

20 SUMMARY OF INTERACTIONS AND CUMULATIVE EFFECTS

20.1 Introduction

This chapter of the EIAR identifies the principle interactions between the potential impacts of the environmental factors identified in Chapter 5 to 16 inclusive.

The principal interactions are summarised below, under Table 20.1, and further discussed in Section 20.2 of this Chapter.

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Con.	Construction Phase	✓	Weak Interaction
Op.	Operational Phase	✓	Some Interaction
X	No Interaction	✓	Strong Interaction

	Population and Human Health		Biodiversity		Land, Soil and Geology		Water		Air (Sunlight & Daylight)		Air (Noise & Vibration)		Climate (Air Quality)		Climate (Climate Change)		Landscape and Visual Impact		Material Assets (Transport)		Material Assets (Waste)		Material Assets (Utilities)		Cultural Heritage (Archeological & Architectural)	
	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.
Population and Human Health			X	X	✓	✓	✓	✓	✓	✓	✓	✓	X	X	X	X	✓	✓	✓	✓	✓	✓	✓	✓	X	X
Biodiversity	X	X			✓	✓	✓	✓	X	X	X	X	X	X	X	X	✓	✓	✓	✓	X	X	✓	X	X	X
Land, Soil and Geology	X	X	✓	✓			✓	✓	X	X	X	X	X	X	X	X	✓	✓	✓	X	X	X	✓	✓	X	X
Water	X	X	✓	✓	✓	✓			X	X	X	X	X	X	X	X	✓	✓	✓	X	X	X	✓	X	X	X
Air (Noise & Vibration)	X	X	✓	✓	X	X	X	X	X	X			X	X	X	X	X	X	✓	✓	X	X	✓	✓	X	X
Climate (Air Quality)	✓	✓	✓	✓	✓	X	X	X	X	X	X	X			X	X	X	X	✓	✓	X	X	X	X	X	X
Climate (Climate Change)	X	X	✓	✓	X	X	X	✓	X	X	X	X	X	X			X	X	✓	✓	✓	X	X	X	X	X
Landscape and Visual Impact	X	X	✓	✓	X	X	X	X	X	X	X	X	X	X	X	X			✓	X	X	X	✓	✓	X	✓
Material Assets (Transport)	X	X	✓	✓	✓	X	X	X	X	X	✓	✓	X	X	X	X	✓	✓			X	X	X	X	X	X
Material Assets (Waste)	✓	✓	✓	✓	✓	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	✓			✓	X	X	X
Material Assets (Utilities)			✓	✓	X	✓	X	✓	X	X	X	X	X	X	X	X	✓	✓	X	X	X	X			X	X
Cultural Heritage (Archeological & Architectural)	X	X	✓	✓	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	X	X	X	X	X	X		

Table 20.1: Matrix of Interactions between Environmental Factors (During Construction and Operational Phases)

20.2 Interactions

20.2.1 Population & Human Health (Chapter 5)

This section discusses interactions between this Chapter and other specialist environmental topics considered in this EIAR.

Population and Human Health and:

Land, Soils and Geology

There is a risk of accidental pollution to land, soil and geology within the area from construction works, such as excavations and oil / diesel spillages from construction plant and equipment. Surface water runoff from the surface of the excavated areas may result in silt discharges to the surrounding network. The potential interaction during construction between Population and Human Health and the environmental factor of Land, Soils and Geology is **negative, short term** and **not significant**.

Once the development is operational, there are no planned discharges to groundwater included in the design, however there is the potential for accidental leaks/spills of hydrocarbons in the car parking areas and roads. The design of the proposed development includes hardstand in these areas to channel any contaminated runoff to the surface water system where it will be treated via petrol interceptor prior to discharge, preventing discharge of pollutants to ground. The potential interaction during operation between Population and Human Health and the environmental factor of Land, Soils, and Geology is **long term, neutral** and **imperceptible**.

Water

There is a risk of accidental pollution to water within the area from construction works, such as oil / diesel spillages from construction plant and equipment. Surface water runoff from the surface of the excavated areas may result in silt discharges to the surrounding network. There is a risk of contamination to the existing water supply during connection to the public water supply. The potential interaction during construction between Population and Human Health and the environmental factor of Water is **negative, not significant** and **short term**.

When operational, the Proposed Development represents an increase in hardstand. The new storm water drainage systems will include SuDS features such as permeable paving parking spaces, bioretention areas and brown roofs to provide additional storage and promote infiltration of and treatment of surface water run-off. As such, the potential for unmitigated off-site flooding as a result of the increased hardstanding areas will not have potential to impact on human health, populations, and material assets. The interaction is considered to be **long-term, imperceptible** and **neutral**.

