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## INTRODUCTION

- 15.1 All of the reasonably predictable significant impacts of the proposed development and the measures in place to mitigate them have been outlined in the EIAR. However, for any development with the potential for significant environmental impacts there is also the potential for interaction amongst these impacts. The result of these interactions may either exacerbate the magnitude of the impact or ameliorate it. The interaction of impacts on the surrounding environment is required to be addressed as part of the Environmental Impact Assessment process.
- 15.2 This Environmental Impact Assessment Report in respect of the proposed quarry extraction and processing operations and concrete batching facility was prepared by SLR Consulting (on behalf of Kilsaran Concrete Unlimited Company) as an integrated document, rather than a collection of separate reports. The impacts that arise as a result of the interaction between several aspects of the development have therefore been addressed in the main body of each EIAR Chapter.

### The Interaction of the Foregoing

- 15.3 The interaction between the various environmental topics has been covered within each of the EIAR Chapters, 4 through to 14, where relevant. For example, the interaction of geology and groundwater has been addressed in EIAR Chapter 7.
- 15.4 The environmental components which might potentially be impacted by a development of this kind and at this location have been identified through the site assessment as follows:
- Effects on land use and amenity;
  - Impacts on local sensitive receptors;
  - Impacts on natural heritage and wildlife habitats and disturbance to flora and fauna;
  - Impacts on groundwater, surface water bodies, soils and bedrock geology;
  - Nuisance potential and or public health effects due to noise or dust emissions and blasting;
  - Impacts on local archaeology;
  - Changes in visual character;
  - Impacts on material assets such as infrastructure or local utilities.
- 15.5 A matrix method has been used, in which the environmental components addressed in the previous chapters of this EIAR have been placed on both axes of a matrix. Where interactions arise between two environmental components, the intersection square along a row or column of the matrix in **Table 15-1** overleaf is shaded green.
- 15.6 The purpose of the effects matrix is to readily identify potential interactions. Actual interactions and their significance are dealt with in the relevant topic chapter of the EIAR with a brief overview of some of the more pertinent interactions provided in this chapter below.

**Table 15-1**  
Impact Interaction and Interrelationships Matrix

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	Biodiversity	Land, Soils & Geology	Water	Air Quality	Noise & Vibration	Landscape & Visual	Traffic	Cultural Heritage	Material Assets	Population & Human Health	Climate
Biodiversity	Black	Green	Green	Green	Green	Green	White	White	White	White	White
Land, Soils & Geology	Green	Black	Green	Green	White	Green	White	Green	White	Green	White
Water	Green	Green	Black	White	White	White	White	White	Green	Green	Green
Air Quality	Green	Green	White	Black	White	White	Green	White	White	Green	Green
Noise & Vibration	Green	White	White	White	Black	White	Green	White	White	Green	White
Landscape & Visual	Green	Green	White	White	White	Black	White	Green	White	Green	White
Traffic	White	White	White	Green	Green	White	Black	White	Green	Green	White
Cultural Heritage	White	Green	White	White	White	Green	White	Black	White	White	White
Material Assets	White	White	Green	White	White	White	Green	White	Black	White	White
Population & Human Health	White	Green	Green	Green	Green	Green	Green	White	White	Black	White
Climate	White	White	Green	Green	White	White	White	White	White	White	Black

## POTENTIAL INTERACTIONS

### Population and Human Health

15.7 According to the draft guidelines published by the EPA, human health should be considered in the context of the relevant environmental topics addressed by the EIAR. Specifically, effects on human health should be considered in relation to relevant pathways (such as air, soil and water) and should be considered in the context of accepted standards or limits for exposure, dose or risk.

- 15.8 This EIAR indicates that the proposed operations and extension at the site and the long-term restoration of the application site to a combination of grassland and scrub habitat features could proceed with acceptable emission limits for noise, blasting and dust emissions, while potential effects on land / soil and water could be adequately addressed through good environmental management practices and mitigation measures to avoid excessive emission, accidental spillages of fuel, etc.
- 15.9 The key matters in relation to amenity are noise, dust, vibration, landscape and traffic. As previously noted, this EIAR has established that the proposed development can proceed within acceptable levels for noise, vibration, dust and traffic effects.
- 15.10 Potential interactions with human health are discussed in Chapter 4 (Population and Human Health); Chapter 6 (Land, Soil and Geology); Chapter 7 (Hydrology and Hydrogeology); Chapter 8 (Air Quality), Chapter 10 (Noise & Vibration); and Chapter 14 (Traffic).
- 15.11 The proposed development is largely screened in views from the surrounding area, by existing vegetation and topography. The only visible elements, i.e. the existing quarry and the site entrance, are difficult to screen, due to their elevation and proximity to a local road, respectively. The full restoration of the site to an agricultural and natural habitat afteruse, on a phased basis, further ensures that the landscape and visual impacts are kept to a minimum at all times. Considering the assessed low level landscape and visual effects, no further mitigation measures are considered necessary during the operational stage of the proposed development.
- 15.12 The landscape and visual effect of restoring the pit and quarry areas over the medium to long-term will reduce to negligible / none, refer to EIAR Chapter 13.

