

21 CUMULATIVE AND INTERACTIVE EFFECTS

21.1 Introduction

This Chapter of the EIAR identifies the principal interactions between the potential impacts of the environmental factors identified in Chapter 6 to 20 inclusive.

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

The predicted impacts identified in Chapters 6 – 20 have taken into account the principal interactions listed below and associated mitigation measures.

The cumulative impacts arising from the interaction of impacts identified below, are also outlined in this Chapter.

This Chapter of the EIAR has been prepared by Eleanor Mac Partlin, EIAR Manager, with assistance from Conor Auld, EIAR Co-ordinator both from Stephen Little & Associates, Chartered Town Planners and Development Consultants. Eleanor is the Associate Director of Stephen Little and Associates and has significant experience in the management and delivery of complex multidisciplinary projects, with particular experience in Town Planning and EIA. Conor has over 5 years professional experience in town planning, including large scale residential projects requiring environmental impact assessment considerations. Conor is a Member of the Irish Planning Institute.

	Transport	Air Quality	Climate	Noise and Vibration	Biodiversity	Archaeology and Cultural Heritage	Architectural Heritage	Landscape and Visual Impact	Water	Land, Soils	Hydrogeology	Material Assets - Waste Management	Population and Human Health	Material Assets – Utilities and Telecommunications	Major Accidents and Disasters
Transport		CO	CO	C	-	-	-	-	-	C	-	CO	CO	-	-
Air Quality	CO		CO	-	C	-	-	-	C	C	-	-	C	-	-
Climate	CO	CO		-	-	-	-	-	O	-	-	-	CO	-	-
Noise and Vibration	C	-	-		-	-	C	-	-	C	-	-	C	O	-
Biodiversity	-	C	-	-		-	-	O	CO	-	-	-	-	-	-
Archaeology and Cultural Heritage	-	-	-	-	-		CO	-	-	-	-	-	-	-	-
Architectural Heritage	-	-	-	C	-	C		CO	-	-	-	-	-	-	C
Landscape and Visual Impact Assessment	-	-	-	-	O	-	CO		-	C	-	-	-	O	-
Water	-	C	O	-	CO	-	-	-		C	C	-	CO	CO	-
Land Soils	C	C	-	C	-	-	-	C	C		C	C	-	C	-
Hydrogeology	-	-	-	-	-	-	-	-	C	C		C	-	-	-
Material Assets - Waste Management	CO	-	-	-	-	-	-	-	-	C	C		-	-	-
Population and Human Health	CO	C	CO	C	-	-	-	CO	CO	-	-	-		CO	CO
Material Assets - Utilities and Telecommunications	-	-	-	-	O	-	-	O	CO	C	-	-	CO		-
Major Accidents and Disasters	-	-	-	-	-	-	C	-	-	-	-	-	CO	-	

Table 21. 1: Potential for Interactive Effects of Significance

Key

'C' = potential for interactive effects during construction.

'O' = potential interactive effects during operation.

'-' = not considered that there is potential for interactive effects

21.2 Assessment Methodology

21.2.1 Overview

The assessment of cumulative effects has been undertaken on a qualitative basis by each of the environmental topic leads based on best scientific knowledge.

21.2.2 Cumulative Effects

The EIAR has considered and assessed cumulative effects arising from the construction and operation of the proposed development. A cumulative assessment has been undertaken based on best scientific knowledge in accordance with Part 5 of Annex IV of the EIA Directive as follows:

“(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;”

21.2.3 Interactive effects

The EIAR has considered and assessed cumulative effects arising from the construction and operation of the proposed development. Interactive effects (or interactions), refer to any direct or indirect effects caused by the interaction of environmental factors as outlined in Part 1 (e) in Article 3 of the EIA Directive which states:

“The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

Population and human health;

Biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;

Land, soil, water, air and climate;

Material assets, cultural heritage and the landscape;

The interaction between the factors referred to in points (a) to (d).”

All environmental factors are inter-related to some extent, and the relationships can range from tenuous to inextricable. The interactions between the identified environmental effects have already been considered and assessed within the individual chapters of this EIAR. There have been numerous discussions and communications between the environmental specialists and the design team throughout the design process which assisted in identifying and minimising the potential for significant adverse interactive effects. Measures to minimise adverse effects have been incorporated into the design and are also considered in all of the individual assessments and, where mitigation measures are applicable, the residual effects have then been assessed.

Table 21.1 demonstrates the potential interactions between the environmental factors in a matrix format with the purpose to identify potential effects in different media. Actual effects and their significance are dealt with the most relevant chapter.

21.3 Cumulative Effects

21.3.1 Overview

The assessment of cumulative effects has considered likely significant effects that may arise during construction and operation of the proposed development.

Cumulative effects were assessed to a level of detail corresponding with the information available at the time of assessment based on best scientific knowledge

The assessment specifically considers whether any of the proposed and/or recently approved schemes in the local area have a potential to alter the significance of effects associated with the proposed developed based on best scientific knowledge. Proposed and existing developments, most likely to

result in cumulative effects arising from the construction and operation of the proposed development, have been listed in Appendix 21.1. Any other existing projects not identified in the chapter, do not have the potential to alter the significance of effects.

Cumulative effects are addressed under separate headings in each individual EIA Chapter. Refer to chapters 6-20 of the EIA for a detailed description of potential cumulative effects.

21.4 Interactive Effects

21.4.1 Overview

The assessment of interactive effects has considered potential for interactive effects during construction and operation of the proposed development. A summary of these effects is presented in the matrix in Table 21.1

If there is the potential for interactive effects during construction, this is indicated by the 'C' in the matrix. Similarly, 'O' in the matrix indicates the potential interactive effects during operation. If it is not considered that there is potential for interactive effects, the box contains a '-.'

The purpose of the matrix in Table 21.1 is to identify potential for notable interactive effects. The matrix only indicates that there is potential for interactive effects between two environmental factors and does not specify which factor would be the cause of the effect. Nor does the table qualify the nature or magnitude of the interactive effect. We refer the Board to the summary of interactions in sections below for further discussion on the significance of the interactive effects.

21.5 Interactions

21.5.1 Transport

Air Quality

The generation of traffic has the potential to have a negative effect on air quality.

However, traffic levels generated by the proposed scheme during the construction and operational phases will not be significant enough to have a detectable effect on air quality. The anticipated increases in traffic volumes are negligible, and significantly less than 5% for operation and less than 10% for construction. Traffic is therefore unlikely to result in significant air quality effects during construction and operational phases.

The effects on traffic and transport due to the proposed scheme are assessed in Chapter 6 - Transport. The effects of the traffic generated by the scheme on air quality are considered in Chapter 7 – Air Quality.

Following the implementation of the proposed mitigation measures, no significant residual effects on air quality are expected during the construction or operation of the proposed scheme.

Climate

The transportation of construction material to and from site has the potential to generate carbon emissions and thus has the potential to affect climate. However, due to the scale of traffic predicted (5 two-way trips per peak hour), no significant effects on climate are predicted.

