



EIAR NON-TECHNICAL SUMMARY – WHITE PINES EAST SHD

FOR ASSESSMENT OF PROPOSED RESIDENTIAL DEVELOPMENT AT WHITE PINE EAST, STOCKING AVENUE, DUBLIN 16



PREPARED FOR:

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PREPARED BY:

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1.0 INTRODUCTION

1.1 Outline Details

This Environmental Impact Assessment Report (EIAR) relates to a Planning Application by Ardstone Homes Ltd.¹ (Ardstone Capital Limited), with respect to the proposed residential development on a site of c.2.98 Ha at lands north of Stocking Avenue, Dublin 16. (see Figure 1.1).

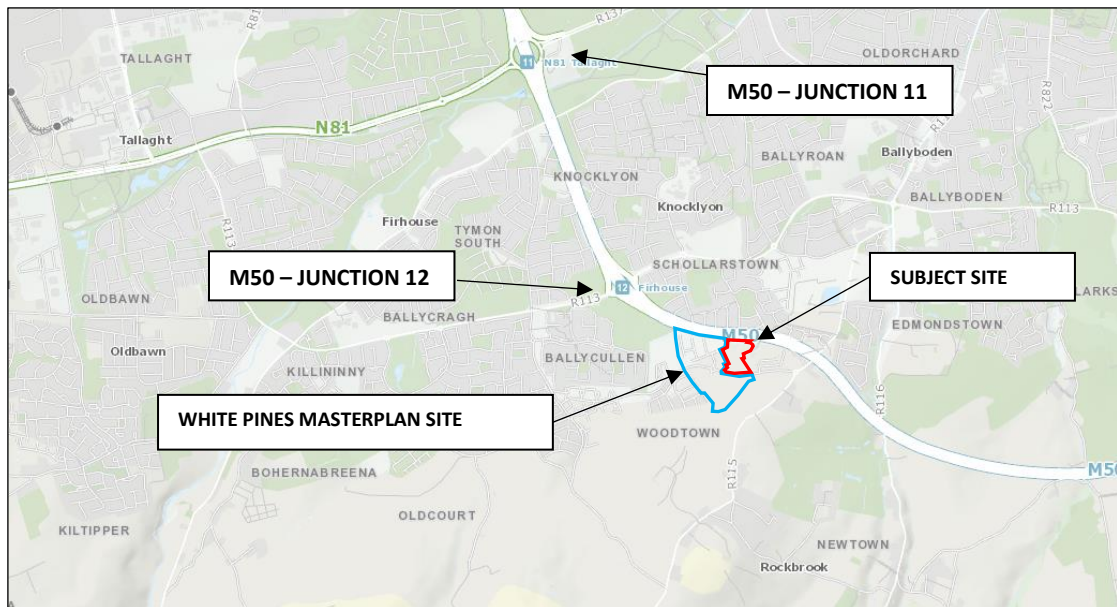


Figure 1.1: Urban Context Map (Source: www.geohive.ie; Annotated and Cropped by TPA, 2021).

The application site is principally bounded by;

- Stocking Avenue to the south;
- The White Pines North residential development to the west;
- The M50 to the north; and
- Stocking Hill residential development & Green Acres House to the east.

The site represents a greenfield site, zoned for residential use in the *South Dublin Development Plan (SDDP) 2016-22* and Ballycullen Oldcourt LAP (BOLAP), 2014 and will comprise the fourth element of the overall White Pines residential development (see Figure 1.2).

¹No. 48 Fitzwilliam Square, Dublin 2, D02 EF89.



Figure 1.2: Site Location, Subject Site Outlined Red. [Source: Bing Maps: Cropped/Annotated by TPA]

The subject site at White Pines East forms part of a wider masterplan development, known as White Pines. The White Pines masterplan site comprises; White Pines Central, White Pines East, White Pines North, White Pines South and White Pines Retail.

Ardstone Homes Ltd. control the entire White Pines masterplan site and have already provided for some 281 no. three, four and five bed roomed family homes at White Pines North and White Pines South, on lands adjacent to the subject site. The subject application (White Pines East SDH) represents the fourth phase of the wider White Pines masterplan development.

