

14 MAJOR ACCIDENTS AND DISASTERS

14.1 INTRODUCTION

This remedial Environmental Impact Assessment Report (rEIAR) has been prepared to accompany a substitute consent application for an existing quarry in the townland of Hempstown Commons, Co. Kildare (the Development). The Development is located within the administrative boundary of Kildare County Council, (KCC).

This chapter of the rEIAR has been prepared by WSP Ireland Consulting Ltd (WSP) and addresses the vulnerability of the Development to relevant major accidents and / or disasters, and the potential for the Development to have caused major accidents and/or disasters.

The discussion is supported by a risk assessment which considers the likelihood of major accidents or disasters occurring combined with the severity of their associated impacts.

14.1.1 TECHNICAL SCOPE

The EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU), requires that an assessment is made of *'the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned'*.

The consideration of major accidents and disasters seeks to assess the relevant accidents and disasters which the Development is vulnerable to, and the relevant accidents and disasters that the Development could give rise to. These unforeseen and unplanned events are to be assessed on the risk of their occurrence, however in view of the retrospective nature of this rEIAR the scope of this section is limited to a review of previous operations at the Development.

14.1.2 GEOGRAPHICAL AND TEMPORAL SCOPE

The baseline for this rEIAR has been set to 29 December 2019, and the rEIAR process has assessed environmental impacts from that date to the present. The baseline date of 29 December is derived from the expiry date of the KCC Planning Reg. 07/443; ABP Ref. PL09.233338 (see section 2.4 and section 2.6 of Chapter 2 (Project Description) for further detail). This assessment period equates to approximately five years and is identified as 'short-term' duration (those lasting one to seven years).

The geographical study area for the assessment covers the EIA boundary (identified on Figure 14-1) and with a study area extending 500 m around the EIA Site boundary, because most potential effects from accidents and disasters relevant to the development are anticipated to have occurred within the Development footprint or immediately adjacent to it. In the context of this rEIAR, the application boundary is located entirely within the EIA Boundary and contains lands which form the existing extraction area and quarry working areas (i.e. the stockpile areas, the 2 No. soakaways, onsite haul routes) as well as the existing welfare facilities, wheelwash and weigh bridge, carpark and site access/entrance.

The lands, the subject of this rEIAR (i.e. lands within the application boundary) extend to approximately 10.05 ha and are located within the EIA boundary for the rEIAR (approximately 18.45 ha). The existing quarry void extends to approximately 5 ha and is located entirely within the EIA boundary and the application boundary.

It is noted that quarrying activities were carried out at the Site following the expiry of the KCC Planning Reg. 07/443; ABP Ref. PL09.233338 occurred within the application boundary (also referred to as the substitute consent boundary) and is considered within this assessment. Full details of works and development carried out within the application boundary over the assessment period are provided in Chapter 2 (Project Description) and, in summary, comprise:

- Continued extraction and processing of blast rock,
- Continued use of stockpiling in the stockpile areas,
- Continued export of aggregate offsite,
- Installation of a primary soakaway and overflow soakaway, and use of pump to transport collected waters from the quarry floor to the soakaway(s), and,
- Upgrade of the closed system wheelwash through the addition of dry grate and the installation of a higher capacity concrete-lined tank.

Phased restoration works of the lands under the control of the Applicant (SQL) outside of the application boundary, and located with the EIA Boundary, were carried out in line with the direction of the High Court settlement terms (see Chapter 2 (Project Description)) and, on this basis, have been scoped out of this assessment.

See Chapter 2 (Project Description) of this rEIAR for details of the proposed restoration plan for the lands within the Application Boundary.

