

14 RISK MANAGEMENT

14.1 Introduction

This chapter sets out the assessment of the vulnerability of the Proposed Development to risks of major accidents and/or disasters. It also assesses the potential effects of the Proposed Development to risk of major accidents and disasters. The interactions and mitigation and monitoring measures are included in Chapters 15 and 16 respectively.

14.1.1 Quality Assurance and Competency of Experts

This chapter was prepared by Louise Hewitt, Environmental Consultant within Enviroguide's EIA team. Louise has a Master of Science (Hons) in Environmental Resource Management from University College Dublin and a Bachelor of Science (Hons) in Biology from Maynooth University. Louise has worked as an Environmental Consultant with Enviroguide since 2021 and has 3 years professional experience.

This chapter has been reviewed by Harry Parker, Technical Director and EIA Lead at Enviroguide. Harry is a Chartered Environmentalist with 17 years' experience in consultancy, specialising in EIAs for large-scale infrastructure, commercial and residential developments, Harry has a Masters' degree in Environmental Impact Assessment and Management from the University of Manchester, UK.

14.2 Study Methodology

14.2.1 Scope and Context

The relevant legislation that applies to this chapter is the Planning and Development Regulations 2001 as amended, and in particular Schedule 6 – Information to be contained in EIAR. The following paragraph of Schedule 6, Paragraph 2(e)(i)(IV), specifically refers to "*a description of the likely significant effects on the environment of the proposed development resulting from ... the risks to human health, cultural heritage or the environment (for example due to accidents or disasters)*".

Paragraph 2(h) further expands with "*a description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment 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, emergencies arising from such events.*"

Additionally, the Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the "COMAH Regulations"), which

implement the Seveso III Directive (2012/18/EU), and which revoked the 2006 Major Accident Regulations also applies to this Chapter.

14.2.2 Guidelines and Reference Material

Cognisance has been taken of the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA 2022). This document follows the requirements laid out in the Directive 2014/52/EU.

Specifically, the EPA guidelines state that the EIAR must take account of “*the vulnerability of the project to risk of major accidents and /or disasters relevant to the project concerned and that the EIAR therefore explicitly addresses this issue. The extent to which the effects of major accidents and / or disasters are examined in the EIAR should be guided by an assessment of the likelihood of their occurrence (risk)... The potential for a project to cause risks to human health, cultural heritage or the environment due to its vulnerability to external accidents or disasters is considered where such risks are significant, e.g., the potential effects of floods on sites with sensitive plants. Where such risks are significant then the specific assessment of those risks in the form of a Seveso Assessment (where relevant) or Flood Risk Assessment may be required. The EIAR should refer to those separate assessments while avoiding duplication of their contents.*”

Reference has also been made to the Department of the Environment, Heritage & Local Government (DoEHLG) Publication ‘Guide to Risk Assessment in Major Emergency Management 2010’ and the Office of Emergency Planning, Department of Defence (DOD) Publication ‘A National Risk Assessment for Ireland 2020’. A consolidated list of national hazards for Ireland identified in the DOD document are identified in Table 14-1.

Table 14-1 Consolidated List of National Hazards (Source: A National Risk Assessment for Ireland (2020) Department of Defence)

Hazard: Civil	Hazard: Natural
<ul style="list-style-type: none"> • Large Crowd Event • Pandemic • Water Supply Distribution and Contamination • Food Chain Contamination • Animal Disease • Terrorist Incident 	<ul style="list-style-type: none"> • Storm • Snow and Ice (including prolonged low temperature) • Flooding (including pluvial, fluvial and coastal)
Hazard: Transportation	Hazard: Technological
<ul style="list-style-type: none"> • Maritime Incident • Air Incident • Transport Hub (including Airports, Ports and Rail Stations) 	<ul style="list-style-type: none"> • Structural Collapse (including Dam, Tunnel, Bridge and Building) • Nuclear Incident (Abroad) • Cyber Incident • Disruption of Energy Supply (including oil, gas, electricity and communications)

14.2.3 Risk Assessment Methodology

The risk assessment methodology has been supported by general risk assessment methods. Hazard analysis and risk assessment are accepted internationally as essential steps in the process of identifying the challenges that may have to be addressed by society, particularly in the context of emergency management. Mitigation as a risk treatment process involves reducing or eliminating the likelihood and/or the impact of an identified hazard (DoEHLG, 2010).

