

# CHAPTER 16

## INTERACTION OF THE FOREGOING

RECEIVED: 31/01/2025



## Table of Contents

<b>CHAPTER 16: INTERACTION OF THE FOREGOING .....</b>	<b>3</b>
<b>Introduction .....</b>	<b>3</b>
<b>Legislative and Policy Context .....</b>	<b>3</b>
Relevant Legislation .....	3
Relevant Policy & Guidelines .....	3
<b>Assessment Methodology and Significance Criteria.....</b>	<b>4</b>
Interactive Effects Methodology.....	4
<b>Interactive Effects .....</b>	<b>4</b>
<b>Overview of key Interactions.....</b>	<b>6</b>
Population and Human Health.....	6
Biodiversity.....	6
Land, Soils, and Geology .....	6
Water .....	7
Climate .....	7
Air Quality .....	8
Noise and Vibration.....	8
Landscape and Visual .....	8
Traffic .....	8
Material Assets.....	9
<b>REFERENCES.....</b>	<b>10</b>

RECEIVED: 31/01/2025

## CHAPTER 16: INTERACTION OF THE FOREGOING

### Introduction

- 16.1 The potential effects of the proposed development and the measures proposed to mitigate these effects have been outlined in this Environmental Impact Assessment Report (EIAR). However, in any development with the potential for environmental effect there is also the potential for interaction between effects of the different environmental aspects. The result of these interactions may either exacerbate the magnitude of the effect or may in fact ameliorate it.
- 16.2 Table 17-1 outlines the different environmental aspects which have potential to interact as a result of the proposed development.
- 16.3 Interactions have been clearly identified in the early stages of the EIA and where the potential exists for interaction between environmental impacts, the EIA specialists have taken the interactions into account when making their assessment. Potential interactions (both positive and negative) have been considered for the construction, operation and restoration phases of each of the different environmental aspects.
- 16.4 This chapter also provides an assessment of the cumulative effects of the proposed development with other developments. This assessment aims to identify the likelihood for cumulative effects to occur during the construction and operation of the Proposed Development, and where possible, to identify the possibility for significant effects.

### Legislative and Policy Context

#### Relevant Legislation

- 16.5 Article 3 of the EIA Directive prescribes that:

The environmental impact assessment shall identify, describe and assess in an appropriate manner in light of each individual case, the direct and indirect significant effects of a project on the following factors:

- a) Population and human health;
  - b) Biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
  - c) Land, soil, water, air and climate;
  - d) Material assets, cultural heritage and the landscape;
  - e) The interaction between the factors referred to in points a) to d).
- 16.6 Annex IV of the EIA Directive (2011/92/EU as amended by 2014/52/EU) requires that an EIAR provides “a description of the likely significant effects of the project on the environment resulting from....(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources”.

#### Relevant Policy & Guidelines

- 16.7 The Environmental Protection Agency’s (EPA) Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA 2022) advises that “the interactions between effects on different environmental factors should be addressed as relevant through the EIAR”. It advises that a matrix should be included in the assessment to “show where interactions between effects on different factors have been addressed”.

16.8 Cumulative effects can result from 'individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location' (CIEEM, 2016). The Environmental Protection Agency's 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' (May 2022) defines cumulative impacts as:

'The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects. While a single activity may itself result in a minor impact, it may, when combined with other impacts (minor or significant), result in a cumulative impact that is collectively significant. For example, effects on traffic due to an individual industrial project may be acceptable however it may be necessary to assess the cumulative impacts taking account of traffic generated by other permitted or planned projects. It can also be prudent to also have regard to the likely future environmental loadings arising from the development of zoned lands in the immediate environs of the proposed project.'

## Assessment Methodology and Significance Criteria

### Interactive Effects Methodology

- 16.9 The consideration of interactive effects was an integrated process which commenced at the very outset of the project. At the initial stage of preparing the EIA for the proposed development, the potential for significant interactions between environmental factors were examined and any potential effects were identified. These potential effects were included in the scope and addressed in the baseline and impact assessment studies for each of the relevant environmental factors.
- 16.10 The interaction of effects within the proposed development in respect of each of the environmental factors, listed in Article 3(1) of the EIA Directive, have been identified and addressed in detail in the respective chapters in this ER. Thus, no additional mitigation is proposed in this chapter.
- 16.11 This chapter presents a summary of each assessment of the interaction of effects between the various environmental factors. A matrix showing "*where interactions between effects on different factors have been addressed*" is set out in Table 16.1.

### Interactive Effects

- 16.12 The interactions between the identified environmental factors have already been considered and assessed within the individual chapters of this report. Table 16. 1 presents a matrix of interactions likely to occur from the proposed development. The level of interactions between the various media varies greatly. If the development does not have the potential to impact or affect the interaction then that interaction is shaded grey. If there is a potential for an interaction it is shaded green.
- 16.13 The following section provide a summary of the potential interrelationships of each of the respective environmental factors during the construction, operation and restoration phases of the proposed development. Each respective chapter of the EIAR provides a thorough assessment of the interactions.