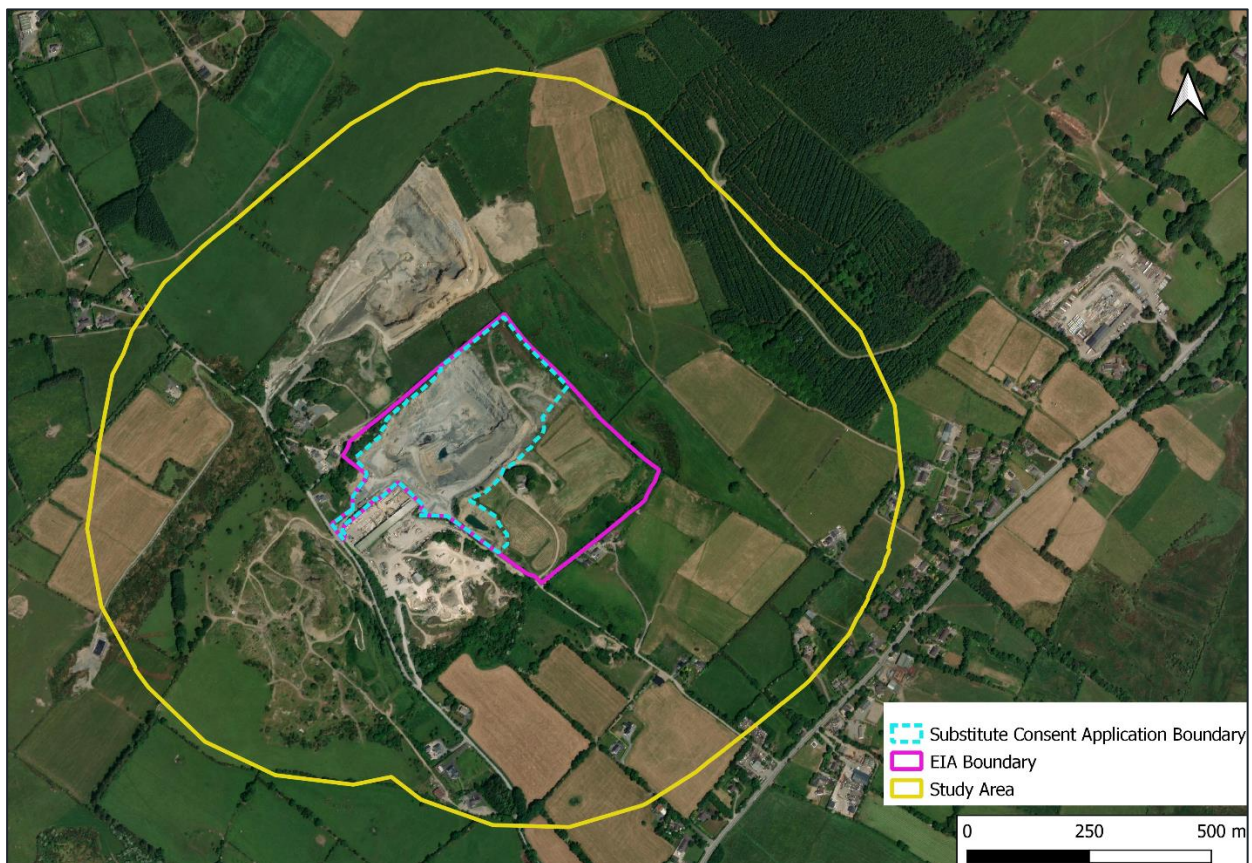


Figure 14-1 - Location of the Development (EIA site boundary and study area).

14.2 LEGISLATIVE AND POLICY CONTEXT

14.2.1 LEGISLATION AND DEFINITIONS

Article 5 of the Environmental Impact Assessment (EIA) Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU) sets down the minimum information to be supplied in an EIAR, including data and information to be included by the developer, as identified in Paragraphs 1 to 10 of Annex IV of the EIA Directive. Paragraph 5(d) of Annex IV identifies that:

A description of the likely significant effects of the project on the environment resulting from, inter alia: (d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters).

Furthermore, in Paragraph 8 of Annex IV:

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. [...] 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.

The 2014/52/EU Directive was transposed into Irish law through the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (SI No. 296 of 2018) which amended the Planning and Development Act, 2000, and the Planning and Development Regulations, 2001.

These regulations do not provide a definition of ‘major accident’ or ‘disaster’, however for the purpose of EIA, WSP defines the following key terms. These definitions are drawn from regulatory guidance, used in hazardous industries:

- Major accident – An occurrence resulting from an uncontrolled event caused by a manmade activity or asset leading to serious harm to receptors.
- Disaster – A natural occurrence leading to serious harm to receptors.
- Serious harm:
 - Serious harm to the environment – loss or significant detriment to populations of species or organisms, valued sites (including designated sites), valued cultural heritage sites, contamination of drinking water supplies, ground or groundwater, or harm to environmental receptors.
 - Serious harm to human populations – harm considered substantial i.e., death(s), multiple serious injuries or a substantial number requiring medical attention.

The effects of both major accidents and disasters can be either immediate or delayed.

14.2.2 RELEVANT POLICIES AND PLANS

- The National Planning Framework (Project Ireland 2040) includes National Policy Objective 60 to “Conserve and enhance the rich qualities of natural and cultural heritage of Ireland in a manner appropriate to their significance”.

