Volume I – Non-Technical Summary of Environmental Impact Assessment Report

MIXED USE BUILD-TO-RENT & COMMERCIAL DEVELOPMENT

Former Chadwick's Builders Merchant development, South of Greenhills Road, North of the existing access road serving Greenhills Industrial Estate, Greenhills Industrial Estate, Walkinstown, Dublin 12 (Eircode's D12 HD51, D12 N523, D12 C602)

MARCH 2022

SUBMITTED ON BEHALF OF:
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HUGHES PLANNING
& DEVELOPMENT CONSULTANTS

1.0 Introduction

This Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) relates to a Planning Application by Steeplefield Limited (referred to as the Applicant throughout) for a proposed strategic housing development comprising the demolition of the existing industrial units on site and the construction of a build to rent residential development featuring of 633 no. residential units (292 no. one beds, 280 no. two beds and 61 no. three beds) in 4 no. blocks (A-D), 1 no. childcare facility at the ground floor of Block A, 8 no. commercial units at ground floor level of Blocks A, B and D, and 2 no. commercial units at second floor level fronting Greenhills Road of Block C (providing for a total of 10 no. commercial units), construction of 3 no. vehicular/pedestrian entrances; a primary entrance from the north (access from Greenhills Road) and 2 no. secondary entrances from the south for emergency access and services, 424 car parking spaces at surface and undercroft levels with 15 commercial/unloading/drop off car parking spaces and 4 no. dedicated motorbike spaces, 1,035 bicycle spaces with an additional 316 visitor bicycle spaces also proposed, outdoor amenity space, internal BTR communal amenity facilities including games room, media room, lounge, work spaces etc, other services and ancillary site development works necessary to facilitate the development at the Former Chadwick's Site, South of Greenhills Road, North West of Brennan's Factory, North East of Key Waste, Greenhills Industrial Estate, Walkinstown, Dublin 12

Article 5(1)(e) of the EIA Directive requires that an Environmental Impact Assessment Report (EIAR) is accompanied by a NTS of the EIAR and it is transposed into Irish law under article 94(c) of the Planning and Development Regulations 2001, as amended.

This NTS presents a general overview of the proposed residential development and of associated potential environmental impacts. The term 'non-technical' indicates that this summary is intended for the educated lay person but avoids the use of technical terms, the presentation of detailed data and complex scientific discussion, that detail is presented in Volume II of the EIAR.

2.0 Environmental Impact Assessment Requirements

The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018, defines an EIAR as:

> *'A report of the effects, if any, which proposed development, if carried out, would have on the environment and shall include the information specified in Annex IV of the Environmental Impact Assessment Directive.'*

The subject development is not of a type or size that would require mandatory EIA under Annex I. However, given the number of units proposed at 633 no. units on a site area of 2.79 ha, the subject proposal would constitute an "infrastructure project" with respect to Class 10 Annex II and accordingly an EIA is required under Class 10(b)(i).

> *"Construction of more than 500 dwelling units."*

In order to ensure that all potential impacts associated with the development proposal are identified and addressed, this EIAR provides a systematic and integrated evaluation of the direct, indirect and secondary effects of the project on the natural and socio-economic environment.

The aim of the approach is to identify and predict (for a given proposed development) any impacts of consequence; to describe the means and extent by which they can be avoided in the first instance or reduced or ameliorated; to interpret and communicate information about the impacts; and to provide an input into the decision making and planning process.

The aim of the EIAR is to:

- Describe the project using information on the site, design and size of the proposed development;
- Identify and predict any impacts on environmental features likely to be affected, having regard to the specific characteristics of the proposed development;
- Describe the measures envisaged in order to avoid, reduce and, where possible, remedy significant adverse effects;

- Provide the data required to identify and assess the main effects which the proposed development is likely to have on the environment; and
- Provide a Non-Technical Summary of the information.

2.1 EIAR Study Team

The EIAR was completed by a project team led by Hughes Planning and Development Consultants, who also prepared a number of the chapters.

The members of the team and their respective inputs are outlined below in Table 1.0 below.

In accordance with EIA Directive 2014/52/EU, we confirm that experts involved in the preparation of the EIAR are fully qualified and competent in their respective field. Each has extensive proven expertise in the relevant field concerned, thus ensuring that the information provided herein is complete and of high quality.

Chapter No.	Chapter Title	Contributor
Chapter 1	Introduction	Hughes Planning and Development Consultants (HPDC)
Chapter 2	Project Description and Alternatives Examined	HPDC
Chapter 3	Planning and Development Context	HPDC
Chapter 4	Population and Health	HPDC
Chapter 5	Biodiversity	Enviroguide Consulting
Chapter 6	Land, Soils and Geology	AWN Consulting Limited
Chapter 7	Water and Hydrology	AWN Consulting Limited
Chapter 8	Noise and Vibration	AWN Consulting Limited
Chapter 9	Air Quality and Climate	AWN Consulting Limited
Chapter 10	Micro Climate	AWN Consulting Limited
Chapter 11	Material Assets Utilities	AWN Consulting Limited
Chapter 12	Material Assets Waste	AWN Consulting Limited
Chapter 13	Material Assets Traffic	Martin Rogers Consulting and Lohan and Donnelly Consulting Engineers
Chapter 14	Archaeology, Architectural and Cultural Heritage	**Byrne Mullins & Associates**
Chapter 15	Landscape and Visual Amenity	Parkhood Landscape Architects
Chapter 16	Interactions Between Environmental Factors	HPDC in conjunction with above consultants
Chapter 17	Principle Mitigation and Monitoring Measures	HPDC in conjunction with above consultants

Table 1.0 EIAR Chapters and Contributors

3.0 Project Description

3.1 Site Location and Context

The application site, comprises a total area of 2.79 hectares, involves the Former Chadwick's site which is located south of Greenhills Road, Walkinstown, Dublin 12. The subject site forms part of the Greenhill Industrial Estate. There are existing low-rise disused warehouse units featuring on the subject site which are proposed for demolition as part of the subject proposal. The site is currently accessed off a road within the Greenhill Industrial Estate, with 3 no. vehicular accesses featuring along the site's southern boundary. A very strong feature of the site includes a level difference that exists between the Greenhills Road interface and the subject site's southern boundary.

The site is located within an area comprising industrial land use immediately surrounding the site on all sides. The industrial land immediately surrounding the site to the southeast and west is known as the

Greenhill Industrial Estate. The industrial land immediately north of the subject site forms part of the Ballymount Industrial Estate. The Greenhill Industrial Estate is expected to be the subject of extensive urban renewal in the coming years, with existing industrial buildings being replaced with higher density development. A Quality Bus Corridor is also proposed to run along Greenhills Road, north of the site. The Greenhills Road Quality Bus Corridor forms part of the QBC Network linking Tallaght town centre to the city centre and it will also join the South Clondalkin QBC at the Walkinstown Road/Long Mile Road junction.

Walkinstown is the closet village to the subject site and offers a range of amenities and services including super markets, restaurants, pubs, chemist's shop, hairdresser among other services. The Ashlef shopping centre is located c. 1.2km from the subject site. A strong feature of the site is its proximity to the Greenhills / Mulcahy Keane Estate bus stop, 2 minutes' walk away from the application site, offering a good public transport service with direct links to Jobstown, Clare Hall, Dublin City and the Dublin Docklands, Citywest Campus and Tallaght. It should also be noted that the LUAS red line stop is situated just a 20-minute walk away from the site.

Figure 2.0 Aerial photo of the immediate locational context of the subject site (site outlined in red)

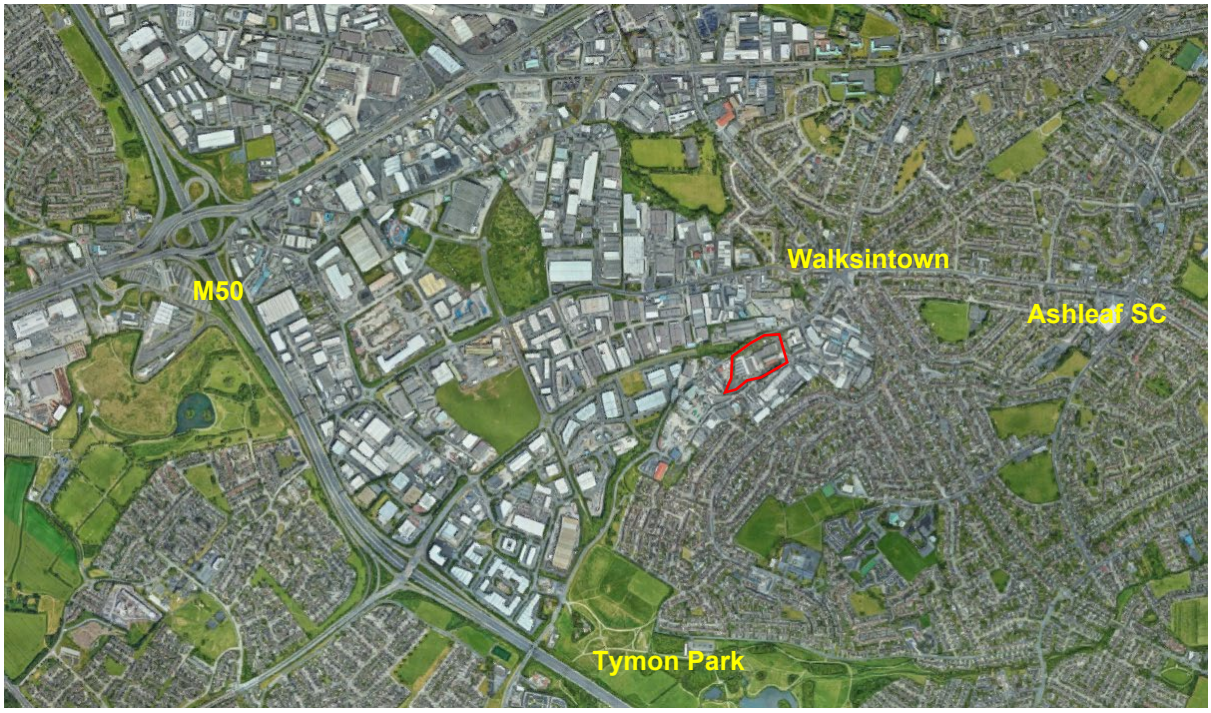

Figure 3.0 Aerial photo of the wider locational context of the subject site (site outlined in red)

3.2 Proposed Development

The proposed development, as designed by C+W O'Brien Architects, involves the demolition of the existing industrial units on site (comprising 11,120 sqm) and the construction of a development featuring 663 no. 'build-to-rent' apartments with ancillary resident facilities, 10 no. commercial units (totalling 1,330 sqm), and a 360 sqm crèche, in 4 no. blocks varying in height from five to twelve storeys, on the 2.79Ha site.

