codling wind park

Environmental Impact Assessment Report

Volume 3

Chapter 32 Risk of Major Accidents and Disasters


codling
wind park

Table of contents

List of tables

List of figures

Abbreviations

Abbreviation	Term in Full
ABP	An Bord Pleanála
AIL	Abnormal Indivisible Load
CAT	Cable Avoidance Tool
CEMP	Construction Environmental Management Plan
COMAH	Control of Major Accident Hazards
CWP	Codling Wind Park
DCC	Dublin City Council
DECLG	Department of Environment, Community and Local Government
DoEHLG	Department of Environment, Heritage and Local Government
EC	European Commission
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
EU	European Union
HDD	Horizontal Directional Drilling
HV	Heavy Vehicles
HSA	Health and Safety Authority
HV	Heavy Vehicle
HWM	High Water Mark
IE	Industrial Emissions
IEMA	Institute of Environmental Management and Assessment
IPC	Integrated Pollution Control
LLO	Landowner Liaison Officer
MTL	Marine Terminals
OfTI	Offshore Transmission Infrastructure
OSSs	Offshore Substation Structures
OTI	Onshore Transmission Infrastructure
SAC	Special Area of Conservation
SPMT	Self-Propelled Modular Transporter
TJBs	Transition Joint Bays
TMP	Traffic Management Plan

UXO	Unexploded ordnance
WTGs	Wind Turbine Generators

Definitions

Glossary	Meaning
the Applicant	The developer, Codling Wind Park Limited (CWPL).
array site	The red line boundary area within which the wind turbine generators (WTGs), inter-array cables (IACs) and the Offshore Substation Structures (OSSs) are proposed.
Codling Wind Park (CWP) Project	The proposed development as a whole is referred to as the Codling Wind Park (CWP) Project, comprising of the offshore infrastructure, the onshore infrastructure and any associated temporary works.
Codling Wind Park Limited (CWPL)	A joint venture between Fred. Olsen Seawind (FOS) and Électricité de France (EDF) Renewables, established to develop the CWP Project.
combi-wall	A piling wall that is comprised of high modulus structural components interspaced by lighter sheet piles. The high modulus components – known as king piles – can be tubular, box, bearing or other types of fabricated piles.
Compound A	A support area and storage facility for the landfall works and to support the installation of the onshore export cables. It will operate as a hub for the onshore construction works as well as acting as a staging post and secure storage for equipment and component deliveries.
Compound B	An additional temporary construction compound / laydown area for general cable route and onshore substation construction activities.
Compound C	A temporary construction compound for the onshore substation site. Contractor welfare facilities will be located in this compound as well as some material storage space.
Compound D	A temporary construction compound and laydown area to facilitate the construction of the bridge over the cooling water channel.
ESB Networks (ESBN)	Owner of the electricity distribution system in the Republic of Ireland, responsible for carrying out maintenance, repairs and construction on the grid.
ESBN network cables *(previously the ESB grid connection)*	Three onshore export cable circuits connecting the onshore substation to the proposed ESBN Poolbeg substation, which will then transfer the electricity onwards to the national grid.
Environmental Impact Assessment (EIA)	A systematic means of assessing the likely significant effects of a proposed project, undertaken in accordance with the EIA Directive and the relevant Irish legislation.
Environmental Impact Assessment Report (EIAR)	The report prepared by the Applicant to describe the findings of the EIA for the CWP Project.
export cables	The cables, both onshore and offshore, that connect the offshore substations with the onshore substation.
generating station	Comprising the wind turbine generators (WTGs) and inter array cables (IACs).

high water mark (HWM)	The line of high water of ordinary or medium tides of the sea or tidal river or estuary.
horizontal directional drilling (HDD)	HDD is a trenchless drilling method used to install cable ducts beneath the ground through which onshore export cables from can be pulled. HDD enables the installation of cables beneath obstacles such as roads, waterways and existing utilities.
inter-array cables (IACs)	The subsea electricity cables between each WTG between and the OSSs.
interconnector cables	The subsea electricity cables between OSSs.
landfall	The point at which the offshore export cables are brought onshore and connected to the onshore export cables via the transition joint bays (TJBs).
offshore export cables	The cables which transport electricity generated by the WTGs from the offshore substations (OSSs) to the landfall.
offshore infrastructure	The offshore infrastructure, comprising of the WTGs, IACs, OSSs, interconnector cables, offshore export cables and other associated infrastructure, such as cable and scour protection.
offshore substation structure (OSS)	A fixed structure located within the array site, containing electrical equipment to aggregate the power from the wind turbine generators and convert it into a more suitable form for export to shore.
offshore transmission infrastructure (OfTI)	The offshore transmission assets comprising the OSSs, interconnector cables and offshore export cables. The EIAR considers both permanent and temporary works associated with the OfTI.
onshore export cables	The cables which transport electricity generated by the WTGs from the TJBs at the landfall to the onshore substation.
onshore development area	The entire footprint of the OTI and associated temporary works that will form the onshore boundary for the development consent application.
onshore transmission infrastructure (OTI)	The onshore transmission assets comprising the TJBs, onshore export cables and the onshore substation. The EIAR considers both permanent and temporary works associated with the OTI.
onshore substation	Site containing electrical equipment to enable connection to the national grid.
onshore substation site	The area within which permanent and temporary works will be undertaken to construct the onshore substation.
planning application boundary	The area subject to the application for development consent, including all permanent and temporary works for the CWP Project.
transition joint bay (TJB)	This is required as part of the OTI and is located at the landfall. It is an underground bay housing a joint which connects the offshore and onshore export cables.

wind turbine generator (WTG)	All the components of a wind turbine, including the tower, nacelle and rotor.

32 RISK OF MAJOR ACCIDENTS AND DISASTERS

32.1 Introduction

1. Codling Wind Park Limited (hereafter 'the Applicant') is proposing to develop the Codling Wind Park (CWP) Project, a proposed offshore wind farm (OWF) located in the Irish Sea approximately 13 - 22 km off the east coast of Ireland, at County Wicklow.

2. This chapter forms part of the Environmental Impact Assessment Report (EIAR) for the CWP Project. The purpose of the EIAR is to provide the decision-maker, stakeholders and all interested parties with the environmental information required to develop an informed view of any likely significant effects on the environment resulting from the CWP Project, as required by the European Union (EU) Directive 2011/92/EU (as amended by Directive 2014/52/EU) (the EIA Directive).

3. The assessment of the vulnerability of the CWP Project to major accidents and natural disasters is carried out in compliance with the EIA Directive which states the need to assess:

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

   Recital 15 of the EIA Directive states that for projects:

   't 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.'

   Annex IV of the EIA directive states, where appropriate, the assessment should:

   'Include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.'

4. This chapter considers the vulnerability of the CWP Project to major accidents and / or disasters during the construction, operation and maintenance (O&M) and decommissioning phases.

5. The structure and assessment methodology of this chapter is guided by the Institute of Environmental Management and Assessment (IEMA) 'Major Accidents and Disasters in EIA: A Primer' guidance (IEMA, September 2020). The IEMA guidance defines the likely significant effects (in relation to major accidents and / or disasters assessment) as something that:

   '...could include the loss of life, permanent injury and temporary or permanent destruction of an environmental receptor which cannot be restored through minor clean-up and restoration.'

   This chapter should be read in conjunction with the following chapters:

   - **Chapter 2 Policy and Legislative Context**
   - **Chapter 4 Project Description**
   - **Chapter 5 EIA Methodology**
   - **Chapter 7 Marine Water Quality**
   - **Chapter 12 Commercial Fisheries**
   - **Chapter 16 Shipping and Navigation**
   - **Chapter 17 Aviation, Military and Radar**
   - **Chapter 19 Land, Soils and Geology**

- **Chapter 20 Hydrology and Hydrogeology**
- **Chapter 26 Material Assets - Built Services**
- **Chapter 27 Traffic and Transport**
- **Chapter 31 Waste and Resource Management**
- **Chapter 33 Summary of Mitigation and Monitoring**

32.2 Consultation

6. Consultation with statutory and non-statutory organisations is a key part of the EIA process. Consultation has been undertaken and any responses received with regard to the risk of major accidents and natural disasters has been included to inform the approach to, and scope of, the assessment.

7. The key elements for consultation to date have included EIA scoping, consultation events and meetings with key stakeholders. The feedback received throughout this process has been considered in preparing the EIAR. EIA consultation is described further in **Chapter 5 Environmental Impact Assessment Methodology**, the **Planning Documents** and in the **Public and Stakeholder Consultation Report** which has been submitted as part of the planning application.

8. **Table 32-1** provides a summary of the key issues raised during the consultation process relevant to the risk of major accidents and / or disasters and details how these issues have been considered in the production of this EIAR chapter.

Table 32-1 Consultation responses relevant to risk of major accidents and disasters

Consultee	Comment	How issues have been addressed
Scoping responses		
No responses received specific to major accidents and natural disasters were noted.	N/A	N/A
Topic specific meetings		
Health and Safety Authority Meeting held on 30 June 2023.	Consideration of CWP construction workers at the landfall and / or main construction compound, relative to nearby COMAH (Seveso) installations would be required. Requirement for the CWP Project to take account of Emergency Response Plan (and emergency access points) in place for nearby COMAH (Seveso) installations would be required.	The risk assessment detailed in **Section 32.8** accounts for these two scenarios.

Consultee	Comment	How issues have been addressed
	A standalone land use planning risk assessment is not required for the CWP Project.	
Other		
Public consultation process	No responses specific to major accidents and natural disasters were noted.	N/A

32.3 Legislation and guidance

32.3.1 Legislation

9. The legislation that is applicable to the assessment of risk of major accidents and disasters is summarised below. Further detail is provided in **Chapter 2 Policy and Legislative Context**.

- S.I. No. 291 of 2013 – Safety, Health and Welfare at Work (Construction) Regulations 2013.
- S.I. No. 10 of 2005 – Safety, Health and Welfare at Work Act 2005.
- S.I. No. 46 of 2015 – Climate Action and Low Carbon Development Act 2015.
- S.I. No. 209 of 2015 – Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (the 'COMAH Regulations'),

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

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

32.3.2 Policy

11. The overarching planning policy relevant to the CWP Project is described in EIAR **Chapter 2 Policy and Legislative Context**.