- The Kildare County Development Plan 2017-2023 is the strategy document for County Kildare which covers most of the temporal scope of this assessment period. The key policies and objectives of this plan are listed in Section 2.7.5 of the Project Description (Chapter 2.0).
- The Kildare County Development Plan 2023-2029 was adopted on 9th December 2022 and covers the temporal scope from this date to present day. The key policies and objectives of this current plan are listed in Section 2.7.6 of the Project Description (Chapter 2.0).

14.2.3 RELEVANT GUIDANCE

There is no specific Irish guidance available for the assessment of major accidents and disasters in the context of EIA. A number of alternative sources of guidance have been considered in the course of this assessment, these are identified below.

A Framework for Major Emergency Management, Guidance Document 1, A Guide to Risk Assessment in Major Emergency Management, Department of the Environment, Heritage & Local Government (DoEHLG), (January 2010)

In terms of national guidance, in January 2010 the then Department of Environment, Heritage and Local Government (DEHLG) produced 'Guidance Document 1, A Guide to Risk Assessment in Major Emergency Management' (DEHLG 2010 Guidance), which supports and provides additional guidance on the risk assessment process for the 2006 framework for major emergency management, (A Framework for Major Emergency Management, Government of Ireland, 2006).

Major Accidents and Disasters in EIA: A Primer, Institute of Environmental Management and Assessment (IEMA) and ARUP, (September 2020)

This Primer on the assessment of major accidents and disasters in the context of EIA was published by the IEMA in September 2020 with the main aim of increasing awareness of the major accidents and/or disasters EIA topic and its application. The document offers an assessment methodology based on known current UK practice and identifies key terminology that can be used in an assessment. The Primer was developed to generate comment and discussion, from which future guidance and institutional and regulatory change may evolve. Major accidents and disasters in the Primer are defined as:

- Major Accidents: Events that threaten immediate or delayed serious environmental effects 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; and
- 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.

LA 104 - Environmental Assessment and Monitoring, Design Manual for Roads and Bridges, Highways England, Revision 1, (August 2020)

In the context of EIA there is no dedicated Irish guidance for the assessment of major accidents and disasters for projects. In the absence of such guidance this document has been referred to. This document was published by Highways England for assessing, reporting and monitoring the environmental effects of certain projects in line with the requirements of the EIA Directive. In the

context of major accidents and disasters the guidance identifies that the assessment shall be made with regard to:

- Vulnerability of the project to risks of major events; and
- Any consequential changes in the predicted effects of that project on environmental factors.

Relevant European Commission guidance considered as part of this assessment included: Environmental Impact Assessment of Projects – Guidance on the Preparation of the Environmental Impact Assessment Report (2017)

The guidance identifies key considerations on accidents and disaster risks and identified that EIARs should address issues such as:

- What can go wrong with a Project?
- What adverse consequences might occur to human health and to the environment?
- What is the range of magnitude of adverse consequences? Y How likely are these consequences?
- What is the Project's state of preparedness in case of an accident/disaster?
- Is there a plan for an emergency situation?

The Environmental Protection Agency (EPA) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (May 2022)

This guidance includes the requirement to describe the risk of accidents (with regard to substances or technologies used) in the characteristics of the project. These guidelines state that the EIAR should attempt to identify a reasonably foreseeable worst-case scenario as a context for 'likely significant effects'. They furthermore note that to address unforeseen or unplanned effects, the EIA Directive requires that the vulnerability of the project to risk of major accidents and /or disasters relevant to the project concerned are taken into account, and that the EIAR explicitly addresses this issue. The extent to which the effects of major accidents and / or disasters are examined should be guided by an assessment of the likelihood of their occurrence, which can be supported by general risk assessment methods.

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

14.3 ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

14.3.1 ASSESSMENT AIMS

As identified above, the key objectives of this assessment are to assess:

- The vulnerability, if any, of the Development to potential major accidents or disasters, which includes both natural (e.g., earthquakes) and man-made disasters (e.g., technological hazards);
- The Development's potential, if any, to cause major accidents and/or disasters, (with explicit reference to considerations for human health, cultural heritage, and the environment); and
- The identification of mitigation or control, and/or emergency preparedness measures which are in place, or that may have needed / need to be implemented, to prevent or mitigate the likely significant adverse effects of such events on the environment.