The 633 no. apartments proposed will be 'Build-to-Rent' and will comprise the following mix: 292 no. 1-bed apartments, 25 no. 2-bed (3P) apartments, 255 no. 2-bed (4P) apartments, and 61 no. 3-bed apartments. Residents of the development will also have access to 5,520sqm of external communal amenity space as well as a centrally located public park located between Block's B and C.

The primary vehicular access will be provided off Greenhills Road to the northeast, and secondary access for emergency vehicles and services will be provided off the road to the south of the subject site via newly created vehicular entrances. These entrances will also provide access to undercroft car parking areas accommodating 398 no. car parking spaces, 21 no. mobility car parking spaces, 5 no. go-car spaces, and 15 no. commercial/unloading/resident parking spaces. Bicycle parking for 1,035 no. bicycles will be provided in secure parking facilities located within the undercroft parking areas for residents with an additional 316 no. bicycle parking spaces provided for visitors at ground/street level.

The proposed scheme has a housing density of 226.88 dwellings per Ha, a plot ratio of 2.61 and a site coverage of 52% including undercroft parking areas. The proposed development has been designed having regard to the topography of the subject site, a watermain which features in the north-eastern corner of the site, the possible future extension of Calmont Road and the redevelopment of the surrounding industrial estate.

The layout of the proposed development has been informed by the topography of the subject site, its proximity to public transport on Greenhills Road and Walkinstown, the feedback received from South Dublin County Council, the City Edge Team, and An Bord Pleanála at pre-planning stage, the policies and objectives set out for the subject site and surrounding area in the South Dublin County Development Plan 2016-2022 and the Draft South Dublin County Development Plan 2022-2028, as well as the inputs from the EIAR consultants.

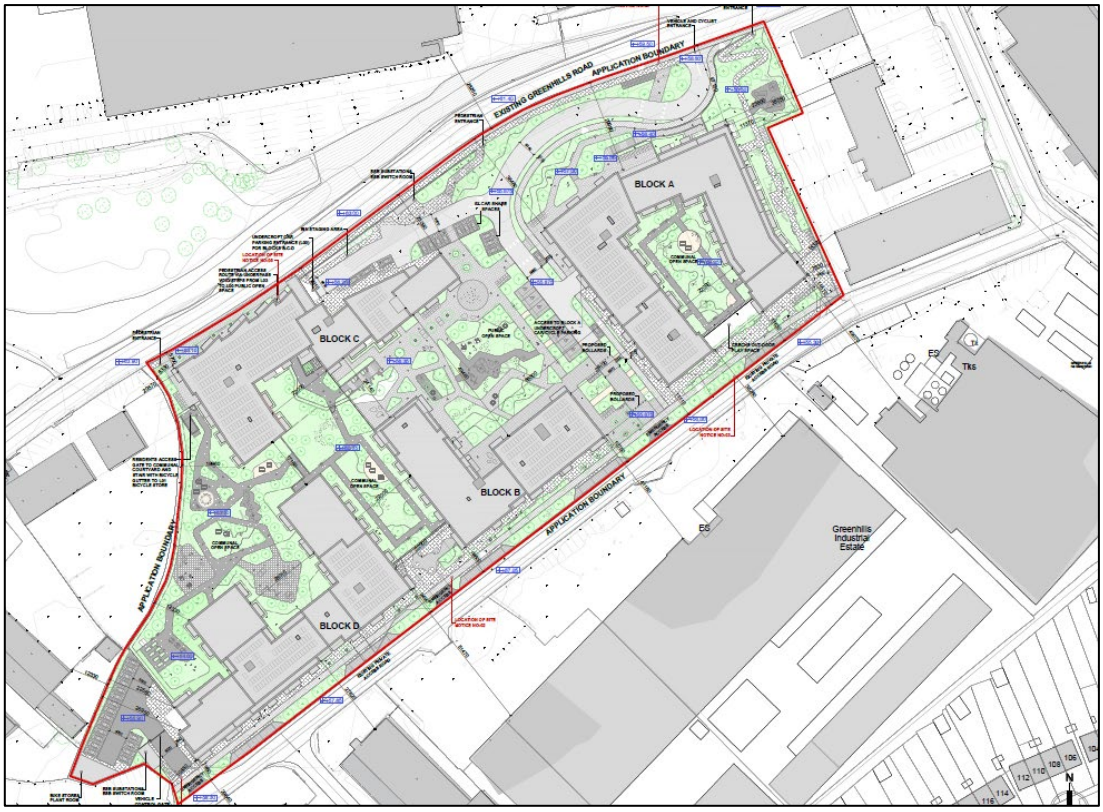

Figure 4.0 Proposed Site Layout Plan

Figure 5.0 Proposed Landscaping Layout

Figure 6.0 CGI of the proposed development

Figure 7.0 CGI of the proposed development

Figure 8.0 CGI of the proposed development

Figure 9.0 CGI R5 of the proposed development

Figure 10.0 CGI R1 of the proposed development

3.3 Alternatives Considered

The Planning and Development Regulations, 2001, as amended, require:

> *"A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment."*

Reasonable alternatives may include project design proposals, location, size and scale, which are relevant to the proposed development and its specific characteristics.

With regards to alternative locations, given the zoning objectives of the subject site as a proposed regeneration area in the South Dublin County Development Plan 2016-2022, and having regard to the project's objectives, no alternative locations were considered.

The main alternatives studied during the development of this application comprise of alternative design and layout options for a largely residential development at the subject site.

Alternative site layouts and siting progressed throughout the design process in order to minimise the impact on the receiving environment at the earliest opportunity. The initial stage involved a constraints analysis of the land within the proposed development site to identify all high-level constraints and aggregate them against the site to allow a suitable layout to be developed.

The alternative development options considered for the site are set out in Chapter 2, starting with the initial layout tabled at the 1st pre-planning meeting had with South Dublin County Council on 9th March 2021, and then describing design options and changes which were incorporated into the scheme as the proposals progressed through extensive pre-application discussions with South Dublin County Council, the City Edge Team, and An Bord Pleanála and in response to input from the appointed EIAR team. The principal considerations and amendments to the design of the scheme, having regard to and comparing the key environmental issues, are set out and discussed

A series of plan excerpts illustrating the design and layout changes that occurred during the consultation process are included at Figures 11.0 to 16.0 (inclusive) below and overleaf. Section 2.4.4 in Chapter 2.0 of the EIAR includes a more extensive discussion on alternative design and layout options explored. Further to this, the Design Statement, prepared by C+W O'Brien Architects, Landscape Strategy/Design Report, prepared by Parkhood Landscape Architects, and Statement of Consistency & Planning Report, prepared by Hughes Planning and Development Consultants, which accompany the planning application also provide a detailed planning rationale for the development of the final layout.

Figure 11.0 Indicative site layout tabled at first S247 meeting with South Dublin County Council in March 2021

Figure 12.0 3D drawing illustrating the massing of the proposed blocks across the site tabled at first S247 meeting with South Dublin County Council in March 2021

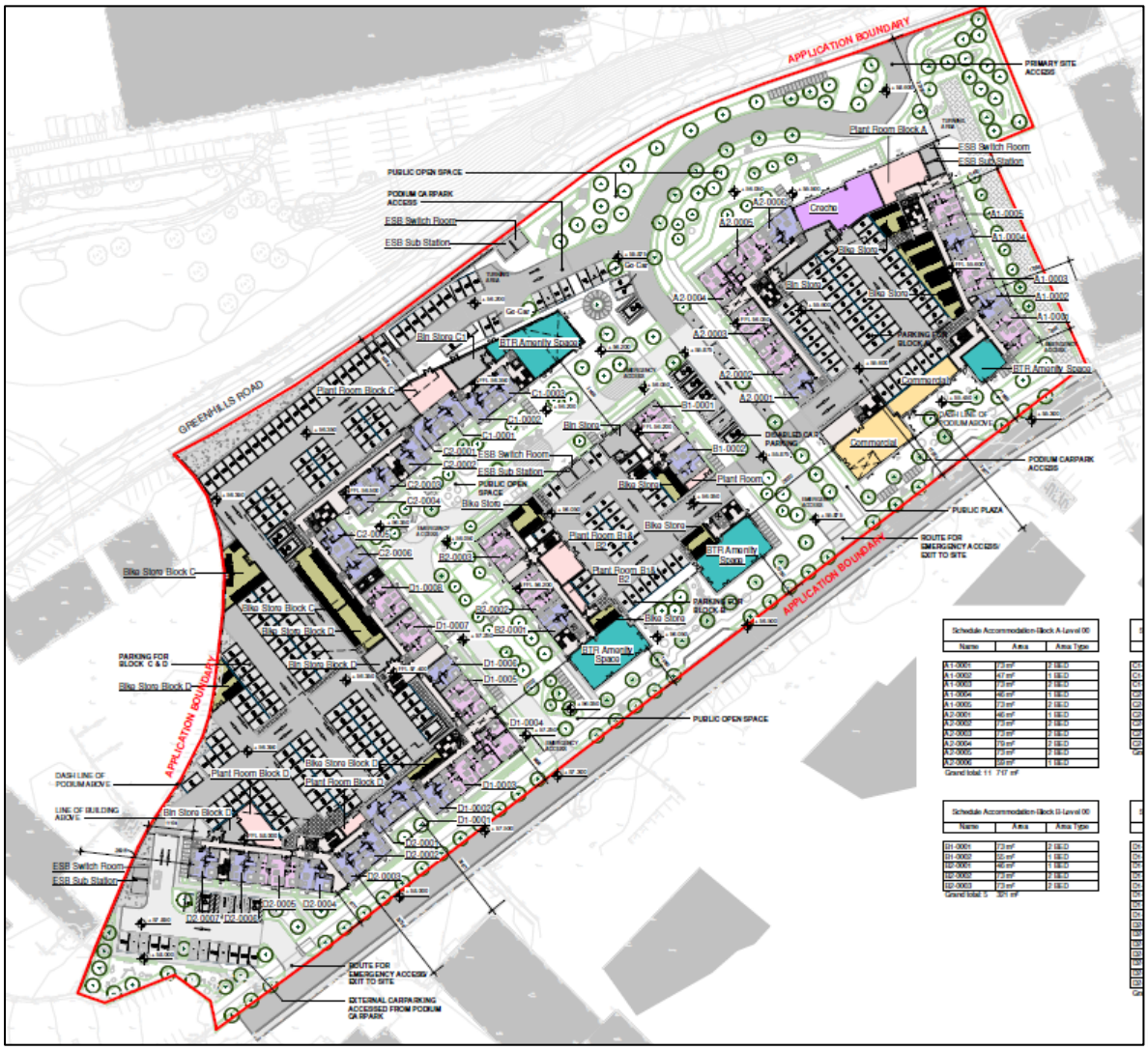

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Figure 13.0 Site Layout Plan as submitted for Stage 2 SHD Consultation Meeting

