

21 SUMMARY OF INTERACTIONS

21.1 INTRODUCTION

This chapter of the EIAR identifies the principle interactions between the potential impacts of the environmental factors identified in Chapter 5 to 19 inclusive.

The principal interactions are summarised below, under Table 21.1, and further discussed in Section 21.2 of this Chapter.

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 (Noise and Vibration)		Climate (Air Quality)		Climate (Climate Change)		Climate (Sunlight & Daylight)		Landscape and Visual Impact		Material Assets (Transport)		Material Assets (Waste)		Material Assets (Utilities)		Cultural Heritage	
	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	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
Water	✓	✓	✓	✓	✓	✓			X	X	X	X	X	✓	X	X	X	X	✓	✓	✓	X	✓	✓	X	X
Air (Noise and Vibration)	✓	✓	✓	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	X
Climate (Climate Change)	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	✓	✓	✓	✓	✓	X	X	X
Climate (Sunlight & Daylight)	X	X	X	X	X	X	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
Material Assets (Transport)	✓	✓	✓	✓	✓	✓	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
Material Assets (Utilities)	✓	✓	✓	X	✓	X	✓	✓	X	X	X	X	X	X	X	X	X	X	✓	✓	X	X			X	X
Cultural Heritage	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	✓	✓	✓	X	X	X	X		

Table 21.1: Matrix of Interactions between Environmental Factors (During Construction and Operational Phases)

21.2 INTERACTIONS

21.2.1 Population & Human Health (Chapter 5)

Population & Human Health and Land, Soils and Geology:

Construction Stage

During construction of the proposed development, there is a risk of accidental pollution of land, soils, geology from suspended solids, cement/concrete, and hydrocarbons. With the design and mitigation measures outlined in Chapter 7 of this EIAR, no adverse interaction is anticipated between Population and Human Health and Land, Soils, and Geology during the construction phase. The interaction is therefore assessed as neutral, slight and short-term.

Operational Stage

As there are no source–pathway–receptor linkages to groundwater supplies, groundwater source protection areas, or baseflow in streams, no significant effects are predicted. Accordingly, the interaction between Population and Human Health and Land, Soils, and Geology during operation is assessed as neutral, slight, and long term.

Population & Human Health and Water:

Construction Stage

During construction, there is a potential risk (in the absence of mitigation) of accidental pollution of surface waters and groundwater from spillages or leakages of oils, fuels, silt, and concrete materials. There is also a potential risk to human health from contamination of the potable water supply by surface water or groundwater, with possible pathways including damaged or incorrectly installed pipes within the supply network. The impact is assessed as a moderate, neutral, short-term.

Operational Stage

During operation, potable water will be supplied via new pipework designed in accordance with Uisce Éireann standards. No downstream recreational, bathing, or surface water drinking abstractions are recorded, though unrecorded uses may exist. Taking into account the mitigation measures detailed in Chapter 8 of this EIAR, no negative interaction is anticipated between Population and Human Health and Water during operation. The interaction is therefore considered neutral, slight, and long term.

Population & Human Health and Biodiversity:

Construction and Operational Stage

No potentially significant interactions are identified between Population and Human Health and Biodiversity during either the construction or operational phases.

Population & Human Health and Air Quality:

Construction Stage

During construction, adverse air quality effects have the potential to cause health and dust nuisance issues. The risk of dust-related human health effects is considered low. Best practice mitigation measures will be implemented to ensure compliance with all ambient air quality legislative limits. Accordingly, the predicted effect is direct, short-term, negative, localised and not significant with respect to Population and Human Health.

Operational Stage

During operation, vehicle movements associated with the Proposed Development will generate emissions that could affect air quality and human health. However, the increase in traffic volumes will not result in a significant change in local pollutant levels. Emissions are predicted to remain in compliance with ambient air quality standards set for the protection of human health. The effect is therefore assessed as localised, direct, long-term, negative, and not significant.

