

# Chapter 24: Risk of Major Accidents and Natural Disasters





# ORIEL WIND FARM PROJECT

## Environmental Impact Assessment Report Chapter 24: Risks of Major Accidents and Natural Disasters

MDR1520B  
EIAR – Chapter 24  
A1 C01  
March 2024

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

### Contents

<b>24</b>	<b>CHAPTER 24 – RISK OF MAJOR ACCIDENTS AND NATURAL DISASTERS</b>	<b>1</b>
24.1	Introduction	1
24.2	Purpose of this chapter	1
24.3	Policy context	2
24.4	Consultation	10
24.5	Baseline environment	10
24.5.1	Introduction	10
24.5.2	Project overview	11
24.5.3	Shipping and navigation	11
24.5.4	Commercial fisheries	12
24.5.5	Other marine activity (recreation)	12
24.5.6	Airspace and aviation (civil and military)	13
24.5.7	Offshore infrastructure	15
24.5.8	Onshore infrastructure (built services)	15
24.5.9	Natural disasters	16
24.5.10	Major accidents - COMAH establishments	16
24.5.11	Unexploded ordnance	17
24.5.12	Future baseline scenario	18
24.5.13	Data validity and limitations	18
24.6	Assessment methodology	18
24.6.1	Stage 1 - Screening	20
24.6.2	Step 2 - Scoping	20
24.6.3	Step 3 - Assessment of significance	21
24.7	Assessment of major accidents and disasters	22
24.7.1	Screening outcome	22
24.7.2	Scoping outcome	23
24.7.3	Assessment	27
24.8	Mitigation measures	37
24.9	Cumulative effects	37
24.10	Conclusion	37
	References	38

### Tables

Table 24.1:	Summary of NMPF policy framework provisions relevant to major accidents and natural disasters	4
Table 24.2:	Summary of OREDP provisions relevant to major accidents and natural disasters	6
Table 24.3:	Summary of other policy framework provisions relevant to major accidents and natural disasters	7
Table 24-4:	COMAH establishments	17
Table 24-5:	Scoping of vulnerability of the Project (during construction, operation and maintenance, decommissioning phases) to existing sources of hazards	23
Table 24-6:	Scoping of the potential for the Project to cause accidents/disasters	24
Table 24-7:	Risk register	29

### Figures

Figure 24-1:	Screening and scoping decision process (IEMA, 2020)	19
--------------	---	----

**ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS**

---

Figure 24-2: Summary of risk events considered in the scope of the assessment of major accidents and disasters (IEMA, 2020).....21

## 24 CHAPTER 24 – RISK OF MAJOR ACCIDENTS AND NATURAL DISASTERS

### 24.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) provides an assessment of the potential likely significant effects on the environment arising from the vulnerability of the Oriel Wind Farm Project (hereafter referred to as “the Project”) to risks of major accidents and natural disasters during the construction, operational and maintenance, and decommissioning phases. The assessment presented is informed by the following technical chapters:

- Volume 2A, chapter 5: Project Description;
- Volume 2B, chapter 7: Marine Processes;
- Volume 2B, chapter 12: Commercial Fisheries;
- Volume 2B, chapter 13: Shipping and Navigation;
- Volume 2B, chapter 14: Aviation, Military and Communications;
- Volume 2B, chapter 16: Infrastructure, Marine Recreation and Other Users;
- Volume 2C, chapter 17: Climate;
- Volume 2C, chapter 20: Land and Agriculture;
- Volume 2C, chapter 21: Soils, Geology and Hydrogeology;
- Volume 2C, chapter 22: Hydrology and Flood Risk;
- Volume 2C, chapter 28: Traffic and Transport; and
- Volume 2C, chapter 29: Material Assets.

The details and competencies of the specialist who prepared this chapter can be found in volume 2A, chapter 1: Introduction.

### 24.2 Purpose of this chapter

The primary purpose of this chapter is to provide an assessment of the likely significant adverse effects potentially caused by accidents and/or disasters arising as a result of the Project on the environment, and the vulnerability of the Project to major accidents and/or natural disasters that would result in significant adverse effects (such as sea level rise, flooding, or earthquakes). In particular, this EIAR chapter:

- Presents the existing environmental baseline established from desk studies, and consultation (section 24.4 and section 24.5);
- Identifies any assumptions and limitations encountered in compiling the environmental information (section 24.5.13);
- Presents an assessment of the potential likely significant effects deriving from the vulnerability of the Project to risks of major accidents and/or natural disasters (section 24.7.3), based on the information gathered and the analysis and assessments undertaken. This includes an assessment of the vulnerability of the Project to the following potential risks:

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

- Risks to the environment, human health and material assets from potential accidents and disasters occurring as a result of Project activities undertaken during the construction, operation or decommissioning of the Project (e.g. risk of vessel collision, risk of pollution of the marine environment from pollution events during the Project’s operational phase);
- Risks to the Project from potential accidents and disasters resulting from accidents occurring in nearby infrastructure, such as existing built services and COMAH establishments (e.g. risk of accidents from existing built infrastructure).
- Highlights any necessary monitoring and/or measures which could prevent, minimise, reduce, or offset the possible significant effects of the Project arising from major accidents and/or natural disasters (Section 24.8).

An assessment of the vulnerability of the Project to climate change (e.g. such as through flood risk or the risk of natural disasters caused by extreme weather and climate change) is addressed in chapter 17: Climate.

### 24.3 Policy context

Over the last 30 years, a number of accidents have shaped both European and National legislation in the prevention and control of major accidents. The awareness of major accidents has resulted in a number of directives and regulations that provide and outline appropriate guidance and assessment tools that allow a comprehensive methodology to characterise the risks associated with the potential significant effects of a project.

However, a clear definition of a ‘major accident’ is not clearly outlined in a number of these directives and/or regulations. Therefore, the following definition has been adopted following a review of a number of sources which are based on Directive (2012/18/EU) and the Framework for Major Emergency Management (NSG, 2015):

*“An event that threatens immediate or delayed serious damage to human health, welfare and/or the environment and requires beyond normal activation of specific additional procedures and mobilisation of natural resources”.*

and where serious damage can be described as:

*“the loss of life or permanent injury and/or permanent or long-lasting damage to an environmental receptor which cannot be restored through minor clean-up and restoration efforts”.*

A major accident could involve a number of scenarios, occurring during construction and operation and can be caused by operational failures and natural hazards. A number of interactions between different environmental aspects could potentially be impacted by the Project.

Article 3 of the 2011 EIA Directive as amended by the 2014 EIA Directive (hereafter the “EIA Directive”) requires the assessment of the 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 EIA Directive as amended also states:

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

*“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 Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022) require 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)”.*

The Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (DHPLG, 2018) state the following with regard to risk of major accidents and disasters:

*“The EIA must 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”.*

These Guidelines 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; and
- The vulnerability of the project to potential disasters/accidents, including the risk to the project of both natural disasters (e.g. flooding) and man-made disasters (e.g. technological disasters).”

The Guidelines further state that:

*“These considerations are separate to any assessment of the project required under the Seveso III Directive, which is likely to include a detailed risk assessment”.*

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 “COMAH Regulations”), implements the Seveso III Directive. A review of the Health and Safety Authority (HSA) list of Upper and Lower Tier COMAH Establishments was conducted to determine the presence of any establishments within the vicinity of the Project for which the consultation distances may overlap with the Project (see section 24.5.10).

Planning policy on renewable energy infrastructure is presented in volume 2A, chapter 2: Policy and Legislation. This section presents planning policy that specifically relates to major accidents and disasters, which is contained in the National Marine Planning Framework (NMPF) (Department of Housing, Local Government and Heritage, 2021). A summary of the policy provisions relevant to major accidents and disasters are provided in Table 24.1.

Additional policy requirements from the Offshore Renewable Energy Development Plan (ORED P) are provided in Table 24.2. In February 2023, the ‘ORED P II - National Spatial Strategy for the transition to the Enduring Regime’ was published in draft and subject to consultation. The draft ORED P II does not define specific provisions similar to ORED P I. The key objectives of ORED P II are:

- “Assess the resource potential for ORE in Ireland’s maritime area;
- Provide an evidence base to facilitate the future identification of Broad Areas of Interest most suitable for the sustainable deployment of ORE in Ireland’s maritime area; and

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

- *Identify critical gaps in marine data or knowledge and recommend prioritised actions to close these gaps.”*

The OREDP II will provide an evidence base to facilitate the future identification of Broad Areas of Interest most suitable for the sustainable deployment of ORE in Ireland’s maritime area, to be assessed in greater detail at regional scale. This assessment will subsequently inform the identification of more refined areas as part of the designation process for Designated Maritime Area Plans (DMAP).

When published, the OREDP II will update the original OREDP published in 2014.

**Table 24.1: Summary of NMPF policy framework provisions relevant to major accidents and natural disasters.**

Summary of relevant policy framework	How and where considered in the EIAR
<b>Defence and Security</b>	
<p><b>Defence and Security Policy 1:</b> Any proposal that has the potential to interfere with the performance by the Defence Forces of their security and non-security related tasks must be subject to consultation with the Defence Organisation. This includes potential interference with:</p> <ul style="list-style-type: none"> <li>• Safety of navigation and access to naval facilities;</li> <li>• Firing, test or exercise areas;</li> <li>• Communication, and surveillance systems; and</li> <li>• Fishery protection functions.</li> </ul> <p>Proposals should only be supported where, having consulted with the Defence Organisation, they are satisfied that it will not result in unacceptable interference with the performance by the Defence Forces of their security and non-security related tasks. Any proposal will be subject to the relevant Environmental Assessments, as set out in the introduction of the NMPF.</p>	<p>See volume 2B, chapter 14: Aviation, Military and Communications, which examines the potential impact of the Project on Ireland’s Defence Forces and outlines measures included in the Project to allow for safe navigation as part of the Project.</p> <p>Impacts from the Project on the performance of the Defence Forces have been scoped out of the assessment as the Project will not result in unacceptable interference with the performance by the Defence Forces of their security and non-security related tasks.</p>
<b>Safety at Sea</b>	
<p><b>Safety at Sea Policy 1:</b> Proposals for installation, operation, and decommissioning of Offshore Wind Farms must demonstrate how they will:</p> <ul style="list-style-type: none"> <li>• Minimise navigational risk between commercial vessels arising from an increase in the density of vessels in maritime space as a result of wind farm layout; and</li> <li>• Allow for recreational vessels within the offshore wind farm (including consideration of turbine height) or redirect recreational vessels, minimising navigational risk arising between recreational and commercial vessels.</li> </ul>	<p>A number of measures have been included in the Project to ensure safety at sea is maintained and all navigational risk has been minimised during all phases of the Project (see volume 2A, chapter 5: Project Description and volume 2B, chapter 13: Shipping and Navigation).</p> <p>The Lighting and Marking Plan (see volume 2A, appendix 5-8: Lighting and Marking Plan) has been developed in line with international best practice guidance. Aids to navigation related to the Project will be designed in accordance with relevant guidance from the Irish Aviation Authority (IAA), Marine Survey Office (MSO), Commissioners of Irish Lights and the Irish Coast Guard. The positions of all infrastructure (including turbines, the substation and cables) will be conveyed to the Marine Survey Office and the UK Hydrographic Office (UKHO) so that they can be incorporated into Admiralty Charts and the Notice to Mariners procedures.</p> <p>Lighting and marking of subsea structures have been discussed with the Commissioners of Irish Lights (see ‘consultation’ in chapter 13: Shipping and Navigation). Lighting and marking has been based on the recommendations of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA).</p>



## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

Summary of relevant policy framework	How and where considered in the EIAR
<p><b>Safety at Sea Policy 2:</b> Proposals for infrastructure that have the potential to significantly reduce under-keel clearance must demonstrate how they will, in order of preference:</p> <ul style="list-style-type: none"> <li>(a) Avoid;</li> <li>(b) Minimise;</li> <li>(c) Mitigate adverse impacts; or</li> <li>(d) If it is not possible to mitigate significant adverse impacts, proposals should set out the reasons for proceeding.</li> </ul>	<p>Measures included in the Project which apply to under keel clearance are outlined in chapter 13: Shipping and Navigation. This includes conducting a cable burial risk assessment to ensure cables are adequately buried so as not to become a navigation hazard, based on seabed characteristics and the density and distribution of vessel traffic. Where cable protection is used, this should not exceed a 5% reduction in under-keel clearance (UKC).</p>
<p><b>Safety at Sea Policy 3:</b> All proposals for temporary or permanent fixed infrastructure in the maritime area must ensure navigational marking in accordance with appropriate international standards and ensure inclusion in relevant charts where applicable.</p>	<p>Measures included in the Project for the construction and operational and maintenance phases of the Project to ensure that the required navigational marking is provided. see volume 2A, chapter 5: Project Description and volume 2B, chapter 13: Shipping and Navigation.</p>
<p><b>Safety at Sea Policy 4:</b> Establishing, changing or disestablishing Aids to Navigation (Aton) must be sanctioned, in advance of works, by the Commissioners of Irish Lights.</p>	<p>The Lighting and Marking Plan (see volume 2A, appendix 5-8: Lighting and Marking Plan) has been developed in line with international best practice guidance. Aids to navigation related to the Project will be designed in accordance with relevant guidance from the IAA, MSO, Commissioners of Irish Lights and the Irish Coast Guard. The positions of all infrastructure (including turbines, the substation and cables) will be conveyed to the MSO and the UKHO so that they can be incorporated into Admiralty Charts and the Notice to Mariners procedures.</p>
<p><b>Safety at Sea Policy 5:</b> Proposals must identify their potential impact, if any, on Maritime Emergency Response (Search and Rescue (SAR), Maritime Casualty and Pollution Response) operations. Where a proposal may have a significant impact on these operations it must demonstrate how it will, in order of preference:</p> <ul style="list-style-type: none"> <li>(a) Avoid;</li> <li>(b) Minimise;</li> <li>(c) Mitigate adverse impacts; or</li> <li>(d) If it is not possible to mitigate significant adverse impacts, proposals should set out the reasons for proceeding, supported by parties responsible for maritime SAR.</li> </ul>	<p>Measures included in the Project for the construction, operation and maintenance phases, to ensure that SAR operations are set out in accordance with best practice and in agreement with key stakeholders (see volume 2B, chapter 13: Shipping and Navigation). An Emergency Response Co-operation Plan (ERCoP) was prepared (see volume 2A, appendix 5-7) in conjunction with the Irish Coast Guard (IRCG) and other key stakeholders. The ERCoP details the emergency response planning requirements for the project (at all stages) as directed by the IRCG.</p> <p>Prior to construction a Navigation Safety Management System (NSMS) will be prepared which will collate documents for management of navigational safety relevant to the marine activities from multiple sources. This will include documents created by the Project and those in place for third parties such as construction and maintenance contractors, and will include, <i>inter alia</i>, policy statements, delegated responsibilities and references to operational procedures as appropriate (see volume 2B, chapter 13: Shipping and Navigation).</p>
<p><b>Ports, Harbours and Shipping Policy 1:</b> To provide for shipping activity and freedom of navigation the following factors will be taken into account when reaching decisions regarding development and use:</p> <ul style="list-style-type: none"> <li>• The extent to which the locational decision interferes with existing or planned routes used by shipping, access to ports and harbours and navigational safety. This includes commercial anchorages and approaches to ports as well as key littoral and offshore routes;</li> <li>• A mandatory Navigation Risk Assessment;</li> <li>• Where interference is likely: whether reasonable alternatives can be identified; and</li> </ul>	<p>Measures included in the Project regarding marine navigation and safety are outlined in volume 2B, chapter 13: Shipping and Navigation.</p> <p>A Navigation Risk Assessment (NRA) has been undertaken and is provided in volume 2B, appendix 13-1: Navigation Risk Assessment.</p>

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

Summary of relevant policy framework	How and where considered in the EIAR
<ul style="list-style-type: none"> <li>Where there are no reasonable alternatives: whether mitigation through measures adopted in accordance with the principles and procedures established by the International Maritime Organisation can be achieved at no significant cost to the shipping or ports sector.</li> </ul>	

**Table 24.2: Summary of OREDP provisions relevant to major accidents and natural disasters.**

Summary of OREDP project-level mitigation measures	How and where considered in the EIAR
<p><b>Accidental contamination:</b> Design devices to minimise risk of leakage of pollutants; risk assessment and contingency planning; Implementation of Shipboard Oil Pollution Emergency Plan (SOPEP); benthic survey to characterise seabed.</p> <p>Accidental contamination: Design devices to minimise risk of leakage of pollutants. Risk assessment and contingency planning. Avoid shipping routes. Implementation of SOPEP (Shipboard Oil Pollution Emergency Plan)<sup>1</sup>.</p>	<p>Measures included in the Project to address the risk of accidental contamination are outlined in volume 2A, appendix 5-2: Environmental Management Plan and (including Marine Pollution Contingency Plan) and are summarised in the following technical chapters: volume 2B, chapter 8: Benthic Subtidal and Intertidal Ecology and volume 2B, chapter 9: Fish and Shellfish Ecology.</p> <p>The abovementioned measures aim to minimise the likelihood of accidental release of pollutants (e.g. spillage of chemicals and accidental release of biodegradable bentonite drilling fluid during trenching activities) and in the unlikely event that such an incident occurs, they will limit the severity of any such release.</p> <p>The offshore wind farm area is relatively close to the potential operations and maintenance ports proposed in chapter 5: Project Description, therefore offshore refuelling is unlikely. All offshore operations will be subject to the measures set out in volume 2A, appendix 5-2: Environmental Management Plan.</p>
<p><b>Collision:</b> Collision is referred to in various contexts within the OREDP, including:</p> <p>Ports, Shipping and Navigation - Collision risk:</p> <ul style="list-style-type: none"> <li>Avoid constrained areas or areas of high shipping densities and regularly used shipping routes;</li> <li>In busy shipping areas, potential effects may be reduced by minimising the period of installation, the number of vessels required and the area occupied during installation;</li> <li>Maintain good communications with the relevant ports, and issue the appropriate notifications during installation and maintenance; and</li> <li>The scale of potential effect on navigation should be assessed as part of the EIA and NRA as outlined above.</li> </ul> <p>Recreation and Tourism - Safety and Collision Risk:</p> <ul style="list-style-type: none"> <li>Avoid popular cruising routes, diving areas and key water sport locations;</li> <li>Incorporate suitable safety features such as lighting, netting and buoys into the device design;</li> <li>Provide suitable information for the public regarding safety;</li> <li>Restrict access to construction sites; and</li> <li>Observe good practice during construction, removal and maintenance.</li> </ul> <p>Aviation Radar – Collision / Radar Interference:</p>	<p>Measures included in the Project to ensure lighting and marking requirements are met are outlined in volume 2B, chapter 14: Aviation, Military and Communications and volume 2A, appendix 5-8: Lighting and Marking Plan.</p> <p>Marine navigation and vessel safety are addressed in volume 2B, chapter 13: Shipping and Navigation and volume 2B, appendix 13-1 Navigation Risk Assessment (NRA).</p> <p>Oil and gas activity is considered in volume 2B, chapter 16: Infrastructure, Marine Recreation and Other Users. A baseline review of offshore energy projects was undertaken and no oil and gas projects were identified that would have the potential to interact with the Project.</p>

<sup>1</sup> The draft OREDP II includes Strategic Environmental Assessment objective 4: Avoid pollution of the coastal and marine environment.

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

Summary of OREDP project-level mitigation measures	How and where considered in the EIAR
<ul style="list-style-type: none"> <li>Ensure wind devices are lit with aviation lights in accordance with OAM 09/02 “Offshore Wind Farms Conspicuity Requirements”;</li> <li>As required under the Obstacles to Aircraft in Flight Order, S.I. 215 of 2005, provide notification of the erection of wind devices to the IAA;</li> <li>Consultation with the IAA will be required and the location of wind devices supplied so they can be accurately plotted on the radar and any signals received from that area will not be confused with aeroplanes.</li> </ul> <p>Oil and Gas Activity - Collision:</p> <ul style="list-style-type: none"> <li>Consultation with the relevant regulatory body would be required prior to siting of any renewable energy devices;</li> <li>Careful site selection avoiding areas of existing and proposed oil and gas activity.</li> </ul>	

A summary of local and regional policy provisions and related policy framework relevant to accidents and natural disasters and hazards are provided in Table 24.4.

**Table 24.3: Summary of other policy framework provisions relevant to major accidents and natural disasters.**

Summary of relevant policy framework	How and where considered in the EIAR
<b>DHLGH and OPW Planning System and Flood Risk Management Guidelines (2009)</b>	
<p>Objectives of the Guidelines are to:</p> <ul style="list-style-type: none"> <li>Avoid inappropriate development in areas at risk of flooding;</li> <li>Avoid new developments increasing flood risk elsewhere, including that which may arise from surface run-off;</li> <li>Ensure effective management of residual risks for development permitted in floodplains;</li> <li>Avoid unnecessary restriction of National, Regional or Local economic and social growth;</li> <li>Improve the understanding of flood risk among relevant stakeholders; and</li> <li>Ensure that the requirements of EU and national law in relation to the natural environment and nature conservation are complied with at all stages of flood risk management.</li> </ul>	<p>A Flood Risk Assessment has been completed for the Project (see appendix 22-1: Flood Risk Assessment). The potential impacts of the Project on Hydrology and Flood Risk are addressed in chapter 22: Hydrology and Flood Risk.</p>
<b>Louth County Council Development Plan 2021-2027</b>	
<b>Seveso</b>	
<p><b>Policy Objective ENV 27</b></p> <p>To comply with the SEVESO II Directive in reducing the risk and limiting the potential consequences of major industrial accidents</p>	<p>A review of the Health and Safety Authority (HSA) list of Upper and Lower Tier COMAH Establishments was conducted to determine the presence of any establishments within the vicinity of the Project (see section 24.5.10).</p>
<p><b>Policy Objective ENV 28</b></p> <p>To ensure that land use policies take account of the need to maintain appropriate distance between future major accident hazard establishments and residential areas, areas of substantial public use and of particular natural sensitivity or interest.</p>	
<b>Policy Objective ENV 29</b>	

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

Summary of relevant policy framework	How and where considered in the EIAR
<p>To have regard to the advice of the HSA when proposals for a new SEVESO site, modifications to an existing SEVESO site or when proposals for development within the consultation zone of a SEVESO site are being considered (including and as detailed in Table 11.1 of the Louth CDP 2021-2027<sup>2</sup>)</p>	
<b>Coast Protection and Flooding</b>	
<p><b>Policy Objective ENV 50</b></p> <p>To require that all proposed developments within 100 m of the coastline of Louth, outside the main settlements (Levels 1-4) submit a Coastal Erosion Assessment Report. New developments will be prohibited, unless it can be objectively established based on the best scientific information at the time of the application, that the likelihood of erosion at a specific location is minimal taking into account, inter alia, any impacts.</p>	<p>A Flood Risk Assessment has been completed for the Project (see appendix 22-1: Flood Risk Assessment and chapter 22: Hydrology and Flood Risk).</p> <p>Coastal erosion is addressed in volume 2C, chapter 21: Soils, Geology and Hydrogeology . The clay cliff at Dunany Point may be vulnerable to coastal erosion, however, works in this area will be temporary and measures are proposed to reduce the risk of coastal erosion.</p> <p>See chapter 22: Hydrology and Flood Risk, which presents the results of the assessment of the potential impacts of the Project on Hydrology and Flood Risk.</p>
<p><b>Policy Objective ENV 51</b></p> <p>To recognise the concept of coastal evolution and fluvial flooding as part of our dynamic physical environment, and adopt an adaptive approach to working with these natural processes. The focus of a flood management strategy should not solely be driven by conservation of existing lands. It should recognise that marshes, mud flats and other associated eco-systems evolve and degenerate and appropriate consideration should be given to the realignment of defences and use of managed retreat and sacrificial flood protection lands to maintain such habitats as part of an overall strategy.</p>	
<p><b>Policy Objective ENV 52</b></p> <p>To ensure the County's natural coastal defences (beaches, sand dunes, salt marshes and estuary lands) are protected and to ensure they are not put at risk by inappropriate works or development.</p>	
<p><b>Policy Objective ENV 53</b></p> <p>To explore, where coastal erosion is considered a threat to existing properties, the technical, environmental and economic feasibility of coastal adaptation and coastal retreat management options.</p>	
<p><b>Policy Objective ENV 54</b></p> <p>To employ soft engineering techniques as an alternative to hard coastal defence works, wherever possible.</p>	
<p><b>Policy Objective ENV 55</b></p> <p>To identify, prioritise and implement necessary coastal protection works subject to the availability of resources, whilst ensuring a high level of protection for natural habitats and features, and ensure due regard is paid to visual and other environmental considerations in the design of any such coastal protection works.</p>	
<b>Development in Coastal Areas</b>	
<p><b>Policy Objective ENV 56</b></p> <p>To protect the special character of the coast by preventing inappropriate development, particularly on the seaward side of coastal roads. New development, wherever possible, shall be accommodated within existing developed areas and be climate resilient in their design.</p>	<p>See chapter 22: Hydrology and Flood Risk and appendix 22-1: Flood Risk Assessment, which present an assessment of the potential impacts of the Project on Hydrology and Flood Risk.</p>

<sup>2</sup> <https://www.louthcoco.ie/en/publications/development-plans/louth-county-development-plan-2021-2027/volume-1-all.pdf>