Figure 14.0 North Contextual Elevation as submitted for Stage 2 SHD Consultation Meeting

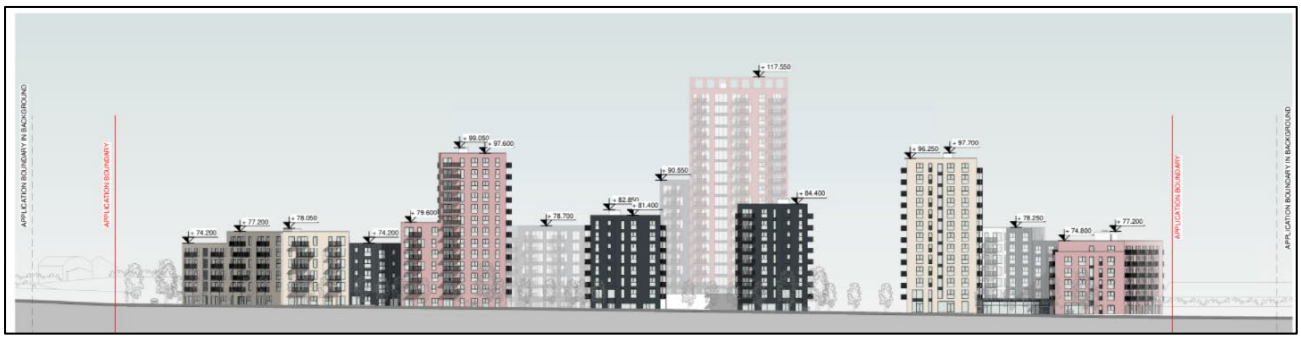

Figure 15.0 South Contextual Elevation as submitted for Stage 2 SHD Consultation Meeting

Figure 16.0 Revised site plan of the proposed blocks on the site tabled at first meeting with City Edge Team in October 2021

The scheme proposed in this application for permission has evolved from its original form and the consideration of alternative designs has resulted in significant environmental improvements in terms of the landscape and visual contribution that the proposed development will contribute to this area. Having examined various reasonable alternative designs and having engaged in extensive and detailed consultations with South Dublin County Council, the City Edge Team, and An Bord Pleanála in the course of the design evolution of the current scheme, it is considered that the proposed design as set out in the subject SHD application is a preferable option in terms of the sustainable development of the subject site and the creation of a sustainable community neighbourhood insofar as it achieves a mixed-use development, including 633 no. units and achieving a net residential density of 226.9 units per hectare. The current design achieves a range of apartment types, sizes, and designs whilst also providing adequate open space and achieving a strong urban edge and passive surveillance.

4.0 Population and Health

The Population and Health chapter was prepared by Hughes Planning and Development Consultants and describes the significant effects of the development on the surrounding human environment in the general area of the subject site at Greenhills Industrial Estate, Greenhills Road, Walkinstown, Dublin 12. The assessment of the effects of the proposed development focuses on: population levels; impact on employment and economic activity; land use and settlement patterns; housing; community infrastructure and social facilities; health and safety; and risk of major accidents and disasters. In considering the impacts of the proposed development on the above key items, the chapter will assess the impacts of the works both during the construction phase and operational phase.

In order to assess the likely significant impacts of the proposed development on population and human health, an analysis of recent Census data was undertaken. Data relating to the Electoral Division of Terenure St. James, Walkinstown/Greenhills, South Dublin County and the State, were examined.

The construction phase of the proposed development is likely to result in a positive net improvement in employment and economic activity particularly in the construction sector and in associated and secondary building services industries. From the census figures, it can be gathered that the population in the vicinity of the proposed development has remained similar over recent intercensal periods. Within the surrounding area, the population growth levels have been very disparate, however the population levels of the area have remained relatively similar.

The construction phase of the proposed development will not have any direct impact on the population of the area as no additional persons will be housed on site. The operational phase of the proposed development will have a direct impact on the population of the area and the subject lands. With a total of 633 no. residential units proposed to be built, the anticipated increase in population for the site can be expected to be c. 1,512 based on the average household size of 2.39 in the Terenure St. James electoral division. This is based on average household numbers for studio, one, two, and three-bedroom residential units. The impacts of an increase in the population within the site will be gradual during the completion of the development. The population of the development will therefore be significant and positive particularly in the context of current housing demand and taking account of the subject site's location in close proximity to public transport links such as the proposed bus connects routes and access to areas of employment

The construction phase of the proposed development will provide a positive improvement to the to the economy and employment prospects within Ballymount, Greenhills and the surrounding area more broadly, particularly within the wider construction sector for a 36 month period (estimated construction period). The construction phase will also have secondary and indirect 'spin-off' impacts on ancillary support services in the area of the site, such as retail services, together with wider benefits in the aggregate extraction (quarry) sector, building supply services, professional and technical professions etc. The operational phase of the proposed development will result in an increase in population. This increase in population in the area will enhance local spending power and will assist with the delivery of a critical mass of population which will support a wide range of additional local businesses, services, transport infrastructure and employment opportunities. This will play a role in the future growth of the area and the improvement of local amenities and infrastructure.

The construction phase of the project may have some short-term negative impacts on local residents during the construction phase, associated with construction traffic and possible nuisances associated with noise impact due to construction activity. However, such impacts will be short term and the implementation of the range of remedial and mitigation measures included throughout this EIAR document have been included to limit any likely adverse environmental impacts of the construction and operational phase of the proposed development on population and human health. In the longer term, the completed scheme will have long-term beneficial impacts for local businesses, residents and the wider community.

Once constructed, the proposed development will result in a positive alteration to the existing underutilised brownfield sites in terms of the provision of high quality well designed residential apartments and significant areas of open space to serve the growing need for quality housing in the area in accordance with local, regional and national planning policy guidance. The proposed development will bring about an increase in population in the wider area, which has experienced strong population growth during the 2011-2016 intercensal period.

It is anticipated that the proposed development will realise significant positive overall economic and social benefits for the local community and the wider Greenhills/Walkinstown area.

Strict adherence to the mitigation measures recommended in this EIAR will ensure that there will be no negative residual impacts or effects on Population and Human Health from the construction and operation of the proposed scheme. Indeed, the delivery of much needed housing will realise a likely significant positive effect for the local area.

The only the cumulative impact of the proposed development will be a further increase in the population of the wider area. This impact is likely to be long term and is considered to be positive, having regard to the zoning objective for the subject ands, and their strategic location in close proximity to high quality, high frequency public transport, and the high level of demand for new housing in Dublin.

With regard to human health, the cumulative impact of the proposed development in conjunction with other nearby developments will provide for the introduction of high quality new neighbourhoods in the area with a high level of accessibility and amenity. The overall cumulative impact of the proposed development will therefore be long term and positive with regard to human health, as residents will benefit from a high quality, visually attractive living environment, with ample opportunity for active and passive recreation and strong links as well as access to commercial/retail facilities within the development.

The development of the site will likely have a positive cumulative impact on Greenhills in helping the area contribute to the projected growth for South Dublin. The economy will benefit both during the construction phase and operation phase increasing the economic activity within the town.

Having assessed the residual effects (post-mitigation), it is considered that the proposed development will not result in any significant negative effects on population and human health. It is anticipated that the proposed development will instead significantly improve the existing area, including the quality of the existing environment and have very beneficial effects on population and human health, through the creation of a mixed use, high quality, neighbourhood and by means of the delivery of residential accommodation at a time of national housing crisis.

5.0 Biodiversity

A review of the biodiversity of the site was carried out by Enviroguide Consulting and this included a desk survey and field surveys. A general habitat survey, invasive species survey, bird survey, mammal survey and bat surveys of the Site were carried out. No constraints to a full assessment of biodiversity impacts were encountered.

It was found that the site is not within or adjacent to any area that is designated for nature conservation at a national or international level. There are no plants recorded from the site that are listed as rare or of conservation value. There are no habitats that are examples of those listed on Annex I of the Habitats Directive.

Ecological surveys undertaken at the Site confirm that the Development Site supports common habitats, mammals, flora and birds. The only habitat of ecological value at the Site is the Ornamental/non-native shrub (WS3) mosaic habitat located along the northern boundary. No bats were recorded at the Site during the activity survey carried out, despite optimal survey conditions. The Site is not used by badger and no invasive alien plants listed on Schedule 3 of SI No. 477 of 2011 are present. The Site is not connected to any protected sites. The Site is deemed to be of low biodiversity value.

Should the Proposed Development not progress, the Site will continue to have minimal ecological value. This is unlikely to change in the absence of this project.

In the absence of mitigation, potential impacts of the Proposed Development were predicted to range from moderate to slight at the local scale only and can be readily addressed with standard site management practices which will prevent disturbance impacts. In addition, a suite of mitigation measures to protect wildlife from light pollution are provided, and the planting of a range of native and non-native shrub and tree species is proposed as part of project design. Residual impacts of the Proposed Development are predicted to be negligible.

Provided all mitigation measures are implemented in full and remain effective throughout the lifetime of the Development, no significant negative impacts on the local ecology or on any designated nature conservation sites are expected from the Proposed Development. The majority of the residual impacts arising as a result of the Proposed Development are negligible. Negative, permanent, slight impacts will arise at the local scale due to the loss of the fox den at the Site. Positive impacts will arise as a result of the planting of hedgerows, shrub and tree species as part of project design, as well as the incorporation of SuDS measures into the project design.

6.0 LAND AND SOILS

6.1 Introduction

This chapter of the EIA Report assesses and evaluates the potential impacts of the development on the land, soil, geological and hydrogeological aspects of the site and surrounding area.

6.2 Methodology

This chapter evaluates the effects, if any, which the development has had or will have on Hydrology as defined in the Environmental Protection Agency (EPA) ‘Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports’ (EPA, 2017). In addition, the document entitled ‘Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes’ by the National Roads Authority (NRA, 2009) is referenced where the methodology for assessment of impact is appropriate.