Population & Human Health and Noise and Vibration:

Construction Stage

During construction, slight impacts may occur at nearby noise-sensitive properties due to noise from site traffic and construction activities, as well as vibration from certain works. The application of noise limits, restricted working hours, and appropriate noise and vibration control measures will ensure impacts are minimised.

Taking into account the mitigation measures set out in Chapter 12 (Noise and Vibration) of this EIAR, the interaction between Noise and Vibration and Population and Human Health is negative, not significant to moderate and short-term at the nearest NSLs.

Operational Stage

No major sources of mechanical or electrical plant associated with the Proposed Development are expected to generate audible noise beyond the buildings themselves.

With the mitigation measures outlined in Chapter 12, the interaction between Population and Human Health and Noise and Vibration during operation is considered neutral to negative, imperceptible to not significant, and long-term along the existing road network.

Population & Human Health and Landscape and Visual Impacts:

Construction Stage

The physical works associated with the construction stage will temporarily affect the landscape within the immediate context of the Proposed Development.

Taking into account the design and mitigation measures outlined in Chapter 13 (Landscape and Visual Impact) of this EIAR, these effects are not expected to result in a short-term and negative interaction with Population and Human Health.

Operational Stage

As detailed in Chapter 13, mitigation against visual impacts has been incorporated through building design and the implementation of a comprehensive landscape strategy. During operation, the development is therefore considered to have a neutral, moderate and long-term residual impact on the local population.

Population & Human Health and Archaeological, Architectural and Cultural Heritage:

Construction and Operational Stage

No potentially significant interactions are identified between Population and Human Health and Archaeological, Architectural, or Cultural Heritage during either the construction or operational phases. The interaction is therefore assessed as neutral, imperceptible, and long term.

Population & Human Health and Traffic and Transportation:

Construction Stage

As detailed in Chapter 14 (Material Assets - Transportation), construction of the Proposed Development will generate vehicular movements, including Heavy Goods Vehicles (HGVs), Light Goods Vehicles (LGVs), cars, and bicycles, resulting in temporary increases in traffic flows at nearby junctions. With the mitigation measures and management procedures outlined in Chapter 14 (Material Assets – Transportation) in place, the residual impact on the local population is predicted to be neutral and temporary.

Operational Stage

The assessment of additional traffic movements associated with the operational phase is presented in Chapter 14 (Material Assets - Transportation). With the implementation of the identified mitigation measures, the overall residual effect on the surrounding road network is assessed as **negative, not significant to moderate to significant and long-term**.

21.2.2 Biodiversity (Chapter 6)

Land, Soils and Geology

During construction there is a risk of accidental pollution to land, soil and geology within the area from construction works during construction through petrochemicals and construction waste. Surface water runoff from the surface of the excavated areas may result in silt and pollution entering the adjacent watercourses (Cunnigar and Castletown Streams). Earthworks will result in a loss of habitats and species locally, including habitat and foraging areas for birds and mammals. The potential interaction during construction between biodiversity and land, soils and geology is negative, short term and not significant.

Once the development is operational, the environment of the site would be considered stable with reduced overall area available to biodiversity but with benefits to certain bird species via the landscape plan incorporating native planting on formally arable cropland. 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 SuDS measures including petrol interceptors prior to discharge to adjacent watercourses, preventing discharge of pollutants to ground. The potential interaction during operation between Biodiversity and Land, Soils, and Geology is long term, neutral and imperceptible.

Water

There is a risk of accidental pollution to the adjacent Cunnigar Stream and Castletown Stream from construction works through introduction of contaminants, silts and pollution via run-off, unmitigated surface and foul water discharge and spills from machinery and material/fuel storage areas. Surface water runoff from the site naturally flows into these watercourses. The potential interaction during construction between Biodiversity and Water is negative, potentially significant and short term.

During operation, the Proposed Development will increase hardstanding areas within the site. The surface water drainage strategy will include SuDS features such as permeable paving, bioretention areas, swales, tree pits, and landscaped areas to provide 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 biodiversity. The interaction is considered to be long-term, imperceptible and neutral.

