14.0 INTERACTIONS OF THE FORGOING

14.1 INTRODUCTION

The purpose of this chapter is to highlight the significant interaction between environmental factors, and the cumulative impact this interaction and the proposed development has on the receiving environment. In preparing the EIAR each of the specialist consultants have and will continue to liaise with each other and will consider the likely interactions between effects predicted as a result of the proposed development during the preparation of the proposals for the subject site and this ensures that mitigation measures are incorporated into the design process.

This approach is considered to meet with the requirements of Part X of the Planning and Development Act 2000 and Part 10, and schedules 6 and 7 of the Planning and Development Regulations 2001 as amended.

Article 3(1) of the EIA Directive (2014/52/EU) states that:

The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the 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).'

As this EIAR document has been prepared by a number of specialist consultants an important aspect of the EIA process is to ensure that interactions between the various disciplines have been taken into consideration.

Having regard to the approach taken, the aspects of the environment likely to be significantly affected by the proposed development, during both the construction and operational phases, have been considered in detail in the relevant Chapters of this EIAR document.

The relevant consultants liaised with each other and the project architects, engineers and landscape architects where necessary to review the proposed scheme and incorporate suitable mitigation measures where necessary. As demonstrated throughout this EIAR, most inter-relationships are neutral in impact when the mitigation measures proposed are incorporated into the design, construction or operation of the proposed development.

This section of the EIA Report has been prepared by John Spain Associates, Planning & Development Consultants, and provides details of the evolution of the scheme design through the reasonable alternatives examined. This chapter of the EIA Report was prepared by Blaine Cregan M.Sc. B.Sc (hons) and BEng., Executive Director with John Spain Associates.

14.2 INTERACTIONS

Section 3.7.2 of the EPA Guidelines 2022 states that the interactions between effects on different environmental factors should be addressed as relevant throughout the EIAR. The EPA Guidelines further note that:

"It is general practice to include a matrix to show where interactions between effects on different factors have been addressed. This is usually done using the actual headings used in the EIAR (which may differ from the factors contained in the Directive (ref section 3.3.6). This is typically accompanied by text describing the interactions."

Table 14.1: Matrix of Summary of interactions between the environmental factors

Interaction	Population & Human Health	Land and Soils	Water and Hydrology	Biodiversity	Air Quality and Climate	Noise and Vibration	Archaeology and Cultural Heritage	Traffic	MA- Waste	MA-Utilities	Landscape
Population & Human Health		✗	✗	✗	✓	✓	✗	✓	✓	✓	✓
Land, Soils, Geology and Hydrogeology	✓		✓	✓	✓	✗	✓	✗	✓	✓	✗
Water and Hydrology	✗	✓		✓	✗	✗	✗	✗	✓	✓	✗
Biodiversity	✗	✓	✓		✓	✓	✗	✗	✗	✗	✗
Air Quality and Climate	✓	✗	✗	✓		✗	✗	✓	✗	✗	✗
Noise and Vibration	✓	✗	✗	✓	✗		✗	✓	✗	✗	✗
Archaeology and Cultural Heritage	✗	✓	✗	✗	✗	✗		✗	✗	✗	✓
Traffic	✓	✗	✗	✗	✓	✓	✗		✗	✗	✗
MA- Waste	✓	✓	✓	✗	✗	✗	✗	✓		✗	✗
MA-Utilities	✓	✓	✓	✗	✗	✗	✗	✗	✗		✗
Landscape	✓	✗	✗	✗	✗	✗	✓	✗	✗	✗	

✓ Interaction ✗ No Interactions

The following provides the interactions anticipated from the proposed development:

14.2.1 Chapter 4 Population and Human Health

The potential significant impacts on population and human health arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative impacts will occur.

14.2.1.1 Population and Human Health (Ch 4) - Air Quality/Climate (Ch 8)

The completed development will generate additional emissions to the atmosphere associated with the development, and due to plant equipment within the development.

The greatest potential impact on air quality during the construction phase of the proposed development is from construction dust emissions and the potential for nuisance dust. However, dust control measures, as set out in Chapter 8 which includes a range of measures such as wheel washes and covering of fine materials will minimise the impact on air quality.