6.3 Receiving Environment

Inspection of the available GSI maps show that the bedrock geology underlying the site belongs to Lucan Formation consisting of dark-grey to black, fine-grained, occasionally cherty and micritic limestones that. Site investigations indicate that bedrock would be located at depths between 3.1-4.5 m below ground level (mbgl) with the exception of the south portion of the site where bedrock was found at 0.8-1.8 mbgl. According to site investigations and GSI vulnerability classification, the bedrock aquifer underlying the site would have a ‘High’ to ‘Extreme’ vulnerability (0-5 m of overburden thickness).

The GSI/Teagasc subsoil mapping database of the quaternary sediments in the area of the subject site indicates that the majority of the site and surrounding area is underlain limestone gravels (GLs) which are less permeable than alluvium subsoils but more permeable than tills. Site investigations have encountered a profile composed of made ground, cohesive deposits (clay) and granular deposits (gravels) overlying the bedrock.

The Groundwater Body (GWB) underlying the site is the Dublin GWB. Currently, this GWB is classified under the WFD Risk Score system (EPA, 2021) as ‘under review’. The Dublin GWB was given a classification of “Good” for the last WFD cycle (2013-2018).

Overall, the soil quality results were all below the most conservative threshold value for the LQM/CIEH for HHRA (Human Health Risk Assessment) Residential and Commercial Threshold at 1% SOM for almost all parameters and all sample points, with some exceptions only for residential use. WAC analysis identified that the representative samples are suitable for classification as Category A – Inert.

Based on the TII criteria (refer to Appendix 6.1) for rating the importance of geological features, the importance of the bedrock and soil features at this site is rated as '*Low Importance*' with low quality, significance or value on a local scale.

The importance of the hydrogeological features at this site is rated as '*Medium Importance*' based on the assessment that the attribute has a medium quality significance or value on a local scale. The aquifer is a Locally Important but is not widely used for public water supply or generally for potable use. In addition, there would not be direct or indirect hydrogeological connection between the site and any protected sites (SAC, SPA, NHA).

6.4 Potential Impacts of the Proposed Project

Excavations across the site are required for the site preparation and levelling works, to achieve foundation level and facilitate construction. It is estimated that approximately 24,008 m^3 of soils will be excavated to facilitate construction of the proposed project. It is anticipated that 1,200 m^3 of the excavated material can be reused onsite for landscaping purposes Approximately 22,808 m^3 of material will be removed from site. Volume of clean material to be imported to site (i.e. under roads, pavements, building, etc.) is approximately 5,500 m^3.

The potential impacts of construction and operation and mitigation measures proposed have been identified and will be included in the Construction Environmental Management Plan (CEMP) for the Proposed Development.

Temporary storage of soil will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment and the material will be stored away from any open surface water drains. Further soil sampling will be undertaken during pre-development works however, it is anticipated that all excavated material will be reused on site. In the event that potentially contaminated soils are encountered, they should be segregated, tested and classified as hazardous or non-hazardous in accordance with the EPA Guidance Document: Waste Classification – List of Waste and Determining if Waste is Hazardous or Non-Hazardous (2015) and Council Decision 2003/33/EC. It should then be removed from site by a suitably permitted waste contractor to an authorised waste facility.

All fill and aggregate for the Proposed Development will be sourced from reputable suppliers. All suppliers will be vetted for the appropriate certificates, management status and regulatory compliance standards.

All fuel tanks shall be stored in designated areas, and bunded to a volume of 110% of the capacity of the tank within the bund (plus an allowance of 30 mm for rainwater ingress). Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area (or where possible off the site) which will be away from surface water gulley's or drains.

During the Operational phase, there are limited activities that could potentially impact on the land soils, geological and hydrogeological environment. There are no discharges to ground included in the design and no abstractions from the aquifer. In the event of an accidental leakage of oil from the parking areas, this will be intercepted by the drainage infrastructure proposed.

6.5 Predicted Impacts (post-mitigation)

Following implementation of mitigation measures detailed in Chapter 6 of the EIA Report, the predicted impact during construction of the Proposed Development will be **short-term, imperceptible** and **neutral**. In addition, the residual cumulative impact on hydrogeology for the construction phase is anticipated to be **neutral, imperceptible,** and **short term**.

The predicted impact during operation of the Proposed Development, following implementation of mitigation measures detailed in Chapter 6 of the EIA Report will be **long-term, imperceptible** and

neutral. In addition, the residual cumulative impact on hydrogeology for the operation phase is anticipated to be **neutral, imperceptible,** and **long term**.

7.0 WATER

7.1 Introduction

This chapter of the EIA Report assesses and evaluates the potential impacts of the development on the hydrological aspects of the site and surrounding area.

7.2 Methodology

This chapter evaluates the effects, if any, which the development has had or will have on Hydrology as defined in the Environmental Protection Agency (EPA) 'Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2017). In addition, the document entitled 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' by the National Roads Authority (NRA, 2009) is referenced where the methodology for assessment of impact is appropriate.

7.3 Receiving Environment

The proposed development site lies within the Liffey and Dublin Bay Catchment (Hydrometric Area 09) and Camac River sub-catchment (WFD name: Liffey_SC_090, Id 09_15) (EPA, 2022).

The Walkinstown Stream is located approx. 230m north of the subject development site and joins the Robinhood Stream which in turn discharges into the Ballymount Stream c. 1.1 Km from the site. The Ballymount Stream discharges into the Cama River c. 1.4 Km northwest of the subject. The Camac outfalls into the River Liffey c. 4.6Km from the site. The River Liffey outfalls into the Dublin Bay approximately 13 Km from the site. There is no hydrological connection between the site and the Camac River sub-catchment.

With regard to the local drainage, there is an existing 225mm diameter surface water sewer located on the access road east of the development, parallel to the Chadwicks Plumb Centre. The sewer commences near the junction of the access road and Greenhills Road and continuous towards the south-east direction presumably towards the Poddle River which is located c. 1.1 Km to the south of the subject site. Therefore, there would be an indirect hydrological connection between the site and this open watercourse through the local surface water drainage.

There is an existing 225mm diameter foul water sewer located in close vicinity to the proposed development. The sewer originates from south-eastern direction, wraps around the outside of the southern and eastern site boundary and turns north-east, continuing towards the Walkinstown roundabout. This sewer eventually discharges into Ringsend WWTP.

The local hydrological network (Walkinstown, Robinhood and Ballymount streams; and Camac River) is associated with the WFD surface waterbody Camac_040. The most recent published status (www.epa.ie – River Waterbody WFD Status 2013-2018) of this waterbody is 'Poor' and its environmental risk is qualified by the WFD as 'At Risk of not achieving good status'. This condition is due to a poor biological status (invertebrate status or potential) and moderate phosphorous conditions.

In addition, the Poddle River to the south is associated to the Poddle_010 WFD surface waterbody which has an 'Unassigned' status and a risk score of 'At Risk of not achieving good status'.

The developed site is shown not to be at a significant risk from flooding and to not create a significant risk to adjoining areas or downstream.

The importance of the hydrological features at this site is rated as 'Low Importance'. based on the assessment that the attribute has a low quality significance or value on a local scale.

7.4 Potential Impacts of the Proposed Project

7.4.1 Construction Phase

The potential impacts of construction and environmental control measures proposed have been identified as follows:

- Increased Sediments Loading in Run-off
- Potential Contamination of Local Water Courses

7.4.2 Operational Phase

There are no discharges to any open water courses included in the design. The projected surface water network has been designed to provide sufficient capacity to contain and convey all surface water runoff associated with the 1 in 100 year event to the attenuation basins without any overland flooding. Discharge flow is restricted to the greenfield equivalent runoff for the catchment areas.

7.5 Predicted Impacts (post-mitigation)

Following implementation of mitigation measures detailed in Chapter 7 of the EIA Report, the predicted impact on the hydrological environment during construction of the Proposed Development will be **short-term, imperceptible** and **neutral**. In addition, the residual cumulative impact on hydrology for the construction phase is anticipated to be **neutral, imperceptible,** and **short term**.

The predicted impact during operation of the Proposed Development, following implementation of mitigation measures detailed in Chapter 7 of the EIA Report will be **long-term, imperceptible** and **neutral**. In addition, the residual cumulative impact on hydrology for the operation phase is anticipated to be **neutral, imperceptible,** and **long term**.

8.0 Noise and Vibration

AWN Consulting Ltd. have carried out an assessment of the potential noise and vibration impacts associated with the proposed build to rent residential and commercial development at the former Chadwicks site, Greenhills Road, Walkinstown Co. Dublin. The assessment identifies potential noise and vibration impacts on the environment, during both the short-term construction and longer-term operational phases. The assessment was conducted in the context of current relevant standards and guidance and used to specify appropriate limit values and mitigation measures to ensure that the impact is minimised.

An environmental noise survey has been conducted at the site in order to quantify the existing noise environment. The survey was conducted in general accordance with ISO 1996: 2017: Acoustics – Description, measurement and assessment of environmental noise at 5 specific locations and were undertaken during periods in May.

During the attended noise survey at the proposed development site, noise from the Brennan's manufacturing facility to the south of the site was observed. The noise included steady plant noise, HGV movements, HGV air brakes and tipping noise. The development lands have been zoned REGEN under the South Dublin County Council Development Plan 2016 – 2022, i.e. zoned for enterprise / residential-led development. Therefore, in order to present a robust assessment, the current noise environment has to be considered with respect to inward noise impact on the proposed development. During the course of the baseline noise surveys commercial noise from the facility to the south east of the proposed development was noted. Measured noise levels have been incorporated into the inward noise impact assessment in addition to the primary noise source, i.e. traffic noise on the Greenhills Road.

During the construction phase of the proposed development, a variety of items of plant will be in use, such as excavators, piling equipment, dumper trucks, compressors and generators. Due to the nature of daytime activities undertaken on a construction site such as this, there is potential for generation of significant levels of noise. The flow of vehicular traffic to and from a construction site is also a potential source of relatively high noise levels. There are several residential receptors located surrounding the

proposed development to the south and northeast. Houses are set back some 90m to 160m from areas of significant construction works. The proposed development site is surrounded by existing commercial and industrial receptors. For the most part these buildings are warehouses with low noise sensitivity. The closest offices, showrooms and cafés are located between 25m and 40m from areas of significant works.