There is the potential for carbon emissions to be generated from vehicles accessing the site. However, due to the very limited car parking provision, no significant effects are predicted during the operational phase of the proposed development.

The effects on traffic and transport due to the proposed scheme are assessed in Chapter 6, Transport. The effects of the traffic generated by the development on climate are assessed in Chapter 8 - Climate.

Following the implementation of the proposed mitigation measures, no significant residual effects on climate due to embodied carbon from material transport are expected.

Noise and Vibration

The generation of traffic has the potential to have a negative effect on noise and vibration.

However, traffic levels generated by construction vehicles during the construction phase or maintenance vehicles during the operational phase will not be significant enough to have a detectable effect on noise and vibration. The predicted increases on affected roads are significantly less than 25%. Traffic is therefore unlikely to result in significant noise effects during construction and operational phases.

The effects on traffic and transport due to the proposed scheme are assessed in Chapter 6 - Transport. The effects of noise levels at the nearest sensitive receptors are assessed in Chapter 9 - Noise and Vibration.

Following the implementation of the proposed mitigation measures, no significant residual noise or vibration effects are expected.

Population and Human Health

The generation of traffic during the construction and operational phases of the proposed development has the potential to indirectly affect population and human health. The level of construction generated traffic is not expected to be significant. Proposed access routes will keep trucks to an established HGV route, minimising their impact on residential areas. The potential disturbance is likely to result in a slight negative temporary effect on the population. The anticipated increases in traffic volumes during the operational phase are negligible, and no significant indirect effects are predicted.

The effects of the traffic generated by the scheme on local road users is assessed in Chapter 6 - Transport. The effects of traffic and transport on the population in the local area are addressed in Chapter 18 - Population and Human Health.

Following the implementation of the proposed mitigation measures, no significant residual population and human health effects are expected.

21.5.2 Air Quality

Interactions

Adherence to the mitigation measures outlined in Section 7.6 of Chapter 7 – Air Quality will ensure that there are no significant impacts on air quality from the proposed development. The management of dust during the construction phase will be in accordance with the TII Guidelines.

Traffic & Transport

The traffic volumes as presented in Chapter 6 - Transport, show that during the peak construction period, there will be approximately 5 additional HGV movements per hour due to proposed development. This increase is significantly less than the 10% increase in traffic volumes that triggers the requirement for a detailed assessment and is unlikely to result in significant air quality effects during construction.

Traffic volumes during the operational phase will also be minimal, limited to access/egress from the proposed 26 car parking spaces, deliveries/collections and service traffic, and as such, no significant air quality effects are predicted. There is therefore no requirement for a detailed assessment and is unlikely to result in significant air quality effects during operation.

Climate

As permitted under ABP-306569-20, the indicative sizing of the proposed gas boilers for use is 600kW. Four such boilers are proposed to be located in the basement of Block B which will also serve Block A. These boilers are not subject to registration under the Medium Combustion Plant Directive (for emission sources between 1MW and 50MW) and are therefore not considered significant under air quality or climate. An emergency generator, of indicative sizing of 450kVA, will be located onsite. As this generator will only be used during periods of power failure, no significant effect on climate is expected to occur.

Biodiversity / Land & Soils / Resources & Waste Management

The construction phase of the proposed development is considered to be of a major scale in terms of air quality, refer to Table 7.2. This has the potential to result in soiling effects within 100 m and PM10 and vegetation effects within 25m of the works with standard mitigation in place.

As permitted under ABP-306569-20, during the construction phase of the proposed development it is possible that disturbance of ACMs on site could cause asbestos fibres to be released into the ambient environment. An asbestos audit will be carried out on the buildings scheduled for demolition prior to demolition works. Any asbestos discovered will be removed by a Specialist Contractor in accordance with Safety, Health, and Welfare at Work (exposure to Asbestos) Regulations 2006/2013, and disposed of by specialist contractors to an appropriately licensed facility. Traceable records of this activity, including the disposal licence, will be kept.

Water

The assessment of the likely significance of dust effects during construction includes for the implementation of 'standard mitigation', as stated in the TII Guidance. This includes the provision of wheel washes at exit points and sweeping of hard surface. The management of surface water from the site during the construction phase in accordance with TII Guidance and is unlikely to result in significant air quality effects during construction.

Population & Human Health

In general, any additional airborne concentrations of particulate matter arising from construction would be small and very local to the construction site (minimising human exposure). Particles generated by most construction activities tend to be larger than 10µm in diameter which are too large to enter the human lung.

The construction phase of the proposed development is considered to be of a major scale (refer to Table 7.2 within Chapter 7 – Air Quality). There is potential for a significant impact from dust arising from construction activities at properties along the western and northern boundary of the proposed development. Standard construction mitigation measures will be implemented. Dust monitoring will be undertaken at a range of nearest sensitive receptors during the construction phases. The TA Luft dust deposition limit values of 350 mg/m²/day (averaged over one year) will be applied as a 30-day average.

With implementation of the identified mitigation measures in Chapter 7 (see also Chapter 22), significant residual negative effects on air quality are not envisaged during the construction or operation of the proposed development.

21.5.3 Climate

Traffic & Transport

There is the potential for carbon emissions to be generated from construction vehicles accessing the site. However, due to the scale of traffic predicted (5 two-way trips per peak hour), no significant indirect effects are predicted during the construction phase of the proposed development.

There is the potential for carbon emissions to be generated from vehicles accessing the site. However, due to the scale of traffic predicted (26 car parking spaces), no significant indirect effects are predicted during the operational phase of the proposed development.

Air Quality

As permitted under ABP-306569-20, the indicative sizing of the proposed gas boilers for use is 600kW. Four such boilers are proposed to be located in the basement of Block B which will also serve Block A. These boilers are not subject to registration under the Medium Combustion Plant Directive (for emission sources between 1MW and 50MW) and are therefore not considered significant under air quality or climate. An emergency generator, of indicative sizing of 450kVA, will be located onsite. As this generator will only be used during periods of power failure, no significant effect on air quality is expected to occur.

Water

An Energy Analysis Report has been prepared as part of the planning documentation. This report outlines the current building regulations framework and the requirement to achieve a Nearly Zero Energy Building (NZEB) for all new developments. The NZEB standard is demonstrated using the Dwelling Energy Assessment Procedure (DEAP) software. The principal energy use associated with residential developments as assessed under DEAP is the domestic hot water to showers, sinks, basins etc. which accounts for over half of the total annual energy consumption for an apartment

Population & Human Health

This analysis undertaken identified that the proposed development was determined to not introduce any adverse wind effects to the rooftop amenity space. The space is generally deemed suitable for short/long term sitting, provided a balustrade/wind screening is in place, with a minimum height of 2 metres. The analysis also identified no deterioration of wind conditions at ground level nor local roof level amenities of the permitted scheme as a result of the tower redesign. Therefore, no significant effects are predicted to occur.