Air Quality and Climate

Dust emissions from the construction stage of the Proposed Development have the potential to impact populations through nuisance dust. There are a number of high sensitivity residential properties in close proximity to the site boundary, predominantly located in the residential estates bordering the Site 3 and Site 5. In the absence of mitigation there is the potential for **not significant, negative, short-term** interaction between nearby sensitive receptors and dust emissions from the proposed development.

The traffic generated by the Proposed Development during operation has been assessed and it has been determined that pollutant concentrations will be in compliance with the Air Quality Standards. The interaction between human health and air quality during the operational stage will be **negative, localised, long-term, and imperceptible**.

Noise and Vibration

The potential interaction of noise on the local population is discussed in Chapter 5 Population and Human Health and Chapter 9 Air (Noise & Vibration). During the construction phase of the Proposed Development there will be a potential short term impact on nearby properties due to noise emissions from site traffic and other activities. Residual noise impacts during the site clearance and ground preparation phase only at NSLs adjacent to Site 3 are likely to slightly exceed the CNT, with a **short term, negative** and **moderate** to **significant** residual interaction. All remaining NSLs and

phases of construction works will be effectively controlled by the proposed mitigation measures, with a **short term, negative** and **not significant** residual interaction.

During operations predicted noise emissions from the additional traffic, and mechanical and electrical services do not exceed the adopted criterion at any nearby noise sensitive locations and therefore mitigation is not required. The resultant interaction between noise emissions and the local population in relation to noise generated from additional traffic is **negative, imperceptible to not significant**, and **long-term** along the existing road network.

Landscape and Visual Impact

Visual impacts and amenity impacts perceived by individual persons are highly subjective and difficult to characterise however, generally, the effects would be negative since construction is an inherently, unavoidably unsightly activity. It is considered that the overall interaction between the community and visual landscape will be **negative, slight to moderate** and **short term** during the construction phase.

The operational phase will give rise to a change in the landscape character due to change in land use. The proposed development will have a visual impact due to the introduction of new buildings, walls, boundary treatments, roads, lighting and parking. As a result, it is anticipated that the interaction between the local population and landscape and visual will be **neutral, slight to moderate**, and **long term**.

Material Assets, including Transport and Waste

The Proposed Development will have not have a significant impact on material assets such as water supply and power supply. The predicted interaction between the connection to utilities and the populations and businesses in the surrounding area is **imperceptible** and **neutral**.

The potential impacts on human beings are in relation to incorrect management of waste during construction and / or operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity. A carefully planned approach to waste management and adherence to the project specific RWMP and mitigation measures in Chapter 5 (Population & Human Health) and Chapter 14 (Material Assets – Waste Management), will ensure appropriate management of waste and avoid any negative impacts on the local population. The effects should be **long-term, imperceptible** and **neutral**.

Provided the mitigation measures and management procedures outlined in the Construction Management Plan (CMP) and the Construction Traffic Management Plan (CTMP) are incorporated during the construction phase, the interaction between the local population and traffic is predicted to be **short-term** in nature and **not significant, negative** in terms of effect.

When operational the Proposed Development will generate a number of trips by various modes of travel including vehicular, pedestrian, cycle and public transport. With the implementation of a management regime and the Mobility Management Plan, the interaction between the local population and traffic will be **negative, not significant** and **long term**.

20.2.2 Biodiversity (Chapter 6)

Interactions among Biodiversity; Water; Land, Soils and Geology; Climate (Climate Change); and Material Assets (Waste)

Construction Stage

There are potential interactions between waste management and water environment which can have a potential impact on key ecological receptors during construction, as outlined in Chapter 6 Biodiversity. This includes the removal of invasive species during the construction stage, which involves collected waste biomass (pulled stems/roots and bagged flower heads). If this biomass is not disposed of immediately at a facility authorized to accept such waste, it has the potential to enter the local to waterways (Kilmahuddrick Stream) and be spread downstream, if not handled appropriately before disposal with similar invasive species waste at an authorized facility.

