

Environmental Impact Assessment Report

Non-Technical Summary

**Lands at Cornelscourt Village,
Old Bray Road, Cornelscourt,
Dublin 18**

On behalf of

Cornel Living Limited

December 2019



Planning & Development Consultants

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Co. Dublin

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1 Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared in support of a planning application for a “Build to Rent” residential development at lands at Cornelscourt Village, Old Bray Road, Dublin 18.

This document is a summary of the information contained in the EIAR. For detailed information and key mitigation and remedial measures please consult the full EIAR document.

Introduction and Terms of Reference

Brock McClure Planning and Development Consultants, 63 York Road, Dun Laoghaire, Co. Dublin have been commissioned by the applicant, **Cornel Living Limited, Riverside One, Sir John Rogerson's Quay, Dublin 2**, to prepare an Environmental Impact Assessment Report (EIAR) in respect of a Strategic Housing Development application for **468 Built to Rent** residential units, a café / restaurant, office space and residential tenant amenity space, all located on a site of c. 2.14 ha on lands at Cornelscourt Village, Old Bray Road, Dublin 18.

This application, proposing in excess of 100 residential units, is eligible for consideration under the provisions of the Planning and Development (Housing) and Residential Tenancies Act 2016 Planning and Development (Strategic Housing Development) Regulations 2017.

The central purpose of this EIAR document is to undertake an assessment of the likely and significant impact on the environment of the proposed development in parallel with the project design process. This EIAR is prepared to provide the Competent Authority (CA) undertaking the Environmental Impact Assessment (EIA) review with the information on the likely and significant effects on the environment of the proposed development.

Definition of EIA and EIAR

Directive 2014/52/EU defines ‘*environmental impact assessment*’ as a process, which includes the responsibility of the developer to prepare an Environmental Impact Assessment Report (EIAR), and the responsibility of the competent authority to provide reasoned conclusions following the examination of the EIAR and other relevant information.

Article 1(2)(g) 4 of Directive 2014/52/EU states that “environmental impact assessment” means a process consisting of:

- (i) *the preparation of an environmental impact assessment report by the developer, as referred to in Article 5(1) and (2);*
- (ii) *the carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;*
- (iii) *the examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;*
- (iv) *the reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and*
- (v) *the integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a.*

It is important to set out that the amended Directive (Directive 2014/52/EU) uses the term Environmental Impact Assessment Report (EIAR) rather than Environmental Impact Statement (EIS).

The Guidelines on the Information to be contained in an *Environmental Impact Assessment Report*, *Environmental Protection Agency, 2017*, provide the following definition of an EIAR:

“A statement of the effects, if any, which proposed development, if carried out, would have on the environment.

The EIAR is prepared by the developer and is submitted to a CA (Competent Authority) as part of a consent process. The CA uses the information provided to assess the environmental effects of the project and, in the context of other considerations, to help determine if consent should be granted. The information in the EIAR is also used by other parties to evaluate the acceptability of the project and its effects and to inform their submissions to the CA.

The EIAR consists of a systematic analysis and assessment of the potential effects of a proposed project on the receiving environment. The amended EIA Directive prescribes a range of environmental factors which are used to organise descriptions of the environment and these factors must be addressed in the EIAR.

The EIAR should be prepared at a stage in the design process where changes can still be made to avoid adverse effects. This often results in the modification of the project to avoid or reduce effects through redesign”.

In summary, EIA is a process for anticipating the effects on the environment caused by development.

An EIAR is the document produced as a result of that process and provides information which the competent/ consent authorities use in deciding whether or not to grant consent. Where significant and likely environmental effects are identified that are unacceptable; the EIA process aims to quantify and minimise the impact specified development projects have on the environment through appropriate mitigation measures. The preparation of an EIAR document requires site-specific considerations and the preparation of baseline assessment against which the likely impacts of a proposed development can be assessed by way of a concise, standardised and systematic methodology.

EIA Legislation

This EIAR document has been prepared in accordance with the European Union EIA Directive 85/337/EC as amended by 97/11/EC, 2003/4/EC, 2011/92/EU and Directive 2014/52/EU.

The Planning & Development Act 2000 (as amended) and the Planning & Development Regulations 2001 (as amended) transpose the EIA Directive into Irish land use planning law. We note specifically that the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 came into operation on the 1st of September 2018 in order to transpose Directive into Irish planning law and existing planning procedures.

EIA Guidelines

The EIAR has also been prepared in accordance ‘*Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment*’(September 2018) and the Environmental Protection Agency (EPA) published draft ‘*Guidelines on the information to be contained in Environmental Impact Assessment Reports*’ (August 2017). These guidelines are intended to facilitate compliance with the 2014 Directive and this EIAR has been prepared in accordance with the Guidelines.

In addition to the above guidelines, we note that in preparation of this EIAR, regard has been given to the following documentation:

- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, August 2018*
- *Draft Guidelines on the information to be contained in environmental impact assessment reports, EPA, August 2017*

- *Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems - Key Issues Consultation Paper, Department of Environment, Community and Local Government, 2017.*
- *Circular letter PL 1/2017 - Advice on Administrative Provisions in Advance of Transposition (2017).*
- *Development Management Guidelines (DoEHLG, 2007).*
- *Advice Notes on Current Practice (in preparation of Environmental Impact Statements) (EPA 2003).*
- *Environmental Impact Assessment (EIA), Guidance for Consent Authorities Regarding Sub-Threshold Development (DoEHLG 2003).*
- *Guidelines on Information to be Contained in an Environmental Impact Statement (EPA 2002).*
- *Study on the Assessment of Indirect & Cumulative Impacts as well as Impact Interaction (DG Environment 2002).*
- *EU Guidance on EIA Screening (DG Environment 2001).*
- *Guidance on EIA Scoping (DG Environment 2001).*
- *EIA Review Checklist (DG Environment 2001).*

The Requirement for an EIAR

Environmental Impact Assessment (EIA) requirements derive from EU Directives. Council Directive 2014/52/EU amended previous directions and is transposed into Irish Law by Planning and Development Act 2000, as amended and the Planning and Development regulations 2001, as amended. Significant amendments were effected to the 2001 Regulations by the European Union (Planning and Development) (Environmental Impact Assessment) Regulation 2018.

Screening for Environmental Impact Assessment

Screening is the term used to describe the process of determining whether the proposed development required an EIA by reference to mandatory legislation threshold requirements or in the case of sub threshold development, by reference to the type and scale of the proposed development and significance or the environmental sensitivity of the receiving baseline environment.

Annex 1 of the EIA Directive requires as mandatory the preparation of an EIA for all development projects listed therein.

Schedule 5 (Part 1/Part 2) of the Planning & Development Regulations, 2001 (as amended) transposes Annex 1 of the EIA Directive directly into Irish land use planning legislation. An EIAR is required to accompany a planning application for development of a class set out in Schedule 5, Part 1 of the Planning & Development Regulations 2001 (as amended) which exceeds a limit, quantity or threshold set for that class of development.

Schedule 5, Part 2, 10. *Infrastructure Projects* of the Planning & Development Regulations 2001 (as amended) defines projects that are assessed on the basis of set mandatory thresholds for each of the project classes including:

(b) (i) Construction of more than 500 dwelling units.

(ii) *Construction of a car-park providing more than 400 spaces, other than a car-park provided as part of, and incidental to the primary purpose of, a development.*

(iii) *Construction of a shopping centre with a gross floor space exceeding 10,000 square metres.*

(iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere. (In this paragraph, “business district” means a district within a city or town in which the predominant land use is retail or commercial use.)

The development proposal provides for of 468 Built to Rent residential units, a café / restaurant, office space and residential tenant amenity space, all located on a site of c. 2.14 ha.

The proposed development therefore falls below the thresholds set out above for mandatory Environmental Impact Assessment. Notwithstanding this, an EIAR has been prepared to accompany the subject strategic housing development application to An Bord Pleanála, having regard to the specific characteristics and features of this site, its size, and the quantum of development proposed.

In relation to Screening, EIA Directive 2014/52/EU introduces a new mandatory section, Article 4(4). Article 4(4) introduces a new Annex IIA to be used in the case of a request for a screening determination for Annex II projects. This is information to be provided by the developer on the projects listed in Annex II

Scoping for the Environmental Impact Assessment

The Draft Guidelines on the information to be contained in environmental impact assessment reports, EPA, August 2017 state that Scoping is a process of deciding what information should be contained in an EIAR and what methods should be used to gather and assess that information.

Scoping is defined in the EC guidance (EC, 2017) as:

“determining the content and extent of the matters which should be covered in the environmental information to be submitted in the EIAR”.

In this case, the content of this EIAR was informed by a scoping process carried out by the applicant, the design team and appointed EIAR consultants to identify the core issues likely to be most important during the Environmental Impact Assessment process.

The EIAR prepared for the scheme has endeavoured to be as thorough as possible and therefore all of the issues listed in Schedule 6, Sections 1 and 2 of the Planning & Development Regulations 2001 (as amended) have been addressed in the EIAR.

In this context the following chapters are prepared in assessment of the likely significant effects of the proposed development on the environment:

No.	Proposed Content
1.	Introduction
2.	Site Context
3.	Development Description
4.	Consideration of Alternatives
5.	Population and Human Health
6.	Biodiversity
7.	Land & Soils
8.	Water
9.	Noise and Vibration

10.	Air Quality and Climate
11.	Wind and Microclimate
12.	Landscape and Visual Impact Assessment
13.	Material Assets - Traffic and Transport
14.	Material Assets - Utilities
15.	Material Assets - Waste Management
16.	Archaeological, Architectural and Cultural Heritage
17.	Daylight and Sunlight
18.	Risks of Major Accidents and Disasters
19.	Interactions
20.	Summary of Mitigation Measures
21.	Competent Persons Table

Table 1.1 - Scoping and Chapters of this EIAR

In addition to the above a series of standalone reports have been prepared to accompany the application and which have helped inform the above chapters of the EIAR where relevant. We refer to the covering letter enclosed herewith for full detail on the relevant enclosures.

The scope of this EIAR has also been informed by the following:

- European Union (Planning and Development)(Environmental Impact Assessment) Regulations 2018.
- Guidelins for Planning Authorities and An Bord Pleanala on carrying out Environmental Impact Assessment, August 2018.
- Draft Guidelines on the information to be contained in environmental impact assessment reports, EPA, 2017.
- Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems - Key Issues Consultation Paper, Department of the Environment, Community and Local Government, 2017.
- Circular letter PL 1/2017 – Advice on Administrative provisions in advance of Transposition (2017)
- The requirements of Part X of the Planning and Development Act, 2000, as amended, and Part 10 of the Planning and Development Regulations, 2001 (as amended);
- The requirements of the Dun Laoghaire-Rathdown Development Plan 2016-2022;
- Relevant Regional and National Planning Policy Documents;
- Issues raised during meetings with technical staff of Dun Laoghaire-Rathdown Development Plan 2016-2022and An Bord Pleanala;
- Consultation process with statutory bodies and local stakeholders as referenced in the individual chapters;
- The receiving environment and any vulnerable or sensitive local features and current uses;

- Previous relevant planning history and applications that have been submitted on the subject and adjoining lands;
- The likely and significant impacts of the proposed development on the environment; and
- Available mitigation measures for reducing or eliminating any potentially significant undesirable impacts.

Objectives of this EIAR

The primary purpose of this EIAR is to assist in the EIA process, by identifying likely significant environmental impacts resulting from the proposed development, to describe the means and extent by which they can be reduced or mitigated, to interpret and communicate information about the likely impacts and provide an input into the decision-making planning process.

The fundamental principles to be followed when preparing an EIAR are:

- Anticipating, avoiding and reducing significant effects
- Assessing and mitigating effects
- Maintaining objectivity
- Ensuring clarity and quality
- Providing relevant information to decision makers
- Facilitating better consultation.

The EIA process was iterative and progressed in tandem with the project design process. The EIAR document captures this assessment process and describes its outcomes.

The EIAR documents the consideration of the environmental effects and provides transparent, objective and replicable documentary evidence of the EIA evaluation and decision making processes.

The EIAR document provides information on any identified effects arising as a consequence of the proposed development and which are:

- Environmentally based;
- Likely to occur; and,
- Have significant effects.

It also documents how the selected project design incorporates mitigation measures; including impact avoidance, reduction or amelioration; to explain how significant adverse effects will be avoided.

The key purpose of this EIAR document is to enable the competent/consent authorities to reach a decision on the acceptability of the proposed development in the full knowledge of the project's likely significant impacts on the environment, if any. This EIAR document describes the outcomes of the iterative EIA process which was progressed in parallel with the project design process. This forms the first part of the EIA process which will be completed by the competent authority, which in turn will be required to examine, analyse and evaluate the direct and indirect effects of the development on the various factors listed under Section 171A of the Planning and Development Act 2000, as amended.

The amended EIA Directive prescribes a range of environmental factors which are used to organise descriptions of the environment and the environmental impact assessment should identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the prescribed environmental factors which are:

- (a) population and human health;

- (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
- (c) land, soil, water, air and climate
- (d) material assets, cultural heritage and the landscape;
- (e) the interaction between the factors referred to in points (a) to (d).

This EIAR documents the assessment process of the prescribed environmental factors in relation to the proposed SHD residential development on lands at Cornelscourt Village, Old Bray Road, Cornelscourt.

Format and Structure of an EIAR

The formation of an EIAR necessitates the co-ordination and collation of associated, yet diverse specialised areas of assessment. The EIA approach involves the examination of each environmental factor, describing the existing baseline environment, the subject proposal, its likely impacts and direct and indirect significant effects pertaining to the environmental factor and mitigation measures, where appropriate. The topics examined in this EIAR are categories under the environmental factors prescribed under the 2014 EIA Directive as follows:

- o Population and Human Health
- o Biodiversity
- o Land & Soils
- o Water
- o Noise & Vibration
- o Air Quality & Climate
- o Material Assets
- o Archaeological & Architectural Cultural Heritage
- o Landscape & Visual Assessment

The structure used in this EIAR document is the Grouped Format structure and is summarised below:

No.	Chapter	Prepared by
1.	Introduction	Brock McClure
2.	Site Context	Brock McClure
3.	Development Description	Brock McClure
4.	Consideration of Alternatives	Brock McClure/HJL
5.	Population and Human Health	Brock McClure
6.	Biodiversity	Openfield
7.	Land & Soils	DBFL
8.	Water	DBFL
9.	Noise and Vibration	AWN Consulting
10.	Air Quality and Climate	AWN Consulting

11.	Wind and Microclimate	IES
12.	Landscape and Visual Impact Assessment	Michell Associates
13.	Material Assets - Traffic and Transport	DBFL
14.	Material Assets - Utilities	DBFL/OCSC
15.	Material Assets - Waste Management	Byrne Environmental
16.	Archaeological, Architectural and Cultural Heritage	Archer Heritage Planning
17.	Daylight and Sunlight	IES
18.	Risks of Major Accidents and Disasters	DBFL/ Brock McClure
19.	Interactions	Brock McClure
20.	Summary of Mitigation Measures	Brock McClure
21.	Competent Persons Table	Brock McClure

Table 1.2 - Format and Structure of the EIAR

Methodology Employed to Evaluate Each Environmental Topics

An outline of the methodology employed consistently in each chapter of the EIAR to examine each environmental topic is provided below. All inputs received have adhered to this structure as closely as possible:

Introduction	Provides an overview of EIAR and relevant terms of reference.
Study Methodology	The study methodology outlines the method by which the relevant information has been gathered and compiled.
The Existing Receiving Environment (Baseline Situation)	The receiving environment details the baseline condition for the site and references, the context, character, significance and sensitivity of the baseline receiving environment. Any factors for consideration in the immediate area are set out.
Characteristics of the Proposed Development	The characteristics of the development are set out as they relate to each discipline and should include reference to site location, size, design and appearance of the project, use of natural resources, the production of waste, emissions and nuisances.
Potential Impact of the Proposed Development	This section provides a description of the specific, direct and indirect, impacts that the proposed development may have. This is provided with reference to both the Receiving Environment and Characteristics of the Proposed Development sections while also referring to the (i) magnitude and intensity, (ii) integrity, (iii) duration and (iv) probability of impacts. The assessment addresses whether the impacts are direct, indirect, secondary or cumulative in nature, it also looks at the timescale of such impacts e.g. are they short, medium, long-term, and are they of a temporary, permanent, continuous or intermittent nature, and are they positive or negative impacts. The impact interactions are also addressed.
Potential Cumulative Impact	This section allows for a qualitative assessment of the addition of many minor or significant effects, including the effects of other projects, to create larger more significant effects.

Do Nothing Scenario	In order to provide a qualitative and equitable assessment of the proposed development, this section considers the proposed development in the context of the likely impacts upon the receiving environment should the proposed development not take place
Risks to Human Health	This section will consider of human health effects resulting from the construction and operation of a project and will concern the commissioning, operation and decommissioning of the project. The assessment of impacts on population and human health will refer to assessments of those factors under which human health might occur, as addressed elsewhere in the EIAR e.g under the environmental factors of air, water, soil etc.
Mitigation Measures	Avoidance, remedial and mitigation measures describe any corrective or mitigative measures that are either practicable or reasonable, having regard to the potential impacts of the scheme. This includes avoidance, reduction and remedy measures as set out in Section 4.7 of the Development Management Guidelines 2007 to reduce or eliminate any significant adverse impacts identified.
Residual / Predicted Impacts of the Proposed Development	This section allows for a qualitative description of the resultant specific direct, indirect, secondary, cumulative, short, medium and long-term, temporary, permanent, continuous, or intermittent, positive and negative effects as well as impact interactions which the proposed development may have, assuming all mitigation measures are fully and successfully applied
Monitoring	This involves a description of monitoring in a post-development phase, if required. This section addresses the effects that require monitoring, along with the methods and the agencies that are responsible for such monitoring.
Reinstatement	While not applicable to every aspect of the environment considered within the EIAR, certain measures may need to be proposed to ensure that in the event of the proposal being discontinued, there will be minimal impact to the environment
Interactions	This section provides a description of impact interactions together with potential indirect, secondary and cumulative impacts
Difficulties Encountered in Compiling	This section provides an indication of any difficulties encountered by the environmental specialist in compiling the required information.
References	This section will include the list of sources used to complete the assessment.

Table 1.3 - Methodology for Evaluation

2 Site Context

The site extends to c. 2.14 ha on vacant lands bounded to the north/east by the N11, to the south/east by Willow Grove housing, to the south/west by Cornelscourt Village Centre and to the north/west by AIB lands. Vehicular access to the site is provided via the Old Bray Road.

The land use context in the vicinity of the site ranges from residential to commercial including a Service Station, offices, shops and restaurants.

