

## 13 RISK MANAGEMENT

### 13.1 Introduction

This chapter of the EIAR sets out the assessment of the vulnerability of the Proposed Development to risks of major accidents and/or disasters. It assesses the expected effects of the project to risk of major accidents and disasters relevant to the project. It includes the methodology used for the assessment. The Interactions and Mitigation and Monitoring Measures are included in Chapters 14 and 15, respectively.

#### 13.1.1 Quality Assurance and Competence

This Chapter was prepared by Louise Hewitt, Environmental Consultants, Enviroguide Consulting. 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 experience preparing Environmental Impact Assessment (EIA) Screening Reports and EIAR Chapters for projects of a similar nature and scale.

### 13.2 Study Methodology

#### 13.2.1 Scope and Context

The relevant legislation that applies to this Chapter is the Planning and Development Regulations 2001 – 2022, 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.

### 13.2.2 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 13-1.

*Table 13-1 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"> <li>• Large Crowd Event</li> <li>• Pandemic</li> <li>• Water Supply Distribution and Contamination</li> <li>• Food Chain Contamination</li> <li>• Animal Disease</li> <li>• Terrorist Incident</li> </ul>	<ul style="list-style-type: none"> <li>• Storm</li> <li>• Snow and Ice (including prolonged low temperature)</li> <li>• Flooding (including pluvial, fluvial and coastal)</li> </ul>
Hazard: Transportation	Hazard: Technological
<ul style="list-style-type: none"> <li>• Maritime Incident</li> <li>• Air Incident</li> <li>• Transport Hub (including Airports, Ports and Rail Stations)</li> </ul>	<ul style="list-style-type: none"> <li>• Structural Collapse (including Dam, Tunnel, Bridge and Building)</li> <li>• Nuclear Incident (Abroad)</li> <li>• Cyber Incident</li> <li>• Disruption of Energy Supply (including oil, gas, electricity and communications)</li> </ul>

### 13.2.3 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 13-2: 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

### 13.3 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 e.g. construction workers.

#### Phase 2 Screening:

The list was screened and major events such as volcanoes 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 13-3 lists the major accidents and/or disasters reviewed.

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Table 13-3: Major Accidents and/or Disasters Reviewed

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Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
<b>Civil</b>				
Large Crowd Event (An event with over 5,000 people)	N	Not considered vulnerable due to the nature of the Proposed Development, i.e., quarrying	N/A	N/A
Pandemic	Y	<p>COVID-19 is an illness that can affect your lungs and airways. It is caused by a virus called Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). SARS-CoV-2 is spread in sneeze or cough droplets. The Proposed Development poses no additional COVID-19 risk.</p> <p>During the Construction Phase of this Proposed Development HSE guidelines will be adhered to as relevant by construction workers.</p> <p>All workers directly and indirectly employed during the Operational Phase of the Proposed Development will comply with the relevant Government protocols that will be in place at that point in time in relation to COVID-19.</p>	Local businesses, construction workers	Chapter 4 (Population and Human Health) of this report addresses the Pandemic.
Water Supply Contamination	N	Waterborne diseases can be caused by consuming contaminated drinking water. No public health issues have been identified for the Construction Phase or Operational Phase of the Proposed Development.	Local water users	Chapter 7 (Hydrology) of this report identifies the control measure required to avoid contamination of water supplies during construction and operational works.
Food Chain Contamination	N	Not considered vulnerable	Consumers/Producers	N/A
Animal Disease	N	Not considered vulnerable	N/A	N/A
Terrorist Incident	N	Not considered vulnerable	N/A	N/A

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Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
<b><u>Transportation</u></b>				
Maritime Incident	N	Not considered vulnerable. The site of the Proposed Development is approximately 88km from the nearest coastline at Dublin Port.	N/A	N/A
Air Incident	N	Not considered vulnerable. The closest commercial airport is Dublin Airport, which is approximately 93km northeast of the site.	N/A	Section 13.4.2 of this Chapter (Risk Management) assess the vulnerability of the Proposed Development to air incidents.
Transport Hub (Includes Airports, Ports and Rail Stations)	N	Not considered vulnerable as the site of the Proposed Development is not defined as a Transport Hub.  The closest rail station is Muine Bheag (Bagenalstown) Train Station, which is approximately 5.4km southeast of the site of the Proposed Development. The closest maritime port is Dublin Port, which is approximately 88km northeast of the site of the Proposed Development. <i>For airports see above.</i>	N/A	N/A
<b><u>Natural</u></b>				
Cultural, Archaeological and Architectural Heritage	N	The site has not been subject to significant groundworks or prior construction. There is potential for sub-surface archaeological remains to be discovered during earthworks and topsoil stripping.	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 Proposed Development site is located within an area with a 'Low' landslide susceptibility classification (GSI, 2023). There are no landslides events recorded on the GSI database (GSI, 2022) at the Proposed Development site and the closest is recorded for the Cullahill Mountain event approximately 19.6km north.	Proposed Development	N/A