12. The assessment of the CWP Project against relevant planning policy is provided in the **Planning Report**. This includes planning policy relevant to major accidents and natural disasters.

32.3.3 Guidance

13. The principal guidance and best practice documents used to inform the assessment of risk of major accidents and / or disasters are summarised below:

- Department of Environment, Heritage and Local Government (DoEHLG) (2010). A Guide to Risk Assessment in Major Emergency Management;
- IEMA 2020 – Major Accidents and Disasters in EIA: A Primer;
- Environmental Protection Agency (EPA) (May 2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the EPA Guidelines);
- Department of Environment, Community and Local Government (DECLG), (August 2018). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment);
- European Commission (EC) (2017). Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report; and
- EPA (2003). Advice Notes on Current Practice in the Preparation of Environmental Impact Statements.

14. It is noted that the EPA Guidelines elaborate on risk assessment further from the EIA Directive under Section 3.7.3 and state the following:

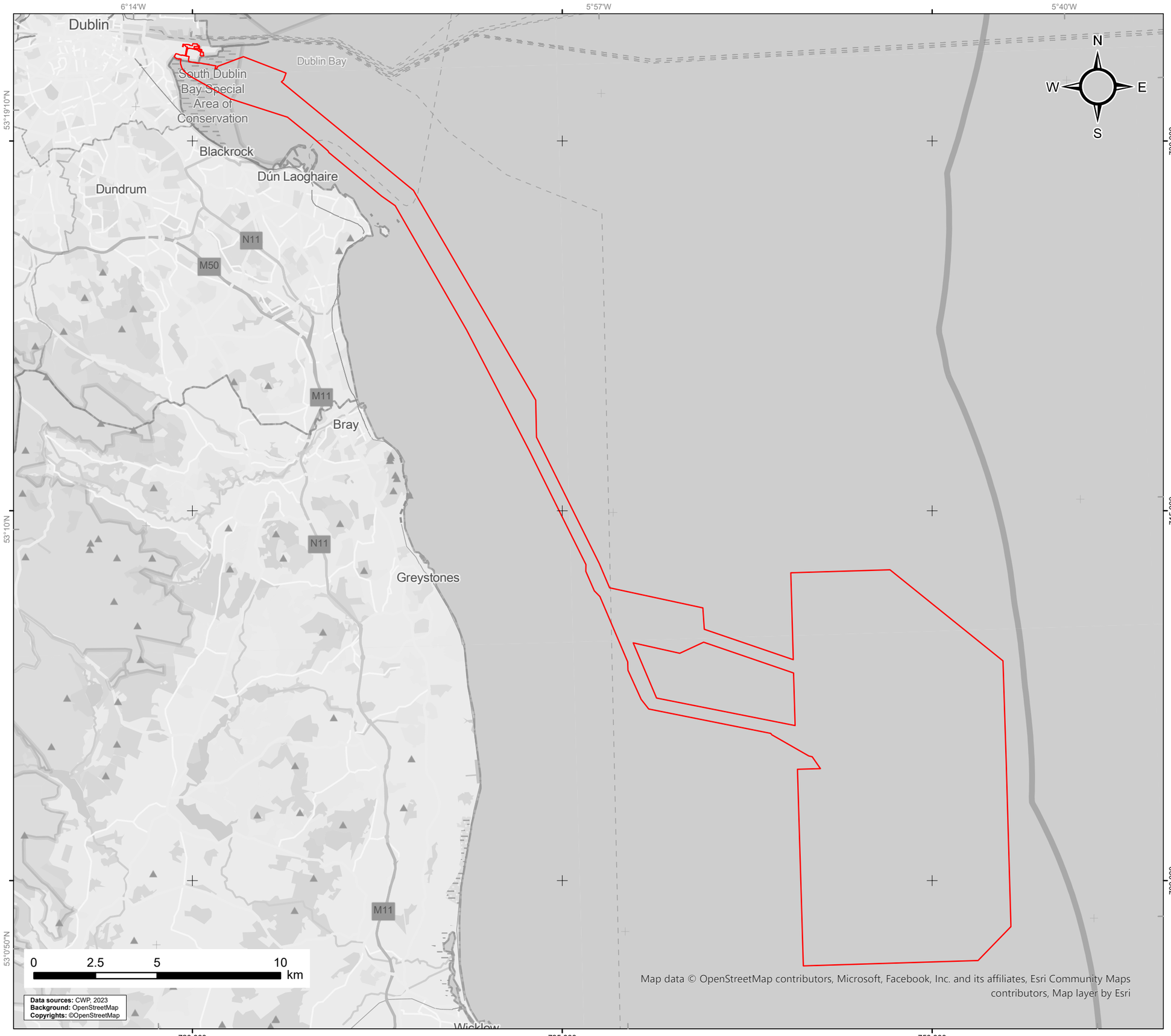
> *'To address unforeseen or unplanned effects the Directive further requires that the EIAR takes account of the vulnerability of the project to risk of major accidents and / or disasters relevant to the project concerned and that the EIAR therefore explicitly addresses this issue. The extent to which the effects of major accidents and / or disasters are examined in the EIAR should be guided by an assessment of the likelihood of their occurrence (risk)'.*

32.4 Study area and methodology

32.4.1 Study area

15. The study area for potential risks associated with construction, O&M and decommissioning of the offshore infrastructure is the offshore development area, which incorporates the wind turbine generators (WTGs), offshore substation structures (OSSs), inter-array and interconnector cables, and the offshore export cables which run from the array site to the landfall location. **Figure 32-1** presents the offshore development area.

16. The study area for the OTI incorporates the Poolbeg Peninsula, comprising the industrial facilities located in close proximity to the onshore development area. The OTI accounts for the permanent and temporary works associated the with the transition joint bays (TJBs), the onshore export cables, the onshore substation and the Electricity Supply Board Networks (ESBN) network cables to connect the onshore substation to the Poolbeg 220 kV substation. It also includes works at the landfall (landward of the high water mark (HWM)) to connect the onshore export cables with the offshore export cables at the TJBs (hereafter these works are referred to as the 'OTI'). **Figure 32-2** below presents the onshore development area.



Legend

Planning application boundary

codling wind park

Project: Codling Wind Park

Contractor: TOBIN

Website: www.tobin.ie

Figure 32.1
Offshore development area

CWP doc. number: CWP-TOB-ENG-08-01-MAP-1711

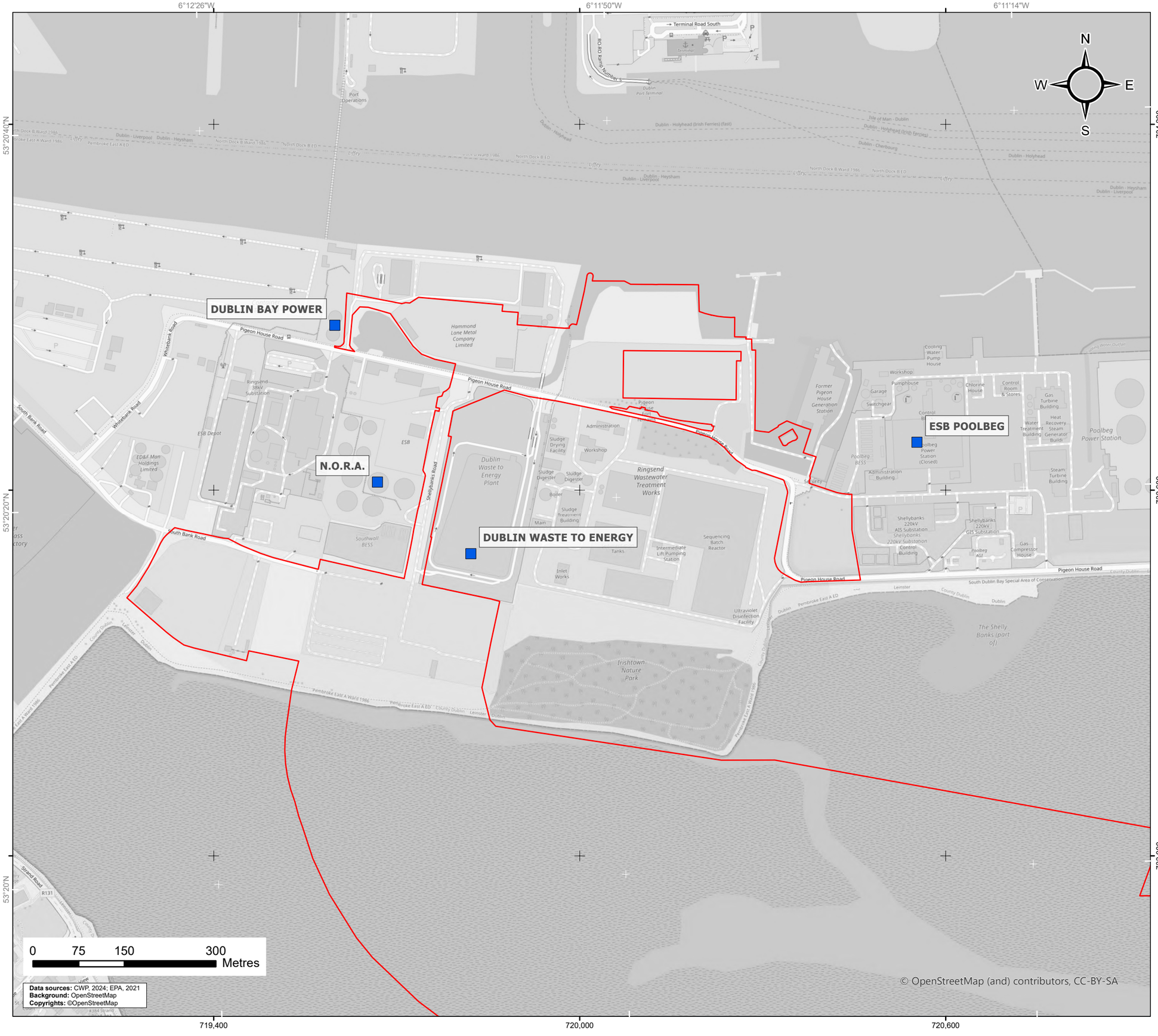
Internal descriptive code: WE - PAB - - (OSM..EIAR.Vol.03.Ch.32.FIG.32.01)