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

Summary of relevant policy framework	How and where considered in the EIAR
<p><b>Policy Objective ENV 57</b></p> <p>To strictly control the nature and pattern of development within coastal areas and ensure that it is designed and landscaped to the highest standards and sited appropriately so as not to detract from the visual amenity of the area. Development shall be prohibited where the development poses a significant or potential threat to coastal habitats or features, and/or where the development is likely to result in altered patterns of erosion or deposition elsewhere along the coast</p>	
<p><b>Policy Objective ENV 58</b></p> <p>To prohibit development along the coast outside existing urban areas where such development is not adequately safeguarded over the lifetime of the development without the need to construct additional coastal defences.</p>	
<p><b>Louth County Development Plan 2021-2027 Strategic Flood Risk Assessment (SFRA)</b></p>	
<p>A Strategic Flood Risk Assessment has been published as a separate document in conjunction with the Louth CDP 2021-2027 and is available in Volume 5<sup>3</sup> of the CDP:</p> <p><i>“The Louth CDP 2021-2027 SFRA has been prepared in accordance with requirements of the Department of Environment Communities and Local Government (DECLG) and Office Public Works OPW Planning Guidelines, ‘The Planning System and Flood Risk Management’ (2009)”.</i></p> <p><i>“The SFRA provides tools and methods to assist users in identifying the level of flood risk associated with an area to inform planning decisions. It supports the application of the sequential approach and provides data and maps to help in assessing sites against flood risk criteria. Where development is or would be at risk of flooding, it provides information on the mitigation measures considered deliverable to reduce the actual risk to that development and on the residual risks that would remain and how they might be managed”.</i></p>	<p>A Flood Risk Assessment has been completed for the Project. See appendix 22-1: Flood Risk Assessment and chapter 22: Hydrology and Flood Risk, which presents the results of the assessment of the potential impacts of the Project on Hydrology and Flood Risk.</p>
<p><b>Louth County Council Climate Change Adaptation Strategy 2019-2024<sup>4</sup></b></p>	
<ul style="list-style-type: none"> <li>• <i>The Louth County Council Climate Change Adaptation Strategy forms part of the National Adaptation Framework (NAF) which was published in response to the provisions of the Climate Action and Low Carbon Development Act 2015;</i></li> <li>• <i>Flood management is a central theme within the Climate Change Adaptation Strategy for County Louth which has an overarching objective to manage the risk of flooding through a variety of responses;</i></li> <li>• <i>The strategy states that “climate change is likely to have a considerable impact on flood risk in County Louth, such as through rising mean sea levels, increased wave action and the potential increases in winter rainfall and intense rainfall events, as demonstrated by storms of 2002 and 2005 where breaches of existing flood defence infrastructure causing property damage”;</i></li> <li>• <i>The strategy also states “County Louth has also experienced extreme temperatures, as witnessed in</i></li> </ul>	<p>See section 24.5.9 for the assessment of hazards related to climate change, extreme weather and natural disasters.</p> <p>A Flood Risk Assessment has been completed for the Project (see appendix 22-1: Flood Risk Assessment). Appendix 22-1: Flood Risk Assessment and chapter 22: Hydrology and Flood Risk present the results of the assessment of the potential impacts of the Project on Hydrology and Flood Risk.</p> <p>An assessment of climate impacts relating to the Project is presented in chapter 17: Climate.</p>

<sup>3</sup> <https://www.louthcoco.ie/en/publications/development-plans/louth-county-development-plan-2021-2027/volume-5-environmental-reports1.html>

<sup>4</sup> <https://www.louthcoco.ie/en/services/environment/climate-change-adaptation/climate-change-adaption-strategy.pdf>

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

Summary of relevant policy framework	How and where considered in the EIAR
<p>2010 and recently in 2018, with Met Éireann issuing its first ever Status Red warning for snow in February, followed by one of the hottest summers on record. All these extreme weather events clearly highlight the need to reduce the impacts that climate change is having on the citizens, environment and the economy of County Louth, and on the services Louth County Council provide”; and</p> <ul style="list-style-type: none"> <li>• The strategy outlines the Impacts of Climate Change in the county in a Risk Register for Louth, including the following hazards: <ul style="list-style-type: none"> <li>○ <b>All weather events</b> - can impact on all services, Local Authority Assets, business operations and continuity, infrastructure, structural, community, and cultural and heritage assets;</li> <li>○ <b>Storms</b> - can impact business operations and continuity;</li> <li>○ <b>Heavy rainfall</b> - can impact on critical infrastructure, flood/water management, water services, and environment and biodiversity;</li> <li>○ <b>Extreme heat/drought conditions</b> - can impact on the community, Emergency services, infrastructure, and environment and biodiversity;</li> <li>○ <b>Storm Surges/Sea level rise</b> - can impact on roads, water services, community, emergency services, and environment.</li> </ul> </li> </ul>	

## 24.4 Consultation

Consultation was undertaken as part of the shipping and navigation assessment and aviation, military and communications assessment. Key issues relevant to shipping and navigation included risk of (i) collision of vessels with the Project and (ii) collision between vessels as a result of the Project, and are summarised in volume 2B, chapter 13: Shipping and Navigation. Consultation on the Lighting and Marking Plan was also undertaken and is summarised in volume 2B, chapter 13: Shipping and Navigation. The Lighting and Marking Plan is presented in volume 2A, appendix 5-8: Lighting and Marking Plan.

Key issues pertaining to aviation, military and communications included concerns regarding collision risk, lighting and marking and potential impacts on Department of Defence operations. These are summarised in volume 2B, chapter 14: Aviation, Military and Communications.

During pre-application consultation, An Bord Pleanála enquired if the Project would fall within the scope of Control of Major Accident Hazards (COMAH) Regulations 2015. The Regulations aim to prevent and mitigate the effects on people and the environment of major accidents involving dangerous substances. The Project does not fall within this scope. This assessment examines the proximity of the Project to other establishments that fall under these Regulations (see section 24.5.10).

## 24.5 Baseline environment

### 24.5.1 Introduction

There are a number of baseline features that currently contribute a potential source of both anthropogenic (human-made) and biogenic (natural) sources of hazard in the vicinity of the Project and these are set out within this section to set the framework for the assessment of the Project.

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

### 24.5.2 Project overview

The offshore wind farm area is located off the coast of County Louth to the east of Dundalk Bay, approximately 22 km east of Dundalk, 18 km east of Blackrock and 6 km south of the Cooley Peninsula. The closest turbine will be approximately 6 km from shore. The offshore wind farm area covers approximately 27.7 km<sup>2</sup> and is broadly hexagonal in shape with a length of approximately 5.3 km west to east and 6.7 km north to south.

One offshore cable will be installed within a corridor (the offshore cable corridor) that connects the offshore wind farm area with a landfall approximately 700 m south of Dunany Point. The offshore cable corridor is contiguous to the High-Water Mark (HWM) at the landfall and to the southwestern boundary of the offshore wind farm area. The offshore cable corridor is approximately 11 km in length and covers an area of approximately 25 km<sup>2</sup>. The corridor is approximately 4 km at its widest point, southwest of the offshore wind farm area, and narrows to approximately 640 m at its narrowest point, just before landfall south of Dunany Point.

The Project is located in County Louth, on the east coast of Ireland. The onshore components (landfall, onshore cable route, joint bays, and substation site) of the Project will be situated in the vicinity of two large towns, Drogheda (approximately 15.5 km to the south) and Dundalk (approximately 16.5 km to the north). Other towns in the vicinity of the Project include Ardee (approximately 3 km to the west of the onshore substation site), Dunleer (approximately 1.9 km to the south of the onshore cable route), Castlebellingham (approximately 4.3 km to the north of the onshore cable route). The onshore components of the Project extend to a straight-line distance of approximately 17 km and approximately 21 km by road network in an east to west direction from the landfall south of Dunany Point on the east coast (Irish Sea) to the proposed onshore substation site location at Stickillin, approximately 3 km east of Ardee town.

The surrounding landscape in the local area of the Project is typically rural with the surrounding fields employed for a mixture of tillage, pasture and arable uses. The field pattern in the surrounding area is irregular, variable in scale and is delineated by hedgerows and trees. There are various receptors, including residential (a number of small groups of properties and one-off housing are dispersed throughout the area and along the onshore cable route), agricultural, and commercial properties, located in the area and these receptors vary in distance from the proposed onshore infrastructure of the Project.

The road network in the surrounding area of the Project, and in particular along the onshore cable route, is predominantly composed of national, regional and local roads, including; the R166, R132, L-2223, L-2226, and the N33. A motorway, the M1, traverses the onshore cable route. The Dublin to Belfast train line traverses the onshore cable route at Charleville Bridge at exit 14 (Ardee/N2) off the M1 for Drumcar L-2226.

### 24.5.3 Shipping and navigation

Volume 2B, chapter 13: Shipping and Navigation and volume 2B, appendix 13-1: Navigation Risk Assessment (NRA) provide a description of existing navigational features/vessel traffic within a 5 NM buffer around the offshore wind farm area and the offshore cable corridor. This distance was considered representative of all commercial fishing and recreational vessel traffic transiting to and from the principal ports in the area, i.e. Drogheda, Carlingford Lough (Warrenpoint and Greenore) and Dundalk, as well as vessels transiting on a north/south course line to the east of the offshore wind farm area.

The existing environmental features and activities outlined within the NRA include: coastal features (bathymetry, bays and loughs, and local ports and harbours); metocean conditions, and existing vessel management measures. The NRA also includes a description of other users of the area such as aggregates, oil and gas, anchorages, military, and renewable energy installations, and identifies existing vessel traffic patterns, including frequency and types; and existing risk profile for navigational incidents. In addition, the NRA determines the likely future traffic profile during the period when the Project would be operational, and identifies and assesses impacts of the Project on shipping and navigation, including; traffic routing, pilotage operations, collision risk, cable risk (i.e. snagging), anchors and fishing gear, communications, radar, and positioning systems, search and rescue (SAR), and cumulative effects.

The NRA noted that there are up to three commercial vessels per month that transit to and from Drogheda and Greenore Port that will be required to adjust their passage plan to pass either to the west or east of the

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

offshore wind farm area accordingly. Vessels entering and leaving Dundalk Harbour on an east/west course will also be required to adjust their passage plans accordingly to avoid the offshore wind farm area. The NRA states that consultation with the Dundalk pilot and harbour master (Dublin) has advised that there were 53 vessel arrivals (106 movements) at Dundalk Harbour in 2018; it was understood through consultation that the level of sea trade through the port is decreasing. The highest level of vessel activity identified in the NRA Study Area is represented by fishing vessels. It is anticipated that fishing vessels on certain routes will be required to adjust their passage plans accordingly when transiting between their home ports and to and from their respective fishing grounds particularly during the construction period. However, once the Project is operational there will be no long-term restrictions on navigation within the offshore wind farm area. Recreational sailing will not be restricted through the offshore wind farm area, consultation with recreational vessel users concluded that low numbers of yacht users pass through the NRA Study Area in the first instance.

In terms of vessel anchorages, the NRA identified that there are no charted anchorages within the offshore wind farm area or the offshore cable corridor. Accidental release of anchors is a rare occurrence and is therefore not a threat to the Project subsea cables. Emergency anchoring is unlikely to occur along much of the offshore cable corridor given the sea room available to avoid other vessels and obstacles. In the event of a blackout on a vessel, the vessel master would be expected to deploy his anchor after consulting charts to be clear of charted obstacles (such as offshore wind farm infrastructure).

The NRA identifies the hazards during the construction, operational and maintenance, and decommissioning phases of the Project. These hazards are then assessed, and risk controls identified to reduce the risk to As Low as Reasonably Practicable (ALARP), and recommendations made for the safety of the Project and mitigation measures identified. The hazard identification and assessment undertaken within the NRA has informed the present risk assessment of the vulnerability of the Project to major accident and hazards.

### 24.5.4 Commercial fisheries

Volume 2B, chapter 12: Commercial Fisheries provides a description of the baseline environment pertaining to marine fisheries at a national scale and within the study areas for the assessment on commercial fisheries (the Commercial Fisheries Study Area and Regional Commercial Fisheries Study Area). This includes a summary of the predominant gear types, fishing grounds, commercially important species and fisheries activity.

The commercial fisheries chapter noted that bottom trawls, dredgers and pots are the predominant gear types in the vicinity of the Project. The Project overlaps with a bivalve mollusc production area for cockles and razor clams, as well as with trammel, gill net fishing, dredging and potting grounds for a range of fish, crustacean and shellfish species. Offshore grounds in the vicinity of the Project include the Irish Sea prawn grounds and areas fished by mobile bottom, mobile seine, mobile other and passive gear types.

With regard to vessel movement patterns, automatic identification system (AIS) data suggest that vessels steam to and from offshore grounds across the offshore wind farm area. Most fishing activity is located to the south of the offshore wind farm area with the transits through the offshore wind farm area likely to be between ports or between a port and fishing grounds. Clogherhead is the closest Republic of Ireland (RoI) fishing port to the offshore wind farm area and offshore cable corridor. Cockle day boats operate inside port limits with up to three lobster boats operating out of Clogherhead. The closest Northern Ireland (NI) fishing ports include Kilkeel, Ardglass and Portavogie. Consultation has confirmed that NI vessels target fish and shellfish species using handlines within the Commercial Fisheries Study Area.

### 24.5.5 Other marine activity (recreation)

Recreation marine activities in the vicinity of the offshore wind farm area (identified in volume 2B, chapter 16: Infrastructure, Marine Recreation and Other Users) include:

**Recreational sailing and motor cruising:** The offshore wind farm area overlaps with a general sailing area. This general sailing area is an area identified by the coastal atlas of recreational boating in Ireland (2018) and is considered as an area that has higher densities of general sailing vessel movements. It is also possible for recreational sailing to occur outside this area. The nearest marina to the Project is Carlingford Marina, which is on the west bank of Carlingford Lough (12 km northwest of the offshore wind farm area). It



## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

has a total of 170 berths and is mainly used for recreational vessel and sailing. Racing areas are located within Carlingford Lough, 6.7 km to the north of the offshore wind farm area and off the coast of Dublin, 24 km to the south of the offshore wind farm area. Skerries sailing club schedules an annual offshore race on the May bank holiday weekend which crosses the Infrastructure, Marine Recreation and Other Users Study Area (see volume 2B, chapter 16: Infrastructure, Marine Recreation and Other Users) and may overlap with the offshore wind farm area. There are no sailing schools within the Infrastructure, Marine Recreation and Other Users Study Area. There are a number of sailing clubs which may use the area in which the offshore infrastructure is proposed, with Carlingford Sailing Club located 12 km northwest of the offshore wind farm area. Others include the Carlingford Lough Yacht Club (15.3 km northwest of the offshore wind farm area) and Skerries Sailing Club (33.8 km south of the offshore wind farm area) (see appendix 13-1: Navigation Risk Assessment). There are light and medium traffic recreational boating routes that intersect the offshore wind farm area and offshore cable corridor, with a number of offshore routes fanning out from the sailing clubs.