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Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Sinkholes	N	The GSI (GSI, 2023) records for karst features indicate that there are no karst features (e.g., cave, enclosed depression, swallow hole, turlough) within 2km of the Proposed Development site and therefore there are no identified risks associated with karst features, such as sinkholes, for the Proposed Development site. This Geology is not prone to sinkholes and no karst is mapped nearby.	Proposed Development	N/A
Earthquakes	N	Area is not geologically active. Not considered vulnerable.	N/A	N/A
Floods/ Storm surge/tidal flooding	N	The findings of the site specific, Stage I Flood Risk Assessment (FRA) (hydro Environmental Services, 2023) concluded that the Proposed Development site is located within Flood Zone C where the probability of flooding from rivers and the sea is low is considered suitable for development.	Proposed Development	Chapter 7 (Hydrology) of this report identifies the vulnerability of the Proposed Development to flooding.
Severe weather such as storms, blizzards, droughts, tornados, heatwaves	N	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	N	The main potential impact on ambient air quality from soil and stones processing activities will be that associated with the deposition of dust generated by mechanical processing and transfer operations.	Residents / workers / local businesses	Chapter 8 of this EIAR identifies the impact of the construction and operation of the development on ambient air quality. Mitigation measures are proposed.
Wildfires	N	Not considered vulnerable due to the location of the site of the Proposed Development.	N/A	N/A
Fire	Y	Due to the nature of proposed operations on-site and the inert characteristics of the material to be quarried, the risk of fire is considered to be low.	Construction workers/local businesses/employees	Section 13.4.1 of this Chapter deals with Fire Safety and Emergency Response

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Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Invasive species	N	There were no high impact or legally controlled invasive plant species identified at the site during field surveys by Enviroguide Consulting. No Third Schedule invasive species were recorded on the site; therefore, no impacts from invasive species are anticipated. guidelines for best practice will be followed, as will the CEMP associated with the Proposed Development, to ensure no invasive species material will be brought on-site during construction.	Native species / local biodiversity	Chapter 5 Biodiversity identifies the vulnerability of the project to invasive species.
<b><u>Technological</u></b>				
Structural Collapse (Building)	N	This will be taken into consideration in the building design. All buildings will be designed to modern standards. No further assessment is required.	N/A	The design criteria of the buildings will be in accordance with all relevant building design standards.
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
Flood defence failure	N	No flood defence measures have been considered necessary as detailed in the SSFRA. Therefore, not considered relevant to the Proposed Development.	N/A	Chapter 7 (Hydrology) of this report identifies the vulnerability of the Proposed Development to flooding.
Nuclear incident	N	Not considered vulnerable. There are no nuclear power stations near the Proposed Development. The closest is Trawsfynydd Nuclear Power Station, which is located approximately 210km east of the site of the Proposed Development in Wales.	N/A	N/A
Cyber incident	N	Not considered vulnerable.	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 12.2 (Material Assets) contains information on energy supply.



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Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
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 12.2 (Material Assets) contains information on telecommunications.
Utilities failure (water supply)	N	Not considered vulnerable. There is no mains water connection required for the Proposed Development during either the Construction or Operational Phase. The drinking water supply for the site will be provided by bottled water.	N/A	Chapter 12.2 (Material Assets) contains information on water supply and demand.
Utilities failure (wastewater, sewage)	N	Not considered vulnerable. The welfare unit will be emptied by an approved contractor as part of a maintenance contract in accordance with relevant waste management legislation.	N/A	Chapters 12.2 (Material Assets) contains information on wastewater management.
Utilities failure (solid waste)	N	Not considered vulnerable. All wastes generated during the Construction and Operational Phase onsite will be sent for recycling, recovery, or disposal to a suitably licensed or permitted waste facility.	N/A	Chapter 12.2 (Material Assets) contains information on solid waste management.
Industrial accidents (defence, energy, oil and gas refinery, food industry, chemical industry, manufacturing, quarrying, mining)	N	Not considered vulnerable. There are no Upper Tier Seveso sites near the Proposed Development. The closest is located approximately 18.6 km from the Proposed Development at Grassland Fertilisers Yard, Bishop's Demesne, Kilkenny.	N/A	N/A