14.4 BASELINE AND SUBSEQUENT CONDITIONS (2019 TO PRESENT)

14.4.1 NATURAL DISASTERS

Due to Ireland's geographic location, it is less vulnerable to natural disasters such as earthquakes and tsunamis than other regions across the globe.

With regards to natural disasters, severe weather events such as flooding pose the greatest threat to Ireland. For example, the nearby town of Blessington has previously flooded in the years 1993, 2000 and 2011, which was caused by fluvial flooding of existing watercourses (OPW, 2018). However, there have been no previously recorded flood events within the Development's study area (OPW, 2024).

14.4.2 MAJOR ACCIDENTS

The occurrence of a major geotechnical hazard, fire, explosion or fuel spillage resulting from operations at the quarry Development, relating to the control of major-accident hazards involving dangerous substances, has the potential to give rise to a major accident or disaster, immediate or delayed. There have been no events such as these recorded at the Development during the assessment period.

14.5 SELECTION OF SENSITIVE RECEPTORS

Human receptors were identified through inspection of Google Maps and surveys of the site surrounds. These receptors have been identified in Figure 14-2. Environmental and historical environment receptors were obtained with the National Planning Application Viewer, Google Maps and the Eircode Finder map viewer.

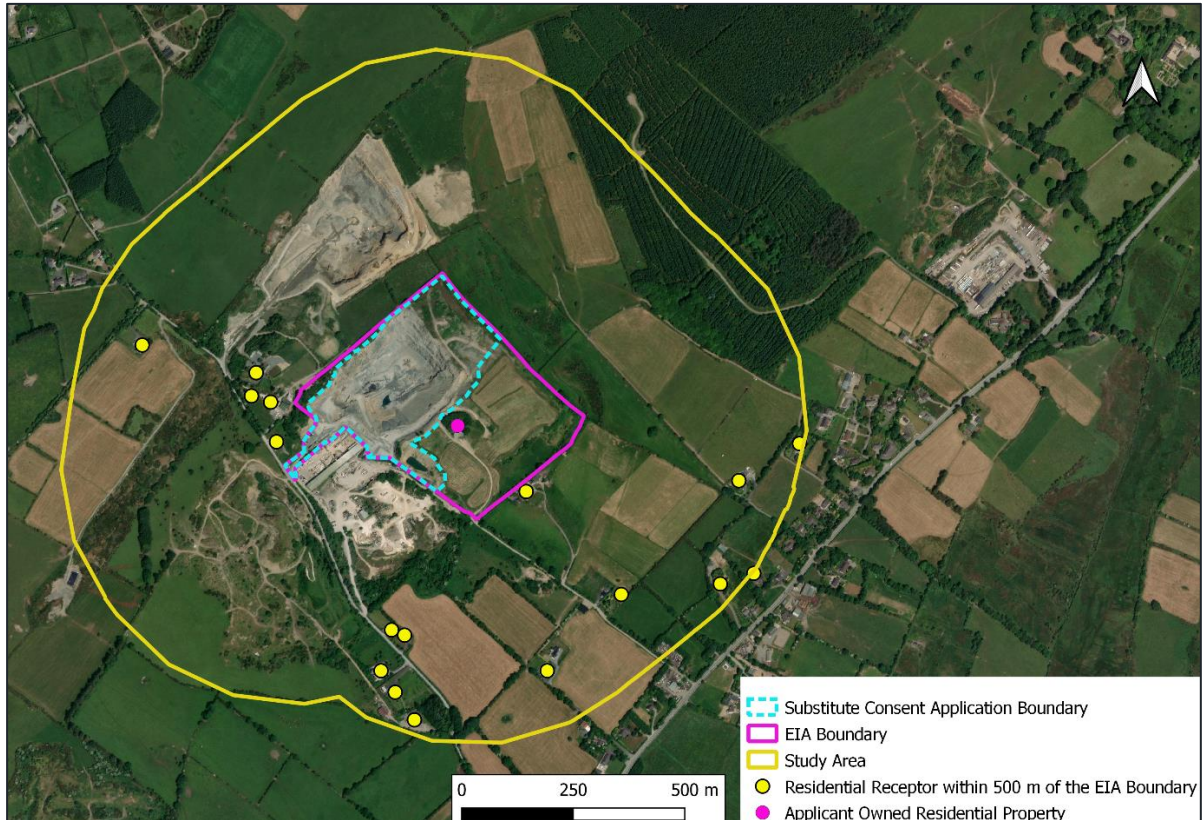


Figure 14-2 - - Location of residential receptors within 500 m of the EIA boundary.