The site is well located in terms of access to public transport. It is directly bounded by the N11 QBC with bus services to the City Centre running every 6 minutes on average. The N11 route also features dedicated cycle tracks connecting to the wider cycle network throughout the county. The nearest LUAS stop is located at Carrickmines Park & Ride (c. 1.8km).

Development Proposed

The current proposal provides for a Build to Rent development consisting:

- 468 residential units (452 apartments and 16 houses) as follow:
 - 41 no. studio apartment units,
 - 257 no. 1 bed apartment units,
 - 136 no. 2 bed apartment units;
 - 18 no. 3 bed apartment units;
 - 10 no. 3 bed semi-detached house units; and
 - 6 no. 1 bed bungalow units.
- A café / restaurant of c. 140 sq m; office space of 149 sq m; concierge of c. 149 sq m; and a residential tenant amenity space of c. 458 sq m is also proposed.
- 274 Car Parking Spaces (273 at basement level and 1 at ground level)
- 12 Motor Cycle Spaces
- 616 Bicycle Parking Spaces
- Public Open Space
- Vehicular Access
- Basement Areas
- Sub Stations and 3 Switch Rooms
- All Associated Site Development Works

The proposal is considered sub-threshold having regard to the following class of development as set out in the Regulations under Schedule 5, Part 2:

10. Infrastructure Projects

“(b)

(i) *Construction of more than 500 dwellings”.*

(iv) *Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere.*

(In this paragraph, business district means a district within a city or town in which the predominant use is retail or commercial use)”.

The development proposal provides for of 468 Built to Rent residential units, a café / restaurant, office space and residential tenant amenity space, all located on a site of c. 2.14 ha.

The proposed development therefore falls below the thresholds set out above for mandatory Environmental Impact Assessment. Notwithstanding this, an EIAR has been prepared to accompany the subject strategic housing development application to An Bord Pleanála, having regard to the specific characteristics and features of this site, its size, and the quantum of development proposed.

Planning History

A brief synopsis of the planning history pertaining to the site subject of this planning application is set out below.

The key applications of relevance (the subject site and AIB lands to the north) are summarised in brief below.

Subject Site

Reg. Ref: D17A/0597 & ABP 301315-18

Retention permission was granted for a temporary car park for retail staff and construction staff associated with the on-going retail operation at Dunnes. This application was the subject of an appeal to An Bord Pleanála. The application was withdrawn in July 2018.

VS - 0011 & PL06D.301161

An Bord Pleanála confirmed the entry of the subject lands on the Vacant Sites Register. The Bord noted that the majority of the site was and is vacant or idle, there is a need for housing in the area, the site is suitable for the provision of housing as demonstrated by the residential land use zoning for the area, and that insufficient reason is put forward to cancel the entry on the Vacant Sites Register.

Evidently, the site is currently subject to a vacant site levy. There is clear direction from An Bord Pleanála under the above assessment that there is a need for housing in the area and that the site is suitable for the provision of housing as demonstrated by the residential land use zoning for the site.

AIB Bank Site

The following 4 applications are considered relevant to the AIB site to the north of the site.

Reg Ref: D04A/1285

Permission was refused for the demolition of existing single storey circular bank building on existing site and (2) erection of new 3 storey 1,595 sq metres branch bank building comprising of banking hall/offices and ancillary accommodation, parking, signage and site development works. The reason for refusal was as follows;

'having regard to the prominent location of the site within a Neighbourhood Centre Zone and to the proposed site layout and orientation of the proposed building, it is considered that the proposed development, by reason of its location within the site, orientation toward the N11 and Old Bray Road only, design and height, would have an adverse impact on the existing Cornelscourt Village by virtue of it being seriously injurious to the visual amenity of the area low site coverage and plot ratio, underutilisation of the site and lack of integration with the existing streetscape'

There was no appeal on this file.

Reg Ref: D05A/0559

Permission was granted for the demolition of existing single storey, circular bank building on existing site and (2) erection of new 3 storey, 1,639 sq m branch bank building comprising of banking hall/office and ancillary accommodation, parking, signage and site development works, subject to 17 conditions.

There was no appeal on this file.

Reg. Ref: D08A/0703

Permission was refused for a development consisting the following description:

“The development, with a gross floor space of 10,268sq.m approximately (over a single basement level of 2,674sq.m approximately), will range in height from five to eight storeys, and comprise 82 no. residential units (including balconies) (comprising 14 no. 1 bedroom apartments; 56 no. 2 bedroom apartments and 12 no. 3 bedroom apartments) consisting of 7,172 sq.m of residential accommodation 156 sq.m of crèche accommodation (with associated outdoor play area comprising 155 sq.m); and a single level basement, including 134 no. car parking spaces (including stackers) (of which 43 no. are replacement car parking spaces); 86 no. cycle parking spaces; ancillary plant and associated switchrooms; waste management and storage areas. The development will also include: the provision of 7 no. surface car parking spaces, roof terraces, street furniture, the provision of diversion and connection into existing services as required; boundary treatments, lighting, attenuation, all hard and soft landscaping changes in level, and all associated site development site excavation works above and below ground. Vehicular and pedestrian access to the proposed development will be provided via an existing access road, off the Old Bray Road.”

Permission was refused for the following reasons:

Reason 1: ‘Given that the proposed development occupies a very prominent site overlooking the N11, the Planning Authority considers that a high quality, imaginative and site specific design, which relates well with existing developments and has due regard to the overall context at this location, would be required to successfully accommodate a new development into the existing streetscape without adversely impacting on existing visual amenities and the character of this area... would be out of character with the existing streetscape and thereby have an adverse and injurious impact on the visual amenities of the streetscape at this location’

Reason 2: ‘Scale, bulk and poor mix of proposed uses would be out of context with and would relate poorly both visually and functionally to the existing neighbourhood centre at this location.

Reason 3: ‘With regard to the layout and provision of open space, serious concerns exist that the proposed layout does not afford adequate useful open amenity area. Serious concerns also exist regarding the lack of adequate play / amenity facilities for children within the overall proposal’

Reason 4: ‘Having regard to the proposed building's proximity to the eastern / south eastern site boundary and taking into account the extensive balconies and windows over five stories on this elevation, serious concerns exist that the proposal would have a seriously injurious impact on the amenities of adjacent property to the east and south east and would seriously compromise any future development proposals for these lands, which are zoned for the protection of residential amenity under the current County Development Plan’

There was no appeal on this file.

Reg. Ref: D09A/0295 & PL06D.234337

Permission was refused for development at this 0.62 ha approximately, at Old Bray Road, Foxrock, Co. Dublin. The development, with a gross floor space of 6,812sqm approximately (over a single basement level of 2,735 sqm approximately) will range in height from five to six storeys, and comprise 55 no. residential units (including balconies and roof gardens) (comprising 15 no. 1 bedroom apartments; 33 no. 2 bedroom apartments and 7 no. 3 bedroom apartments) consisting of 5,254sqm of residential accommodation; 205sqm of crèche accommodation (with associated outdoor play area); 756sqm of local retail and retail services accommodation; 469 sqm of office accommodation; 128sqm of cafe accommodation and a single level basement, including 122 no. car parking spaces (including. Vehicular and pedestrian access to the proposed development will be provided via existing access road, off the Old Bray Road.

Reason 1: ‘it is considered that the proposed development, by reason of its scale and massing, constitutes overdevelopment of the site, fails to adequately respond to its context or integrate successfully with its immediate and surrounding built environment and as such, would be seriously injurious to the amenity of property in the area’

Reason 2: *'it is considered that the proposed development fails to provide a coherent link or high quality addition to Cornelscourt Village, in terms of building form and pedestrian permeability, and as such contravenes the land use zoning objective 'to protect and provide for neighbourhood centre facilities'.*

This was appealed to the bord and later refused for the following reason;

'Having regard to the massing and scale of the proposed development on a site located on the edge of Cornelscourt Village, to the provisions of the Dun Laoghaire Rathdown County Development Plan 2004 – 2010 including the sites Neighbourhood Centre Zoning and to the existing pattern of development in the area, it is considered that the proposed development would constitute overdevelopment of the site, would fail to adequately respond to its context or integrate successfully with its immediate and surrounding built environment and as such, would seriously injure the amenities of the area. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area'

3 Description of Development

The proposed development shall provide for the construction of a new residential development of 468 no. units in the form of 452 no. apartment units (41 no. studio apartment units, 257 no. 1 bed apartment units, 136 no. 2 bed apartment units; and 18 no. 3 bed apartment units) and 16 no. house units (10 no. 3 bed semi-detached house units and 6 no. 1 bed bungalow units). A café / restaurant of c. 140 sq m; office space of 149 sq m; concierge of c. 149 sq m and central residential tenant amenity space of c. 458 sq m is also proposed.

The following build - to - rent residential development is provided:

1. 452 build to rent apartment units (ranging from 1 - 12 storeys in height) in the form of 8 no. new residential blocks (Blocks A - H) as follows:
 - Block A (8 - 12 storeys) comprising 134 no. apartments (12 no. studio units, 93 no. 1 bed units and 29 no. 2 bed units);
 - Block B (2 - 9 storeys) comprising 103 no. apartments (18 no. studio units, 65 no. 1 bed units; 14 no. 2 bed units and 6 no. 3 bed units);
 - Block C (6 - 7 storeys) comprising 82 no. apartments (6 no. studio units, 60 no. 1 bed units and 16 no. 2 bed units);
 - Block D (5 storeys) comprising 36 no. apartments (1 no. studio unit, 5 no. 1 bed units; and 30 no. 2 bed units);
 - Block E (4 storeys) comprising 29 no. apartments (4 no. 1 bed units; and 25 no. 2 bed units);
 - Block F (2 - 4 storeys) comprising 56 no. apartments (4 no. studio units, 24 no. 1 bed units; and 16 no. 2 bed units and 12 no. 3 bed units);
 - Block G (3 storeys) comprising 6 no. apartments (3 no. 1 bed units and 3 no. 2 bed units); and
 - Block H (3 storeys) comprising 6 no. apartments (3 no. 1 bed units and 3 no. 2 bed units).
2. 10 no. 3 bed semi-detached houses (2 storey) and 6 no. 1 bed bunaglows (1 storey) are proposed.

Adjacent to the existing pedestrian and vehicular access point from Old Bray Road there will be a café/restaurant of 140 sq m and residential amenity area at ground and first floor providing resident support services and concierge services of 149 sq m. At first floor level is a proposed commercial office space of c. 149 sq m. Located centrally within the development attached to the southern gable of Block B there is a two storey residential amenity space of c. 458 sq m; providing for resident support facilities and amenities including reading room, lounge, gym and terrace.

Each residential unit will be afforded with private open space in the form of a balcony/terrace/roof terrace or private rear garden area. Public open space is also proposed in the form of external residential amenity spaces, play areas, courtyards and gardens. Provision is also made for a pedestrian connection to Willow Grove.

274 car parking spaces (273 at basement level and 1 at ground level), 616 bicycle parking spaces (512 at basement level and 104 at ground level) and 12 motorcycle spaces (12 at basement level) are proposed.

Basement areas of c. 9,024 sq m are proposed (Level -1) and include car parking, waste management areas and plant areas. 3 no. ESB substations and 3 no. Switch Rooms (c. 77 sq m combined) are proposed at ground level.

The development shall be served via the existing vehicular access point from the Old Bray Road. Upgrade works are proposed to this vehicular access point to facilitate the proposed development and to provide for improved access and egress for the overall development.

The associated site and infrastructural works include provision for water services; foul and surface water drainage and connections; attenuation proposals; permeable paving; all landscaping works; boundary treatment; internal roads and footpaths; and electrical services.

Access

Vehicle Access – Old Bray Road

As detailed in Infrastructure Design Report prepared by DBFL, the primary access point for motorised vehicles is from Old Bray Road. This access route also serves the AIB carpark (north-west of the site). Refer to DBFL Drawings 180208-XX-XX-DR-C-2001 & 180208-XX-XX-DR-C-2002 for the proposed site access layout.

This serves as the vehicular access route to the basement carpark and to the podium area. The ten houses proposed along the eastern boundary and 6 bungalows proposed along the western boundary are also accessed from Old Bray Road via the basement carpark.

The proposed access includes a right and left turn exit lane with associated signage and line marking in accordance with the Department of Transport's Traffic Signs Manual. This provides a more formalised access when compared to the existing access arrangements for the AIB carpark.

The Old Bray Road has a posted speed limit of 50 km/hour. The site entrance complies with minimum visibility splays as required by DMURS (Y Distance = 45m, X Distance = 2.4m).

Pedestrian and Cycle Access

Pedestrians and cyclists can primarily access the development via the proposed access from Old Bray Road (as described above). Pedestrian access is proposed on the southern side of the site access leading towards the podium area.

A dedicated cycle / pedestrian access route is provided along the site's north-western boundary which facilitates the following:

- Cycle access from Old Bray Road to basement bicycle parking areas.
- Cycle access from the basement to the existing cycle track located along the N11.
- Pedestrian access from the podium to the proposed footpath along the N11 (this proposed footpath along the N11 aligns with objectives in the Bus Connects Emerging Preferred Route for Bray to the City Centre).

We note that the cycle / pedestrian route is facilitated along the site's north-western boundary (to the N11) is completely separate from the vehicle access ramp to the basement.

A cycle / pedestrian link is also facilitated at the eastern corner of the site (linking the proposed development to the existing park at the northern end of Willow Grove).

The proposed pedestrian and cycle linkages noted above are shown on DBFL Drawing 180208-XX-XX-DR-C-2001.

Private Open Space Provision

Apartments

All residential apartment unit will be afforded with private open space in the form of a balcony or terrace. All balconies proposed have a minimum depth of 1.5m. In the majority of cases, all balconies are accessed off the living spaces and where possible also include access from a bedroom.

The Housing Quality Assessment enclosed herewith confirms that all apartment units proposed meet the minimum requirements of the Apartment Guidelines 2018. A unit by unit summary of provision is identified within this assessment.

Houses

All 16 house units are provided with private gardens. In summary, we note the following provision for private gardens associated with the house units proposed:

House Type	DLR Requirement	Provision
1 Bed	48 sq m	48-57 sq m
3 Bed	60 sq m	95-228 sq m

Table 3.1 Private Open Space Provision

In terms of gardens depths, we note that the 2 storey units deliver distances of between c. 6.4 and c. 15m. Separation distances with adjoining dwellings at Willow Grove are delivered at 15.2 - 20.4m. Notably, the 10 x 2 storey house units proposed have no windows to the rear at first floor level, alleviating any potential concerns for overlooking.

Gardens associated with the bungalow units are mostly to the front and side of units. Bungalow units are located c. 1.2-2.4m from the adjoining boundary. This arrangement is considered appropriate on the basis of the single storey nature of the units proposed and the nature of the Build to Rent development typology proposed.

Open space and Landscaping

The Landscape Plan

The delivery of a quality open space proposal and an exceptional landscape masterplan for the site has been a key objective for this proposal and planning application. Following the pre-planning stage of this project with An Bord Pleanála, the applicant considered the initial concerns set out by the competent authorities and appointed Cameo & Partners Design Studio to a new and innovative landscape masterplan for the site.

The current design delivers generous and central open space areas with a permeable landscape layout, which will be accessible to all users. The quality of the open space now proposed coupled with the quantum of open space delivered has ensured the delivery of a superior landscape masterplan.

The competent authority is directed to the input from Cameo & Partners, which has been summarised in brief below:

Concept Development

The design concept surrounding the landscape plan has reviewed the use of clear and distinct zones; an ecology strategy; a social strategy; and passive and active open space uses.

Cameo's concept is based on the principle of relationships between the building, internal and external spaces and the connection to the garden.

Car and Cycle Parking

As detailed in the Mobility Management Plan detailed by DBFL, there is a car parking provision of 274 no. car parking spaces, of which 273 no. spaces will be at basement level and 1 no. spaces will be at ground level.

Development management will actively manage the site's parking arrangements through a Parking Management Strategy. The low availability and cost of car parking spaces (0.6 spaces/apartment unit) will discourage the use and ownership of private vehicles and promote the use of sustainable transportation modes such as walking and cycling.

Of the car parking spaces assigned to the proposed development;

- 247 no. basement car parking spaces are allocated for the 452 no. apartments (including 9 no. visitor spaces and 11 no. mobility impaired spaces);
- 26 no. car parking spaces are allocated for the 10 no. 3 bed semi-detached houses and the 6 no. one bed bungalows;
- 11 no. car parking spaces will be reserved as dedicated mobility impaired spaces as specified by the DLRCC requirements for 4% of the overall car parking provision;
- 1 no. space will be at surface level by the development entrance;
- 10 no. spaces will be at basement level and are allocated for apartment residents;
- 28 no. electric vehicle charging points have been assigned as per DLRCC requirements; and
- 4% will be allocated as spaces for car sharing clubs (11 no. car parking spaces).

A drop off zone is proposed at the entrance to the scheme.

A provision of 616 no. cycle parking spaces is proposed for this development site. Of this provision, 512 no. long stay cycle spaces will be at basement level and 104 no. spaces will be located at ground level which are intended as short stay cycle parking spaces for visitors to the development. These proposals exceed DLRCC requirements and are therefore compliant with the DLRCC requirements.

Additionally, 12 no. motorcycle spaces will be located at basement level.

Use of Natural Resources

Soil

As detailed in the Construction Management Plan prepared by DBFL Consulting Engineers; site development works will include stripping of topsoil and excavation of subsoil layers. These activities have potential to expose the soils and geological environment to pollution.

The contractor shall obtain approval of their proposed erosion and sediment control measures from Dun Laoghaire-Rathdown County Council's Environment Section prior to commencing works on site.

Foul Water and Water Supply

We can also confirm that there is confirmation of feasibility for the proposed development to connect to public water mains and sewers. We refer specifically to the Irish Water Confirmation of Feasibility attached to the input from DBFL Consulting Engineers, which sets out that subject to a valid connection agreement being put in place, the proposed connection to Irish Water can be facilitated.

Gas

During operational stage, the only potential natural resources utilised will potentially be natural gas and water in quantities applicable to the daily operation of the new dwellings, and tenant amenity space.

Land, soil and biodiversity are not considered to feature as natural resources used at operational stage.

Energy & Sustainability

As per the Energy & Sustainability Report prepared by OCSC Consulting Engineers, a holistic sustainable approach has been adopted by the design team for the proposed Cornelscourt residential development at Old Bray Road, Dublin 18. Through detailed design, a number of sustainability and efficiency features have been considered throughout.

The proposed development will comply with Part L 2019 (NZEB), as well as achieving an A2/A3 BER.

The optimised approach is based on the Energy Hierarchy Plan - Be Mean, Be Lean, Be Green.

Be Mean

For the new build elements, the façade performance specification has been optimised to limit heat loss, improve air tightness and thermal transmittance and to maximise natural daylight.