**Recreational fishing (boat angling, shore angling, and game angling):** Recreational sea angling locations can be found around the coast of County Louth, ranging from Carlingford Lough, south through Dundalk Bay and onwards towards Dublin. Therefore, it is likely that boat angling may overlap with the nearshore section of the offshore cable corridor. Shore angling is likely to occur within the Infrastructure, Marine Recreation and Other Users Study Area, and within the offshore cable corridor at the cable landfall. A shore angling mark at Dunany Point is located to the north of the offshore cable corridor at the landfall. No game angling rivers overlap with the Infrastructure, Marine Recreation and Other Users Study Area.

**Other Recreational Activities:** Various other outdoor and marine recreational activities, and associated clubs and businesses, take place and are present within the Infrastructure, Marine Recreation and Other Users Study Area, including diving, boarding water sports (kite surfing, surfing, windsurfing), kayaking and canoeing, sea swimming and use of the local beaches for activities such as coastal walks and caravans/camping.

Marine recreation is addressed in detail in chapter 16: Infrastructure, Marine Recreation and Other Users (volume 2B).

### 24.5.6 Airspace and aviation (civil and military)

Chapter 14: Aviation, Military and Communications provides a detailed description of the current baseline and potential impacts on aviation and airspace as a result of the Project.

The Project is located in an area of Class G uncontrolled airspace which is established from the surface up to 4,500 ft above mean sea level; aircraft can operate in this area of uncontrolled airspace without any mandatory requirement to be in communication with, or receive a radar service from, an Air Traffic Control (ATC) unit. Pilots of aircraft operate under Visual Flight Rules (VFR) in Class G airspace and are ultimately responsible for seeing and avoiding other aircraft and obstacles. Above this altitude, Class C controlled airspace is established up to Flight Level (FL) 245 (24,500 ft) which forms part of the Dublin CTA; aircraft operating within Class C controlled airspace must be in receipt of an Air Traffic Service (ATS) from an appropriate ATC unit. The offshore wind farm area is located entirely in Irish airspace within the Shannon Flight Information Region (FIR). The FIR boundary between Irish and UK airspace is located 5 nm to the north of the offshore wind farm area where the Shannon FIR borders the Scottish FIR.

**Military and Defence:** The nearest Department of Defence (DoD) aerodrome to the offshore wind farm area is the Casement Aerodrome (70 km southwest, County Dublin); the Gormanston Aerodrome (29 km southwest, County Meath) is disused. Although Gormanston aerodrome is disused, Gormanston Military Aerial Firing Range operates from the site, which is located 9.8 km south of the offshore wind farm area and 6.5 km from the offshore cable corridor. Although Gormanston Aerodrome is disused, the IAIP states that the firing range operates from the site of Gormanston Aerodrome and extends seaward; it is used for air-ground firing training, air-defence training and general military training. It does not overlap with the offshore wind farm area or offshore cable corridor (IAA, 2015b) (see volume 2B, chapter 14: Aviation, Military and Communications). The UK Low Flying System (UKLFS) is used for military low flying activity and covers the entire UK land mass (outside regulated airspace) and surrounding sea areas out to 2 nm (3.7 km) from the coastline, from surface level to 2,000 ft above ground level. The UK MOD operates a small fleet of Gazelle helicopters and Tutor training aircraft at Joint Helicopter Command Flying Station Aldergrove which is located at Belfast International Airport.

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

**Civil Aviation:** In terms of Civil Aviation, in Ireland, the major civil airport located closest to the offshore wind farm area is Dublin Airport (51 km south southwest). There are also several smaller civil airports including Weston Airport which is located to the west of Dublin, 65 km southwest of the offshore wind farm area. The offshore wind farm area and offshore cable corridor are outside the safeguarding zone for both civil airports. Trim (55.18 km) and Ballyboy (58.98 km) airfields are licensed aerodromes located to the northwest of Dublin Airport. These aerodromes are safeguarded in the same manner as civil airports however, the Project is outside the safeguarding zone of these airfields. Ballybougall (40.4 km), Moyglare (64.86 km) are unlicensed aerodromes located to the north and west of Dublin Airport respectively. These aerodromes are safeguarded in a similar manner to civil licensed aerodromes but not to the same exacting standards. The Project is outside the recommended consultation distance for airfields of this nature.

In Northern Ireland, the nearest civil airports are Belfast City Airport (75 km north northeast) and Belfast International Airport (78 km north northwest). The offshore wind farm area is outside the safeguarding distance of these airports. A smaller airport, Newtownards Airport is located east of Belfast and 74.2 km to the north of the offshore wind farm area. This airport is operated by Ulster flying club and offers light aircraft and helicopter flights. The nearest unlicensed airport in Northern Ireland is Derryogue Airport (private airfield) located over 11 km north of the offshore wind farm. Additionally, there are several minor airfields located along the coastline of County Louth (including one at Giles Quay) however, the Project is not within the recommended consultation distances for any of these airfields.

Ronaldsway Airport is located to the south of the Isle of Man approximately 94 km east of the offshore wind farm area. It operates commercial flights to Belfast, Dublin, the UK including Europe.

**Helicopters:** There are presently no helicopter routes or offshore helicopter destinations in the vicinity of the offshore wind farm area. There is no oil and gas infrastructure including platforms, subsea facilities or wells which may require helicopter access within 9 nm of the offshore wind farm. There is currently no licenced oil and gas acreage in the vicinity. No regular helicopter flight paths servicing the oil and gas industry are therefore anticipated to cross the offshore wind farm. Any civilian helicopter activity in the area will be planned and managed as single flights, likely operating out of Dublin Airport, Belfast City Airport, Belfast International Airport and other regional aerodromes.

**Search and Rescue (SAR):** The Irish Coast Guard operates five Search and Rescue helicopters deployed at bases in Dublin, Waterford, Shannon and Sligo, which respond to emergencies at sea, inland waterways, offshore islands and mountains of Ireland. As well as its own medium load carrying helicopters based at Shannon, Dublin, Waterford and Sligo airports, the IRCG can call upon Air Corps fixed wing aircraft available in Dublin and similarly RAF aircraft can be used. For the UK, the Aeronautical Rescue Coordination Centre at Kinloss, Scotland controls the operation of all military SAR air resources within the UK SRR. Search and Rescue is considered within chapter 14: Aviation, Military and Communications, chapter 13: Shipping and Navigation and appendix 13-1: Navigation Risk Assessment.

**Light Aircraft:** The major civil airport located closest to the offshore wind farm area is Dublin Airport (51 km south southwest), which caters for light aircraft. There are also several smaller civil airports including Weston Airport which is located to the west of Dublin, 65 km to the southwest of the offshore wind farm area (see volume 2B, chapter 14: Aviation, Military and Communications). Weston Airport caters for business and general aviation including light aircraft, helicopters and jets. The offshore wind farm area and offshore cable corridor are outside the safeguarding zone for both of these civil airports. Hang gliding and paragliding occur throughout the east coast of Ireland. The IAA Integrated Aeronautical Information Package (IAIP) lists known sites for aerial sporting and recreational activities, including glider flying in ENR 5.5 (IAA, 2022). Glider flying takes place in uncontrolled airspace or controlled airspace with prior permission. None of the sites listed for glider flying and hang gliding in ENR 5.5 are within the vicinity of the Project (IAA, 2022). Paragliding sites around Dundalk Bay are located at Dunany Point, Giles Quay and Slievenagloagh (see volume 2B, chapter 14: Aviation, Military and Communications). Hang gliders and paragliders are likely to remain close to the coast (within approximately 100 m), however, during the winter, pilots may exploit thermals over the warmer sea, and may fly 1 km from the coast. Giles Quay has a small private airstrip which is infrequently used and flights stay close to the coast operating under VFR.

Civil and military aviation and airspace is addressed in detail in volume 2B, chapter 14: Aviation, Military and Communications.

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

### 24.5.7 Offshore infrastructure

No existing offshore wind farms or wave and tidal energy developments are present within the Marine Recreation and Other Users Study Area (see volume 2B, chapter 16: Infrastructure, Marine Recreation and Other Users). A number of Foreshore Licences have been granted for site investigation activities at immediately to the south and south-east of the offshore wind farm area and the offshore cable corridor.

There are no active offshore oil and gas infrastructure located within the offshore wind farm area. Licences for the exploration and extraction of oil and gas are awarded by the Petroleum Affairs Division. These licences are granted for identified geographical licence option areas (blocks and sub-blocks) in rounds. The Project is located within the Celtic Sea/ Irish Sea open-door licensing area and under frontier exploration licence option area (DCCAE, 2019). There is currently no licenced acreage that is within or adjacent to the offshore wind farm area. Furthermore, there are no hydrocarbon fields, wells or gas platforms within the offshore wind farm area.

There are no active cables within the Infrastructure, Marine Recreation and Other Users Study Area. A single historic and out of service submarine power cable partially extends from the north of Dundalk Bay towards the centre of the bay, however this does not overlap with the Infrastructure, Marine Recreation and Other Users Study Area.

There are no pipelines located within the vicinity of the offshore wind farm area. The nearest pipeline is the Gas Interconnector II located approximately 15 km southeast of the offshore wind farm area. Further details on offshore infrastructure are included in volume 2B, chapter 16: Infrastructure, Marine Recreation and Other Users.

### 24.5.8 Onshore infrastructure (built services)

Various onshore built services are located in the vicinity of the Project.

**Electricity:** A number of electrical overhead lines and underground cables are present along the onshore cable route at varying distances from the road, including Low Voltage (400 V/230 V), Medium Voltage (10 kV/20 kV) and High Voltage (38 kV/110 kV/220 kV). There are several locations along the onshore cable route where the electrical network is located close to, travels along, or traverses the onshore cable route, with transmission and distribution overhead lines and associated poles evident along sections of the road network. This is summarised in chapter 29: Material Assets.

**Gas:** Gas Networks Ireland (GNI) own and operate a number of high pressure (HP), medium pressure (MP) and low pressure (LP) distribution and transmission gas pipelines in the vicinity of the onshore cable route (see chapter 29: Material Assets). Information provided by GNI has confirmed that the gas pipeline located closest to the onshore substation site is a HP transmission pipeline located approximately 2 km to the south. No gas pipelines were identified close to the landfall location. The nearest one is a HP transmission pipeline located over 8 km west of the landfall location. The onshore cable route crosses two HP gas transmission pipelines. The gas crossings will be undertaken under the guidance and control of the asset owner, GNI (see volume 2A, chapter 5: Project Description). No other transmission or distribution gas pipelines have been identified in the area of the onshore cable route between the landfall and substation site other than those outlined above. The nearest MP and LP gas pipelines identified in the vicinity of the Project are all located beyond the Material Assets Study Area; an MP pipeline is located approximately 0.4 km northeast of the onshore cable route at St. Mary's School, Drumcar, MP and LP pipelines are present in Ardee Town (nearest being approximately 1 km southeast of the substation site) and in Dunleer (nearest being approximately 1.7 km southwest of the onshore cable route).

**Telecoms:** Communication devices, including satellite, VHF radio, UHF communication, offshore microwave fixed links and television (excluding vessel navigation communications, which are addressed in volume 2B, chapter 13: Shipping and Navigation) are addressed in volume 2B, chapter 14: Aviation, Military and Communications and chapter 29: Material Assets. Telecommunication infrastructure (telecom lines and poles) has been identified along the onshore cable route. No mobile telecom mast sites were identified within the 100m of the onshore cable route, landfall and the substation site.

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

---

**Water/Wastewater:** The onshore cable route crosses Irish Water assets at ten locations with potential for three further crossings. The underground cable will cross below the assets at all locations, in line with Irish Water preferences outlined during consultation (see chapter 29: Material Assets). These crossings are summarised in chapter 29: Material Assets.

**Rail:** Any development in the vicinity of existing rail lines shall comply with the setbacks and construction requirements of Iarnród Éireann, the National Transport Authority, Transport Infrastructure Ireland, and any other relevant stakeholders. The Project traverses under the Dublin-Belfast railway line, it crosses the onshore cable route approximately 3.7 km northwest of Dunleer, at a point just east of Junction 14 where it runs parallel to the M1. No other interactions with rail services were identified. Construction proposals have been discussed with Irish Rail and the works will be completed to Irish Rail specifications and required standards (see volume 2A, chapter 5: Project Description).

### 24.5.9 Natural disasters

The vulnerability of the Project to extreme weather events including extreme rain event and flooding, and extreme high winds are addressed in chapter 17: Climate. Other potential extreme natural hazards such as earthquake, volcanoes, tsunami, etc. are not relevant to the baseline hazard conditions in the vicinity of the Project.

### 24.5.10 Major accidents - COMAH establishments

The COMAH establishments<sup>5</sup> that have been identified in the local (vicinity of the Project) and regional area of Louth County are listed in Table 24-4 below.

The Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the “COMAH Regulations”), implement the Seveso III Directive (2012/18/EU). The European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2006 and the European Union (Control of Major Accident Hazards Involving Dangerous Substances) (Amendment) Regulations 2013, which implemented the Seveso II Directive (96/82/EC), have been revoked by the European Union (Control of Major Accident Hazards Involving Dangerous Substances) (Revocation) Regulations 2015 (S.I. No. 208 of 2015) and replaced by the COMAH Regulations.

The COMAH Regulations place an obligation on operators of establishments that store, handle or process dangerous substances above certain thresholds to take all necessary measures to prevent major accidents and to limit the consequences for human health and the environment. Under the Regulations, an establishment may qualify as upper tier or lower tier, depending on the inventory of dangerous substances; sites that store, handle or process dangerous substances below a certain threshold do not qualify as establishments under the Regulations.

The occurrence of a major emission, fire or explosion resulting from a COMAH establishment has the potential to give rise to a major accident or disaster, immediate or delayed, inside or outside the establishment, and involving one or more dangerous substances.

---

<sup>5</sup> HSA List of Upper Tier and Lower Tier Establishments – dated 18 July 2023 accessed via [https://www.hsa.ie/eng/Your\\_Industry/Chemicals/Legislation\\_Enforcement/COMAH/List\\_of\\_Establishments/](https://www.hsa.ie/eng/Your_Industry/Chemicals/Legislation_Enforcement/COMAH/List_of_Establishments/)

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

**Table 24-4: COMAH establishments.**

Establishment	Location	Tier	Activity	Consultation distance <sup>6</sup>	Approximate distance to the Project
Flogas Ireland Limited	Drogheda Marine Terminal, Marsh Road, Drogheda	Upper	LPG Storage	600 m	13.6 km
BAK Bulk Services Storage	Red Barns, Drumcar Road, Dunleer	Lower	Whiskey Maturation Warehousing	400 m	450 m
Cooley Distillery	Riverstown, Cooley	Lower	Manufacture of Food Products and Beverages	400 m	10 km

Each of the establishments listed in Table 24-7 are obliged to prepare a Major Accident Prevention Policy (MAPP) under the COMAH Regulations. This applies to both Lower and Upper tier establishments. Upper Tier establishments are also obliged to prepare a Safety Report and submit a copy of same to the HSA.

The Project is beyond the consultation distances of the COMAH establishments listed in Table 24-4, therefore the Project was not required to be referred to the Health and Safety Authority. Therefore, due to the distance of the Project to COMAH establishments, it is considered that the Project is not vulnerable to accidents from these operations.

BAK Bulk Services (lower tier COMAH establishment) is the closest establishment to the Project, approximately 600 m from the onshore cable route (nearest point) and approximately 200 m beyond the consultation distance for this facility (400 m). This site activity has been identified as 'whiskey maturation warehousing' in the public information on a lower-tier establishment as required by Regulation 25, available from the HSA. A coal and solid fuel merchants (King Coal) also appear to be operating at the site at Red Barns.

### 24.5.11 Unexploded ordnance

The risk of a potential UXO detonation, if UXO coincides with planned project activities or infrastructure, needs to be carefully managed in order to prevent unplanned UXO detonations.

A desk study for potential UXO contamination was carried out for the offshore wind farm area and offshore cable corridor (see volume 2A, appendix 5-13: UXO Desk Study) The UXO desk study concluded that the risk of encountering UXO during the proposed Project activities is low. In addition, geophysical surveys undertaken across the site, including high-resolution surveys at each foundation location, have not identified the potential for UXO and UXO clearance is not anticipated to be required. Explosive Safety Guidelines which follow UK MGN 323 (M+F) and relevant training will be prepared and implemented during the construction phase. Remotely Operated Vehicle inspection work will be undertaken, if required, on any potential items of UXO identified within the offshore wind farm area and offshore cable corridor. If UXOs are found, they will be avoided.

<sup>6</sup> Consultation Distance refers to a distance or area relating to an establishment, within which there are potentially significant consequences for human health or the environment from a major accident at the establishment, including potentially significant consequences for developments such as residential areas, buildings and areas of public use, recreational areas and major transport routes.

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

---

### 24.5.12 Future baseline scenario

The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (hereafter the EIA Regulations 2018) require that ‘a *description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge*’ is included within the EIAR.

Should the Project not go ahead, the baseline will evolve in line with baseline trends, as outlined within the individual environmental assessments of this EIAR. Other unrelated projects may be built / come about which may then present additional risks. In general, improvement in environmental conditions may be experienced due to legislative driven measures and mitigation.

### 24.5.13 Data validity and limitations

The data used is the most up to date publicly available information which can be obtained from the applicable data sources as cited (see section on ‘Data validity and limitations’ for those chapters listed in section 24.1). It is therefore considered that the data employed in the assessment is robust and sufficient for the purposes of the assessment presented. It is, considered that the information available provides a suitable basis for describing the baseline environment in relation to major accidents for EIAR purposes.

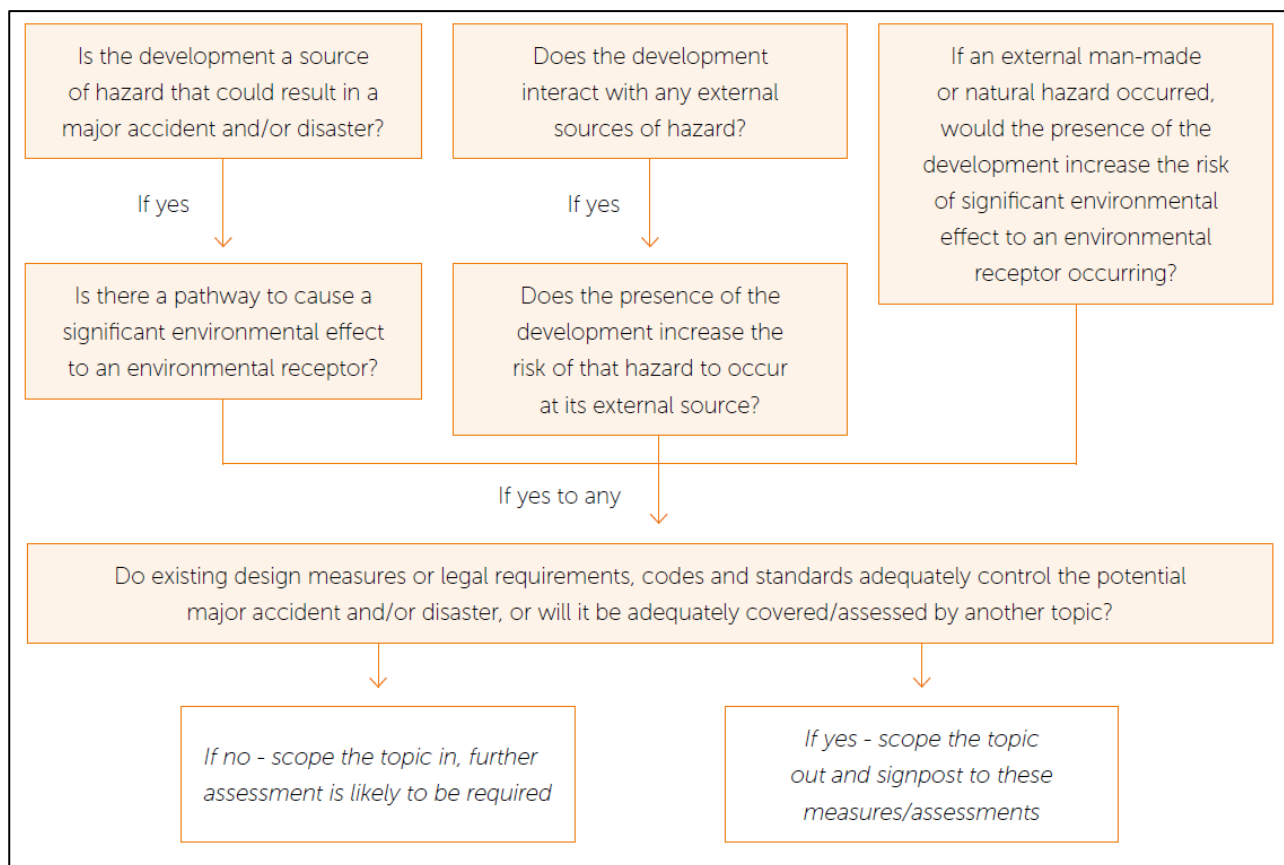
## 24.6 Assessment methodology

This assessment has followed the methodology set out in the following guidance; *Major Accidents and Disasters in EIA: A Primer* (Institute of Environmental Management and Assessment (IEMA), 2020).

This approach directs the assessment to focus on low likelihood but potentially high consequence events such as a major spill, explosion, fire, etc. Smaller incidents (such as spills and sediment loss) are addressed elsewhere in this EIAR in the relevant topic chapters.

The approach set out within the IEMA Primer (2020) includes three stages: screening, scoping and assessment (see section 24.6.1 to 24.6.3).

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS



**Figure 24-1: Screening and scoping decision process (IEMA, 2020).**

- The screening stage identifies if a development has a vulnerability to major accidents and/or disasters and to consider whether a development *could* lead to a significant effect;
- The scoping stage aims to determine in more detail whether there is potential for significant effects as a result of major accidents and/or disasters associated with a development; and
- The assessment stage provides further understanding on the likelihood of a major accident and/or natural disaster event (risk event) occurring and identifies the requirement for mitigation.

The results of each stage are presented in sections 24.7.1 to 24.7.3.

This assessment has also considered the legislative framework and guidance as defined by:

- Advice Notes for Preparing Environmental Impact Statements (EPA, 2015);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022);
- Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- National Risk Assessment 2017 Overview of Strategic Risks (Department of the Taoiseach, 2017);
- Guidance on Assessing and Costing Environmental Liabilities (EPA, 2014);
- A Guide to Risk Assessment in Major Emergency Management (Department of Environment, Heritage and Local Government (DoEHLG), 2010); and
- A National Risk Assessment for Ireland 2017 (Department of Defence, 2017).

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

### 24.6.1 Stage 1 - Screening

Screening guidance in the IEMA Primer (IEMA, 2020) sets out that it is sufficient to identify if a development has a vulnerability to major accidents and / or disasters and to consider whether a development could lead to a significant effect. The IEMA Primer proposes the following “high-level questions” to determine whether the Project could lead to significant major accidents or disasters and whether it should be screened into EIA (Figure 24-1):

- Is the development a source of hazard itself that could result in a major accident or disaster occurring?
- Does the development interact with any sources of external hazards that may make it vulnerable to a major accident or disaster?
- If an external major accident or disaster occurred, would the existence of the development increase the risk of a significant effect to an environmental receptor occurring?

The above questions can be considered at a high level, without necessarily providing evidence at this stage, in order to guide whether the development has the potential to be vulnerable to major accidents and/or disasters, or to increase vulnerability elsewhere (IEMA, 2020).

The above screening methodology was applied to the Project. The outcomes of the screening assessment are detailed in section 24.7.1.

### 24.6.2 Step 2 - Scoping

The key aim of the scoping stage is to identify the potential accidents and hazards that should be scoped in (or out) for further assessment, and the resulting scope of the assessment. To guide this decision, careful consideration must be given to the Project, namely its location, type, context, existing and future constraints, and likely receptors (IEMA, 2020). The process flow used to help guide a scoping decision is provided in Figure 24-1.

IEMA (2020) states that “*major accidents and/or disasters can be scoped out of the assessment if it can be clearly demonstrated that:*