Operational Stage

The operational stage interactions are due to the potential for surface water run-off from the proposed development sites. The proposed drainage design includes the adoption of SuDS for surface water collection and attenuation, which will provide environmental benefits, e.g., retention of urban run-off. SuDS are designed to manage stormwater locally to mimic natural drainage and encourage its infiltration attenuation and passive treatment, which is increasingly important given potential effects of future climate change. The SuDS proposed across the three development sites include permeable paving; tree pits; conveyance swales; bioswales and attenuation ponds. These SuDS features will collectively provide surface water run-off attenuation, infiltration, and in-situ retention of sediments (and associated nutrients), metals, and hydrocarbons, ensuring no pollution-based degradation of other terrestrial habitats within the locality. The vegetation within the SuDS will provide refuge and foraging opportunities for a range of terrestrial and aquatic invertebrates, which will have knock-on benefits for local bird, amphibian, and mammal populations.

Interactions among Biodiversity; Air (Noise and Vibration); and Material Assets (Transport)

Construction Stage

During the construction stage, the biodiversity assessment has examined how key ecological receptors, such as species and habitats, interact with various environmental factors. Specifically, there is an interaction between traffic and transport and mortality risk for species. Airborne noise from construction activities, including vehicles, can interact with biodiversity as any increase in noise levels has the potential to impact on sensitive ecological receptors. An example of this interaction is the direct and indirect impacts likely to occur on the foraging and commuting activities of local bats and birds located within the locality of the three development sites, resulting from the temporary noise and vibration pollution during this stage. Further, noise generated by the construction works has the potential to effect breeding bird species egg production, incubation, brooding, predators, brood parasites, and abandonment, as well as the ability to find or attract a mate and the ability of parents to hear and respond to begging calls of their offspring.

Operational Stage

Operational interaction impacts among Biodiversity, Noise and Vibration, and Traffic and Transport are likely to occur given the increase populace and vehicular use associated with this increase. All faunal species will be subjected to increase noise levels (disturbance), as well as ground-dwelling fauna, and some less agile and/or reactionary bird species also seeing their risk of road collision injuries and fatalities increase as a result of the operations of the three development sites.

Interactions among Biodiversity; Water; Air (Sunlight & Daylight); Climate (Air Quality); and Landscape and Visual Impact

Construction Stage

During the construction stage, there will be an interaction between water, landscape and biodiversity. As outlined in Chapter 6, the proposed Kishoge development sites will mitigate for the spread of invasive species. This includes the spread of invasive species such as Japanese Knotweed, from the construction sites (3 and 4) into the surrounding locality, which includes the Grand Canal pNHA; and the Kilmahuddrick Stream, which has the potential to transport it to Liffey Valley pNHA via the River Griffeen. Such a spreading event would have serious adverse impacts on the high value riparian / wetland habitats, displacing native species. During the construction stage, there will also be an interaction between air quality and biodiversity. Air (emissions and dust) pollution generated during the construction stage has the potential to adversely impact watercourses (airborne emissions) photosynthesis and the biological functions (dusts) of valued flora. Additionally, air (sunlight & daylight) interacts with biodiversity during the construction stage as a result of changes to landscape (trees removal, creation of tall spoil mounds etc.) will ultimately change the (sun) lighting regime for flora within the retained habitats on-site, as well as habitats neighbouring the three sites. This will have a slight impact on a subset of the more light/shading sensitive flora.

Operational Stage

During the operational stage, there will be an interaction between Air (Sunlight & Daylight), Climate (Air Quality), Landscape and Visual Impact, and Biodiversity.

The proposed planting will be multi-functional with all plant types chosen with reference to their adaptability, robustness and ease of maintenance. The planting strategy will prioritise pollinator friendly species and species that provide multiple ecosystem services and functions which offer an opportunity for enhancement of local biodiversity. In addition, the landscape strategy will include provisions for low maintenance planted ground cover, including reduced herbicide use and permitting a degree of landscape wildness. The planting plan will also help sequester locally produced carbon emissions, which will in turn minimise the development sites' contribution to greenhouse gases.

Furthermore, air (sunlight & daylight) will interact with biodiversity during the operational stage as a result of changes to landscape (removal of scrub and trees, along with the planting of new trees and shrub, and the installation of multistorey structures) will change the (sun) lighting regime for flora within the retained habitats on-site, as well as habitats neighbouring the three Kishoge sites. This will have a slight impact on a small proportion of the more light/shading sensitive flora.

Interactions between Biodiversity, Land, Soils and Geology; and Material Assets (Utilities)

Construction Stage

The impact of land take (habitat loss) for residential and road infrastructure and utilities on the local biodiversity within the sites is by far the most notable impact on biodiversity as a result of the construction of the three development sites at Kishoge.

