

# **Environmental Impact Assessment Report (EIAR)**

## **Volume 3 Non-Technical Summary (NTS)**

Strategic Housing Development at Cooldown Commons Phase  
3, Fortunestown Lane, Citywest, Dublin 24

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Prepared by



In association with

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## 1 INTRODUCTION

This is the Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) prepared in relation to a Strategic Housing development application to An Bord Pleanála for a new residential development on a site of c.3.404ha on lands located at Cooldown Commons Phase 3, Fortunestown Lane, Citywest, Dublin 24.

Each EIAR Chapter outlines the receiving environment; the potential impacts of the proposed development; the mitigation measures deemed necessary; and the predicted impacts once the mitigation measures are implemented. The purpose of the NTS is to summarise and explain in non-technical language, the likely and significant effects to the environments arising from this project. Section 2 of this EIAR provides a brief site context and section 3 outlines the proposed development description. Section 4 outlines the data required for each EIAR chapter and section 5 outlines the predicted impacts relating to each chapter.

This NTS is prepared with direct input from the design team who include McGill Planning, Reddy Architecture + Urbanism, Murray and Associates Landscape Architects, DBFL Consulting Engineers, Modelworks, Openfield Ecological Services, Bat Eco Services, IAC Archaeology, Byrne Environmental, and The Tree File to ensure that the possible effect on the environment has been examined through the process of an EIAR (detailed below) and the most appropriate form of development is delivered at this site.

The EIAR has been prepared in accordance with the provisions of the Planning and Development Act (as amended) and the Planning & Development Regulations 2001(as amended), which give effect in national planning legislation to the EU Directives on EIA.

EIA requirements originate from Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, as amended by Directive 97/11/EC, 2003/35/EC and 2009/31/EC. The Directive and its amendments were subsequently codified and replaced by Directive 2011/92/EU, as amended in turn by Directive 2014/52/EU. This amending Directive was transposed into national planning consent procedures in September 2018 through the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).

The objective of the EIA Directive is to ensure a high level of protection of the environment and human health, through the establishment of minimum requirements for environmental impact assessment prior to development consent being given, of public and private developments that are likely to have significant effects on the environment.

An EIA is mandatory for certain projects and for other projects that meet or exceed a stated threshold as set out in Annex I and Annex II of the Directive (and Part 1 and Part 2 of Schedule 5 of the Planning and Development Regulations 2001, as amended). Projects that do not meet or exceed a stated threshold are subject to Screening for the requirement, or not, for 'sub-threshold' EIA.

The gross area of the application site is c. 3.404ha, which is below the 10ha threshold for a built-up area. The proposed development for 421 no. units, which is below the 500 no. units threshold. However, it was deemed prudent to prepare an EIAR due to the *cumulation with other existing development and/or development the subject of a consent for proposed development* within the immediate area.

Furthermore, it is noted that under Article 299A of the Regulations, where a planning application for a sub-threshold development is accompanied by an EIAR and a request for a determination under section 7(1)(a)(i)(l) of the Act of 2016 was not made, the application shall be dealt with as if the EIAR had been submitted in accordance with section 172(1) of the Act.

## 2 SITE CONTEXT

The site is located immediately north of the Fortunestown Lane Luas stop and the Luas line bounds the site to the south and east. The adjacent lands to the north, north-east and west of the site are currently under construction or have planning permission. The small triangular site to the southeast of the site is currently undeveloped. The Citywest Shopping Centre is located south of the subject site, on the opposite side of Fortunestown Lane and the Luas tracks and also benefits from a recent grant of permission for additional development.

The subject site is irregularly shaped and extends to c. 3.404ha. It is undeveloped and currently consists of a temporary compound that is being used for the construction of the adjacent site to the west. As a result, there is very little vegetation existing on the site.

The site is free from any protected structures or monuments and it is not located within a Conservation Area or an Architectural Conservation Area. The site is not within a Special Area of Conservation (SAC) or Special Protection Area (SPA).



*Figure 1 Site Location. Note the red line shown is for indicative purposes only. Please refer to the architects drawings for an accurate red line boundary.*

### 3 PROJECT DESCRIPTION

Cairn Homes Properties Limited, intend to apply to An Bord Pleanála for permission for a strategic housing development on this site of c. 3.404 hectares at Cooldown Commons and Fortunestown, Citywest, Dublin 24 (on lands located north of the Luas red line and Fortunestown Luas stop).

The proposed development will consist of the construction of a residential scheme comprising 421 no. residential units, offices (c.376sqm), retail units (3 no. of c.285sqm, c.252sqm and c.182sqm) and a residential amenity area (c.555sqm), within 9 no. blocks ranging in height from 1 – 13 storeys. The residential component will include 126 no. 1 bed units, 267 no. 2 bed units, 28 no. 3 beds all with associated private balconies/terraces to the north/south/east/west elevations.

The proposal will include 289 no. car parking spaces (181 no. at basement and 108 no. at surface level) along with 650 no. cycle parking spaces. The development will provide public and communal open spaces throughout including a public plaza adjoining Fortunestown Luas stop. Provision of vehicular, pedestrian, and cyclist accesses to the site, including pedestrian bridge to the public park (under construction) to the east.

The application includes for all landscaping, ESB substations, plant areas, bin storage, surface water attenuation and all other site development works, and site services required to facilitate the proposed development.

The proposed development seeks to amend SHD permission ABP-302398 -18 (under construction to the west), replacing 32 no. permitted duplex apartments along with associated amendments to internal roads and open spaces. The current proposal also replaces permission SD16A/0078 previously granted on this site.

### 4 DATA REQUIRED TO IDENTIFY AND ASSESS THE MAIN EFFECTS WHICH THE PROPOSED DEVELOPMENT IS LIKELY TO HAVE ON THE ENVIRONMENT

Data is required to identify and assess the main impacts which the proposed development is likely to have on the environment. The following is a synopsis of the data and information available and sourced for this Environmental Impact Assessment. This is in line with the following regulations and guidelines which were considered:

- The EU Directives and Irish regulations regarding Environmental Impact Assessment;
- Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in the Environmental Impact Assessment Reports – Draft (Environmental Protection Agency, 2017)
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018)

#### Population and Human Health

To establish the existing receiving environment/baseline for the subject site, the methodology included site visits to evaluate the location and likely significant potential impact upon the human sources in the area. Desk base study of the Central Statistics Office Census (CSO) data, the ESRI

Quarterly Economic Commentary, and national, regional and local planning policy, school and creche enrolment figures.

Different local catchment areas were established for analysing population data, creche demand and capacity, and school demand and capacity. These areas were chosen to gather the most relevant data for each factor. A general local catchment area of 1km from the subject site forms the basis of most areas of analysis.

## **Biodiversity**

The assessment was carried out in accordance with the following best practice methodology: 'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland' by the Chartered Institute of Ecology and Environmental Management (IEEM, 2016).

The assessment was carried out in accordance with the following best practice methodology: 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' by the Environmental Protection Agency (EPA, 2017) and 'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland' by the Chartered Institute of Ecology and Environmental Management (IEEM, 2016).

This biodiversity study and impact assessment was completed through a combination of detailed desktop reviews and baseline field assessments which are described in the following sections.

Site visits were carried out on the 4<sup>th</sup> of March and the 25<sup>th</sup> of May 2020 during suitable weather conditions. On each occasion the site was surveyed in accordance with the Heritage Council's Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2010). Habitats were identified in accordance with Fossitt's Guide to Habitats in Ireland (Fossitt, 2000).

Surveys took place within the optimal survey period for general habitat and breeding birds (Smith et al., 2010). March is within the optimal survey period for surveying breeding birds, Badgers and amphibians. A dedicated bat survey was carried out for this development by Dr Tina Aughney during the optimal period. It was possible to classify all habitats on the site to Fossitt level 3.

A desktop review of available data for the study site was completed by referring to relevant online databases such as: The National Parks and Wildlife Services (NPWS), The National Biodiversity Data Centre (NBDC) and The Environmental Protection Agency (EPA).

## **Land, Soil and Geology**

This chapter should be read in conjunction with the site layout plans and the project description sections of the report.