Be Lean

High efficiency central plant will be specified where applicable to take advantage of the optimised façade design measures that have been introduced;

A low energy lighting design will be utilised to further reduce energy consumption and increase occupant thermal comfort.

Be Green

- Renewable energy technologies such as Air Source Heat Pumps, Exhaust Air Heat Pumps, Solar PV, and Variable Refrigeration Flow systems will be considered for implementation;

A number of sustainable design features have been considered within the design to achieve the sustainability targets of the proposed refurbishment. These include:

- The proximity of the development to public transportation networks;
- Natural daylight;
- Water efficiency measures such as low consumption sanitary fittings; and
- Improved indoor environmental quality.

This report confirms that if the energy and sustainability strategy is successfully implemented, the proposed Cornelscourt residential development will satisfy all Part L and BER requirements.

Services

The following service proposals are detailed fully within the Infrastructure Design Report prepared by DBFL Engineering Consulting.

Water

Existing public water supply infrastructure is located along Old Bray Road (24" Cast Iron Watermain and 4" uPVC Watermain). This infrastructure is expected to provide a suitable connection for the proposed development.

The site's proposed water main layout is shown on DBFL Drawing 180208-XX-XX- DR-C-3002.

It is proposed to take a 200mm diameter connection off the existing 24" Cast Iron public water supply line (located along the Old Bray Road). A looped water main will be provided within the proposed development.

The proposed water main layout and connections to existing public water mains have been designed in accordance with Irish Water Standard Detail STD-W-02.

Individual houses located along the site's eastern boundary will have their own connections (25mm O.D. PE pipe) to distribution water mains via service connections and meter / boundary boxes. Individual connections are to be installed in accordance with Irish Water Standard Detail

Surface Water Drainage and SUDS

The following methodologies are being implemented as part of a SuDS treatment train approach:

- Surface water runoff from the roofs of houses along the eastern boundary will be routed to the proposed surface water pipe network via bio-swale filter drains (infiltration trenches) located in their rear gardens (providing an additional element of attenuation and treatment).
- Surface water runoff from apartment roofs will be captured by green roofs (sedum blanket) prior to being routed to the piped surface water drainage network.

- A drainage reservoir (drainage board) is to be provided on the podium slab over basement.
- Attenuation of the 30 and 100 year return period storms within Stormtech Attenuation Chambers.
- Installation of a vortex flow control device (Hydrobrake or equivalent), limiting surface water discharge from the site to 10.0 l/sec/ha
- Surface water discharge will also pass via a Class 1 full retention fuel / oil separator (sized in accordance with permitted discharge from the site)

Foul Water Drainage

Existing foul drainage infrastructure (225 diameter) is located adjacent to the site's eastern corner (at the northern end of Willow Grove). Similar to comments above regarding surface water drainage, this pipeline outfalls to the east via a crossing under the N11 and Southpark .

As the site generally falls from its western corner towards its eastern corner, a gravity foul drainage solution can be provided for the proposed development.

For further information, please refer to Figure 4.1 and the Irish Water Network Plan included in Appendix A in the Infrastructure Design Report prepared by DBFL.

4 Consideration of Alternatives

Alternative Locations

The site was acquired by the applicant in November 2018. The site represented a suitable site for development, being zoned for residential development under the Dun Laoghaire Rathdown County Council Development Plan 2016-2022, with 'residential' being permitted in principle under Objective A, which governs the subject site.

The applicant considered the following elements in selection of the site for development:

- The site offered significant opportunity to deliver significant residential development on an underutilised greenfield site in close proximity to existing services at Cornelscourt village.
- The subject site has excellent connectivity to public transport and major areas of employment.
 - Bus - The overall site is located adjacent to the N11 Bus Priority Route / Quality Bus Corridor. Distances to the nearest bus stops are less than 5mins walk. Travel time to St. Stephen's Green by bus is 40-50 mins.
 - Luas - The Carrickmines LUAS stop is a 25min walk from the proposed development, located 1.8km from the subject site. This stop is on the Green Luas line and journey time to St. Stephen's Green is 34 minutes. The Carrickmines Luas Stop has the benefit of a Park and Ride facility.
 - Employment Areas - The site is proximate to a number of employment areas (within 1.5km), which include Cornelscourt Village, Cornelscourt Shopping Centre, National Rehabilitation Hospital, Deansgrange Business Park and Dun Laoghaire Institute of Art, Design and Technology. Furthermore, University College Dublin and City Centre are short trips along the N11 by bus.
- The site is not subject to any statutory nature conservation designation.
- The site is opportunely located in the heart of Cornelscourt Village.
- The site has capacity to absorb development without significantly effecting the existing landscape and visual characteristics of the surrounding area.
- The site is not susceptible to flooding.
- The size of the site at 2.14 ha offers a significant opportunity to deliver infill residential development along a key public transport corridor which supports the provisions of the National Planning Framework.
- The site is located along a key public transport corridor (the N11); is proximate to the Green Luas line and a number of employment areas and is therefore opportunely located to deliver on the build to rent accommodation model.

Having considered the above, the application site was considered the preferred site for the current build to rent accommodation proposal.

Alternative Layout & Designs

Option A

The Option A proposal (Figures 4.1 and 4.2 below) initially considered comprised of a series of 6 buildings arranged off a pedestrian avenue and surrounded by landscaped gardens containing surface car parking. The landscaped zones acted as a transitional zone between the proposed blocks and the existing dwellings on Old Bray Road and Willow Grove. The arrangement of blocks ascended in scale (Figure 4.2); the southernmost blocks were 4 - 6 storeys in height while the 3 northern blocks ascended in height to a range between 4 and 9 storeys. Each block was arranged on a north to south axis to provide generous daylight into the individual courtyards and establish generous views and quality aspect for each apartment.

With this option there was no clearly defined hierarchy of public, semi-public and private spaces. The central pedestrian avenue did not cultivate a sense of arrival for residents and the use of surface car parking was not a suitable integration within the surrounding context of Cornelscourt.

For these reasons, Option A was not considered an appropriate layout for the site.



Figure 4.1 - Option A



Figure 4.2 - Option A

Option B

The Option B proposal (Figures 4.3 and 4.4. below), the second proposal considered, comprised of a series of eight buildings sitting upon a central landscaped space upon a podium. The ensemble of buildings was surrounded by landscaped gardens and surface car parking. The design established a greater sense of arrival and hierarchy of spaces for the residents by introducing a crescent shaped building form and 2 storey houses along the eastern boundary adjacent to Willow Grove.

Within the ensemble of 8 blocks; Blocks A, B and C ranged from 6 storeys to 12 storeys. The heights ascended in multiples of 3 to establish a distinctive identity along the N11 Corridor. The southern remaining blocks; Blocks D, E and F descended in scale from 5 to 2 storeys in height (Figure 4.4). Their height was carefully considered to present an appropriate scale towards the neighbouring dwellings along Old Bray Road and Willow Grove. Setbacks were introduced to Blocks D and Blocks E to further reduce the visual mass of the buildings. The design sought to complement the existing heights of Cornelscourt and to create a scheme that offered greater daylight and space to the proposal.

Despite the scheme's merits it had failed to properly integrate with the surrounding context, which resulted in unsuccessful and vacant public spaces along the boundaries. Furthermore, the central podium did not establish useable space for the residents.

For these reasons, Option B was not considered the optimum layout for the site.



Figure 4.3 - Option B



Figure 4.4 - Option B

Option C

The Option C proposal (Figures 4.6 and 4.7), the third design proposal considered, was a progression of the previous design option with further consideration of the scheme's integration within the surrounding context. The scale and massing of Block E was carefully adjusted to provide an appropriate and sympathetic interface between the proposed site and existing dwellings of Old Bray Road. The introduction of single storey apartments along the boundary coupled with a generous external pedestrian link enhanced the open space and interaction between the proposed and existing dwellings.

Section 247 Stage 2



Figure 4.5 - Option at Section 247 Stage

Following feedback received at the Section 247 Consultation meeting, the design team prepared a scheme in response to the particular concerns raised which in design terms, centered on Blocks E/F and the relationship with the village. In response, the height of Block E was reduced from 5 to a set back 4 storey building. The separation between Block E and the properties along the Old Bray Road was increased to 29 metres and own door access apartments were introduced in Block E to promote activity along that edge.

At this stage, the introduction of a pedestrian linkage to Willow Grove was included, through the omission of 1 house along the boundary (to the north east).

The Planning Authority declined to meet to discuss this enhanced scheme and the applicant therefore elected to proceed with a scheme for discussion with An Bord Pleanala.

An Bord Pleanála Consultation



Figure 4.6 - Option at Pre-App Stage with ABP

The scale and massing of Block E was carefully adjusted to provide an appropriate and sympathetic interface between the proposed site and existing dwellings of Old Bray Road. The introduction of single storey apartments along the boundary coupled with a generous external pedestrian link enhanced the open space and interaction between the proposed and existing dwellings.

The scheme was presented at the pre-application consultation with An Bord Pleanála and the Planning Authority. It was noted that a key issue for the local authority throughout the discussion related to concerns that the landscaping strategy had created inconsequential spaces, which were not suitable to the quantity of residents within the proposed development. The provision of surface car parking spaces was also identified as an issue.

For these reasons, Option C was not considered the optimum layout for the site. Further refinement and amendment of the scheme was required. The applicant undertook to positively consider the issues raised and further refinement of the scheme was required.



Figure 4.7 - Option C

Current Scheme

The current scheme (as identified in Figure 4.8 below) builds upon all successful design objectives of the previous schemes and resolves their shortcomings. The current design was selected as it successfully embodied and improved key concepts which had been developed during the entirety of the design process. These qualities include the following:

- Greater integration into the context of Cornelscourt. The introduction of two storey houses along the perimeter to Willow Grove and single storey units adjacent to Old Bray Road removed vacant open space along the perimeter and established an appropriate and considered transitional scale to the development;
- The arrangement and adjustment of the buildings' scale to give greater structure and form to the principal spaces and vistas. The adjustment of Building D and Building E allowed the Central Garden to take maximum advantage of the views and orientation while also providing greater presentation of scale to the varied heights of Cornelscourt;
- The current scheme adjusted the forms of the buildings to create visual permeability to the residents and wider context. Between each building there is provision of pedestrian routes which allow residents to easily walk or cycle throughout the development.
- Compared to the earlier schemes, the current scheme improves the variety and distinctiveness in the architecture to create a sense of place by means of a range of building sizes, shapes, heights, materials and character. The façades of Building A,B and C were revised to improve the visual identity of the development. The facades of Buildings D and E were changed to brick to present a more quality expression along the boundary of the development site;
- The improved landscaping design removed all surface car parking spaces to provide appropriately scaled, well orientated and 'people-friendly' external spaces including landscaped streets, courtyards, gardens and pedestrian streets;

- This adjustment has improved the defined hierarchy of public, semi-public and private spaces which provide legibility, permeability and connectivity and make it easy for residents and visitors to find their way around. Giving priority to walking, cycling and public transport, minimising the need for cars by providing attractive paths and cycle routes which facilitate safe access by users of all ages and degrees of personal mobility.



Figure 1.8 - Current Option

These key concepts have formulated a development that is conceived as a continuous ribbon of residential development that touches the townscape of Cornelscourt at a two-storey height (Figure 4.7) and steps gradually being cognisant of the low scale of the existing context until it reaches the wide expanse of the N11 Corridor where it steps from six to nine and twelve stories.

The response to context and orientation is fundamental to the scheme design and the enclosure created by the curvilinear form of the development, facilitates both daylight and sunlight penetration to allow the garden amenities to be of the highest quality. The perimeter of the site is further protected to ensure both visual integration and security. The use of both one and two storey housing serves to graduate from Old Bray Road and Willow Grove to integrate the entire scheme with Cornelscourt and its environment.



Figure 2.9 - Current Option

At the junction with the N11 corridor, these taller finger buildings are separated by lower buildings, which articulate the stepped form of the scheme and facilitate daylight, air movement, and visual connection to create a landmark ensemble of buildings. The material palette for Cornelscourt is kept simple and clear to create order between the elements and to have a connection to its context.

For the larger buildings, a more formal and urban material palette has been chosen, this palette maintains the warmth of the lower buildings but adds a striking architectural edge in the form of large bronze frames and expansive glass curtain walling.

The remaining blocks; Block D, E and F (Figure 4.10) descend in scale from 5 to 2 storeys in height. Their height has been carefully considered to present an appropriate scale towards the neighbouring dwellings along Old Bray Road and Willow Grove. Setbacks have been introduced to Blocks D and Blocks E to further reduce the visual mass of the buildings.



Figure 3.10 - Current Option

Conclusion

The proposed layout was carefully developed, taking into consideration the existing neighbouring properties, the conditions in Cornelscourt Village on the Old Bray Road, and the N11, as well as local environmental conditions such as orientation, wind, noise and overshadowing.

The scheme aims to maximize the efficiency and quality of the proposed apartments blocks while minimizing the impact on existing properties, improve the landscaping of the Old Bray Road and provide a coherent, pleasant and fully accessible permeable public realm that will stitch together the existing residential development in Cornelscourt Village.

5 Population and Human Health

The assessment of Population & Human Health is contained within Chapter 5 of this EIAR.

The following provides a description of the receiving environment, with a focus on population, land use, housing, employment and local amenity.

The electoral division of Foxrock-Carrikmines. The total population of the electoral district in 2016 was 5,951. This represents a population decrease of 2% (137) from the 2011 Census figure. In 2016 there were 2,840(48%) males and 3,111 (52%) females within the study area (5,951 altogether). The largest cohort for both males (839) and females (956) is within the 45-64-year-old category. Categorising 18 years and younger as ‘youth’ yields a population of 1479 or approximately 17% of the total population. The total number of people aged 65 or older is 1008, this equates to 25% of the total population. The dependency ratio for the area (ie those not in the workforce – aged 0-18 or over 65) is higher than the county and national figures at 42% of the population.

The site is located in Cornelscourt Village which is an area that can be characterised as a well-planned and settled mature residential area. The area, which was formerly a village, is now a suburban area of Dublin. Cornelscourt is located within the Dun Laoghaire Rathdown county boundaries and contains many housing developments, shops and other facilities, with the old village centre still present.



Figure 5.1 - Zoning

The subject site is primarily zoned ‘A’ - **“To Protect and/or improve residential amenity”**.

Regarding the land uses in the surrounding area, it is clear from the above context map that residential use is the most prominent type of land use with some patches of open space and a small number of commercial areas to be seen. The site fronts onto the N11 which has been identified as a key transportation corridor in the Dun Laoghaire Rathdown Development Plan 2016- 2022.

- The subject site is ideally located just a short drive from Dublin City Centre, off the N11 route.
- The area is serviced by numerous bus routes, including the 143, 145 and 155 routes and
- benefits in terms of travel time from the Quality Bus Corridor (QBC).

- The M50 Motorway (Carrickmines 15) is located approx. 1.8km southwest of the site and offers convenient access to Dublin Airport and nationwide network of roads which feeds off the M50.

The subject site is located within the county boundaries of Dun Laoghaire Rathdown. The Dun Laoghaire Rathdown Development Plan 2016-2022 outlines that in relation to housing, its core strategy has been formulated from the available population and household target projections.

Within the electoral division of Foxrock-Carrickmines, of a total 2,559 people were recorded as being within employment in the Census 2016. Commerce and Trade represents the largest sector, followed by Professional Services.

The most common occupation for both male and female is a 'Professional Occupation'. In regard to employment sectors, the most prominent sector within the Electoral Division is 'Commerce and Trade'.

The Government's *Rebuilding Ireland - Action Plan for Housing and Homelessness* set a target to construct 25,000 homes annually to 2021. According to the CSO Q4 of New Dwelling Completions Report, 18,072 new dwellings were completed in 2018. This is almost 7,000 dwellings below Rebuilding Ireland's annual target. Using the Eircode Routing Key, the CSO reports that 369 no. of these completions are recorded in Dublin 18.

According to the Department of Housing, Planning and Local Government, Homelessness Report (2018), Among the 4,175 adults in emergency accommodation in December 2018, 1,764 were adults accompanied by child dependents.

The unemployment rate as of December 2018 stood at 5.5% of the population. The unemployment rate was at 4.6% in July 2019. According to the Economic and Social Research Institute's (ESRI) Quarterly Economic Commentary Summer 2019, the unemployment rate has fallen below 5 per cent for the first time since 2007 and we expect it will continue to drop into 2020. Albeit, this forecasts is subject to the assumption that the United Kingdom remains in the European Union.

The proposed development will generate economic activity in the locality during the construction period. It is anticipated that apartment building management jobs and other associated jobs will be generated, with spin-off economic activity created for local retail and service providers together with wider benefits in the aggregate extraction (quarry) sector, building supply services, professional and technical professions etc. These beneficial impacts on economic activity will be largely temporary but will contribute to the overall future viability of the construction sector and related services and professions over the phased construction period.

In 2016 there were 1,813 commuters who lived in the Electoral Division of Foxrock-Carrickmines (total resident population of 5,951). There were also 1,942 commuters who travelled into this electoral division to work. This resulted in a net flow of 129 commuters.

The Irish economy experienced an unprecedented period of growth from the early 1990's to 2007. According to the Economic and Social Research Institute (ESRI), the unprecedented economic growth saw the level of Irish real GDP double in size over only slightly more than a decade.

However, the pace of economic growth began to decelerate in the second half of 2007. In 2008, output fell for the first time since 1983, and the recession deepened in 2009. Ireland's economic difficulties were compounded by the global difficulties in financial markets which commenced in 2007.

The decline in economic growth was accompanied by a major decline in employment figures. From a peak rate of 2.1 million persons employed in 2007, an increase of 75% from 1990 and averaging a low unemployment rate of 5% in 2007. At its highest, unemployment was recorded at 15.1 % in December of both 2010 and 2011.

The Economic and Social Research Institute's (ESRI) Quarterly Economic Commentary Summer 2019 notes that 'notwithstanding the observed slowdown in international macroeconomic conditions, the Irish economy continues to experience robust economic growth in 2019' (ESRI, 2019). The report further states that heightened uncertainty, however, is still very much a feature of present economic conditions due to the ongoing issue of Brexit and the potential nature of the UK's exit

from the European Union. Uncertainty from international sources is also highly relevant in terms of investment decisions made domestically.

Foxrock-Cornelscourt has a wide range of health care facilities, childcare facilities and educational facilities. There are also number of community facilities including parks, playgrounds and libraries. They also facilitate many services for the community including, sports club, hobbies & activity centres and leisure centres.

This section provides a description of the specific, direct and indirect, impacts that the proposed development may have in a 'do nothing scenario', and during both the construction and operational phases of the proposed development.

Impact Assessment

Were the development to not proceed, the present state of the subject site would remain. The subject site has been zoned to fulfil a specific housing need by 2023. As such, a do-nothing scenario would mean that this objective of the Development Plan would not be met, and some 468 no. households would remain uncatered for.

