasters, including implications for human health, cultural heritage, and the environment.*
 - *“The vulnerability of the project to potential disasters/accidents, including the risk to the project of both disasters (e.g. flooding) and man-made disasters (e.g. technological disasters).”*

The Guidelines also require that an EIAR include: *“... the expected effects arising from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project. Where appropriate, the description of expected significant effects should include details of the preparedness for and proposed response to such emergencies.”*

The assessment of the risk of major accidents and/or disaster is considered in relation to the information required to be provided in the EIAR, i.e., population and human health, biodiversity, land and soil, hydrology and hydrogeology, air quality, climate, material assets, cultural heritage and the landscape.

6.2.2 Characterisation 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 6.3.

6.2.3 Consultations

Comments and queries from stakeholders informed design and are addressed throughout this report and summarised in Table 6-1.

Chapter 6 Major Accidents and Natural Disasters

Table 6-1: Summary of Key Consultation Issues Raised

Consultee	Scoping Request	Response	Action
Department of Defence	14.07.2025	None received to date	N/A
Irish Rail	14.07.2025	None received to date	N/A
Department of Climate, Energy and the Environment	14.07.2025	14.07.2025- acknowledgement	N/A
Geological Service Ireland (GSI)	14.07.2025	25.07.2025	Refer to section 6.3 and Chapter 7 Land, Soil, Geology
Environment Protection Agency	14.07.2025	14.07.2025- acknowledgement	N/A
Comreg	14.07.2025	14.07.2025	Recommended https://siteviewer.comreg.ie/ is consulted. A follow on scoping exercise with all telecommunications operators in the area was undertaken. Refer to Chapter 14 Material Assets, section 14.3
HSE	14.07.2025	None received to date	N/A
Department of Transport	14.07.2025	None received to date	N/A
Transport Infrastructure Ireland	14.07.2025	24.07.2025	TII provided various recommendations such as consultation of TII Publications; TII notes <i>'that grid connection routing outlined in your consultation documentation does not impact the strategic national road network in the area.'</i> Refer to section 14.2 of Ch14 Material Assets for further details.

6.2.4 Site Specific Risk Assessment Methodology

A site-specific risk assessment had been conducted for the Proposed Grid Connection. This site specific risk assessment identified and quantified risks which focused on unexpected, but possible and plausible events occurring during the construction and operation of the Proposed Grid Connection. This approach in regard to identifying and quantifying risks associated with the Proposed Grid Connection is derived from the EPA 'Guidance on Assessing and Costing Environmental Liabilities' (EPA, 2014). As part of this assessment the following sections outlines the steps taken.

6.2.4.1 Risk Identification

Risks are reviewed through the identification of reasonably foreseeable risks through the inspection of the environmental baseline in conjunction with a review of the design of the Proposed Grid Connection. The identification of risks includes non-standard incidents that could possibly occur at the Site during the Construction and Operational Phases. In line with the European Commission (EC), (2017), the risks identified focuses on the potential for the Proposed Grid Connection to cause a major accident and the Proposed Grid Connection to be vulnerable to a major accident and natural disaster.

Chapter 6 Major Accidents and Natural Disasters

6.2.4.2 Risk Classification

Classification of Likelihood

Once the potential risks are identified, each risk had been assessed to determine their likelihood to occur. When assessing the risk, standard safety protocols (i.e. legislation) and mitigation measures proposed in the other chapters of this EIAR had been considered in determining the magnitude and likelihood of the risk. Table 6-2 defines the likelihood ratings that have been applied.

Table 6-2: Classification of Likelihood (Department of the Environment, Heritage & Local Government, 2010)

Ranking	Likelihood	Description
1	Extremely Unlikely	May occur 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 TCC Major Emergency Plan will 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 6-3.

The consequence of a risk to occur to the Proposed Grid Connection and caused by the Proposed Grid Connection has been identified where one or more of the aspects of the consequence description are met i.e., risks that have no effect have not been considered as part of this assessment.

Chapter 6 Major Accidents and Natural Disasters

Table 6-3: Classification of Impact (Department of Environment, Heritage and Local Government, 2010)

Ranking	Impact	Receptors	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 • Identified risk has the potential to result in a cost of <€0.5 million to fix. • 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 • Identified risk has the potential to result in a cost of €0.5-3 million. • 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 • Identified risk has the potential to result in a cost of €3-10 million. • Community only partially functioning, some services available.
4	Very Serious	Life, Health, Welfare Environment Infrastructure Social	• 5 to 50 fatalities, up to 100 serious injuries, up to 2000 evacuated. • Heavy contamination, localised effects, or extended duration • Identified risk has the potential to result in a cost of €10-25 million to fix. • 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. • Identified risk has the potential to result in a cost of >€25 million to fix. • Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period. Community unable to function without significant support.

Chapter 6 Major Accidents and Natural Disasters

6.2.4.3 Risk Evaluation

Once the likelihood and consequence of the respective risks have been determined, a 'risk score' has been calculated through a risk matrix (See **Table 6-4**). This table indicates the critical nature of each risk. As part of the risk assessment for the Proposed Grid Connection, the risk matrix has been applied to evaluate the respective risks identified.