Noise and Vibration

During the construction phase of the Proposed Development, there will be a potential short-term impact on the active badger sett identified within the site through vibration as a result of construction activity and associated works. Vibration in close proximity poses a risk to the structural integrity of the badger sett, with the potential for tunnel collapse resulting in entrapment and/or abandonment of the sett. A minimum 30 metre exclusion zone prohibiting all construction personnel, machinery and activity will be enforced. No other impact on other biodiversity via noise or vibration is foreseen. Following full implementation and adherence of the 30-metre badger sett exclusion zone, the potential interaction between biodiversity and noise and vibration is a short term, neutral and not significant residual interaction.

During operation of the development, given the incorporation of the 30-metre badger sett buffer zone into the landscape plan, and the exclusion of roads within this area, no significant impact on the integrity or use of the badger sett is foreseen. Noise and vibration levels overall will be higher than current levels but stable through throughout the lifetime of the development. The resultant interaction between biodiversity in relation to vibration generated from additional traffic is considered long-term, neutral and not significant.

Landscape and Visual Impact

The overall result of landscape change within the proposed development will be a net loss of area available to biodiversity. Clearance works will remove vegetated habitats and reduce available foraging habitat for species. However, given the current arable crop use of the site, the majority of area lost is considered of low value to biodiversity overall. The likelihood of interactions between

landscape change and biodiversity during construction is considered to be short/medium-term, negative, not significant.

The operational phase will give rise to a change in the landscape character due to land-use change. The proposed development will result in the introduction of new structures, boundary treatments, roads, lighting, parking and landscaping. The proposed landscape plan retains the majority of the site's vegetated and treelined boundaries (maintaining biodiversity corridors) and improving the overall diversity of habitats available compared to current levels through native planting, which will displace some species while benefiting others. Overall, it is anticipated that the interaction between biodiversity and landscape and visual will be long term, negative, not significant.

Material Assets, including Transport, Waste & Utilities

The potential impacts on biodiversity are in relation to incorrect management of waste materials during construction and / or operation, which could result pollutants entering adjacent watercourses. In addition, road traffic entering and exiting the site could result in excess silt and mud being carried off site and entering watercourses via surface water run-off. Following full implementation of all recommended waste and traffic management practices during construction along with mitigation measures to protect watercourses, prevent excess soil/mud/silt on surrounding road networks, removal of foul wastewater off site and ensure maintenance of all construction vehicles on site, the predicted interaction between biodiversity and material assets will be short/medium-term, neutral, not significant.

When operational the Proposed Development will generate a number of trips by various modes of vehicular transport, with potential for accidental spills of oils, lubricants and petrochemicals entering the surface water network. Foul wastewater will also be produced throughout the lifetime of the development. With the appropriate installation and maintenance of SuDS features, including petrochemical interceptors, and suitable connection to the public foul sewer system, the interaction between biodiversity and material assets will be long-term, imperceptible and not-significant.

21.2.3 Land, Soils & Geology (Chapter 7)

Biodiversity

Removal of the existing topsoil layer will be required across the site as well as removal of some trees, hedgerows etc. Further details including any potential issues and mitigation measures are outlined in Chapter 6 Biodiversity. Harmful materials on site like plastics and different types of material dust can get into a water source and cause pollution. Measures must be in place to prevent this from occurring.

Water

Interactions with Water and Hydrology arise during the construction phase and the operational phase. The surface water drainage infrastructure for the development will collect the rainfall on the site and convey the storm water run-off via tree pits, bio-retention area, rain gardens, infiltration basins, gullies, underground pipes, manholes, catchpit manholes and direct the flows via void arched attenuation systems towards vortex flow restricting devices (Hydrobrake or similar) and petrol interceptors before out falling to the existing on site open watercourses to the south/existing drainage network to the east. During the construction phase a site-specific CEMP will manage site water and will mitigate the risk of surface contaminants infiltrating into the underlying geology and hydrogeology. Surface water drainage from the operational site has been designed in accordance with Greater Dublin Strategic Drainage Study (GSDSDS) and SuDs methods will be used to manage drainage.