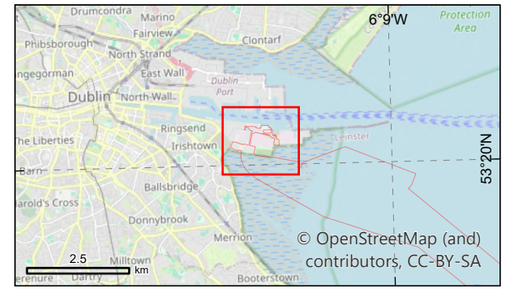
Size: A3

Scale: 1:150,000

CRS: EPSG 2157

Rev.	Updates	Date	By	Chk'd	App'd
00	Final for issue	2024/08/15	SP	DM/EA	ES





Legend

- Planning application boundary
- COMAH (Control of Major Accident Hazards) (Seveso) establishments

Data sources: CWP, 2024; EPA, 2021
Background: OpenStreetMap
Copyrights: ©OpenStreetMap

codling wind park

Project: Codling Wind Park

Contractor: **TOBIN**
Website: www.tobin.ie

Figure 32.2
Onshore development area

CWP doc. number: CWP-TOB-ENG-08-01-MAP-1712

Internal descriptive code: PB - PAB - COMAH - (OSM..EIAR.Vol.03.Ch.32.FIG.32.02)

Size: A3
Scale: 1:6,000

CRS: EPSG 2157

Rev.	Updates	Date	By	Chk'd	App'd
00	Final for issue	2024/08/15	SP	DM/EA	ES

32.4.2 Risk assessment methodology

17. The impact assessment methodology is risk based and focuses on unplanned events with a low likelihood but a high risk / consequence such as fire, major spill or explosions. There are three stages involved in determining such events as outlined in the Major Accidents and Disasters in EIA: A Primer guidance (IEMA, September 2020):

- Stage 1: Screening – identifies potential unplanned risk events that the CWP Project may be vulnerable to or that may occur due to the CWP Project;
- Stage 2: Classification – following the initial identification and screening process, major accidents and / or disasters were evaluated with regard to the likelihood of occurrence and the potential impact; and
- Stage 3: Assessment – this stage provides a greater understanding of the likelihood and consequence of events that have been carried forward into the EIA and defines a post mitigation risk score in accordance with the DoEHLG's (2010) guidelines.

Stage 1: Screening

18. This is a high level exercise listing all risk events (unplanned) that the CWP Project may be vulnerable to. In accordance with the guidance documentation referenced in **Section 32.3.3**, risks are identified in respect of the project's:

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

19. Risks have been reviewed through the identification of reasonably foreseeable risks in consultation with relevant contributors to this EIAR. The identification of risks has focused on non-standard but plausible incidents that could occur at or as a result of the CWP Project during the construction, O&M and decommissioning phases.

20. The list of risks was subject to screening to identify if the risks meet the criteria of a major accident or disaster as defined in the IEMA (2020) guidelines (See Table 32-2).

Table 32-2 Definition of a major accident and disaster (IEMA 2020 – Major Accidents and Disasters in EIA: A Primer)

Key Term	Definition
Major Accident	Events that threaten the immediate or delayed serious environmental ffects to human health, welfare and / or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g., train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events.
Disaster	May be a natural hazard (e.g., earthquake) or a man-made / external hazard (e.g., act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident.

21. Where appropriate, risks were also screened out of the assessment according to the following criteria:

- Where risk events are not applicable to a particular geographic location (e.g., volcanic and earthquake activity in Ireland); and
- Risks that have already been assessed in other areas of this EIAR, for example flood risk. These are summarised in **Table 32-8** and the appropriate location within the EIAR is referenced.

Stage 2: Classification

22. Following the screening stage, all risks identified as having the potential to lead to major accidents and / or disasters were evaluated in greater detail. They were evaluated with regard to the likelihood of occurrence and the potential impact.

23. The classification and rating of both the likelihood and the consequence / impact are provided in **Table 32-3** and **Table 32-4**. These classifications and ratings are taken from the DoEHLG (2010) A Guide to Risk Assessment in Major Emergency Management.

Table 32-3 Classification of likelihood (adapted from DoEHLG (2010) guidance and EPA (2022) EIA Guidance

Rating	Classification	Likelihood
1	Extremely unlikely	May occur only in exceptional circumstances; once every 500 or more years.
2	Very unlikely	Is not expected to occur; and / or no recorded incidents or anecdotal evidence; and / or very few incidents in associated organisations, facilities or communications; and / or little opportunity, reason or means to occur; May occur once every 100–500 years.
3	Unlikely	May occur at some time; and / or few, infrequent, random recorded incidents or little anecdotal evidence; some incidents in associated or comparable organisations worldwide; some opportunity, reason or means to occur; May occur once per 10–100 years.
4	Likely	Likely to or may occur; regular recorded incidents and strong anecdotal evidence and will probably occur once per 1–10 years.
5	Very likely	Very likely to occur; high level of recorded incidents and / or strong anecdotal evidence. Will probably occur more than once a year.

Table 32-4 Classification of consequence (adapted from DoEHLG (2010) guidance and EPA (2022) EIA Guidance)

Rating	Classification	Impact	Description
1	Minor	Life, Health, Welfare, Environment, Infrastructure, Social.	• Small number of people affected; no fatalities and small number of minor injuries with first-aid treatment. • No contamination; localised effects. • <0.5M Euros. • Minor localised disruption to community services or infrastructure (<6 hours).
2	Limited	Life, Health, Welfare, Environment, Infrastructure, Social.	• Single fatality; limited number of people affected; a few serious injuries with hospitalisation and medical treatment required. Localised displacement of a small number of people for 6–24 hours. Personal support satisfied through local arrangements. • Simple contamination, localised effects of short duration. • 0.5–3M Euros. • Normal community functioning with some inconvenience.
3	Serious	Life, Health, Welfare, Environment, Infrastructure, Social.	• Significant number of people in affected area impacted with multiple fatalities (<5), multiple serious or extensive injuries (20), significant hospitalisation. Large number of people displaced for 6–24 hours or possibly beyond; up to 500 evacuated. External resources required for personal support. • Simple contamination, widespread effects or extended duration. • 3–10M Euros. • Community only partially functioning, some services available.
4	Very serious	Life, Health, Welfare, Environment, Infrastructure, Social.	• 5 to 50 fatalities, up to 100 serious injuries, up to 2,000 evacuated. • Heavy contamination, localised effects or extended duration. • 10–25M Euros. • Community functioning poorly, minimal services available.
5	Catastrophic	Life, Health, Welfare, Environment, Infrastructure, Social.	• Large numbers of people impacted with significant numbers of fatalities (>50), injuries in the hundreds, more than 2,000 evacuated. • Very heavy contamination, widespread effects of extended duration. • >25M Euros. • Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period. Community unable to function without significant support.

Stage 3: Assessment:

24. In accordance with the DoEHLG's (2010) guidelines, the evaluated major accidents and / or disasters from Stage 2 were subject to a risk matrix to determine the level of significance of each risk for each scenario. These have been grouped according to three categories described below and presented visually in **Table 32-5.**

- The red zone represents 'high risk scenarios', having an evaluated score of 15 to 25.
- The amber zone represents 'medium risk scenarios', having an evaluated score of 8 to 12.
- The green zone represents 'low risk scenarios', having an evaluated score of 1 to 6.

Table 32-5 Impact assessment risk Matrix (DoEHLG (2010), A Guide to Risk Assessment in Major Emergency Management)

Likelihood Rating						
	5 – Very Likely	5	10	15	20	25
	4 – Likely	4	8	12	16	20
	3 – Unlikely	3	6	9	12	15
	2 – Very unlikely	2	4	6	8	10
	1 – Extremely unlikely	1	2	3	4	5
		1 – Minor	**2 – Limited**	**3 – Serious**	**4 – Very Serious**	**5 – Catastrophic**
		Consequence Rating				

25. The IEMA 2020 guidelines recommends that the major accidents and / or disasters assessment focuses on low likelihood but potentially high consequence events. Therefore, for the purposes of this assessment and also to bring this in line with DoEHLG's (2010) guidance, it has been assumed that the Red Zone is high likelihood / high consequence, and the Amber Zone is medium likelihood / high consequence.

26. All major accidents and / or disasters that fall within the Amber or Red Zones ('Medium' or 'High' risk scenarios) were considered to present a risk of significant effects. These risks were brought forward for further consideration and were reassessed, with mitigation measures being applied.

32.5 Stage 1: Initial risk register

32.5.1 Screening

27. **Table 32-6** presents the initial list of risk events considered to meet the criteria of a potential for major accident and / or disaster and therefore require further assessment.

28. Risks were screened at this stage and were removed from the assessment where:

- Risk events are not applicable to a particular geographic location (e.g., volcanic and earthquake activity in Ireland); and
- Risks that have already been assessed in other areas of this EIAR, for example flood risk. These are summarised in **Table 32-6** and the appropriate location within the EIAR is referenced.