In relation to sunlight and daylight, the assessment identified that the tower redesign has no impact on the overall daylight compliance rate of the development when compared against the previous submitted scheme. Whilst one further space in the existing scheme has now just fallen marginally below the BRE guidelines (1.4% achieved/ 1.5% target) the redesign of the tower itself has resulted in full compliance where previously one space did not achieve the BRE guidelines. Neighbouring buildings on Montpellier Hill have also been assessed. The quantitative analysis determined that there would be no negative impact on the neighbouring houses as a result of the proposed development. Additionally, Appendix 8.2 provides further analysis which identified that the shadow of the tower would only be incident on the dwellings for part of one hour per day.

21.5.4 Noise and Vibration

General

In compiling this impact assessment, reference has been made to the project description provided by the project co-ordinators, project drawings provided by the project architects and information relating to mechanical plant provided by the mechanical engineers. Refer to the relevant chapters for additional information.

Population & Human Health

The potential impacts on human beings in relation to the generation of noise and vibration during the construction phases are that high levels of noise and vibration 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 residual impact on human health will be lessened and impacts will be short-term in nature.

Similarly, during the operational phase, designing plant selections to achieve the relevant noise criteria will result in a residual impact that is imperceptible to people in nearby noise sensitive locations. External noise sources acting on the development have been assessed and mitigation to ensure internal noise levels achieve the relevant noise criteria.

21.5.5 Biodiversity

Adherence to the mitigation measures outlined in Chapter 10, Section 10.6 will ensure that there are no significant impacts on biodiversity from the proposed development.

The management of water during the construction phase in accordance with the CEMP (Appendix 4.1 of this EIAR) will meet the requirements of national legislation and avoid impacts on the River Liffey and the European sites located in Dublin Bay.

During the construction phase the management of surface water will ensure the avoidance of impacts on the River Liffey and the European sites located in Dublin Bay. Adherence to the mitigation measures in Chapter 10 and the CEMP in appendix 4.1 will ensure the effect is long-term, imperceptible and neutral.

Landscape

During the operational phase the landscape plans for the proposed development will promote surface water management and biodiversity. The effects are anticipated to be long-term, imperceptible and neutral.

Water

During the construction phase the management of surface water will ensure the avoidance of impacts on the River Liffey and the European sites located in Dublin Bay. Adherence to the mitigation measures in Chapter 10 and the CEMP in appendix 4.1 will ensure the effect is long-term, imperceptible and neutral.

21.5.6 Archaeology and Cultural Heritage

Consultation took place with the Architectural Heritage specialists (Chapter 12) regarding the standing historic buildings on the site, which were of historic interest from a cultural heritage point of view and an architectural perspective.

Consultation also took place with the Architectural Heritage specialists (Chapter 12) and Landscape and Visual specialists (Chapter 13) with regard to the setting of the historic buildings / monuments in the surrounding urban landscape.

No interactions were identified in relation to archaeology and cultural heritage.

21.5.7 Architectural Heritage

The existing Architectural Heritage character of retained historic building fabric within the wider application site is identified and informed by interactions with the following chapters of the EIAR:

Noise & Vibration

Retained structures of significance within the combined development site have benefited from a comprehensive review of the likely effects of vibration due to heavy machinery at demolition,

excavation and construction stages, and mechanisms to control and monitor these effects, as cited in Chapter 4 of this EIAR.

Landscape and Visual Impact

A potential interaction between architectural heritage and landscape and visual impact during both the construction and operational phases of the proposed development is identified.

The area around the site of the proposed development is one of cultural significance. Short term effects derived from hoardings located along the boundary of the application site during construction in addition to cranes and scaffolding have the potential to affect how the cultural significance of the area is perceived.

During the operational phase the proposed buildings and changes to the public realm also have the potential to affect the perception of cultural heritage. The design of buildings, landscape and the selection of materials have the potential to contribute to the understanding of, engagement with and perception of the cultural heritage of the area.

Archaeology and Cultural Heritage

Effects of proposed development on the on the architectural heritage character of the surrounding area and on the setting of heritage structures are often considered to be indirect effects. Changes to the visual environment may be considered to result in indirect effects on archaeology, architectural and cultural heritage.

Major Accidents and Disasters

There is the potential for major accidents and disaster effects to interact with architectural heritage. Risk of Riverside Stone Wall collapse was identified as a potential risk in the major accidents and disaster assessment. The Riverside Stone Wall is a protected structure located on the overall 42A Parkgate Street site. Measures to ensure the stability of the river wall and other structures to be retained during construction and operational stages, have already been consented under ABP-306569-20, and are identified in Chapter 4 of the EIAR.

21.5.8 Landscape and Visual Impact

All environmental factors are inter-related to some extent, these relationships can range from the tenuous to highly complex. Landscape and visual impacts often interact with and/or interrelate to the following topics for the proposed development.

Architectural Heritage

A potential interaction between architectural heritage and landscape and visual impact during both the construction and operational phases of the proposed development is identified.

The area around the site of the proposed development is one of cultural significance. Short term effects derived from hoardings located along the boundary of the application site during construction in addition to cranes and scaffolding have the potential to affect how the cultural significance of the area is perceived.

During the operational phase the proposed buildings and changes to the public realm also have the potential to affect the perception of cultural heritage. The design of buildings, landscape and the

selection of materials have the potential to contribute to the understanding of, engagement with and perception of the cultural heritage of the area.

Population and Human Health

An interaction between the population and human health and landscape and visual impact during both the construction and operational phase of the proposed development is identified.

Adverse, short term visual impacts will arise for visual receptors located close to or adjoining the application site during construction. These effects will derive from the presence of scaffolding, cranes, hoarding and materials.

Once operational, the proposed development will contribute to the structure and functionality of this area of the City. This is principally due to the transformation of disused parts of the development site into useful development. Enhancements to landscape and visual amenity have the potential to positively impact on population and human health by increasing footfall to the area and contributing to sense of place.

Land and Soils

An interaction between land and soils and landscape and visual impact during the construction and demolition phase of the proposed development is identified.

Material Assets – Utilities and Telecommunications

A potential interaction between material assets and landscape and visual impact exists relating to telecommunications channels, which will potentially be affected by the proposed development. Identified, existing microwave links will need to be realigned. This is mitigated against with the provision of new telecommunications antennae on the roof of consented Block B1, with the potential for landscape and visual impacts. Following landscape and visual impact assessment, no significant adverse effect is anticipated.

21.5.9 Water

Land and Soils

There is a potential interaction of site hydrology with land and soils. A Flood Risk Assessment has been completed, and included in Appendix 14.1. This identifies a low risk of groundwater flooding at the site.

Material Assets - Waste Management

There is a potential interaction between water and waste management during the construction phase of development. Adherence by the contractor to the mitigation set out in Construction Environmental Management Plan (see appendix 4.1) will ensure that no residual effects remain.