The effect of construction on air quality will not be significant following the implementation of the proposed mitigation measures. It is proposed to adhere to good working practices and dust mitigation measures to ensure that the levels of dust generated will be minimal and are unlikely to cause an environmental nuisance. There will be no significant impact from dust once the development is completed. Overall, it is envisaged that the proposed development will not have a significant impact on air quality. This is dealt with in Chapter 8.

Population and Human Health (Ch 4) - Noise/Vibration (Ch 9)

The greatest potential for noise and vibration impact arising from the proposed development will be in the construction phase. However, following the implementation of the proposed mitigation measures in relation to noise, the impact associated with the construction phase of the proposed development is predicted to be moderate, transient and temporary. No significant impacts on the local noise and vibration climate are predicted during the operational phase of the proposed development. This is dealt with in Chapter 9.

Population and Human Health (Ch 4) - Material Assets – Utilities (Ch 13)

The operational stage increased employment density will create greater demand on built services, placing greater demand on water requirements and the public sewer. This is dealt with in Chapter 13.

There are interactions with Population and Human Health, Land, Soils, Geology and Hydrogeology, Water, Noise, Climate and Air, Material Assets, Traffic and Transport, Landscape and Visual, and Cultural Heritage. However, subject to implementation of mitigation measures, good working practices and codes, the interactions between these areas have been sufficiently considered in relation to risk management.

14.2.2 Chapter 4 Biodiversity (Ch 7)

The potential significant impacts on biodiversity arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required.

14.2.2.1 Biodiversity (Ch 7) – Land and Soils (Ch 5)

The biodiversity elements of this report have involved consultation with a wide section of the Project Team particularly in relation to the Construction Management, design, drainage and landscape elements of the proposed development. There are numerous inter-related environmental topics described in detail throughout this report document which are of relevance to the biodiversity chapter. The biodiversity chapter of the report involves interactions with the Land, Soils and Ground Water, Hydrology (Surface Water and Waste Water), Air and Climate, Noise and Vibration, Traffic and Transportation, Material Assets-Waste and Material Assets-Utilities. It is considered that there is the potential for slight, temporary negative impacts on biodiversity due to dust (air), noise, emissions to water and construction traffic associated with the Construction Phase of the proposed Project. These impacts are addressed in the relevant chapters of this EIAR.

14.2.3 Land and Soils (Ch 5) – Biodiversity (Ch 7)

Excavation and soil works (i.e. through site clearance, re-profiling etc.) during the construction stage have the potential to cause impact on the biodiversity of the site, for example through disturbance of the available habitats, dust and noise. Mitigation has been incorporated to reduce impacts. This is dealt with in Chapter 7.

There are interactions between land and soils and water, with some surface water conveyed and stored in SuDS features such as green roofs The likely impact will be permanent, slight and neutral. This is dealt with in Chapter 6.

The potential significant impacts on land and soils arising from these interactions in the construction and operational phases have been considered within the relevant discipline (biodiversity and soils/water) and mitigation measures outlined where required.

14.2.3.1 Land and Soils (Ch 5) – Air Quality (Ch 8)

Excavation works and exposure of soil during the construction phase can influence the microclimate in an area. The construction phase may result in the spread of dust onto surrounding land uses and public roads. The air quality assessment indicates that there is no significant impact associated with these matters. The implementation of the dust management and dust control measures will ensure that the proposed development will not give rise to the generation of any significant quantities of dust. This is dealt with in Chapter 8.

The potential significant impacts on land and soils arising from these interactions with air quality/climate have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant temporary or permanent residual negative impacts will occur.

Land and Soils (Ch 5) – Material Assets – Utilities (Ch 13)

There are interactions between lands and soils and material assets, with the construction of drainage and utilities impacting the soil and subsoil as these materials will be removed to facilitate construction. The likely impact will be permanent slight, and negative.

There are interactions between lands and soils and material assets, with the delivery of stone fill under buildings and roads and footpaths resulting in additional construction vehicles on roads adjacent to the site. The likely impact will be negative, temporary and slight.