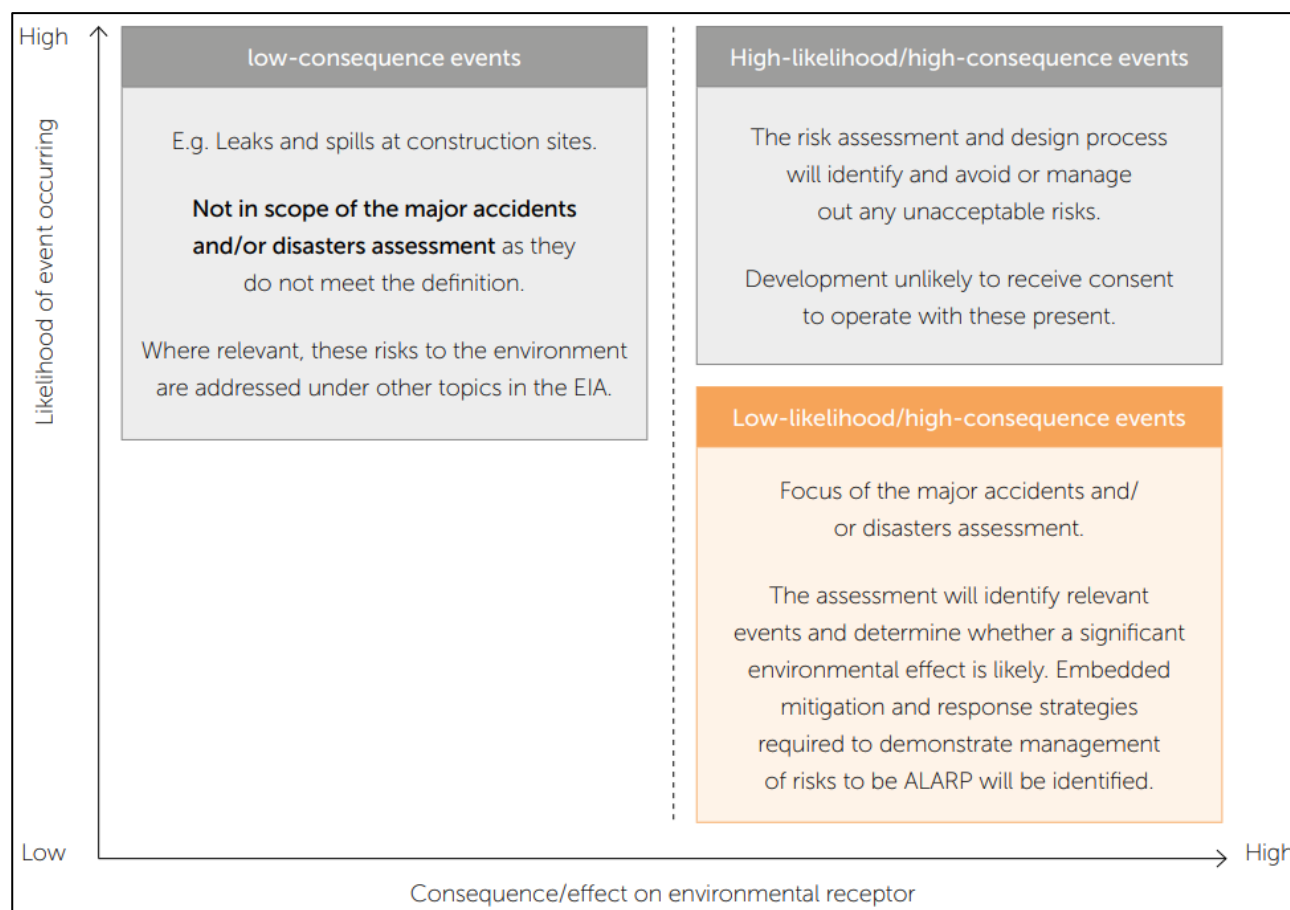
- *There is no source-pathway-receptor linkage of a hazard that could trigger a major accident and/or disaster or potential for the scheme to lead to a significant environmental effect; or*
- *All possible major accidents and/or disasters are adequately covered elsewhere in the assessment or covered by existing design measures or compliance with legislation and best practice”.*

In the case of uncertainty, the IEMA (2020) guidance states that a major accident and/or disasters assessment should be scoped in.

The IEMA (2020) guidance for scoping sets out that a major accidents and disasters assessment will typically focus on low likelihood but potentially high consequence events, and that low impact events whatever the likelihood, such as minor spills, are low risk and are unlikely to be considered a major accidents or disasters risk and would likely be outside of the scope of an assessment (IEMA, 2020 – see Figure 24-2). Such risks, such as leaks or minor spills, or noise and vibration, have been considered in other EIAR chapters – they are known impacts, that can be specifically mitigated for, rather than unplanned events (IEMA, 2020). RPS have applied the precautionary principle when scoping in / out events to ensure a comprehensive assessment is completed along with a review of measures to ensure risks are ALARP.



## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS



**Figure 24-2: Summary of risk events considered in the scope of the assessment of major accidents and disasters (IEMA, 2020).**

Hazards that would likely be out of the scope of a major accidents and hazards assessment would include low-consequence events (e.g. slips and trips), high-likelihood, high-consequence events (as these should be addressed elsewhere), hazards for which there is no credible source-pathway-receptor linkage, and hazards associated with other EIA topics (e.g. borehole contamination).

Due consideration was given to the above factors when determining, during scoping, which major accidents and hazards have the potential to lead to significant effects.

### 24.6.3 Step 3 - Assessment of significance

The assessment stage provides further understanding on the likelihood of a risk event occurring and identifies the requirement for mitigation. The hazards scoped in from Stage 2 are brought forward to Stage 3 for further consideration. The following steps are carried out in accordance with the IEMA Primer (IEMA 2020):

- Based on the baseline information and scale of the Project, hazards are identified as high level 'Risk Events' presented in a Risk Register (see Table 24-7);
- Each Risk Event with a valid receptor is further assessed by identifying the 'reasonable worst-case environmental impact' that will conceivably occur. This is a qualitative exercise using professional judgement. Uncertainty at this stage is to be acknowledged. Any Risk Event that does not have a source-receptor linkage or if the receptor does not fall within the scope, then the Risk Event is screened out of further detailed assessment. Furthermore, if a risk has high likelihood and consequence or if the

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

---

consequence cannot be considered as a significant environmental impact, then the Risk Event is screened out; and

- The above evaluation should be carried out with consideration of primary (mitigation by design) and tertiary (good practice) mitigation measures already proposed where these are not sufficient to adequately manage the associated risk levels to be as low as reasonably practicable (ALARP).

Following the completion of the above steps, if hazard groups remain which may potentially give rise to significant effects as a result of either the Project itself or interaction with the Project, secondary (additional mitigation to reduce effects) mitigation measures can be examined and incorporated into the design of the Project which would help mitigate the associated risk to as low as reasonably practicable (ALARP).

### Defining significance

The IEMA Primer (2020) provides the guidance to aid the definition of what constitutes a significant effect. The following factors can be considered:

- The geographic extent of the effects. Effects beyond the development boundaries are more likely to be considered significant;
- The duration of the effects. Effects which are permanent (i.e. irreversible) or long-lasting are more likely to be considered significant;
- The severity of the effects in terms of number, degree of harm to those affected and the response effort required. Effects which trigger the mobilisation of substantial civil emergency response effort are more likely to be considered significant;
- The sensitivity of the identified receptors; and
- The effort required to restore the affected environment. Effects requiring substantial clean-up or restoration efforts are more likely to be considered significant.

The impacts that may result in potential likely significant effects on the environment arising from the vulnerability of the Project to the risk events scoped into the assessment are described in Table 24-7.

## 24.7 Assessment of major accidents and disasters

### 24.7.1 Screening outcome

In line with the IEMA Primer (IEMA, 2020), the following “high-level questions” have been considered to determine whether the Project could lead to significant major accidents or disasters and whether it should be screened into EIA:

- *Is the development a source of hazard itself that could result in a major accident or disaster occurring?* Yes, the existence of the Project could lead to major accidents and disasters occurring (e.g. through vessel collisions with the Project’s infrastructure).
- *Does the development interact with any sources of external hazards that may make it vulnerable to a major accident or disaster?* Yes, the Project is located on the coast and has onshore and offshore components. As such it may be vulnerable to natural hazards such as extreme weather events and storm surges.
- *If an external major accident or disaster occurred, would the existence of the development increase the risk of a significant effect to an environmental receptor occurring?* Yes, (e.g. in the event of an extreme weather event and subsequent vessel damage and e.g. risk to human life/environmental receptors from e.g. oil spills), the existence of the Project may render access to the vessel more difficult thus further compounding any environmental risk / risk to human life.

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

Therefore, given the nature and location of the Project, it has been considered that the Project has a vulnerability to major accidents and/or disasters or may increase vulnerability elsewhere, and the requirement for further assessment is triggered in relation to the risk of major accidents and/or disasters.

### 24.7.2 Scoping outcome

Table 24-5 identifies and scopes in or out potential hazards to which the Project itself may be vulnerable, (i.e. risks to the Project from potential hazards/risks). Table 24-6 identifies and scopes in or out potential hazards occurring as a result of the Project (on a range of environmental, human and material receptors).

21 hazards were assessed in total. Of these, 14 hazards were not predicted to pose any significant risk of hazard and have been scoped out from further assessment. Seven events were scoped in and are further assessed in section 24.7.3. While there is a significant level of measures included in the Project including designed-in and management measures (controls), a full assessment of the vulnerability of the Project to these seven risks of major accidents and/or disasters has been undertaken for completeness.

**Table 24-5: Scoping of vulnerability of the Project (during construction, operation and maintenance, decommissioning phases) to existing sources of hazards.**

Sources of Hazard	Scoped in?			Justification
	✓ =yes x=no			
	C	O	D	
<b>Offshore</b>				
Navigation and Shipping Collision: risk of physical impacts from other existing navigation and shipping vessels (collision / allision) (All phases)	✓	✓	✓	Potential for collision / allision risk from existing navigation and shipping impacting on the construction, operation and decommissioning phases of the Project. Risk of collision with vessels navigating in the vicinity of the offshore wind farm area is addressed in volume 2B, chapter 13: Shipping and Navigation and volume 2B, appendix 13-1: Navigation Risk Assessment. Measures are included in the Project to reduce the risk of collision; however, vessels will be regular users of the offshore wind farm area and offshore cable corridor. As such, a source-pathway-receptor linkage remains and the possibility that a collision could lead to a major accident/disaster, including risk to/loss of life, remains.
Aviation Collision: risk of collision from existing aviation on the Project (All phases)	x	x	x	The impact of the physical presence of the wind turbines on fixed wing aircraft and helicopters has been scoped out of the assessment on aviation (see volume 2B, chapter 14: Aviation, Military and Communications). No regular helicopter users of the airspace have been identified. Military and civilian fixed wing aircraft will be made aware of the location of the Project as all structures will be marked and lit in accordance with the measures included in the Project (see volume 2B, chapter 14: Aviation, Military and Communications), including compliance with IAA requirements on lighting and implementation of a lighting and marking plan (see volume 2A, appendix 5-8: Lighting and Marking Plan).
Risk of accident: Oil and Gas Infrastructure (All phases)	x	x	x	The absence of any active oil and gas infrastructure within the offshore wind farm area and offshore corridor eliminates any existing risk of accident/disaster on the Project or any potential for the Project to impact on this infrastructure and this hazard is scoped out.
Risk of accident: Cables and Pipelines (All phases)	x	x	x	No active cables are present within the offshore wind farm area and offshore cable corridor. The existing out of service cable identified does not pose any risk of accident/disaster on the Project and this hazard is scoped out.
Risk of turbine fire (All phases)	x	x	x	The main causes of fire ignition in wind turbines are lightning strike, electrical malfunction, mechanical malfunction and maintenance, and lead to total loss of the wind turbine in 90% of cases (Uadiale <i>et al.</i> , 2014). However, the Project's WTGs will comprise the following fire protection systems: An active fire suppression system will be installed in each WTG, which will be able to identify early-stage fires and trigger a shutdown of the turbine's components and activate a fire suppression system. As such it is considered that there is minimal risk of a turbine fire, and therefore this hazard has been scoped out.

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

Sources of Hazard	Scoped in?			Justification
	✓ =yes x=no			
	C	O	D	
Unexploded Ordnance (UXO) (All phases)	✓	✓	✓	UXO can pose a health and safety risk where it coincides with the planned location of Project infrastructure and associated vessel activity. The UXO Desk Study (see volume 2A, appendix 5-13: UXO Desk Study) identified the UXO risk as “low” for a range of Project activities that are likely to occur across all phases of the Project and as such a source-pathway-receptor link is present which could lead to a low likelihood, high impact UXO event. UXO risk has therefore been scoped into the assessment.
<b>Onshore</b>				
Risk of accident from COMAH Establishments (All phases)	x	x	x	The Project is beyond the consultation distances outlined for the COMAH establishments identified (see Table 24-4). The closest COMAH establishment to the Project is BAK Bulk Services, a lower-tier COMAH establishment located 614 m from the Project. The onshore cable route is approximately 100 m beyond the consultation distance for this facility (400 m). The risks associated with this facility are fire or spillage/leak <sup>7</sup> . The Project is situated beyond the consultation distance and is therefore not considered vulnerable to risk of accident or disaster both to and from this establishment. Therefore, this hazard is scoped out for risks of major accidents and disasters during the construction phase of the Project.
Collision risk from existing road users on the public road network (impacting on project works and traffic)	x	x	x	The impact of construction and decommissioning activities on existing traffic volumes and live road network was assessed in chapter 28: Traffic and Transport. Effects were assessed to be slight at most. In addition, a Construction Traffic Management Plan will be implemented to ensure adequate and safe local traffic management and access to all dwellings, business and schools (see volume 2A, appendix 5-9: Construction Traffic Management Plan). It is considered these measures adequately reduce the likelihood of a major accident/disaster occurring as a result of collision risk and as such this issue is scoped out. Operational collision is scoped out as no operational impacts on traffic are anticipated (see chapter 28: Traffic and Transport).
Risk of Accident from existing built service infrastructure (cables and pipelines)	✓	x	x	Potential for risk of accident to the Project may occur if disruption of built service infrastructure occurs which could cause a major accident and disaster. The onshore cable route crosses two high pressure gas pipelines as well as electricity, telecommunications, water and rail infrastructure (see chapter 29: Material Assets). Disruption to built services presents a risk of major accident and as such this hazard was scoped in for construction. Disruption of built services is not predicted to occur during operation and decommissioning (see chapter 29: Material Assets) and as such any potential hazards during these phases were scoped out from further assessment

Table 24-6 identifies and scopes in or out potential hazards occurring as a result of the Project (on a range of environmental, human and material receptors).