As such, the impact of the development not proceeding on population profile and trends in the area would be negative.

Furthermore, the positive nature of the development in terms of its close proximity to a number of centres of employment, and therefore the associated increase in sustainable commuter trips in the area, would be lost.

During the construction phase of the development there will be a neutral impact on the population trends and profile for the area as no additional persons will be housed on site.

The proposed development will consist of 468 no. residential units/households. Using the local average household size indicators from Census 2016 for surrounding electoral divisions (2.85), this may result in a projected population of approximately 1,334 no. persons. Using the average household figures for the state (2.75), this may result in a projected population of approximately 1,287 no persons. In terms of analysis for EIAR purposes, the larger population figure is used to assess impact. This will result in a sizeable addition to the emerging Foxrock-Cabinteely district. This is considered significant and positive, particularly in the context of current housing demand, while also taking account of the location's access to places of employment.

There are currently no persons residing on the subject site, which is currently mostly greenfield. Were the development not to proceed, this scenario would continue and the site would remain in its current state. As a result, this residentially zoned land would not contribute to the housing unit targets set out in the *Dún Laoghaire – Rathdown County Development Plan 2016-2022*. The impact of a do-nothing scenario would therefore be negative in of meeting targets for household growth.

The construction phase of the development is not anticipated to provide any impact on the quantum of or access to housing in the area. The residential amenity of the area will be unavoidably affected during the construction phase due to the works taking place. This impact is not considered to be significant however.

The proposed development will result in the addition of 468 no. units to the supply of housing in the Stillogran-Lepordstown area. These will be a mixture of studios, 1, 2 and 3 bed residential units.

The addition of these proposed units will contribute to the housing unit target outlined in the *Dún Laoghaire-Rathdown County Development Plan 2016 - 2022*, which states that a net requirement of approximately 30,800 no. new units are required over the lifetime of the plan. This equates to an average requirement of approximately 3,080 no. new residential units per annum to 2022.

If the proposed development does not go ahead, it is likely that the subject site would remain vacant in the short to medium term. The subject site is a significant landbank at a strategic location and left undeveloped for any significant period it would likely go into decline. Vacant sites can have adverse effects on the character of an area by means of urban blight and decay. Vacant sites often attract anti-social behavior which can have a negative effect on the local population.

The proposed development complies with the statutory land-use zoning for the site. The development of the subject site is in accordance with the objective to achieve compact growth contained within the National Planning Framework and will realise the efficient use of currently-underutilised greenfield land and higher housing density that is well served by public transport.

In light of national policy, it is likely that the impact of this development would have a significant positive effect that will achieve local and wider county, regional and national objectives.

The proposed development will deliver 468 no. residential units of which 47 no. will be for the purposes of Part V, social housing.

In light of the existing housing crisis, it is considered that a high-density development at this location would result in a likely significant positive impact as it would realise the objective of compact urban growth through the efficient and effective use of zoned and serviced landbank to provide much needed housing for future populations.

As the subject site is a greenfield site, the current levels of employment required to maintain the site (security personnel and occasional maintenance) would remain steady and the subsequent impact on employment would be neutral.

The construction phase will provide employment for a large workforce at various stages during the life of the c. 36 month project. These construction workers will likely be recruited from Dublin and the wider metropolitan area. The multiplier effect arising from these additional construction jobs will also lead to an increase in employment in local businesses providing services to construction workers. As a result, the project will have a positive impact on employment numbers in the area during the construction phase.

The proposed development will provide housing for a potential number of approximately 468 no. persons, when using average household figures for the State. Given the multitude of large employment centres within close proximity to the site, the existence of significant transport infrastructure providing access to other centres it is likely that future residents of the scheme would work within close proximity to nearby employment centres. The multiplier effect arising from these additional residents using local services and purchasing goods at local businesses will also lead to an increase in employment in those businesses, which meet this demand.

If the development did not proceed, there would be no impact on commuting patterns in the area as the proposed development does not provide any additional transport infrastructure services.

During the construction phase the site will be accessed via the Old Bray Road. An Outline Construction Management Plan is required in accordance with the *County Development Plan 2016-2022*. The Plan includes a section which covers the Preliminary Traffic Management Plan. Further information on this is outlined in Chapter 13 of this EIA – *Material Assets, Traffic and Transportation*.

An Bord Pleanála will note from a review of the Traffic Assessment submitted by DBFL Consulting Engineers that traffic generated by the proposed development will be relatively low and is not expected to result in a significant impact. We note specifically the following conclusion from Section 7 (page 66) of the Traffic Transport Assessment:

'In conclusion, we believe that the opportunity is available, in terms of transport and traffic, for the local authority to consider favourably the proposed residential development on the subject site.

It is concluded that there are no traffic or transportation related reasons that should prevent the granting of planning permission for the proposed residential development.'

If the proposed development did not proceed, there would be no impact on social services provision.

It has been established that 22% of the existing population is of the average school going age (4-19 years of age). This equates to 293 persons of the 1334 person population envisioned for the site.

Based on the figures provided for this proposal (1334 person population), we can estimate that the demand for primary school places would equate to c.161 no. pupils (12% of the total population) and the demand for post primary school places to 107 no. pupils (5.48% of the total population).

It is submitted that this demand can be absorbed by the current schools capacity of the area and no further educational provision will be required in the context of this proposal.

Potential Risks to Human Health

- Land & Soils
- Water
- Noise & Vibration
- Air and Climate Factors
- Landscape and Visual
- Traffic and Transport
- Material Assets – Utilities
- Material Assets – Waste Management
- Daylight and Sunlight

6 Biodiversity

A review of the biodiversity of the site was carried out by OPENFIELD Ecological Services and this included a study of existing information from the area and a site survey. A site survey was carried out on the 23rd of January 2019. January is within the optimal period for surveying large mammals (particularly Badgers). Due to the highly modified nature of the site, 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. Japanese Knotweed, Three-cornered Garlic and Spanish Bluebell are present and these are alien invasive plant species as listed on Schedule 3 of SI No. 477 of 2011. The site can be described as rough grassland with disturbed ground. There are no semi-natural habitats of high biodiversity value. There are no water courses, ponds, ditches or wetland areas. There was no evidence of Badgers using the site. There are no features which could be used as roosting areas for bats (e.g. buildings or very old trees).

No semi-natural habitats of high biodiversity value are to be affected by this project. Good site management practices will ensure that pollution to water courses does not occur during the construction phase. Surface water will be attenuated using sustainable urban drainage systems (SUDS). Additional landscaping will compensate for the loss of habitat that will occur. Standard herbicide will be used to eradicate the stands of Japanese Knotweed, Spanish Bluebell and Three-cornered Garlic. In the case of Japanese Knotweed, contaminated material is to be disposed of off-site by a suitably licenced contractor while monitoring measures will be in place to ensure no re-growth on the site occurs. With the suggested mitigation in place, the ecological impacts of this proposed development will be neutral. There are no impacts that could affect any area designated for nature conservation.

7 Lands and Soils

This chapter of the EIAR comprises an assessment of the likely impact of the proposed development on soils and the geological environment as well as identifying proposed mitigation measures to minimize any impacts.

In summary, the project comprises the development of 452 apartments, 10 houses, 6 bungalows, a café / restaurant, office space, concierge and central residential amenity space on a 2.14 Ha site (approx.).

Assessment of the likely impact of the proposed development on soils and the geological environment included review of AWN's Environmental Due Diligence Report, review of GII's Ground Investigations Report, review of DBFL's Environmental Assessment – Executive Summary and review of information available on the Geological Survey of Ireland (GSI) online mapping service.

Ground conditions at the site are summarised as follows; 0.3m thick topsoil layer overlying; 0.5m to 1.1m made ground deposits overlying cohesive deposits.

The subsoils noted above overly Bedrock (encountered at depths of 2.6m to 12.0m below existing ground). Review of GSI's online mapping service ("Bedrock Geology") describes geology in the vicinity of the site as "Siluro-Devonian granitic rocks & appinite".

Adjacent to the site's western boundary (the high side of the site), groundwater was observed at approx. 1.0m below existing ground level; Adjacent to the site's eastern boundary (the low side of the site), groundwater was observed at approx. 2.3m below existing ground level. GSI have classified the site's groundwater vulnerability as "Moderate" for the majority of the site with "High" in a small portion of the site (adjacent to the site's southern corner).

An area of the site adjacent to the neighbouring filling station (adjacent to the western boundary) had been highlighted in the 2018 AWN Environmental Report as being impacted by hydrocarbons. The AWN report identified that the filling station was the likely source of the impact.

Ground Investigations Ireland subsequently carried out further investigation within the hydrocarbon impacted area to delineate the vertical and lateral extent of the contamination plume. GII confirms that the reduction in degree of impact moving downgradient and away from the filling station suggests that the impact is related to the filling station.

Site development works will include stripping of topsoil, excavation of subsoil layers (to allow road construction, basement and foundation excavations, drainage and utility installation and provision of underground attenuation of surface water) and importation of fill (structural fill beneath apartments, houses and roadways). Due to relatively high level of groundwater encountered in the boreholes there may be a need to dewater the basement excavation during construction.

As noted previously, an area of the site adjacent to the neighbouring filling station has been impacted by hydrocarbons. Investigation within the hydrocarbon impacted area confirms that the reduction in degree of impact moving downgradient and away from the filling station suggests that the impact is related to the filling station. Two locations have been identified where these materials should be excavated and removed from site in the event of residential development. If these materials are excavated and removed from site they should be classified as and disposed of as hazardous. The natural subsoils outside the impacted area have been assessed and are suitable for removal to a suitably licenced inert facility.

In general, the designed basement level, ground floor levels and external pavement levels have been designed to follow the natural topography of the site, therefore minimising the need for cut fill operations to enable development.

Potential impacts during the construction phase include exposure of the underlying subsoil layers to the effects of weather and construction traffic resulting in subsoil erosion and generation of sediment laden runoff. Accidental spills and leaks during construction activities may result in contamination of the soils underlying the site. Risks to human health associated with works during the construction phase in relation to land and soils include works in relation to subsoils impacted by hydrocarbons.

Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development. At any given time, the extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work areas.

Disturbed subsoil layers will be stabilized as soon as practicable (e.g. backfill of service trenches, construction of road capping layers, construction of building foundations and completion of landscaping). The duration that subsoil layers are exposed is to be minimised in order to mitigate against weather effects.

Regarding construction traffic, earthworks plant and vehicles delivering construction materials to site will be confined to predetermined haul routes around the site.

Vehicle wheel wash facilities will be installed in the vicinity of any site entrances and road sweeping implemented as necessary in order to maintain the road network in the immediate vicinity of the site. Dust suppression measures be implemented as necessary during dry periods.

All temporary construction compounds and site entrances are to be removed upon completion of the construction phase. Such areas are to be reinstated in accordance with the landscape architects plan and engineer's drawings.

All construction waste and / or scrapped building materials are to be removed from site on completion of the construction phase.

The Contractor is to provide a Method Statement (to be agreed prior to commencing any works on site) for works in the vicinity of areas impacted by hydrocarbons including but not limited to details of their proposed specialist sub-contractors, proposals for containment of contamination, proposal for removal of hydrocarbons from dewatered groundwater prior to discharge, co-ordination of contamination removal with other site works, proposed licenced waste receiving facility and compliance with relevant legislation including HSA publications and the Waste Management Act.

Implementation of the mitigation measures outlined in Chapter 7 of this EIAR and the Preliminary Construction Management Plan will ensure that the potential impacts of the proposed development on soils and the geological environment do not occur during the construction phase.

8 Water

This chapter of the EIAR comprises of an assessment of the likely impact of the proposed development on the surrounding surface water and hydrogeological environments (including flood risk, surface water drainage, foul drainage and water supply) as well as identifying proposed mitigation measures to minimise any impacts.

In summary, the project comprises the development of 452 apartments, 10 houses, 6 bungalows, a café / restaurant, office space, concierge and central residential amenity space on a 2.14 Ha site (approx.).

Assessment of the likely impact of the proposed development on the surrounding surface water and hydrogeological environments included site inspection / walkover, review of topographic survey information, review of Irish Water utility plans, ground investigations, review of information available on the Environmental Protection Agency (EPA) online mapping service, review of information available on the Geological Survey of Ireland (GSI) online mapping service, review of Office of Public Works (OPW) National Flood Hazard Mapping and CFRAM Studies, consultation with Dún Laoghaire - Rathdown County Council's Water Services Section and consultation with Irish Water.

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 Greater Dublin Strategic Drainage Study (GSDSDS) and methods outlined in Irish Water's Pre-Connection Enquiry Application (water demand and foul drainage discharge).

An existing 225mm diameter public surface water drain is located adjacent to the eastern corner of the site (lands north of Willow Grove). As the site falls from its western corner toward its eastern, the existing 225mm diameter public surface water drain noted above will provide a suitable surface water outfall for the proposed development. The existing surface water drain noted above ultimately discharges to the Deansgrange Stream.

Existing public foul drainage infrastructure is located adjacent to the eastern corner of the site. As the site falls from its western corner toward its eastern corner, this existing infrastructure will facilitate a gravity foul drainage connection. Pre-Connection Feedback has been received from Irish Water advises that *"Based upon the details that you have provided with your pre-connection enquiry and on the capacity currently available in the networks(s), as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network(s) can be facilitated"*.

An existing 24" Cast Iron and 4" uPVC watermains are located along Old Bray Road. The proposed development's water supply is to be taken from this existing infrastructure. Pre-Connection Feedback has been received from Irish Water advises that *"Based upon the details that you have provided with your pre-connection enquiry and on the capacity currently available in the networks(s), as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network(s) can be facilitated"*.

A flood hazard assessment has been undertaken by reviewing information from the Office of Public Works (OPW) National Flood Hazard Mapping (www.floods.ie) and the Eastern CFRAM Study. This assessment has been carried out in accordance with the procedures for a "Flood Risk Assessment" as outlined in the OPW's Guidelines for Planning Authorities – The Planning System and Flood Management (November 2009). No fluvial flooding is indicated in the vicinity of the site (i.e. the site is located in Flood Zone C as defined by the Guidelines, therefore, the proposed development is appropriate for the site's flood zone category).

GSI's Groundwater Data Viewer indicates that the site is located on a "Bedrock Aquifer" and classifies the underlying aquifers as "Poor Aquifer – Bedrock which is generally unproductive except for local zones". GSI generally classifies the site's groundwater vulnerability as "Moderate" (although a localised area in the southern corner of the site is classified as "High").

Adjacent to the site's western boundary (the high side of the site), groundwater was observed at approx. 1.0m below existing ground level. Adjacent to the site's eastern boundary (the low side of the site), groundwater was observed at approx. 2.3m below existing ground level.

Potential impacts that may arise during the construction phase include, surface water runoff becoming polluted by construction activities, accidental spills and leaks associated with storage of oils and fuels, leaks from construction machinery and spillage during refuelling and maintenance, concrete runoff (particularly discharge of wash water from concrete trucks), improper discharge of foul drainage from contractor's compound and cross contamination of potable water supply to construction compound. Due to relatively high level of groundwater encountered in the boreholes there may be a need to dewater excavations during construction.

In order to mitigate construction phase impacts a site-specific Construction and Environment Management Plan will be developed and implemented during the construction phase. Site inductions will include reference to the procedures and best practice as outlined in the Construction and Environment Management Plan.

Oil, fuel etc. storage areas are to be decommissioned on completion of the construction phase. Any remaining liquids are to be removed from site and disposed of at an appropriate licenced facility. South Dublin County Council's Environmental Control Section is to be notified of the proposed destination for disposal of any liquid fuels.

Potential operational phase impacts include increased impermeable surface area potentially increasing surface water runoff and accidental hydrocarbon leaks with subsequent discharge into piped surface water drainage network.

In order to mitigate operational phase impacts surface water runoff from the site will be attenuated to the greenfield runoff rate as outlined in the Greater Dublin Strategic Drainage Study (GDSDS). Methodologies such as permeable paving, green roofs and discharge of surface water via a fuel / oil separator are being implemented as part of a SuDS surface water treatment train approach.

Proposed mitigation measures to address residual flood risks include maintenance of the drainage system on a regular basis to reduce the risk of a blockage and in the event of storms exceeding the 1% AEP design capacity of the attenuation system, possible overland flow routing towards open space areas should not to be blocked.

In general, the designed basement level, ground floor levels and external pavement levels have been designed to follow the natural topography of the site, therefore minimising the need for excavation to enable development. As such. It is not envisaged that the proposed development works will have any direct impact on the underlying hydrogeology.

Implementation of the measures outlined in Chapter 8 of this EIAR and the Preliminary Construction Management Plan will ensure that the potential impacts of the proposed development on the surrounding surface water and hydrogeological environments do not occur during the construction phase.

9 Noise and Vibration

AWN Consulting Limited has been commissioned to conduct an assessment of the likely noise and vibration impacts associated with the proposed residential development at Cornelscourt, Dublin.

The existing noise climate in the vicinity of the proposed development has been surveyed. Prevailing noise levels are primarily due to local road traffic.

The noise impact assessment has focused on the potential outward impacts associated with the construction and operational phases of the proposed development on its surrounding environment, as well as the inward impact of noise on the proposed residential dwellings.

During the main construction phase involving site clearance and building construction works, the assessment has determined that there is the potential for some temporary significant noise impacts when works are undertaken within close proximity of the receptor locations. However, these occurrences will only be temporary and the vast majority of the construction works will take place at distances from the receptors where no significant impacts are predicted and the construction criteria will be complied with. A schedule of noise mitigation measures including, noise limits and screening will all be employed to ensure any noise and vibration impacts during this phase will be reduced as far as is reasonably practicable.

During the operational phase, the outward noise impact to the surrounding environment will be limited to any additional traffic on surrounding roads and plant noise from the commercial buildings as part of the development. Suitable criteria has been selected for plant noise emissions. The impact assessment has concluded that additional traffic from the proposed development will have an insignificant impact on the surrounding noise environment. The resulting impact is of neutral, long-term and imperceptible.

10 Air Quality and Climate

This Chapter considers the potential impacts on local air quality, regional air quality and climate associated with the proposed development.

In terms of the existing air quality environment, data available from similar environments indicates that levels of nitrogen dioxide (NO₂), carbon monoxide (CO), particulate matter less than 10 microns (PM₁₀) and less than 2.5 microns (PM_{2.5}) and benzene are generally well below the National and European Union (EU) ambient air quality limit values.

The greatest potential impact on air quality during the construction phase is from construction dust emissions, PM₁₀ and PM_{2.5} emissions. In order to minimise dust emissions during construction, a series of mitigation measures have been recommended. When the dust minimisation measures set out within this EIAR are implemented, the impact of fugitive emissions of dust from the site on nearby receptors will be short-term and not significant. 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 ambient air quality legislative limit values and, therefore, the impact will be short-term and imperceptible with respect to human health.