During the construction phase of the project there is the potential for temporary noise impacts on nearby noise sensitive properties due to noise emissions from site activities. The application of binding noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact is kept to a minimum as far as practicable. For the duration of the construction period, construction noise impacts will be short-term, negative, slight to moderate. Vibration impacts during the construction phase will be short-term and negligible. During the construction phase of the proposed development there will be additional construction traffic on local roads. Traffic information is supplied by Lohan & Donnelly Consulting Engineers. Considering that in order to increase traffic noise levels by 1 dB, traffic volumes would need to increase by the order of 25%, it is considered that additional traffic introduced onto the local road network due to the construction phase will not result in a significant noise impact.

Potential for vibration impacts during the construction phase programme are associated with the ground breaking, piling and excavations required. There is potential for piling to be used for building and basement foundations for and the proposed development buildings.

Considering the low vibration levels at very close distances to the piling rigs, vibration levels at the nearest buildings are not expected to pose any significance in terms of cosmetic or structural damage. In addition, the range of vibration levels is typically below a level which would cause any disturbance to occupants of nearby buildings.

In this instance, taking account of the distance to the nearest sensitive off-site buildings, vibration levels at the closest neighbouring buildings are expected to be orders of magnitude below the limits to avoid any cosmetic damage to buildings

During the operation phase, building and mechanical services plant items are proposed that will serve the apartments and ground floor commercial/retail units. The selection of building services plant will ensure that noise levels comply with criteria. Considering the large distances to the nearest residential receptors, it is expected that contribution of plant noise at these locations will be negligible. It is more relevant to consider the noise sensitive receptors within the proposed development. Once plant selections are designed so that there is no negative impact on the proposed development, this will ensure that at receptors external to the proposed development, the plant noise levels will not exceed the recommended criteria.

The effect associated with building services plant, once designed to achieve the relevant noise criteria, is categorised as negative, imperceptible and permanent.

During the operational phase of the proposed development, there will be an increase in vehicular traffic associated with the site on some surrounding roads. For the opening year (2024) traffic flows, the predicted change in noise level along the Greenhills Road is +0.2 dB. For the design year (2039) traffic flows, the predicted change in noise is +0.2 dB. The predicted change in noise level associated with additional traffic on the existing road network, is negligible in magnitude. The impact is therefore imperceptible and long term.

The development lands are bound to the north by the Greenhills Road which dominates the noise environment along this boundary. In order to establish noise levels across the development site an acoustic noise model was developed and calibrated against noise levels measured during the baseline study on site.

Noise levels recorded during the unattended survey were used to calibrate the noise model to within 1 dB of the calculated values. The resultant daytime levels output from the model calibration are slightly higher that the average measured levels (UN1) but are representative of periods of higher noise levels measured on site. This is regarded as very strong correlation in respect of predicted noise levels. Noise levels are calculated over daytime periods, i.e. 07:00 to 23:00hrs and night-time periods, 23:00 to 07:00

hrs. The results of the modelling exercise demonstrate that highest noise levels are experienced along the north of the site in proximity to the road edges and reduce considerably by 10 dB towards the south west of the site, in the absence of any development buildings. Giving consideration to the noise levels presented in the previous sections the initial site noise risk assessment has concluded that the level of risk across the site lies within the Medium to High noise risk categories.

Predicted noise levels on several facades are above a level whereby internal noise levels are achieved with standard double glazing and therefore mitigation in the form of enhanced glazing and ventilators will be required. These facades include north west façade of Blocks C1, C2, A1 and A2, and the south east facades of Blocks A1 and A2. With reference to baseline noise levels set out in Section 3.1, commercial noise from a neighbouring facility has been assessed as part of the inward noise impact assessment. Specifically, noise in the area adjacent to the south eastern facades of Blocks A1 and A2 has been assessed in order to determine appropriate mitigation measures to ensure the required internal noise levels in residential units is achieved. External noise levels within the majority of communal open spaces, communal terraces and private balconies across the development site are within the recommended range of noise levels from ProPG of between 50 – 55 dB LAeq,16hr.

The construction noise assessment has determined that there are no significant impacts expected on nearby residential and commercial receptors.

As is the case in most buildings, the glazed elements and ventilation paths of the building envelope are typically the weakest element from a sound insulation perspective. In general, all wall constructions (i.e. block work or concrete and spandrel elements) offer a high degree of sound insulation, much greater than that offered by the glazing systems. Therefore, noise intrusion via the wall construction will be minimal. In this instance residential units on the facades highlighted in Figure 8.12 in Chapter 8 will be provided with glazing and ventilation that achieves the minimum sound insulation performances as set out in Table 8.20 and Table 8.21 in Chapter 8. Other facades in the development have no minimum requirement for sound insulation.

During the construction phase of the project there is the potential for slight to moderate impacts on nearby noise sensitive properties due to noise emissions from site activities. The application of binding noise limits, hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impacts are reduced.

It is predicted that construction activity will have a negative, moderate to significant and short-term impact on commercial receptors at distances up to 10m from the works.

At distances greater than 10m it is predicted that construction activity will have a negative, slight to moderate and short-term impact.

Noise levels associated with construction vehicles moving to and from the site are predicted to have an impact that is negative, not significant and short-term.

During the operational phase, the predicted change noise levels associated with additional traffic is predicted to be of imperceptible impact along the existing road network. In the context of the existing noise environment, the contribution of induced traffic on the Greenhills Road is considered to be of neutral, imperceptible and permanent impact to nearby residential locations.

Noise levels associated with operational plant are expected to be well 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. Assuming the operational noise levels do not exceed the adopted design goals, the resultant residual noise impact from this source will be of negative, imperceptible, permanent impact.

Noise levels inwards on the proposed development have been measure and assessed. Mitigation measures have been specified to ensure that internal noise levels are achieved. The resultant residual noise impact from this source will be of negative, not significant and permanent impact.

This chapter demonstrates that the predicted noise levels associated with the operational phase of the proposed development will be within best practice noise limits recommended in Irish guidance, therefore it is not considered that a significant effect is associated with the development.

No significant vibration effects are associated with the operation of the site.

Noise levels at the proposed development site have been measured and the noise impact inwards on the proposed development has been assessed. Mitigation measures have been presented to ensure that internal noise requirements are met.

9.0 Air Quality and Climate

AWN Consulting Ltd has assessed the likely air quality and climate impacts associated with the construction and operational phases of the proposed development located at the former Chadwicks Site, Walkinstown, Dublin 12.

In terms of the existing air quality environment, data available from similar environments indicates that levels of nitrogen dioxide (NO2), particulate matter less than 10 microns and particulate matter less than 2.5 microns (PM10/PM2.5) are, generally, well within the National and European Union (EU) ambient air quality standards.

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC). The data published in 2021 states that Ireland will exceed its 2020 annual limit by an estimated 6.73 Mt. For 2021, total national greenhouse gas emissions are estimated to be 57.70 million tonnes carbon dioxide equivalent (Mt CO2eq) with 44.38 MtCO2eq of emissions associated with the ESD sectors for which compliance with the EU targets must be met. The EPA predict that Ireland can meet its future climate targets provided full implementation of the Climate Action Plan and use of the flexibilities available.

Impacts to air quality and climate can occur during both the construction and operational phases of the proposed development. With regard to the construction stage the greatest potential for air quality impacts is from fugitive dust emissions impacting nearby sensitive receptors. Impacts to climate can occur as a result of vehicle and machinery emissions. In terms of the operational stage air quality and climate impacts will predominantly occur as a result of the change in traffic flows on the local roads associated with the proposed development.

The surrounding area was found to have a low sensitivity to dust soiling and low sensitivity to dust related human health impacts. There is an overall low risk of potential dust soiling impacts and low risk of human health impacts as a result of the proposed construction works. Any potential dust impacts can be mitigated through the use of best practice and minimisation measures which are outlined in Chapter 9. Therefore, dust impacts will be short-term and imperceptible at all nearby sensitive receptors. It is not predicted that significant impacts to climate will occur during the construction stage due to the nature and scale of the development. Construction stage impacts to climate are predicted to be short-term, neutral and imperceptible.

The changes in traffic volumes associated with the operational phase of the development were not substantial enough the meet the assessment criteria requiring a detailed air quality and climate modelling assessment. It can therefore be concluded that levels of traffic-derived air pollutants resulting from the development will not exceed the ambient air quality standards and the impact of the development in terms of NO2 and PM10 emissions is long-term, neutral and imperceptible. The proposed development is not predicted to significantly impact climate during the operational stage and will not contribute significantly to Ireland's obligations under the EU Targets and emissions ceilings set out by Directive (EU) 2016/2284 "On the Reduction of National Emissions of Certain Atmospheric Pollutants and Amending Directive 2003/35/EC and Repealing Directive 2001/81/EC". Impacts to climate are deemed neutral, imperceptible and long-term with regard to CO2 emissions.

The best practice dust mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of

construction of the proposed development is likely to be short-term, localised, negative and imperceptible with respect to human health. Operational phase predicted concentrations of pollutants are predicted to be significantly below the EU standards, the impact to human health is predicted to be imperceptible, neutral and long term.

No significant impacts to either air quality or climate are predicted during the construction or operational phases of the proposed development.

10.0 Microclimate

AWN Consulting Ltd has assessed the likely microclimate impacts associated with the construction and operational phases of the proposed development located at the former Chadwicks Site, Walkinstown, Dublin 12.

This assessment includes a description of the receiving environment in the vicinity of the subject site and an assessment of the potential microclimate impact associated with the proposed development during both the short-term construction phase and the long-term operational phase on its surrounding environment. The assessment of direct, indirect and cumulative impacts on the surrounding environment have been considered as part of the assessment.

The subject site is located in Greenhills, Dublin 12, within the Greenhills Industrial Estate. The site is bound to the north by the Greenhills Road, and to the east, south and west by existing commercial buildings. The surrounding environment in the vicinity of the development site is mixed in nature with manufacturing, retail units and warehousing making up the majority of the surrounding building uses .

It was determined that the site typically experiences Beaufort 3 (B3) wind conditions for much of the time.

Given the short term nature of the construction phase there are no expected microclimate impacts. Construction involves the erection of scaffolding and the development of a structure starting with steelwork and rising walls, with window and door openings. Structures under construction are therefore porous to wind and tend to allow wind to flow through the structure with little interference with wind flow patterns and hence there are no expected microclimate impacts.

It can be expected that the skimming regime will dominate, with little in the way of wind flow down to street level and therefore the proposed development is not expected to lead to elevated windspeeds at street level. Given the scale and nature of the proposed development and the existing low-rise buildings in the area, accelerated windspeeds at ground level are not expected and therefore down-draft effects at ground-level are not to be expected when the proposed development is completed, the roof garden was also assessed and no significant issues with regard to wind were noted. It was therefore concluded that there are no expected microclimate effects associated with the operational phase of the proposed development.