Operational Stage

Given the long-term nature of the land take (habitat loss) this negative impact / interaction is carried forward to the operational stage of the three development sites.

Interactions between Biodiversity and Cultural Heritage (Archaeological & Architectural)

Construction Stage

The impact of interactions between Biodiversity and Cultural Heritage (Archaeological & Architectural) will be imperceptible during the construction stage of the development sites, unless archaeological remains are identified during the stripping of topsoil within the sites. If this scenario arises, the subsequent monitoring or preservation of these remains will elongated the disturbance and/or degradation of habitats, as well as the local fauna.

Operational Stage

In the event that the discovery of archaeological remains results in further investigation into habitats that are set to be retained, this will lead to additional ecological lag, limiting ecological functionality within the sites, as a result of the required reinstatement of habitats following archaeological investigations.

20.2.3 Land, Soils, Geology & Hydrogeology (Chapter 7)

Potential impacts between the management of land and soils during construction with various other chapters of the EIAR report has been considered to ensure any potential interactions do not result in a negative effect on the land and soils of the proposed development.

Interactions between the management of land and soils and the biodiversity have been considered for both the construction and operational phases of the project. The biodiversity chapter provides an extensive list of mitigation measures against negative impacts on biodiversity potentially caused by excavation and soil management.

Interactions between soils and land management and the hydrology of the proposed development have been considered. Extensive analysis of overland flood routes of the existing and proposed

development has been completed and detailed in the hydrology chapter to ensure that proposed excavations and soil movement do not increase flood risk but rather reduces it.

Further interactions between soils and land management and waste management have been analysed in the Waste Management Chapter. The proposed earthworks design has been analysed to result in the least volume of soils being removed from or imported to site and managing any proposed waste produced.

The proposed development is situated within close proximity to the Clonburris Northern Link Street (CNLS) which has been granted approval under reference SDZ24A/0033W

Refer to the below list for committed and planned projects in the wider vicinity of the project.

	Applicant	Description	No. Dwellings	Non-Resi (sqm)
Ref: SD179A24/0004 Date of Grant: Nov 2024 Status: Granted Permission	SDCC	118no. homes located off Lynch's Lane to the east of the R136 Outer Ring Road and south of Thomas Omer Way, in the townland of Kishoge, Lucan, Co. Dublin.	118	N/A
Ref: SDZ24A/0032W Date of Grant: TBC Status: At further information stage (requested 24.01.2025)	Department of Education	The retention and completion of revisions to a section of the northern site boundary comprising the omission of the pedestrian/cycle access off Thomas Omer Way.	N/A	N/A
Ref: SDZ24A/0033W Date of Grant: 10.02.2025 Status: Granted Permission	Clonburris Infrastructure Limited	Stage 2 Roads- The construction of c. 2.3km of a new Link Street Clonburris Northern Link Street (CNLS) and approximately 800m of side streets. Provision/upgrade of 12 signalised junctions. Approximately 2 km of upgrade of existing streets. Provision of 2 main public parks centrally and drainage infrastructure works.	N/A	N/A
Ref: SDZ23A/0043 Date of Grant: 17-Apr-2024 Status: Granted Permission	Cairn Homes Properties Limited	Kishoge Urban Centre- construction of a mixed-use development arranged in 11 no. blocks, ranging between 3 & 7 storeys, comprising: 495 no. residential units, including 449 no. apartments.	495	2,502sq.m of retail floorspace 483 sq. m creche
Ref: SDZ23A/0018 Date of Grant: 11-Dec-2023 Status: Granted Permission	Cairn Homes Properties Limited	Clonburris SW- construction of 565 dwellings (mixture of apartments, duplex apartments and houses.	565	N/A