The methodology followed for this section is in accordance with the EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft) 2017 and Advice Notes for Preparing Environmental Impact Statements (Draft) 2015. Information on the surrounding lands and soils was assembled from the following sources:

- Geological Survey of Ireland (GSI) interactive mapping;
- Site Investigations Report dated October 2020 carried out by 'Ground Investigation Ireland' comprising
  - 9 No. Trial Pits to a maximum depth of 3.60m BGL



- 2 No. Soakaways to determine a soil infiltration value to BRE digest 365
- 18 No. Window Sample Boreholes to recover soil samples
- 11 No. Dynamic Probes to determine soil strength/density characteristics
- 17 No. Cable Percussion boreholes to a maximum depth of 10.00m BGL
- 15 No. Rotary Core Boreholes to a maximum depth of 15m BGL
- Installation of 5 No. Groundwater monitoring wells
- Geotechnical & Environmental Laboratory testing
- Environmental Assessment Report dated November 2020 by “Ground Investigation Ireland”
- Environmental Protection Agency (EPA) interactive mapping;
- Teagasc soil and sub-soil data;
- Ordnance Survey Ireland (OSI) mapping;
- Topographical Survey;
- Site Inspection / walkover;

### Hydrology and Water Services

The methodology followed for this section is in accordance with the EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft) 2017 and Advice Notes for Preparing Environmental Impact Statements (Draft) 2015. Information on the surrounding surface water and hydrogeological environments was assembled from the following sources:

- Environmental Protection Agency (EPA) interactive mapping and water quality data;
- Ordnance survey Ireland (OSI) mapping;
- Geological Survey of Ireland (GSI) online mapping service;
- Topographical survey; Site inspection / walkover;
- Office of Public Works (OPW) National Flood Hazard Mapping & CFRAM Studies (Catchment Flood Risk and Management Studies);
- South Dublin County Council record drawings;
- Site Investigations data;
- Fortunestown Local Area Plan May 2012;
- “Site Specific Flood Risk Assessment’ by DBFL Consulting Engineers

### Noise and Vibration

The general assessment methodology of the potential noise and vibrational impacts that the proposed development will have on the receiving environment has been prepared in accordance with:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (DoHPLG, August 2018).
- 2017 EPA Draft Guidelines on information to be contained in Environmental Impact Assessment Reports.
- Guidelines on Information to be Contained in an Environmental Impact Statement (EPA 2002).
- Advice Notes on Current Practice (in preparation of Environmental Impact Statements) (EPA 2003).
- Environmental Protection Agency, 2015. Revised Guidelines on the Information to be Contained in Environmental Impact Statements
- Environmental Protection Agency, 2015. Draft Advice Notes for Preparation of Environmental Impact Statements
- Development Management Guidelines (DoEHLG, 2007).



- Planning and Development Regulations 2001, as amended by European Union (Planning & Development)(Environmental Impact Assessment) Regulations 2018.

## Climate and Air Quality

The general assessment methodology of the potential impact of the proposed development on air quality and climate has been conducted in accordance with:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (DoHPLG, August 2018).
- 2017 EPA Guidelines on information to be contained in Environmental Impact Assessment Reports.
- Guidelines on Information to be Contained in an Environmental Impact Statement (EPA 2002).
- Advice Notes on Current Practice (in preparation of Environmental Impact Statements) (EPA 2003).
- Environmental Protection Agency, 2015. Revised Guidelines on the Information to be Contained in Environmental Impact Statements.
- Planning and Development Regulations 2001, as amended, in particular by the European Union (Planning & Development)(Environmental Impact Assessment) Regulations 2018 (SI No. 296 of 2018).
- Environmental Impact Assessment of Projects – Guidance on the preparation of the EIAR, European Commission, 2017.
- Climate Action and Low Carbon Development Act 2015

The development area is located within a zone which includes sources of existing transportation related air emissions principally from local road infrastructure and sources of domestic, retail and commercial building heating. It is noted that there are no other major sources of industrial air emissions within 1km of the site. The largest local industrial development is the CRH Roadstone quarry located c. 1.5km northeast of the subject site.

## Landscape and Visual

The chapter was prepared with reference to the Landscape Institute's *Guidelines for Landscape and Visual Impact Assessment*, 2013 (GLVIA) and Technical Information Note *Townscape Character Assessment*, and the EPA draft *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*, 2017.

### *Key Principles of the GLVIA*

#### **Use of the Word 'Townscape'**

The word 'townscape' is used to describe the landscape in urban areas. The GLVIA defines townscape as "the landscape within the built-up area, including the buildings, the relationships between them, the different types of urban spaces, including green spaces and the relationship between buildings and open spaces". Since the subject site is within the urban area, the word townscape is predominantly used in this chapter.

#### **Use of the Term 'Effect' vs 'Impact'**

The GLVIA requires that the terms 'impact' and 'effect' be clearly distinguished and consistently used. 'Impact' is defined as the action being taken, e.g. the introduction to the landscape of buildings,

infrastructure or landscaping. 'Effect' is defined as the change resulting from those actions, e.g. change in townscape character or the visual amenity experienced at a vantage point.

### Assessment of Both 'Townscape' and 'Visual' Effects

The GLVIA requires that effects on views and visual amenity be assessed separately from the effects on townscape, although the two topics are inherently linked. 'Townscape' results from the interplay between the physical, natural and cultural components of our surroundings. Different combinations and spatial distribution of these elements create variations in townscape character. Townscape impact assessment identifies the changes to this character which would result from the proposed development, and assesses the significance of those effects on the townscape as a resource.

Visual impact assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area's visual amenity.

### *Methodology for Assessment of Townscape Effects*

Assessment of potential townscape effects involves (a) classifying the sensitivity of the townscape resource, and (b) describing and classifying the magnitude of townscape change which would result from the development. These factors are then combined to arrive at a classification of significance of the effects.

### Townscape Sensitivity

The sensitivity of the townscape is a function of its land use, patterns and scale, visual enclosure and the distribution of visual receptors, and the value placed on the townscape. The nature and scale of the development in question is also taken into account, as are any trends of change, and relevant policy. Five categories are used to classify sensitivity.

Sensitivity	Description
Very High	Areas where the townscape exhibits very strong, positive character with valued elements, features and characteristics that combine to give an experience of unity, richness and harmony. The townscape character is such that its capacity to accommodate change is very low. These attributes are recognised in policy or designations as being of national or international value and the principle management objective for the area is protection of the existing character from change.
High	Areas where the townscape exhibits strong, positive character with valued elements, features and characteristics. The townscape character is such that it has limited/low capacity to accommodate change. These attributes are recognised in policy or designations as being of national, regional or county value and the principle management objective for the area is the conservation of existing character.
Medium	Areas where the townscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong, or has evidence of alteration, degradation or erosion of elements and characteristics. The townscape character is such that there is some capacity for change. These areas may be recognised in policy at local or county level and the principle management objective may be to consolidate townscape character or facilitate appropriate, necessary change.
Low	Areas where the townscape has few valued elements, features or characteristics and the character is weak. The character is such that it has capacity for change; where development would make no significant change or would make a positive change. Such townscapes are

	generally unrecognised in policy and the principle management objective may be to facilitate change through development, repair, restoration or enhancement.
Negligible	Areas where the townscape exhibits negative character, with no valued elements, features or characteristics. The character is such that its capacity to accommodate change is high; where development would make no significant change or would make a positive change. Such townscapes include derelict industrial lands, as well as sites or areas that are designated for a particular type of development. The principle management objective for the area is to facilitate change in the townscape through development, repair or restoration.

Table 1 Categories of Townscape Sensitivity

### Magnitude of Townscape Change

Magnitude of change is a factor of the scale, extent and degree of change imposed on the landscape by a development, with reference to its key elements, features and characteristics (also known as 'landscape receptors'). Landscape receptors include individual aspects of the townscape, e.g. the topography, urban grain or mix of building typologies, which may be directly changed by the development. The surrounding townscape character areas are also receptors whose character may be altered by these changes. Five categories are used to classify magnitude of change.