11.0 Material Assets Utilities

This chapter prepared by AWN Consulting evaluates the potential impacts, from the proposed development on Material Assets as defined in the EPA Guidelines. The impacts on some of the material assets described in the above guidance have already been considered in the following chapters and therefore these aspects have not been addressed in specific detail within this chapter.

- Chapter 4, Population and Human Health;
- Chapter 6, Land, Soils and Geology;
- Chapter 7, Water and Hydrology;
- Chapter 9, Air Quality & Climate;
- Chapter 14, Archaeological, Architectural and Cultural Heritage
- Chapter 12, Material Assets – Waste; and
- Chapter 13, Material Assets - Traffic.

This chapter assesses built services and infrastructure, which have not already been addressed elsewhere in this EIA Report

Power and Electrical Supply

There are no known existing ESB overground and underground infrastructure crossing through the proposed development site. There are ESB 10 kV Underground Cables adjacent to the Site that will not be impacted by the proposed development.

During construction, contractors will require power for heating and lighting of the site and their onsite accommodation. In addition, some on site equipment/plant will require power.

A construction compound, including a materials and equipment storage area, a site office, and staff welfare facilities will be established for the construction phase. Electricity will be provided to the site via temporary connection . The power requirements for the construction phase will be relatively minor and therefore the power demand for the construction phase would have a potential ***short term, neutral and imperceptible*** impact.

Once operational, the power supply for the proposed development will be provided via an extension of the existing power supply infrastructure currently in place. This planning application include the construction of 3 no. new ESB substations, The proposed ESB substation(s) will provide the power supply to the proposed development. The power from the substation(s) will distribute underground to service the apartment blocks

It is anticipated that due the residential nature of the development that there would not be a significant demand for electricity, therefore it is assumed that there is sufficient capacity available in the network to accommodate the development.

It is not anticipated that the proposed connection will impact or reduce the capacity available within the local network to support the neighbouring area. A formal application to confirm the nature of the ESB supply is made once the formal address of the residential development is agreed with SDCC.

The potential impact is ***long-term, neutral, imperceptible*** with respect to with power and electrical supply for the proposed development for the operational phase.

Surface Water Infrastructure

Irish Water drainage record map shows an existing 225mm diameter surface water sewer located on the access road east of the development.

During construction run-off into excavations/earthworks cannot be prevented entirely and is largely a function of prevailing weather conditions. Any discharge water will be treated using a silt-buster or similar to removed suspended solids prior to discharge. An introduction of additional impermeable surfaces and the compaction of soils may also reduce the infiltration capacity and increase direct surface water runoff and sediment loading which could potentially impact local stormwater networks if not controlled adequately. Without appropriate and standard mitigation in place, as outlined in the CEMP, the potential impact on surface water for the construction phase is ***moderate, negative*** and ***short term.***

The design of the proposed development includes SuDS design mitigation measures to addresses the potential for an increase in surface water flow offsite.

In the absence of these designed mitigations, the potential impact associated with surface water for the operational phase is ***moderate, negative*** and ***long-term***.

Foul Drainage

Irish Water drainage record map shows an existing 225mm diameter foul water sewer located in close vicinity to the proposed development.

Welfare facilities will be provided for the contractors via portable sanitary facilities within the construction compound site during the construction works.

A temporary connection for foul water drainage to the public foul sewer during construction phase is anticipated. Prior to this, removal of foul waste from temporary portable toilets and welfare facilities will be undertaken by a licenced waste contractor. The potential impact will be ***short-term, neutral*** and ***imperceptible i***n respect of foul drainage for the duration of the construction phase.

During the operational phase the foul water generated from the site will ultimately discharge to the Ringsend WWTP for adequate treatment. Irish Water have confirmed through the PCE that there a connection to the network is feasible, subject to upgrade works, and connection agreement.

There are ***no potential impacts*** associated with foul drainage for the proposed development for the operational phase.

Potable Water Supply

Irish Water drainage record maps indicates a 101.6mm uPVC water main inside the site boundary, situated within the western part of the development.

A temporary connection to the mains water supply will be established for the construction phase. The demand during the construction phase is not expected to be significant enough to affect existing pressures.

The potential impact will be ***short-term, neutral*** and ***imperceptible*** in respect of water supply for the proposed development for the duration of the construction phase.

Irish Water have confirmed through the PCE that there is available supply within the network for the proposed development during the operational phase. Irish Water is the National Authority for water management and should there have been an inadequate supply this would have been confirmed to the developer during consultation.

There are ***no potential impacts*** associated with water supply for the proposed development for the operational phase.

Telecommunications

Telecommunications including fibre required during the construction phase will be provided via a mobile connection or temporary connection to the nearby telephone network.

The potential impact is ***short-term, neutral*** and ***imperceptible*** in respect of telecommunication supply for the construction phase.

For the operational phase, the existing telecommunications will be extended from the perimeter of the site to the proposed development. Strict quality control measures will be undertaken while laying telecommunications cables. It is assumed that there is sufficient capacity available in the network to accommodate the development, so there are ***no potential impacts*** associated with telecommunications for the proposed development for the operational phase.

Residual Impacts

The works contractor will be obliged to put best practice measures to ensure that there are no interruptions to service from the existing telecommunications network, watermain, sewer and electrical grid. The predicted impact will be ***short-term, neutral*** and ***imperceptible*** for the construction phase.

The operator has engaged with Irish Water and EirGrid to ensure that there is sufficient capacity in the water supply network, public sewer, and electrical grid. Irish Water and EirGrid have confirmed that there is adequate capacity. It is not anticipated that connections to these would have any significant offsite impact. The predicted impact will be ***long-term, neutral*** and ***not significant*** for the operational phase.

12.0 Material Assets Waste

AWN Consulting Ltd. carried out an assessment of the potential impacts associated with waste management during the construction and operational phases of the proposed development. The receiving environment is largely defined by South Dublin County Council as the local authority responsible for setting and administering waste management activities in the area through regional and development zone specific policies and regulations.

During the construction phase, typical C&D waste materials will be generated which will be source segregated on-site into appropriate skips/containers, where practical and removed from site by suitably permitted waste contractors to authorised waste facilities. Where possible, materials will be reused on-site to minimise raw material consumption. Source segregation of waste materials will improve the re-use opportunities of recyclable materials off-site. During the construction phase there will be soil and stone excavated to facilitate site levelling, construction of the new building foundations and the installations of underground services. The volume of material to be excavated has been estimated by the project engineers to be c. 24,008m3. It is expected that c. 1,200m3 of the excavated material will be reused onsite for landscaping and non-structural fill. The remaining material will be removed from site for appropriate offsite reuse, recovery, recycling and / or disposal.

A carefully planned approach to waste management and adherence to the site-specific Construction and Demolition Waste Management Plan (Appendix 12.1) during the construction phase will ensure that the effect on the environment will be ***short-term, neutral and imperceptible***.

During the operation phase, waste will be generated from the residents and tenants. 9 no. waste storage areas have been allocated throughout the development for the use of residential and commercial waste storage, respectively. The residential waste storage areas have been appropriately sized to accommodate the required bins, compactors and associated equipment. 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 staging area by permitted waste contractors and removed off-site for re-use, recycling, recovery and/or disposal.

An Operational Waste Management Plan has been prepared which provides a strategy for segregation (at source), storage and collection of wastes generated within the development during the operational phase including dry mixed recyclables, organic waste, mixed non-recyclable waste and glass as well as providing a strategy for management of waste batteries, WEEE, printer/toner cartridges, chemicals, textiles and furniture (Appendix 12.2). The Plan complies with all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the development.

Provided the mitigation measures outlined in Chapter 12 are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the operational phase on the environment will be ***long-term, neutral and imperceptible.***

13.0 Material Assets – Traffic

The Material Assets Traffic Chapter was prepared by Martin Rogers, BA, BE, M.EngSc, PhD, CEng, TPP MICE, MRTPI, MTPS, Transport Planning Professional, Chartered Civil Engineer and Chartered Town Planner.

Chapter 13 assesses the traffic and transport impacts of the proposed residential development at the former Chadwicks site, Greenhills Road, Walkinstown, Dublin 12 on the existing road network in the vicinity of the site, as well as identifying proposed mitigation measures to minimise any impacts. There is a separate Traffic & Transport Assessment and Mobility Management Plan that should be read in conjunction with this chapter.

The site is located on the south side of Greenhills Road, adjacent to its junction with Belgard Road, 350 metres south-west of the Walkinstown Roundabout. Given that the proposed development is residential, peak flows will typically occur on weekdays, with peak flows typically occurring between 7am and 9am in the morning and between 4pm and 6pm in the evening. Accordingly, traffic surveys were carried out in February and November 2019 at the 3 No. junctions.

The survey was carried out over a 12-hour period between 0700 and 1900 in order to ascertain the peak hour flows for all traffic movements at the 3 No. junctions. The survey indicated that the weekday morning peak occurred between 0800 and 1000 with the evening peak occurring between 1600 and 1800 – these were observed to be the timeframes during which the junctions were most heavily loaded. The analysis indicates that both the Walkinstown Roundabout and the Greenhills Road / Ballymount Road Upper Priority intersection at present operates at or near capacity during both peak hours.

In the context of the existing level of saturation at the junctions analysed, it is worth noting that the Bus Connects system will have a significantly beneficial impact on the performance of all junctions once the scheme is fully implemented. The 'D' spine will run along Calmount Road and past the site to the Walkinstown Roundbout, while the 'F' spine will access from Cromwellsfort Road to St Peters Road via Walkinstown Roundabout. The confluence of these two spines close to the subject site will have the effect of significantly reducing private car travel in this area as significant modal shift to bus transport will result from the enhanced service provided.

With regards to bus services, the Greenhills Road area is currently connected via the 27 and 77A bus routes, providing good links both to the city centre and the western suburbs. In addition, the 123 route, with its terminus west of Walkinstown Road within 1km of the site, runs into the city centre 6 times per hour during the morning peak.

With the present bus system along Greenhills Road yielding 14 No. buses per hour during the morning peak, and assuming a maximum capacity of 80 No. passengers, an overall hourly capacity towards town of 1120 No. passengers is derived. In order to estimate the level of demand the proposed development will place on the existing / proposed bus network, we can assume a figure of 2.7 persons per apartment unit of a suitable age to travel to school / college or work. This is a robust figure, given that the development has an average of 1.6 bedrooms per unit, and is based on the 2016 census derived for a standard household of 2.7 persons per household in total. This figure yields a population for the proposed residential component of the development at 1709. If we assumes 21% travelling by bus (as detailed within Mobility Management Plan document), this translates into 359 No. bus commuters. If one assumes these journeys are spread over 3 hours in the morning, this translates into an hourly demand on the bus network of 120 No. commuters per hour.