Table 14-2: Classification of National Likelihood Criteria (Source: A National Risk Assessment for Ireland (2020) Department of Defence)

National Likelihood Criteria		
Rating	Classification	Average Recurrence Interval
1	Extremely Unlikely	500 or more years between occurrences
2	Very Unlikely	100-500 year between occurrences
3	Unlikely	10-100 years between occurrences
4	Likely	1-10 years between occurrences
5	Very Likely	Less than 1 year between occurrences

14.3 Predicted Impacts

The EIAR chapters within this report identify that the Proposed Development has been designed in accordance with best practice and that the Proposed Development can be safely undertaken without risk to health.

In order to understand the potential consequences and predicted impacts of any major accident or disaster due to the Proposed Development and the vulnerability of the project a desk study was undertaken. The assessment reviewed:

- The vulnerability of the project to major accidents or disasters.
- The potential for the project to cause risks to human health, cultural heritage and the environment, as a result of that identified vulnerability.

A methodology has been used including the following phases:

Phase 1: Assessment

The DOD Consolidated List of National Hazards was used to identify a preliminary list of potential major accident and disasters. Receptors covered by legislation were not included within the assessment, for example, the quarry operatives.

Phase 2: Screening

The list was screened and major events caused by geological faults or natural phenomena were not included given the unlikely event of one occurring. Elements already addressed as a key part of the design e.g. risks of building collapse, are not repeated.

Phase 3: Mitigation and Evaluation

In the event that mitigation measures included did not mitigate against the risk, then, the potential impacts on receptors are identified in the relevant chapter. Table 14-3 lists the major accidents and/or disasters reviewed.

Table 14-3: Major Accidents and/or Disasters Reviewed

Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Civil				
Large Crowd Event (An event with over 5,000 people)	N	Not considered vulnerable due to the nature of the Proposed Development, i.e., mixed use development primarily residential in nature. No large crowds will be present at the site.	N/A	N/A
Water Supply Contamination	N	Waterborne diseases can be caused by consuming contaminated drinking water. No public health issues have been identified for the Proposed Development.	Local water users	Chapter 7 (Hydrology) of this report identifies the control measure required to avoid contamination of water supplies during operational works.
Food Chain Contamination	N	Not considered vulnerable	N/A	N/A
Animal Disease	N	Not considered vulnerable	N/A	N/A
Terrorist Incident	N	Not considered vulnerable	N/A	N/A
Transportation				
Maritime Incident	N	Not considered vulnerable. The Proposed Development is approximately 5.25km from the coast.	N/A	N/A
Air Incident	N	Not considered vulnerable. The closest commercial airport is Dublin Airport, which is approximately 20km north of the site of the Proposed Development. The closest domestic airport is Weston Airfield, which is located approximately 23.5km northwest of the site of the Proposed Development. Casement Aerodrome, Baldonell is a military airbase located approximately 18km west-northwest of the site of the Proposed Development.	N/A	Public Safety Zones for Dublin Airport are assessed in Section 14.4 of this chapter.

Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Transport Hub (Includes Airports, Ports and Rail Stations)	N	Not considered vulnerable. The site is not considered a transport hub. The closest rail station is Shankill Train Station, which is approximately 5km east of the Proposed Development. The closest maritime port is Dun Laoghaire Port, which is approximately 7.5km northeast of the site of the Proposed Development. <i>For airports see above.</i>	N/A	N/A
<u>Natural</u>				
Cultural, Archaeological and Architectural Heritage	N	There is the potential for previously unrecorded archaeological remains to exist beneath the ground level. A number of protected structures are also present in the area surrounding the Proposed Development.	Cultural Heritage	Chapter 11 (Archaeology and Cultural Heritage) of this EIAR assesses impact of the Proposed Development on the Archaeological and Cultural Heritage and proposes mitigation measures where required.
Landslides	N	The GSI database (GSI, 2024) indicated that the majority of the site is located within an area of "low" on the landslide susceptibility classification map. A small portion of the site is classed as "moderately low".	N/A	Chapter 6 (Land and Soils) of this EIAR assessed the vulnerability of the Proposed Development to landslides.
Earthquakes	N	Earthquakes are not likely to occur in the vicinity of the site at a sufficient intensity to pose a risk for the Proposed Development.	N/A	N/A
Floods/ Storm surge/tidal flooding	Y	The site is located within Flood Zone C where the probability of flood from river and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding).	Proposed Development	Chapter 7 (Hydrology) of this EIAR identifies the vulnerability of the project to flooding.

Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Severe weather such as storms, blizzards, droughts, tornados, heatwaves	N	Not considered vulnerable. In the event of severe weather events, the national meteorological service, Met Éireann, provides advance notice of severe weather, usually several days in advance. When appropriate, colour-coded weather warnings are issued. The Office of Emergency Planning works with the government departments and other key public authorities in order to ensure the best possible use of resources and compatibility across different emergency planning requirements.	N/A	N/A
Air Quality events	Y	Dust emissions from construction and operational activities and vehicular emissions during the operational phase.	Residents/ workers	Chapter 8 (Air Quality and Climate) of this EIAR identifies the impact of the construction and operation of the development on ambient air quality.
Wildfires	N	Not considered vulnerable to wildfires.	N/A	N/A
Fire	N	The risk of fire may lead to loss of life.	Residents, service users, members of the public and nearby properties.	Section 14.4.1 of this chapter details fire prevention measures.
Invasive species	Y	No non-native invasive species of the Third Schedule were recorded within the Proposed Development site and therefore there is no risk of them being spread beyond the boundaries of the Proposed Development site.	Native species / local biodiversity	Chapter 5 (Biodiversity) identifies the vulnerability of the project to invasive species and details measures to avoid the introduction or dissemination of invasive species to and from the site of the Proposed Development.
Technological				
Structural Collapse (Building)	N	This has been taken into consideration in the building design. All buildings have been designed to modern standards. No further assessment is required.	N/A	N/A
Structural Collapse (Dam, Bridge, Tunnel)	N	Not considered vulnerable as no dams, bridges or tunnels are proposed as part of the development.	N/A	N/A

Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Flood defence failure	N	Not considered vulnerable No flood defence systems are included as part of the Proposed Development due to the low flood risk.	N/A	Chapter 7 (Hydrology) of this EIAR and the Site-Specific Flood Risk Assessment identifies the vulnerability of the project to flooding.
Nuclear incident	N	Not considered vulnerable. There are no nuclear power stations close to the Proposed Development.	N/A	N/A
Cyber incident	N	Not considered vulnerable This is a predominantly residential development; however, the retail/commercial units may opt to have cyber protection in place when operational. This will be at the discretion of the unit operators.	N/A	N/A
Disruption of energy supply (oil, gas, electricity)	N	Not considered vulnerable. ESB Networks maintain the electricity network in Ireland. Gas Networks Ireland maintain the natural gas network in Ireland.	N/A	Chapter 12 (Material Assets) of this EIAR contains information on energy systems.
Utilities failure (communications)	N	Not considered vulnerable. In Ireland, the fixed-line communications market is dominated by Eir; while Eir, Three, and Vodafone own Ireland's mobile telecommunications infrastructure.	N/A	Chapter 12 (Material Assets) of this EIAR contains information on communications systems.
Utilities failure (water supply)	N	Not considered vulnerable. A pre-connection enquiry was submitted to Uisce Éireann in relation to a water and wastewater connection for the Proposed Development. Uisce Éireann have advised the proposed connection to the Irish Water networks can be facilitated at this moment in time.	N/A	Chapter 7 (Hydrology) and Chapter 12 (Material Assets) of this EIAR contain information on water supply

Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Utilities failure (wastewater, sewage)	N	<p>Not considered vulnerable.</p> <p>A pre-connection enquiry was submitted to Uisce Éireann in relation to a water and wastewater connection for the Proposed Development. Uisce Éireann have advised the proposed connection to the Irish Water networks can be facilitated at this moment in time.</p>	N/A	Chapter 7 (Hydrology) and Chapter 12 (Material Assets) of this EIAR contain information on wastewater and sewage removal and treatment
Utilities failure (solid waste)	N	<p>Not considered vulnerable.</p> <p>A Resource Waste Management Plan has been prepared for the Construction Phase of the Proposed Development and an Operational Waste Management Plan has been prepared for the Operational Phase of the Proposed Development. The implementation of the waste management plans will mitigate risks from solid waste.</p>	N/A	Chapter 12 (Material Assets) of this EIAR contains information on solid waste removal and treatment
Industrial accidents (defence, energy, oil and gas refinery, food industry, chemical industry, manufacturing, quarrying, mining)	N	<p>Not considered vulnerable.</p> <p>There are no Upper or Lower Tier Seveso sites adjacent to the site. The closest Upper Tier Seveso sites (16 no.) are located approximately 11.5km north of the Proposed Development at Dublin Port.</p> <p>The closest Lower Tier Seveso site is Irish Distillers Limited which is located approximately 14km northwest.</p>	N/A	N/A