Magnitude of Change	Description
Very High	Change that is large in extent, resulting in the loss of or major alteration to key elements, features or characteristics of the townscape, and/or introduction of large elements considered totally uncharacteristic in the context. Such development results in fundamental change in the character of the townscape.
High	Change that is moderate to large in extent, resulting in major alteration to key elements, features or characteristics of the townscape, and/or introduction of large elements considered uncharacteristic in the context. Such development results in change to the character of the townscape.
Medium	Change that is moderate in extent, resulting in partial loss or alteration to key elements, features or characteristics of the townscape, and/or introduction of elements that may be prominent but not necessarily substantially uncharacteristic in the context. Such development results in change to the character of the landscape.
Low	Change that is moderate or limited in scale, resulting in minor alteration to key elements, features or characteristics of the townscape, and/or introduction of elements that are not uncharacteristic in the context. Such development results in minor change to the character of the landscape.
Negligible	Change that is limited in scale, resulting in no alteration to key elements features or characteristics of the townscape, and/or introduction of elements that are characteristic of the context. Such development results in no change to the townscape character.

Table 2 Categories of Magnitude of Townscape Change

### Significance of Effects

To classify the significance of effects the magnitude of change is measured against the sensitivity of the townscape using the guide in the table below. This matrix is only a guide. The assessor also uses professional judgement informed by their expertise, experience and common sense to arrive at a classification of significance that is reasonable and justifiable.

		Sensitivity of the Landscape/View				
		Very High	High	Medium	Low	Negligible
Magnitude of Change to the Landscape/View	Very High	<i>Profound</i>	<i>Profound to Very Significant</i>	<i>Very Significant to Significant</i>	<i>Moderate</i>	<i>Slight</i>
	High	<i>Profound to Very Significant</i>	<i>Very Significant</i>	<i>Significant</i>	<i>Moderate to Slight</i>	<i>Slight to Not Significant</i>
	Medium	<i>Very Significant to Significant</i>	<i>Significant</i>	<i>Moderate</i>	<i>Slight</i>	<i>Not Significant</i>
	Low	<i>Moderate</i>	<i>Moderate to Slight</i>	<i>Slight</i>	<i>Not significant</i>	<i>Imperceptible</i>
	Negligible	<i>Slight</i>	<i>Slight to Not Significant</i>	<i>Not significant</i>	<i>Imperceptible</i>	<i>Imperceptible</i>

Table 3 Guide to Classification of Significance of Landscape and Visual Effects

### Methodology for Assessment of Visual Effects

Assessment of visual effects involves identifying a number of key/representative viewpoints in the site's receiving environment, and for each one of these: (a) classifying the viewpoint sensitivity, and (b) classifying the magnitude of change which would result in the view. These factors are combined to arrive at a classification of significance of the effects on each viewpoint.

### Sensitivity of the Viewpoint/Visual Receptor

Viewpoint sensitivity is a function of two main considerations:

- Susceptibility of the visual receptor to change. This depends on the occupation or activity of the people experiencing the view, and the extent to which their attention is focussed on the views or visual amenity they experience at that location.

Visual receptors most susceptible to change include residents at home, people engaged in outdoor recreation focused on the landscape (e.g. trail users), and visitors to heritage or other attractions and places of community congregation where the setting contributes to the experience. Visual receptors less sensitive to change include travellers on road, rail and other transport routes (unless on recognised scenic routes), people engaged in outdoor recreation or sports where the surrounding landscape does not influence the experience, and people in their place of work or shopping where the setting does not influence their experience.

- Value attached to the view. This depends to a large extent on the subjective opinion of the visual receptor but also on factors such as policy and designations (e.g. scenic routes, protected views), or the view or setting being associated with a heritage asset, visitor attraction or having some other cultural status (e.g. by appearing in arts).

Five categories are used to classify a viewpoint's sensitivity.

Sensitivity	Description
Very High	Iconic viewpoints (views towards or from a townscape feature or area) that are recognised in policy or otherwise designated as being of national value. The composition, character and quality of the view are such that its capacity for change is very low. The principle management objective for the view is its protection from change.
High	Viewpoints that are recognised in policy or otherwise designated as being of value, or viewpoints that are highly valued by people that experience them regularly (such as views from houses or outdoor recreation features focused on the townscape). The composition, character and quality of the view may be such that its capacity for accommodating change may or may not be low. The principle management objective for the view is its protection from change that reduces visual amenity.
Medium	Views that may not have features or characteristics that are of particular value, but have no major detracting elements, and which thus provide some visual amenity. These views may have capacity for appropriate change and the principle management objective is to facilitate change to the composition that does not detract from visual amenity, or which enhances it.
Low	Views that have no valued feature or characteristic, and where the composition and character are such that there is capacity for change. This category also includes views experienced by people involved in activities with no particular focus on the landscape. For such views the principle management objective is to facilitate change that does not detract from visual amenity or enhances it.
Negligible	Views that have no valued feature or characteristic, or in which the composition may be unsightly (e.g. in derelict landscapes). For such views the principle management objective is to facilitate change that repairs, restores or enhances visual amenity.

Table 4 Categories of Viewpoint Sensitivity

### Magnitude of Change to the View

Classification of the magnitude of change takes into account the size or scale of the intrusion of development into the view (relative to the other elements and features in the composition, i.e. its relative visual dominance), the degree to which it contrasts or integrates with the other elements and the general character of the view, and the way in which the change will be experienced (e.g. in full view, partial or peripheral view, or in glimpses). It also takes into account the geographical extent of the change, as well as the duration and reversibility of the visual effects. Five categories are used to classify magnitude of change to a view:

Magnitude of Change	Description
Very High	Full or extensive intrusion of the development in the view, or partial intrusion that obstructs valued features or characteristics, or introduction of elements that are completely out of character in the context, to the extent that the development becomes dominant in the composition and defines the character of the view and the visual amenity.
High	Extensive intrusion of the development in the view, or partial intrusion that obstructs valued features, or introduction of elements that may be considered uncharacteristic in the

	context, to the extent that the development becomes co-dominant with other elements in the composition and affects the character of the view and the visual amenity.
Medium	Partial intrusion of the development in the view, or introduction of elements that may be prominent but not necessarily uncharacteristic in the context, resulting in change to the composition but not necessarily the character of the view or the visual amenity.
Low	Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context, resulting in minor alteration to the composition and character of the view but no change to visual amenity.
Negligible	Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.

Table 5 Categories of Magnitude of Visual Change

### Significance of Visual Effects

As for townscape effects, to classify the significance of visual effects, the magnitude of change to the view is measured against the sensitivity of the viewpoint, using the guide in the table above.

### Quality of Effects

In addition to predicting the significance of the effects, EIA methodology requires that the quality of the effects be classified as positive/beneficial, neutral, or negative/adverse.

For townscape to a degree, but particularly for visual effects, this is an inherently subjective exercise. This is because townscape and visual amenity are *perceived* by people and are therefore subject to variations in the attitude and values – including aesthetic preferences - of the receptor. One person's attitude to a development may differ from another person's, and thus their response to the effects of a development on a townscape or view may vary.

Additionally, in certain situations there might be policy encouraging a particular development in an area, in which case the policy is effectively prescribing townscape change. If a development achieves the objective of the policy the resulting effect might be considered positive, even if the townscape character is profoundly changed. The classification of quality of townscape and visual effects should seek to take these variables into account and provide a reasonable and robust assessment.

### Photomontage Methodology

The verified photomontages were produced by Model Works Ltd. The photomontage methodology is based on the Landscape Institute advice note 01/11 *Photography and Photomontage in Landscape and Visual Impact Assessment*. The method has five main steps:

- Photography
- Survey
- 3D Modelling and Camera Matching
- Rendering and Finishing of Photomontages
- Presentation

### Photography

- Date, Time and Conditions

The photography is timed so that the scene conditions, weather conditions and sun position allow - as far as possible - for a clear and representative baseline photograph to be captured. The date and time of each photograph are recorded so that the sun position can be accurately portrayed in the render of the 3D model.

- Camera

The photographs were taken using a Canon EOS5D Mark II camera with a 21 mega pixel sensor and image resolution of 5616 x 3744 pixels. At each viewpoint the camera was positioned on a tripod with the lens 1.65m above ground level (the level of the average adult's eyes), directed at the site and levelled in the horizontal and vertical axes.

- Lenses

Prime lenses (fixed focal length with no zoom function) are used as this ensures that the image parameters for every photograph are the same and that all photographs taken with the same lens are comparable. For close-up to middle distant views a 24mm prime lens is normally usually used. This lens captures a field of view of 73 degrees. This relatively wide field of view is preferred for the purpose of Landscape and Visual Impact Assessment as it shows more of the context landscape surrounding a site. For distant viewpoints a 50mm prime lens may be used, capturing a 39 degree horizontal field of view.