This figure is only 11% of the computed maximum capacity of the existing bus network. Thus, based on frequency and capacity, it can be assumed that the bus network in place will cope more than adequately with the demand induced by the residential component of the proposed development.

There are limited cycle lanes in the vicinity of the development, with the main link being along the Greenhills Road within the bus lane. There are good footpath facilities close to the subject site connecting it to the Walkinstown Roundabout and the general Walkinstown area.

The total construction period is predicted to be 36 months, 4 of which will be allocated to site set up/excavation and remaining 32 months to on site construction. This figure is only indicative and is subject to change pending planning approval the commencement of detailed design.

The following construction traffic flow estimates for weekday traffic have been made:

- No. of private vehicles from staff and site visitors – 21 (per day)
- No. of light good vehicles per day from subcontractor staff -14 (per day)
- No. of heavy goods vehicles during excavation stage – 96 (per day)
- No. of heavy goods vehicles during concrete pours – 80 (per day)
- No. of heavy goods vehicles per day during normal standard construction periods (i.e. excluding excavation stage) – 7 (per day)

The above data corresponds to a total of 138 vehicles on a daily basis during the excavation stage and 122 vehicles per day during pouring of concrete. Upon completion of all excavation works and when no concrete pours are scheduled, the number of vehicles per day will reduce to 42 per day. This equates to 1 vehicle entering/leaving the site daily over a 10-hour working day which results in a traffic flow of 1 vehicles per every 4.5 minutes during excavation stage, 1 vehicles every 5 minutes during concrete

pours and 1 vehicle every 14.5 minutes during normal construction periods. During construction, heavy goods vehicles entering the site will be guided by signs to a waiting area before being directed to their location. Upon exiting the site they will be required to enter a cleaning area, preventing any on-site soil stuck to the vehicles from leaving the site. To ensure all HGV vehicles can safely enter the site a banksman will be assigned at the site entrance, directing the traffic on the existing access road, south of the proposed site.

Prior to commencement of construction activities within the site, an appropriate hoarding will be erected around the site to protect the general public from ongoing works within the site. Entering/existing will be controlled via a manner turnstile system throughout the contract period.

The proposed development will have a moderate impact with a moderately negative and long-term effect on the Walkinstown Roundabout and Greenhills Road / Ballymount Road Upper junctions. Mitigation measures have been incorporated into the design to limit the effect.

The traffic assessment details that both junctions are at present busy and congested during the morning and evening peak hours of travel, and will continue to experience increased congestion going into the future if the required conservative growth estimates are applied to existing surveyed network flow, with estimated total generated traffic from both proposed and planned adjacent development not adding in any significant way to existing and future predicted congestion levels at both critical junctions within this comprehensive traffic analysis.

Given that the critical junctions under analysis are congested, it is appropriate that there is mitigation to minimise car usage by residents and visitors to the Proposed Development. This comprises the limited on-site car parking spaces.

It is proposed within this development to provide car parking space for 66% of the 633 No. apartment units proposed.

The trip generation estimates for this project outlined within this report are conservative and robust as they are based on sites with greater car parking provision than proposed for the Proposed Development.

It is highly likely, therefore, that the actual traffic impact of the proposal will be less than predicted, as the limited car parking provision will require residents to actively seek out alternative modes of travel particularly for their journey to work / college within the morning and evening peak. The significant availability of cycle parking at the development will facilitate this accessing of alternative modes, as will the information on public transport, cycling and walking routes disseminated to residents by the mobility management plan coordinator appointed for the development (see duties of mobility management plan coordinator in accompanying Mobility Management Plan).

Provided that the proposed mitigation measures are implemented, the impact of the Proposed Development during the construction stage will be an imperceptible impact of neutral and temporary effect during the construction phase.

There is an increase of road usage by private vehicles in the operational phase, however given the reduced car parking provisions set out in this development, the consequent model shift will result in the mitigation effect traffic flow on the network set out in the above section on traffic impacts.

It can be assumed that the predicted increase in use of public transport and soft modes by residents at the proposed development will result in a moderate impact with negative and long term effects on both critical junctions.

Provided that the proposed mitigation measures are implemented, the impact of the Proposed Development during the construction stage on pedestrian and cyclist will be of a temporary nature and

imperceptible. There will be an increase in pedestrians and cyclists in the surrounding area in the operational stage. This will have a marginally effect on the existing pedestrian and cycle networks. Therefore, the impacts of the development will be neutral, imperceptible and long term.

Provided that the proposed mitigation measures are implemented, the impact of the Proposed Development on Public Transport during the construction stage will be of a temporary nature and imperceptible. There will be an increase in public transport usage by site staff, but these will be in the opposite direction to commuting traffic.

Within the operational phase, there will be an increase in public transport usage by residents of the proposed development. Without mitigation, the effect is moderate with a negative long-term effect. The effect of the model shift as a result of reduced car parking facilities, will increase public transport and soft mode usage. Given the increased capacity of the bus system proposed within Bus Connects, that is planned to be in place when the proposed development is fully operational, the public transport system will have capacity to accommodate this model shift and the long-term impact will be moderate and negative.

14.0 Archaeology, Architectural and Cultural Heritage

The Archaeology, Architectural and Cultural Heritage Chapter was prepared by Martin Byrne, Byrne Mullins & Associates. This chapter discusses the receiving environment from a Cultural Heritage perspective. It provides information with respect to previously identified baseline data and assesses the impact of the proposals on identified sites and areas of Cultural Heritage interest and/or potential.

The subject development lands form part of the townland of Greenhills, in the civil parish of Crumlin and barony of Uppercross (6-inch Historic Map: Dublin Sheet 22). The Irish form of the name is Na Glaschnoic and is validated by the Placenames Commission (www.logainm.ie).

There are no previously identified monuments of archaeological interest or features of archaeological potential interest located within the extent of the subject site; no features of interest were noted by documentary, cartographic or aerial photographic research or by the detailed site inspection survey.

There are two previously recorded monuments located within the wider Cultural Heritage Study Area. Aside with the remains and artefacts uncovered with respect to Site Ch-1 above, there are no reported ‘stray finds’ listed in the Topographical Registers of the National Museum of Ireland, as having been discovered from the site or wider Cultural Heritage Study Area.

There are no structures listed in the Record of Protected Structures (RPS) of the Development Plan as being located within the extent of the subject site or wider Cultural Heritage Study Area.

There are no structures of Architectural Heritage interest listed by the NIAH as being located within the extent of the subject site or wider Cultural Heritage Study Area.

In summary, there are no significant historical events associated with the proposed development lands which have the ability to be impacted upon by the proposed development. Much of the western boundary is formed by a townland boundary, currently defined by a concrete wall, which will be retained as part of the development proposals. Consequently, it is considered that any potential impacts that might occur with respect to Historical Heritage during the proposed construction phase of the development are of unlikely probability, of neutral quality and of imperceptible significance.

There are no previously identified monuments or features of archaeological interest located within the subject development lands; two recorded monuments have been identified within the wider Cultural Heritage Study Area. A former prehistoric flat cemetery (SITE CH-1) was discovered in the nineteenth century to the east of the eastern extent of the subject lands; this site has new been removed and developed; the eastern site boundary is located approximately 115m outside the associated Zone of Archaeological Potential. A former holy well (SITE CH-3) is located approximately 350m to the norther of the northern site boundary.

The site has been the subject of sand and gravel quarrying since the early nineteenth century, resulting in significant disturbance and ground reductions within the extent of the site. It is not deemed likely that any previously unrecorded subsurface archaeological features might be positioned within the subject site.

It is considered that the development, as proposed, will not cause any direct impacts to any previously recorded archaeological monuments and that there are no potential for the discovery of any subsurface remains of archaeological interest within the site at construction phase, resulting in an impact (effect) of unlikely probability, of neutral quality and of imperceptible significance.

It is not envisaged that the development, as proposed, will cause any direct impacts to structures of architectural heritage interest during the construction phase of the project, resulting in an impact (effect) of unlikely probability, of neutral quality and of imperceptible significance.

There are no extant monuments or structures of historical, archaeological or architectural heritage interest located within the defined Cultural Heritage Study Area. Consequently, the overall proposed development will not impact on the views or setting of any monuments or structures of Cultural Heritage interest, resulting in an impact (effect) of unlikely probability, of neutral quality and of imperceptible significance.

The impacts (effects) of the proposed development, at construction stage, with respect to any archaeological monuments or structures of historical, archaeological or architectural heritage interest is considered to be of unlikely probability, of neutral quality and of imperceptible significance; in addition given the developmental history of the site, it is not deemed likely that any previously unrecorded subsurface archaeological features might be positioned within the subject site. Consequently, no mitigation measures are deemed necessary.

There are no extant monuments or structures of historical, archaeological or architectural heritage interest located within the defined Cultural Heritage Study Area. It is considered that the overall proposed development will not impact on the views or setting of any monuments or structures of Cultural Heritage interest, resulting in an effect of unlikely probability, of neutral quality and of imperceptible significance; consequently, no mitigation measures are deemed necessary.

15.0 Landscape and Visual Amenity

This chapter was prepared by Parkhood Landscape Architects and the townscape / landscape and visual impacts associated with the proposed mixed use development including 633 no. build-to-rent apartment units, 10 no. commercial units, residential amenity/management facilities, creation of new public open spaces including plazas, public realm and enhanced streetscape (hereafter referred to as the proposed development) on 2.79 hectares / 6.89 acres of land (the Application Site) at the Chadwick's Site on Greenhills Road in Walkinstown, Dublin 12.

The objective of the TVIA is to evaluate the likely significance of townscape / landscape character and visual amenity effects to the Application Site and study area to assist the determining authority in considering the acceptability of this proposal. It is based on the interpretation of the physical and aesthetic characteristics following criteria and terminology partially drawn from *Principles and Overview of Processes (Chapter 3)* within the GLVIA. The Generic TVIA Terminology is contained within Appendix 15A. The TVIA focuses on key effects and issues as follows:

- The effect of the proposed development upon the townscape / landscape resource;
- The effect of the proposed development on the perception of the townscape; and
- The effects arising from the proposed development on visual amenity.

