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15 Interactions and Inter-Relationships

15.1 Introduction

This chapter of the remedial Environmental Impact Assessment Report (rEIAR) has been prepared by WSP Ireland Consulting Ltd (WSP) for the Bison Quarries Ltd Substitute Consent application to An Bord Pleanála (ABP). The application for Substitute Consent application is for quarrying activities (the Project) at a disused quarry located in the townland of Coolsickin or Quinsborough, Co. Kildare, (the Site), and is located within the administrative boundary of Kildare County Council (KCC).

This chapter of the rEIAR describes interactions/inter-relationships between environmental effects in the area surrounding the Project.

15.2 Technical Scope

The EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU, together the 'EIA Directive') requires that an environmental impact assessment identifies, describes and assesses in an appropriate manner the significant effects of a project and the significant interaction and in-combination effects of the project. This requires the careful consideration of environmental factors and pathways (direct and indirect) that can magnify effects through the interaction or accumulation of effects.

Environmental factors are inter-related to some degree, and these interactions can exist on many levels. This chapter summarises the primary interactions between the environmental topics and provides a matrix to coherently display them.

The overall objective of the assessment in this chapter is to identify whether remedial measures are required that would not otherwise have been identified in the individual study areas for these interacting effects.

The overall rEIAR Project Team contributed to the compilation of this chapter.

15.3 Temporal and Geographical Scope

The temporal scope of the assessment is 01 January 2000 to 31 December 2006 (see section 2.2.4 of Chapter 2 (Project Description) for further detail). This assessment period equates to approximately six years and is identified as 'short-term' duration (those lasting one to seven years) (EPA 2022).

The assessment directly covers the physical extent of the rEIAR study boundary as shown in Figure 15-1, and the assessment area has been extended as appropriate to identify the relevant interacting effects surrounding the Project.

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15.4 Project Description

The lands, the subject of this rEIAR (i.e. lands within the Application Boundary) extend to approximately 7.87 ha and are located within the EIA boundary for the rEIAR (approximately 10.62 ha). The historic operational site area including the extractable void area of 2.3 ha is located entirely within the EIA boundary and the application boundary.



Figure 15-1 - Substitute Consent application area and the lands subject of the rEIAR.

It is noted that activity at the Site involved the extraction of sand, gravel and rock through blasting, mechanical excavation and rock breaking along with aggregate processing and stockpiling. The Project is described in Chapter 2 (Project Description).

15.5 Methodology

This assessment has been made with reference to the 'Guidelines on the information to be contained in environmental impact assessment reports', published by the EPA in May 2022 (EPA,2022 Guidelines). These guidelines were issued by the EPA to facilitate compliance with the EIA Directive.

The descriptive terminology used follows a 'matrix approach' to environmental assessment which is based on the characteristics of the impact (magnitude and nature) and the value

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(sensitivity) of the receptor. The terminology and method have been summarised in Chapter 1 (Introduction, Scope and Methodology) of this rEIAR.

15.6 Interactions

For the assessment of interacting effects, a matrix has been provided in Table 15-1 identifying through professional judgment the specific topics within the rEIAR where the effects potentially interact/inter-relate with each other.

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Table 15-1 – Bison Quarries Substitute Consent Environmental Interactions, (X = No Interaction; $\sqrt{}$ = Potential Interaction).

Interaction	Population & Human Health	Ecology and Biodiver sity	Land, Soils & Geology	Water	Air Quality	Climate	Noise and Vibration	Cultural Heritage	Landscape & Visual	Traffic & Transport	Material Assets	Major Accidents & Disasters
Population & Human Health		х	х	\checkmark	\checkmark	х	\checkmark	х	\checkmark	\checkmark	\checkmark	\checkmark
Ecology and Biodiversity.			\checkmark	\checkmark	\checkmark	Х	\checkmark	х	\checkmark	Х	х	X
Land, Soils & Geology				\checkmark	х	Х	х	\checkmark	х	Х	х	х
Water					х	х	х	х	х	х	х	х
Air Quality						х	х	\checkmark	х	х	х	Х
Climate							х	х	х	х	Х	Х
Noise and Vibration								х	х	Х	х	х
Cultural Heritage									\checkmark	Х	х	х
Landscape & Visual										Х	Х	x
Traffic & Transport											Х	x
Material Assets												Х
Major Accidents & Disasters												

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15.6.1 Population and Human Health

During the assessment period, quarry activity effects on population and human health had potential to interact with water, air quality, noise, traffic and transport, landscape and visual, material assets, and major accidents and disasters.