Air (Noise and Vibration)

Development of the site will result in a level of noise and vibration related effects on the surrounding environment during the construction phase. The interaction between Water and Hydrology and Noise and Vibration is considered to be moderate and temporary in nature. A construction traffic management plan will be implemented in order to minimise the disturbance caused by traffic.

Climate (Air Quality)

There is a potential for soil excavation activity to impact on air quality in terms of dust generated. Dust generation can also occur during extended dry weather periods as a result of construction traffic. However, the implementation of suitable mitigation measures as outlined in a CEMP for the site will ensure a neutral impact.

Landscape and Visual Impact

Modification to existing ground levels for proposed roads, drainage, and finished floor levels will alter the sites natural landscape in localised areas. The vast majority of levels throughout the site have been set to follow the sites natural contours, where possible. All levels near boundaries and existing buildings have been set to mimic existing ground levels.

Material Assets (Transport)

Interactions with Traffic and Transport arise during the construction phase when soil and subsoils and demolition waste are being transported to and from the site and raw materials for construction are being imported to the site. A construction traffic management plan will be implemented in order to minimise the disturbance caused by traffic.

Delivery of materials to site (e.g. aggregates for road construction, concrete for foundations, delivery of construction plant to site) and removal of excavated topsoil / subsoil will lead to potential impact on the surrounding road network.

Material Assets (Waste)

Interactions with Waste Management arise during the construction phase when soil, subsoils and demolition waste from excavations are being transported from the site. These waste materials will require appropriate transport and disposal. A Waste Classification Report for soils and subsoils shall be prepared in order to define appropriate waste disposal outlets.

Material Assets (Utilities)

Trench excavations to facilitate installation all services on site will result in the exposure of subsoils to increased potential of erosion and contamination.

21.2.4 Water (Chapter 8)**Population and Human Health**

There is a risk to human health from contamination of the potable water supply from surface water or ground water. The ground water and supply network would present possible pathways such as damaged or incorrectly installed pipes.

Biodiversity / Species & Habitat

Removal of the existing topsoil layer will be required across the site as well as removal of some trees, hedgerows etc. Further details including any potential issues and mitigation measures are outlined in Chapter 6 Biodiversity. Harmful materials on site like plastics and different types of material dust can get into a water source and cause pollution. Measures must be in place to prevent this from occurring.

Land and Soils

Interactions with Land and Soils arise during the construction phase and the operational phase. The surface water drainage infrastructure for the development will collect the rainfall on the site and convey the storm water run-off via tree pits, bio-retention area, rain gardens, infiltration basins, gullies, underground pipes, manholes, catchpit manholes, all which require digging of existing land, and direct the flows via void arched attenuation systems towards vortex flow restricting devices (Hydrobrake or similar) and petrol interceptors before out falling to the existing on site open watercourses to the south. During the construction phase a site-specific CEMP will manage site water and will mitigate the risk of surface contaminants infiltrating into the underlying geology and hydrogeology. Surface water drainage from the operational site has been designed in accordance

with Greater Dublin Strategic Drainage Study (GDSDS) and SuDs methods will be used to manage drainage.

Air (Noise and Vibration)

Development of the site will result in a level of noise and vibration related effects on the surrounding environment during the construction phase. The interaction between Water and Hydrology and Noise and Vibration is considered to be moderate and temporary in nature. A construction traffic management plan will be implemented in order to minimise the disturbance caused by traffic.

Material Assets (Waste)

Interactions with Waste Management arise during the construction phase when soil, subsoils and demolition waste from excavations are being transported from the site. These waste materials will require appropriate transport and disposal. A Waste Classification Report for soils and subsoils shall be prepared in order to define appropriate waste disposal outlets.