Due to the size and nature of the development, the impact of the construction phase of the proposed development on national greenhouse gas emissions is predicted to be short-term and not significant in terms of Ireland's obligations under the EU 2020 target.

The dust minimisation measures outlined for the proposed development should be implemented throughout the construction phases for all developments within 350m of the site to avoid any nuisance dust impacts occurring. Once these minimisation measures are in place, the cumulative impact to air quality is considered short-term and not significant.

The operational impact of the development was assessed based on emissions of the pollutants NO₂, CO, PM₁₀, PM_{2.5} and benzene using the UK Design Manual for Roads and Bridges (DMRB) screening model which is a recommended screening model for assessing the impact of traffic on air quality. The inputs to the air dispersion model consist of information on road layouts, receptor locations, annual average daily traffic movements, annual average traffic speeds and background concentrations. The climatic impact based on greenhouse gas (GHG) emissions of CO₂ was also assessed using the Design Manual for Roads and Bridges screening model.

Based on the modelling results, the impact of the proposed development on ambient air quality and climate is predicted to be long-term and imperceptible. The assessment demonstrates that the impact of the operational phase of the development complies with all ambient air quality legislative limit values which are based on the protection of human health and, therefore, the impact will be long-term and imperceptible with respect to human health.

The local air quality impact assessment, regional air quality impact assessment and climate impact assessment conducted using the DMRB model for the proposed development have all been based on traffic data incorporating projected traffic for nearby existing and permitted developments as a worst-case. As the outcomes of the assessments concluded that impacts from the cumulative scenario will be long-term and imperceptible with respect to air quality and climate, no further cumulative impact assessment is required for the proposed development.

No additional mitigation measures are required during the operational phase of the proposed development as it is predicted to have an imperceptible impact on ambient air quality and climate.

Monitoring of construction dust deposition at the site boundary and / or at nearby sensitive receptors during the construction phase of the proposed development is recommended to ensure the mitigation measures are providing adequate dust minimisation.

There is no monitoring required for the operational phase of the development as impacts to air quality and climate are predicted to be imperceptible.

11 Wind and Microclimate

A review of the wind microclimate was carried out by IES Ltd. to study the potential impact of wind movement on pedestrian comfort and safety while the various amenity spaces are accessed by the residents of the proposed development. CFD simulation were carried out along with extrapolated statistical analysis to determine the effect of wind climate on the site.

The site was observed to be overall safe with no location expected to cross the 15m/s threshold prescribed for sensitive and vulnerable pedestrians. The site was also observed to have good compliance with the walking comfort criteria – leisure and business. The shape of blocks D, E and F have prevented any sustained acceleration of wind through the site. Such shape has also kept impact on sitting and standing criterion to a minimum for the ground level public amenity spaces.

Due to the overall layout of the site, the private amenity spaces like the proposed café, balconies and roof terraces also show good compliance with the sitting and standing criteria. As such the residents will be able to enjoy the amenities for the largest parts of the year.

12 Landscape and Visual Impact Assessment

Introduction

The LVIA summarises the impact of the proposed development on the landscape character and visual amenity of the current site and on the contiguous area and the site environs. It includes an outline of the methodology utilised to assess the impacts and descriptions of the receiving environment (baseline) and of the potential impacts of the development. Mitigation measures introduced to ameliorate, or offset impacts are considered and the resultant predicted (residual) impacts outlined.

This report should be read with reference to the photomontages produced by Modelworks Media Ltd, which are included with the planning application. It should also be read in conjunction with the Architectural Design Statement prepared by Henry J Lyons Architects which also accompanies the planning application.

Existing context for the proposed development

The site for the proposed development is located on a piece of open, unused ground (approx. 2.14 ha.) at the northern end of a long island created between the Old Bray Road and the N11 when it was constructed in the 1970's. The N11 effectively by-passes the village of Cornelscourt which sits astride the Old Bray Road to the west of the site. Cornelscourt village is still a viable, indeed vibrant mix of smaller scale shops, cafes/restaurants, offices etc., serving the local needs of the substantial residential areas around it. These are characteristically populated by 2-storey detached and semi-detached family homes in a range of styles and finishes, generally with front and rear gardens. Beyond the village of Cornelscourt to the west and north lies the leafy residential area of Foxrock. To the north and east, across the N11 (and its substantial fringe of tree planting), the Beech Park and South Park housing areas extend as far as Kill Lane and the Clonkeen Road. To the south, either side of the Cornelscourt Hill Road, the residential areas of Gort Na Mona and the Glen rise up through Hainault and Sycamore, towards the Brennanstown Road and the M50 beyond.

The Proposed Development and Potential Impacts

The proposed development will principally consist of a Build-to-Rent residential development comprising 452 No. apartments in 6 No. blocks as follows:

- Building A (8-12 storeys);
- Building B (7-9 storeys);
- Building C (6 storeys);
- Building D (5 storeys);
- Building E (4 storeys);
- Building F (4 storeys),

and 16 houses (10 no. 3 bed semi-detached and 6 no. 1 bed bungalows)

In addition the development provides:

- A café / restaurant of c. 140 sq m; office space of 149 sq m; concierge of c. 149 sq m; and a residential tenant amenity space of c. 458 sq m is also proposed.
- 274 Car Parking Spaces (273 at basement level and 1 at surface level)
- Motor Cycle Spaces
- 616 Bicycle Parking Spaces
- Public Open Space

- Vehicular Access
- Basement Areas
- Sub Stations and 3 Switch Rooms
- All Associated Site Development Works

The taller buildings of the proposed development are likely to create the most impact in the general current context of low-rise, detached or semi-detached residential housing, with front and rear gardens. Whilst the area is fairly extensively planted with trees, the topography is relatively flat, therefore Buildings A, B and C particularly, would be expected to be visible from a broad range of viewpoints around the site, including a number of fairly distant locations. A total of 33 viewpoints was selected and photomontages prepared to illustrate the visual impact of the proposed development from each.

Landscape and Visual Impacts

Construction Phase: The site will be surrounded by hoarding and will be occupied by the plant, machinery and storage elements normally associated with construction sites. The visual effects over the construction of the development will vary from moderate and neutral to moderate and negative, depending on one's location, the stage of construction, and the intensity of site activity. These effects will however be of short-term duration.

Operational Phase: As regards the impact on the perceived landscape character of the area and on social and cultural amenity, it would be expected that the completion of almost any proposed development on this derelict urban site would be perceived to improve the appearance and functioning of the site and the area immediately around it, simply as a consequence of removing the derelict gap. However, the final development will be judged ultimately on its relationship with the village, its finished appearance and the impact of time, use and the elements upon it. The proposed development is well-researched and will provide a substantial volume of living accommodation within a relatively small space, complete with a range of associated recreational and social facilities and communal landscaped external spaces - a living environment of high quality which is both sustainable and durable. The scheme itself is designed in a manner which is respectful of its broader urban context and of the design details and fabric that sustain it. Whilst the higher rise elements of the scheme clearly contrast with its surrounding built context, it forms one of a series of higher rise elements already built, permitted or planned along the Stillorgan Road, signalling through its landmark scale, the location of Cornelscourt village on this main route into Dublin city. In terms of its effects on landscape character and social and cultural amenity, it will provide moderate positive effects, which will be long term.

As regards impact on the visual environment and visual amenity, the proposed scheme is of a contrasting type and scale to the prevailing built-form of its surrounding context. However the architectural design is of high quality and the taller elements are appropriately allied to the broad N11 Stillorgan Road and step down in a transitional arrangement along the road and then in towards the village – this creates a landmark aspect at the road and produces an appropriately scaled juxtaposition with the smaller buildings in the core of the village. The photomontages generally illustrate these aspects of the design very well.

From a total of 33 views;

- in 12 views the proposed development is assessed as imperceptible
- in 17 views the impact is assessed as slight (of which 10 are neutral and 7 are negative)
- of the remaining 4 views the impact is assessed in 3 as moderate (2 are neutral and 1 is positive) and
- 1 view is significant and positive

All negative impacts are slight in magnitude and generally relate to aspects of the contrasting form of the development when seen in the broader context of traditional building forms,

particularly when seen from distance and on occasion when the taller parts of the development just break the skyline.

Positive impacts tend to occur when the building is seen from relatively close viewpoints where its form and finish may be appreciated and where its scale and massing in context can be understood.

Cumulative Effects

There are no relevant developments in the vicinity which are considered likely to create cumulative effects in this instance.

13 Material Assets - Traffic and Transport

This section of the Environmental Impact Assessment Report (EIAR) document has been prepared by DBFL Consulting Engineers and addresses all transport and related sustainability issues including means of vehicular access, pedestrian, cyclist and local public transport connections. The principal objective of this chapter is to quantify any level of impact across the local road network and subsequently ascertain the operational performance of the local road network.

The subject greenfield site is currently vacant, with vehicular access currently provided from the R842 Old Bray Road and is located in Cornelscourt, a suburb of South Dublin. The subject development lands are zoned as Objective A 'To protect and-or improve residential amenity' within the Dún Laoghaire - Rathdown County Development Plan.

The subject site benefits from excellent public transport accessibility levels including Dublin Bus and Go Ahead operated services which are easily accessible from the subject site, Luas services through the Carrickmines Luas Stop and heavy rail services that may be accessed at Dún Laoghaire Station.

The development proposals include the construction of a residential development comprising 452 no. residential apartment units and 16 no. houses, in addition to a small café and 149 m² of office space. The site will accommodate car parking spaces, bicycle parking, storage, services and plant areas.

One appropriately located, sized and designed site access (priority) junction is being provided to serve the proposed development. It is located on the R842 Old Bray Road and is shared by the Cornelscourt AIB Bank. The site access junction benefits from an appropriate level of visibility splays ensuring its safe operation. In addition, the proposals include 2 no. dedicated pedestrian and cyclist accesses, one access connects the development directly to the N11 Stillorgan Road, the other access links the site to Willow Grove (to the south-east).

The proposals include the provision of a total of 274 car parking spaces on-site, which is equivalent to a car parking ratio of approximately 0.6 car parking spaces to every residential unit. In addition, a total of 104 short term and 512 long term bicycle parking stands (616 in total) on-site will be provided within the subject Cornelscourt development. The level of bicycle parking proposed on-site for the apartment units has been provided in the context that the development car parking proposals are below the DLRCC development plan standards. This reduction is consistent with the 'substantial' reduction that the DHPLG guidelines recommend and at which the high DHPLG bicycle parking requirements would be of greater relevance.

For the purpose of this report, it was assumed that all 468 residential units have been built and occupied by 2021. A range of peak hour scenarios were investigated for an opening year of 2021 and a future design year of 2036 including the following four different assessment scenarios: -

Do Nothing

- A1 – 2021 Base Traffic Flows
- A2 – 2036 Base Traffic Flows

Do Something

- B1 - 2021 Do Nothing (A1) + Proposed Residential Development Flows (468 units)
- B2 - 2036 Do Nothing (A2) + Proposed Residential Development Flows (468 units)

The potential level of impact that may be generated by the subject proposals has been investigated at the site access junction with the R842 Old Bray Road in addition to the following three key off sites junctions;

- R842 Old Bray Road / Old Bray Road (Cul-de-sac);
- R842 Old Bray Road / Mart Lane; and
- R842 Old Bray Road / Cornelscourt Hill Road.

At these key off site junctions it was demonstrated that the proposed development (468 units) would result in a percentage increase in motorised traffic level above the 10% threshold for the R842 Old Bray Road / Old Bray Road (Cul-de-sac) junction. Accordingly, a more detailed evaluation of the operational performance of this key off site junction in addition to the new access junction was carried out within the TTA. The R842 Old Bray Road / Mart Lane junction was also evaluated despite being under the 10% threshold to provide a robust assessment.

The analysis detailed within the TTA demonstrated that the new site access junction will operate well within capacity in the adopted 2036 design year peak hour scenario. The operational assessment of the key off site junctions in both the 2021 and 2036 design years, following the construction of the proposed development (468 units) indicates that whilst an increase in utilisation of all junctions are predicted they continue to operate within acceptable peak hour operational performance.

With the objective of mitigating the potential impact of the proposed development during its operational stage, the following initiatives and associated timescale for their implementation have been identified and subsequently form an integral part of the subject development proposals.

- Management – A number of management measures will be implemented prior to the subject scheme opening which include:-
 - o A Mobility Management (MMP) is to be rolled out with the aim of guiding the delivery and management of coordinated initiatives by the scheme promotor. The MMP ultimately seeks to encourage sustainable travel practices for all journeys to and from the proposed development site. This MMP will be developed in partnership with DLRCC to specifically consider the opportunities of shaping all journeys and promoting sustainable transport habits at the proposed residential development.
 - o The accesses to the under-croft parking areas will be barrier controlled to ensure unpermitted vehicles cannot gain entry. In order to be allocated a dedicated parking space within these under croft parking areas, tenants based at the site will have to apply to the management company to gain a parking permit and an assigned dedicated parking space.
- Service – The facilitation of a dedicated car share facility (11 spaces) will reduce the need to own a private motor car thereby contributing to reducing the overall number of vehicle trips generated by the proposed development.
- Facilities – The provision of a total of 104 short term and 512 long term bicycle parking stands (616 in total).

Accordingly, it is concluded that through the implementation of the proposed mitigation measures and the rollout / uptake of the Mobility Management Plan initiatives, the proposals will not result in a material deterioration of road traffic conditions.

The TTA concluded that the opportunity is available, in terms of transport and traffic, for the local authority to consider favourably the proposed residential development on the subject site. It was concluded that all four of the junctions investigated within the TTA will operate within acceptable peak hour performance and accordingly there are no traffic or transportation related reasons that should prevent the granting of planning permission for the proposed residential development.

14 Material Assets - Utilities

This chapter of the EIAR comprises of an assessment of the likely impact of the proposed development on existing utility services in the vicinity of the site as well as identifying proposed mitigation measures to minimize any impacts. The material assets considered in this chapter of the EIAR include Power, Gas and Telecommunications.

In summary, the project comprises the development of 452 apartments, 10 houses, 6 bungalows, a café / restaurant, office space, concierge and central residential amenity space on a 2.14 Ha site (approx.).

Assessment of the likely impact of the proposed development on existing material assets in the vicinity of the site included a desktop review of ESB Networks Utility Plans, Gas Networks Ireland Service Plans, Eir E-Maps and Virgin Media Maps.

Existing LV / MV / 38 KV & Higher underground cable routes are shown along Old Bray Road (to the west of the site). Existing MV / LV underground cable routes are also located to the north of the site (within the AIB property) and to the south of the site (Willow Grove).

An existing medium pressure gas distribution pipeline (125 PE 4bar) is shown running along the Old Bray Road (to the west of the site). An existing medium pressure gas distribution pipeline (8 In ST 4bar) is shown running along the N11 (to the north and east of the site).

Telecommunications infrastructure is located along Old Bray Road (to the west of the site) and to the south of the site (Willow Grove).

The existing infrastructure noted above will provide electrical, gas and telecommunication connections for the proposed development.

There is potential interruption to ESB's network, Gas Networks Ireland's infrastructure, Eir's infrastructure and Virgin Media's infrastructure while carrying out works in the vicinity of the site entrance to provide service connections to the proposed development.

A GPR utility survey has been carried out along Old Bray Road to confirm the location of the power, gas and telecommunication infrastructure. This survey is to be supplemented with slit trench investigations as required by the contractor in advance of commencing works in the vicinity of Old Bray Road.

Reinstatement of any excavations, trenches etc. relating to the provision of electrical, gas and telecommunications connections is to be carried out in accordance with the relevant utility provider's requirements.

Implementation of mitigation measures outlined in Chapter 14 of this EIAR and the Preliminary Construction Management Plan will ensure that the potential impacts of the proposed development on site services do not occur during the construction phase.

15 Material Assets - Waste Management

Ian Byrne MSc, MIOA, Dip Environmental & Planning Law has prepared the waste management chapter of the EIAR for the control, management and monitoring of waste associated with a proposed Build - to - Rent Strategic Housing Development on lands (c. 2.14ha) at Cornelscourt Village, Old Bray Road, Cornelscourt Dublin 18.

The management of waste shall be conducted with regard to the *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 Eastern-Midlands Region Waste Management Plan 2015-2021 and relevant waste management policies as detailed in the Dun Laoghaire Rathdown County Development Plan 2016 – 2022.*

Wastes generated during both the construction and operational phases of the development shall be managed in accordance with the following waste hierarchy:

- waste prevention
- minimisation
- re-use
- recycling
- recovery
- disposal

The management of waste associated with the construction phase has been defined to ensure that all site activities are effectively managed to minimise the generation of waste and to maximise the opportunities for on-site reuse and recycling of waste materials and to ensure that all waste materials generated by construction site activities are removed from site by appropriately permitted waste haulage contractors and that all wastes are disposed of at approved waste licensed / permitted facilities in compliance with the Waste Management Act 1996 and all associated Waste Management Regulations.

The management of waste associated with the operational phase of the development will ensure that users of the development are provided with sufficient facilities to store, segregate and recycle waste.

The Operational Phase of the Waste Management Plan is defined by the following stages of waste management for both the residential and commercial aspects of the development:

Stage 1 Occupier Source Segregation

Stage 2 Occupier Deposit and Storage

Stage 3 Bulk Storage and On-Site Management

Stage 4 On-site treatment and Off-Site Removal

Stage 5 End Destination of wastes

The OWMP has been prepared with regard to *British Standard BS 5906:2005 Waste Management in Buildings-Code of Practice* which provides guidance on methods of storage, collection, segregation for recycling and recovery for residential building.

All residential units will include a 3 - bin waste segregation at source system together with the communal waste storage areas have been designed with regard to *Section's 4.8 and 4.9 Refuse Storage of The Department of Housing, Planning and Local Government – Sustainable Urban Housing : Design Standards for New Apartments – Guidelines for Planning Authorities. 2018.*

The proposed residential development shall be designed and managed to provide residents with the required waste management infrastructure to minimise the generation of un-segregated domestic waste and maximise the potential for segregating and recycling domestic waste fractions.

The **Objective** of the OWMP is to maximise the quantity of waste recycled by residents by providing sufficient waste recycling infrastructure, waste reduction initiatives and waste collection and waste management information services to the residents of the development.

The **Goal** of this Waste Management Plan is to achieve a residential recycling rate of 50% of managed municipal waste by 2020 (and future targets in subsequent Regional Waste Management Plans).

Best practice waste management measures are proposed for the management of construction phase wastes which will ensure that materials are segregated and stored appropriately. Waste materials generated during the construction phase will not pose a risk to local human health as a result of their inert nature.