Table 32-6 Major accidents and disasters – stage 1 risk register

Risk ID	Category	Risk Event & Consequence	Possible Cause(s)	Requirement for further assessment (meeting the criteria Y / N)	Justification
1	Onshore construction	Flooding of site during construction works, resulting in trench collapses and / or flooding of tunnel shafts.	Coastal / fluvial flooding	N	The potential for flooding risk associated with OTI has been considered within **Chapter 20 Hydrology and Hydrogeology** and within **Appendix 20.2 Site Specific Flood Risk Assessment**. As such, these risks are not considered further within this chapter.
2	Onshore construction	Flooding of site during construction works, resulting in trench collapses and / or flooding of tunnel shafts.	Periods of heavy prolonged rainfall	Y	There is potential for a major accident causing contamination of the water environment or injuries to construction personnel. This risk has been screened through for further consideration.
3	Onshore construction, O&M	Ground / building / structure damage as a result of significant soil settlement.	Settlement caused by underground tunnelling for the onshore export cable installation.	Y	There is potential for a major accident with a building / structure collapse, including the potential for injuries. This risk has been screened through for further consideration.
4	Onshore construction	Major traffic accidents resulting from construction phase traffic or temporary construction traffic management measures.	Heavy Vehicles (HVs) navigating through built up area; Machinery navigating embankment excavation and reinstatement; Driver error – not abiding by potential traffic re-routing or management measures.	Y	Potential for major accident due to increase in traffic and HVs using construction routes and site access points. This risk has been screened through for further consideration.
5	Onshore construction	Contamination of ground or surface water. This is associated with	Heavy rain during construction activities;	N	The potential for contamination of the water environment

Risk ID	Category	Risk Event & Consequence	Possible Cause(s)	Requirement for further assessment (meeting the criteria Y / N)	Justification
		construction works within the onshore development area boundary and the potential to encounter contaminated materials.	Mobilisation of contamination during excavation activities – landfall, underground tunnelling works, cable trenching.		has been considered within **Chapter 20 Hydrology and Hydrogeology**, **Chapter 7 Marine Water Quality** and within **Appendix 19.5 Contamination Risk Assessment**. As such, these risks are not considered further within this chapter.
6	Onshore construction	Construction excavation activities resulting in a trench / excavation collapse and personnel injuries.	Inadequate procedures; Contractor error.	Y	There is potential for fatalities / injuries. This risk has been screened through for further consideration.
7	Onshore construction	Collapse / damage of structures / infrastructure at onshore substation.	Onshore HVs collision; Severe weather.	Y	There is potential for a major accident with a building / structure collapse, including the potential for injuries. This risk has been screened through for further consideration.
8	Onshore construction, O&M	Collapse / damage of structures / infrastructure interacting with marine area at onshore substation.	Vessel collision – interaction with the perimeter structures at the onshore substation site; Severe weather.	Y	There is potential for a major accident with a building / structure collapse, including the potential for injuries. This risk has been screened through for further consideration.
9	Onshore construction, O&M, decommissioning	Lightning strike resulting in fire risk to structures / buildings and / or failure of control equipment.	Major lightning strike to structures during the construction phase; Major lightning strike to the onshore substation buildings and / or electrical equipment during the operation and maintenance phase.	Y	There is potential for a major accident with a building / structure, including the potential for injuries. This risk has been screened through for further consideration.
10	Onshore construction,	Incident at nearby Seveso site (as described in	Fire / explosion or an infrastructure failure	Y	There is potential for a major accident,

Risk ID	Category	Risk Event & Consequence	Possible Cause(s)	Requirement for further assessment (meeting the criteria Y / N)	Justification
	O&M, decommissioning	**Section 32.6.2** below) involving release of dangerous substances.	at a nearby Seveso site.		such as the release of emissions and / or the potential for injuries. This risk has been screened through for further consideration.
11	Onshore construction, O&M, decommissioning	Delay in emergency services accessing an incident at a nearby Seveso site. This could result in a release of dangerous substances or fatalities / injuries.	Construction traffic volumes; Driver error – not abiding by potential traffic re-routing or management measures.	Y	There is potential for a major accident, such as the release of emissions and / or the potential for injuries. This risk has been screened through for further consideration.
12	Onshore & offshore construction, O&M, decommissioning	Collapse / damage of structures / infrastructure.	Earthquake	N	The cause of this risk (earthquake) is not considered applicable to this geographic location. As such, this risk is not considered further within this chapter.
13	Offshore construction, decommissioning	Sinking / flooding of plant or machinery in intertidal area.	Unsuitable ground conditions / contractor error in the construction of project infrastructure; Periods of prolonged heavy rainfall.	Y	There is potential for a major accident, such as contamination of the intertidal area & also the potential for injuries. This risk has been screened through for further consideration.
14	Offshore construction, decommissioning	Unexploded ordnance (UXO) resulting in damage to infrastructure and / or fatalities / injuries.	Detonation during construction / drilling phase.	Y	There is potential for damage to infrastructure and / or fatalities / injuries during the construction phase. This risk has been screened through for further consideration.
15	Onshore & offshore construction, decommissioning	Striking of gas infrastructure resulting in gas explosion and / or fatalities / injuries.	Interaction with unknown gas infrastructure; Contractor error at gas pipeline crossing.	Y	During the construction phase there is risk of encountering gas infrastructure which

Risk ID	Category	Risk Event & Consequence	Possible Cause(s)	Requirement for further assessment (meeting the criteria Y / N)	Justification
					could result in fatalities / injuries. This risk has been screened through for further consideration.
16	Onshore & offshore construction, decommissioning	Striking strategic infrastructure resulting in damage & also disruption to services.	Interaction with unknown strategic underground services (such as power, water & telecommunications); Contractor error at crossing locations.	Y	During the construction phase there is risk of encountering strategic infrastructure which could result in significant prolonged disruptions. This risk has been screened through for further consideration.
17	Onshore & offshore construction, decommissioning	Striking strategic infrastructure, resulting in injuries (electrical shock).	Faulty equipment or procedures; Contractor error.	Y	During the construction phase there is risk of encountering electrical infrastructure which could result in injuries. This risk has been screened through for further consideration.
18	Offshore construction, O&M, decommissioning	Vessel collision & allision risk resulting in damage to offshore array infrastructure and / or injuries.	Equipment failure; Other Vessels; Crew error.	N	The potential for collision risk is considered in **Chapter 16 Shipping and Navigation** and within **Appendix 16.3 Navigational Risk Assessment**. As such, these risks are not considered further within this chapter.
19	Offshore construction, O&M	Snagging risk – commercial fisheries.	Commercial fishing vessels.	N	This is considered in **Chapter 12 Commercial Fisheries**. As such, these risks are not considered further within this chapter.

Risk ID	Category	Risk Event & Consequence	Possible Cause(s)	Requirement for further assessment (meeting the criteria Y / N)	Justification
20	Offshore construction, O&M	Pollution of the marine environment (vessels).	Project associated vessels; Equipment failure; Crew error.	N	This is considered **in Chapter 7 Marine Water Quality**. As such, these risks are not considered further within this chapter.
21	Offshore construction, O&M	Pollution of the marine environment (structures).	Failure of project infrastructure.	N	This is considered in **Chapter 7 Marine Water Quality**. As such, these risks are not considered further within this chapter.
22	O&M	Collision risk resulting in damage to infrastructure and / or injuries.	Low flying planes.	N	The potential for collision risk is considered in **Chapter 17 Aviation Military and Radar**. As such, these risks are not considered further within this chapter.
23	Offshore construction, O&M	Fire at wind turbines during construction / operation phase resulting in damage to infrastructure and / or injuries.	Lightning strike; Equipment failure.	Y	There is potential for lightning strike resulting in damage to infrastructure and / or injuries. This risk has been screened through for further consideration.
24	Offshore construction, O&M	Subsea ground instability resulting in damage to infrastructure and / or injuries.	Sloped ground; Weak / eroded bedrock; Water inflow.	Y	There is potential for damage to infrastructure and / or injuries. This risk has been screened through for further consideration.
25	Onshore construction	Collapse / damage of structures / infrastructure at Ringsend WWTP resulting in damage to infrastructure and contamination of waters.	Inadequate procedures; Contractor error; Underground tunnelling works.	Y	There is potential for a major accident, such as the release of contaminated water and / or the potential for injuries. This risk has been screened through for further consideration.

29. Risks **2**, **3**, **4**, **6**, **7**, **8**, **9**, **10**, **11**, **13**, **14**, **15**, **16**, **17**, **23**, **24** and **25** were considered to meet the potential of a major accident and / or disaster and require further assessment relative to the CWP Project.

30. From the above screening process, risks **1, 5, 12, 18, 19, 20, 21** and **22** were screened out based on the criteria outlined in Paragraph 20 and 21.

32.6 Baseline environment overview

32.6.1 Onshore Baseline

31. The risk events considered to meet the criteria of a potential for major accident and / or disaster and therefore require further assessment predominantly relate to the OTI and the surrounding environment on Poolbeg Peninsula. A summary of the baseline environment is provided in this section, focusing on aspects relevant to the risk of major accidents and natural disasters.

Poolbeg Peninsula

32. The OTI for the CWP Project will be located on the Poolbeg Peninsula, an area of land which has gradually been reclaimed over the years. The Peninsula is situated on the east side of Dublin City, on the eastern Docklands, adjacent to the River Liffey, and east of the River Dodder and Grand Canal Dock.

33. The area is characterised by heavy industrial development including port facilities (including berthing, docking and storage), shipping activities, wastewater treatment and thermal waste treatment. In terms of land use, CORINE 2018 mapping (EPA Geoportal, 2023) identifies the area as land type 121 Artificial Surfaces – industrial, commercial and transport units.

34. There is a network of public and private roads across the peninsula, and areas of car parking at the eastern end of the peninsula to service recreational activities in the area, such as the Great South Wall, beach access and sea swimming.

35. The peninsula currently has very few residents and community facilities are primarily associated with open space and recreation. Nearby Ringsend, Irishtown and Sandymount are established residential communities and contain schools and community facilities.

36. The landfall location borders the South Dublin Bay Special Area of Conservation (SAC), and South Dublin Bay and River Tolka Estuary Special Protection Area (SPA). This is where the offshore export cables will be brought onshore through the intertidal area, to a location where they are connected to the onshore export cables.

37. The onshore substation site is currently largely unused land on the southern bank of the River Liffey, reclaimed by Dublin Port Company (in the late 1990/ early 2000's) and surrounded on three boundaries by water and then by a mixture of industrial uses. Immediately to the south the site is the Ringsend Waste Water Treatment Plant and Pigeon House Road, beyond which lies the Irishtown Nature Park and Dublin Bay.

COMAH (Seveso) establishments

38. Due to the nature of the Poolbeg Peninsula, a number of fuel and chemical storage facilities are present within the vicinity of the OTI. These are designated as COMAH (Control of Major Accident Hazards) (Seveso) establishments.

39. These establishments are designated as such as they pose an identified risk to public and environmental health and safety and are regulated by the Health and Safety Authority (HSA). COMAH establishments are categorised in two tiers – Upper Tier and Lower Tier – depending on their activity.

40. The HSA advises planning authorities on the 'consultation distance' relating to each known COMAH establishment, in order to inform their forward planning and development management activities. These 'consultation distances' are the identified distances around an establishment, within which there are potentially significant consequences from major accidents to people (or to the environment).