14.6 CHARACTERISTICS OF THE DEVELOPMENT

The rEIAR has been prepared to accompany a substitute consent application for an existing quarry located in the townland of Hempstown Commons, Co. Kildare. A detailed Project Description has been provided within Chapter 2 of this rEIAR. The lands, which are the subject of this rEIAR (EIA boundary) extend to 18.45 ha. The quarry area that makes up the application for substitute consent planning unit currently extends to approximately 10.05 ha.

14.7 Activities at the Site involved the extraction of rock (greywacke and shale) using various excavation techniques, such as drilling & blasting and rock-breaking. Blasting of rock was periodically undertaken during the review period.

14.8 POTENTIAL EFFECTS

The main potential impacts and associated effects that have been considered in the assessment relate to the following:

- Geotechnical hazard i.e. collapse of a quarry wall
- Accident during blasting
- Fire during operation
- Accident involving physical hazards such as heavy plant or falls from height
- Spillage of chemicals or fuels to the ground
- External major accident affecting the quarry



- Flooding

These potential impacts during the assessment period of 29 December 2019 to present are considered and assessed in Table 14-1.

Table 14-1 – Potential Effects

Potential major accident or disaster	Receptor	Potential MA&D (Y/N)	Occurrence during assessment period (Y/N)	Risk (Significant / Not Significant)	Justification
Geotechnical hazard i.e. collapse of a quarry wall	Quarry workforce	Y	N	Not Significant	<p>Geotechnical hazards such as the collapse of a wall or surface can lead to workers being buried under fallen ground or struck by falling/sliding debris, which could cause serious harm to personnel in the quarry.</p> <p>In accordance with Section 55 of the Safety, Health and Welfare at Work (Quarries) Regulations 2008 (S.I. No 28 of 2008) (SHW Quarries Regulations), a geotechnical assessment of the excavation should be undertaken by a geotechnical specialist to identify and assess all factors liable to affect the stability and safety of a proposed or existing excavation and provide conclusion as to whether there is a significant hazard by way of instability or movement.</p> <p>These assessments conducted in line with SHW Quarries Regulations are considered suitable to manage the risk of harm due to geotechnical hazards and ensure there are no significant adverse effects. A geotechnical assessment was not undertaken during the assessment period and is required to be undertaken in accordance with the Regulations.</p>
Accident during blasting	Quarry workforce Members of the public	Y	N	Not Significant	<p>When blasting has been carried out, it followed the established safe working practices as it has done for many years prior to the assessment period.</p>

Potential major accident or disaster	Receptor	Potential MA&D (Y/N)	Occurrence during assessment period (Y/N)	Risk (Significant / Not Significant)	Justification
					<p>Safe working practices require that all blasting operations must have a declared danger zone, and no person should be in the danger zone when blasting is taken place. The blasting should be risk assessed which will also consider the location of any safe locations. These safe working practices will ensure that there are no persons within range of a blast and therefore no significant adverse effects.</p> <p>These controls and practices have ensured there were no significant effects arising from blasting during the assessment period.</p>
Fire during operation	Quarry workforce Members of the public Environmental receptors	Y	N	Not Significant	<p>The SHW Quarries Regulations require that all potentially hazardous work activities must be risk assessed and the potential risks to people must be reduced 'so far as is as reasonably practicable'. This includes all work activities which have the potential to cause a fire. Risks to various environmental receptors have further protection under a range of environmental statutes, e.g., groundwater protection; S.I. No. 9 of 2010 - European Communities Environmental Objectives (Groundwater) Regulations 2010.</p> <p>The Site also maintains an emergency plan, which identifies demonstrate safe evacuation in event of a fire occurring.</p> <p>These controls and practices have ensured there were no significant effects arising from fire during the assessment period.</p>