Ref: SDZ23A/0004 Date of Grant: 15-Dec-2023 Status: Granted Permission	Clear Real Estate Holdings Limited	Adamstown Extension- 385 dwelling units (139 houses, 70 Build-to-Rent duplex / apartments, 72 duplex / apartments and 104 apartments), ranging between two to six storeys in height. This permission was amended under SDZ24A/0018W.	385	N/A
Ref: SDZ22A/0018 Date of Grant: 31-Oct-2023 Status: Granted Permission	Cairn Homes Properties Limited	Clonburris UC & SW- mixed-use development comprising 594 apartments, office floorspace, 4 retail units, a creche and urban square. This permission was amended under SDZ24A/0019W.	594	creche c. 609sq. m office use c. 4,516sq.m Block B retail: 1 unit (c.147.5sq. m) Block E retail: 3 units (c.106.2sq.m, c.141.6sq.m and c.492.2sq.m)
Ref: SDZ22A/0017 Date of Grant: 16-May-2023 Status: Granted Permission	Cairn Homes Properties Limited	Clonburris SW- Construction of 157 dwellings.	157	N/A
Ref: SDZ22A/0011 Date of Grant: 16-Feb-2023 Status: Granted Permission	Department of Education	Proposed 2-storey primary school comprising 16 no. classrooms with an additional 2 classroom Special Educational Needs Unit	N/A	Primary School (3,355sqm)
Ref: SDZ22A/0010 Date of Grant: 02-May-2023 Status: Commenced August 2023	Kelland Homes Limited	Clonburris UC & SE- construction of 294 no. dwellings, creche and retail / commercial unit. This permission was amended under SDZ24A/0030W.	294	1 no. 2 storey creche (c.520.2m2) 1 no. 2 storey retail /commercial unit (c.152.1m2)
Ref: SD228/0003 Date of Grant: 11-Jul-2022 Status: Part 8 Approved by SDCC	SDCC	Kishoge SW- 263 residential units	263	N/A
Ref: SD228/0001 Date of Grant: 13-Jun-2021	SDCC	Canal extension-118 residential units made up of houses, duplexes, triplexes, and an apartment building.	118	N/A

Status: Part 8 Approved by SDCC				
Ref: SDZ21A/0022 Date of Grant: 23-Aug-2022 Status: Commenced Jan 2023	Cairn Homes Properties Limited	Clonburris SW- The construction of 569 dwellings, a creche, innovation hub and open space. This permission was amended under SDZ23A/0029 resulting in 2no. additional units. This permission was amended again under SDZ24A/0028W.	569	innovation hub (626sq.m) creche (c. 547sq.m)
Ref: SDZ21A/0013 Date of Grant: 21-Feb-2022 Status: Granted Permission	Department of Education	Kishoge Cross- A 3 storey, 1,000 pupil post primary school including a 4 classroom Special Educational Needs Unit with a gross floor area of 11,443sq.m including sports hall	N/A	Post Primary School
Ref: SDZ20A/0021 Date of Grant: 12-Aug-2021 Status: 10 year permission	Clonburris Infrastructure Limited	Southern Link Street- construction of c. 4.0km of a new road, known as Clonburris Southern Link Street	N/A	Roads & Drainage Infrastructure

No cumulative impact or consequences are anticipated with the proposed developments.

20.2.4 Water (Chapter 8)

Potential impacts between the hydrology of the development during construction and operational phases with various other chapters of this EIAR report have been considered to ensure any potential interactions do not result in a negative effect on the Land and Soils of the proposed development.

Interactions between the Hydrology and Biodiversity Chapters have been considered. During the design of the proposed surface water management system, significant measures have been taken to ensure surface water is managed to enhance the biodiversity of the proposed development compared to the predeveloped state of the development. An extensive suite of SuDS features is proposed, where surface water is routed to plant areas, promoting sustainable surface water management and adding to the biodiversity of the proposed development.

The proposed surface water drainage infrastructure has been designed in accordance with the relevant guidelines. Any other developments currently under construction or other committed development in the vicinity of the site would have to be similarly designed in relation to permitted surface water discharge, surface water attenuation and SuDS.

All proposed developments in the area are to follow the Clonburris Surface Water Management Plan (SWMP) for the Clonburris SDZ, which accounts for the wider development of the SDZ. Therefore, no potential cumulative impacts are anticipated in relation to surface water drainage and flooding.

Refer to the list above under section 20.2.3 of this chapter for committed and planned projects in the wider vicinity of the project.

It is expected that any imported soil will be removed prior to construction commencing. Therefore, no potential cumulative impact are anticipated.

No cumulative impact or consequences are anticipated between the proposed development and future SDZ stages.

20.2.5 Air (Noise & Vibration) (Chapter 9)

The potential interaction between noise and vibration and other specialist chapters in the EIAR is primarily limited to Chapter 5 (Population & Human Health) and Chapter 13 (Material Assets - Transport). The noise and vibration chapter has been prepared in consideration of, and in conjunction with, the relevant elements of these chapters. The effects at the nearest Noise Sensitive Locations have been calculated during the construction and operational phases of the proposed development, and the associated impacts are further discussed within Chapter 5 (Population & Human Health). The traffic flow projections associated with the development, provided by the traffic consultants in Chapter 13 (Material Assets - Transport), have been utilised in the construction and operational noise calculations in this chapter of the EIAR report.