Material Assets

There is an interaction between water and material assets, given that the sewer network on Parkgate Street is being upgraded. This will not result in negative effects however.

21.5.10 Land and Soils

Interactions

Adherence to the mitigation measures outlined in Section 15.5 of Chapter 15 – Land and Soils will ensure that there are no significant impacts on land and soils from the proposed development. The management of the site during the construction phase in accordance with the Construction Environmental Management Plan (CEMP) will ensure that the development will have negligible impact upon the receiving environment.

Land and Soils – Material Assets: Waste Management

Some of the excavated overburden material may be suitable for re-use as an engineered fill for use within the development subject to appropriate approvals/notifications. Materials which are not suitable for reuse, through their properties or the absence of opportunity for reuse, will need to be removed off-site to a suitable disposal facility.

Given the nature of the soils and the site history of industrial use, the effect is deemed to be imperceptible and thus not significant during construction.

Land and Soils -Transport

The excavation and disposal off-site of soils to facilitate construction of the foundations will result in increased traffic on the roads to and from the proposed site.

Details in relation to the management of these soils is discussed in Chapter 17 – Material Assets - Waste Management of this EIAR.

These works are expected to have a low importance given that the volume of the material for removal is low on a local scale. The magnitude of the impact of this activity would be small adverse. The significance of the potential impact is Imperceptible.

Land and Soils - Air Quality

The excavation of soils to facilitate construction of the foundations will result in increased traffic on the roads to and from the proposed site. Increased noise, dust and vibration will be generated due to these excavations.

Details in relation to the management of these soils is discussed in Chapter 17 Material Assets - Waste Management of this EIAR.

These works are expected to have a low importance given that the volume of the material for removal is low on a local scale. The magnitude of the impact of this activity would be small adverse. The significance of the potential impact is Imperceptible.

Land and Soils - Noise

The excavation of soils to facilitate construction of the foundations will result in increased traffic on the roads to and from the proposed site. Increased noise will be generated due to the construction of the foundations, which has potential to be perceived as a significant adverse effect.

The use of best practice noise control measures, hours of operation, scheduling of works within appropriate time periods, strict construction noise limits and noise monitoring during the construction phase. This will be a temporary impact.

Land and Soils - Water

As part of the works, some of the made ground from across the site will be removed resulting in a minor positive impact on the site. This is due to the reduced leachate generated from percolation of surface water through the made ground on site.

The construction of the proposed development will require the use of fuels and materials which will have the potential to pollute the site, and adjacent, environment. Pollution from construction activities is considered to be a small adverse effect and the significance of this effect is moderate/slight. However these effects will be mitigated by the contractor implementing the measures set out in the Construction Environmental Management Plan.

Land and Soils – Hydrogeology

Construction activities which may affect the groundwater quality beneath the proposed scheme during the construction phase are:

- Accidental spillages of polluting materials onsite;
- Release of fines into the groundwater and surface water; and
- The potential for contaminated runoff to enter the groundwater and surface water.

If any of these occur, they may potentially contaminate the groundwater beneath the proposed development. These are potential short-term effects. The magnitude and significance of these potential effects on the receptors are summarised below:

- The magnitude of this potential effect on the sand and gravel deposits could potentially be small adverse leading to a significance rating of slight.
- The magnitude of this potential effect on the River Liffey could potentially be small adverse leading to a significance rating of slight.
- The magnitude of this potential effect on the Locally Important aquifer could potentially be small adverse leading to a significance rating of slight.

Land and Soils – Landscape and Visual Impact

Some of the overburden material may be suitable for re-use as an engineered fill for use within the development subject to appropriate approvals/notifications. Materials which are not suitable for reuse, through their properties or the absence of opportunity for reuse, will need to be removed off-site to a suitable disposal facility.

21.5.11 Hydrogeology

Interactions

Adherence to the mitigation measures outlined in Section 16.5 of Chapter 16 - Hydrogeology will ensure that there are no significant impacts on the hydrogeology of the site from the proposed development. The management of the site during the construction phase in accordance with the CEMP will ensure that the development will have negligible impact upon the receiving environment.

Hydrogeology – Water

Localised groundwater dewatering using a series of sumps and submersible pumps is proposed during the construction of the development.

Any local dewatering is to be discharged to the River Liffey by agreement with the Local Authority and will include necessary treatment as required, such as silt traps and settlement tanks. Alternatively,

dewatering may be reinjected to the subsurface through a number of wells or injection points across the site. Similar treatment measures will be adopted prior to reinjection.

The construction of these works will have a negligible effect on the groundwater levels and flows in the sand and gravels which have a low importance. This is due to the proposed slab level of 5.0mOD. The highest groundwater recorded was 1.18mOD. Hence, the magnitude of the impact of this activity would be negligible and the overall significance rating of the effect on groundwater levels and flow is imperceptible.

Hydrogeology - Land and Soils

As part of the works, some of the made ground from across the site will be removed resulting in a minor positive impact on the site. This is due to the reduced leachate generated from percolation of surface water through the made ground on site.

Hydrogeology – Material Assets - Waste Management

Localised groundwater dewatering using a series of sumps and submersible pumps is proposed during the construction of the development.

The construction of these works will have a negligible effect on the groundwater levels and flows in the bedrock aquifer. This is due to the proposed slab level of 5.0mOD. Highest groundwater recorded was 1.18mOD. Hence, the magnitude of the impact of this activity would be negligible and the overall significance rating of the effect on groundwater levels and flow within the bedrock are imperceptible.

21.5.12 Material Assets - Waste Management

Interactions

Adherence to the mitigation measures outlined in Section 17.6 of Chapter 17 – Material Assets – Waste Management will ensure that there are no significant impacts on resource or waste management from the proposed development. The management of waste during the construction phase in accordance with the C&D WMP and during the operational phase in accordance with the OWMP will meet the requirements of regional and national waste legislation and promote the management of waste in line with the priorities of the waste hierarchy.

Land & Soils

During the construction phase there will be small quantities of soil, stone, gravel, made ground and clay excavated to facilitate site preparation for construction and foundation excavations. However, the majority of excavation will occur under the consented application ABP Ref. 306569-20. Any excavated materials, which is either unsuitable for use as fill, or not required for use as fill, will be exported off site. It is estimated that all of the excavated material will need to be removed offsite due to the limited opportunities for reuse onsite. Where material has to be taken off site it will be taken for reuse or recovery, where practical, with disposal as last resort. Adherence to the mitigation measures in Chapter 17 and the C&D WMP in appendix 17.1 will ensure the effect is long-term, imperceptible and neutral.

Material Assets -Transportation

Local traffic and transportation will be impacted by the additional vehicle movements generated by removal of waste from the site during the construction and operational phases of the 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 movement will be imperceptible in the context of the overall traffic and transportation increase and has been addressed in Chapter 6 Transport. Provided

the mitigation measures detailed in Chapter 6 and the requirements of the OWMP (included as Appendix 17.2) are adhered to, the effects should be short to long-term, imperceptible and neutral.