Material Assets (Utilities)

Surface water runoff from the site will be attenuated to the existing greenfield runoff rate as outlined in the Greater Dublin Strategic Drainage Study (GDSDS). Surface water discharge rates will be controlled by Hydrobrake type vortex flow control devices, located at all attenuation areas, in conjunction with attenuation storage in all locations.

Implementation of mitigation measures will ensure that the potential effects of the proposed development on water and the hydrogeological environment do not occur during the construction and operational phases and that any residual effects will be slight, short-term and have a neutral impact on the environment.

21.2.5 Climate (Air Quality) (Chapter 9)

Air Quality and Population & Human Health

Construction Phase

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. There are no designated ecological sites within 250 m of the proposed development site area. Significant dust impacts are not predicted beyond this distance. Dust mitigation measures will be implemented on site as set out in Chapter 9. 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

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

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, negative, 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.

21.2.6 Climate (Climate Change) (Chapter 10)

Climate (Climate Change) 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.

21.2.7 Climate (Daylight & Sunlight) (Chapter 11)

There are no interactions relating to effects on Daylight and any other section of this EIAR.

There are no interactions relating to effects on Sunlight and any other section of this EIAR.

21.2.8 Air (Noise & Vibration) (Chapter 12)

There is an inter-relationship between noise and vibration and human health. The potential impacts on human beings in relation to the generation of noise and vibration during the Construction Phase could cause nuisance to people in nearby sensitive locations. Implementation of the mitigation measures set out and adherence to good practice noise reducing measures will ensure that the resultant residual construction noise effect of impact on the closest receptors at 20m from the site will be **negative, moderate to significant** and **temporary**. For NSL's further than 50m from the nearest works an effect is **negative, slight to moderate and short-term** is predicted over the course of the construction stage.

Similarly, vibration impacts during the construction phase will be well controlled through the use of low impact equipment and adherence to strict limit values which will be subject to monitoring at the nearest sensitive buildings. The overall residual effect will be **short-term, moderate to significant**.

During the Operational Phase, siting and selecting mechanical plant to achieve the relevant noise criteria will result in a residual impact that is imperceptible to people in nearby noise sensitive locations, both within the proposed project and off-site. External noise sources acting on the development have been assessed and mitigation to ensure internal noise levels achieve the relevant noise criteria will result in a residual impact that is **neutral, long term** and **imperceptible to not significant** effect of impact. Noise effects from external creche activities will be neutral, not significant and long term for both

There are interactions between the noise and vibration assessment and traffic assessment. With increased traffic movements, the noise levels in the surrounding area increase. The impacts of the proposed development on the noise environment are assessed by reviewing the change in traffic flows on roads close to the site. In this assessment, the interactions between traffic and noise are considered to be resulting effect of impact is of **neutral, long-term** and **not-significant**. Due to the low level changes in traffic flows associated with the proposed development.

21.2.9 Landscape & Visual Impact (Chapter 13)

Population

Generally, the visual effects of construction are perceived to be chaotic due to the haphazard nature of plant and machinery 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 the visible landscape and will be **negative, moderate and short term** during the construction phase.

The operational phases will result in a change in character of the site with the removal of open fields having a negative visual impact. The landscape measures proposed as part of the site development works will mitigate against this removal. As a result, it is anticipated that the interaction between the local population and the visible landscape will be **neutral, moderate, and long term** during the operational phase.

Biodiversity

The potential impacts on biodiversity are in relation to loss of habitat, due to the removal of some trees and hedgerows. However, the proposed development includes significant landscape mitigation measures, the additional native hedge and tree planting, and the retention and enhancement of the majority of trees and hedgerows where possible and practical. As a result, it is anticipated that the interactions between biodiversity and the visible landscape will be **imperceptible, neutral, and long term** under the construction and operational phases.

Cultural Heritage (Architecture and Archaeology)

The proximity of a national monument and protected structures to the proposed development gives rise to a potential for interactions and impacts between the visible landscape and the Cultural Heritage of the area particularly during construction. It is considered that the overall interaction between the cultural heritage and the visible landscape and will be **negative, moderate and short term** during the construction phase.