Table 6-4: Classification of Effect (Department of Environment, Heritage and Local Government, 2010)

Likelihood	Consequence Rating					
		Minor	Limited	Serious	Very Serious	Catastrophic
Very Likely		Low Risk	Medium Risk	High Risk	High Risk	High Risk
Likely		Low Risk	Medium Risk	Medium Risk	High Risk	High Risk
Unlikely		Low Risk	Low Risk	Medium Risk	Medium Risk	High Risk
Very Unlikely		Low Risk	Low Risk	Low Risk	Medium Risk	Medium Risk
Extremely Unlikely		Low Risk	Low Risk	Low Risk	Low Risk	Low Risk

6.3 Baseline Conditions

Ireland is a geologically stable nation with a mild temperate climate. Based on Corine land cover mapping (2018), the Site is located in an area of agricultural pastures. The published EPA soil map (www.epa.ie) for the area shows that the Site is overlain predominantly by mainly basic poorly drained mineral soils (BminPD) with some mineral alluvium soils along the underground cabling route. Soils in the surrounding lands are mapped typically as BminPD soils, with some peat and basic well drained mineral soils (BminDW) mapped in the wider area. The published GSI subsoils map (www.gsi.ie) for the local area shows that the Site is underlain predominantly by till derived from Carboniferous limestones (TLs). Some alluvium subsoils are also mapped along the underground cabling route, associated with the Clonmore Stream. Subsoils in the surrounding lands are mapped largely as TLs subsoils, with some cutover peat (Cut) mapped in the wider area. No peat subsoils are mapped to overlap with any element of the Proposed Grid Connection.

The GSI Landslide database (www.gsi.ie) does not record any historic landslides in the vicinity of the Site or in the surrounding lands.

The GSI Landslide Susceptibility Map (www.gsi.ie) classifies the probability of a landslide occurring at a given location. The probability of a landslide occurring at the Site is mapped as being 'Low'.

Due to the localised and very shallow nature of the peat, along with flat topography, the risk of peat instability or slide is very low. Refer to Chapter 7 Land, Soil and Geology for further details.

The GSI's Winter 2015/2016 Surface Water Flood event is recognised as being the largest flood event on record in many areas. The GSI do not record any historic flood zones in the area of the proposed 110kV substation, temporary construction compound or along the vast majority of the underground cabling route. However, historic surface water flood zones are mapped in the east of

Chapter 6 Major Accidents and Natural Disasters

the Site in the vicinity of the proposed end masts. The elements of the Proposed Grid Connection located in this historic surface water flood zone comprise of the end masts and approximately 200m of the underground cabling route and associated access roads.

To investigate the potential for flooding within the Site, modelling of design flood volumes (i.e. 100-yr and 1000-yr) was undertaken for the watercourses and flood plains with allowance for climate change (20%). The modelled flood zones shows the proposed substation to be located outside the 100-yr and 1000-yr flood zones. Furthermore, the Site is not mapped within any historic or modelled groundwater flood zones.

In summary, the Site is of low risk of flooding. However, there are areas which may be prone to flooding, principally at the existing watercourse crossing over the Clonmore Stream and the eastern section of the underground cabling route. Refer to Chapter 8 Hydrology and Hydrogeology and Appendix 8-1 Flood Risk Assessment for further details.

Major industrial accidents associated with harmful substances pose significant threats to human health and the surrounding environment. If these accidents occur, it may result in serious injury, damage to the environment, both on and off the site of the accident and in extreme cases, loss of life. The Proposed Grid Connection is not regulated, connected to, or within close proximity to any site regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations i.e., SEVESO site. Subsequently, there will be no potential effects from Seveso Sites as there is no pathway.

6.3.1 Identified Risks

The Proposed Grid Connection is situated within Co. Tipperary which falls under the HSE's Mid-West Major Emergency (MWEM) Region. The TCC Major Emergency Plan was consulted to identify the major risks relevant to County Tipperary (Tipperary County Council, 2014). These include the following:

- **Urban Flooding / Flooding:** Applicable to urban areas within the functional areas of Tipperary County Council.
- **Aircraft Collision / Loss:** Relevant to areas in close proximity to airstrips or aircrafts within the TCC administrative boundary.
- **Water Contamination:** Tipperary County Council Functional Areas.
- **Credible scenario incidents at Merck Sharp & Dohme:** Relevant to the Ballydine area, Co Tipperary.
- **Fire / Major Crowd Safety and Civil Disorder:** Tipperary County Council Functional Areas
- **Major Road Traffic Accident / Hazardous Material (Hazmat):** M7 Motorway, National Primary Routes –N62, Iarnród Éireann.
- **Natural Gas Explosion along the main Cork-Dublin Gas Line:** Relevant to the sections of the Cork-Dublin gas pipeline that traverses through the TCC administrative boundary.
- **Loss of Critical IT Infrastructure:** Relevant to all IT infrastructure within the TCC administrative boundary.
- **Rail Incident:** Relevant to the Irish railway lines that traverses through the TCC administrative boundary.

These considerations, as outlined in the TCC (2014), have been brought forward and considered in the below sections (See Section 6.3.1.1 to Section 6.3.1.9).

Chapter 6 Major Accidents and Natural Disasters

6.3.1.1 Urban Flooding / Flooding

Urban flooding has not been considered in this section because the Proposed Grid Connection is located within a rural setting and so urban flooding is not applicable.