Population & Human Health

The potential impacts on human beings in relation to the generation of waste during the demolition, construction and operational phases are that incorrect management of waste could result in littering which could cause a nuisance to the public and attract vermin. A carefully planned approach to waste management and adherence to the project specific C&DWMP and OWMP, will ensure appropriate management of waste and avoid any negative impacts on the local population. long-term, imperceptible and neutral.

21.5.13 Population and Human health

Traffic and Transportation

There is the potential for traffic impacts during construction and operation to impact on population and human health. However, due to the scale of traffic predicted, no significant indirect effects are predicted during the construction or operational phase of the proposed development. The proposed development will provide for 38 no. bicycle parking spaces (over and above that permitted - 551 no. - under ABP Ref 306569-20). No additional car parking provision is included. As a result, the proposed development is expected to have a negligible impact on the local road network.

Noise and Vibration

There is the potential for noise and vibration effects to interact with population and human health. The use of best practice noise control measures, hours of operation, scheduling of works within appropriate time periods, strict construction noise limits and noise monitoring during the construction phase will ensure any potential human health effects from noise are controlled to within the adopted criteria.

During the operational phase, the predicted change in noise levels associated with additional traffic in the surrounding area required to facilitate the development is predicted to give rise to imperceptible effects along the existing road network. Further, noise levels associated with mechanical plant are expected to be within the adopted day and night-time noise limits, at the nearest noise sensitive properties taking into account the site layout, the nature and type of units proposed and distances to nearest residences. No human health effects resulting from noise generation during operation are therefore identified.

An inward noise assessment was also undertaken to establish the potential effects on building occupiers from noise. With the incorporation of the proposed building design measures in relation to façade, glazing and ventilation, the minimum sound insulation performance will be met and no significant effect is predicted.

Air Quality

Air quality effects have the potential to interact with human health. During construction, activities such as: building demolition, excavation works, piling etc could impact on human health. It is also possible that Asbestos Containing Materials (ACMs) will be released to atmosphere during construction activities. Traffic generation during construction will not be significant, and no subsequent likely effects on air quality are predicted. No likely significant effects on air quality are predicted during the operational phase of the proposed development.

Climate

There is the potential for climate effects to interact with population and human health. The greenhouse gas emissions predicted during the construction phase of the proposed development effect are not considered significant. No direct or indirect effects with regards sunlight, daylight or wind are predicted during the construction phase of the proposed development. There is therefore no potential for significant climate related human health effects during the construction phase of the proposed development.

The sunlight and daylight assessment identified that the tower redesign has no impact on the overall daylight compliance rate of the development when compared against the previous submitted scheme (ABP Ref 306569-20). Whilst one further space in the consented scheme has now just fallen marginally below the BRE guidelines (1.4% achieved/ 1.5% target) the redesign of the tower itself has resulted in full compliance where previously one space did not achieve the BRE guidelines. No likely significant effects on air quality are predicted during the operational phase of the proposed development.

Water

There is the potential for water quality effects to interact with population and human health. Contaminated water can result in the spreading of infectious diseases such as gastrointestinal illnesses, respiratory diseases and eye, ear, nose and throat symptoms. As outlined in Chapter 14, Water and Hydrology, the construction phase of the proposed development has the potential to alter the water quality and hydrological regime temporarily in the study area. Any effect on water quality has the potential to give rise to human health effects. In order to offset any potential effects on water, and consequently human health, earthworks operations shall be carried out such that surfaces shall be designed with adequate falls, profiling and drainage to promote safe run-off and prevent ponding and flooding. Good housekeeping (site clean-ups, use of disposal bins, etc.) will be enforced by the contractor on the site to mitigate against the risk of spillages.

Surface water run-off during the operational phase of the proposed development will utilise a proposed new Sustainable Urban Drainage System (SuDS). The new drainage network for the proposed development will connect to the consented surface water drainage network adjacent to Block A, prior to discharging to the River Liffey.

Wastewater from the proposed development will drain by gravity and discharge to the consented wastewater network adjacent to the proposed Block A development, prior to discharging to the existing 450mm dia. combined sewer on Parkgate Street.

The proposed development will result in an additional effluent volume discharging to the public sewer. To address this, a section of the existing sewer network on Parkgate Street will be upgraded as part of the consented scheme (ABP Ref 306569-20). This will create capacity for the wastewater discharge from the consented and proposed development in the combined sewer.

No water related human health effects are identified.

Material Assets: Waste Management

There is the potential for Waste Management effects to interact with Population and Human Health. However, waste generated during the construction phase of the proposed development will be segregated at source and disposed of appropriately. No potential effects on human health are therefore identified.

During the operational phase, waste will be generated from the residents as well as the commercial tenants. A dedicated shared Waste Storage Area (WSA) has been allocated within the development design for the residential units. The shared residential WSA is located on the ground level under Block A. The residential waste storage area has been appropriately sized to accommodate the estimated waste arisings in both apartments and shared residential areas. The Café tenant will have a shared WSA allocated to them under block B1 (consented application ABP Ref. 306569-20). The waste storage areas have been allocated to ensure a convenient and efficient management strategy with source segregation

a priority. Waste will be collected from the designated waste collection areas by permitted waste contractors and removed off-site for re-use, recycling, recovery and/or disposal.

No waste related human health effects are identified.

Major Accidents and Disaster

An assessment of the risk of the construction phase of the proposed development to give rise, or be vulnerable to, major accidents or disasters was undertaken. During the construction phase of the proposed development, the scenario with the highest risk score was identified as being 'quay wall/upper quay wall collapse.' In this occurrence, a potential human health effect is identified in that collapse of a structure could seriously injure those in its vicinity. The potential risk of river wall collapse during construction will be mitigated by standard best practice construction measures, and lateral steel restraints will be provided to the existing stonework along the river, throughout construction.

An assessment was carried out of the risk of the operational phase of the proposed development giving rise to, or resulting in, major accidents or disasters. The scenario with the highest risk score in terms of a major accident and/or disaster during the operational phase of the proposed development was identified as being an 'incident at nearby Heuston Station.' This risk was identified as being 'very unlikely' to occur, but with 'very serious' consequences should it do so, indicating a 'medium risk scenario.' In this occurrence, a potential significant negative effect on human health could occur.

Material Assets – Utilities and Telecommunications

During the construction phase of the proposed development, there is potential for the temporary disruption of services which could give rise to human health effects. Disruptions in electricity or gas, for example, could result in a lack of heating to the household of an elderly person, and could represent a health risk. Should any utility/service diversions or disturbances be required, these will only be carried out in agreement with the relevant service providers, and with notice to the affected public.

21.5.14 Material Assets – Utilities and Telecommunications

Land and Soils

There is the potential for interaction between material assets and land and soils during the construction stage. Some of the excavated overburden material may be suitable for re-use as an engineered fill for use within the development subject to appropriate approvals/notifications. Materials which are not suitable for reuse, through their properties or the absence of opportunity for reuse, will need to be removed off-site to a suitable disposal facility.