**Table 24-6: Scoping of the potential for the Project to cause accidents/disasters.**

7

[https://www.hsa.ie/eng/your\\_industry/chemicals/legislation\\_enforcement/comah/information\\_to\\_the\\_public/lower\\_tier\\_establishments\\_by\\_region/lower\\_tier\\_establishments\\_in\\_dublin\\_louth/bak\\_lower\\_tier\\_r25.pdf](https://www.hsa.ie/eng/your_industry/chemicals/legislation_enforcement/comah/information_to_the_public/lower_tier_establishments_by_region/lower_tier_establishments_in_dublin_louth/bak_lower_tier_r25.pdf)

[https://www.hsa.ie/eng/Your\\_Industry/Chemicals/Legislation\\_Enforcement/COMAH/Information\\_to\\_the\\_Public/Hazard%20Statements%20Information.pdf](https://www.hsa.ie/eng/Your_Industry/Chemicals/Legislation_Enforcement/COMAH/Information_to_the_Public/Hazard%20Statements%20Information.pdf)

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

Sources of Hazard	Scoped in? Tick =yes x=no			Justification
	C	O	D	
<b>Offshore</b>				
Risk of physical impacts to other marine vessels (collision / allision) caused by vessels associated with all phases of the Project	✓	✓	✓	Potential for increased risk collision / allision risk between vessels as a result of the Project throughout the construction, operation and decommissioning phases. Risk of vessel collision is addressed in volume 2B, Chapter 13: Shipping and Navigation and volume 2B, appendix 13-1: Navigation Risk Assessment. Measures are included in the Project to reduce the risk of collision, however, vessels will be regular users of the offshore wind farm area and offshore cable corridor. As such, a source-pathway-receptor linkage remains and the possibility that a collision could lead to a major accident/disaster, including environmental risk and risk to/loss of life remains.
Risk of Pollution of the marine environment (Vessels)	✓	✓	✓	The extent of the vessel movement during each phase of the Project is outlined above.  Vessels will contain fuels/oils/lubricants that pose a risk to the marine environment in the event of a major spill. Each of these vessels has the potential to cause pollution of the marine environment in the event of a loss of containment from fuel or chemical storage.
Risk of Pollution of the marine environment (from structures) (operational and maintenance phase)	x	✓	x	Each of the wind turbines will contain quantities of oils and fluids (such as lubricating oils, hydraulic oils, coolants) with a maximum combined volume of approximately 41.8 m <sup>3</sup> per turbine.  Similarly, the OSS will contain quantities of oils and fluids (such as lubricating oils, hydraulic oils, coolants) with a maximum volume of 25.2 m <sup>3</sup> .  Fuels and oils will be stored in impenetrable bunds in designated areas where spillages can be easily contained, and any pipes and tanks containing hazardous substances will be double skinned (see volume 2A, appendix 5-2: Environmental Management Plan).  In the unlikely event of a simultaneous and combined loss of all oils/fluids from all wind turbines and OSS, there would be a pollution event for the marine area. A single loss from a wind turbine would have a potential impact on the marine environment.
Risk of Fire: Offshore Substation (OSS) (operation and maintenance phase)	x	x	x	In the unlikely event of a fire at the OSS, this could lead to loss of life or a pollution event.  Fuels and oils will be stored in impenetrable bunds in designated areas where spillages can be easily contained, and any pipes and tanks containing hazardous substances will be double skinned (see volume 2A, appendix 5-2: Environmental Management Plan).  In addition, the OSS will include an automatic fire alarm system and will be subject to routine maintenance and continuous Supervisory Control and Data Acquisition (SCADA) monitoring to ensure that any such malfunction (such as a fire) is detected and resolved immediately. Appropriate site personnel will be trained as fire marshals. Fire marshals will undertake regular monitoring of site activities to minimise fire and explosion risk.  With the implementation of the above measures, the probability of such an event resulting in a major accident is considered highly unlikely and as such has been scoped out of further assessment.
Accidents resulting from offshore construction activities (construction and decommissioning phases)	x	x	x	Construction activities can lead to a major accident if construction workers incur an accident involving Project plant and machinery.  The Applicant implements a Health, Safety, Security and Environment (HSSE) policy (see Annex A2 in appendix 5-2: Environmental Management Plan) to ensure that all HSSE risks are assessed and any risks of major accidents and disasters will be reduced ALARP and thereby ensuring there will be no effects.
<b>Onshore</b>				
Accidents resulting from onshore construction	x	x	x	Construction activities, including construction at the landfall, onshore substation site and installation of the onshore cable have the potential to lead to a major accident or disaster if personnel, pedestrians, or other

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

Sources of Hazard	Scoped in? Tick =yes x=no			Justification
	C	O	D	
activities and associated activity, presence of plant and machinery (construction and decommissioning phases)				local users incur an accident involving Project plant and machinery. Onshore construction activities will be subject to implementation of the CEMP (volume 2A, appendix 5-1: Construction Environmental Management Plan), which will include measures to ensure appropriate construction site management, including site security, hoarding and fencing, regular training of personnel with regard to health and safety, risk assessment and method statements. Assuming implementation of the CEMP, it is considered that the risk of any major accident during construction activities is negligible and as such this issue is scoped out from further assessment. See also HSSE policy referred to above.
Pollution of the environment (all phases)	x	x	x	<p>Vehicle and plant/machinery movements and fuel storage and use will be required during all phases of the Project to varying degrees and have the potential to cause pollution in the environment. Vehicles, plant and machinery will contain fuels/oils/lubricants that pose a risk to the environment in the event of accident or incident such as a spill.</p> <p>All onshore activities will be managed through a Construction Environmental Management Plan (see volume 2A, appendix 5-1: Construction Environmental Management Plan) which will ensure that all activities will be managed in accordance with industry best practice. Fuels and oils will be stored in contained and bunded areas, with quantities stored being limited to the minimum volume required to meet immediate requirements. Refuelling will occur in designated areas where spillages can be easily contained. As such it is considered that environmental pollution from oil/fuel spillage can be scoped out of further assessment.</p>
Handling of SF <sub>6</sub> : Risk to human health	x	x	x	<p>The switchgear in the onshore and offshore substation site will contain sulphur hexafluoride (SF<sub>6</sub>). SF<sub>6</sub> is an inert, stable, non-toxic and non-flammable gas. SF<sub>6</sub> is approximately five times heavier than air and will displace air in confined areas. Confined areas must be force-ventilated when working with SF<sub>6</sub> gas. Under prolonged exposure to fire or heat the containers may rupture violently and rocket.</p> <p>Gas handling on-site is primarily limited to the construction and decommissioning phases of a substation development. Specialised H&amp;S procedures for the safe storage and handling of SF<sub>6</sub> will be developed and incorporated into ESB management systems.</p> <p>Alternatively, a specialist switchgear provider (such as the original equipment provider) will be employed by ESB, to undertake maintenance of SF<sub>6</sub> containing equipment in line with best-practice H&amp;S procedures as described above. The electrical switchgear equipment will also be equipped with a pressure or density monitoring device which will detect any loss of SF<sub>6</sub>.</p> <p>With the implementation of the above measures, it is considered that the risk to human health of the unsafe handling of SF<sub>6</sub> is appropriately mitigated and this hazard can be scoped out from further assessment.</p>
Traffic and Transportation: collision risks on public roads (construction and decommissioning phases)	✓	x	✓	<p>Higher volume of project vehicles and machinery and traffic management mainly associated with the construction phase, and decommissioning phase; less vehicles required during the operation maintenance phase.</p> <p>During construction/decommissioning phases there is potential for collision associated with increased traffic and transport as a result of the presence/movement of vehicles, plant and machinery associated with the Project. A number of measures are included in the Project to manage traffic during construction, including localised traffic management measures, advisory diversion routes and design measures to ensure adequate sight lines and access to the N33 during all phases of the Project (see chapter 28: Traffic and Transport). A Construction Traffic Management Plan has been prepared and is presented in volume 2A, appendix 5-9: Construction Traffic Management Plan.</p>

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

Sources of Hazard	Scoped in?			Justification
	Tick =yes	x=no		
	C	O	D	
				The above measures included in the Project work towards reducing the risk of collision on public roads, however it is considered that there remains a source-pathway-receptor linkage as risk of collision is not eliminated, and as a low risk, high consequence event, it has been scoped into the assessment for the construction and decommissioning phases.
Risk of accident: Existing Built Service Infrastructure	✓	x	x	Potential for risk of accident from the Project on built services/utilities in the area. Consultation with the relevant utility providers will take place prior to any works taking place, and the exact locations of all underground infrastructure will be established and verified. All work being carried out in the vicinity of underground services will be completed in accordance with the current and relevant HSA and ESB Codes of Practice and guidance, and exclusion and safe operating distances around electricity infrastructure will be adhered to. Height restriction barriers and equipment will be used to demarc electrical infrastructure. As there is a potential risk of hazard or accident on built services in the vicinity of the Project, this has been scoped in for the construction phase. Built Services (Utilities) are addressed in chapter 29: Material Assets.
Risk of accident: COMAH Establishments	x	x	x	The Project is beyond the consultation distances outlined for the COMAH establishments identified (see Table 24-4). The closest COMAH establishment to the Project is located 614 m from the onshore cable route (nearest point) at Red Barns, Drumcar Road (see Table 24-4). The Project is approximately 200 m beyond the consultation distance for this facility (200 m). Due to the distance from the Project to the identified COMAH establishments, it is considered that any risk is highly unlikely and that COMAH establishments are not vulnerable to accidents as a result of the Project, and the Project is not at risk from accidents occurring in a COMAH establishment. As such this risk is scoped out.
Risk of Fire: Onshore Substation Site (Operation and Maintenance Phase)	x	x	x	In the unlikely event of a fire at the onshore substation site, this could lead to loss of life or a pollution event. The onshore substation site will be located in an agricultural field in the townland of Stickillin. The field has an existing access from the N33 national road which, located approximately 3 km east of the town of Ardee.  A fire detection and alarm system will be specified during the detail design of the substation in compliance with EirGrid requirements. A Fire Safety certificate application to Louth County Council will be made in advance of construction in accordance with the standard approach for the construction of substations.  As the probability of such an event resulting in a major accident is considered highly unlikely this has been scoped out of further assessment.

### 24.7.3 Assessment

The assessment of major accidents and hazards is presented in Table 24-7 and is in line with the IEMA hazard identification record template (IEMA, 2020).

The assessment methodology followed the assessment process set out in IEMA (2020). The following key steps were undertaken and are reported in Table 24-7:

- Hazard identification and receptor tagging – for each risk event scoped in for assessment, a source-pathway-receptor link was identified and known receptors assigned to the risk event (if no receptor or pathway was identified, then the risk event is scoped out from the assessment);

## **ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS**

---

- Identification of reasonable worst-case impact for each risk event, or grouped risk event (with a valid receptor); and
- Assessment of the possibility of worst-case impact occurring, based on the following considerations:
  - Likelihood of risk event (or grouped risk event) occurring, taking into account primary (embedded) and tertiary (best practice) mitigation measures; and
  - Likelihood that the receptor identified will be affected.

The outcome of the above steps aimed to highlight risks for which measures included in the Project do not provide sufficient mitigation to reduce the risk to an acceptable level, and therefore significant effects could occur (IEMA, 2020). In this case, secondary (mitigation) measures are identified (IEMA, 2020).

The risk analysis presented in Table 24-7 considers (i) risk events to which the Project itself may be vulnerable, (i.e. the Project is the receptor); and (ii) risk events that may occur as a result of the Project and where the receptors may be human, environmental or material assets.



**ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS**

**Table 24-7: Risk register.**

Potential risk / event	Source and / or pathway	Receptor	Source Document	Reasonable worst consequence if event did occur	Are cross disciplinary impacts likely that could lead to significant environmental effects?	Measures included in the Project to prevent or avoid impacts, including designed-in and management measures	Could this lead to a major accident and/or natural disaster with existing measures in place?	Is the reasonable worst consequence managed to an acceptable level with existing mitigation in place?	If no, what further measures are required to reach an acceptable level?
Navigation and Shipping Collision: risk of physical impacts from other existing navigation and shipping vessels (collision / allision) impacting on all phases	Other navigational and shipping vessels operating in the area	The Project	Chapter 13: Shipping and Navigation Appendix 13-1: Navigation Risk Assessment	Physical impact to offshore wind farm area infrastructure (turbines, foundations, cables, etc.) and project vessels caused by vessel collision / allision.	Physical damage to project vessels and infrastructure. Potential significant impact on water quality through fuel/chemical loss and subsequent impact on biodiversity. Significant damage to energy assets impacting on transmission capacity. Potential for loss of life or serious injury.	Measures included in the Project to manage any potential risk from navigation and shipping (see chapter 13: Shipping and Navigation) include, inter alia: <ul style="list-style-type: none"> <li>• Promulgation of information and warnings through Notice to Mariners and other appropriate Maritime Safety Information (MSI) dissemination methods;</li> <li>• Project to undertake vessel traffic monitoring for all Project-related vessels throughout all phases of the Project;</li> <li>• Safety zones and rolling advisory clearance distances to be implemented during construction, decommissioning and major</li> </ul>	No – these measures comply with standard practice for the installation of offshore wind infrastructure to reduce the risk of impact from and to navigation and shipping. In this regard, the Project is not considered vulnerable to risk of accident or disaster from the existing navigation and shipping in the area.	Yes	N/A

**ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS**

Potential risk / event	Source and / or pathway	Receptor	Source Document	Reasonable worst consequence if event did occur	Are cross disciplinary impacts likely that could lead to significant environmental effects?	Measures included in the Project to prevent or avoid impacts, including designed-in and management measures	Could this lead to a major accident and/or natural disaster with existing measures in place?	Is the reasonable worst consequence managed to an acceptable level with existing mitigation in place?	If no, what further measures are required to reach an acceptable level?
Unexploded Ordinance (UXO) (Construction Phase)	UXO in the offshore wind farm area and offshore cable corridor can pose a health and safety risk where it coincides with the planned location of infrastructure	Human Health; Marine biodiversity; Existing material assets (vessels) and the Project	Volume 2A, appendix 5-13: UXO Desk Study	Physical impact to vessels and property as well as the Project through uncontrolled explosions. Injury or loss of life.	Potential for impact on human health. Potential impact on water quality in the event of any fuel/chemical loss and subsequent impact on biodiversity.	UXO mitigation measures include: <ul style="list-style-type: none"> <li>• Marker buoys and other aids to navigation (AtoN); Marking and Lighting Plan has been prepared (see volume 2A, appendix 5-8: Lighting and Marking Plan); and</li> <li>• Development of Emergency Response Cooperation Plan (see volume 2A, appendix 5-7: Emergency Response Cooperation Plan).</li> </ul>	No – Explosives Site Safety Guidelines (ESSG) will be produced prior to pre-construction activities commencing and will include safety and awareness training of	Yes	N/A

**ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS**

Potential risk / event	Source and / or pathway	Receptor	Source Document	Reasonable worst consequence if event did occur	Are cross disciplinary impacts likely that could lead to significant environmental effects?	Measures included in the Project to prevent or avoid impacts, including designed-in and management measures	Could this lead to a major accident and/or natural disaster with existing measures in place?	Is the reasonable worst consequence managed to an acceptable level with existing mitigation in place?	If no, what further measures are required to reach an acceptable level?
	and associated vessel activity			Injury or loss of marine biodiversity	Damage to material assets.	inspection work will be undertaken, on any potential items of UXO identified within the offshore wind farm area and offshore cable corridor.	Remotely Operated Vehicle inspection work will be undertaken, if required, (see volume 2A, Chapter 5: Project Description).		
Risk of Accident from existing built service infrastructure (cables and pipelines) (construction)	Built services/utilities in the area,	The Project	Chapter 29: Material Assets	Physical impact to Project infrastructure (cables etc.).	Potential damage to property or infrastructure. Potential disruption or damage to onshore infrastructure. Potential for loss of life or serious injury.	Measures included in the Project to manage any potential risk from navigation and utilities are outlined in chapter 29: Material Assets and include, inter alia: <ul style="list-style-type: none"> <li>Adherence to GNI Code of Practice in terms of separation distances; HSA 'Code of Practice for Avoiding Danger from Underground Services'. Furthermore; the ESB Code of Practice; HSA guidance 'Code of Practice for Avoiding Danger from</li> </ul>	No – assuming adequate communication with material assets owners / operation takes place and Project works are undertaken in line with professional codes of practice, no major accidents are predicted.	Yes	N/A

**ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS**

Potential risk / event	Source and / or pathway	Receptor	Source Document	Reasonable worst consequence if event did occur	Are cross disciplinary impacts likely that could lead to significant environmental effects?	Measures included in the Project to prevent or avoid impacts, including designed-in and management measures	Could this lead to a major accident and/or natural disaster with existing measures in place?	Is the reasonable worst consequence managed to an acceptable level with existing mitigation in place?	If no, what further measures are required to reach an acceptable level?
						Overhead Electricity Lines’; <ul style="list-style-type: none"> <li>In addition, the Contractor will be required to engage with all built service providers, prior to commencement of construction; and</li> <li>Adherence to Irish Rail Guidance on construction on or near rail lines.</li> </ul>			
Risk of physical impacts to other marine vessels (collision / allision) caused by Project vessels (All phases)	Project vessels associated with the construction, operational and decommissioning phases of the Project	Existing material assets (third party vessels) and the marine environment	Chapter 13: Shipping and Navigation; appendix 13-1: Navigation Risk Assessment.	vessel to vessel or vessel to Project collision, resulting in human injury or loss of life.	Potential impact on water quality through fuel/chemical loss and subsequent impact on biodiversity. Damage to material assets impacting on third party operations.	Measures included in the Project to manage any potential risk to navigation and shipping in the area include, <i>inter alia</i> : <ul style="list-style-type: none"> <li>Promulgation of information and warnings through Notice to Mariners and other appropriate Maritime Safety Information (MSI) dissemination methods;</li> <li>Project to undertake vessel traffic monitoring for all Project-related vessels throughout</li> </ul>	No – with the implementation of the Project measures as detailed in volume 2B, chapter 13: Shipping and Navigation, the risk of collision or allision is suitably mitigated.	Yes	N/A

**ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS**

Potential risk / event	Source and / or pathway	Receptor	Source Document	Reasonable worst consequence if event did occur	Are cross disciplinary impacts likely that could lead to significant environmental effects?	Measures included in the Project to prevent or avoid impacts, including designed-in and management measures	Could this lead to a major accident and/or natural disaster with existing measures in place?	Is the reasonable worst consequence managed to an acceptable level with existing mitigation in place?	If no, what further measures are required to reach an acceptable level?
						all phases of the Project; <ul style="list-style-type: none"> <li>• Safety zones and rolling advisory clearance distances to be implemented during construction, decommissioning and major maintenance activities;</li> <li>• Marker buoys and other aids to navigation (AtoN); Marking and Lighting Plan has been prepared (see volume 2A, appendix 5-8: Lighting and Marking Plan); and</li> <li>• Implementation of Emergency Response Cooperation Plan (see volume 2A, appendix 5-7: Emergency Response Cooperation Plan).</li> <li>• Implementation of Environmental Management Plan,</li> </ul>			

**ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS**

Potential risk / event	Source and / or pathway	Receptor	Source Document	Reasonable worst consequence if event did occur	Are cross disciplinary impacts likely that could lead to significant environmental effects?	Measures included in the Project to prevent or avoid impacts, including designed-in and management measures	Could this lead to a major accident and/or natural disaster with existing measures in place?	Is the reasonable worst consequence managed to an acceptable level with existing mitigation in place?	If no, what further measures are required to reach an acceptable level?
						which includes a Marine Pollution Prevention and Contingency Plan (volume 2A, appendix 5-2: Environmental Management Plan)			
Risk of pollution of the marine environment (All phases)	Pollution of the marine environment from activity (vessels, machinery etc.) and structures (during the construction, operational and maintenance and decommissioning phases of the Project.	The marine environment	Chapter 8: Benthic Subtidal and Intertidal Ecology	Potential for loss of fuels, chemicals or other substances from vessels and structures during the construction, operational and decommissioning phases polluting the marine environment.	Potential for significant adverse impact to marine waters. Potential to impact on marine biodiversity.	<ul style="list-style-type: none"> <li>An Environmental Management Plan (EMP) (see volume 2A, appendix 5-2: Environmental Management Plan) will be implemented during the construction, operational and maintenance and decommissioning phases of the Project. The EMP includes Project mitigation/monitoring measures and a Marine Pollution Contingency Plan;</li> <li>A Marine Invasive Non-Indigenous Species (MINNS) Management Plan is presented in volume 2A (see appendix 5-</li> </ul>	No – with these measures in place, the proposed construction activities are not predicted to have potential for significant risk of major accidents to the marine environment.	Yes	N/A

**ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS**

Potential risk / event	Source and / or pathway	Receptor	Source Document	Reasonable worst consequence if event did occur	Are cross disciplinary impacts likely that could lead to significant environmental effects?	Measures included in the Project to prevent or avoid impacts, including designed-in and management measures	Could this lead to a major accident and/or natural disaster with existing measures in place?	Is the reasonable worst consequence managed to an acceptable level with existing mitigation in place?	If no, what further measures are required to reach an acceptable level?
						<p>3). The plan outlines procedures for marine works and vessel operations to ensure preventing and reducing the risk of possible spread or introduction of MINNS into water bodies as a result of the Project; and</p> <ul style="list-style-type: none"> <li>All wind turbines of a wind farm are connected to a central Supervisory Control and Data Acquisition (SCADA) system for control of the wind farm remotely at the operational and maintenance base. This allows functions such as remote wind turbine shutdown if faults occur or curtailment of the wind farm by the grid operator.</li> </ul>			
Traffic and transportation: collision risks on public roads	Project vehicles, plant and machinery	Other existing road users including	Chapter 28: Traffic and Transport	Physical impact to third party property caused by	Yes – also potential for impacts on the	Measures included in the Project regarding traffic management and safety are outlined in chapter	No – with these measures in place, the Project is not	Yes	N/A

**ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS**

Potential risk / event	Source and / or pathway	Receptor	Source Document	Reasonable worst consequence if event did occur	Are cross disciplinary impacts likely that could lead to significant environmental effects?	Measures included in the Project to prevent or avoid impacts, including designed-in and management measures	Could this lead to a major accident and/or natural disaster with existing measures in place?	Is the reasonable worst consequence managed to an acceptable level with existing mitigation in place?	If no, what further measures are required to reach an acceptable level?
(Construction and Decommissioning Phases)		pedestrians, cyclists and road traffic.		collision with onshore infrastructure. Major injury or loss of life.	environment in the event of a spill.	28: Traffic and Transport and appendix 5-9: Construction Traffic Management Plan (CTMP) respectively of this EIAR and will mitigate the effects these impacts may have.	predicted to have potential for significant risk to cause accidents or disasters on public roads from collision.		
Risk of accident: Existing Built Service Infrastructure (Construction Phase)	Project vehicles, plant and machinery	Existing material assets (third-party-built services, physical road/ground)	Chapter 29: Material Assets	Physical impact to third party material assets / built services. Major injury or loss of life if impact on services such as explosion or electrocution.	Damage to material assets.	See measures outlined above for 'Risk of Accident from existing built service infrastructure' and chapter 29: Material Assets.	No – with these measures in place, the Project is not predicted to have potential for significant risk to cause accidents or disasters in terms of built services or utilities).	Yes	N/A



## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

---

### 24.8 Mitigation measures

The assessment provided in Table 24-7 has concluded that with the implementation of the measures included in the Project (i.e. designed in and management measures (controls)), that the Project's vulnerability to risks of major accidents and/or natural disasters will not result in significant adverse effects on the environment. Therefore, no further measures are proposed.

Chapter 17: Climate provides an assessment of the Project's vulnerability to climate change. It concludes that the proposed measures included in the Project, suitably mitigate the risk and therefore no measures over and above these are proposed.

### 24.9 Cumulative effects

The potential for significant cumulative effects associated with a major accident and disaster occurring on another project(s) is considered unlikely as it would require the realisation of one of the hazards identified in addition to a similar hazard identified on another project. The probability of two such unlikely events occurring and resulting in significant cumulative effects is negligible and hence it can be concluded that there are no significant cumulative adverse effects on the environment from major accidents and disasters from the Project alongside other projects.

### 24.10 Conclusion

It is concluded that the measures included in the Project adequately control the potential for major accidents and/or disasters. As such, it is considered that there is no potential for major accidents and/or disasters to be caused by the Project and that the Project is not vulnerable to major accidents and/or disasters.

The scoping stage of the assessment identified all possible major accidents and/or disasters that could be caused by the Project and examined the vulnerability of the Project to major accidents and/or disasters.

As measures adequately control the potential major accidents and/or disasters. Therefore, no significant effects are predicted on the environment.

## ORIEL WIND FARM PROJECT – MAJOR ACCIDENTS AND NATURAL DISASTERS

---

### References

DCCAIE (2019). Concession Map. Available online at: <https://www.gov.ie/en/publication/10d43-acreage-reports-and-concession-maps/#2021>. Accessed 20/05/2021.

Department of Defence (2017). A National Risk Assessment for Ireland 2017. Available at [<https://assets.gov.ie/30726/04c9b4280572447a90f4a56622aba71a.pdf>]. accessed 23.08.2022.

Department of Environment Housing and Local Government (2010). A Guide to Risk Assessment in Major Emergency Management.

Department of Housing, Local Government and Heritage (2021). Project Ireland 2040 National Marine Planning Framework. <https://www.gov.ie/pdf/?file=https://assets.gov.ie/139100/f0984c45-5d63-4378-ab65-d7e8c3c34016.pdf#page=null>.

Department of Housing, Planning and Local Government (2018). Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment.

Department of the Taoiseach (2017). National Risk Assessment 2017 Overview of Strategic Risks.

EPA (2014). Guidance on Assessing and Costing Environmental Liabilities.

EPA (2015). Advice Notes on Preparing Environmental Impact Statements.

EPA (2022). Guidelines on the Information to be contained in Environmental Impact Assessment Reports.

European Commission (2017). Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2001/92/EU) as amended by 2014/52/EU).

IAA (2015). AIP Ireland, ENR5.2: Military exercise and training areas. Available at: IAIP.IE (iaa.ie). Accessed 07/11/2022.

IEMA (2020). Major Accidents and Disasters in EIA: A Primer. September 2020.

Louth County Council (2019). Climate Change Adaptation Strategy 2019 – 2024. Available at <https://www.louthcoco.ie/en/services/environment/climate-change-adaptation/climate-change-adaption-strategy.pdf>. Accessed 09/03/2023.

NSG (2015). A Framework for Major Emergency Management. The National Steering Group.

Uadiale, S., Urbán, É., Carvel, R., Lange, D. and Rein, G. (2014). *Overview of problems and solutions in fire protection engineering of wind turbines*. International Association for Fire Safety Science. Available at [https://publications.iafss.org/publications/fss/11/983/view/fss\\_11-983.pdf](https://publications.iafss.org/publications/fss/11/983/view/fss_11-983.pdf). Accessed 05.12.2022.