As discussed in section 6.3, a flood risk assessment carried out for the Site and determined that the proposed end masts and approximately 200m of proposed new access road along the underground cabling route are located in the fluvial flood zones. Construction in fluvial flood zones has the potential to increase flood risk due to floodplain storage reduction and alteration of drainage patterns. However due to the underground nature of the grid connection and above ground structure of the end masts, they will have no potential to increase flood risk. The proposed access road within the flood zone will be constructed as close to ground level as possible. Refer to Chapter 8 Hydrology and Hydrogeology and Appendix 8-1 Flood Risk Assessment for further details.

6.3.1.2 Aircraft Collision

The tallest structure of the Proposed Grid Connection infrastructure will be the lightning mast at the 110kV substation at a height of 17 m and therefore does not fall within the remit for notification to the Air Corps as a proposed tall structure. However, the Department of Defence were consulted in relation to the Proposed Grid Connection. No response has been received to date.

The end masts will be constructed adjacent to existing overhead line masts therefore they will not comprise a new tall element in the landscape. Due to highly unlikely nature of an aircraft collision with the Proposed Grid Connection, this potential risk is not considered further.

6.3.1.3 Water Contamination

The Proposed Grid Connection has the potential to cause contamination and pollution of soil and ground and surface water from potential release of hydrocarbons, earthworks and excavations during the construction phase. These impacts are addressed in detail in Chapter 7 Land Soil and Geology and Chapter 8 Hydrology and Hydrogeology of this EIAR and are not related to either the vulnerability of the Proposed Grid Connection to natural disasters or major accidents nor the potential for the Proposed Grid Connection to cause natural disasters or accidents. Accidental spillage during refuelling of construction plant with petroleum hydrocarbons is a pollution risk. The accumulation of small spills of fuels and lubricants during routine plant use can also be a significant pollution risk. Large spills or leaks have the potential to result in significant effects (i.e., contamination of subsoils and pollution of the underlying aquifer) on the geological and water environment. Best practise measures pertaining to hydrocarbon use and storage as detailed in Chapter 8 and the CEMP (Appendix 3-2) will minimise the potential for these impacts to occur. The release of wastewater at the Site could pose a risk to down gradient groundwater wells, groundwater quality and surface water quality. Proven and effective methods to mitigate against these potential impacts are detailed in Chapter 8 hydrology and Hydrogeology and best practise measures during all phases of the development (CEMP Appendix 3-2), which minimise the potential for leaks and will break the potential pathways between any source and receptor therefore resulting in no residual effects.

6.3.1.4 Credible Scenario Incidents at Merck Sharp & Dohme (Seveso Site)

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 is one upper tier SEVESO Site within County Tipperary and no lower tier site. The upper tier site is Merck Sharp & Dohme located at Ballydine, Co. Tipperary, approximately 54km south of the Site.

Chapter 6 Major Accidents and Natural Disasters

This site develops and supplies the active ingredients and final formulated product for a range of medicines. Given the separation distance, it is considered that neither the Proposed Grid Connection nor the SEVESO site have the opportunity to negatively impact the other.

6.3.1.5 Fire / Major Crowd Safety and Civil Disorder

The likelihood of fire occurring at the Proposed Grid Connection is low. The likelihood of fire occurring will be further lowered by the implementation of good site management practices during the construction, and operational phases. During construction phase, all staff will be made aware of and adhere to the Health & Safety Authority's 'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013'. This will encompass the use of all necessary Personal Protective Equipment and adherence to the site Health and Safety Plan. An Emergency Response Plan (ERP) which will be prepared prior to the construction phase and implemented and adhered to on site. The ERP provides details of procedures to be adopted in the event of an emergency in terms of site health and safety and environmental protection. Please see Chapter 3 Description and Appendix 3-2 CEMP for details. Major crowd safety and civil disorder are not relevant to the Site. Access will be to authorised personnel only during the construction, operational phases.

6.3.1.6 Major Road Traffic Accident/ Hazardous Material (Hazmat)

The Proposed Grid Connection will utilise the existing road network during the construction phase. Construction related traffic will comprise construction materials delivery and the subsequent return of empty vehicles, and daily construction staff movements to and from work the Site. Potential impacts that may occur on the identified road networks could be caused by an accident during the delivery of construction materials, collisions onsite and offsite with vehicles involved in construction and operation of the Proposed Grid Connection, 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 14.2 of this EIAR: Material Assets, the localised traffic disruptions due to other proposed works will be mitigated using 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 discussed above, there is potential for hazardous materials in the form of hydrocarbons to be transported to and used on site. Mitigation measures as best practise as detailed in Chapter 8 Hydrology and Hydrogeology and the CEMP (Appendix 3-2), respectively, will minimise 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 is limited potential for hazardous material release during the operational phase of the Proposed Grid Connection. On occasion, operational maintenance crew may need to dispose of hydrocarbon waste such as oil that may be required during transformer maintenance procedures. The CEMP includes a Waste Management Plan which outlines the best practice procedures during the construction and operational phases. The WMP outlines the methods of waste prevention and minimisation by recycling, recovery and reuse at each during the construction and operation of the Proposed Grid Connection. Disposal of waste will be seen as a last resort. Please see the CEMP (Appendix 3-2) for best practise measures to prevent the creation of waste.

6.3.1.7 Natural Gas Explosion along the main Cork-Dublin Gas Line

The Cork to Dublin Gas line runs from Cork to Waterford, Carlow, Kildare and terminates in Dublin. Offshoots of the line from Cork northwards to Mitchelstown and into Tipperary town, Cahir and Cashel, all of which are between 31km and 42km from the Site. As such, it is considered that neither the Proposed Grid Connection nor the gas line have the opportunity to negatively impact the other. Therefore a natural gas explosion this risk is not considered further.