The management of domestic wastes generated during the operational phase which ensure that wastes are segregated at source in each residential unit to facilitate the diversion of mixed waste away from landfill/incinerator and to maximise the potential for re-use and recycling. Communal waste storage areas shall be designed to provide a clean, safe and mobility impaired accessible area in which residents can place their wastes in one of three bulk waste bins, namely recyclable, organic, mixed non-recyclable. The waste storage areas will be regularly cleaned and disinfected and shall be naturally ventilated to prevent odours occurring. Therefore, the impact of construction waste and operational waste arising associated with the proposed development is predicted to be imperceptible with respect to human health.

With the implementation of the proposed waste minimisation and mitigation measures, the predicted impact of the construction (excavation and construction waste) phase will be temporary and slight and the predicted impact of operational waste will be long term, moderate and negative.

16 Archaeological, Architectural and Cultural Heritage

A desk-based study, geophysical survey and archaeological test trenching was carried out on a site at Cornelscourt village situated between the N11 and the Old Bray Road (ITM 722391, 725857). The site covers an approximate area of 2.14 off the N11 in Cornelscourt village. The following factors were identified in assessing the sites potential to contain archaeological features:

- The application area is large in scale, occupying an area of circa 2.14 hectares on the southern edge of Dublin City and the northern edge of the Dublin Mountains.
- Significant disturbance of the area has taken place in the recent past with the construction of what appears to be an overflow car park in the northern third of the site.
- There are no recorded monuments situated within the site boundary.
- There are relatively few recorded monuments located in the wider study area, there are no Zones of Archaeological Interest as defined under the Dún Laoghaire-Rathdown County Development Plan 2016 22.
- No potential archaeological features were recorded in aerial photos of the subject site.
- No potential archaeological features were recorded in historic mapping of the subject site.
- Analysis of historical mapping has shown the area to be former agricultural land.
- Site survey confirmed that much of the site remains undisturbed.
- Geophysical survey revealed no potential archaeological features.
- Test trenching revealed no archaeological features.

These factors indicate that there is a **low-moderate potential** for the survival of buried archaeological remains at this site.

RECOMMENDATION

Recommended Mitigation Measure

The site has been subject to desktop survey, geophysical survey and test trenching with negative results. It is not anticipated that any further mitigation measures will be necessary.

NOTE: All conclusions and recommendations expressed in this input are subject to the approval of The Department of Culture, Heritage and the Gaeltacht (DCHG) and the relevant local authorities. As the statutory body responsible for the protection of Ireland's archaeological and cultural heritage resource, the DCHG may issue alternative or additional recommendations.

17 Daylight and Sunlight

IES Ltd were appointed to carry out analysis assessing the potential impact to sunlight and daylight of the proposed development at Cornelscourt Village on the surrounding existing buildings and on the proposed design itself. The results were quantified using the BRE guidance, ‘Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice’ by Paul Littlefair, 2011 sometimes referred to as BRE Digest 209.

Several different analysis types were used to quantify the impact of the proposed development including shadow analysis of the site as a whole, a Vertical Sky Component (VSC) study assessing potential daylight received to the windows of the existing buildings and sunlight hours to the existing neighbouring gardens. In addition to this internal daylight levels of the proposed apartments were assessed across the site to quantify how pleasant the proposed spaces will be for future occupants. Likewise, an assessment of the external amenity areas of the proposed development was carried out to determine how much sunlight would be received in these spaces to quantify how pleasant they would be for occupants of the development to use.

The results highlight that the proposed development would have a negligible impact to the existing neighbouring buildings and it is performing well when assessed against the BRE recommendations. The results also highlight that the proposed apartments and amenity areas are performing well in line with the BRE recommendations and as such would be pleasant spaces for future occupants.

18 Risks of Major Accidents and Disasters

The chapter identifies and assesses the likelihood and potential significant adverse impacts on the environment arising from the vulnerability of the proposed development to risks of major accidents and / or natural disasters

Likely Significant Effects

The likely significant effects are set out below.

Do Nothing Scenario

The potential risk would be low due to vacant nature of the site.

Construction Phase

The proposal will involve the management of invasive species on site; the excavation of a basement level; traffic management; use of equipment and machinery on site; and scaffolding.

Hazardous materials used during construction will be appropriately stored so as not to give rise to a risk of pollution.

In the event of storms or snow, construction activity shall be halted and the site secured in accordance with any site risk assessments prepared for adverse weather conditions.

Construction activity will involve a number of potential risks as set out in the construction management plan enclosed herewith from DBLF Consulting Engineers. A review of the document confirms the potential for Noise and Vibration Sources from mechanical plant; Hazardous Spillages; and Contamination from Dust and Dirt.

Operational Phase

The proposal provides for a build to rent development consisting of 468 units, a residential tenant amenity space and a café/restaurant.

The main risk associated with operational stage is fire. The proposed uses are considered normal hazard fire risks. The uses do not include any hazards, which would be regarded as presenting an increased fire risk. The risk for fire will be that all fire safety measures shall comply with the requirements of Part B (Fire) Of the Second Schedule of the Building Regulations 1997-2017.

The cleaning of windows in the buildings will be undertaken by a specialist contractor and risks of accidents will be minimised as a result.

There is a potential risk associated with the provision of the roof garden for the crèche facility with a risk for falls. The treatment of this garden has been designed to ensure that all users of the space are safely secured. Appropriate boundary treatment is proposed in this regard.

There are no exceptional risks associated with technology.

The Flood Risk Assessment enclosed herewith sets out the following flood risk analysis for operational stage:

Source	Pathway	Receptor	Likelihood	Consequence	Risk	Mitigation Measure	Residual Risk
Fluvial	Overbank from Deansgrange Stream 650m north-east of the site	People and Property (the proposed development)	Remote	Medium	Low	The lowest proposed FFL is 15.94m above the predicted 0.1%AEP fluvial event associated with Deansgrange Stream	Low
Surface Water (Pluvial)	Blockage and / or surcharging of the surface water drainage network	People and Property (the proposed development)	Possible	Medium	Medium	Proposed drainage system to be maintained on a regular basis to reduce the risk of blockage	Low
Human Mechanical Error (Pluvial)	Failure of SuDS measures (e.g. Hydrobrake failure)	People and Property (the proposed development)	Possible	Medium	Medium	Proposed drainage system to be maintained on a regular basis to reduce the risk of blockage	Low
Ground Water	Rising groundwater levels within the site	People and Property (the proposed development)	Remote	Low	Low	In general, the designed basement level, ground floor levels and external pavement levels have been designed to follow the natural topography of the site. Observed ground water levels during site investigations are all lower than designed site levels.	Low

Table 18.1 - Flood Risk Analysis

As the flood risk from all sources can be mitigated, reducing the flood risk to low or very low, the proposed development is considered acceptable in terms of flood risk.

Predicted Impacts - Risk of Major Accidents and/or Disasters

The following risk register has been prepared to identify the main risks identified within the construction and operational phases of the development.

Risk No.	Risk Event	Possible Cause
Construction Stage		
1.	Accidents during construction	Traffic Working at Height Fire Ground Water Pollution
2.	Adverse Weather	Snow/Storms/Poor Weather System
Operational Stage		
3.	Fire Following Occupation	Inappropriate Use of Electrical Appliances
4.	Falls	Falling from Roof Gardens Window Cleaning
5.	Flooding	Tidal Fluvial Pluvial Ground Water Human/Mechanical Error

Table 18.2- Main Risks

19 Interactions

Consideration of impact interactions has been addressed during the preparation of the environmental assessment in each of the individual impact chapters. A summary table of the various interactions is set out below.

Interaction	Population & Human Health		Biodiversity		Lands and Soils		Water		Noise & Vibration		Air & Climate		Wind & Microclimate		Landscape & Visual Impact Assessment		Material Assets - Traffic and Transport		Material Assets - Utilities		Material Assets - Waste Management		Archaeology, Architecture & Cultural Heritage	
	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation
Population & Human Health	✓	✓	✗	✗	✓	✗	✓	✗	✓	✗	✓	✓	✗	✗	✗	✗	✗	✗	✓	✗	✓	✓	✗	✗
Biodiversity			✓	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗
Lands & Soils					✓	✓	✓	✗	✓	✗	✓	✗	✗	✗	✗	✗	✓	✗	✓	✗	✓	✗	✗	✗
Water							✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Noise & Vibration									✓	✓	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗	✗	✗
Air & Climate											✓	✓	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗
Wind & Microclimate													✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Landscape & Visual Impact Assessment															✓	✓	✗	✗	✗	✗	✗	✗	✗	✗
Material Assets - Traffic and Transport																	✓	✓	✗	✗	✗	✗	✗	✗
Material Assets - Utilities																			✓	✓	✗	✗	✗	✗
Material Assets - Waste Management																					✓	✓	✗	✗
Archaeology, Architecture & Cultural Heritage																							✓	✓

✓ - Interaction
 ✗ - No Interaction

Population and Human Health

Construction Stage

A bespoke and detailed Construction Management Plan (CMP) has been prepared by DBFL Engineering Consultants. The main purpose of a CMP is to provide a mechanism for implementation of the various mitigation measures which are described in chapter 20 of the EIAR. The purpose of this report is to summarise the possible impacts and measures to be implemented and to guide the Contractor who will be required to develop and implement the CMP on site.

All personnel will be required to understand and implement the requirements of the CMP and shall be required to comply with all legal requirements and best practice guidance for construction sites.

Project supervisors for the construction phase will be appointed in accordance with the Health, Safety and Welfare at Work (Construction Regulations) 2013, and a Preliminary Health and Safety Plan will be formulated during the detailed design stage which will address health and safety issues from the design stages, through to the completion of the construction phases.

Adherence to the construction phase mitigation measures presented in this EIAR will ensure that the construction of the proposed development will have an imperceptible and neutral impact in terms of health and safety

Operational Stage

The proposed development has been designed to avoid negative impacts on population and human health through:

1. The inclusion of a childcare facility within the proposed development;
2. Landscaping to mitigate against issues arising from microclimate conditions;
3. The inclusion of a comprehensive foul and surface water management system;
4. Energy efficient measures; and,
5. High quality finishes and materials.

Monitoring

Measures to avoid negative impacts on Population and Human Health are largely integrated in to the design and layout of the proposed development. Compliance with the design and layout will be a condition of any permitted development.

1. Monitoring will be undertaken by the Building Regulations certification process and by the requirements of specific conditions of a planning permission.
2. Monitoring of compliance with Health & Safety requirements will be undertaken by the Project Supervisor for the Construction Process.

Biodiversity

Construction Stage

1. Disturbance of birds' nests and bats (if present)

Deliberate disturbance of a bird's nest is prohibited unless under licence from the National Parks and Wildlife Service (NPWS). If possible, site clearance works should proceed outside the nesting season, i.e. from September to February inclusive. If this is not possible, vegetation must first be inspected by a suitably qualified ecologist. If a nest is encountered then works must stop, until such time as nesting has ceased. Otherwise, a derogation licence must be sought from the NPWS to allow the destruction of the nest.

2. Japanese Knotweed/Three-cornered Garlic/Spanish Bluebell

The stand of Japanese Knotweed has already been cordoned off, labelled and all site workers have been informed of its presence. It has received a first treatment with herbicide by Invasive Plant Solutions (www.knotweed.ie). A management plan has been prepared in order to eradicate the plant and to ensure that site works do not result in its spread. This plan includes measures to control Three-cornered Garlic and Spanish Bluebell. Preliminary herbicide treatment took place during the growing season in 2019. The following measures are taken from the invasive species management plan:

Isolate infested areas and implement bio-security measures

- *Carry out a test trenching programme to establish the extent of infested soils.*
- *Excavate knotweed-contaminated soils from the footprint of proposed works, as part of a bio-secure management programme, to ensure the safe, off-site, disposal of all Japanese Knotweed infested soil and I.A.P.S. plant material to a licenced land fill facility or to an overseas processing facility.*
- *Use a proprietary vertical root-barrier membrane system along vulnerable site boundaries, to protect the property from the potential re-introduction of viable Japanese Knotweed and other I.A.P.S. plant growth from adjoining properties.*
- *Develop a construction stage monitoring programme for inadvertent plant regrowth or spread, and future control using herbicide treatment or further physical remediation.*

Full details are contained within the Construction Stage Invasive Species Management Plan prepared by Invasive Plant Solutions and which is included as part of the EIAR under separate cover.

Operational Stage

3. Japanese Knotweed

Japanese Knotweed can regenerate from small fragments and continued vigilance will be required for signs of regrowth. The following measure is taken from the invasive species management plan:

Implement a monitoring programme as an integral and mandatory part of the post development property management plan, to run for a period of at least 5 years following the completion of the development.

Monitoring

Monitoring is required where the success of mitigation measures is uncertain or where residual impacts may in themselves be significant.

Construction Stage

Monitoring will be required during the construction phase to ensure that measures in the invasive species plan are fully implemented.

Operational Stage

Monitoring for Japanese Knotweed will be required to ensure it does not re-emerge. A schedule of monitoring has been included in the Japanese Knotweed management plan.

Land and Soils

Construction Stage

1. Stripping of Topsoil

Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development. At any given time, the extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work areas.

Topsoil stockpiles will be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains.

Topsoil stockpiles will also be located so as not to necessitate double handling.

Surface water runoff from areas stripped of topsoil will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.

On-site settlement ponds are to include geotextile liners and riprapped inlets and outlets to prevent scour and erosion.

2. Excavation of Subsoil Layers

Excavation of existing subsoil layers has been minimised as the proposed basement level, ground floor levels and external pavement levels have been designed to follow the natural topography of the site.

Disturbed subsoil layers will be stabilized as soon as practicable (e.g. backfill of service trenches, construction of road capping layers, construction of building foundations and completion of landscaping). The duration that subsoil layers are exposed is to be minimised in order to mitigate against weather effects.

Similar to comments regarding stripped topsoil, stockpiles of excavated subsoil material will be protected for the duration of the works. Stockpiles of subsoil material will be located separately from topsoil stockpiles.

Measures will be implemented to capture and treat sediment laden surface water runoff (e.g. sediment retention ponds, surface water inlet protection and earth bunding adjacent to open drainage ditches).

As noted in above, an area of the site adjacent to the neighbouring filling station (adjacent to the western boundary) has been impacted by hydrocarbons. It is proposed to remove subsoil impacted by hydrocarbons which are affected by the proposed development (refer to Table 7.3).

The Contractor is to provide a Method Statement (to be agreed prior to commencing any works on site) for works in the vicinity of areas impacted by hydrocarbons including but not limited to details of their proposed specialist sub-contractors, proposals for containment of contamination, proposal for removal of hydrocarbons from dewatered groundwater prior to discharge, co-ordination of contamination removal with other site works, proposed licenced waste receiving facility and compliance with relevant legislation including HSA publications and the Waste Management Act.

3. Imported Fill

As noted above, importation of fill to site will be required.

No large or long-term stockpiles of fill material will be held on the site. At any time, the extent of fill material held on site will be limited to that needed in the immediate vicinity of the active work area.

Smaller stockpiles of fill, where required, will be suitably protected to ensure no sediment laden runoff enters existing surface water drains. Such stockpiles are to be located in order to avoid double handling.

4. Construction Traffic

Earthworks plant and vehicles delivering construction materials to site will be confined to predetermined haul routes around the site.

Vehicle wheel wash facilities will be installed in the vicinity of any site entrances and road sweeping implemented as necessary in order to maintain the road network in the immediate vicinity of the site.

Dust suppression measures (e.g. dampening down) will be implemented as necessary during dry periods.

5. Accidental Spills and Leaks

In order to mitigate against spillages contaminating underlying soils, all oils, fuels, paints and other chemicals will be stored in a secure bunded hardstand area.

When not possible to carry out such activities off site, refuelling and servicing of construction machinery will take place in a designated hardstand area which is remote from any surface water inlets.

6. Geological Environment

As noted in above, the Contractor is to provide a Method Statement (to be agreed prior to commencing any works on site) for works in the vicinity of areas impacted by hydrocarbons including proposals for containment of contamination and removal of hydrocarbons from dewatered groundwater prior to discharge.

7. Risks to Human Health

- Contractor to prepare Method Statement, method statement to be agreed with PSDP.
- Contractor/PSCS to implement safe systems of construction including but not limited to
- battering the sides of trench excavations and installation of excavation shoring systems.
- Full precautions to be taken when working in vicinity of boundary structures for protection
- of same. Method and sequence of construction to be agreed with design team prior to commencement of work. Contractor's Temporary Works Designer to prepare Method Statement and Temporary Works Cert to ensure stability of excavations and adjacent structures.
- As noted in above, The Contractor is to provide a Method Statement (to be agreed prior to commencing any works on site) for works in the vicinity of areas impacted by hydrocarbons including but not limited to details of their proposed specialist sub-contractors, proposals for containment of contamination, proposal for removal of hydrocarbons from dewatered groundwater prior to discharge, co-ordination of contamination removal with other site works, proposed licenced waste receiving facility and compliance with relevant legislation including HSA publications and the Waste Management Act.
- Contractor to obtain utility company network plans and arrange observation as required.
- Contractor to locate and record all services on site prior to commencement of excavations.
- Contractor to prepare and implement a Construction Traffic Management Plan that will be
- agreed with the Design Team and local authority and which will ensure the safety of the
- public during construction.
- Contractor must supervise vehicle movements to and from the site during construction in
- order to ensure that this traffic management plan is fully implemented. Plan to include deliveries to the site, staff parking, works outside the defined site such as utility connections.
- Public pedestrian routes to be established at site entrance as required.
- All personnel using machinery/plant to have undergone training on the use of said
- machinery/plant. Ongoing site supervision to be undertaken to ensure all use of
- machinery/plant is in accordance with the training undertaken.
- Contractor's employees to be provided with all required PPE in accordance with Safety,
- Health and Welfare at Work Act, 2005.

Operational Stage

On completion of the construction phase no further mitigation measures are proposed as there will be no further impact on soils and the geological environment.

Monitoring

Construction Stage

Proposed monitoring during the construction phase in relation to the soil and geological environment are as follows:

Adherence to Outline Construction Management Plan Construction monitoring of the works (e.g. inspection of existing ground conditions on completion of cut to road formation level in advance of placing capping material, stability of excavations etc.). Inspection of fuel / oil storage areas.

Monitoring cleanliness of adjacent road network, implementation of dust suppression and provision vehicle wheel wash facilities. Monitoring of contractor's stockpile management (e.g. protection of excavated material to be reused as fill, protection of soils for removal from site from contamination) Monitoring sediment control measures (sediment retention ponds, surface water inlet protection etc.

A dust management/monitoring programme should be implemented during the construction phase of the development. The quantities of material removed from site and their destination to be recorded (inert, contaminated non-hazardous and hazardous). Source of imported aggregates to be approved by the engineer prior to delivery to site

Operational Stage

No ongoing monitoring is proposed on completion of the construction phase.