41. The HSA needs to be informed of any planning applications for development located within these specified consultation distances. The HSA will then provide technical advice which must be taken into account in the consideration of planning applications.

42. The Dublin City Development Plan 2022–2028 (hereafter referred to as the 'DCC CDP') outlines the consultation distances associated with each COMAH establishment located within its functional area. COMAH establishments (and associated consultation distances in metres (m)) present in the vicinity of the OTI include:

- Lower Tier:
    - Iarnród Eireann, Dublin Port, Alexandra Road, Dublin Port, Dublin 1 (300 m from perimeter);
    - Synergen t/a ESB Dublin Bay Power, Pigeon House Road, Ringsend Dublin 4 (300 m from perimeter);
    - ESB, North Wall Generating Station, Alexandra Road, Dublin 1 (300 m from perimeter);
    - Circle K / Fareplay Energy Ltd., Terminal 1, Alexandra Road, Dublin Port, Dublin 1 (400 m from perimeter); and
    - Circle K / Fareplay Energy Ltd., Yard 3, Alexandra Road, Dublin Port, Dublin 1 (300 m from perimeter).
- Upper Tier:
    - Calor Teoranta, Tolka Quay Road, Dublin Port, Dublin 1 (600 m from perimeter);
    - Circle K Ireland Holding Limited, Promenade Road, Dublin Port, Dublin 3 (400 m from perimeter);
    - Indaver Ireland Ltd., Tolka Quay Road, Dublin Port, Dublin 1 (700 m from perimeter);
    - Tedcastles Oil Products, Yard 1, Promenade Road, Dublin Port, Dublin 1 (400 m from perimeter);
    - Tedcastles Oil Products, Yard 2, Tolka Quay Road, Parish of St. Thomas, Dublin Port, Dublin 1 (400 m from perimeter);
    - The National Oil Reserves Agency Ltd., Shellybanks Road (off Pigeon House Road), Ringsend, Dublin 4 (300 m from perimeter);
    - The National Oil Reserves Agency Ltd., National Oil Reserves Agency Poolbeg Tank Farm, Pigeon House Road, Dublin 4 (300 m from perimeter); and
    - Valero Energy Ireland Ltd., Alexandra Road, Dublin Port, Dublin 1 (400 m from perimeter).

43. Of these present COMAH establishments, the CWP Project falls within the consultation distance of three establishments, as listed below:

- Synergen Ltd. t/a ESB Dublin Bay Power, Pigeon House Road, Ringsend Dublin 4 (Lower Tier);
- The National Oil Reserves Agency Ltd., Shellybanks Road (off Pigeon House Road), Ringsend, Dublin 4 (Upper Tier); and
- The National Oil Reserves Agency Ltd., National Oil Reserves Agency Poolbeg Tank Farm, Pigeon House Road, Dublin 4 (Upper Tier).

Major infrastructure

44. No major onshore transportation infrastructure services (such as major transport routes or infrastructure (e.g., rail, tram, cycleways) are present within the onshore development area or the Poolbeg Peninsula.

45. Dublin Port and associated ferry, ship and container terminals (operators including Irish Ferries, Stena Line, P&O and Marine Terminals (MTL)) are situated on the north and south banks of the River Liffey, at varying distances, to the north, northeast and east, to the OTI. A number of routes operate out of Dublin Port, including to the United Kingdom and France.

46. Impacts / effects on transportation services (including sea travel) are addressed in **Chapter 27 Traffic and Transport** and **Chapter 16 Shipping and Navigation**.

Built services

47. Underground utility assets are significant in the area given that the location has two power generating stations, storage sites for national oil reserves, waste management infrastructure and wastewater treatment including discharge channels. Some above ground utility cabling remains in the area; however, the majority of services are underground.

48. Utilities and services present within the onshore development area have been identified and reviewed, and the methodologies required to avoid these utilities and services has been developed (i.e., tunnelling and Horizontal Directional Drilling (HDD)). Furthermore, impacts / effects on built services in the vicinity of the OTI and landfall are addressed in **Chapter 26 Material Assets: Built Services** of this EIAR.

Waste and industrial licensed facilities

49. A number of EPA licensed (Industrial Emissions (IE) Licence / Integrated Pollution Control (IPC) / Waste) facilities are present in the vicinity of the onshore development area and Poolbeg Peninsula, including:

IE / IPC Licence Holders:

- P0577 – Electricity Supply Board (ESB), Poolbeg Generating Station, Pigeon House Road, Ringsend, Dublin 4, Dublin;
- P1002 – The Hammond Lane Metal Company Limited, Pigeon House Road, Dublin 4, Dublin;
- P0486 – Synergen Power Limited, Pigeon House Road, Ringsend, Dublin 4, Dublin;
- P1022 – Dublin Port Company, Port Centre, Alexandra Road, Dublin 1, Dublin;
- P0579 – Electricity Supply Board (ESB) North Wall Generating Station, Alexandra Road, Dublin 1, Dublin; and
- P0086 – Irish Tar & Bitumen Suppliers, Alexandra Road, Dublin 1, Dublin.

Waste Licence Holders:

- W0036 – Indaver Ireland Limited Dublin Port, Dublin 1, Dublin; and
- W0232 – Dublin Waste to Energy Limited, Pigeon House Road, Poolbeg Peninsula, Dublin 4, Dublin.

Natural and geohazards (including flooding)

50. Ireland's geographical location means it is typically less vulnerable to extreme natural hazards and disasters such as tsunamis or earthquakes, which may pose a risk to projects, particularly those situated on the coast. However, it should be noted that in recent years Ireland has experienced an increase in the occurrence of severe weather events, such as those leading to flooding events.

51. Latest Research from the EPA and Met Éireann regarding New Climate Projections (2020)[1] for Ireland indicate the predicted changes in Ireland's climate (mid-century projections 2040–2061), including:

- *'Temperatures are projected to increase by 1–1.6°C compared with the reference period (1981–2000), with an east–west gradient and with the largest increases in the east;*
- *Warming will be enhanced at the extremes, with summer daytime and winter night-time temperatures projected to increase by 1–2.4°C;*
- *The number of frost and ice days will decrease by approximately 50%;*
- *Summer heatwave events are expected to occur more frequently;*
- *Precipitation is expected to become more variable, with substantial projected increases in the occurrence of both dry periods and heavy precipitation events;*
- *Snowfall is projected to decrease substantially across the country;*
- *Specific humidity is projected to increase substantially, while relative humidity is projected to increase slightly for all seasons except summer;*
- *Mean 10-m wind speeds are projected to decrease for all seasons;*
- *An overall reduction of ~10% in the numbers of storms affecting Ireland, with an eastward extension of the more severe wind storms over Ireland and the UK'.*

52. In terms of sea level rise, the EPA (2020)[2] states that *'Globally sea levels have been rising at an average rate of approximately 3 mm per year between 1980 and 2010. Sea level is projected to continue to rise at this rate or greater. All major cities in Ireland are in coastal locations subject to tides, any significant rise in sea levels will have major economic, social and environmental impacts. Rising sea levels around Ireland would result in increased coastal erosion, flooding and damage to property and infrastructure'.*

53. Regarding flooding, information on flood risk relevant to the OTI is provided in EIAR **Chapter 20 Hydrology and Hydrogeology** and associated **Appendix 20.2 Site Specific Flood Risk Assessment** (SSFRA).

54. In terms of geohazards, the GSI online database provides records of landslide events, and indicates no records of events within the Poolbeg Peninsula area.

55. A review of the Ordnance Survey Ireland (OSI) historical maps (OSI, 2022) shows that the area has been developed from a large strand area comprising of a small portion of developed land, sand banks and historical rivers and lakes. Over time, Poolbeg Peninsula was developed by reclaiming land and industrial activities became commonplace in the area. Due to the historic uses and the reclaimed nature of Poolbeg Peninsula, there is potential for contaminated material to be encountered during the construction phase.

56. According to the site investigation (SI) completed for the CWP Project, the soils at the landfall, onshore export cable and onshore substation consist of made ground. Made ground across the site is up to 7.0 meters below ground level (mbgl) and described as light grey to greyish brown silty sand and gravel with brick and shell fragments, root and rootlets and occasional concrete and plastic pieces. The SI data also indicates that material at the onshore substation site is predominantly C&D (concrete, brick, timber) and material at the landfall area is made up of domestic and light industrial waste (paper,

[1] https://www.met.ie/epa-climate-projections-2020
[2] https://www.met.ie/climate/climate-change

newspaper, plastic, bottles, timber). Further information on the potential for contaminated land in the area is outlined in EIAR **Chapter 19 Land, Soils and Geology** and **Appendix 19.5 Contamination Risk Assessment**.

32.6.2 Offshore Baseline

Local Bathymetry

57. Geophysical surveys conducted in 2013 (Osiris Projects, 2013) indicate that water levels within the array site varies between -28 m and -6 m relative to the Lowest Astronomical Tide (LAT). The deeper water levels are observed towards the southeast, with shallower water depths observed towards the northeast. The central part of the array site generally sits at depths between -15 mLAT and -18 mLAT; towards the west boundary, however, a large depression (the deepest region within the array site) is observed with depths reaching -28 mLAT. The east part of the array site sits at the edge of the Codling deep, a topographic depression on the seabed with depths that reach -120 mLAT.

Solid Geology

58. The bedrock at the southern end of the site consists of sandstones, siltstones, mudstones, and coals of Westphalian (carboniferous) age. Towards the north, these are expected to grade initially into sandstones of the Sherwood Sandstone Formation, and then into Triassic age bedrock (including: mudstones, siltstones and halites of the Mercia Mudstone Group). This bedrock is overlain mainly by stiff clay glacial deposits, with silt, sand and gravels of Pleistocene age. These glacial deposits in turn are overlain by the more recent deposits comprising gravelly sands.

59. A seismic reflection survey was performed as part of the 2013 and 2021 survey. The results indicated that a layer of Holocene sediments persists across the array site, this layer is thickest where sandwaves have been observed, with an average thickness in these areas of circa 4.0 to 6.0 m. In areas where smaller bedforms (i.e., megaripples) are observed, the thickness of the Holocene layer is between 1.0 to 2.0 m. Comparatively, in areas of the seabed devoid of bedforms, the Holocene layer exists only as a veneer, with a thickness of less than 1.0 m.