Potential major accident or disaster	Receptor	Potential MA&D (Y/N)	Occurrence during assessment period (Y/N)	Risk (Significant / Not Significant)	Justification
Accident involving physical hazards such as heavy plant or falls from height	Quarry workforce	Y	N	Not Significant	<p>The SHW Quarries Regulations require that all potentially hazardous work activities must be risk assessed and the potential risks to people must be reduced 'so far as is as reasonably practicable'. This includes all work activities which involve the potential for physical harm e.g. falls from height or impact by vehicles.</p> <p>The most common accident types in quarries typically relate to physical hazards such as contact with moving machinery and isolation, work at height, and struck by moving or falling object.</p> <p>Safe working practices are already in place at the Site and are managed by the Applicant in accordance with their safety management system in order to comply with the SHW Quarries Regulations, (and other applicable legislation).</p> <p>These controls and practices have ensured there were no significant effects arising from physical hazards during the assessment period.</p>
Spillage of chemicals or fuels to the ground	Quarry workforce Members of the public Environmental receptors	Y	N	Not Significant	<p>The SHW Quarries Regulations require that all potentially hazardous work activities must be risk assessed and the potential risks to people must be reduced 'so far as is as reasonably practicable'. Risks to various environmental receptors have further protection under a range of environmental statutes, e.g., groundwater protection; S.I.</p>

Potential major accident or disaster	Receptor	Potential MA&D (Y/N)	Occurrence during assessment period (Y/N)	Risk (Significant / Not Significant)	Justification
					<p>No. 9 of 2010 - European Communities Environmental Objectives (Groundwater) Regulations 2010.</p> <p>The use of any hazardous chemicals (e.g., diesel and other oils and lubricants used for plant maintenance) is regulated and thus their use on Site during the assessment period has been subject to controls following the hierarchy laid out in the Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007). Refuelling of plant and vehicles on site is carried out by a third party on site using drip mats. Neither fuels nor explosives are stored onsite.</p> <p>These controls and practices have ensured there were no significant effects arising from the potential spillage of chemicals or fuels during the assessment period.</p>
External major accident affecting the quarry	Quarry workforce	N	N	N/A	<p>There are no relevant external industries in proximity to the Site to result in a major accident that would affect the quarry workforce.</p> <p>There was no potential of significant effects on the quarry workforce arising from external major accidents during the assessment period.</p>
Flooding	Quarry workforce	N	N	N/A	<p>Collected water is pumped from the quarry floor to a primary soakaway. An overflow</p>

Potential major accident or disaster	Receptor	Potential MA&D (Y/N)	Occurrence during assessment period (Y/N)	Risk (Significant / Not Significant)	Justification
					<p>soakaway is available to provide additional capacity should this required. .</p> <p>There are no surface water features adjacent to the site which have potential to flood the quarry.</p> <p>There was no potential of significant effects on the quarry workforce arising from flooding during the assessment period.</p> <p>A lifebuoy ring is located adjacent to the wheelwash tank.</p>

14.9 REMEDIAL MEASURES REQUIRED

In accordance with Section 55 of the Safety, Health and Welfare at Work (Quarries) Regulations 2008 (S.I. No 28 of 2008) (SHW Quarries Regulations), a geotechnical assessment of the excavation should be undertaken by a geotechnical specialist to identify and assess all factors liable to affect the stability and safety of a proposed or existing excavation and provide conclusion as to whether there is a significant hazard by way of instability or movement. As this was not completed in the period of 29 December 2019 to present, the geotechnical assessment will be required to be completed for future development works at the Site.

14.10 RESIDUAL EFFECTS

The assessment concludes that the activities at the Site during the assessment period of 29 December 2019 to present have not resulted in accidents or disasters that are deemed to be 'Major'. Therefore, there has been an 'Imperceptible' effect (including no effect) of the Site activities on the surrounding environment in regard to major accidents and disasters.

14.11 CUMULATIVE EFFECTS

The cumulative effects associated with other permitted / under construction third-party developments have been considered in Chapter 15 of this rEIAR. Cumulative effects are considered to be **Not Significant**.

14.12 MONITORING

A geotechnical assessment of the Site is to be undertaken by a geotechnical specialist in accordance with Section 55 of the SHW Quarries Regulations.

14.13 DIFFICULTIES ENCOUNTERED

No particular difficulties were encountered in the preparation of this chapter of the rEIAR.

14.14 SUMMARY AND CONCLUSIONS

This assessment considers the potential impacts and effects of the Development on major accidents and disasters over the review period from 29 December 2019 to present.

The main receptors that could be affected by major accidents or disasters due to activities undertaken at the Development through the review period were identified and potential effects were assessed.

The assessment concludes that the activities at the Development during the assessment period of 29 December 2019 to present have not resulted in accidents or disasters that are deemed to be 'Major'.

14.15 REFERENCES

Department of Housing, Local Government and Heritage. 2024. National Planning Application Map Viewer. Available at: National Planning Application Map Viewer - My Plan (Accessed: November 2024).

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