Water

Construction Stage

The following measures are proposed during the construction phase to mitigate against risks to the surrounding hydrological environment.

1. A site-specific Construction and Environment Management Plan will be developed and implemented during the construction phase. Site inductions will include reference to the procedures and best practice as outlined in the Construction and Environment Management Plan.
2. Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.
3. Weather conditions and typical seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations with an objective of minimizing soil erosion.
4. In order to mitigate against spillages contaminating the surrounding surface water and hydrogeological environments, all oils, fuels, paints and other chemicals should be stored in a secure bunded hardstand area. Refuelling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any surface water inlets (where not possible to carry out such activities off site).
5. Concrete batching will take place off site and wash down and wash out of concrete trucks will take place off site (at authorized concrete batching plant in full compliance with relevant planning and environmental consents).
6. Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds.
7. The construction compound will include adequate staff welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the construction compound

will be tankered off site to a licensed facility until a connection to the public foul drainage network has been established.

8. The construction compound's potable water supply shall be protected from contamination by any construction activities or materials.
9. The following measures are proposed during the construction phase to mitigate against risks to human health.
10. Contractor to prepare Method Statement, method statement to be agreed with PSDP.
11. Contractor/PSCS to implement safe systems of construction including but not limited to battering the sides of trench excavations and installation of excavation shoring systems.
12. Full precautions to be taken when working in vicinity of boundary structures for protection of same. Method and sequence of construction to be agreed with design team prior to commencement of work. Contractor's Temporary Works Designer to prepare Method Statement and Temporary Works Cert to ensure stability of excavations and adjacent structures.
13. As noted in Chapter 7 Land and Soils, the Contractor is to provide a Method Statement (to be agreed prior to commencing any works on site) for works in the vicinity of areas impacted by hydrocarbons including but not limited to details of their proposed specialist sub-contractors, proposals for containment of contamination, proposal for removal of hydrocarbons from dewatered groundwater prior to discharge, co-ordination of contamination removal with other site works, proposed licenced waste receiving facility and compliance with relevant legislation including HSA publications and the Waste Management Act.
14. Contractor to obtain utility company network plans and arrange observation as required.
15. Contractor to locate and record all services on site prior to commencement of excavations.
16. Contractor to prepare and implement a Construction Traffic Management Plan that will be agreed with the Design Team and local authority and which will ensure the safety of the public during construction.
17. Contractor must supervise vehicle movements to and from the site during construction in order to ensure that this traffic management plan is fully implemented. Plan to include deliveries to the site, staff parking, works outside the defined site such as utility connections.
18. Public pedestrian routes to be established at site entrance as required.
19. All personnel using machinery/plant to have undergone training on the use of said machinery/plant. Ongoing site supervision to be undertaken to ensure all use of machinery/plant is in accordance with the training undertaken.
20. Contractor's employees to be provided with all required PPE in accordance with Safety, Health and Welfare at Work Act, 2005.

Operational Stage

Following the Site Specific Flood Risk Assessment, it has been determined that the proposed development is located in Flood Zone C as defined by the Guidelines i.e. proposed development is considered to have the required level of flood protection up to and including the 1% AEP flood event.

Surface water runoff from the site will be attenuated to the greenfield runoff rate as outlined in the Greater Dublin Strategic Drainage Study (GDSDS). Surface water discharge rates will be controlled by a Hydrobrake type vortex control device in conjunction with below ground attenuation storage.

The following methodologies are being implemented as part of a SuDS surface water treatment train approach:

1. Surface water runoff from the site's street network are directed to tree pits via conventional road gullies (with high level overflow to the piped surface water network) while surface water runoff from on street parking areas will be captured by permeable paving.
2. Surface water runoff from the roofs of houses along the eastern boundary will be routed to the proposed surface water pipe network via bio-swale filter drains (infiltration trenches) located in their rear gardens (providing an additional element of attenuation and treatment).
3. Surface water runoff from apartment roofs will be captured by green roofs (sedum blanket) prior to being routed to the piped surface water drainage network. While a drainage reservoir (drainage board) is to be provided on the podium slab over basement.
4. Attenuation of the 30 and 100 year return period storms
5. Installation of a Hydrobrake (limiting surface water discharge from the site to 4.2 l/sec/ha)
6. Surface water discharge will also pass via a fuel / oil separator (sized in accordance with permitted discharge from the site)

A contract will be entered into with a suitably qualified contractor from maintenance of the attenuation system, Hydrobrake and full retention fuel / oil separator noted above.

No specific mitigation measures are proposed in relation to foul drainage however, all new foul drainage lines will be pressure tested and be subject to a CCTV survey in order to identify any possible defects prior to being made operational.

No specific mitigation measures are proposed in relation to water supply, however, water conservation measures such as dual flush water cisterns and low flow taps will be included in the design.

The potential impact of climate change has been allowed for as follows;

- Pluvial flood risk - attenuation storage design allows for a 10% increase in rainfall intensities.
- Pluvial flood risk - drainage system design allows for a 10% increase in flows, as recommended by the GSDSDS.
- Provision of min. freeboard (500mm) from 1% AEP as required by GSDSDS (mitigation against impact of climate change).

Monitoring

Construction Stage

1. Proposed monitoring during the construction phase in relation to the water and hydrogeological environment are as follows:
2. Adherence to Outline Construction Management Plan
3. Inspection of fuel / oil storage areas.
4. Monitoring cleanliness of adjacent road network, implementation of dust suppression and vehicle wheel wash facilities.
5. Monitoring sediment control measures (sediment retention ponds, surface water inlet protection etc.)
6. Monitoring of discharge from sediment retention ponds (e.g. pH, sediment content)

Operational Stage

During the operational phase an inspection and maintenance contract is to be implemented in relation to the proposed Class 1 full retention fuel / oil separators.

Noise & Vibration

Construction Phase

With regard to construction activities, best practice control measures for noise and vibration from construction sites are found within BS 5228 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2. Predictions indicate that significant construction noise impacts are expected to occur when work is ongoing at boundary locations adjacent to noise sensitive locations, hence the contractor will ensure that all best practice noise and vibration control methods will be used. In this regard, various mitigation measures can be considered and applied during the construction of the proposed development, such as:

1. limiting the hours during which site activities likely to create high levels of noise or vibration are permitted;
2. establishing channels of communication between the contractor/developer, Local Authority and residents;
3. appointing a site representative responsible for matters relating to noise and vibration;
4. monitoring typical levels of noise and vibration during critical periods and at sensitive locations;
5. all site access roads will be kept even so as to mitigate the potential for vibration from lorries.

Furthermore, it is envisaged that a variety of practicable noise and vibration control measures will be employed. These may include:

1. selection of plant with low inherent potential for generation of noise and/ or vibration;
2. erection of barriers as necessary around noisy processes and items such as generators heavy mechanical plant or high duty compressors;
3. placing of noisy / vibratory plant as far away from sensitive properties as permitted by site constraints and the use of vibration isolated support structures where necessary.

Operational Phase

1. Inward Noise Impact

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 the facades highlighted in Figure 9.7 will be provided with glazing and ventilation that achieves the minimum sound insulation performance as set out in Table 9.12 and Table 9.13. Other facades in the development have no minimum requirement for sound insulation.

Façade	Octave Band Centre Frequency (Hz)						R _w
	125	250	500	1k	2k	4k	
RED	30	30	39	44	48	51	42
ORANGE	30	29	32	41	46	49	39
GREEN	27	26	33	39	39	47	37

Table 9.12: Sound Insulation Performance Requirements for Glazing, SRI (dB)

Façade	Octave Band Centre Frequency (Hz)						D _{ne,w}
	125	250	500	1k	2k	4k	
RED	31	33	42	43	39	44	42
ORANGE	35	34	33	38	49	49	39
GREEN	33	34	33	42	29	32	34

Table 9.13: Sound Insulation Performance Requirements for Ventilation, SRI (dB)

The overall R_w and D_{ne}, outlined above are provided for information purposes only. The over-riding requirement is the Octave Band sound insulation performance values which may also be achieved using alternative glazing and ventilation configurations. Any selected system will be required to provide the same level of sound insulation performance set out in Tables 9.12 and 9.13 or greater.

It is important to note that the acoustic performance specifications detailed herein are minimum requirements which apply to the overall glazing and ventilation systems. In the context of the acoustic performance specification the ‘glazing system’ is understood to include any and all of the component parts that form part of the glazing element of the façade, i.e. glass, frames, seals, openable elements etc.

The assessment has demonstrated that the recommended internal noise criteria can be achieved through consideration of the proposed façade elements at the design stage. The calculated glazing and ventilation specifications are preliminary and are intended to form the basis for noise mitigation at the detailed design stage. Consequently, these may be subject to change as the project progresses

Monitoring

Construction Phase

The contractor will be required to ensure construction activities operate within the noise limits set out within this assessment. The contractor will be required to undertake regular noise monitoring at locations representative of the closest sensitive locations to ensure the relevant criteria are not exceeded.

Noise monitoring should be conducted in accordance with the International Standard ISO 1996: 2017: Acoustics – Description, measurement and assessment of environmental noise.

Operational Phase

Noise or vibration monitoring is not required once the development is operational.

Air Quality and Climate

Construction Phase

Air Quality

The pro-active control of fugitive dust will ensure the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released. The main contractor will be responsible for the coordination, implementation and ongoing monitoring of the dust management plan. The key aspects of controlling dust are listed below. Full details of the dust management plan can be found in Appendix 10.3.

1. The specification and circulation of a dust management plan for the site and the identification of persons responsible for managing dust control and any potential issues;
2. The development of a documented system for managing site practices with regard to dust control;
3. The development of a means by which the performance of the dust management plan can be monitored and assessed;
4. The specification of effective measures to deal with any complaints received.

At all times, the procedures within the plan will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust would be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

Climate

Construction traffic and embodied energy of construction materials are expected to be the dominant source of greenhouse gas emissions as a result of the construction phase of the proposed development. Construction vehicles, generators etc., may give rise to some CO₂ and N₂O emissions. However, based on the short-term nature and relatively small scale of the works, the impact on climate will be imperceptible.

Nevertheless, some site-specific mitigation measures can be implemented during the construction phase of the proposed development to ensure emissions are minimised. In particular;

1. the prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
2. Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site.

Operational Phase

No additional mitigation measures are required during the operational phase of the proposed development as it is predicted to have an imperceptible impact on ambient air quality and climate.

Monitoring

Construction Phase

Monitoring of construction dust deposition at nearby sensitive receptors during the construction phase of the proposed development is recommended to ensure the mitigation measures are providing adequate dust minimisation. This can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The applicable limit value is the TA Luft limit value of 350 mg/(m²*day) for a monitoring period of between 28 - 32 days.

Operational Phase

There is no monitoring recommended for the operational phase of the development as impacts to air quality and climate are predicted to be imperceptible.

Wind and Microclimate

Construction Phase

During the construction phase, it will be recommended to have the site surrounded by large panels up to 3m high. This will prevent any dust being blown from the site on to the neighbouring locations. This could be of concern especially on the N11 if not contained.

Operational Phase

Additional mitigation features are unlikely to be required in the operational phase of the development.

Monitoring

Construction Phase

Monitoring measures are not recommended as long as the wind panels are implemented around the periphery of the development boundary.

Operational Phase

Monitoring measures are not recommended for the operational phase of the development.

Landscape and Visual Impact Assessment

Construction Phase

The building site including a site compound with site offices, site security fencing, scaffolding and temporary works will be visible during the construction phase. The provision of site hoarding along the property boundaries will substantially address many potential effects of construction operations during the delivery stage. Construction cranes and of course, the emerging buildings will become visible from neighbouring properties and also from a number of more distant vantage points as the development proceeds. The cranes and site facilities are generally viewed as a temporary and unavoidable feature of construction, particularly in urban settings. Mitigation measures proposed during the construction stage of the development, revolve primarily around the implementation of appropriate site management procedures during the construction works – such as the control of lighting, storage of materials, placement of compounds, control of vehicular access, and effective dust and dirt control measures, etc. The Preliminary Construction Management Plan for the project (prepared by DBFL) included with this submission, sets out the basic measures to be employed in order to mitigate potential negative effects during construction. This is a working document which is refined and added to as the project proceeds.

Operational Phase

The designed scheme seeks to harmonise and integrate the development within the existing landscape and the broader urban environment whilst adhering to national planning policy which seeks the densification and the provision of increased height on appropriate urban sites. The design rationale and detail employed, seeks to mitigate potential negative effects on the landscape character and visual amenity of the area by:

- Establishing an integrated relationship between the proposed development and surrounding buildings and the broader urban landscape beyond, incorporating aspects of current and emerging trends in built-form, scale, texturing, colour and materials;
- The insertion, positioning and detailed modelling of the buildings, in order to assist in the appropriate visual assimilation of their mass (eg. the taller built elements are located along the Stillorgan Road which is itself of larger scale and the proposed buildings closer to existing residential properties are lower in height);
- Appropriate architectural detailing to assist in the integration of the external building facades – including the modulation of openings, balconies and fenestration;

- Rationalisation of all services elements and any other potential visual clutter and its incorporation internally within building envelopes (as far as practically possible);
- Simplification and rationalisation of the proposed roof lines;
- Use of appropriate materials;
- The provision of significant additional communal and public space with pedestrian and cycle linkage with the Stillorgan Road and Cornelscourt village;
- The inclusion of a considered relationship between the buildings and the adjacent newly created communal space which includes semi-private buffering where appropriate between external and internal living areas at 'ground' level;
- The provision of communal/public uses within the development, in order to facilitate public access and permeability and to assist in activating public spaces.

Monitoring

The success of the proposed development is dependent on the proposals being properly executed as approved. Detailed agreement on finishes and materials to be employed needs to be ensured through the provision of, and on-going adherence to, reference samples provided on site for the duration of the construction works and defects period. The proposed soft landscape works will need to be maintained and managed especially over the initial period after planting, in order to ensure their successful establishment and the intended integration of the development into its existing context.

Material Assets - Traffic and Transport

Construction Stage

The Construction Management Plan will be prepared as part of the planning application with an associated Construction Traffic Management Plan (CTMP) which will incorporate a range of integrated control measures and associated management activities with the objective of minimising the construction activities associated with the development. The following initiatives will be implemented to avoid, minimise and/or mitigate against the anticipated construction period impacts:

1. During the pre-construction phase, the site will be securely fenced off from adjacent properties, public footpaths and roads;
2. Appropriate on-site parking and compound area will be provided to prevent overflow onto the local network;
3. It is likely that some numbers of the construction team will be brought to/from the site in vans/minibuses, which will serve to reduce the trip generation potential;
4. Delivery vehicles to and from the site will be spread across the course of the working day, therefore, the number of HGVs travelling during the peak hours will be relatively low;
5. Truck wheel washes will be installed at construction entrances and any specific recommendations with regard to construction traffic management made by Dún Laoghaire – Rathdown County Council will be adhered to;
6. Potential localised traffic disruptions during the construction phase will be mitigated through the implementation of industry standard traffic management measures. These traffic management measures shall be designed and implemented in accordance with the Department of Transport's Traffic Signs Manual "*Chapter 8 Temporary Traffic Measures and Signs for Roadworks*" and "*Guidance for the Control and Management of Traffic at Roads Works – 2nd Edition*" (2010); and
7. Site entrance point/s from the public highway will be constructed with a bound, durable surface capable of withstanding heavy loads and with a sealed joint between the access and

public highway. This durable bound surface will be constructed for a distance of 10m from the public highway.

8. Material storage zone will be established in the compound area and will include material recycling areas and facilities;
9. 'Way finding' signage will be provided to route staff / deliveries into the site and to designated compound / construction areas;
10. Dedicated construction haul routes will be identified and agreed with Dún Laoghaire – Rathdown County Council prior to commencement of activities on-site; and
11. On completion of the works, all construction materials, debris, temporary hardstands etc. from the site compound will be removed off-site and the site compound area reinstated in full on completion of the works.

Operational Stage

1. A package of integrated mitigation measures has been identified to off-set the additional local demand that the proposed residential development at the subject site could potentially generate as a result of the forecast increase in vehicle movements by residents of the scheme. The identified measures and associated timescale for their implementation are summarised below.
2. *Management* – A Mobility Management (MMP) will be compiled with the aim of guiding the delivery and management of coordinated initiatives by the scheme promotor to be implemented upon occupation of the site. The MMP will ultimately seek to encourage sustainable travel practices for all journeys to and from the proposed development. The active management of this BTR development will ensure an increased provision of sustainable transport alternatives for the development's residents. This is aided by the low car parking provision and the generous cycle parking provision at the proposed development.
3. *Car Parking Management Strategy* - A management regime will be implemented by the development's management company to control access to the 274 no. on-site car parking spaces thereby actively managing the availability of on-site car parking for residents. This provision equates to a car parking ratio of approximately 0.6 car parking spaces per residential unit. The signing of a rental agreement for one of the proposed residential apartments will NOT include access to a designated on-site parking space. All potential residents (prior to signing rental agreement) will be notified that the proposed scheme is a 'low car allocation' development with no access (or guarantee thereof) to either (i) the limited on-site residents car parking provision or (ii) apply to Dún Laoghaire County Council for a residents parking permit (to park on-street in one of the neighbouring streets). Nevertheless, all residents of the proposed residential scheme will have the opportunity to apply to the on-site management company for both a (i) residents car parking permit (updated weekly, fortnightly, monthly, quarterly or annually) and subsequently access to a dedicated (assigned) on-site basement car parking space or (ii) a visitor's car parking permit for a short period of time. A charge will be applied to obtain a permit with the objective of covering the associated management costs and discouraging long term usage of the car parking space.
4. *Infrastructure* – Infrastructure measures identified to reduce reliance of private vehicles include the provision of ample secure cycle parking on site and ensuring a design which promotes permeability for pedestrians and cyclists to, through and from the development. The level of parking provision for the development will also act as a powerful mobility management measure, ensuring against an overprovision of parking and a resultant over reliance on the private vehicle.
5. *Car Sharing* – The provision of 11 no. dedicated car share (GoCar) spaces in the basement parking facility for the sole use of the scheme's residents. The availability of these on-site provide a viable alternative to residents owning private vehicles whilst still having access to a car when required.

6. 'Worst-Case' Scenario

As stated previously, the analysis carried out represents a worst-case appraisal of a typical weekday as it is focused upon the two busiest periods of the day (i.e. AM and PM peak hours). During the remaining 22 hours of the day, traffic flows are predicted to be significantly lower resulting in the network operating with additional reserve capacity to that forecast for the peak hour periods. Similarly, over the weekend periods both the site generated traffic and the external road network traffic flows are generally lower compared to the weekday peak hour periods that have been assessed.

Monitoring

Construction Stage

During the construction stage, the following monitoring exercises are proposed:

1. Compliance with construction vehicle routing practices;
2. Compliance with construction vehicle parking practices;
3. Internal and external road conditions; and
4. Timing of construction activities.