60. Seabed sediments within the planning application boundary are dominantly comprised of sand (>80% of the total area; Osiris Projects, 2013), with areas comprising a veneer of finer grained sands (<0.5 m thick) over a broad expanse of sandy gravels. Several isolated areas of boulders and cobbles were observed.

Built Services

61. The review of datasets identified several offshore material assets within the study area. Namely, the review identified:

- Subsea utilities (cables and pipelines) – numerous operational and out-of-service cables / pipelines;
- Oil and gas licensed exploration areas – several licences issued for oil and gas exploration and production off the coast of Dublin and Wicklow;
- Marine aggregates and disposal sites (including dredging) – an area of sand identified as having potential for marine aggregate extraction;
- Renewable energy (wind, wave and tidal) – the site of an operational offshore wind farm (OWF) and proposed OWFs (in concept / early planning); and

- TV and radio reception – broadcast from transmitters most likely serving the urban areas closest to the CWP Project.

62. Information relevant to offshore built services is provided in EIAR **Chapter 18 Material Assets – Marine Infrastructure**.

32.7 Stage 2: Risk classification

63. **Table 32-7** presents risks **2**, **3**, **4**, **6**, **7**, **8**, **9**, **10**, **11**, **13**, **14**, **15**, **16**, **17**, **23**, **24** and **25** that were brought forward for further consideration. In stage 2, these risks are assigned a consequence and likelihood rating to determine their risk score.

64. Risks adequately covered by another assessment or that are not applicable in terms of geographic location (e.g., volcanic and earthquake activity in Ireland) were not brought forward to this stage and not assigned a rating.

32.7.1 Consideration of primary mitigation measures

65. Throughout the evolution of the CWP Project, measures have been adopted as part of the evolution of the project design and approach to construction, to avoid or otherwise reduce adverse impacts on the environment. These mitigation measures are referred to as 'primary mitigation'. They are an inherent part of the CWP Project and are effectively 'built in' to the roject and to the assessment of risk of major accidents and / or disasters at this stage.

Construction Environmental Management Plan

66. For the purposes of the assessment of risk of major accidents and / or disasters, the **Construction Environmental Management Plan (CEMP)**, as an overarching framework for environmental management during the construction of the CWP Project, is included as a primary mitigation measure.

67. The **CEMP** sets out an overview of the anticipated Environmental Management Framework, roles and responsibilities and reporting procedures that will be employed by the eveloper in order to manage environmental and health and safety risks during the construction of the CWP project.

68. In undertaking construction of the CWP Project, contractors and their subcontractors will ensure compliance with all relevant environmental and maritime legislation and that all necessary licences and permissions are obtained.

69. Furthermore, prior to construction of the CWP Project, contractors and subcontractors, as appropriate, will be expected to provide both Method Statements and Risk Assessments for required construction activities. Construction activities requiring Method Statements and Risk Assessments will be identified using a risk-based approach, but as a minimum will include onshore and offshore site preparation works and onshore and offshore installation activities.

70. Method Statements will be reviewed by the Development Manager EPCI Director, Package Project Managers, Heath Safety, Security and Environment (HSSE) Manager and, where necessary, the Consent Manager to ensure that relevant legislation is adhered to, good working practice is applied throughout the construction process and environmental commitments of the EIAR and project consent are complied with.

71. Risk assessments will include as a minimum:

- General site information, including location, grid reference and site plan;

- Hazards identified and risk assessment undertaken including:
    - Type or risk;
    - Risk rating assessed (High, Medium, Low);
    - Identified control / risk management measures; and
    - Assessment of residual risk.
- Contact details, including HSSE Manager, relevant project personnel, contractors and subcontractors and any third parties such as landowner or regulatory authorities; and
- Emergency services contact details and information on nearest welfare facilities.

72. It is also detailed in the **CEMP** that the appointed contractor(s) will be responsible for developing a detailed Emergency Response and Cooperation Plan (ERCoP) for the onshore construction works, to cover health and safety emergencies as well as environmental emergencies, as part of the H&S Plan.

73. Within the **CEMP** there are several 'additional' mitigation measures which are included to manage and to mitigate environmental effects specific to the CWP Project, as identified within the EIAR and **Natura Impact Statement** (NIS). For the purposes of the assessment of risk of major accidents and / or disasters, these additional mitigation measures are considered as part of the **CEMP** and are therefore treated in this assessment as primary mitigation measures (i.e., they are effectively 'built in' to the assessment at this stage).

74. For example, with regard to the potential for pollution of the surrounding environment, the **CEMP** incorporates measures to prevent the immediate discharge of contaminated water and sediment (such as rainwater that may collect in excavations) from the onshore construction works.

75. Additional mitigation measures that are identified to specifically address the potential for significant effects in the context of risk of major accidents and / or disasters are presented in Stage 3: Reclassification of risks following the implementation of additional mitigation measures (see Section 32.8).

Traffic Management Plan

76. The Traffic Management Plan (**Appendix 27.2** of EIAR **Chapter 27 Traffic and Transport**) contains the control measures and monitoring procedures for managing the potential traffic and transport impacts of constructing the CWP Project. The TMP contains the traffic management measures to be undertaken at site access / egress locations during the construction phase of the OTI and on the approaches to such access / egress locations.

77. The following is a summary of some of the measures addressed in the CTMP:

- Monitoring of construction phase traffic to ensure construction vehicles are using the designated haul route;
- Maintenance and servicing requirements for construction vehicles and plant;
- Scheduling of deliveries to the onshore development area;
- Requirements for any temporary traffic management measures; and
- Emergency procedures during the construction phase.

78. The appointed contractor(s) will adopt the TMP in consultation with the Applicant, local authority and relevant stakeholders. This will include agreeing and implementing an appropriate way of monitoring the effectiveness of the plan. All project staff and material suppliers will be required to adhere to the TMP. Inspections / spot checks will also be carried out by the appointed contractor to ensure that all project staff and material supplies follow the agreed measures adopted in the CTMP.

79. As with the CEMP, for the purposes of the assessment of risk of major accidents and / or disasters, the TMP is included as a primary mitigation measure.

Underground services (onshore)

80. With regards to the protection of other underground services within the onshore development area, the following primary mitigation measures are accounted for in the risk assessment below:

- The onshore export cable and ESBN network cable installation methods (i.e., underground tunnelling and HDD) have been selected / designed in order to mitigate by avoidance impacts on existing below ground infrastructure identified within the onshore development area.
- Measures to avoid or otherwise minimise impacts to existing utility asset owners / service providers within the onshore development area are described in the CEMP.
    - Prior to the commencement of the project and construction phase, there will be engagement with all utility asset owners / service providers.
    - Utility assets / services (underground and overhead) will be identified and clearly marked prior to any pre-construction (site clearance) / construction / demolition activity occurring.
    - Any proposed building works will require a minimum clearance distance of 1 m either side of electrical cables.
    - No excavations will take place without prior consultation with relevant utility asset owners / service providers.
    - Prior to any mechanical excavation taking place, ESBN will be consulted with and the exact locations of all underground electricity cables established and verified.
    - All works undertaken in the vicinity of underground assets will be carried out in accordance with current HSA guidance, namely the HSA 'Code of Practice for Avoiding Danger from Underground Services'.
    - All works will be undertaken with in accordance with the exclusion and safe operating distances around electricity infrastructure as set out in the ESB Code of Practice, as well as HSA guidance including the 'Code of Practice for Avoiding Danger from Overhead Electricity Lines'.
    - Liaison with asset owners / service providers will continue / be ongoing as required throughout the construction phase.
- Appropriate decommissioning methodologies will be selected / designed in order to mitigate by avoidance any impacts on infrastructure identified within the onshore development area. Consultation with existing utility asset owners, approval of crossing / diversion agreements prior to decommissioning and adherence with relevant legislation and guidance at the time of decommissioning will be required.

81. For the purposes of the assessment of risk of major accidents and / or disasters, these measures are included as a primary mitigation in relation to risks 15, 16 and 17.

Other marine infrastructure (offshore)

82. With regards to the protection of other marine infrastructure, the following primary mitigation measures are accounted for in the risk assessment below:

- WTGs and OSSs have been positioned to take account of the confirmed position of existing subsea infrastructure.
- A pre-construction geophysical survey will be undertaken to verify the location of existing subsea infrastructure.
- Consultation and liaison will be undertaken with asset owners and other energy infrastructure operators, as required. This is proposed to promote and maximise cooperation between parties and minimise spatial and temporal interactions between simultaneous activities.
- The CWP Project offshore export cables will cross a number of existing assets. Where the existing assets' depth of burial is sufficiently deep, the offshore export cable will be laid directly on the seabed. However, where the existing asset is too shallow, additional protection will be required to

protect both the existing asset and the CWP Project offshore export cables. It is likely that concrete mattress will be placed over the existing asset, which is known as a separation layer. The offshore export cable will then be laid across this at an angle as close to 90 degrees as possible. The export cable will then be covered by a second mattress to secure the cables in place and ensure that they remain protected.
The design and methodology of these crossings will be confirmed in agreement with the asset owners. Furthermore, the cable protection at cable crossings will be inspected during the life of the project and may need to be replenished with additional protection, depending on their condition.

- Consultation with existing cable operators, approval of cable crossing agreements prior to decommissioning and adherence with relevant legislation and guidance at the time of decommissioning will be required to ensure that cable crossings are appropriately designed to mitigate environmental effects and damage to existing operational cables.

Table 32-7 Major accidents and disasters – risk classification

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
2	Onshore construction and decommissioning	Flooding of site during construction works, resulting in trench collapses and / or flooding of tunnel shafts.	Periods of heavy prolonged rainfall.	The SSFRA for the CWP Project indicates that the onshore development area is not considered at risk from pluvial flooding. Regardless, during the construction phase the appointed contractor(s) will be required to assess the potential risk of flood inundation and to submit proposals to the Applicant for approval. The risk will be managed through: 1. Programming of construction activities, to take account of significant weather events; 2. Ensuring that any excavations and tunnel shafts are physically protected from the inundation of rainfall. Also, as detailed in the CEMP, the appointed contractor(s) will be responsible for developing a detailed Emergency Response and Cooperation Plan (ERCoP) for the onshore construction works, to cover health and safety emergencies as well as environmental emergencies, as part of the H&S Plan.	3 – Unlikely	2 – Limited	6 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be brought forward for further consideration.