## **13.4 Management Plans**

### **13.4.1 Emergency Response Plan**

Emergency Response Plans will be put in place in advance of activities commencing on site. Maintenance checks system will be employed once the quarry is operational. Due to the nature of proposed operations on-site and the inert characteristics of the material to be quarried, the risk of fire is considered to be low. Fire Safety Procedures will be developed for the quarry and all staff will undergo Fire Safety training.

### **13.4.2 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 area. 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 site of the Proposed Development is located approximately 61km to the north of Waterford Airport. The site of the Proposed Development is also located approximately 93km to the southwest of Dublin Airport. There are no PSZs directly over the site of the Proposed Development relating to either Waterford or Dublin airport.

### **13.4.3 Potential Major Emergency Management Sites and Seveso Sites**

There are no Upper or Lower Tier Seveso sites are located in the vicinity of the Proposed Development or in County Carlow. The closest Upper Tier Seveso Site is located approximately 18.6km southwest of the Proposed Development. There are also no potential Major Emergency Management sites located in the vicinity of the Proposed Development or in County Carlow.

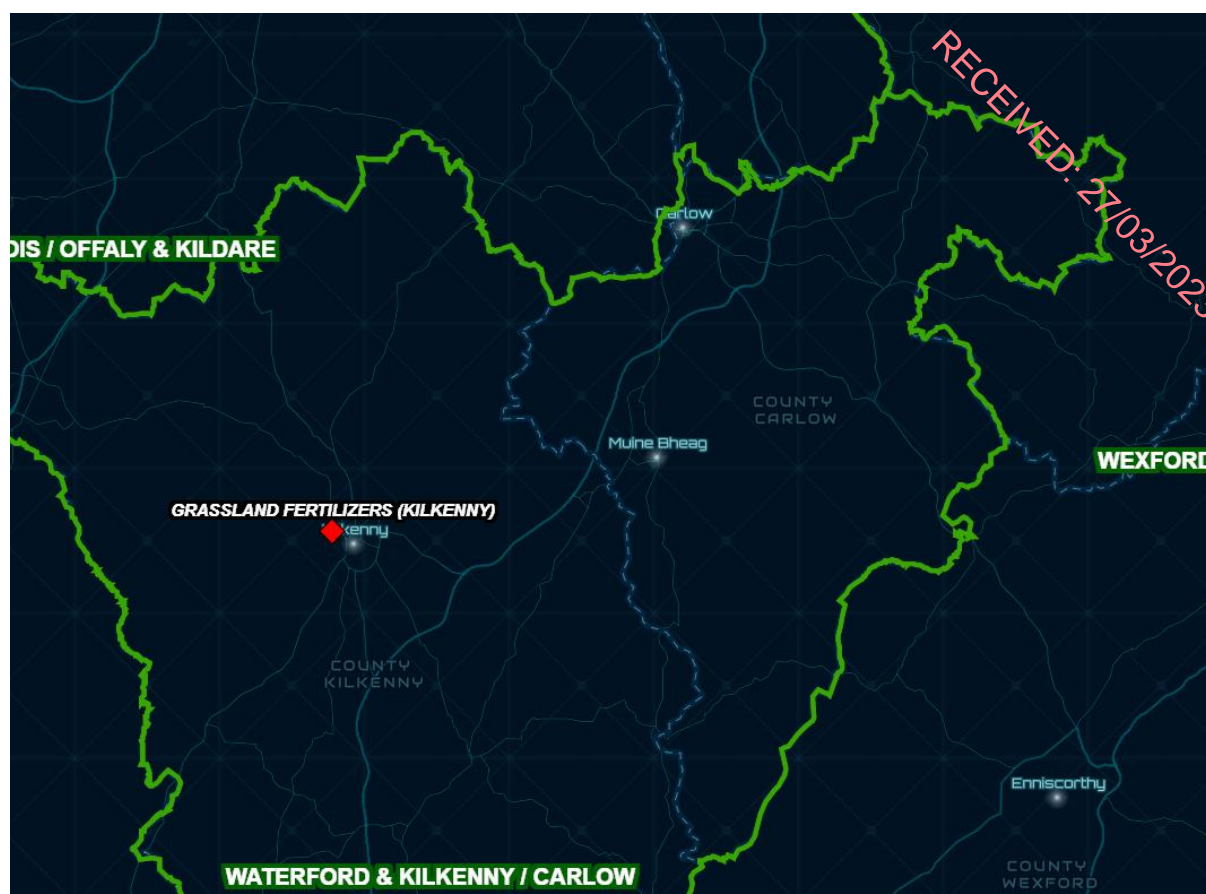


Figure 13-1 Map of surrounding Seveso Sites and Major Emergency Management Sites

#### 13.4.4 Spill Response Plan

The Proposed Development will involve the use of machinery during both the construction and operational phase. Such machinery are powered by diesel engines and operate using hydraulics. Unless carefully managed such plant and machinery have the potential to leak hydraulic oils or cause fuel leaks. Chapter 6 Land and Soils and Chapter 7 Hydrology have assessed the potential for spillages during the phases of the Proposed Development. Only small volumes of fuel/oils will be present on-site and therefore no significant effects are expected. Procedures and contingency plans will be set up to deal with emergency accidents and spills and an emergency spill kit with oil boom, absorbers etc. will be kept on site for use in the event of an accidental spillage.

Construction and operational staff will be familiar with emergency procedures for in the event of accidental fuel spillages. All works will be undertaken in accordance with conditions of granted planning and appropriate mitigation measures have been detailed in Chapter 6 and 7 of this EIAR and summarised in Chapter 15.