6.3.1.8 Loss of Critical IT Infrastructure

6.3.1.8.1 National Grid Network

EirGrid operates and develops Ireland's electricity grid. This includes interconnecting to neighbouring grids and running the wholesale electricity market. The grid safely brings power from generators such as wind farms to the ESB network that supplies homes and business in Ireland. It also brings power directly to large energy users. There are two types of electricity generation: synchronous generation and non-synchronous generation. Synchronous generation produces the same amount of electricity all the time e.g., fossil fuels. Non-synchronous generation produces a varying amount of electricity depending on the energy available. Eirgrid operate the grid from National Control Centres (NCCs) in Dublin and Belfast, matching electricity production to customer demand, switching from synchronous to non-synchronous where required to ensure no power outages. Therefore, any technical fault at the Proposed Grid Connection would not impact the local or national energy supply.

6.3.1.8.2 Electromagnetic Interference on Railway Communications

The Proposed Grid Connection will not directly impact Irish Rail infrastructure in any way. The proposed underground grid connection cables will not cross the railway line infrastructure but instead, will run underground approx. 20m away from the railway line. The 2017 ESB report 'EMF and You: Information about Electric & Magnetic Fields and the electricity network in Ireland'¹, illustrates the potential for electromagnetic interference on a receptor from 110kV infrastructure. As Figure 6-1 below illustrates, at distances of 5m from the 110kV overhead line or underground cable, the electromagnetic frequency drops considerably from 4µT to 0.5 µT. As the proposed underground cable route is approximately 20m from the railway line, it is unlikely to cause an impact

¹ 5 ESB 2017 EMF and You: Information about Electric & Magnetic Fields and the electricity network in Ireland. Available at:
https://esb.ie/docs/default-source/default-document-library/emf-public-information_booklet_v9.pdf?sfvrsn=

on Irish Rail communications.