A description of construction effects, giving consideration to the EPA EIAR guidelines, has been presented in the Noise & Vibration EIAR chapter within Section 9.5.1. Similarly, a description of operational effects has been presented within Section 9.5.2 of the Noise & Vibration chapter.

20.2.6 Climate (Air Quality) (Chapter 10)

Air Quality and Population & Human Health

Construction Phase

Air quality does not have a significant number of interactions with other topics. The most significant interactions are between Population and Human Health and Air Quality. An adverse air quality impact during the construction phase can cause health and dust nuisance issues. There is a low risk of dust-related human health impacts during the construction phase of the proposed development. Best practice mitigation measures will be implemented during the construction phase to ensure that the impact of the proposed development complies with all ambient air quality legislative limits. Therefore, the predicted impact is direct, short-term, negative, localised and not significant with respect to Population and Human Health during the construction phase.

Operational Phase

Vehicles accessing the site will emit pollutants which may impact Air Quality and Human Health. However, the increased number of vehicles associated with the proposed development will not cause a significant change in air pollutant emissions in the locality. It has been assessed that emissions will be in compliance with the ambient air quality standards which are set for the protection of human health. Impacts will be long-term, localised, direct, negative and not significant.

Air Quality and Climate

Air Quality and Climate have interactions as the emissions from the burning of fossil fuels during the construction and operational phases generate both air quality and climate impacts. There is no impact on climate due to air quality. However, the sources of impacts on air quality and climate are strongly linked.

Air Quality and Land & Soils

Construction Phase

Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between Air Quality and Land & Soils in the form of dust emissions.

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 during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Air Quality, and Land & Soils during the operational phase.

Air Quality and Biodiversity

Construction Phase

Dust generation can occur during extended dry weather periods due to construction traffic along haul routes and construction activities such as excavations and infilling works. Dust emissions can coat vegetation leading to a reduction in the photosynthesising ability as well as other effects. The Grand Canal pNHA is within 20m of Site 4 of the proposed development and it has been assessed that there is a medium risk of dust impacts in this area. Dust mitigation measures will be implemented on site as set out in Chapter 11. With the implementation of these mitigation measures dust emissions will be minimised and impacts will be direct, short-term, negative, localised and not significant with respect to biodiversity.

Operational Phase

Impacts to the sensitive ecological species within the Grand Canal pNHA as a result of changes in air quality due to traffic emissions during the operational phase are predicted to be long-term, negative and slight, which is overall not significant in EIA terms.

Air Quality and Material Assets – Traffic & Transport

Construction Phase

Interactions between Air Quality and Traffic can be significant. 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 linked but there is no potential for significant impacts from traffic on air quality. The effects are considered to be direct, short-term, neutral, localised and not significant during the construction phase.

Operational Phase

The impact of the interactions between Traffic and Air Quality are considered to be long-term, direct, negative and not significant during the operational phase.

20.2.7 Climate (Climate Change) (Chapter 11)

Climate has the potential to interact with a number of other environmental attributes.

Land, Soils, Geology and Hydrology

The impact of flood risk has been assessed and the surface water drainage network will be designed to cater for increased rainfall in future years as a result of climate change. The effect of the interactions between climate and land, soils, geology and hydrology are direct, short-term, negative and imperceptible during the construction phase and direct, long-term, negative and imperceptible during the operational phase, which is overall not significant in EIA terms.

Air Quality

Air quality and climate have interactions due to the emissions from the burning of fossil fuels during the construction and operational phases generating both air quality and climate impacts. Air quality modelling outputs are utilised within the Climate Chapter. There is no impact on climate due to air quality. However, the sources of impacts on air quality and climate are strongly linked.

Traffic and Transportation

During the construction and operational phase, there is the potential for interactions between climate and traffic. Vehicles accessing the site will result in emissions of CO₂, a greenhouse gas. The effects of the proposed development on climate are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the effects of the interactions between traffic and climate are considered to be direct, short-term, negative and not significant during the construction phase and direct, long-term, negative and not significant during the operational phase, which is overall not significant in EIA terms.

Waste

Waste management measures will be put in place to minimise the amount of waste entering landfill, which has higher associated embodied carbon emissions than other waste management such as recycling. The effect of the interactions between waste and climate are considered to be direct, short-term, negative and not significant during the construction phase and direct, long-term, negative and not significant during the operational phase, which is overall not significant in EIA terms.

