19.0 INTER RELATIONSHIP BETWEEN FACTORS AND CUMULATIVE IMPACTS

19.1 Introduction

This section of the EIAR has been prepared by Tom Phillips + Associates and deals with likely interactions between effects predicted as a result of the proposed development.

In addition to the requirement under the *Planning and Development Regulations 2001-2015* to describe the likely significant effects of the proposed development on particular aspects of the environment, it is also required to consider the interaction of those effects. As such, these are assessed below.

This section addresses the intra-project significant effects (i.e. those occurring between environmental topics within the project). We have considered inter-project effects (i.e. those which are likely to occur as result of the likely impacts of the proposed development interacting with the impacts of other projects in the locality), and have established that there are no other known planned / permitted projects in the locality that are likely to interact with either the construction or operational phases of the development to a significant degree.

This Chapter outlines the areas where interactions occur that are considered to be of a scale that may be potentially significant. Further detail relevant to the interaction of impacts may be found in the earlier chapters of the EIAR.

19.2 Inter-Relationships/ Interactions

It is noted that all aspects of the environment are likely to interact to some extent and to various degrees of complexity. The likely significant interactions between factors arising from the proposed development are set out in the matrix provided as Table 19.1 below.

Table 19.1: Matrix of Interactions Between Environmental Factors											
	rchaeology, Architectural & Cultural Heritage	Population & Human Health	Biodiversity	Land & Soils	Water & Hydrology	Air Quality/ Climate	Noise & Vibration	Landscape & Visual	Traffic	Waste	Site Services
Archaeology, Architectural & Cultural Heritage											
Population & Human Health					✓	✓	✓	✓	✓		
Biodiversity					✓			✓			
Land and Soils					✓	✓	✓		✓		✓
Water & Hydrology											✓
Air Quality/ Climate									✓		✓
Noise & Vibration									✓		
Landscape & Visual											
Traffic											
Waste											
Site Services											

19.2.1 Interactions between Population and Traffic

The interaction between population and traffic has been discussed in Chapter 6 and 14. The positive nature of the proposed development in terms of its location in a centre of employment, and therefore the associated increase in sustainable commuter trips in the area, would be lost in a "Do Nothing" scenario. If the development did not proceed, there would be a neutral impact on commuting patterns in the wider area, as the proposed development does not provide any additional transport infrastructure services. There may be a slight negative impact on some pedestrian commuters in the "Do Nothing" Scenario, as the site will provide additional permeability and access for pedestrian commuters to the Luas stop to the north of the site who will otherwise have to walk around the block.

During the construction phase the site will be accessed via Carmanhall Road. This will reduce the impact of the works on the surrounding previously constructed development and the surrounding road network. Additionally, the fact that the works for the basement construction will be utilising the same footprint as for the previously granted permission will reduce the need for excavation and disposal.

An Outline Construction Management Plan is required in accordance with Dún Laoghaire-Rathdown *County Development Plan 2016-2022,* a preliminary version of which is included in with the application. The Plan includes a section which covers the Preliminary Traffic Management Plan. Further information on this is outlined in Chapter 14 of this *EIAR - Roads, Traffic and Transportation*. At the construction phase of the development, the Construction Management Plan will be implemented in order to minimise the impact of an increase in commuter numbers.

Owing to the large number of employment centres in the Dublin area, and the site's location at the edge of the Sandyford Business District, it is likely that internal commuter flows within Sandyford arising from the subject proposal is likely to increase. However, the site is within a short walking distance of both Luas and bus services and the provision of pedestrian and cyclist links directly to the these would likely foster a trend towards more sustainable commuting patterns locally.

19.2.2 Interactions between Population, Air Quality and Climate

The interaction between Population and Air Quality has been discussed in Chapter 12. The main emissions to the atmosphere will be dust generated during the construction stage. The mitigation measures that will be employed during construction, which will ensure no significant adverse impacts arising from interactions between population and air quality.

19.2.3 Interactions between Population, Landscape and Visual Impact

Chapter 9 of this EIAR sets out the Landscape and Visual Impact Assessment. Predicted landscape impacts at construction stage are likely to be as per the potential impacts discussed in Section 9.7.1. Any new development will require site hoarding. Due to the site hoarding currently being the existing site condition on the boundaries, the development will have a neutral visual impact on adjacent developments, until the development progress over the height of the hoarding.

As the proposed development will be higher than the hoarding, the predicted visual effects will remain largely unchanged from the potential impacts. The construction phase will have a moderately negative impact on the adjacent developments and Carmanhall Road, due to the proximity of the development. This, however, will only occur during the construction period and is to be expected in the development of zoned urban land. The landscape effects of the proposed development would overall be moderately positive, particularly considering the existing vacant site in the area's context or urban character.

In the medium to long-term, the landscape effects due to the completed development would overall be moderate and positive, due to the conversion of the site from a vacant and closed space to public and integrated. In the longer term, the assessment concludes that the proposed development will continue to fit into the landscape and visual character of the area.