14.2.4 Air Quality & Climate (Ch 8)

14.2.4.1 Air Quality & Climate (Ch 8) - Population and Human Health (Ch 4)

The most significant interactions are between population and human health and air quality. An adverse impact due to air quality in either the demolition, construction or operational phase has the potential to cause health and dust nuisance issues. The mitigation measures that will be put in place at the proposed development will ensure that the impact of the proposed development complies with all ambient air quality legislative limits and therefore the predicted impact is short-term, negative and imperceptible with respect to the construction phase and long-term, neutral and imperceptible with respect to the operational phase.

With increased traffic movements and reduced engine efficiency, i.e. due to congestion, the emissions of vehicles increase. The impacts of the proposed development on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the impact of the interactions between traffic and air quality are considered to be imperceptible.

With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and land and soils. No other significant interactions with air quality have been identified.

14.2.5 Noise/Vibration (Chapter 9) & Material Assets – Traffic (Ch 11)

In compiling this environmental impact assessment, reference has been made to the project description provided by the project co-ordinators, project drawings provided by the project architects and information relating to construction activities provided by the engineers. Noise emission sources from the proposed development during the construction and operational phases will be from construction plant and activity, building services and traffic accessing the

development. The noise impact assessment has been prepared in consultation with the design team and traffic engineers. Reference can be made to the relevant chapters for additional information.

14.2.6 Landscape and Visual (Volume 3)

The assessment of the landscape impacts associated with the proposed development has a number of interactions with other parameters of the assessment. In summary, these are as follows:

- Population and Human Health
- Cultural Heritage

The interactions of landscape with these parameters were as follows:

14.2.6.1 Landscape and Visual (Volume 3) & Population and Human Health (Ch 4)

The landscape and visual impact associated with human beings focuses on the effects to dwellings. The proposed development generates visual effects; the effects and associated amelioration of these effects is discussed in the impact section of the chapter.

Landscape and Visual (Vol. 3) & Cultural Heritage (Ch 10)

See section 14.2.10 below.

14.2.7 Material Assets – Waste (Chapter 12)

14.2.7.1 Material Assets – Waste (Ch 12) & Water & Hydrology (Ch 6)

Should waste be incorrectly handled or stored at the development site during construction works, it has the potential to cause an adverse impact upon water quality in the area through leaching of materials to groundwater or surface water. However, as mentioned above, waste will be segregated and stored in suitably contained waste receptacles at the site compound, considerably reducing the potential risk of pollution to water. It is not considered that there would be any significant risk to water quality as a result of waste management during the operational phase, given that waste will be collected by private, licensed waste contractors and recovered, recycled or disposed of at appropriately licenced waste facilities, which would have environmental controls in place as standard. This is dealt with in Chapter 12.

Should waste be incorrectly handled or stored at the development site, it has the potential to cause an adverse impact upon human beings through nuisance, including visual, odour and pests, and pollution to soils and water.

During the operational phase, suitably sized bin store areas have been provided at basement level. Bins will be brought to ground floor level on collect day via a service lift. Therefore, waste would not be envisaged to accumulate to high enough volumes to cause nuisance. This is dealt with in Chapter 12.

14.2.8 Material Assets – Utilities (Chapter 13) & Land and Soils (Ch 5)

The potential significant impacts on Material Assets – Utilities arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant temporary or permanent residual negative impacts will occur.

There are interactions between utilities and lands and soils, with the construction of drainage and utilities impacting the quantity of soil and subsoil as these materials will be removed to facilitate construction.

14.2.9 Archaeological and Cultural Heritage (Chapter 10)

Archaeological impact assessment is included in Chapter 10. Due to the fact that there can often be a cross-over between archaeological and cultural heritage sites, this chapter has been fully reviewed and cross-referenced where applicable.

14.2.10 Archaeological and Cultural Heritage (Chapter 10) & Landscape and Visual (Vol. 3)

There are interactions between this chapter and the landscape (Heritage, Townscape and Landscape Visual Impact Assessment, Volume 3) in view of the visual impacts on the settings of structures of architectural heritage significance and the potential for landscaping to mitigate such impacts.

14.2.11 Interactions & Cumulative Impacts

The potential cumulative impacts primarily relate to traffic, dust, noise and other nuisances from the construction of the development, with other planned or existing projects, and each of the EIAR chapters has regard to these in the assessment and mitigation measures proposed.

The potential cumulative significant effects through interactions have been considered and there is no significant potential for cumulative significant effects to arise from multiple non-significant effects. In respect of the project.