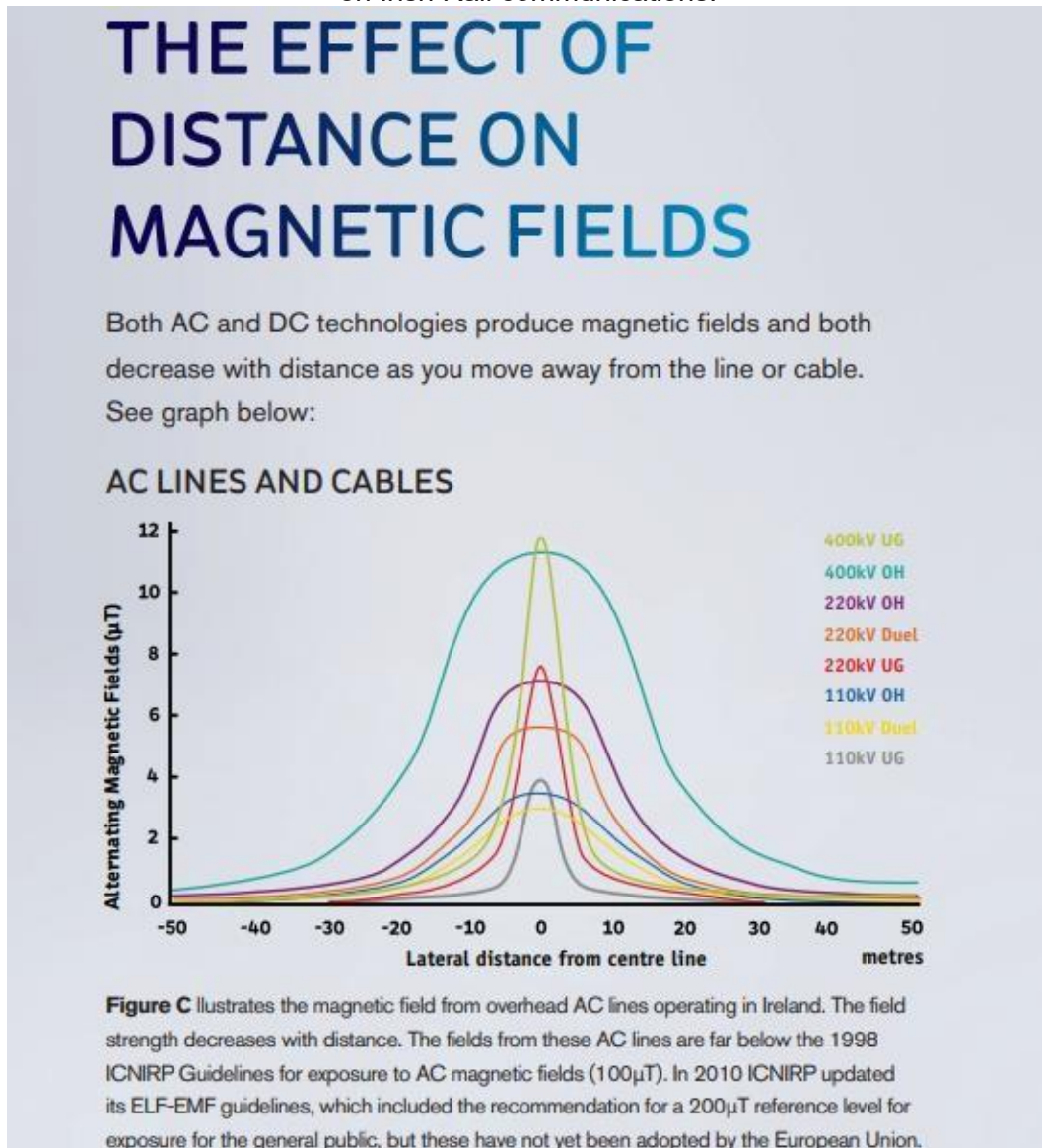


Figure 6-1: Magnetic Field from Overhead AC Lines Operating in Ireland

6.3.1.9 Rail Incident

The Proposed Grid Connection is located approximately 20 m north of the Irish Rail's Cork-to-Dublin route. Works relating to the construction of the Proposed Grid Connection which will be confined to a minimum 20m set back from the railway line will not interfere with the track, track drainage or embankment. However, 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. Furthermore, contact will be made to IEDR 30 days prior to the works that will take place at a minimum of 20m northwest of CIE infrastructure.

6.4 Risk Assessment

This section outlines the possible risks associated with the construction and operation of the Proposed Grid Connection. These risks have been assessed in accordance with the classification as outlined in Table 6-2 and Table 6-3 above.

It should be noted that the Proposed Grid Connection will not be decommissioned. Therefore there is no potential for cumulative effects during a development decommissioning phase as the Proposed Grid Connection infrastructure will remain in place as it will become part of the National Electricity Grid under the ownership and control of the ESB and EirGrid.

As outlined above, 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 effects.

6.4.1 Likely Significant Effects

6.4.1.1 Do-Nothing Scenario

If the Proposed Grid Connection did not receive a grant of permission, the Site will continue to function as it does at present, with no changes made to the current landuse and potential for major accidents to occur to or from the Proposed Grid Connection would not occur.

If the Proposed Grid Connection were not to proceed, the Consented Wind Farm would not be constructed, therefore the indirect short term construction phase impacts and long term operational phase impacts, (which have been determined to not have significant environmental effects, refer to ACP Planning Reference 318704) , will not occur.

Likewise, the indirect positive contribution the Proposal Grid Connection to meeting National and EU targets for the production and consumption of electricity from renewable resources by 2030 and the reduction of greenhouse gas emissions.

6.4.1.2 Identification of Effects

A risk register has been developed which contains all relevant risks identified during the Construction Phase of the Proposed Grid Connection. Seven risks specific to the construction and operation of the Proposed Grid Connection have been identified and are presented in Table 6-5.

Chapter 6 Major Accidents and Natural Disasters

Table 6-5: Risk Register - Construction Phase

Risk ID	Potential Risk	Possible Cause
Potential vulnerability to disaster risks		
A	Critical Infrastructure Emergencies Risk of Delivery of infrastructure to Site.	Traffic accident during materials 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 the Site 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 natural disasters.		
D	Utility emergencies Risk of construction activity along the Grid Connection underground electrical cabling route Risk to interference/breakage 110kV overhead line.	Construction activity along grid and road network impacting on local services and utilities. Construction activities in vicinity of/under 110kV line during grid connection works impacting on local services and utilities
E	Traffic Incident Collisions onsite and offsite with vehicles involved in construction of the Proposed Grid Connection	Driver negligence or failure of vehicular operations on site roads. Traffic Management not implemented
F	Contamination Discharge or spillage of fuel, chemical solvents onto subsoils and into watercourse or percolated to groundwater. Excavated materials may give rise to run off sedimentation	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 Grid Connection which may result in entrainment of sediment from the excavations during construction.
G	Fire / Gas Explosion	Equipment or infrastructure failure; Electrical problems; and Employee negligence.

Chapter 6 Major Accidents and Natural Disasters

Table 6-6: Risk Register During the Operational Phase

Risk ID	Potential Risk	Possible Cause
Potential vulnerability to disaster risks		
H	Severe Weather Risk to operational activity on site	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds.
I	Contamination Discharge or spillage of fuel, chemical solvents, sewage or wastewater onto subsoils and 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.
Potential to cause accidents and or natural disasters.		
J	Fire / Gas Explosion	Equipment or infrastructure failure; Electrical problems; and Employee negligence.
K	Collapse / damage to structures	Earthquake, extreme weather events; and Vehicular collisions due to driver negligence on public roads.
L	Traffic Incident Collisions onsite and offsite with vehicles involved in operation of Proposed Grid Connection	Driver negligence or failure of vehicular operations on site roads. Traffic Management not implemented

6.4.2 Risk Assessment Summary

The risk register is based upon possible risks associated the Proposed Grid Connection. The consequence rating assigned to each potential risk has adopted the assumption that all proposed mitigation measures and safety procedures have failed to prevent the major accident and/or disaster. A summary of the risk assessment can be found in Table 6-7 below.

These risks have been assessed in accordance with the relevant classification (Refer to Table 6-1 and Table 6-2) and the resulting risk analysis is given in Tables 6-6 and 6-7.

The risk register is based upon possible risks associated the Proposed Grid Connection. As outlined in Section 6.2.4.2, 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. A summary of the findings can be found in Table 6-7.