Landscape works are proposed to reduce and offset any effects generated due to the proposed development, where possible. The planting of substantial numbers of new trees and plantings will enhance the overall appearance of the new development. Specifically, there is a net gain of c. 125 new trees planted within the site and approximately 3,400 sqm of new planting at ground level.

While the effects on views persist, the tree and shrub planting will increase the visual quality of the site. Future visitors to the development will perceive the development in positive terms due to the context and the quality of the public realm and proposed buildings. A landscape management plan accompanies the planning application. Prior to completion of the landscape works, a competent landscape contractor will be engaged and a detailed maintenance plan, scope of operation and methodology will be put in place.

19.2.4 Interaction between Population and Hydrology

The use of public water and wastewater would be advantageous to population and human. Health, as outlined in Chapter 11.

19.2.5 Interactions between Noise, Traffic and Population

There is the potential for Noise and Vibration arising from the subject scheme to interact with other aspects of the environment, particularly Traffic, Population and Human Health. It is considered, however, that the implementation of the mitigation measures described above will neutralise the potential for interactions between these aspects of the environment.

19.2.6 Interactions between Air Quality and Traffic

The interaction between air quality and traffic is outlined in Chapters 12 and 14, which finds that increased traffic volumes generated by the proposal on the surrounding network will decrease air quality to a certain extent during the operational phase, but that overall – relative to baseline levels, that impact will be negligible, long -term, and imperceptible.

19.2.7 Interactions between Biodiversity and Landscape

The long-term effects of the proposed development will have a positive effect on the areas, through the increase of tree canopy and vegetation, both at the ground level and at the courtyard terraces level. Further consultation with the Ecological Consultant will take place at detailed design, implementation and monitoring stages to ensure adherence to best practice and sound ecological principles.

19.2.8 Interactions between Land, Soils and Traffic

Construction traffic will be in have an impact on the land and soils, as well as on the traffic on the local road network. There is no anticipated cumulative effect.

19.2.9 Interactions between Land, Soil, Water and Hydrology

Any environmentally damaging fluids that might infiltrate the soil will have an effect on the surrounding hydrological network. However, mitigation measures are proposed to reduce the likelihood of this eventuality. This is discussed further in the Chapter 11.

19.2.10 Interactions between Land and Soils and Noise and Vibration

Construction traffic will be in have an impact on the land and soils as well as on the noise on the local environment, as outlined in Chapter 9.

19.2.11 Interactions between Land, Soils and Air Quality

Construction traffic will have an impact on the land and soils as well as on the air quality (from dust) on the local environment, as outlined in Chapter 9.

19.2.12 Interaction between Site Services and Hydrology

The hydrological requirement of the proposed scheme will in part prescribe the site services that are required for the development. This is outlined in greater detail in Chapters 11 and 17.

19.2.13 Interaction between Hydrology and Biodiversity

The surface water mitigation measures outlined in this report would be advantageous to biodiversity, as they are an improvement from the existing, partially constructed basement car park. There is no anticipated cumulative effect.

19.2.14 Interaction between Hydrology and Site Services

The Drainage and Water Supply requirement of the development is primarily prescribed by the hydrological requirement for the development. The flows associated with the development are described in greater detail in Chapter 11.

19.2.15 Interaction between Site Services, Land and Soils

Trench excavations to facilitate site service installation will result in exposure of subsoils to potential erosion and subsequent sediment generation. Mitigation measures are outlined in Chapter 8 Land & Soils (i.e. service trenches to be backfilled as soon as practicable to minimise potential erosion of subsoils).

Other development in the vicinity of the site (e.g. the adjoining site, known as the Tivway site) are likely to have similar impacts during the construction phase in relation to Material Assets – Site Services. Should the construction phase of the developments noted above coincide with development of the site, potential cumulative impacts are not anticipated once similar ameliorative, remedial and reductive measures are implemented.

19.3 Cumulative Impact

The cumulate effects with other existing and/or approved projects in the area have also been considered to determine whether these could be sufficient to generate impacts of significance on the environment. Any predicted specific cumulative impacts are outlined in the various EIAR chapters, and tend to be temporary; related to the construction period; and manageable by way of mitigation. No significant interactions are envisaged in terms of interactions arising from cumulative impacts.

Within the urban block of this development, there is one completed development, one under construction (The Sentinel Building), and one with planning approval (Tivway). After the competition of the above proposed adjacent developments, the effect on some views will change. For example, once Tivway is completed, this proposed development will not be visible from St Raphaela's Road and Corring Road.

These cumulative effects were considered in the evaluation of near and distant viewsheds and fitting with the existing character and planning objectives of the Sandyford Business District. Future or alternative developments adjacent or near the site will further affect the area, potential through the altering of the skyline from distant viewpoints. No cumulation with projects of any size. The site itself relatively self-contained.

19.4 'Do Nothing' Scenario

If the proposed project does not proceed, there will be no cumulative impacts arising.

19.5 Mitigation And Monitoring Measures

It is not proposed that any mitigation or monitoring will be undertaken specifically for cumulative impacts.