Given the nature of the soils and the site history of industrial use, the effect is deemed to be imperceptible and thus not significant during construction.

Population and Human Health

There is the potential for material assets effects to interact with population and human health. During the construction phase of the proposed development, there is potential for the temporary disruption of services which could give rise to human health effects. Disruptions in electricity or gas, for example, could result in a lack of heating to the household of an elderly person, and could represent a health risk. Should any utility/service diversions or disturbances be required, these will only be carried out in agreement with the relevant service providers, and with notice to the affected public.

Landscape and Visual

There is the potential for material assets effects to interact with landscape and visual. Independent Site Management has identified 2 No. telecommunications channels that will potentially be affected by the

height and scale of the proposed development. Vodafone and Three will re-align the identified microwave links to new hop sites. To mitigate this effect, the proposed development includes provision for a new hop site and the potential for landscape and visual impacts as a result of this infrastructure has been assessed, with no significant residual effect anticipated.

Biodiversity

There is a potential for material assets effects to interact with biodiversity, particularly with respect to water quality. The proposed development will result in an additional effluent volume discharging to the public sewer. It is noted that the capacity of the Ringsend Water Treatment Plant, where effluent from the proposed development will be treated, is currently constrained. It is understood that several projects are currently being progressed by Irish Water to deliver the infrastructure and capacity necessary for predicted population growth within the Dublin Region. Having considered the potential effects, the proposed development is predicted to have an overall neutral effect in relation to wastewater. The Stage 1 Appropriate Assessment screening report and Stage 2 Natura Impact Statement which accompany the planning application, considers any potential effects on Natura sites and concludes that significant individual or in combination environmental effects or effects on European Sites will not arise as a result of the proposed development.

21.5.15 Major Accidents and Disasters

Architectural Heritage

There is the potential for major accidents and disaster effects to interact with architectural heritage. Risk of river wall collapse was identified as a potential risk in the major accidents and disaster assessment. The river wall is a heritage asset. Temporary design measures such as lateral steel restraints will be provided to the existing stone wall along the river during construction, until such time as permanent restraints are installed (i.e. bracing to Block A in same manner as consented). The risk of a major accident and/or disaster during either the construction or operational phase of the proposed development is considered low.

Population and Human Health

There is the potential for major accidents and disaster effects to interact with population and human health. Risk of river wall collapse was identified as a potential risk in the major accidents and disaster assessment. Temporary design measures such as lateral steel restraints will be provided to the existing stone wall along the river during construction, until such time as permanent restraints are installed (i.e. bracing to Block A in same manner as consented).

From examining the plausible risks, the scenario with the highest risk score in terms of a major accident and/or disaster during the operational phase of the proposed development was identified as being an 'incident at nearby Heuston Station.' The risk of an incident at Heuston Station was given a risk score of 8 indicating a scenario that is 'very unlikely' to occur, but which would have 'very serious' consequences should it do so.

The risk of a major accident and/or disaster during either the construction or operational phase of the proposed development is considered low.

21.6 Cumulative Impacts

21.6.1 Transport (Chapter 6)

Having reviewed the existing granted planning applications in the vicinity of the site as detailed in Appendix 21.1, no relevant proposed developments have been identified that could be considered to result in significant cumulative effects in the context of the proposed development during the construction and operational stage.

It is worth noting that the permitted development would have normally been considered as cumulative development with the consented scheme (ABP-30669-20). However, its interactive effects with the consented scheme has been considered in the EIAR.

21.6.2 Air Quality (Chapter 7)

Construction Stage

Appendix 21.1 of Chapter 21: Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development.

Three of these developments are located within the immediate surrounds (Parkgate Street, Conyngham Road, Infirmary Road, Benburb Street) of the proposed development.

1. The First Ireland Risk Management Ltd (2168/15) is now constructed at Benburb Street, 70m from the proposed development, and as such, no construction cumulative effects with this development are anticipated.
2. The development of 17-22 Parkgate Street (3539/17) involves the construction of a four-storey building approximately 50m from the proposed development.
3. As permitted under ABP-306569-20, permission was granted at this site for 321no. Build-to-Rent residential apartments, ancillary residents' amenity facilities, commercial office (c.3,698 sq. m), retail (c.214 sq. m) and café/restaurant (c.236 sq. m), accommodated in 5no. blocks ranging from 8 to 13 storeys (c. 31,146 sq. m) over ancillary basement area, and all associated and ancillary conservation, landscaping and site development works. The construction phase assessment undertaken for the permitted development, included for the construction of a 29-storey residential tower. Therefore, cumulatively, the impact of the proposed development and the permitted development is no greater than the impact presented in the EIAR for the permitted development.

Given the scale of this adjacent development, in terms of both construction activities and construction traffic, there is the potential for cumulative effects. The developer is obliged to comply with the Codes of Practice from the Air Pollution Section of Dublin City Council and therefore, no significant cumulative effects are envisaged in combination with the adjacent development.

Operational Stage

Appendix 21.1 of Chapter 21: Cumulative and Interactive Effects outlines the proposed and permitted developments within 1 km of the proposed development.

Given the minimal amount of traffic generation during the operational phase of the proposed development, any cumulative effect, in combination with the operational effects of other proposed or permitted developments, will be not significant. Therefore, no significant cumulative impacts are predicted in combination with the proposed development.

21.6.3 Climate (Chapter 8)

Construction Stage

Carbon Emissions

Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development. A review of these projects potential impacts on each topic cumulatively with the proposed development during the construction phase has been undertaken, with no significant impacts predicted.

Wind

Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development. A review of these projects potential impacts on each topic cumulatively with the proposed development during the construction phase has been undertaken, with no significant impacts predicted.

Sunlight and Daylight

Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development. A review of these projects potential impacts on each topic cumulatively with the proposed development during the construction phase has been undertaken, with no significant impacts predicted.

Operational Stage

Carbon Emissions

Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development. An assessment of these projects potential impacts on each topic cumulatively with the proposed development during the operational phase has been undertaken. No significant impacts are envisaged cumulatively.

Wind

Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development. An assessment of these projects potential impacts on each topic cumulatively with the proposed development during the operational phase has been undertaken. No significant impacts are envisaged cumulatively.

Sunlight and Daylight

Appendix 21.1 of Chapter 21, Cumulative and Interactive Effects, outlines the proposed and permitted developments within 1 km of the proposed development. An assessment of these projects potential impacts on each topic cumulatively with the proposed development during the operational phase has been undertaken. No significant impacts are envisaged cumulatively.

21.6.4 Noise and Vibration (Chapter 9)

Construction Phase

The proposed development connects to the consented development (ABP-306569-20). Certain activities during the construction phase of the proposed development would be taken in under the construction of the consented development. The construction would thereby be split into separate

phases for certain aspects of the construction. Noise levels at NSL1 and NSL2, which are located closer to the consented development, will be dominated by noise associated with this development.