The TVIA methodology can be summarised as undertaking the following key tasks:-

- Site Visits between February and September 2021;
- Assessing the baseline Landscape / Townscape Setting and Conditions;
- Evaluation of key components of the proposed development based on site layouts, plans and elevations prepared by C+W O'Brien Architects and other members of the design team;
- Assessment of Townscape and Landscape Effects;

- Assessment of Visual Effects;
- Description of Mitigation and Enhancement Measures; and
- Summary of Significance of Townscape and Visual Amenity Effects.

To support the visual assessment, photomontages, wirelines and graphics have been prepared from 12 no. representative viewpoints by 3D Design Bureau to allow assessment of its potential scale and nature in these views and these are contained in Appendix 15B.

Relevant projects were considered in the locality in terms of cumulative impacts and the baseline photography was undertaken in winter months to allow for maximum objectivity in terms of views (i.e., no leaves on vegetation). The viewpoint selection process and photomontage methodology is based on *Landscape Institute Technical Guidance Note 06/19: 'Visual Representation of Development Proposals (2019).*

In visual amenity terms, the site is rated as having Low sensitivity on account of a limited visual envelope due to the historic and existing land-uses both on and in the Application Site. It is underutilized site with redundant buildings that has a post-industrial character. There is no nearby designated landscapes, conservation areas or listed buildings that would be affected by activity on the Application Site. The most sensitive landscape feature is the Greenhills Esker to the immediate north of the site but, as noted above, this has been subject to historic quarrying activity and the area is now characterised by road infrastructure and industrial parks which have substantially affected its nature and subsumed any presence it has in the landscape.
Longer views are afforded from elevated or exposed areas in parklands to the west but these are of a distant or partial nature and, in overall terms, the Application Site is well concealed from public vantage points. From the majority of areas in the Greenhills and Walkinstown areas, it would be considered that the site has a good ability to absorb changes without significant detriment to landscape / townscape character or visual amenity of this area.

The site carries no environment, amenity, heritage, visual amenity or landscape designations and possesses nothing that would be categorised as sensitive in terms of townscape character, features or vegetation.

In general, the areas to the periphery of the Application Site are of a similar character and *poor* quality / value being made up or further commercial and industrialised landscapes comprising further functional and utilitarian buildings with little in terms of aesthetic or amenity provision.

Beyond the industrial park areas, the townscape of Walkinstown and Greenhills comprises a mix of good to *ordinary* townscape of *medium* sensitivity comprising extensive areas of low-rise mid-20th century housing estates and incidental parks. There are no heritage or conservation areas in this area.

The LCA notes that the key "*Landscape Value*" contributors in south Dublin are the public parks, the Dodder River Valley, 19th century industrial heritage and views out to Dublin (Wicklow) Mountains and agricultural hinterland. These are all sufficiently distant from the Application Site to be subject to any significant landscape or visual effects.

Selected representative viewpoints for the visual assessment are taken from the following locations:-

Figure 17.0 Viewpoint Locations Map

Existing View	Resultant View
VP01 – Walkinstown Avenue	
	
VP02 - Greenhills Road	
	
VP03 - Greenhills Road near Walkinstown Roundabout	
	

VP04 – Walkinstown Roundabout

VP05 - Beechfield Park Walkinstown

VP06 - St. Joseph's Road

VP07 – Greenhills Park	
	
VP08 – St. James's Road	
	
VP09 – Tymon Park	
	

VP10 – Greenhills Road

VP11 – Walkinstown Avenue Park

VP12 – Greenhills Industrial Estate Service Lane

Figure 18.0 Thumbnail of Viewpoints (included in appendix 15B)

Representative Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change	Significance & Magnitude of Visual Effects		
			Construction (Temporary)	Operation (Permanent)	Residual (Permanent)
VP1: Walkinstown Crescent	Medium	Minor	Slight negative	Slight neutral	Slight Neutral
VP2: R819 Greenhills Road	Low /Medium	Major	Moderate negative	Slight positive	Slight positive
VP3: Greenhills Road near Walkinstown Roundabout	Low / Medium	Moderate	Slight negative	Slight Neutral	Slight Neutral
VP4: Walkinstown Roundabout	Medium	Moderate	Slight negative	Slight Neutral	Slight Neutral
VP5: Beechfield Park, Walkinstown	Medium	Minor	Slight neutral	Slight Neutral	Slight Neutral
VP6: St Joseph's Road	Medium	Minor	Slight neutral	Slight Neutral	Slight Neutral
VP7: Greenhills Park	Medium	Minor	Slight neutral	Slight Neutral	Slight Neutral
VP8: St James's Road	Medium	Minor	Slight neutral	Slight Neutral	Slight Neutral
VP9: Tymon Park	Medium	Minor	Slight neutral	Slight Neutral	Slight Neutral
VP10: R819 Greenhills Road	Medium	Moderate	Slight negative	Slight Neutral	Slight Neutral
VP11: Walkinstown Avenue Park	Medium	Minor	Slight neutral	Slight Neutral	Slight Neutral
VP12: Greenhills Industrial Estate Service Lane	Low	Major	Slight neutral	Slight positive	Slight positive

Table 1: Summary of Predicted Visual Amenity Effects

Townscape Character Area	Landscape Sensitivity	Magnitude of Change	Significance & Magnitude of Effects		
			Construction (Temporary)	Operation (Permanent)	Residual (Permanent)
Application Site	Low	High	Moderate negative	Moderate positive	Moderate positive
Greenhills and Walkinstown	Medium	Medium to Low	Slight negative	Slight positive	Slight positive
Dublin City	Medium	Low	Slight negative	Slight positive	Slight positive

Table 2: Summary of Predicted Townscape Effects

Cumulative landscape or visual effects are the combined effects that arise through the interaction of two or more developments, whether of the same type or not, within the landscape and visual baseline context. Collectively they give rise to an overall combined effect. The closest of these developments is approximately 250m distant from the Application Site and, given the existing built form and townscape in the Dublin 12 area, there are no significant cumulative effects predicted to derive from this proposal in conjunction with these in townscape / landscape and visual amenity terms.

Built townscape ensures that views consistently change in context, scale and extent with many views of the Application Site, even from close proximity locations within the nearby housing estates and business parks closed off by intervening buildings or boundary features. There are no medium or longer views due to intervening townscape and the gently undulating topography not facilitating potentially elevated views towards the Application Site. Short range views of the Application Site are largely confined to an approximate 500m long corridor on the Jamestown Road.

Any assessment must be measured against the current situation on site which constitutes a vacant brownfield site bound by a major road and utilitarian buildings set in a largely functional landscape that contributes negatively to local townscape and has limited aesthetic appeal. In broad terms, a proposal of this nature and scale will become part of the integrity, legibility and identity of the Greenhills and Walkinstown area with significant effects to local townscape character and visual amenity. The proposed development will constitute a significant change to the local sense of place with built form extending across the majority of the Application Site and therefore being an immediately apparent and substantial change to close proximity views from Greenhills Road and adjacent areas.

While it will be a substantial development, the baseline setting of large scale townscape, adjacent built form and broad road-scape ensure this area is capable of absorbing such a change without detriment. In all views, the proposed development would be seen in context with other large buildings, infrastructure, elements or structures and would not have any detrimental effects.

The proposal offers the opportunity for a marked improvement in the architecture and streetscape comparative to the existing situation. This includes significant planting works and extensive public realm landscape works which will provide an enhanced townscape sense of place and legibility while offering variation and relief from the prevailing similar and repetitive building type in this part of the city. Consequently, it is considered the development can be successfully absorbed into this area without causing adverse townscape / landscape effects.

Beyond close proximity areas, the existing built environment provides a density of building and vegetation that will ensure the majority of areas will experience negligible to no effects (i.e., insignificant) on townscape character and visual amenity due to the proposal being visually obscured. There will be no effects to any designated historic sites, views, townscapes, key landmarks or environments at a local or city wide level.

The Application Site comprises a former industrial (and now brownfield) site that contributes adversely to the character and visual quality of this part of Dublin. The proposed development, while substantial, would result in a positive contribution to the townscape character and urban fabric of this part of Greenhills and Walkinstown. While recognising there are some significant local impacts, this report concludes that this proposal, on balance, has no unacceptable townscape / landscape or visual effects and can be successfully absorbed into the character and views of this part of the city.

16.0 Interactions Between Environmental Factors

This section describes interactions between impacts on various environmental factors. A summary matrix showing interdependencies between these environmental factors is presented below for the proposed development.

Interactions	Chapter 4.0 Population & Health	Chapter 5.0 Biodiversity	Chapter 6.0 Land, Soils & Geology	Chapter 7.0 Water & Hydrology	Chapter 8.0 Noise & Vibration	Chapter 9.0 Air Quality & Climate	Chapter 10 Microclimate	Chapter 11.0 Material Assets Utilities	Chapter 12.0 Material Assets Waste	Chapter 13.0 Material Assets Traffic	Chapter 14.0 Archaeology, Architectural and Cultural Heritage	Chapter 15.0 Landscape & Visual Amenity
Chapter 4.0 Population & Health		✔	✔	✔	✔	✔	✔	✔	✔	✔		✔
Chapter 5.0 Biodiversity			✔	✔		✔	✔	✔				✔
Chapter 6.0 Land, Soils & Geology				✔				✔				
Chapter 7.0 Water & Hydrology												
Chapter 8.0 Noise & Vibration						✔			✔			
Chapter 9.0 Air Quality & Climate									✔			
Chapter 10 Microclimate									✔			✔
Chapter 11.0 Material Assets Utilities												
Chapter 12.0 Material Assets Waste												
Chapter 13.0 Material Assets Traffic												
Chapter 14.0 Archaeology, Architectural and Cultural Heritage												
Chapter 15.0 Landscape & Visual Amenity												

Table 3.0 Summary matrix showing interdependencies between various environmental factors

All potential interactions have been addressed as required throughout the EIAR. During each stage of the assessment contributors have liaised with each other (where relevant) to ensure that all such potential interactions have been addressed. The various interactions between environmental topics considered within the EIAR are further discussed in Chapter 16.0 included in Volume 2 of the EIAR.

17.0 Mitigation and Monitoring Measures

A summary of mitigation and monitoring measures has been prepared, for ease of reference and clarity, and to facilitate enforcement of all environmental mitigation and monitoring measures specified within Chapters 4.0 to 12.0 of the EIAR. All mitigation and monitoring commitments detailed within the EIAR have been included in a separate compendium and are presented in Chapter 17.0 included in Volume II of the EIAR.

Further to those outlined in the EIAR, a Construction Management Plan (CMP) will be agreed with the Planning Authority, prior to the commencement of construction activities on the site, and will incorporate provision for the primary construction mitigation measures.