- Survey

The coordinates of each viewpoint/camera position, including the elevation, were recorded using a survey grade GPS receiver, the Trimble Geo7X, which is accurate to within 1cm. For each viewpoint, the coordinates of several static objects in the view are also surveyed (e.g. lamp posts, bollards, corners of buildings, etc.). The coordinates of these 'markers' are used as reference points later in the process, to ensure that the direction of view of the cameras in the 3D model matches the direction of view of the photographs.

### **3D Model and Camera Matching**

- Creation of 3D Model

Using the information contained in the design team's drawings, a 3D model of the proposed development was built in the software package Autodesk 3DS Max. The 3D model is georeferenced to a survey drawing of the site and receiving environment.

- 3D Camera Positions

The surveyed camera positions and the markers for each view are inserted into the 3D model, with information on the focal length of the lens attributed to each camera. For each camera/view, the date and time is set to match those of the original photograph. This ensures that the direction of sunlight and shadows in the 3D model match those of the photographs.

- Camera Matching

The photographs are then inserted as backdrops to the views of each camera in the 3D model. The direction of view of the cameras in the 3D model are matched with the direction of view of the photographs using the surveyed markers. This ensures that the camera positions, the direction of the views and the focal length of the cameras in the 3D model are accurate, so that the proposed development appears in the correct position and scale when montaged into the photographs.

- Rendering of 3D Model and Finishing of Photomontages



For each view a render of the development is generated. This is the process of creating a photo-realistic image of the 3D model, as seen from each camera position, with sunlight and shadow applied to the model. The render of the development is then inserted into the photograph to create the photomontage. This involves masking (or cutting out) those parts of the render that are obscured by objects in the foreground of the photograph, and masking distant objects behind the render – so that the render fits seamlessly into the photograph.

## Traffic and Transportation

Our approach to the study accords with policy and guidance both at a national and local level. Accordingly, the adopted methodology responds to best practices, current and emerging guidance, exemplified by a series of publications, all of which advocate this method of analysis. Key publications consulted include;

- ‘Traffic and Transport Assessment Guidelines’ (May 2014) National Road Authority / TII;
- ‘Traffic Management Guidelines’ Dublin Transportation Office & Department of the Environment and Local Government (May 2003);
- ‘Guidelines for Traffic Impact Assessments’ The Institution of Highways and Transportation;
- Fortunestown Local Area Plan 2012; and
- South Dublin County Council Development Plan 2016-2022.

Our methodology incorporated a number of key inter-related stages, including;

- **Background Review:** This important exercise incorporated three parallel tasks which included (a) an examination of the local regulatory and development management documentation; (b) an analysis of previous ‘transport’ related, strategic and site specific studies of development and transport infrastructure proposals across the Citywest area, and (c) a review of planning applications to establish the legal status of various third party development schemes that were either considered within the strategic ‘transport’ studies or which have emerged and received full planning permission since.
- **Site Audit:** A site audit was undertaken to quantify existing road network issues and identify local infrastructure characteristics, in addition to establishing the level of accessibility to the site in terms of walking, cycling and public transport. An inventory of the local road network was also developed during this stage of the assessment.
- **Traffic Counts:** Junction traffic counts in addition to vehicle queue length surveys were undertaken and analysed with the objective of establishing local traffic characteristics in the immediate area of the proposed residential development.
- **Trip Generation:** A trip generation exercise has been carried out to establish the potential level of person trips and subsequently vehicle trips generated by the proposed residential development.
- **Trip Distribution:** Based upon both the existing and future network characteristics, a distribution exercise has been undertaken to assign site generated vehicle trips across the local road network.
- **Network Analysis:** Further to quantifying the predicted impact of vehicle movements across the local road network for the adopted site access strategy more detailed computer simulations have been undertaken to assess the operational performance of key junctions in the post development 2022, 2027 and 2037 development scenarios.

## Material Assets

The methodology followed for this section is in accordance with current EPA Guidelines and Advice Notes (and takes into consideration the draft reports issued in 2017 and 2015 respectively). Information on built assets in the vicinity of the development lands was assembled from the following sources:

- A desktop review of Irish Water Utility Plans, ESB Networks Utility Plans, Gas Networks Ireland Service Plans, Enet-Maps and Virgin Media Maps;
- Consultation with Irish Water and South Dublin County Council;
- Submission of a Pre-Connection Enquiry Application to Irish Water;
- Review of ESB Network Utility Plans;
- Review of Enet Maps;
- Review of Virgin Media Record drawings;
- Site Inspection / Walkover;

As part of assessing the likely impact of the proposed development, surface water runoff, foul drainage discharge and water usage calculations were carried out in accordance with the following guidelines:

- Greater Dublin Strategic Drainage Study (GSDSDS);
- IS EN752, "Drain and Sewer Systems Outside Buildings";
- Irish Water's Pre-Connection Enquiry Application (water demand and foul water loading);

## Waste Management

A Construction and Demolition Waste and By-Product Management Plan has been prepared to demonstrate how the management of Construction Phase waste will comply with the following relevant legislation and relevant Best Practice Guidelines:

- Waste Management Acts 1996;
- Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007);
- Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008);
- Department of the Environment, Heritage and Local Government – Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects – July 2006.

The proposed Operational Waste Management Plan has been prepared to demonstrate how the Operational Phase will comply with the following relevant guidance and South Dublin County Council's Waste Management Policies and Objectives.

- Waste Management Acts 1996;
- Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007);
- Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008);
- Eastern-Midlands Region Waste Management Plan 2015-2021.
- South Dublin County Council Development Plan 2016 - 2022

Each section of the Waste Management Plan presents the potential environmental impacts, proposed monitoring methodologies, limit values where applicable, based on the concept of Best Practice and the proposed mitigation measures to be implemented at the development site. Reference to National and International Standards are also included where relevant.

The projection of material assets of human origin was conducted and resource use and management of wastes generated were assessed for both the constructional and operational phases of the

proposed development and their associated impacts assessed. Mitigation and best practice waste management are proposed where appropriate.

## Cultural Heritage

The following legislation, standards and guidelines were consulted as part of this assessment.

- European Communities (EC) (Environmental Impact Assessment) (Amendment) Regulations 1999;
- National Monuments Acts 1930 (as amended);
- The Planning and Development Act 2000 (as amended);
- Heritage Act, 1995;
- Environmental Protection Agency (EPA) EPA Advice Notes on current practice in the preparation of Environmental Impact Statement (EIS) (EPA 2003) and draft revised notes (September 2015);
- EPA Guidelines on the Information to be contained in Environmental Impact Statement (EPA, 2002) and draft revised guidelines (August 2017);
- European Commission document 'Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report' (2017)
- Frameworks and Principles for the Protection of the Archaeological Heritage, 1999, (formerly) Department of Arts, Heritage, Gaeltacht and the Islands;
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999; and
- Local Government (Planning and Development) Act 2000.

### *Desk Based Assessment*

The following sources were examined and a list of areas of archaeological, architectural, and cultural heritage potential was compiled:

- Record of Monuments and Places for County Dublin;
- Sites and Monuments Record for County Dublin;
- Monuments in State Care Database;
- Preservation Orders;
- Register of Historic Monuments;
- Topographical files of the National Museum of Ireland;
- Cartographic and written sources relating to the study area;
- South Dublin County Development Plan 2017–2023;
- National Inventory of Architectural Heritage;
- Place name analysis;
- Aerial photographs; and
- Excavations Bulletin (1970-2019)

**Record of Monuments and Places (RMP)** is a list of archaeological sites known to the National Monuments Section, which are afforded legal protection under Section 12 of the 1994 National Monuments Act and are published as a record.

**Sites and Monuments Record (SMR)** holds documentary evidence and field inspections of all known archaeological sites and monuments. Some information is also held about archaeological sites and monuments whose precise location is not known e.g. only a site type and townland are recorded. These are known to the National Monuments Section as 'un-located sites' and cannot be afforded

legal protection due to lack of locational information. As a result, these are omitted from the Record of Monuments and Places. SMR sites are also listed on the website created by the Department of Culture, Heritage and the Gaeltacht (DoCHG) – [www.archaeology.ie](http://www.archaeology.ie).