Noise associated with the subject development in isolation are within the noise criteria at the various identified NSLs. Depending on the phase of construction, there is a likelihood that construction work associated with the consented phase will occur simultaneous to construction work on the subject site. In the scenario whereby construction noise associated with consented phase is on par with the construction noise criteria and also, the noise associated with subject site is at a level whereby the contribution at nearest NSLs is equal to the consented phase, there is the potential for significant cumulative noise impacts at nearby noise sensitive receivers.

Noise monitoring will be undertaken to determine where noise control measures are required to reduce cumulative impacts.

Operational Phase

In the case that additional developments are permitted or proposed in the future, in the vicinity of the proposed development, there is the potential to add further additional vehicles to the local road network. However, as the traffic impact for the proposed development has an imperceptible impact on noise and vibration, it is unlikely that other future developments of similar scale would give rise to a significant impact during the operational phase of those developments. Future developments of a large scale would need to prepare an EIAR to ensure that no significant noise and vibration impacts will occur as a result of those developments.

21.6.5 Biodiversity (Chapter 10)

There have been over 60 planning applications which have been granted in the vicinity of the proposed development in the past 5 years to date. These have been referred to in Appendix 21.1 of this EIAR. Of the applications to Dublin City Council listed, those referring to building extensions and/or changes of use have been eliminated due to their small scale and the focus moved to those applications for residential development that could have in combination effects in terms of wastewater. Given the inclusion of Best Practice Construction Management enforced in the CEMP, see Appendix 4.1, indirect effects can be avoided and there will be no cumulative impacts.

The proposed development is set within the context of a recently permitted mixed use development on site (ABP 306569-20 refers). The Board has recently granted permission for mixed use development on the balance of the site, including 5no. blocks ranging from 8 to 13 storeys (c. 31,146 sq m) over ancillary basement area, accommodating 321no.'BTR' residential apartment, ancillary residents' amenity facilities, commercial office (c.3,698 sq m), retail (c.214 sq m) and café/restaurant (c.236 sq m), and all associated and ancillary conservation, landscaping and site development works.

The proposed development is intended to knit into the consented scheme, at the eastern site apex and interfaced with the consented office building (Block B2).

The consented development was granted including a number of mitigation measures which were subsequently presented to Dublin City Council and as previously mentioned in Section 10.2.5 and agreed in consultation with the National Parks and Wildlife Services (NPWS) in order to facilitate the site preparation works in order to avoid potential impacts on each issue, Birds, Biodiversity on Old Walls and Bats.

Given the employment of these measures and the proposed control of surface water emission, there is no potential for in-combination effects or cumulative impacts from other projects in the vicinity of the proposed development.

21.6.6 Archaeology and Cultural Heritage (Chapter 11)

Construction Phase

Archaeological Heritage:

The sub-surface remains associated with the iron-working and later industrial activities within the proposed development area are present across the entire development site. The foundation remains of the original quay wall also survive subsurface within the consented development site. Where these features are located within or partly within areas to be excavated or otherwise disturbed, they will be directly affected by the ground reduction works (to an approximate depth of 1.8m below existing ground level) that will take place across the entire site for the consented development (Planning Permission Ref. ABP-306569-20). This would result in a moderate negative permanent cumulative effect on the archaeological remains of 19th century industry on the site.

While no evidence was found for any pre-industrial archaeological remains, there is nonetheless the potential that previously unknown archaeological sites, features or deposits may survive at the pre-reclamation level. The piling required for the consented and proposed developments would result in a moderate negative permanent cumulative effect on any such deposits that may be present.

Cultural heritage:

With regard to cultural heritage, the site, its boundaries, and the buildings contained within it, are recorded in the Dublin City Industrial Heritage Survey as an important component within the city's industrial heritage. The present structures on the site largely date from the late 19th century (including the existing factory / warehouse that is located partly within the proposed development site and the river wall at its boundary), with several from the early 19th century (such as the turret at the eastern end of the proposed development site), as well as some modern structures.

There will be the removal of some of the existing heritage buildings and features in the overall site, and the addition of new buildings and functions, for the consented development (Planning Permission Ref. ABP-306569-20). This includes heritage buildings and features located within / adjacent to the proposed development site (Planning Permission Ref. ABP-306569-20). This will have a slight negative cumulative effect on the cultural heritage of the site.

However, as part of the consented development (Planning Permission Ref. ABP-306569-20) the majority of the architecturally or industrially significant buildings will be retained, restored and integrated into the new development (a best practice approach; see Chapter 12, Architectural Heritage). Some of the large cast iron structural elements from the existing late 19th century factory / warehouse will also be retained for use in the new development (a compliance report for the salvaging of cast-iron elements has been drawn up to this effect; ARC 2020) (Planning Permission Ref. ABP-306569-20).

Furthermore, the site itself will be partly opened up to the public and will receive new legibility in terms of the relationship of the historic structures with Parkgate Street and the river (their original context), and to the broader cultural heritage context and its industrial past, e.g. the interrelationship between the site and Sean Heuston Bridge and Heuston Station. This is considered an overall slight positive permanent cumulative effect on an otherwise hidden but historic site.

The surviving above-ground structures associated with the industrial heritage on the site and the setting of the historic buildings / monuments in the surrounding urban landscape are assessed for any cumulative effects in Chapter 12, Architectural Heritage and in Chapter 13, Landscape and Visual Impact.

The list of other developments contained in Chapter 21 has been reviewed and no further cumulative effects have been identified in relation to archaeology and cultural heritage.

Operational Phase

All archaeological and cultural heritage issues will be resolved during the pre-construction and construction phases.

21.6.7 Architectural Heritage Impact Assessment (Chapter 12)

The proposed residential landmark building will be seen in the context of an extensive approved development on the larger western portion of the 42A Parkgate Street site. The existing approved development and the proposed residential landmark building, taken together are likely to give rise to greater effects on architectural heritage than either development would individually. The architectural heritage effects of the approved development together with a residential landmark building of an earlier design than that now proposed but of a similar scale were assessed in Chapter 12 of a previous Environmental Impact Assessment Report that formed part of the documents lodged under An Bord Pleanála reference ABP-306569-20.

21.6.8 Landscape and Visual Impact Assessment (Chapter 13)

The proposed residential landmark building will be seen in the context of an extensive approved development on the larger western portion of the 42A Parkgate Street site. The existing approved development and the proposed residential landmark building, taken together are likely to give rise to greater landscape and visual effects than either development would individually. The landscape and visual effects of the approved development together with a residential landmark building of an earlier design than that now proposed but of a similar scale were assessed in Chapter 13 of a previous Environmental Impact Assessment Report that formed part of the documents lodged under An Bord Pleanála reference ABP-306569-20.