20.2.8 Landscape & Visual Impact (Chapter 12)

Population

Generally, the visual effects of construction are perceived to be chaotic due to the introduction of new structures, access roads, machinery movements, material storage, associated earthworks, car parking, lighting and hoarding during these phases of work. While measures are taken during the process to limit the nuisance factor these effects still remain but are temporary in nature. It is considered that the overall interaction between the population and visual landscape will be moderate to slight and short term during the construction phase.

The construction and operational phases will result in a change in character of the site. The removal of existing trees and hedgerows will be mitigated by the landscape measures proposed as part of the proposed development works. In many cases the change will result in the development of existing open ground to that of a residential setting with landscaped amenity areas and streetscapes. As a result, it is anticipated that the interaction between the local population and visual landscape will be positive, moderate in the long term.

Biodiversity

The potential impacts on biodiversity are in relation to loss of habitat, due to the removal of trees and hedgerows. However, the proposed development includes additional native hedge and tree planting and the retention and enhancement of hedgerows where possible and practical. In addition to its biodiversity value the plant material for the proposed development will be chosen based on its long-term suitability and aesthetic appeal. The new site planting can be categorised into the following key areas and types:

- Feature Trees within public open space,
- Smaller trees more suited to limited space/constrained planting zones (including over podiums),
- Street trees (columnar/ fastigiate in form),
- Hedging,
- Ornamental shrub planting,
- Ornamental herbaceous planting,
- Bulb planting.

As a result, it is anticipated that the interactions between biodiversity and visual landscape will be positive, slight in the long term.

Material Assets Utilities

The removal of a number of the existing ESB pylons, and the telecommunications tower, means the resulting impact on the visual landscape will be positive, moderate in the long term.

Material Assets Transport

The addition of new pedestrian, cycleway and street networks, means the resulting impact on the visual landscape will be positive, moderate in the long term.

Cultural Heritage (Architecture and Archaeology)

There is some potential for minor interactions between the assessment of impacts on Cultural Heritage and impacts on the visual landscape. However, the assessment undertaken with respect to the proposed development does not result in a visual impact on the Heritage Assets within the study area. It is anticipated, therefore, that the interaction between cultural heritage and the visual landscape will be imperceptible, neutral, in the long term through the construction and operational phases.

20.2.9 Material Assets (Transport) (Chapter 13)

This assessment was based on information contained within the EIAR, the outcome of workshops and consultation with the relevant sub-consultants. The main environmental interactions anticipated as they relate to the Proposed Project are summarised in the other sections.

Population and Human Health

Construction and operational stage traffic and traffic management measures have the potential to affect journey amenity or economic activity as a result of increased congestion or access restrictions. The upgraded infrastructure provided as part of the scheme can facilitate growth in population and increased infrastructure for sustainable travel modes can contribute towards modal shift in travel patterns and increased physical activity. The scheme provides increased access to local attractions by virtue of reduced congestion. Additionally, employment and economic activity will be generated during the construction stage of the project. Chapter 5 further describes the effect of the proposed scheme on Population and Human Health.

Biodiversity

The presence of the proposed development and new traffic flows can have impacts on biodiversity including physical land take of habitat, severance of commuting or feeding routes and direct mortality. Chapter 6 Biodiversity sets out a range of mitigation measures to reduce the impact.

Lands, Soils and Geology

The volumes of surplus soils generated by the scheme and the earthworks import requirement will affect construction stage traffic generation. Remedial measures are proposed for the Construction and Operational phases in Chapter 13. During Construction, The Construction Management Plan will ensure that construction traffic impacts are minimised through the control of site access / egress routes and site locations and any temporary lane closure requirements. During Operation, a low level of car parking provision will be reflected in less use of land.

Water

Construction and operational stage traffic have the potential to impact on water quality via hydrocarbon spills and leaks and via increased sediment/particle loading on trafficked surfaces. Measures to mitigate against impacts are detailed in Chapter 8.

Air (Noise & Vibration)

The noise emission sources from the proposed development during the construction and operational stages is assessed in Chapter 9. The noise impact assessment has been prepared in consultation with the design team and traffic engineers. Noise emissions have the potential to negatively impact on human beings, population and human health. The mitigation measures required to reduce traffic noise levels are specified in Chapter 9.

Climate (Air Quality)

The interaction between air quality and traffic is considered important. The proposed development will result in a change in traffic levels causing a change in ambient air pollution levels in certain areas along the scheme. However, ambient pollutant concentrations will increase in areas that did not experience high volumes of traffic prior to the scheme resulting in a negative impact. Overall, the impact of the interaction between air quality and traffic is considered temporary, low and not significant. Refer to Chapter 10 for additional information.