Chapter 6 Major Accidents and Natural Disasters

Table 6-7: Risk Assessment Summary

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;	1	The risk of traffic accident during materials delivery in severe weather conditions impacting the identified road network is unlikely when considering the assessment in Chapter 10: Climate (weather conditions recorded over the last 30 years within the area) and Chapter 14 section 14.2– Traffic Impact Assessment and Construction Traffic Management Plan.	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 event occur, with 'no fatalities and a small number of minor injuries with first aid treatment'.	1
B	Severe Weather	Extreme weather-periods of heavy rainfall, taking into account climate change and strong winds	Illness or loss of life; 2 Damage to, or depletion of aquatic habitats and species;	2	The risk of severe weather is unlikely when considering the assessment in Chapter 10: Climate 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 Grid Connection will take account of weather forecasts and predicted rainfall 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 event occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. Severe	2

Chapter 6 Major Accidents and Natural Disasters

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
							weather may cause increased mobilisation of sediment which will be controlled via the Proposed Grid Connection design and mitigation measures.	
C	Flooding	Extreme weather-periods of heavy rainfall, taking into account climate change and strong winds	Illness or loss of life; 2 Groundwater Flooding Flooding to surrounding properties 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 8 of the EIAR, the raising of infrastructure in flood zones to above flood zone level and the implementation of a bespoke drainage design plan for the project.	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 event 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

Chapter 6 Major Accidents and Natural Disasters

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
D	Utility emergencies	Construction activity along road network during grid connection installation impacting on local services and utilities Connecting the Proposed Grid Connection to the national grid at the 110kV overhead line.	Illness or loss of life; Disruption to services	2	Confirmatory surveys will be carried out by the Contractor to ensure that the grid connection is designed to take into consideration any services and utilities with the road network.	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
E	Traffic Incident	Driver negligence or failure of vehicular operations on Site access roads and public road network in which Grid Connection underground cable route is proposed. Driver negligence or failure of vehicular operations on public road network	Injury or loss of life.	3	A limited number of vehicles will be permitted on the Site 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 the Site or public roads, 'at some time.' An unlikely risk is therefore predicted. Traffic Management Plan will be in place for component deliveries. Staff will be trained/toolbox talks highlighting construction entrances and proper access and egress procedures.	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

Chapter 6 Major Accidents and Natural Disasters

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
		(infrastructure deliveries/ staff vehicles). Traffic Management not implemented						
F	Contamination – Fuel storage and handling	Fuel spillage during delivery to Site.	Release of suspended solids to groundwater.	2	As outlined in Chapter 3, vehicles will be refuelled off-site where possible. Where required, on-site refuelling of machinery will be carried out at designated refuelling areas by mobile double skinned fuel bowser. Heavy plant and machinery will be refuelled on-site by a fuel truck that will come to the Site as required on a scheduled and organised basis. All refuelling will be carried out outside designated watercourse buffer zones. Only designated trained and competent operatives will be authorised to refuel plant on-site. Mobile measures such as drip trays and fuel absorbent mats will be used during refuelling operations as required. All plant and machinery will be equipped with fuel absorbent material and pads to deal with any event of accidental spillage. Setback distances from sensitive hydrological features means that adequate room is maintained for the proposed drainage mitigation measures as detailed in Chapter 8. Detailed mitigation measures and methodologies for the control of emissions from grid connection works as described in the EIAR. Standard and specific mitigation to	2	The risk of a fuel spillage or impact on surround drainage during the construction is extremely low taking all and best practise measures proposed into account.	4
	-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;	Contamination of local drinking water supplies and groundwater aquifers. Groundwater and surface water emissions from construction activities including trench excavations Accidental spillage during refuelling onto subsoils				The grid connection route is located within approx. 860m of local road and 1.2km of agricultural land, both of which have a low value environmental receptor. The potential residual environmental effects are described in detail in Chapter 7 Land Soil and Geology and Chapter 8 Hydrology	

Chapter 6 Major Accidents and Natural Disasters

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
					prevent accidents and indirect effects of accidents are included in the Proposed Grid Connection design and will be implemented.		and Hydrogeology 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 3 and the CEMP Appendix 3-2, fuel will not be stored on-site 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 development 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 Site, 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 Grid Connection and the lack of infrastructure or fuel storage during operation that would result in any such 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	4

Chapter 6 Major Accidents and Natural Disasters

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
							the Tipperary Major Emergency Plans will work to reduce the consequence (both on people and the environment) of potential fire/explosions at the Site.	
Operation Phase								
H	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 unlikely when considering the assessment in Chapter 10: Climate and weather conditions recorded over the last 30 years within the area.	1	The risk of severe weather conditions during the operational phase will result in a minor consequence in that 'small number of people would be affected' should a severe weather event occur, with 'no fatalities and a small number of minor injuries with first aid treatment'.	2
I	Contamination	Mismanagement of hazardous materials e.g. oil by Eirgrid maintenance crew. Mismanagement of general waste and	Damage to, or depletion of aquatic habitats and species Contamination of local drinking water supplies and groundwater aquifers.	2	General waste produced at welfare facilities will be removed from site by maintenance personnel for disposal at Eirgrid and Developer headquarters. All hazardous wastes from the maintenance of the substation (including transformers) will	1	The risk of a fuel spillage or impact on surround drainage during the operational stage will result in a limited consequence in that there would be 'a	2

Chapter 6 Major Accidents and Natural Disasters

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
		welfare facilities waste.	Accidental spillage during refuelling onto subsoils		be stored securely in bunded containers/areas before being collected by an authorised waste contractor and brought to an EPA licensed waste facility. The wastewater holding tank at the substation will be emptied when required by a licenced contractor.		limited number of people 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.	
J	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 3, 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 Grid Connection 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 site, 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 Grid Connection and the lack of infrastructure or fuel storage during operational stage that would result in any such incident. There will be 'normal community functioning'	4