**National Monuments in State Care Database** is a list of all the National Monuments in State guardianship or ownership. Each is assigned a National Monument number whether in guardianship or ownership and has a brief description of the remains of each Monument. The Minister for the DoCHG may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

**Preservation Orders List** contains information on Preservation Orders and/or Temporary Preservation Orders, which have been assigned to a site or sites. Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

**Register of Historic Monuments** was established under Section 5 of the 1987 National Monuments Act, which requires the Minister to establish and maintain such a record. Historic monuments and archaeological areas present on the register are afforded statutory protection under the 1987 Act. The register also includes sites under Preservation Orders and Temporary Preservation Orders. All registered monuments are included in the Record of Monuments and Places.

**The Topographical files of the National Museum of Ireland** are the national archive of all known finds recorded by the National Museum. This archive relates primarily to artefacts but also includes references to monuments and unique records of previous excavations. The find spots of artefacts are important sources of information on the discovery of sites of archaeological significance.

**Cartographic sources** are important in tracing land use development within the development area as well as providing important topographical information on areas of archaeological potential and the development of buildings. Cartographic analysis of all relevant maps has been made to identify any topographical anomalies or structures that no longer remain within the landscape.

- Down Survey Map of the Barony of Newcastle, c. 1655
- John Rocque's Map of the County of Dublin, 1760
- John Taylor's Map of the Environs of Dublin, 1816
- Ordnance Survey maps of County Dublin, 1843, 1906–9

**Documentary sources** were consulted to gain background information on the archaeological and cultural heritage landscape of the proposed development area.

**Aerial photographic coverage** is an important source of information regarding the precise location of sites and their extent. It also provides initial information on the terrain and its likely potential for archaeology. A number of sources were consulted including aerial photographs held by the Geological Survey of Ireland, the Ordnance Survey and Google Earth.

**Place Names** are an important part in understanding both the archaeology and history of an area. Place names can be used for generations and in some cases have been found to have their root deep in the historical past.

**Development Plans** contain a catalogue of all the Protected Structures and archaeological sites within the county. The South Dublin County Development Plan 2016-2022 was consulted to obtain information on cultural heritage sites in and within the immediate vicinity of the proposed route. The Record of Protected Structures lists structures of architectural, cultural, scientific, historical or archaeological interest can be protected under the Planning and Development Act, 2000, where the conditions relating to the protection of the architectural heritage are set out in Part IV of the Act. This Act superseded the Local Government (Planning and Development) Act, 1999, and came into force on 1st January 2000.

**The National Inventory of Architectural Heritage (NIAH)** is a government-based organisation tasked with making a nationwide record of significant local, regional, national and international structures, which in turn provides county councils with a guide as to what structures to list within the Record of Protected Structures. The NIAH have also carried out a nationwide desk-based survey of historic gardens, including demesnes that surround large houses. This has also been completed for County Dublin and was examined in relation to the surviving demesnes within the surrounding area of the proposed development.

**Excavations Bulletin** is a summary publication that has been produced every year since 1970. This summarises every archaeological excavation that has taken place in Ireland during that year up until 2010 and since 1987 has been edited by Isabel Bennett. This information is vital when examining the archaeological content of any area, which may not have been recorded under the SMR and RMP files. This information is also available online ([www.excavations.ie](http://www.excavations.ie)) from 1970–2019.

#### *Field Inspection*

Field inspection is necessary to determine the extent and nature of archaeological and architectural remains, and can also lead to the identification of previously unrecorded or suspected sites and portable finds through topographical observation and local information.

The archaeological and architectural field inspection was conducted from 20 February 2020 and entailed:

- Walking the proposed development area and its immediate environs;
- Noting and recording the terrain type and land usage;
- Noting and recording the presence of features of archaeological, architectural, or cultural heritage significance;
- Verifying the extent and condition of recorded sites; and
- Visually investigating any suspect landscape anomalies to determine the possibility of their being anthropogenic in origin.

#### *Impact Assessment*

For the purpose of this Impact Assessment, the impacts significance is defined in accordance with the EPA Guidelines on the Information to be Contained in Environmental Impact Statements (EPA, 2017).

- **Negative Impact:** A change which reduces the quality of the environment. For example: a change that will detract from or permanently remove an archaeological / architectural monument / structure from the landscape.
- **Neutral Impact:** No effects, or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
- **Positive Impact:** A change which improves the quality of the environment. For example: a change that improves or enhances the setting of an archaeological / architectural monument/structure.
- **Direct Impact:** Where an archaeological / architectural feature or site is physically located within the footprint of the proposed development and entails the removal of part, or all of the monument or feature.
- **Indirect Impact:** Where a feature or site of archaeological / architectural heritage merit or its setting is located in close proximity to the footprint of a potential route alignment.

It should be noted that whilst impact levels and definitions are applied consistently to the cultural heritage resource, direct impacts on sites that are subject to statutory protection are considered to be more significant than sites/ structures not subject to statutory protection.

## 5 PREDICTED IMPACTS OF THE PROPOSED DEVELOPMENT

### Population and Human Health

#### Construction Phase

Any adverse likely and significant environmental impacts will be avoided by the implementation of the remedial and mitigation measures proposed throughout this EIAR. Positive impacts are likely to arise due to an increase in employment and economic activity associated with the construction of the proposed development. The overall predicted likely and significant impact of the construction phase will be short-term, temporary and neutral.

#### Operational Phase

The proposed development will contribute to further growth and expansion of the neighbourhood contributing to the existing and future populations. The predicted impacts of the Operational Phase are considered to be long term and positive to population and human health.

### Biodiversity

#### Construction Phase

Overall, it can be seen that only one potential moderate negative impact is predicted to occur as a result of this project in the absence of mitigation.

Impact		Significance
<b>Construction phase</b>		
1	Habitat loss of features of negligible value	Imperceptible
2	Disturbance to animals during construction	Imperceptible
3	Pollution of water during construction phase	Moderate negative

Impact		Significance
4	Disruption of ecological corridors	Imperceptible
5	Surface water pollution during operation	Imperceptible
6	Wastewater during operation	Imperceptible
7	Disturbance to species from human disturbance (lighting)	Not significant
8	Impacts to protected areas	Imperceptible

*Table 6 Significance level of likely impacts in the absence of mitigation*

With the full implementation of mitigation measures, no residual impacts are expected to occur which are significant.

#### **Operational Phase**

With the full implementation of the mitigation measures outlined in the Chapter 5 Biodiversity of Volume 1 and the of the mitigation measures outlined in the Bat Assessment, no residual impacts are expected to occur which are significant.

### **Land, Soil and Geology**

#### **Construction Phase**

Where the mitigation measures have been implemented, the residual impact is considered to be imperceptible.

The primary predicted impact is the removal of excess excavated material, which is unsuitable for reuse as fill material, to an appropriate waste permitted/licenced facility. This predicted impact is unavoidable given the proposed development.

#### **Operational Phase**

There are no predicted impacts arising from the operational phase.

### **Hydrology and Water Services**

#### **Construction Phase**

Implementation of the mitigation measures will ensure that the potential impacts of the proposed development on water and the hydrogeological environment the residual impact is considered to be imperceptible.

#### **Operational Phase**

As surface water drainage design has been carried out in accordance with the GSDS, and SuDS methodologies are being implemented as part of a treatment train approach, there are no predicted impacts on the water and hydrogeological environment arising from the operational phase.

Implementation of the mitigation measures will ensure that the potential impacts of the proposed development on water and the hydrogeological environment do not occur during the operational phase and that any residual impacts will be short term and imperceptible.



## Noise and Vibration

### Construction Phase

The predicted construction noise levels that will be experienced at the nearest residential receptors as a result of construction activities have been calculated using the activity  $L_{Aeq}$  method outlined in BS 5228 1:2009+A1 2014 – Code of Practice for noise and vibration control on construction and open sites – Part 1 Noise.

The tables below detail assumed plant items during the key phases of construction with the associated source reference from BS 5228: 2009+A1 2014. The closest residential properties to the proposed development site are located at distances ranging from 10m (Apartments under construction west of site) to 50m (Fortune Walk Apartments). Construction noise calculations have therefore been conducted both with and without noise mitigation at distances of 10 to 50m from the works for the Site Clearance and Main Construction phases, representing the nearest properties to the works.