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
3	Onshore construction and decommissioning	Ground / building / structure damage as a result of significant soil settlement.	Settlement caused by underground tunnelling for the onshore export cable installation.	The construction of the tunnel and shafts may lead to some settlement of the ground above the tunnel. Specialist tunnelling contractors with a proven track record in delivering work of the scope required by the works will be appointed. In advance of construction, further ground investigations will take place for the length of the tunnel. This will further inform existing ground information and ground models for the area. The appointed contractor(s) will implement good tunnelling practice to mitigate the potential for settlement impacts. These would include continuous working once the tunnelling operations commence, management of tunnel face pressure, groundwater control, spoil volume control and monitoring of ground levels above the tunnel throughout the tunnelling operation. Assessments to address the potential sensitivity of services in proximity to the tunnel will be undertaken in advance of the tunnel construction	3 – Unlikely	2 – Limited	6 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be brought forward for further consideration.

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
				commencing. Any required measures to support built services during tunnelling will be consulted on and agreed with the relevant utility service providers.				
4	Onshore construction and decommissioning	Major traffic accidents resulting from construction phase traffic or temporary construction traffic management measures.	- HVs navigating through built up area; - Machinery navigating embankment excavation and reinstatement; - Driver error – not abiding by potential traffic re-routing or management measures.	The appointed contractor(s) will undertake construction activities in accordance with the relevant health and safety legislation and under the supervision of a health safety advisor. They will be required to develop and implement their own Environmental Management Plans (EMPs), compliant with the TMP, which will set out roles and responsibilities including how they will coordinate construction activities to manage risks associated with the movement of HV's. It is noted that there is a five-axle cordon implemented by DCC, in the vicinity of the onshore development area. The haul route for the construction HV movements will be via the M50, Dublin Tunnel and East Link Toll to / from the onshore development area i.e., directly away from residential and community areas.	3 – Unlikely	2 – Limited	6 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be brought forward for further consideration.

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
6	Onshore construction and decommissioning	Construction excavation activities resulting in a trench / excavation collapse and personnel injuries.	Inadequate procedures; Contractor error.	The appointed contractor(s) will undertake construction activities in accordance with the relevant health and safety legislation and under the supervision of a health and safety advisor. Prior to construction of the CWP Project, contractors and subcontractors, as appropriate, will be expected to provide Method Statements for required construction activities, including works involving trenches and large excavations. The Method Statements will contain necessary measures to manage risks associated with excavation and trench collapse.	2 – Very unlikely	2 – Limited	4 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be brought forward for further consideration.
7	Onshore construction and decommissioning	Collapse / damage of structures / infrastructure at onshore substation.	Onshore HV collision; Severe weather.	The appointed contractor(s) will undertake construction activities in accordance with the relevant health and safety legislation and under the supervision of a health and safety advisor. Prior to construction of the CWP Project, contractors and subcontractors, as appropriate, will be expected to provide Method Statements for required construction activities, including works involving the installation (and removal) of above ground structures. The Method	2 – Very unlikely	3 – Serious	6 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be brought forward for further consideration.

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
				Statements will contain necessary measures to manage risks associated with structural damage / collapse. **Onshore HVs** During the construction phase, the potential for HV collisions at the onshore substation site will be minimised by the implementation of a one-way access system. The access to the onshore substation and Compound C will be via the new temporary access road off the Pigeon House Road. The egress point will be the bridge over the cooling water channel to the west of the onshore substation and turning right onto the Pigeon House Road. **Severe weather** During the construction phase the appointed contractor(s) will be required to assess the potential risk of severe weather events, such as storm events, and to submit proposals to the Applicant for approval. The risk will be managed through: 1. Programming of construction activities, to				

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
				take account of significant weather events; 2. Securing any loose materials; and 3. Checking building components are appropriately anchored and inspected before and after the storm event.				
8	Onshore construction, O&M and decommissioning	Collapse / damage of structures / infrastructure at onshore substation.	Vessel collision – interaction with the perimeter structures at the onshore substation site.	All vessels operating within the Liffey Estuary, proximate to the onshore substation, will be operating in compliance with navigation requirements of the Dublin Port Harbour Master and port services. The likelihood of an interaction with the perimeter structure is considered very low. Furthermore, the perimeter at the onshore substation has been designed to incorporate upgraded revetements and coastal retaining walls. These structures will provide a level of defence from potential vessel collision. The proposed Dublin Port Company (DPC) 3FM Project ship turning circle has also been accounted for in the onshore substation site design. Refer to EIAR **Chapter 4 Project Description** for further details.	2 – Very unlikely	3 – Serious	6 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be brought forward for further consideration.

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
9	Onshore construction, O&M and decommissioning	Lightning strike resulting in fire risk to structures / buildings and / or failure of control equipment.	Major lightning strike to structures during the construction phase; Major lightning strike to the onshore substation buildings and / or electrical equipment during the operation and maintenance phase.	Lightning rods will be provided on the top of each of the buildings at the onshore substation. These will protect the buildings from potential lightning strikes during the operational and maintenance phase. All onshore substation buildings will be designed and constructed to meet the requirements of Part B (Fire Safety) of the Building Regulations 2012 (S.I. No. 138 of 2012). This will include sprinkler and electrical fire suppression systems in the onshore substation buildings. Furthermore, subject to final approval by Uisce Éireann, it is proposed that the onshore substation site will be supplied by a new 200 mm watermain which will be supplied from an existing 300 mm watermain. Smaller service connections will be taken from this pipeline to supply the buildings, while the watermain will be looped around the compound to provide an emergency supply for firefighting.	2 – Very unlikely	2 – Limited	4 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be brought forward for further consideration.

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
10	Onshore construction, O&M and decommissioning	Incident at nearby Seveso site involving release of dangerous substances.	Fire / explosion or an infrastructure failure at a nearby Seveso site.	None	3 – Unlikely	3 – Serious	9 – Medium	**Y**
11	Onshore construction and decommissioning	Delay in emergency services accessing an incident at a nearby Seveso site. This could result in a release of dangerous substances or fatalities / injuries.	Construction traffic volumes; Driver error – not abiding by potential traffic re-routing or management measures.	The appointed contractor(s) will undertake construction activities in accordance with the relevant health and safety legislation and under the supervision of a health and safety advisor. They will be required to develop and implement their own TMP, which will be compliant with the TMP included as part of this planning application. The TMP will set out roles and responsibilities, including how they will coordinate construction activities to manage risks associated with the movement of HV's.	3 – Unlikely	3 – Serious	9 – Medium	**Y**
13	Offshore construction and decommissioning	Sinking / flooding of plant or machinery in intertidal area. This could result in a release of dangerous substances or fatalities / injuries.	Unsuitable ground conditions / contractor error in construction of project infrastructure; Inundation due to incoming tide.	The appointed contractor(s) will undertake construction activities in accordance with the relevant health and safety legislation and under the supervision of a health and safety advisor. Prior to construction of the CWP Project, contractors and subcontractors, as appropriate, will be expected to provide Method Statements for required	3 – Unlikely	3 – Serious	9 – Medium	**Y**

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
				construction activities, including works within the intertidal area. Also, as set out in EIAR **Chapter 4 Project Description**: • A temporary cofferdam is proposed to provide a protected working area for installation of the landfall cable ducts within the intertidal area; and • A separate raised equipment storage platform or barge may also be anchored within the transition zone to enable the storage of land-based plant and equipment during high water. This will enable transition zone plant and equipment to be kept on site during the high water cycle, reducing the number of trips to and from the main compound for storage.				
14	Offshore construction and decommissioning	Unexploded ordnance (UXO) resulting in damage to infrastructure and / or fatalities / injuries.	Detonation during construction phase.	Pre-construction UXO surveys will be carried out once the location of all offshore infrastructure is confirmed. If UXOs are found, they are either avoided, removed or detonated in situ.	3 – Unlikely	2 – Limited	6 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be brought forward for further consideration.

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
				The appointed contractor(s) will also undertake construction activities in accordance with the relevant health and safety legislation and under the supervision of a health and safety advisor.				
15	Onshore and offshore construction and decommissioning	Striking of gas infrastructure resulting in gas explosion and / or fatalities / injuries.	Interaction with unknown gas infrastructure; Contractor error at gas pipeline crossing.	See relevant mitigations provided above for protection of underground services (onshore) and other marine infrastructure (offshore). The appointed contractor(s) will also undertake construction activities in accordance with the relevant health and safety legislation and under the supervision of a health and safety advisor.	2 – Very unlikely	3 – Serious	6 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be brought forward for further consideration.
16	Onshore and offshore construction and decommissioning	Striking strategic infrastructure resulting in damage & also disruption to services.	Interaction with unknown strategic underground services (such as power, water & telecommunications); Contractor error at crossing locations.	See relevant mitigations provided above for protection of underground services (onshore) and other marine infrastructure (offshore). The appointed contractor(s) will also undertake construction activities in accordance with the relevant health and safety legislation and under the supervision of a health and safety advisor.	2 – Very unlikely	3 – Serious	6 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be brought forward for further consideration.