Climate (Climate Change)

As previously mentioned with regard to the interaction between air quality and traffic, the proposed development will result in a change in traffic levels causing a change in ambient air pollution levels in certain areas along the scheme. However, ambient pollutant concentrations will increase in areas that did not experience high volumes of traffic prior to the scheme resulting in a negative impact. Additionally, during the construction phase an increase in the emissions of greenhouse gasses will be present. However, the impact of the interaction between climate change and traffic is considered temporary, weak and not significant.

Landscape and Visual Impact

During the construction phase, the presence of a substantial construction site (including construction traffic entering and exiting the site) negatively affects visual amenity in adjacent areas. This subject is addressed under the scope of Chapter 12. The impacts due to the interactions with landscape and visual are anticipated to be Negative, Not Significant, over the Short Term for the Construction Phase. The impacts due to the interactions with landscape and visual are anticipated to be Positive, Not Significant over the Long Term for the Operational Phase.

Material Assets (Waste)

Construction and operational stage traffic have the potential to be impacted by waste generation and resource management on site. Measures to mitigate against impacts are detailed in Chapter 14.

20.2.10 Material Assets (Waste) (Chapter 14)

This section discusses interactions between this Chapter and other specialist environmental topics considered in this EIAR.

Land & Soils

During the construction phase, excavated soil, stone and clay will be generated from the excavations required to facilitate site levelling, construction of new foundations and the installations of site services across all the proposed development sites. It is envisaged that some of the excavated material will need to be removed off-site. When material has to be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort. Adherence to the mitigation measures in Chapter 14 (Material Assets (Waste)), Chapter 7 (Land, Soils and Geology) and the requirements of the RWMP (Appendix 14.1), will ensure the effect is **long-term, imperceptible** and **neutral**.

Traffic & Transportation

Local traffic and transportation will be impacted by the additional vehicle movements generated by removal of waste from the sites during the construction and operational phases of the proposed development. The increase in vehicle movements as a result of waste generated during the construction phase will be temporary in duration. There will be an increase in vehicle movements in the area as a result of waste collections during the operational phase but these movements will be imperceptible in the context of the overall traffic and transportation increase. Traffic-related impacts during the construction and operational phases are addressed in Chapter 13 (Material Assets (Transportation)). Provided the mitigation measures detailed in Chapter 13 and Chapter 14 are adhered to, the predicted effects are short to **long-term, imperceptible** and **neutral**.

Population & Human Health

The potential impacts on human beings are in relation to incorrect management of waste during construction and / or operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity. A carefully planned approach to waste management and adherence to the project specific RWMP and mitigation measures in Chapter 5 (Population & Human Health) and Chapter 15, will ensure appropriate management of waste and avoid any negative impacts on the local population. The effects should be *long-term, imperceptible* and *neutral*.

20.2.11 Material Assets (Utilities) (Chapter 15)

Land Soils and Geology

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 7 Land & Soils (i.e. service trenches to be backfilled as soon as practicable to minimise potential erosion of subsoils).

Potential Impacts

Other development in the vicinity of the 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.

20.2.12 Cultural Heritage (Archaeological & Architectural) (Chapter 16)

This section discusses interactions between this Chapter and other specialist environmental topics considered in this EIAR.

Landscape & Visual Impact

There is some potential for minor interactions at operation stage between the assessment of impacts on Cultural Heritage and impacts on the visual landscape. The assessment undertaken with respect to the proposed development does not result significant visual impacts on the Cultural Heritage sites within the study area. It is anticipated, therefore, that the interaction between Cultural Heritage and visual landscape will be imperceptible, neutral, in the long term through the construction and operational phases.

20.2.12 Risk Management (Major Accidents & Disasters) (Chapter 17)

As outlined in sections 17.6.1.2 and 17.6.1.3 above, no likely risks of a major accident / disaster occurring are identified during the Construction Phase. A medium risk of major accident / disaster in respect of the Proposed Development during the Operational Phase. No cumulative effects are identified.

Construction Phase

The potential risk during the Construction Phase of the Proposed Development is the same as described under 17.5.1.2.

Operational Phase

The potential risk during the Operational Phase of the Proposed Development is the same as described under 17.5.1.3.

Do-Nothing Impact

The 'do-nothing' impact of the Proposed Development will be the same as described under 17.6.1.