Plant Item	BS 5228 Reference	Calculated sound pressure levels $L_{Aeq}$ dB at distances from receptors	
		10	50
Generator (enclosed)	C.4 Ref 84	68	54
Compressor (enclosed)	D.6 Ref 19	71	57
Tracked Excavator	C.2 Ref 3	76	62
Wheeled Excavator	C.2 Ref 26	77	63
HGV	C.4 Ref 19	75	61
Dozer	C.2 Ref 11	79	65
<b>Combined <math>L_{Aeq,period}</math> without mitigation</b>	-10	<b>83</b>	<b>70</b>
<b>Combined <math>L_{Aeq,period}</math> with mitigation</b>		<b>68</b>	<b>55</b>

Table 7 Predicted construction noise predictions associated with Site Enabling works

Plant Item	BS 5228 Reference	Calculated sound pressure levels $L_{Aeq}$ dB at distances from receptors	
		10	50
Generator (enclosed)	C.4 Ref 84	68	54
Compressor(enclosed)	D.6 Ref 19	71	57
Tracked Excavator	C.2 Ref 3	76	62
Wheeled Excavator	C.2 Ref 26	77	63
HGV	C.4 Ref 19	75	61
Concrete / Steel Cutting Equipment	Various	82	68
Dump truck	C.2 Ref 30	77	63
<b>Combined <math>L_{Aeq,period}</math> without mitigation</b>	-10	<b>86</b>	<b>72</b>
<b>Combined <math>L_{Aeq,period}</math> with mitigation</b>		<b>71</b>	<b>57</b>

Table 8 Predicted construction noise predictions associated with building construction works

The results of the assessment has indicated that, in general, at distances of greater than 10m from the works site provided all mitigation measures including site hoarding are implemented, the construction day time noise limit of 75dB  $L_{Aeq, 11hr}$  can typically be complied with during both enabling and construction works. It is also important to note that the impact due to construction activities will be

transient in nature and the noise levels detailed in tables above represent worst case scenarios when all items of plant are operating simultaneously without noise mitigation measures in place.

The proposed construction phase noise mitigation measures as detailed in Chapter 8 shall ensure that all construction activities are controlled and managed and audited by an independent acoustic consultant to confirm that the mitigation measures are implemented throughout the construction phase.

Where works are occurring at distances of less than or at 10m from existing residential receptors, enhanced noise mitigation measures including the use of acoustic screens between the activities and the receptors will be required to reduce the impact of works. These measures are detailed in Chapter 8

### *Construction Traffic Noise*

Based on the assumption of up to 80 HGV movements per day on the haul routes to and from the site along public roads, the resulting average predicted traffic noise level at the closest receptors is calculated as follows:

The predicted noise levels at any receptor located within 10m of the haul route road has been calculated using a standard international acoustical formula as described below.

$$L_{Aeq, T} = SEL + 10\log_{10}(N) - 10\log_{10}(T) + 20\log_{10}(r^1/r_2) \text{ dB}$$

where  $L_{Aeq, T}$  is the equivalent continuous sound level over time period (T) (3600 sec);

SEL is the A weighted Sound Exposure Level of the noise event (77dB);

N is the number of events over the time period T (80);

r1 is the distance at which SEL is assessed (5m)

r2 is the closest distance to the receptor from the road (10m)

The calculations assumed a maximum scenario of 10 truck movements per hour based on a 10 hour working day a maximum Sound Exposure Level of 77dBA for the trucks and the minimum distance between the local road passing by each of the nearest noise sensitive receptors to the public road (10m). No attenuation, above geometric spreading, has been considered within these calculations may be considered the worst case scenario.

The maximum predicted  $L_{Aeq, period}$  values as a result of the HGV traffic movements at the nearest noise sensitive receptors located along the haul route roads is predicted to be 45 dBA,  $L_{Aeq, period}$ .

It is not expected that the predicted short-term increase in HGV movements associated with the construction phase of the development will have an adverse impact on the existing noise climate of the wider area or on local receptors.

### *Risks to Human Health*

Construction phase noise and vibration emissions will be temporary and transient and will be managed so as to minimise impact to population and human health by complying with all relevant guidance, as such the impact will be short-term and have a slight impact overall.

Operational phase noise will also be managed to achieve relevant noise limit values and is predicted to meet all such requirements. No operational phase vibration impacts are predicted. Therefore, the operational phase noise impacts will be neutral for the life of the development.

### **Outward Noise Impact**

During the construction phase there is the potential for minor impacts on nearby noise sensitive properties due to noise generated by construction site activities. The implementation of the construction phase noise and vibration mitigation measures and a continuous noise and vibration monitoring programme as detailed in Chapter 8, will minimise the potential noise and vibration impact on the receiving environment including existing residential receptors.

### *Vibration*

The most significant potential sources of ground borne vibrations that may be generated during the construction phase of the development will be generated by the following practices:

- Ground preparation excavation activities that require the use of pneumatic rock breakers
- Movement of site vehicles bulldozers, tracked excavators and dump trucks on ground surfaces
- Hard core surfaces and haul road compaction with vibro-rolling vehicles
- Road construction surface vibro-rolling

Vibration impacts have been considered from any particular plant items that have the potential to generate perceptible levels of vibration.

The nearest off-site residential receptors will be c. 10m from construction works. Depending on the methods of construction, there is the possibility of construction related vibration impacts on human beings as a result of ground preparation and concrete foundation excavation activities. However, such sources of vibration shall be temporary and intermittent.

It is highly unlikely that any construction generated vibrations at buildings 10m from the proposed development would result in cosmetic damage. Experience of similar construction projects has shown that beyond this distance there is no risk of cosmetic damage occurring within buildings.

A programme of structural vibration monitoring shall be conducted at residential receptors located within <20m of site activities as detailed in Chapter 8.

### **Operational Phase**

#### *Inward Noise Impact*

The noise impact generated by additional traffic movements associated with the development is predicted to be of an imperceptible impact on existing ambient noise levels at receptors along the local road network.

It may be concluded that during daytime and night-time periods, acceptable internal noise levels can be achieved in all residential units as defined in BS 8233 with windows closed.

With regard to the recommended mitigation by design measures as specified above, it may be concluded that residential properties located within the proposed development can be appropriately

designed and constructed to achieve acceptable internal noise levels and to ensure the required acoustic performance of adjoining residential units.

*Traffic Noise Impact*

The main potential for altering the noise environment once the development is operational, and thus impacting neighbouring residential receptors, is from road traffic noise and retail facilities associated with the development.

The Traffic and Transportation Assessment Report prepared by DBFL Consulting Engineers submitted with this application includes a detailed assessment of the traffic impact associated with the proposed development. As part of this assessment, detailed traffic flow information as Annual Average Daily Traffic (AADT) has been derived for the existing road network for the “No development” and the “With development” scenarios up to the design year of 2037 as shown in Figure 8.7 and Table 8.18.

The percentage traffic increase associated with the development has considered 6 existing junctions on the local road network.

The UK Design Manual for Roads and Bridges (DMRB, Volume 11, Section 3, Part 7) states that it takes a 25% increase or a 20% decrease in traffic flows in order to get a 1dBA change in traffic noise levels. On this basis, the traffic flow increases associated with the development for all year scenarios will result in a negligible increase of less than 1dBA on existing ambient noise levels at existing residential receptors along the local road network resulting in an imperceptible impact.