Given the landscape protection and mitigation measures proposed, the assessment undertaken with respect to the proposed development when built 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 visible landscape will be **moderate, neutral, and long term** under the operational phase.

21.2.10 Material Assets (Transport) (Chapter 14)

Traffic and Transportation can interact with several other environmental aspects during both the construction and operational phases of the development. These interactions are discussed below.

Water

Interactions with water and hydrology arise during the construction phase when excavations are undertaken on site and potential groundwater is encountered. A construction traffic management plan will be implemented in order to minimise the disturbance caused to/by traffic and also mitigation measures will be provided to control groundwater on site.

Land and Soils

Interactions with Land and Soils arise during the construction phase and the operational phase. The transport infrastructure for the development will collect and appropriately use or store any material excavated or introduced into the site.

Biodiversity / Species & Habitat

Removal of the existing topsoil layer will be required across the site as well as removal of some trees, hedgerows etc. Further details including any potential issues and mitigation measures are outlined in Chapter 6 Biodiversity.

Ample greenspace has been incorporated into the site to accommodate the local environment.

Noise and Vibration

Development of the site will result in a level of noise and vibration related effects on the surrounding environment during the construction phase. The interaction between Traffic and Transport and Noise and Vibration is considered to be moderate and temporary in nature. A construction traffic management plan will be implemented in order to minimise the disturbance caused by traffic.

The additional operational traffic will be low compared to the existing traffic volume, and due to its nature, it would be low speed, low volume, peak hour traffic, that would not cause a significant increase in noise level.

Air Quality

The minor increase in traffic volumes as a result of the proposed development, will have low or minimal impacts on the air quality.

Waste

Interactions with Waste Management arise during the construction phase when soil, subsoils and demolition waste from excavations are being transported from the site. These waste materials will require appropriate transport and disposal. A Waste Classification Report for soils and subsoils shall be prepared in order to define appropriate waste disposal outlets.

21.2.11 Material Assets (Waste) (Chapter 15)

The generation and management of waste during both the construction and operational phases of the Proposed Development may interact with other environmental factors assessed in this EIAR. These interactions are summarised below.

Population and Human Health

Construction Stage

Waste management practices have the potential to affect human health through exposure to improperly stored or handled waste, particularly organic and hazardous materials. However, the implementation of the RWMP will ensure that waste is segregated, stored in appropriate receptacles, and collected regularly by authorised contractors. These measures will minimise risks associated with odour, pests, and contamination, thereby protecting the health and well-being of future residents, workers, and the surrounding community. Potential effects on population and human health are addressed in Chapter 5.

Operational Stage

Waste management practices have the potential to affect human health through exposure to improperly stored or handled waste, particularly organic and hazardous materials. However, the implementation of the OWMP will ensure that waste is segregated, stored in appropriate receptacles, and collected regularly by authorised contractors. These measures will minimise risks associated with odour, pests, and contamination, thereby protecting the health and well-being of future residents, workers, and the surrounding community. Potential effects on population and human health are addressed in Chapter 5.

Land and Soil

Construction Stage

Excavation and construction activities will generate significant volumes of soil and stone. The RWMP outlines that approximately 195,000 m³ of excavated material will be reused on site, with the remainder subject to appropriate off-site reuse or disposal. The management of contaminated soil, if encountered, will be undertaken in accordance with the Land and Soils chapter and the CEMP. Proper classification and handling of soil waste will prevent degradation of land quality and avoid cross-contamination with clean materials. Potential effects on land and soils are addressed in Chapter 7.

Operational Stage

No interactions between waste and land and soils are predicted during the operational phase.

Hydrology and Hydrogeology

Construction Stage

Improper storage or disposal of waste, particularly hazardous substances, has the potential to impact surface water and groundwater quality. The RWMP includes provisions for bunded storage of hazardous materials and protocols for managing contaminated soil. These measures, along with site drainage controls outlined in the CEMP, will mitigate the risk of leachate or runoff entering watercourses and protect the hydrological environment. Potential effects on water are addressed in Chapter 8.