In the Dublin City Development Plan 2016-2022 the text relating to SDRA 7, Heuston and Environs, at Paragraph 7 states that 'As a western counterpoint to the Docklands, the Heuston gateway potentially merits buildings above 50 m (16-storeys) in height in terms of civic hierarchy'. It is inevitable that buildings of 50 metres or more in height on any of the development sites identified under SDRA 7 will have numerous visual connections with the surroundings, both local and at some distance; and buildings of this height within SDRA 7, buildings with a substantial visual presence, will have a significant role in place making. Therefore, the application of policies and objectives for SDRA 7 is likely to give rise to increasing cumulative landscape and visual effects in the area of Heuston and Environs.

21.6.9 Water (Chapter 14)

Construction Phase

In preparing this chapter, consideration was given to the developments listed in Appendix 21.1 in relation to relevant cumulative and in combination effects.

Additionally, the main impacts from the proposed development arise during construction.

The construction of the consented scheme and the construction of the proposed development will take place concurrently. It is unknown at this stage if the construction works associated with other developments would be occurring at the same time at the construction of the consented scheme and proposed development.

Notwithstanding, given the nature and scale of the developments identified, no cumulative effects in relation to water are predicted to occur if anyone, or all of these developments occur concurrent to the construction of the proposed development.

There are therefore no predicted significant cumulative effects in relation to water associated with the proposed development.

Operational Phase

In preparing this chapter, consideration was given to the developments listed in Appendix 21.1 in relation to relevant cumulative and in combination effects.

The operation of the consented scheme and the operation of the proposed development will take place concurrently.

Notwithstanding, no significant cumulative effects in relation to water have been identified for the proposed development in the operational phase.

21.6.10 Land and Soils (Chapter 15)

Construction Phase

In preparing this chapter, consideration was given to the developments listed in Appendix 21.1, in relation to relevant cumulative and in combination effects, along with the development of Blocks B and C as per ABP-306569-20.

The main impacts from the proposed development arise during construction with negligible effects with respect to land and soils occurring during operation. It is unknown at this stage if the construction works associated with other developments would be occurring at the same time as the construction of the proposed development.

Notwithstanding, given the nature and scale of the developments identified, no cumulative effects on land and soils are predicted to occur if any, or all of these developments occur concurrent to the construction of the proposed development.

No significant cumulative effects on Land and Soils associated with the proposed development are predicted.

Operational Phase

In preparing this chapter, consideration was given to the developments listed in Appendix 21.1, in relation to relevant cumulative and in combination effects. No significant cumulative effects on Land and Soils associated with the proposed development are identified for the operational phase.

21.6.11 Hydrogeology (Chapter 16)

Construction Phase

In preparing this chapter, consideration was given to the developments listed in Appendix 21.1, in relation to relevant cumulative and in combination effects, along with the development of Blocks B and C as per ABP-306569-20.

Additionally, the main impacts from the proposed development arise during construction. It is unknown at this stage if the construction works associated with other developments would be occurring at the same time as the construction of the proposed development.

Notwithstanding, given the nature and scale of the developments identified, no cumulative effects on hydrogeology are predicted to occur if any one, or all of these developments occur concurrent to the construction of the proposed development.

There are therefore no predicted significant cumulative effects on hydrogeology associated with the proposed development.

Operational Phase

It is our opinion that there are no significant cumulative effects on hydrogeology associated with the proposed development in the operational phase.

21.6.12 Material Assets - Waste Management (Chapter 17)

Construction Phase

Multiple permissions remain in place for both residential and commercial developments within the vicinity of the development, including the consented application ABP Ref. 306569-20 which forms part of the larger site. In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the construction phase. Due to the high number of waste contractors in the Dublin region there would be sufficient contractors available to handle waste generated from a large number of these sites simultaneously, if required. Similar waste materials would be generated by all the developments.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will minimise/mitigate any potential cumulative effects associated with waste generation and waste management. As such the effect will be short-term, not significant and negative.

Operational Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in the consented application ABP Ref. 306569-20 which forms part of the larger site. All of the current and potential developments will generate similar waste types during their operational phases. Authorised waste contractors will be required to collect waste materials segregated, at a minimum, into recyclables, organic waste and non-recyclables. An increased density of development in the area is likely improve the efficiencies of waste collections in the area.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will minimise/mitigate any potential cumulative impacts associated with waste generation and waste management. As such the effect will be a long-term, imperceptible and neutral.

21.6.13 Population and Human Health (Chapter 18)

Construction Phase

There is the potential for a positive cumulative effect on the population during the construction phase of the proposed development. The proposed development, when considered alongside other developments in Dublin city, including the permitted development on the same site (ABP Ref 306569-20), will collectively contribute to the employment of a significant number of construction workers in Dublin city.

During construction, there is the potential for negative temporary cumulative effects on human health when the construction of the proposed development is considered alongside the construction of the permitted development on the site (ABP Ref 306569-20) as well as with other developments (Refer to Appendix 21.1) Concurrent construction works of two or more developments could give rise to increased dust, noise and greenhouse gas emissions than those levels predicted for the proposed development in isolation.

Operational Phase

The proposed development, when considered alongside other residential developments in Dublin city, including the permitted development on the same site (ABP Ref 306569-20) will collectively help cater for the considerable and consistent demand in housing in Dublin, and will contribute to the delivery of a critical mass of population which will support a wide range of additional local businesses, services, transport infrastructure and employment opportunities.

The commercial component of the proposed development, when considered alongside other commercial ventures in the city centre, will result in a positive cumulative effect on economic growth in the city.

The cumulative redevelopment of the site has potential to result in positive effects in respect of the delivery of new amenities, accessibility to the river edge and renewed sense of place through a landmark development.

21.6.14 Material Assets – Utilities and Telecommunications (Chapter 19)

Construction Phase

Appendix 21.1 lists all those development applications within 1km of the proposed development which have been either approved, or applied for, at the time of writing this EIAR. For the purposes of this cumulative assessment, a review of those developments has been undertaken in order to ascertain if the proposed development would give rise to any potential cumulative effects on material assets during construction.

No significant cumulative effects were identified for the consented development. Likewise, no potential cumulative effects are identified with regards the construction phase of the proposed development, in combination with the consented development and other relevant developments in the vicinity.

Operational Phase

Appendix 21.1 lists all those development applications within 1km of the proposed development which have been either approved, or applied for, at the time of writing this EIAR. This includes the consented development within the same site (ABP Ref. 306569-20).

For the purposes of this cumulative assessment, a review of those developments has been undertaken in order to ascertain if the proposed development would give rise to any potential cumulative effects on material assets.

A potential minor, negative cumulative effect on material assets is identified during the operational phase of the proposed development, when considered alongside the consented development (ABP Ref. 306569-20) and other planned new large-scale residential or commercial developments in the wider Dublin area, resulting in a potential effect on utilities such as water supply, gas etc.

21.6.15 Major Accidents and Disasters (Chapter 20)

There are no likely risks of a major accident/disaster occurring are identified in respect of the proposed development. Thus, no cumulative effects are identified.