#### 13.4.5 Dust Management Plan

Strategies for dust management during the construction and operational phases of Proposed Development are detailed in Chapter 8, Air Quality and Climate. With respect to the potential impacts from uncontrolled dust emissions identified in Chapter 8, the key objective of the Proposed Development is to manage activities to ensure any significant increase in dust emissions are minimised.

### 13.4.6 Flood Risk Assessment

A flood risk identification study was undertaken to identify existing potential flood risks associated with the proposed dimensional stone quarry at Bannagole, Old Leighlin, Co. Carlow. The site is located on elevated ground, to the east of the Castlecomer Plateau and at the headwaters of the Baunleath stream, therefore no fluvial flooding risk would be expected at this site. The overall risk of flooding within the site is estimated to be low. The proposed infrastructure will attenuate storm water so that any increase in discharge volumes during storm events are gradual and controlled, preventing an increase in the flood risk downstream of the site.

### 13.5 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 negligible once all control, mitigation and monitoring measures have been implemented. Adherence and full implementation of the appropriate control and mitigation measures will ensure there is no potential for cumulative impacts to arise.

### 13.6 Monitoring

There is no monitoring required with regards to risk management. All monitoring proposals for the interacting chapters have been detailed in the relevant technical chapters and are included in Chapter 15 Mitigation Measures and Monitoring.

### 13.7 Difficulties Encountered When Compiling

No difficulties were encountered in completing this Risk Chapter.

### 13.8 References

- Chapters 4-12 of Volume 2 of this EIAR
- Environmental Resources Management Ireland Ltd (2005) Public Safety Zones Report
- Environmental Protection Agency (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.
- Garda Mapping Section – Seveso Sites Ireland WebMap <https://www.arcgis.com/home/item.html?id=a01b5a0a6ff24f10adff30beaa3b6fd0>
- Irish Water Greater Dublin Area water restrictions chart <https://www.water.ie/help/supply/water-shortages/>
- 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
- Appendix 12 Airport Masterplan of the Waterford Regional Airport & Business Park Masterplan [https://www.waterfordcouncil.ie/media/plans\\_strategies/development-plan/2022-2028/Appendix%2012%20-%20Airport%20Masterplan.pdf](https://www.waterfordcouncil.ie/media/plans_strategies/development-plan/2022-2028/Appendix%2012%20-%20Airport%20Masterplan.pdf)

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