Operational Stage

No interactions between waste and hydrology and hydrogeology are predicted during the operational phase.

Climate

Construction Stage

Waste management contributes to greenhouse gas emissions, particularly through landfill disposal and transport. The RWMP prioritise reuse, recycling, and recovery of materials, which will reduce the volume of waste sent to landfill and associated emissions. The use of off-site construction methods and modular components, as outlined in the RWMP, also supports resource efficiency and lower carbon outputs during construction. The direct and indirect effects of the Proposed Development on climate, such as GHG emissions are assessed in Chapter 11.

Operational Stage

Waste management contributes to greenhouse gas emissions, particularly through landfill disposal and transport. The OWMP prioritise reuse, recycling, and recovery of materials, which will reduce the volume of waste sent to landfill and associated emissions. The direct and indirect effects of the Proposed Development on climate, such as GHG emissions are assessed in Chapter 11.

Traffic

Construction Stage

Waste collection and removal activities will generate additional vehicle movements the construction and phase. These movements may interact with local traffic patterns and contribute to noise and emissions. However, the RWMP confirms that waste will be collected by authorised contractors using existing regional infrastructure. Potential effects on traffic are addressed in Chapter 14.

Operational Stage

Waste collection and removal activities will generate additional vehicle movements the construction and phase. These movements may interact with local traffic patterns and contribute to noise and emissions. However, the OWMP notes that operational waste will be added to existing collection routes. These factors will help minimise traffic-related effect associated with waste transport. Potential effects on traffic are addressed in Chapter 14.

21.2.12 Material Assets (Utilities) (Chapter 16)

Population and Human Health

There is a risk to human health from contamination of the potable water supply from surface water or ground water. The ground water and supply network would present possible pathways such as damaged or incorrectly installed pipes

Biodiversity

Removal of the existing topsoil layer will be required across the site as well as removal of some trees, hedgerows etc. Further details including any potential issues and mitigation measures are outlined

in Chapter 6 Biodiversity. Harmful materials on site like plastics and different types of material dust can get into a water source and cause pollution. Measures must be in place to prevent this from occurring.

Land, Soil and Geology

Interactions with Land and Soils arise during the construction phase and the operational phase. All proposed utilities such as foul sewer, surface water drainage, SuDs features, telecommunications etc. will require digging of the existing land ranging from depths of 1.0m to 6.0m

Water

The surface water drainage infrastructure for the development will collect the rainfall on the site and convey the storm water run-off via tree pits, bio-retention area, rain gardens, infiltration basins, gullies, underground pipes, manholes, catchpit manholes, all which require digging of existing land, and direct the flows via void arched attenuation systems towards vortex flow restricting devices (Hydrobrake or similar) and petrol interceptors before out falling to the existing on site open watercourses to the south. During the construction phase a site-specific CEMP will manage site water and will mitigate the risk of surface contaminants infiltrating into the underlying geology and hydrogeology. Surface water drainage from the operational site has been designed in accordance with Greater Dublin Strategic Drainage Study (GDSDS) and SuDs methods will be used to manage drainage.

Air (Noise and Vibration)

Development of the site will result in a level of noise and vibration related effects on the surrounding environment during the construction phase. The interaction between Material Assets and Noise and Vibration is considered to be moderate and temporary in nature. A construction traffic management plan will be implemented in order to minimise the disturbance caused by traffic.

Climate (Air Quality)

There is a potential for excavation activity to impact on air quality in terms of dust generated.

Dust generation can also occur during extended dry weather periods as a result of construction traffic. However, the implementation of suitable mitigation measures as outlined in a CEMP for the site will ensure a neutral impact.

21.2.13 Cultural Heritage (Archaeological & Architectural) (Chapter 17)

No interactions of effects were identified in relation to Cultural Heritage.