14.4 Management Plans

14.4.1 Emergency Response Plan

Construction Phase

The site will be managed in accordance with the Construction Management Plan (Appendix 14-1) and the Resource Waste Management Plan (Appendix 14-2), which will ensure that all hazardous and flammable substances on site will be segregated and stored appropriately. There will be no smoking allowed on site and all hot works will be subject to a work permit system.

Operational Phase

The design criteria of the buildings are in accordance with all relevant building and fire safety standards. Smoke ventilation, fire alarms and emergency lighting will be fitted on all buildings and a sprinkler system will be fitted on the apartment buildings. A fire evacuation strategy will be put in place in advance of dwelling occupancy. The retail, commercial, creche, café, restaurant, and community facility will also have protective services and evacuation strategies in place prior to occupancy. Access routes serving the Proposed Development have been designed to provide adequate space for the fire brigade.

14.4.2 Public Safety Zone

Public Safety Zones (PSZs) are mapped out around airport runways to protect the public on the ground from possible aircraft crashes in populated areas. PSZs are used to prevent inappropriate use of land where the risk to the public is greatest, e.g., by limiting the type and allowable height of buildings and structures within the zones.

The closest airport to the site is Dublin Airport which is approximately 20km northeast. There are no PSZs directly over the site of the Proposed Development. Considering the distance between the Proposed Development and the nearest airport and associated PSZs, an aircraft strike disaster is not considered relevant to the Proposed Development.

14.4.3 Potential Major Emergency Management Sites and Seveso Sites

Seveso Sites are defined as industrial sites that due to the presence of dangerous substances in sufficient quantities, are regulated under Council Directives 96/82/EC and 2003/105/EC, commonly referred to as the Seveso II Directive. Seveso Sites are categorised as Lower, or Upper, by the type and quantity of hazardous substances stored at the site.

The site is not located near to any Upper or Lower Tier Seveso Sites; there are no Upper or Lower Tier Seveso Sites within 10km of the site. DLRCC published a *Major Emergency Plan of Dún Laoghaire-Rathdown County Council* in 2017 which sets out the arrangements for effective and efficient preparation for and response to potential major emergencies. This document notes that in relation to Seveso sites “no such sites currently operate in the DLRCC area”. The closest Upper Tier Seveso sites (16 no.) are located approximately 11.5km north of the Proposed Development at Dublin Port. The closest Lower Tier Seveso Site is Irish Distillers which is located 14km northwest of the site.

Based on the distance of the Proposed Development from any Seveso sites the risk of a potential major emergency is not considered relevant to this Proposed Development.

14.5 Residual Impacts

Control measures will put in place for health and safety and environmental management as per conditions of the planning permission, relevant code of practices and relevant legislation. The residual impacts will be of negligible significance once all control, mitigation and monitoring measures have been implemented.

The potential for dust or noise from the site operations to cause any nuisance to nearby receptors is deemed to be negligible and the adherence and full implementation of the appropriate control and mitigation measures will ensure there is no potential for cumulative effects to arise.

14.6 Monitoring

All monitoring proposals for the risks identified in Table 14-3 have been detailed in the relevant technical chapters and are included in Chapter 16 Mitigation Measures and Monitoring.

14.7 Difficulties Encountered When Compiling

No difficulties were encountered in completing this chapter.

14.8 References

Chapter 4-13 of Volume 2 of this EIAR

Environmental Resources Management Ireland Ltd (2005) Public Safety Zones Report

EPA (2017) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Draft).

Garda Mapping Section – Seveso Sites Ireland WebMap [Viewed Online 03.05.2022]
<https://www.arcgis.com/home/item.html?id=a01b5a0a6ff24f10adff30beaa3b6fd0>

Office of Emergency Planning (2020) 'A National Risk Assessment for Ireland 2020'
Department of Defence Publication

Statutory Instrument (SI). No. 296/2018 - European Union (Planning and Development)
(Environmental Impact Assessment) Regulations 2018