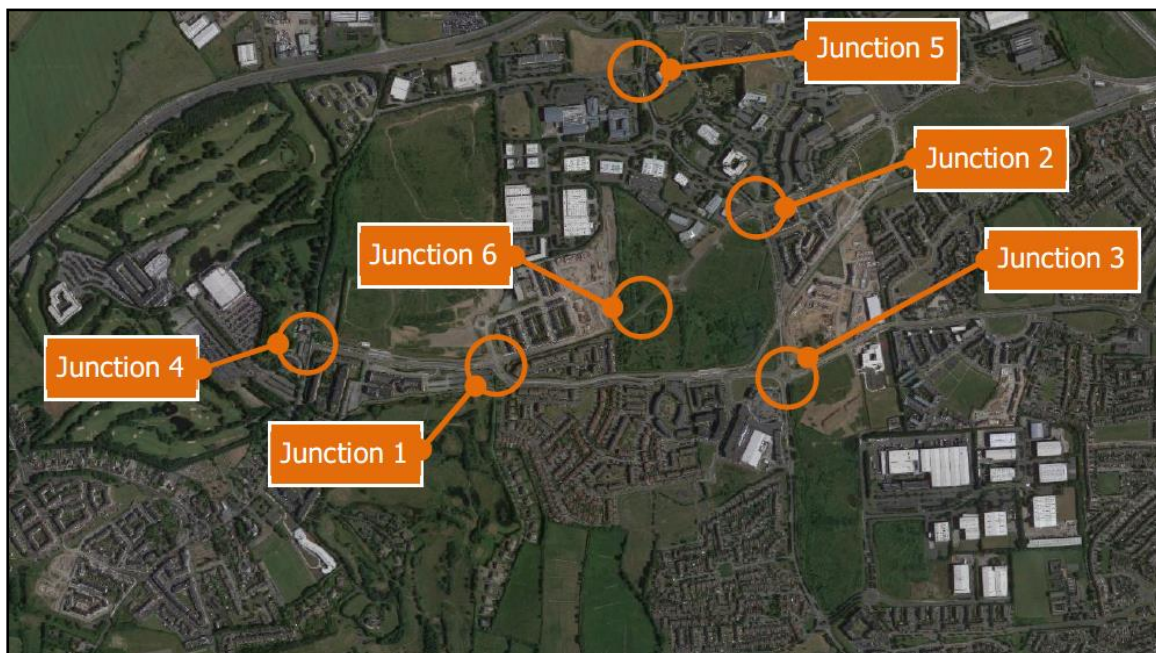


Figure 2 Traffic Junctions Analysed

- Junction 1 Citywest Avenue / Fortunestown Lane signalised junction;
- Junction 2 N82 Citywest Road/ Citywest Avenue 4-arm roundabout junction;
- Junction 3 Fortunestown Lane / N82 Citywest Road/ Citywest Drive 4-arm signal controlled junction;
- Junction 4 Fortunestown Lane / Garter Lane signal controlled junction;
- Junction 5 N82 Citywest Road/ Bianconi Avenue 3-arm priority controlled junction

Junction 6 Citywest Avenue / Pl. Ref. SD19A/0117 permitted emerging development signal controlled junction

AM	Junction 1	DN	DS	Impact
2022	Cúil Dúin View / Citywest Avenue / Fortunestown Lane / Citywest Avenue	1365	1385	1.51%
2027		1560	1620	3.84%
2037		1647	1707	3.63%
AM	Junction 2	DN	DS	Impact
2022	Citywest Avenue / Citywest Road / Citywest Avenue / Citywest (NW)	2106	2143	1.74%
2027		2335	2441	4.56%
2037		2482	2588	4.29%
AM	Junction 3	DN	DS	Impact
2022	Citywest Road (N) / Fortunestown Lane (E) / Citywest Road (S) / Fortunestown Lane (W)	2217	2230	0.62%
2027		2457	2498	1.64%
2037		2621	2662	1.54%
AM	Junction 4	DN	DS	Impact
2022	Garters Lane / Fortunestown Lane	1322	1332	0.75%
2027		1445	1474	2.01%
2037		1544	1573	1.88%
AM	Junction 5	DN	DS	Impact
2022	Citywest Road (N) / Citywest Road (S) / Bianconi Avenue	2164	2171	0.32%
2027		2388	2408	0.81%
2037		2549	2568	0.76%
AM	Junction 6	DN	DS	Impact
2022	Garter Avenue / Citywest Avenue / Edenbrook Green / Cooldown Commons Phase 3 Main Site Access	509	559	9.78%
2027		621	765	23.31%
2037		644	789	22.47%

Table 9 Increase in traffic at Junctions

### On-Site Noise Sources

#### Internal Residential Traffic Noise

The subject development includes the provision of surface and under-croft car parking spaces for the residential units. Vehicles within the residential areas will generally travel at speeds <20kmph as a



result of speed limit signage and speed reducing ramps throughout the development which result in relatively low noise levels being generated by internal vehicle movements.

### **Neighbourhood Noise**

Within the proposed development, sounds generated by everyday domestic activities including waste collection activities, pedestrians, children, and use of open spaces, are part of everyday living, and are not considered “noise” in the sense of a potential nuisance. These activity noises would not have any potential for impact beyond the boundaries of the site.

### **Retail Units**

Noise associated with the retail units will be confined to deliveries and customers of the units. Any vents or fans shall be acoustically enclosed ensuring that the operation of these units will not cause an adverse impact within the development itself.

### **Office Space**

The operation of the office space will not generate any outward noise impact.

### **Potential Inward Noise impacts on the proposed development**

Regarding noise aspects within the proposed development itself, the aspects to be considered are:

- Suitability for residential development, in terms of the existing noise climate
- Avoidance of potential conflict in terms of activity noise within the development itself

The main potential noise impact on the proposed development relates to passing LUAS tram movements and road traffic on the surrounding road network. In order to comprehensively establish the impact the most dominant noise source, that is passing LUAS tram movements along the Southern and South-Eastern site boundaries will have on the residential aspect of the development, a series of LUAS noise measurements were conducted at the southern site boundary. The methodology implemented for the assessment was Transport Infrastructure Ireland’s (TII) document entitled, *Environmental Noise Monitoring Procedure for the Operational Systems (January 2015)*.

In order to assist with the interpretation of the noise associated with vehicular traffic on public roads, Table 2 above offers guidance as to the likely impact associated with any particular change in traffic noise level.

### **Vibration**

The only source of vibration predicted, once the development has been constructed and is operational, is vibration associated with internal road traffic movements.

As a vehicle travels along a road, vibration can be generated in the road and subsequently propagate towards nearby buildings. Such vibration is generated by the interaction of a vehicle’s wheels and the road surface and by direct transmission through the air of energy waves. Some of these waves arise as a function of the size, shape and speed of the vehicle, and others from pressure fluctuations due to engine, exhaust and other noises generated by the vehicle.

Ground vibrations produced by residential road traffic are unlikely to cause perceptible, cosmetic or structural vibration in properties located near to well-maintained and smooth road surfaces. Vibration

impacts associated with road traffic in particular commercial van and trucks can therefore be largely avoided by good maintenance of the road surface.

It has been assessed that vibration levels related to road traffic movements, including those additional movements due to the proposed development would be significantly lower than those levels required to lead to disturbance of occupiers or to cause cosmetic or structural damage to buildings.

## Climate and Air Quality

### Construction Phase

Best practice mitigation measures are proposed for the construction phase of the proposed development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The 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 negative, short-term and imperceptible with respect to human health.

### Operational Phase

Operational traffic emissions as a result of the proposed development are compliant with all National and EU ambient air quality limit values which are set for the protection of human health and therefore, will not result in an adverse or harmful impact on human health.

## Landscape and Visual

### *Townscape Impacts*

#### Construction Phase

Since no mitigation measures have been proposed, the predicted impacts during construction are the same as the potential impacts discussed in 10.6 of Volume 1.

The effects on the townscape would be 'significant' and negative in the immediate vicinity of the site, reducing in significance with distance from the site. These effects would be temporary.

#### Operational Phase

Since no mitigation measures have been proposed (as no negative impacts were identified), the predicted impacts during operation are the same as the potential impacts discussed in 10.6 of Volume 1.

Measuring the magnitude of change against the sensitivity of the receiving environment, the potential townscape effects can be classified 'significant'. Considering the effects discussed above, the impact can be classified positive.

The assessment of the proposed development against the relevant Urban Design Manual criteria and the Building Heights Guidelines confirms that the potential townscape effects can be classified positive.

### *Visual Impacts*

The predicted visual impacts are the same as the potential impacts described in detail in Section 10.7 of Volume 1. The predicted impacts are summarised in the table below.



