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TABLES

Table 15-1 Impact Interaction and Interrelationships Matrix

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 extension was prepared by SLR Consulting (on behalf of P&S Civil Works Ltd.) 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, and soils;
 - Nuisance potential and or public health effects due to noise or dust emissions;
 - Impacts on local archaeology;
 - Changes in landscape character and views;
 - 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 potentially 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

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

POTENTIAL INTERACTIONS

Population and Human Health

15.7 According to the EIAR guidelines published by the EPA in 2022, 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. Based on the air quality assessment findings,

- 15.8 The IEMA guidelines regarding human health in EIA1 highlights that the conclusions on significance reached for public health may differ from the conclusions reached for outcomes discussed in other EIA technical chapters. Therefore, the technical issues are assessed in terms of the local health and population baseline in Chapter 4 of the EIAR.
- 15.9 This EIAR indicates that the proposed operations at the site and the long-term restoration of the application site to a naturally regenerated habitat could proceed with acceptable emission limits for noise 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.
- 15.10 The key matters in relation to amenity are noise, dust, landscape and traffic. As previously noted, this EIAR has established that the proposed development can proceed within acceptable levels for these effects.
- 15.11 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 and Vibration); and Chapter 14 (Traffic).
- 15.12 The proposed development will largely be screened in views from the surrounding area as a result of the undulating topography of the wider area. Planting of native woodland species on the proposed landscaping berms around the proposed extraction area is integrated into the design to maximise screening in views from nearby properties and the public road. The full restoration of the site to a natural habitat after use further ensures that the landscape and visual impacts will be kept to a minimum. Considering the assessed low level landscape and visual effects, no further mitigation measures are considered necessary during the operational stage of the proposed development.
- 15.13 The landscape and visual effect of restoring the site over the long term will reduce to minor/negligible landscape and negligible visual effects, refer to EIAR Chapter 13.

Biodiversity

- 15.14 The proposed extraction operations will potentially impact local habitats and species by way of introducing changes to the existing lands. The changed use of the application site has the potential to introduce habitats for sand martins through temporary sand stockpiles. Stockpile and soil management measures have been outlined through the EIAR to enhance the potential of the proposed development to provide ecological habitat and landscape screening. Over the long-term the final restoration of the overall site is likely to have a positive and beneficial effect on wildlife and on local biodiversity from current baseline conditions, particularly with regard to retained rock faces and benches will be allowed to naturally colonise with local species over time which will also provide valuable nesting ledges for birds.
- 15.15 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 and Vibration) and Chapter 13 (Landscape).

¹ IEMA (2022) 'Determining Significance for Human Health in Environmental Impact Assessment'

Land, Soils and Geology

- 15.16 The stripping and management of overburden 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).
- 15.17 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

- 15.18 The proposed extraction and processing operations have potential to impact water quality and this also has potential implications for human health, soil and geology (land quality), biodiversity (habitats and species) and material assets (aquifers / wells).
- 15.19 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

- 15.20 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. On this basis therefore, interactions are also considered to be insignificant.
- 15.21 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).

Climate

- 15.22 Chapter 9 of the EIAR provides an estimate of the level of greenhouse gas emissions that can be expected to arise as a result of the proposed development. Climate change adaptation measures, in terms of safeguarding the proposals against climate change impacts, have been recommended as well as potential opportunities for greenhouse gas emissions reductions.
- 15.23 The most relevant interactions are covered in Chapter 7 (Hydrology and Hydrogeology), Chapter 8 (Air Quality) and Chapter 9 (Climate).

Noise

- 15.24 The noise impact assessment, presented in EIAR Chapter 10, indicates that with the implementation of industry standard noise mitigation measures, the residual impacts from the proposed development will be negligible. On this basis, interactions are considered to be negligible.
- 15.25 The interaction between noise and other receiving environments is discussed in Chapter 10 (Noise), 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 are addressed in Chapter 11 (Material Assets), Chapter 7 (Water), Chapter 12 (Cultural Heritage) 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), Chapter 11 (Material Assets) and Chapter 13 (Landscape).

Landscape and Visual

15.26 The proposed development activities at the site will impact the existing landscape and visual amenity over its operational life. The long-term restoration of the site to a naturally regenerated wildlife area will result in longer term changes. These have potential implications for human beings, habitats, land quality and archaeology.

15.27 The impact of the planned development on the landscape and the potential interaction with other receiving environments are addressed 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

15.28 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) and Chapter 11 (Material Assets). In particular, there is a direct link between Chapters 14, 8, 9 and 10, with projections regarding likely traffic movements associated with the proposed development being a core input to the assessment of inter-related impacts.