### Biodiversity

- 15.13 The proposed extraction operations within the overall quarry footprint area could potentially impact local habitats and species by way of changes to the existing small section of in-situ scrub area to the south of the extraction area, as well as the generation of noise and dust. Over the medium-term the final restoration of the overall site is likely to have a positive and beneficial effect on wildlife and on local biodiversity up to local (higher) value from current baseline conditions, particularly with regard to the variety of habitats that will be created, i.e. pasture/agricultural lands, scrub habitat areas, woodland pockets and reinstated hedgerows along with provision of exposed quarry faces.
- 15.14 Potential interactions associated with the extraction and processing activities are discussed in Chapter 5 (Biodiversity), Chapter 6 (Land, Soil and Geology), Chapter 7 (Hydrology and Hydrogeology), Chapter 8 (Air Quality), Chapter 10 (Noise & Vibration) and Chapter 13 (Landscape).

### Land, Soils and Geology

- 15.15 The stripping and management of soils and subsoil materials during the construction and operational phases has potential implications for biodiversity (loss or degradation of habitat), water quality (contamination, sediment transport, accidental spills), air quality (through dust emissions) and long-term visual amenity (though final restoration / land-use).
- 15.16 The potential impact of the proposed activities on land, soil and geology and the potential interactions with other environmental topics are discussed in Chapter 6 (Land Soil and Geology), Chapter 4 (Population and Human Health), Chapter 5 (Biodiversity), Chapter 7 (Hydrology and Hydrogeology), Chapter 8 (Air Quality), Chapter 12 (Cultural Heritage) and Chapter 13 (Landscape).

## Water

- 15.17 The proposed extraction and processing operations have potential to impact water quality and by this also has potential implications for human health, soil and geology (land quality), biodiversity (habitats and species) and material assets (aquifers / wells).
- 15.18 The potential impact of the proposed activities on the water environment and the potential interactions with other receiving environments are discussed in Chapter 7 (Hydrology and Hydrogeology), Chapter 4 (Population and Human Health), Chapter 5 (Biodiversity), Chapter 6 (Land Soil and Geology), Chapter 9 (Climate) and Chapter 11 (Material Assets).

## Air Quality

- 15.19 The air quality impact assessment, presented in EIAR Chapter 8, indicates that with the implementation of industry standard air quality mitigation measures, residual impacts arising from the proposed site operations will be insignificant or otherwise acceptable. On this basis therefore, interactions are also considered to be acceptable.
- 15.20 The impact of the proposed extraction and processing activities on the atmosphere and the potential interactions with other receiving environments are discussed in Chapter 8 (Air Quality), Chapter 4 (Population and Human Health), Chapter 5 (Biodiversity), Chapter 6 (Land, Soils and Geology) and Chapter 9 (Climate).

## Noise and Vibration

- 15.21 The noise and vibration assessment, presented in EIAR Chapter 10, indicates that with the implementation of industry standard noise and vibration mitigation measures, the residual impacts from the proposed development are negligible or minor. On this basis therefore, interactions are also considered to be acceptable.
- 15.22 The interaction between noise / vibration and other receiving environments is discussed in Chapter 10 (Noise & Vibration), Chapter 4 (Population and Human Health) and Chapter 5 (Biodiversity).

## Material Assets

- 15.21 The impact of the proposed development on material assets and its key interactions, on the groundwater aquifer and the local road network, are addressed in Chapter 11 (Material Assets), Chapter 7 (Water) and Chapter 14 (Traffic).

## Cultural Heritage

- 15.23 The impact of the proposed development on cultural heritage and the potential interaction with other receiving environments are discussed in Chapter 12 (Cultural Heritage), Chapter 6 (Land, Soil and Geology) and Chapter 13 (Landscape).

## Landscape and Visual

- 15.23 The proposed development activities at Clonard will impact the existing landscape and visual amenity over its operational life and following its final restoration to a combined grassland / scrub habitat, with potential implications for human beings, habitats, land quality and archaeology.
- 15.24 The impact of the planned development on the landscape and the potential interaction with other receiving environments are discussed in Chapter 13 (Landscape), Chapter 4 (Population and Human

Health), Chapter 5 (Biodiversity), Chapter 6 (Land, Soil and Geology) and Chapter 12 (Cultural Heritage).

### Traffic

15.25 Potential interactions associated with traffic movements from the development activities are discussed in Chapter 14 (Traffic and Transportation), Chapter 4 (Population and Human Health), Chapter 8 (Air Quality) and Chapter 10 (Noise & Vibration) and Chapter 11 (Material Assets).

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