Viewpoints	Viewpoint Sensitivity	Magnitude of Change	Significance & Quality of Visual Effects		
			Construction (Temporary)	Operation (Permanent)	Residual (Permanent)
1. Fortunestown Lane and Adjacent Developments to the West of the Site	Medium	High	Significant negative	Significant positive	Significant positive
2. Fortunestown Lane Approaching the District Centre	Medium	High	Significant negative	Significant positive	Significant positive
3. Citywest District Centre	Low-medium	Medium-high	Moderate negative	Moderate positive	Moderate positive
4. Citywest Shopping Centre	Low	High	Moderate negative	Moderate positive	Moderate positive
5. Verschoyle Green	Medium	Low-medium	Significant negative	Significant positive	Significant positive
6. Citywest Drive Approaching the District Centre from the East - Distant View	Medium	Low	Slight negative	Slight-moderate positive	Slight-moderate positive
7. Citywest Drive Approaching the District Centre from the East – Close-up View	Medium	Medium-high	Moderate-significant negative	Moderate-significant positive	Moderate-significant positive
8. Citywest Road Approaching the District Centre from the North - Distant View	Medium	Medium-high	Moderate-significant negative	Moderate-significant positive	Moderate-significant positive
9. Fortunestown Centre Neighbourhood Park	Medium	High	Significant negative	Significant positive	Significant positive
10. Luas Crossing on Citywest Road	Medium	High	Significant negative	Significant positive	Significant positive
11. Cuil Duin Avenue, Edenbrook to North West of the Site	Medium	Medium-high	Significant negative	Significant neutral	Significant neutral

Table 10 Predicted Visual Impacts

## Traffic and Transportation

### Construction Phase

Implementation of the mitigation measures outlined will ensure that the potential impacts of the proposed development on the local transport network are minimised during the construction phase and that any residual impacts will be short term.

### Operational Phase

Implementation of the mitigation measures outlined will ensure that the potential impacts of the proposed development on the local transport network are minimised during the operational phase.

## Material Assets

### Construction Phase

Implementation of the mitigation measures will ensure that the potential impacts of the proposed development on the site's material assets do not occur during the construction phase and that any predicted impacts will be short term.

### Operational Phase

Whilst the demand on water services, power, telecommunications and transport infrastructure will all increase due to the development, on the basis that the specified mitigation measures are incorporated then the operation of the proposed development is predicted to have a neutral-long term impact on material assets.

## Waste Management

### Construction Phase

The management of wastes generated during the construction of the proposed development will be in accordance with a Construction & Demolition Waste and By-Product Management Plan (which is included with the SHD application). As long as the construction phase is completed in accordance with the plan it is envisaged that the impact of the construction (excavation and construction waste) phase will be temporary and slight.

### Operational Phase

With regard to how it has been demonstrated how domestic wastes will be managed through design, management and waste reduction and recycling initiatives at the proposed development, it is predicted that the impact of the development on the receiving environment, existing material assets and local waste management services will be minor with the implementation of the proposed mitigation measures

There is likely to be significant available capacity within existing Irish waste management infrastructure to manage operational phase wastes from the proposed development.

The development shall be designed to provide adequate domestic waste storage areas for common residential areas apartments and duplex units. This will promote the appropriate segregation at source of domestic generated waste from all residential units at the development.

## Cultural Heritage

### Construction Phase

There are no predicted residual impacts on the archaeological, architectural or cultural heritage resource.

### Operational Phase

Not applicable.

## 6 INTERACTIONS

Where an interaction is both likely and significant, it is given a reference number in the matrix and detail of the interaction is recorded below. The interactions are listed in numerical sequence, purely for referencing purposes.

	Population	Biodiversity	Soil	Hydrology	Noise	Air and Climate	Landscape	Traffic	Waste	Cultural Heritage	Material Assets
Population											
Biodiversity											
Soil	1	7									
Hydrology	2	8	11								
Noise	3	9									
Air and Climate	4		12								
Landscape	5	10	13								
Traffic											
Waste											
Cultural Heritage							14				
Material Assets	6										

Table 11 Interactions Matrix

### 1. Population & Human Health / Soils

There is potential for dust generation during construction works, which under dry and windy conditions could lead to localised dust impacts for the small number of properties proximate to the development site. However, the implementation of dust management and dust control measures will ensure that the proposed development will not give rise to the generation of any significant quantities of dust. Therefore, there will be minimal impacts on local residents.

### 2. Population & Human Health / Water

Failure or mismanagement of the potable water supply could lead to its contamination during the construction phase. A range of mitigation measures will be put in place during the construction phase of the development to ensure this does not occur.

### 3. Population & Human Health / Noise

Increased noise levels during the construction phase will be temporary and are not expected to have a long-term significant adverse effect upon the local population. Construction noise will be audible at

a low level in the ambient noise. However, the impact is predicted to be minor. The impact due to the increased traffic associated with the operational development is expected to be minor.

#### **4. Population & Human Health / Air**

The completed development will generate additional emissions to the atmosphere due to traffic associated with the development. However, air quality in the vicinity of the site is expected to remain within air quality standards.

During construction, there may be potential for slight dust nuisance in the immediate vicinity of the site. However, dust control measures, such as wheel washes, covering of fine material etc. will minimise the impacts on air quality.

#### **5. Population & Human Health / Landscape**

Existing residents and visitors to the Citywest area interact with the landscape, such that they will be aware of a significant change at this site from a vacant site to a new residential development with a mix of unit types, building heights, open spaces etc. Such a transformation, whilst significant, is designated for this site in the South Dublin County Development Plan. It is expected that the design of the proposed scheme will over time integrate with the surrounding area.

#### **6. Population & Human Health / Materials Assets**

It is expected that the proposed development will benefit the materials assets with the additional population helping to sustain and generate improvements to the physical infrastructure of the area.

#### **7. Biodiversity / Soils**

Potential construction stage effects arising from the general loss and fragmentation of some habitats and reduction of associated opportunities for biodiversity are considered neutral to slight negative during the construction phase, while potential operational stage effects are considered imperceptible neutral as new planting/landscaping matures.

#### **8. Biodiversity / Water**

As concluded in the Appropriate Assessment Screening Report submitted with the application there are no elements of the proposed development that are likely to give rise to significant effects on Natura 2000 sites in the wider area.

The implementation of construction and operational phase soils and water management proposals, together with the site drainage design will adequately reduce such potential impacts arising from the development site on these aquatic habitats in the wider area. Potential construction and operational phase effects on biodiversity associated with aquatic habitats in the wider area are considered imperceptible/neutral with the implementation of soils and water management proposals.

#### **9. Biodiversity / Noise**

Increased noise levels during the construction phase will only be temporary and are not expected to have a long-term significant adverse effect upon remaining fauna within the wider landscape.

Operational noise will be audible at a low level in the ambient noise and the impact is predicted to be minor.

#### **10. Biodiversity / Landscape**

The changes to the landscape of the subject site has the potential to negatively impact the biodiversity in the immediate are, as outlined in Chapter 5.

The proposed landscape masterplan including the retention of existing trees where feasible will help to mitigate this loss of habitats and biodiversity in the area. New planting will provide new habitats for local species.

#### **11. Soils / Water**

When soil is exposed after vegetative clearance there will also be increased run-off and evaporation. Mitigation measures will be implemented during construction to prevent this run-off water from discharging directly to watercourses.

#### **12. Soils / Air**

Exposed soil during the construction phase of the proposed scheme may give rise to increased dust emissions. However, the implementation of dust management and dust control measures will ensure that the proposed development will not give rise to the generation of any significant quantities of dust.

#### **13. Soils/Landscape**

Residual soils arising as a result of excavation at the development site will be used in landscaping works in the proposed public open spaces as much as possible rather than transporting off-site.

#### **14. Landscape/Cultural Heritage**

Careful consideration has been given to minimizing the visual impact of the proposed scheme on architectural heritage in the wider area.

## **7 CONCLUSION**

In conclusion, the subject site is below the thresholds set out in set out in Annex I and Annex II of the EIA, Directive and therefore an EIAR is not required for the proposed development. However, it was deemed prudent to prepare an EIAR due to the *cumulation with other existing development and/or development the subject of a consent for proposed development* within the immediate area. The methodology is informed by the available guidance, legislation and directives.

An Appropriate Assessment screening report is also submitted as part of this application. It is concluded that this application, whether individually or in combination with other plans and projects, will have no impacts upon the Natura 2000 sites. Therefore, this application does not need to proceed to stage II of the appropriate assessment.

The implementation of the mitigation measures outlined in each EIAR chapter will reduce the potential negative impacts of the proposed development in both the construction and operational phases of the development.