Chapter 6 Major Accidents and Natural Disasters

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 Tipperary Major Emergency Plans will work to reduce the consequence (both on people and the environment) of potential fire/explosions at the Site.	
K	Collapse/ damage to structures	Earthquakes, extreme weather events; and Vehicular collisions due to driver negligence.	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. Having regard to public speed limits within the Proposed Grid Connection, it is not predicted that any collision	1	The risk of infrastructure collapse during the operational phase will result in a minor consequence in that 'small number of people would be affected' and no real likelihood of any impact on any environmental receptors.	1

Chapter 6 Major Accidents and Natural Disasters

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
					of vehicles and any infrastructure would result in significant damage/collapse.			
L	Traffic Incident	Driver negligence or failure of vehicular operations on Proposed Grid Connection roads.	Injury or loss of life.	2	A limited number of vehicles will be permitted on the Proposed Grid Connection 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 the Proposed Grid Connection at some time. 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.	2

Chapter 6 Major Accidents and Natural Disasters

The risk assessment for each of the potential risks identified are consolidated in Table 6-8 which provides their 'risk score.' A corresponding risk matrix is provided in Table 6-9, which is colour coded in order to provide an indication of the critical nature of each risk. As outlined in section 6.2.4.2 above, the red zone represents 'high risk' scenarios', the amber zone represents 'medium risk scenarios and the green zone represents 'low risk scenarios.

Table 6-8: Risk Scores

Risk ID	Potential Risk	Likelihood Rating	Consequence Rating	Risk Score
Construction Phase				
A	Critical Infrastructure Emergencies	1	1	1
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
Operational Phase				
H	Severe Weather	2	1	2
I	Contamination	2	1	2
J	Fire / Gas Explosion	2	2	4
K	Collapse/ damage to structures	1	1	1
L	Traffic Incident	2	1	2

Following the Risk Score and using the Classification of Effect (Department of Environment, Heritage and Local Government, 2010) as detailed in Table 6-4, a Risk Matrix for the Proposed Grid Connection has been provided in Table 6-9. All are 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 and operation phase of the Proposed Grid Connection are discussed in section 6.4.3 to 6.4.4 below.

Chapter 6 Major Accidents and Natural Disasters

Table 6-9: Risks Visualised within the Risk Matrix

	Consequence Rating					
Likelihood		1 - Minor	2 - Limited	3 - Serious	4 - Very Serious	5 - Catastrophic
	5 - Very Likely					
	4 - Likely	E,				
	3 - Unlikely	B, C, D, H, I, L	F, G, J			
	2 - Very Unlikely	A, K				
	1 - Extremely Unlikely	E				

6.4.3 Contamination During Construction

There is a potential risk for contamination from the construction activities from the potential release of hydrocarbons. The risk of contamination during the Construction Phase was provided a risk score of 4 on a very precautionary basis. Chapter 7 Land, Soil and Geology and Chapter 8: Hydrology and Hydrogeology outlines mitigation measures that will be adhered to which will reduce the risk of accidental spillage and contamination to subsoils, groundwater, surface water, 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 Phase.

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

6.4.4 Fire/Explosion During Construction

There is a potential risk of fire/explosion at the Proposed Grid Connection Site. The scope of this assessment has been based on the understanding that the Proposed Grid Connection will be designed, built and operated in line with current best practice. The risk of a fire / explosion has been provided a likelihood of 2 (very unlikely) and a consequence rating of 2 (limited). Based on the risk matrix, the risk of fire / explosion is considered to be a low risk.

6.5 Mitigation Measures

Please refer to chapter 16 Schedule of Environmental Commitments which details all proposed mitigation and monitoring measures for the construction and operation of the Proposed Grid Connection. The scenario with the highest risk score in terms of the occurrence of major accident and/or disaster during construction is identified as 'Contamination' of the Site and risk of 'Fire/Explosion' during operation.

The Proposed Grid Connection will be designed and built in line with current best practice and, as such, mitigation against the risk of major accidents and/or disasters will be embedded through the

Chapter 6 Major Accidents and Natural Disasters

design. In accordance with the provision of the European Commission 'Guidance on the preparation of Environmental Impact Assessment Reports' 2017, a Risk Management Plan will be prepared and implemented on site to ensure an effective response to disasters or the risk of accidents. The plan will include sufficient preparedness and emergency planning measures.

6.5.1 Mitigation – Contamination During Construction and Operation

Potential effects associated with contamination during construction and operation are addressed fully in Chapter 7 Land Soil and Geology and Chapter 8 Hydrology and Hydrogeology of this EIAR. The mitigation measures outlined therein to protect environmental receptors as well as the procedures and measures described in the Construction and Environmental Management Plan (CEMP) will ensure that the risk from these sources is low.

A CEMP has been prepared for the Proposed Grid Connection and is included in Appendix 3-2 of this EIAR. Upon a grant of planning permission for the Proposed Grid Connection, the CEMP will be updated 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 3-2 for the CEMP that sets out the minimum standards to be employed by the contractor.

6.5.2 Mitigation – Fire/Explosion During Construction and Operation

The Proposed Grid Connection 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 site, and mitigation of the same during operation.

A 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 3-2 for the CEMP that sets out the minimum standards to be employed by the contractor.