Potential effects to the human environment from Site activities may have potentially included impacts on water which may have affected groundwater quality in local wells. Potential impacts to human health may have arisen from dust generating activities on the Site and increases in concentrations of airborne particles and nitrogen dioxide due to plant emissions. Impacts to human health from excess noise and vibration on site may have potentially resulted in direct effects to site workers and also annoyance and effects on mental health in the surrounding residential receptors.

Visual impact during the assessment period may have potentially related to the effect of the Project on specific views and on the general visual amenity experienced by people.

Site activities during the assessment period may have had the potential to impact or cause disruption to local services or utilities.

Major accidents and disasters which have the potential to occur on site may have impacted employees on site and people in the site surrounds, including residential receptors.

These interactions have been considered in the relevant chapters of this rEIAR: Chapter 3 Population and Human Health, Chapter 6 – Water, Chapter 7 – Air Quality, Chapter 9 – Noise and Vibration, Chapter 11 – Landscape and Visual, Chapter 12 – Traffic and Transport, Chapter 13 – Material Assets, and Chapter 14 – Major Accidents and Disasters.

In summary, these assessments have identified that such interacting effects with the human environment are **not significant**.

15.6.2 Ecology and Biodiversity

During the assessment period there was potential for interacting effects between ecology and biodiversity and land, soils and geology, water, air quality, noise and vibration and landscape and visual.

Adverse impacts to the soil, water and air environment would have had the potential to deteriorate habitat quality both on and off-site.

Similar to human receptors, impacts from excess noise and vibration on Site may have potentially resulted in stress to some species and effects on biodiversity and habitats surrounding the Site.

Elements of the Project have altered landscape features permanently including areas where nesting birds may have been present, and as such there has been the potential to cause stress to these species.

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These interactions have been considered in the relevant chapters of this rEIAR: Chapter 4 – Ecology and Biodiversity, Chapter 5 Land, Soils and Geology, Chapter 6 – Water, Chapter 7 – Air Quality, Chapter 9 – Noise and Vibration and Chapter 11 – Landscape and Visual.

In summary, these assessments have identified that such interacting effects with the surrounding ecology and biodiversity are **not significant**.

15.6.3 Land, Soils and Geology

During the assessment period there was potential for interacting effects between soil and geology, water, cultural heritage, and landscape and visual.

Excavated materials have arisen as a result of the stripping of soils and the removal of sand, gravel and rock in the progression of the Project during the assessment period. Activities on the overall Site had the potential to cause changes in the underlying water environment and in the areas where soil was stripped had potential to damage undiscovered cultural heritage features.

These interactions have been considered in the rEIAR in Chapter 5 – Land, Soils and Geology, Chapter 6 – Water, and Chapter 10 – Cultural Heritage..

In summary, these assessments have identified that the interacting effects with land, soils and geology and water and cultural heritage are **not significant**.

15.6.4 Cultural Heritage

During the assessment period there was potential for interacting effects between cultural heritage and air quality, and landscape and visual impacts.

Stripping of soils and extraction activities which generated dust could have holistically affected the setting of cultural heritage assets within the wider study area. Also, alterations in the landscape and visual amenity of the Site had the potential to impact the value of recorded monuments and also unrecorded features.

No potential vibration interaction with cultural heritage assets has been identified.

These interactions have been considered in Chapter 5 – Land, Soils and Geology, Chapter 7 – Air Quality, and Chapter 9 – Cultural Heritage.

In summary, this assessment in the rEIAR has identified the above interacting effects as **not significant.**

15.7 Conclusions

It has been concluded that there were **no significant interactions** between any of the various environmental topic areas as a result of previous operations within the Project lands, and surrounding study area.