# Environmental Impact Assessment Report

Client: McGraths Limestone Works Ltd.

Project: Deepening of an Existing Limestone Quarry

Ref. No.: 65.01

RECEIVED: 31/01/2025

Table 16-1: Potential Impact Interaction and Key Interrelationships Matrix	Population and Human Health	Biodiversity	Land, Soils and Geology	Hydrology	Climate	Air Quality	Noise and Vibration	Visual and Landscape	Traffic	Heritage	Material Assets
Population and Human Health	-	-	-	-	-	✓	✓	✓	✓	-	-
Biodiversity	-	-	-	✓	-	✓	✓	-	-	-	-
Land, Soils and Geology	-	-	-	✓	-	✓	-	-	-	✓	✓
Hydrology	-	✓	-	-	✓	✓	✓	-	-	-	-
Climate	-	-	-	✓	-	✓	-	-	-	-	-
Air Quality	✓	✓	-	-	-	-	-	-	-	-	-
Noise and Vibration	✓	✓	-	-	-	-	-	-	-	-	-
Visual and Landscape	✓	-	-	-	-	-	-	-	-	-	-
Traffic	✓	-	-	-	-	-	-	-	-	-	-
Heritage	-	-	✓	-	-	-	-	-	-	-	-
Material Assets	-	-	✓	-	-	-	-	-	-	-	-
Corresponding Topic Heading	5	6	7	8	9	10	11	12	13	14	15
Interaction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
No Interaction	-	-	-	-	-	-	-	-	-	-	-

## Overview of key Interactions

### Population and Human Health

16.14 The key interactions affecting human receptors involve air quality, noise, landscape, and traffic, discussed in detail in Chapters 10 (Air Quality), 11 (Noise), 12 (Landscape), and 13 (Traffic). A summary of the interactions is provided below:

- **Air Quality:** Dust emissions during the operational phase have the potential to affect nearby residents. After assessing potential adverse effects, it is concluded that there will be no significant adverse air quality effects on human receptors. Mitigation measures such as existing screening berms, retention of hedgerows, the placement of plant equipment within the quarry void, and using water sprays to control dust during dry conditions are in place. No increase in significance due to interaction.
- **Noise:** Noise emissions from extraction activities, machinery operation, and transport may disturb human receptors. Mitigation measures, including screening berms, regular maintenance of plant equipment, and positioning plant equipment within the quarry void, will help maintain noise levels within acceptable limits, ensuring no significant adverse effects on human receptors. No increase in significance due to interaction.
- **Landscape:** The development has the potential to alter visual perspectives from nearby dwellings and recreational spots. A series of viewpoints were analysed, and it was concluded that the quarry's visibility will be limited from most viewpoints due to the development consisting of the deepening of the existing permitted quarry. No increase in significance due to interaction.
- **Traffic:** The traffic assessment concluded that junctions and routes will remain within capacity throughout the operational period. With adequate sightlines at the development access point, no road safety issues are anticipated. No increase in significance due to interaction.

### Biodiversity

16.15 Interactions between biodiversity and air quality, noise, and water are detailed in Chapter 8 (Water), Chapter 10 (Air Quality), and Chapter 11 (Noise). A summary is below:

- **Water:** With no direct drainage to nearby rivers, significant effects on water bodies are unlikely. Additionally, downstream effects on designated ecological sites are deemed low-risk due to distance and minimal contamination potential. No increase in significance due to interaction.
- **Air Quality:** Dust emissions could potentially affect nearby vegetation by impeding photosynthesis and respiration. The assessment found no significant air quality effects on local flora, given mitigation measures like screening berms, quarry void location, and water spray use during dry weather. No increase in significance due to interaction.
- **Noise:** Due to the site's distance from designated ecological sites, noise from construction and operational phases is not expected to cause significant impacts. Noise limits will be maintained to minimise effects. No increase in significance due to interaction.

### Land, Soils, and Geology

16.16 Interactions between land, soils, geology, and other environmental aspects such as water, air quality, and cultural heritage are addressed in Chapters 8 (Water), 10 (Air Quality), 14 (Cultural Heritage), and 15 (Material Assets). A summary of the potential interactions follows:

- **Water:** Contaminants from vehicles or machinery could enter groundwater or surface water through soil. However, no significant water effects are anticipated, as there are comprehensive mitigation measures already built in to site management procedures to prevent spillages of hydrocarbons from the quarry activities.
- **Air Quality:** Dust emissions during material extraction could affect soil quality. Dust control measures will mitigate emissions, ensuring no significant increase in adverse effects due to interaction.
- **Cultural Heritage:** As the development involves the deepening of a permitted quarry, there will be no impact of cultural heritage. No increase in significance due to interaction.
- **Material Assets:** Extraction of limestone is a resource loss for the local construction industry. However, restoration plans are in place for the site's post-operational phase, minimising the visual impact of resource depletion. No increase in significance due to interaction.