6.6 Residual Effects

The risk of a major accident and/or disaster during the construction and operation of the Proposed Grid Connection is considered 'low' in accordance with the 'Guide to Risk Assessment in Major Emergency Management' (DoEHLG, 2010). When the above mitigation is implemented, and all mitigation detailed in the EIAR is implemented, the residual effect(s) associated with the construction and operation of the Proposed Grid Connection are not significant.

6.7 Monitoring

Please refer to Chapter 16: Schedule of Environmental Commitments which details all proposed monitoring measures during the construction and operation of the Proposed Grid Connection.

6.7.1 Monitoring During Construction

A 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

Chapter 6 Major Accidents and Natural Disasters

and/or disaster are identified, avoided and mitigated, as necessary. Refer to Appendix 3-2 for the CEMP that sets out the minimum standards to be employed by the contractor.

6.7.2 Monitoring During Operation

The operator of the Proposed Grid Connection will continue to assess the risk of major accidents and/or disasters on site 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.

6.8 Cumulative Impact Assessment

The potential for impact between the Proposed Grid Connection with the Consented Wind Farm, other proposed or consented wind projects within the surrounding landscape, and other relevant non-wind projects (existing, permitted or proposed) has been carried out with the purpose of identifying what influence the Proposed Grid Connection will have on major accidents and from natural disasters. How these factors interact when considered cumulatively and in combination with relevant existing, permitted or proposed projects and plans in the vicinity of the Site has also been undertaken. Please see Chapter 15 for Interactions and Cumulative Effects for the detailed cumulative assessment methodology. Please refer to Appendix 15-1 for a comprehensive listing of the considered cumulative and in combination with relevant existing, permitted or proposed projects and plans in the vicinity of the Site.

The risk assessment above concludes that the likelihood of a major accident or natural disaster occurring due to the construction and operation of the Proposed Grid Connection is low and residual effects from potential risks which scored the highest likelihood of occurring (fire/explosion and contamination) is not significant. It should be noted that the Proposed Grid Connection will not be decommissioned. The Grid Connection infrastructure will remain in place as it will become part of the National Electricity Grid under the ownership and control of the ESB and EirGrid; therefore, cumulative effects with the Proposed Grid Connection cannot occur during this phase.

The Proposed Grid Connection will be constructed at the same time as the Consented Wind Farm and will operate alongside it, facilitating the transmission of renewable energy to the national grid. A wind farm including all its various components including the grid connection works, substation, roads, turbines etc 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 of a wind farm 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.

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 Appendix 15-1, including the Consented Wind Farm, the Proposed Grid Connection, 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 to cause major accidents or natural disasters.

Therefore, there will be no significant effects arising from the construction, operation or decommissioning (excluding the Proposed Grid Connection) of the Consented Wind Farm and Proposed Grid Connection combined, nor with any other existing, permitted or proposed project/plans listed in Chapter 15 Interactions and Cumulative Effects.

6.9 References

1. Census Statistics Office. (2022). *Census Interactive Map*. Retrieved July 11, 2025, from <https://visual.cso.ie/?body=entity/ima/cop/2022>
2. Department of Defence. (2020). *A National Risk Assessment for Ireland*.
3. Department of Environment, Heritage and Local Government. (2010). *A Guide to Risk Assessment in Major Emergency Management*.
4. Department of Housing, Local Government and Heritage. (2018). *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018)*.
5. Department of Taoiseach. (2024). *National Risk Assessment 2024 Overview of Strategic Risks*. Dublin: Government of Ireland.
6. Department of the Environment, Heritage & Local Government. (2010). *A Framework for Major Emergency Mngement: A guide to risk assessment Major Emergency Management*. Dublin: DOEHLG.
7. DoEHLG. (2010). *Guide to Risk Assessment in Major Emergency Management*.
8. EPA. (2014). *Guidance on assessing and costing environmental liabilities*.
9. EPA. (2014). *Guidance on Assessing and Costing Environmental Liabilities*. Wexford: Environmental Protection Agency.
10. EPA. (2020). *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*
11. EPA. (2022). *Guidelines on Information to be Contained in Environmental Impact Assessment Reports* .
12. ESB. (2017). *Information about Electric & Magnetic Fields and the Electricity Network in Ireland*.
13. European Commission. (2017). *Guidance on the preparation of Environmental Impact Assessment Reports (Directive 2011/92/EU as amended by 2014/52/EU)*. Luxembourg: Publications Office of the European Union.
14. European Commission. (2017). *Environmental Impact Assessment of Projects: Guidance on the preperation of the Environmental Impact Assessment Report*. Luxembourg: Publications Office.
15. HSA. (2017). *Guidelines on the Procurement, Design and Management Requirements of the Safety health and Welfare at Work (Construction) Regulations 2013 (Updated)*.
16. Irish Rail. (2009). *I-DEP-0121 Third Party Works: Additional Details of Railway Safety Requirements*.
17. Irish Rail. (2018). *CCE-TMS-310 - Guidance on Third Party Works*.
18. Mid West Regional Authority. (2010). *Mid-West Regional Planning Guidelines 2010-2022*. Nenagh.
19. Southern Regional Assembly. (2020). *Regional Spatial and Economic Strategy for the Southern Region (RSES) 2020-2032*.
20. Tipperary County Council. (2014). *Tipperary County Council Major Emergency Plan 2014*.
21. Transport Infrastructure Ireland. (2022). *Temporary Traffic Management: Guidance Handbook*. Dublin: TII Publications.