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
17	Onshore and offshore construction and decommissioning	Striking strategic infrastructure, resulting in injuries (electrical shock).	Interaction with unknown electrical underground services; Faulty equipment or procedures; Contractor error.	See relevant mitigations provided above for protection of underground services (onshore) and other marine infrastructure (offshore).	2 – Very unlikely	2 – Limited	4 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be brought forward for further consideration.
23	Offshore construction, O&M and decommissioning	Fire at wind turbines and / or offshore substations during construction / operation phase resulting in damage to infrastructure and / or injuries.	Lightning strike; Equipment failure.	Lightning protection systems are embedded into the design of the OSSs and all WTG models under consideration. In the event of a fire occurring at the turbines or OSSs, there will be measures in place to reduce the risk of personnel injury or to the environment. These measures would include: 1. The incorporation of fire detection / alarm systems on the turbines and OSSs. 2. The OSSs will be installed with fire suppression equipment. 3. The implementation of emergency response procedures for each phase of the project.	2 – Very Unlikely	2 – Limited	4 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be brought forward for further consideration.
24	Offshore construction, O&M and decommissioning	Subsea ground instability resulting in damage to infrastructure and / or injuries.	Sloped ground; Weak / eroded bedrock;	Positions of WTGs and OSSs have been informed by a wide range of site specific data, including geophysical and	2 – Very Unlikely	2 – Limited	4 – Low	**N:** the primary mitigation measures ensure that the risk does

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
			Water inflow.	geotechnical survey data. For example, a paleochannel (the remnants of a river or stream channel that flowed in the past) in the centre west of the array site has been avoided. This area has an increased potential for soft, unstable ground conditions. A Limit of Deviation (LoD) in the form of a 100 m buffer from the centre point of each WTG and OSS location is proposed to take account of additional ground condition data acquired during pre-construction geotechnical surveys and results from pre-construction offshore UXO surveys; The WTG and OSS foundations have also been carefully designed to ensure infrastructure stability over the lifetime of the project. This includes scour protection around the monopile foundation to ensure that scour does not affect the stability or integrity of the structure.				not require to be brought forward for further consideration.
25	Onshore construction	Impacts on the integrity of the stormwater tanks associated with the Ringsend WWTP due to tunnelling works for the onshore export cable.	Inadequate procedures; Contractor error; Underground tunnelling works.	Specialist tunnelling contractors with a proven track record in delivering work of the scope required by the CWP Project will be appointed.	2 – Very Unlikely	2 – Limited	4 – Low	**N:** the primary mitigation measures ensure that the risk does not require to be

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
				It is understood that the depth of the stormwater tanks is approximately -5.5 mOD. The tunnel will be installed at a depth which avoids any direct interface with the tanks. In advance of construction, further ground investigations will take place for the length of the tunnel. This will further inform existing ground information and ground models relevant to the area around the tanks. A settlement assessment to address the potential sensitivity of the tanks to the tunnel operations and tunnel shaft excavation will be undertaken in advance of the tunnel construction commencing. Any required measures to support the tanks during the tunnelling works will be consulted on and agreed with Uisce Éireann. The appointed contractor(s) will implement good tunnelling practice to mitigate the potential for settlement impacts. These would include continuous working once the tunnelling operations commence, management of tunnel face pressure, groundwater control, spoil volume control and				brought forward for further consideration.

Risk ID	Category	Potential Risk	Possible Cause	Relevant Primary Mitigation	Likelihood rating	Consequence rating	Risk score	Brought forward for further consideration
				monitoring of ground levels above the tunnel throughout the tunnelling operation				

83. From examining the risks presented in **Table 32-7**, risks **2**, **3, 4**, **6, 7, 8, 9**, **14**, **15, 16, 17**, **23**, **24** and **25** were considered as being below the threshold of significance set for the purposes of this assessment (Green Zone or 'Low' risk event).

84. Risks **10**, **11** and **13** fall within Amber and Red Zones ('Medium' and 'High' risk scenarios) and are therefore brought forward for further consideration and assessment of additional mitigation measures.

Table 32-8 Summary of risks identified requiring further assessment

Risk ID	Proposed potential risk	Phase	Receptor
10	Incident at nearby Seveso site involving release of dangerous substances.	Onshore construction phase Onshore operational and maintenance phase	Personnel and surrounding environment (release of emissions).
11	Delay in emergency services accessing an incident at a nearby Seveso site. This could result in a release of dangerous substances or fatalities / injuries.	Onshore construction phase	Personnel and surrounding environment (release of emissions).
13	Sinking / flooding of plant or machinery in intertidal area. This could result in a release of dangerous substances or fatalities / injuries.	Offshore construction and decommissioning	Personnel and surrounding environment (release of emissions).

32.8 Stage 3: Reclassification of risks following the implementation of additional mitigation measures

32.8.1 Residual Effects

85. Risks identified as being of 'Medium' risk (Amber Zone) and 'High' risk (Red Zone) (risks **10,11,13)** have been subject to further assessment and determination of risk, post-implementation of mitigation measures. This determined whether the potential risks are already managed and / or mitigated to an acceptable level or as low as reasonably practicable (ALARP), or if there were gaps in the mitigation that needed to be addressed through secondary mitigation. The results are presented in **Table 32-9**.

Table 32-9 Major accidents and / or disasters – assessment with mitigation measures

Risk ID	Category	Potential risk	Pre-mitigation risk score	Additional mitigation measures	Post mitigation Likelihood Rating	Post mitigation Consequence Rating	Resulting risk score
10	Onshore construction, O&M and decommissioning	Incident at nearby Seveso site involving release of dangerous substances.	9 – Medium risk	The appointed contractor(s) will be required to develop and implement their own TMP that incorporates provisions for regular interface with landowners, key stakeholders and utility service providers. This will include for the Health and Safety Authority & operators of the COMAH sites to ensure that any emergency management measures and requirements are accounted for in the CWP Project plans. It is also noted that in the event of a major accident, emergency plans (response systems and procedures) are in place for each of the COMAH establishments. The COMAH establishments have liaised with the emergency services and agreed on the actions and arrangements to deal with major accidents and minimise their effects. Furthermore, emergency exercises are carried out with the external emergency responders on a 3-yearly cycle. A publicly available external emergency plan has been drawn up for The National Oil Reserves Agency Ltd. (Shellybanks Road (off Pigeon	2 – Very unlikely	3 – Serious	6 – Low

Risk ID	Category	Potential risk	Pre-mitigation risk score	Additional mitigation measures	Post mitigation Likelihood Rating	Post mitigation Consequence Rating	Resulting risk score
				House Road), Ringsend, Dublin) by the local authority, Gardaí and HSE, to respond to any consequences outside this establishment as a result of a major accident. A separate external emergency plan is being drawn up for The National Oil Reserves Agency Ltd. (National Oil Reserves Agency Poolbeg Tank Farm, Pigeon House Road, Dublin 4) by the local authority. Gardaí, HSE and the public will be consulted as part of this process. All major accident hazards have been identified and control measures have been put in place to minimise or prevent major accidents. These control measures have been outlined to the HSA as part of the notification process required by regulation 25.			
11	Onshore construction and decommissioning	Delay in emergency services accessing an incident at a nearby Seveso site. This could result in a release of dangerous substances or fatalities / injuries.	9 – Medium Risk	The appointed contractor(s) will be required to develop and implement their own TMP that incorporates provisions for regular interface with landowners, key stakeholders and utility service providers. This will include for the Health and Safety Authority & operators of the COMAH sites to ensure that any emergency management measures and requirements are accounted for in the CWP Project plans.	2 – Very unlikely	3 – Serious	6 – Low

Risk ID	Category	Potential risk	Pre-mitigation risk score	Additional mitigation measures	Post mitigation Likelihood Rating	Post mitigation Consequence Rating	Resulting risk score
13	Offshore construction & decommissioning	Sinking / flooding of plant or machinery in intertidal area. This could result in a release of dangerous substances or fatalities / injuries.	9 – Medium risk	In line with the requirements of the CEMP, prior to construction of the CWP Project, contractors and subcontractors, as appropriate, will be expected to provide Method Statements for required construction activities, including works within the intertidal area. Additional mitigation measures will be required to ensure works within this area are carefully managed to mitigate this risk. This will include: 1. Programming of construction activities, to take account of the tidal cycle; 2. The provision of suitability trained staff for intertidal works; 3. Ensuring appropriate selection and storage of plant and equipment (see description of proposed intertidal equipment and storage platform in EIAR Chapter 4 Project Description); and 4. Checking equipment / vessels are appropriately anchored and inspected, particularly before and after a storm event.	2 – Very unlikely	3 – Serious	6 – Low

86. The results from the evaluation of risk, with additional mitigation measures applied, have been summarised / categorised in **Table 32-10**.

Table 32-10: Risk assessment evaluation

Likelihood Rating						
	5 – Very Likely					
	4 – Likely					
	3 – Unlikely					
	2 – Very unlikely			*10,11,13*		
	1 – Extremely unlikely					
		1 – Minor	**2 – Limited**	**3 – Serious**	**4 – Very serious**	**5 – Catastrophic**
		Consequence Rating				

87. From assessing the potential risks and mitigation measures presented in **Section 32.8**, Risks **10**, **11** and **13** all fall within the green zone and were considered as low as reasonably practicable (ALARP) risk scenarios, broadly acceptable with mitigation measures.

88. The risk management assessment of major accidents and / or disasters will be continued on an ongoing basis throughout the planning, detailed design, construction phase and O&M phase of the CWP Project.

89. Activities on-site will be monitored to ensure that risk does not increase over time on the site. Additional mitigation measures were found to manage and / or mitigate risks to an acceptable level, therefore no further secondary mitigation measures were required at this time.

32.9 Impact assessment summary / conclusion

90. This chapter has assessed the potential environmental impacts on risk of major accidents and disasters from the construction, O&M and decommissioning phases of the CWP Project. Where the potential for significant effects have been identified, additional mitigation has been considered and incorporated into the assessment.

91. **Table 32-10** confirms the significance of any residual effects following the application of additional mitigation measures.

92. Following the assessment with additional mitigation measures, the risks fall within the green zone and are therefore considered low risk scenarios, or as low as reasonably practicable (ALARP) risk scenarios, that are broadly acceptable with mitigation measures. Consequently, it is concluded that there will not be any significant environment effects arising from the risk of major accidents and / or natural disasters.

32.10 References

93. The Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the 'COMAH Regulations').

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

95. Department of Environment, Community and Local Government (DECLG), Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018).

96. The Dublin City Development Plan 2022–2028 (2022).

97. Dublin City Council (DCC) – Major Emergency Plan 2022 (2022).

98. ESB Networks Code of Practice for Avoiding Danger from Overhead Electricity Lines (May 2019).

99. European Commission (2017). Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report.

100. Environmental Protection Agency (EPA), Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (May 2022) (hereafter referred to as the EPA Guidelines).

101. EPA, Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (2003).

102. EPA, EPA Geoportal – EPA Maps (2023).

103. Institute of Environmental Management & Assessment (IEMA) (2020). Major Accidents and Disasters in EIA: A Primer. September 2020.

104. Wicklow County Development Plan 2022–2028 (2022).

105. Wicklow County Council – Major Emergency Plan 2017 (2017).