## Water

16.17 Interactions involving water, population, biodiversity, and land are covered in Chapters 5 (Population and Human Health), 6 (Biodiversity), and 7 (Land, Soil, and Geology):

- **Ecology** – migration of suspended sediment from the site can impact stream bed habitats, in the Cong River, the Fisheries Hatchery and potentially extending to Lough Corrib. Comprehensive mitigation measures are already built in to site management procedures to prevent loss of suspended solids from the site.
- **Ecology** - Use of quarrying machinery and equipment can result in spillages during refuelling, use and storage of lubricants, resulting in release of hydrocarbons to water. Where hydrocarbons enter surface watercourses there may be adverse impact on flora and fauna. Comprehensive mitigation measures are already built in to site management procedures to prevent spillages of hydrocarbons from the quarry activities.
- **Noise** – pumping of water between the sump and the first settlement lagoon, as well as the activities of crushing bedrock and screening aggregates could give rise to increase noise emissions. Given the relatively small size of the pump, the fact it is submerged, and the fact that it is not powered by generator, no noise nuisance is envisaged.
- **Noise** - Given the large size of the site and the lack of significant development, as well as the road along its southern boundary that is not densely developed, as well as the extensive forestry to the south, in combination with the fact that water is used during the processing of rock, no noise nuisance is envisaged during crushing and screening.
- **Air quality & climate** – the removal of bedrock by blasting and crushing and screening of bedrock has the potential to generate dust and contribute to climate emissions. The continued supply of materials for road maintenance, construction of homes and businesses has the potential to enable continued traffic and consumerism, each of which also contribute to climate emissions.
- Each of these issues and the mitigation measures that are proposed are addressed in detail in the relevant chapters of the EIAR. These impacts are considered to be negative, but with mitigation measures in place, their significance can be reduced.

## Climate

16.18 Climate-related interactions, including air quality and water, are discussed in Chapters 8 (Water) and 10 (Air Quality):

- **Water:** Climate change may increase flood risk. The site's quarry deepening is not expected to increase flood risk on- or off-site. No increase in significance due to interaction.
- **Air Quality:** Greenhouse gas emissions from site traffic and equipment along with a temporary reduction in carbon capture due to vegetation removal, may impact air quality. These emissions are not expected to significantly contribute to global GHG levels. No increase in significance due to interaction.

### Air Quality

16.19 Air quality interactions primarily affecting human and ecological receptors are detailed in Chapter 6 (Biodiversity) and Chapter 10 (Air Quality):

- **Population:** Dust emissions from quarry operations could affect residents. Mitigation measures, including berms, hedgerow retention, and water sprays, will limit dust impact, resulting in no significant adverse effects. No increase in significance due to interaction.
- **Biodiversity:** Dust could hinder vegetation processes such as photosynthesis. However, mitigations ensure no significant adverse effects on nearby ecological receptors. No increase in significance due to interaction.

### Noise and Vibration

16.20 Noise and vibration interactions concerning human and ecological receptors are detailed in Chapter 10 (Noise and Vibration):

- **Population:** Noise from extraction and material transport may disturb residents. Mitigation, including berms, equipment maintenance, and equipment placement within the void, will help maintain noise limits, ensuring no significant impact. No increase in significance due to interaction.
- **Biodiversity:** Noise emissions will not significantly affect ecological sites, given the site's distance from these areas and the implementation of noise control measures. No increase in significance due to interaction.

### Landscape and Visual

16.21 Landscape interactions with population and human amenity are discussed in Chapter 12 (Landscape):

- **Population:** Quarry development may affect visual amenity for nearby dwellings and recreational spots. The landscape assessment indicates limited visibility from most viewpoints, with minimal visual changes to the ridge profile. No increase in significance due to interaction.

### Traffic

16.22 Traffic interactions affecting population and human health are covered in Chapter 13 (Traffic):

- **Population:** Increased traffic may result in additional wait times and congestion. However, analysis confirms that junctions will remain within capacity. With appropriate sightlines, no road safety issues are anticipated. No increase in significance due to interaction.

## Material Assets

16.23 Material assets' interactions with land, soil, and geology are discussed in Chapters 7 (Land, Soil, and Geology) and Chapter 15 (Material Assets):

- **Land, Soil, and Geology:** The limestone extraction, recognised as a key regional resource, supports construction needs in the area. Once depleted, the resource cannot be renewed, though site restoration efforts are planned to minimise its visual impact. No increase in significance due to interaction.

## REFERENCES

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

RECEIVED: 31/01/2025