Operational Stage

As part of the MMP process, bi-annual post occupancy surveys are to be carried out in order to determine the success of the measures and initiatives as set out in the proposed MMP document. The information obtained from the monitoring surveys will be used to identify ways in which the MMP measures and initiatives should be taken forward in order to maintain and further encourage sustainable travel characteristics.

Material Assets – Utilities

Construction Phase

1. Contractor to prepare Method Statement, method statement to be agreed with PSDP.
2. Contractor to locate and record all services on site prior to commencement of excavations.
3. A GPR utility survey (and slit trench investigation as required) will be carried out along the Old Bray Road in advance of commencing road works to confirm the location of the power, gas and telecommunication infrastructure.
4. Connections to the existing power, gas and telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors.
5. Contractor to comply with HSA Code of Practice for Avoiding Danger from Underground Services.
6. Contractor to obtain utility company network plans and arrange observation as required.
7. Contractor/PSCS to implement safe systems of construction including but not limited to battering the sides of trench excavations and installation of trench shoring systems.
8. Contractor to prepare and implement a Construction Traffic Management Plan that will be agreed with the Design Team and local authority and which will ensure the safety of the public during construction.
9. Contractor must supervise vehicle movements to and from the site during construction in order to ensure that this traffic management plan is fully implemented. Plan to include deliveries to the site, staff parking, works outside the defined site such as utility connections.
10. Public pedestrian routes to be established at site entrance as required.

11. Contractor to prepare Method Statement for works in confined spaces, method statement to be agreed with PSDP. Contractor to comply with HAS Code of Practice for Working in Confined Spaces.
12. All personnel using machinery/plant to have undergone training on the use of said machinery/plant. Ongoing site supervision to be undertaken to ensure all use of machinery/plant is in accordance with the training undertaken.

Operational Phase

On completion of the construction phase no further mitigation measures are proposed in relation to the electrical, gas and telecommunications infrastructure.

Monitoring

Construction Phase

No specific monitoring is proposed in relation to electrical, gas and telecommunications infrastructure.

Operational Phase

No specific monitoring is proposed in relation to electrical, gas and telecommunications infrastructure.

Material Assets - Waste Management

The Construction and Operational Waste Management Plans have been designed to ensure that the construction and operational phases of the proposed development will be managed to reduce the generation of unsegregated wastes, to maximise the potential for recycling, recovery and re-use and to demonstrate how the development will operate in a sustainable manner in terms of waste management and contribute to the achievement of the Regions compliance with the waste reduction targets specified in *The Eastern-Midlands Region Waste Management Plan 2015-2021* (and any subsequent future revisions).

The general principles and key aspects of the Construction and Operational Waste Management Plans are detailed as follows:

1. Construction Waste and By-Product Management Plan

The Construction Waste and By-Product Management Plan prepared by Byrne Environmental (included with the SHD application) specifically addresses the following points:

Waste materials generated by construction activities will be managed according to the Department of the Environment, Heritage and Local Government's 2006 Publication - *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects*.

- Analysis of waste arisings / material surpluses
- Specific Waste Management objectives for the Project including the potential to re-use existing on-site materials for further use in the construction phase.
- Methods proposed for Prevention, Reuse and Recycling
- Waste Handling Procedures
- Waste Storage Procedures
- Waste Disposal Procedures
- Record Keeping
- Waste Auditing

Waste minimisation and prevention shall be the primary responsibilities of the Construction Project Manager who shall ensure the following:

Materials will be ordered on an “as needed” basis to prevent over supply

Materials shall be correctly stored and handled to minimise the generation of damaged materials

Materials shall be ordered in appropriate sequence to minimise materials stored on site

Sub contractors will be responsible for similarly managing their wastes

2. Programme of Waste Management for Construction Works

The Construction Project Manager as part of regular site inspection audits shall determine the effectiveness of the waste management plan and will assist the project manager in determining the best methods for waste minimisation, reduction, re-use, recycling and disposal as the construction phase progresses and waste materials are generated.

3. Construction Waste Disposal Management

From the outset of construction activities, a dedicated and secure compound containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the active construction phase of the development site.

In order to ensure that the construction contractor correctly segregate waste materials, it is the responsibility of the site Construction Project Manager to ensure all staff are informed by means of clear signage and verbal instruction and made responsible for ensuring site housekeeping and the proper segregation of construction waste materials.

It will be the responsibility of the Construction Project Manager to ensure that a written record of all quantities and natures of wastes exported -off site are maintained on-site in a Waste File at the Project office.

It is the responsibility of the Construction Project Manager or his/her delegate that all contracted waste haulage drivers hold an appropriate Waste Collection Permit for the transport of waste loads and that all waste materials are delivered to an appropriately licenced or permitted waste facility in compliance with the following relevant Regulations:

Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)

Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008)

Waste Management (Facility Permit and Registration) Regulations S.I.821 of 2007 and the Waste Facility Permit under the Waste Management (Facility Permit and Registration) Amendment Regulations S.I.86 of 2008.

Prior to the commencement of the Construction Project Manager shall identify a permitted Waste Contractor who shall be employed to collect and dispose of all wastes arising from the project works. In addition, the Construction Project Manager shall identify and all waste licensed / permitted facilities that will accept all expected waste exported off-site and will maintain copies of all relevant Waste Permits / Licences as required.

All waste soils prior to being exported off-site, shall be classified as inert, non-hazardous or hazardous in accordance with the EPA’s *Waste Classification Guidance – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* document dated 1st June 2015 to ensure that the waste material is transferred by an appropriately permitted waste collection permit holder and brought to an appropriately permitted or licensed waste facility.

4. On-Site Waste Reuse and Recycling Management

Construction waste material such as soils, damaged or broken concrete slabs, blocks, bricks and tiles generated that is deemed by the Project Engineer to be suitable for reuse on the Project site for ground-fill material and landscaping. This initiative shall provide a positive environmental impact to the construction phase as follows:

Reduction in the requirement for virgin aggregate materials from quarries

Reduction in energy required to extract, process and transport virgin aggregates

Reduced HGV movements associated with the delivery of imported aggregates to the site

Reduced noise levels associated with reduced HGV movements

Reduction in the amount of landfill space required to accept C&D waste

Reduction in the volume of soils to be exported off-site

5. Waste Storage Compound

A waste storage compound shall be set up on-site from the commencement of site activities. The compound shall include the following:

Separate waste skips labelled with signage stating the nature of waste materials that can only be placed in the skips

Waste oils / containers shall be placed in dedicated mobile bunds units.

Soils contaminated by accidental on-site spillages of oils / construction hydrocarbons shall be stored in clearly identified hazardous waste storage containers.

Spill kits with instructions shall be located in the waste storage compound.

6. Soils

The subject development site is currently greenfield and undeveloped with no evidence of historic dumping. A soil sampling and analysis survey was conducted in March 2019 by Ground Investigations Ireland and identified an area to the southwest of the site that contains hydrocarbon contaminated soils. This area shall be excavated and soils shall be exported off-site as a hazardous waste to a suitably licenced waste acceptance facility. All other soils at the site were classified as non-hazardous.

Top and subsoils shall be re-used on-site for landscaping purposes to minimise the volume of soils to be exported off-site.

Excess soils shall be exported to an appropriately waste permitted/licenced facility.

The construction project manager shall inform Dun Laoghaire Rathdown County Council of the volume of excess soils generated and the permitted / licenced waste facility they shall be exported to.

Excess soils shall be removed off-site throughout the duration of the construction phase. Prior to being removed off-site the excess soils shall be characterised as being inert, non-hazardous or hazardous in accordance with *Landfill Directive (2003/33/EC)*. The classification of the soils shall be established by WAC testing which shall occur throughout the construction phase.

Excavated excess soils that are required to be exported off-site shall be tested to determine their classification as hazardous or non-hazardous in accordance with EPA *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous*. *Non-Hazardous soils may be suitable for re-use in other construction sites and may be declared as a by-product in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011*. Article 27 requires that the material classified not a waste but a by-product must meet specific criteria and that that a declaration of a material as a by-product is notified to the EPA.

7. Contaminated Soils

Where contaminated soils/materials are discovered or occur as a result of accidental spillages of oils or fuels during the construction phase, these areas of ground will be isolated and tested in accordance with the 2002 *Landfill Directive (2003/33/EC)* for contamination, and pending the results of laboratory WAC testing, will be excavated.

8. Record Keeping

It is the responsibility of the Construction Project Manager or his/her delegate that a written record of all quantities and natures of all wastes reused / recycled and exported off-site and Article 27 declarations during the project are maintained in a Waste File at the Project office.

The following information shall be recorded for each load of waste exported off-site:

- Waste Type EWC Code and description
- Volume of waste collected
- Waste collection contractor's Waste Collection Permit Number and collection receipt including vehicle registration number
- Destination of waste load including Waste Permit / Licence number of facility
- Description of how waste at facility shall be treated : disposal / recovery / export
- Article 27 declarations
- The waste records shall be issued to DLR County Council as required / requested.

9. Waste Management Auditing

In order to ensure that construction wastes generated during the course of the development are being effectively managed and recorded, a waste management audit shall be conducted on a routine basis by an independent waste management consultant to determine compliance with the Construction Waste and By-Product Management Plan.

10. Operational Phase Waste Management Plan

An Operational Phase Waste Management Plan (OWMP) has been prepared as a stand-alone report to accompany this planning application. The OWMP has been prepared to demonstrate how the required infrastructure shall be incorporated into the design and operational management of the development to ensure that domestic wastes will be managed and monitored with the objective of maximizing the quantity of waste segregated at source and maximizing the volume of clean recyclable materials generated by the residents of the development.

The Goal of the OWMP is to achieve a compliance with *The Eastern-Midlands Region Waste Management Plan*

2015-2021 which defines the following Waste Targets:

1% reduction per annum in the quantity of household waste generated per capita over the period of the plan.

Achieve a recycling rate of 50% of managed municipal waste by 2020.

Reduce to 0% the direct disposal of unprocessed residual municipal waste to landfill.

The Operational Waste Management Plan has been prepared with regard to the strategy, policy and objectives of the *Dun Laoghaire Rathdown County Development Plan 2016 – 2022*.

Key Aspects of the OWMP to achieve Waste Targets:

- All residential units shall be provided with information on the segregation of waste at source and how to reduce the generation of waste by the Facilities Management Company.
- All waste handling and storage activities shall occur in the dedicated communal apartment waste storage areas.
- The development's Facility Management Company shall appoint a dedicated Waste Services Manager to ensure that waste is correctly and efficiently managed throughout the development.

The Operational Phase of the Waste Management Plan is defined by the following stages of waste management for both the residential and commercial aspects of the development:

- Stage 1 Occupier Source Segregation
- Stage 2 Occupier Deposit and Storage
- Stage 3 Bulk Storage and On-Site Management
- Stage 4 On-site treatment and Off-Site Removal
- Stage 5 End Destination of wastes

The OWMP has been prepared with regard to *British Standard BS 5906:2005 Waste Management in Buildings-Code of Practice* which provides guidance on methods of storage, collection, segregation for recycling and recovery for residential building.

The apartments which will include a 3 - bin waste segregation at source system together with the communal waste storage areas have been designed with regard to *Section's 4.8 and 4.9 Refuse Storage of The Department of Housing, Planning and Local Government – Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities. 2018.*

The proposed residential development shall be designed and managed to provide residents with the required waste management infrastructure to minimise the generation of un-segregated domestic waste and maximise the potential for segregating and recycling domestic waste fractions.

The **Objective** of the OWMP is to maximise the quantity of waste recycled by residents by providing sufficient waste recycling infrastructure, waste reduction initiatives and waste collection and waste management information services to the residents of the development.

The **Goal** of this Waste Management Plan is to achieve a residential recycling rate of 50% of managed municipal waste by 2020 (and future targets in subsequent Regional Waste Management Plans).

All apartments and houses will have a 3-bin system (non-recyclable, organic and recyclable) in each kitchen to encourage residents to segregate waste at source.

Apartment residents will be provided with waste recycling and waste disposal information by the development's Facility Management Company who will be responsible for providing clean, safe and mobility impaired accessible communal waste storage areas for the apartment blocks.

House residents shall engage private waste collection contractors who provide a 3-bin waste collection service.

The Facility Management Company shall maintain a register of all waste volumes and types collected from the development each year including a break-down of recyclable waste and where necessary, shall introduce initiatives to further encourage residents to maximise waste segregation at source and recycling. They shall also provide an annual bulky waste and WEEE collection service for all residents.

The development shall be designed to provide adequate domestic waste storage areas for each apartment blocks. This will promote the appropriate segregation at source of domestic generated waste from all residential units at the development. Communal waste bin storage areas shall be designed in a manner to ensure that appropriate signage for the correct disposal and recycling of waste is available for residents.

Monitoring

Construction Phase

The Contractor shall maintain a record of all quantities and natures of all wastes reused / recycled and exported off-site and Article 27 declarations during the construction phase of the project.

Operational Phase

The Facility Management Company shall prepare an annual report for the Local Authority and residents of the development on the quantities of waste generated within the development to demonstrate how waste reduction and recycling targets are being achieved with regard to the targets defined in *The Eastern-Midlands Region Waste Management Plan 2015-2021*.

Archaeological, Architectural and Cultural Heritage

The site has been subject to desktop survey, geophysical survey and test trenching with no archaeological features or material identified. Furthermore, topsoil stripping of the site should be monitored by a suitably qualified archaeologist and if any archaeological features are identified then an appropriate area will be cordoned off from surrounding construction activity. The Department of Culture, Heritage and the Gaeltacht (DCHG) and National Museum of Ireland (NMI)

will be notified and an appropriate mitigation strategy will be agreed, i.e. preservation in situ or full archaeological excavation under licence.

Monitoring

Any potential archaeological excavation that may result from the implementation of mitigation measures can only be undertaken upon receipt of a licence issued by the Department of Culture, Heritage and the Gaeltacht in consultation with the National Museum of Ireland. Conditions of awarding of an excavation licence include the production of a Preliminary Report within four weeks and a Final Report within twelve months of the completion of the excavation. The production of these reports ensures compliance with the proposed mitigation measures. If the monitoring of the topsoil stripping is undertaken without a licence then it is standard practice to issue a report of such an exercise to the DCHG.

Daylight Sunlight

Construction Stage

This is not relevant to daylight/sunlight analysis as the analysis is carried out on the potential final design.

Operational Stage

Additional mitigation features are unlikely to be required in the operational phase of the development when considering daylight and sunlight.

Monitoring

Construction Phase

It is not recommended to monitor daylight/sunlight during construction. The analysis conducted within this report is done so based on the potential final design.

Operational Phase

It is not a requirement as long as there is no change to the proposed design or the glazing specification.

Risks of Major Accidents & Disasters

Construction Stage

The following mitigation measures are proposed within the Construction Management Plan, which reduce the risks of major accidents and disasters and risks to human health.

Measures to Minimise Nuisance Dust Emissions

The following dust suppression practices are to be implemented during the construction phase:

- The Contractor shall prepare a dust minimisation plan which shall be communicated to all site staff
- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic
- Any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions

- Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly (on any un-surfaced site road, this will be 20 kph and on hard surfaced roads as site management dictates)
- Vehicles delivering material with dust potential (soil, aggregates etc.) will be enclosed or covered with tarpaulin at all times to restrict the escape of dust
- Public roads outside the site will be inspected on a daily basis for cleanliness and cleaned as necessary
- Debris, sediment, grit etc. captured by road sweeping vehicles is to be disposed off-site at a licensed facility
- Vehicles exiting the site shall make use of a wheel wash facility where appropriate prior to entering onto public roads
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods
- During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions

Monitoring of dust deposition levels (via the Bergerhoff method) shall take place at a number of locations at the site boundary of the proposed development to ensure that dust nuisance is not occurring at nearby sensitive receptors. This monitoring aims to ensure that the dust mitigation measures outlined above remain effective.

Site Control Measures

Stripping of Topsoil

- Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development
- At any given time, the extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work areas
- Topsoil stockpiles will be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains
- Topsoil stockpiles will also be located so as not to necessitate double handling

Excavation of Subsoil Layers

- The duration that subsoil layers are exposed to the effects of weather will be minimized
- Disturbed subsoil layers will be stabilized as soon as practicable (e.g. backfill of drainage trench excavations)
- Stockpiles of excavated subsoil material will be protected for the duration of the works, stockpiles of subsoil material will be located separately from topsoil stockpiles

Weather Conditions

- Typical seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations with an objective of minimizing soil erosion

Dust Control

- Dust suppression practices are to be implemented during stripping of topsoil layers and excavation of subsoil layers as outlined in Section 9 of this Preliminary Construction Management Plan

Area Impacted by Hydrocarbons Adjacent to Filling Station

An area of the site adjacent to the neighbouring filling station (adjacent to the western boundary) has been impacted by hydrocarbons. Investigation within the hydrocarbon impacted area confirms

that the reduction in degree of impact moving downgradient and away from the filling station suggests that the impact is related to the filling station.

Two locations have been identified where these materials should be excavated and removed from site in the event of residential development (see Figure 4.1). These materials should be classified as and disposed of as hazardous. All subsoil impacted by hydrocarbons which are affected by the proposed development is to be removed.

The natural subsoils outside the impacted area have been assessed and are suitable for removal to a suitably licenced inert facility.

Also refer to EIAR Chapter 7 Lands and Soils.

The Contractor is to provide a Method Statement (to be agreed prior to commencing any works on site) for works in the vicinity of areas impacted by hydrocarbons including but not limited to details of:

- Their proposed specialist sub-contractors
- Proposals for containment of contamination,
- Proposal for removal of hydrocarbons from dewatered groundwater prior to discharge
- Co-ordination of contamination removal with other site works
- Proposed licenced waste receiving facility
- Compliance with relevant legislation including HSA publications and the Waste Management Act.

Operational Stage

None required.

Flood Risk

Proposed mitigation measures to address residual flood risks are summarized below;

M1. Proposed drainage system to be maintained on a regular basis to reduce the risk of a blockage.

M2. In the event of storms exceeding the 1% AEP design capacity of the attenuation system, possible overland flow routing towards open space areas located to the north of Willow Grove should not be blocked. At this location the site's boundaries should be permeable to facilitate flood routing onto adjacent public spaces.

It is considered that the flood risk mitigation measures if implemented are sufficient to provide a suitable level of protection to the proposed development. A regularly maintained drainage system will ensure that it remains effective and in good working order should a large pluvial storm occur.

Should extreme pluvial flooding occur that is in excess of the development's attenuation capacity (i.e. greater than 1%AEP), then overland flow routes directed towards open space areas and adjacent public roads are provided in order to protect the residence which are proposed at lower floor levels.