Phase	Provided/Proposed	Status
1. White Pines North	175 no. 3-5 bed family homes	Complete and Occupied
2. White Pines South	106 no. 3-5 bed family homes	Complete and Occupied
3. White Pines Retail	A single storey convenience retail unit (c.1,479 sq.m. GFA) and a three storey creche building (c.577sq.m. GFA).	Construction Commenced August 2020
4. White Pines East SHD	241 units in a mix of 1 and 2 bed apartments.	Subject Application
5. White Pines Central SHD	137 no. 1-3 Bed apartments/duplex units.	Pre-application stage

Table 1.1: White Pines Masterplan Development



Reg. Ref.	Address	Decision	Description
Completed/Approved Ardstone Homes Ltd. Development			
South Dublin Reg. Ref. SD19A/0345, as amended SDCC Ref. SD20A/0322)	White Pines Retail	Granted 10.02.2021	Planning permission was granted permission for the construction of a neighbourhood centre comprising: a single storey convenience retail unit (c.1,688 sq.m. GFA) and a three storey creche building (c.591sq.m. GFA).
South Dublin Reg. Ref. SD19A/0099/ ABP Ref. PL06S.304670	White Pines South	Granted 26.09.2019	Retention permission was sought for works proposed to 65 no. houses. The overall development related to the construction of 99 no. houses permitted under Ref. SD17A/0359 on a site of c.2.29 ha at Stocking South.
South Dublin Reg. Ref. SD14A/0222, as amended SD14A/0222 SD17A/0359	White Pines North -	Granted 20.03.2015	Planning permission was granted for a 10-year permission for the construction of 175 no. residential units; 167 no. houses and 8 no. apartments.
Forthcoming Planning Applications			
ABP Ref. PL06S.307307	White Pines Central SHD	N/A	An SHD Pre-application submission was made to ABP in November 2020, by Ardstone Homes, comprising the development of 137 no. residential units, on a site opposite the subject site on Stocking Avenue, see Figure 1.2 above. A Pre-application tripartite SHD meeting is scheduled to be held with ABP and SDCC February 2021.

Table 1.2: Ardstone Development Sites surrounding White Pines East

Please refer to Section 3.0 of the Planning Statement, prepared TPA dated March 2021, for a comprehensive breakdown of the site's planning history and other relevant planning applications in the area.

There are no recorded monuments within a 500m radius of the application site. There two Protected Structures (recorded by the NIAH), a gate lodge (RPS No. 335) c. 250m to the south associated with Woodtown Park/Manor and the Ballyboden Waterworks (RPS. No. 333) c.500m to the northeast.

In summary, the proposed development will comprise the construction of 241 no. residential units, in a mix of 1 and 2 bed apartments in 5 no. blocks ranging in height from 4 - 6 no. storeys, 3 no. 3 storey duplex blocks located to the western boundary, and, c.171 sqm of internal residential amenity space. The development will also provide a 552 sqm community building space, located on the ground floor of Block A.

The proposed development will also include hard and soft landscaping, boundary treatments, public lighting, ESB substations, plant and switch rooms, and residential waste facilities, piped site wide services, and all ancillary works and services necessary to facilitate construction and operation. The development will be served by a vehicular access from Stocking Avenue on the southern side of the site. A secondary access point will also be provided, from White Pines North, to the north west of the site.

It is noted that all residential units are proposed for private sale.



A key informing objective of Ardstone Homes Ltd masterplanning for both their existing and planned residential developments at Stocking Avenue (see Table 1.2), including this current application at White Pines East, has been to ensure connectivity with adjoining residential areas. As such, it has been a key design aim of the current application to ensure adequate connectivity with White Pines North on western boundary of the subject site. The proposed site layout also allows for future connections to Green Acres House, on the eastern boundary of the site, should this site come forward for redevelopment in the future.

Furthermore, it is also noted that Ardstone Homes Ltd are currently progressing a separate SHD planning application for the provision of c.137 no. residential units at White Pines Central, located directly south of the application site. For the reasons detailed in Section 1.3 below, this EIAR will consider the proposed development in isolation and cumulatively with the existing and planned residential developments at the White Pines Masterplan site comprising; White Pines North, White Pines South, White Pines Central, White Pines Retail and the subject development at White Pines East.

1.2 EIA Process

EIA requirements are governed by Directive 2014/52/EU, which amends the previous EIA Directive (Directive 2011/92/EU). The primary objective of the EIA Directive is to ensure that projects that are likely to have significant effects on the environment are subjected to an assessment of their likely impacts.

EIA forms part of the planning consent process and is carried out by the Competent Authority. An EIAR is prepared by / on behalf of a Developer in respect of a project seeking planning consent. The EIAR thus becomes an integral informing element in the Competent Authority's EIA. The 2014 Directive has introduced strict new requirements in respect of the competency of experts responsible for the preparation of the EIAR (see Appendix 1A below for details on the experts involved in the preparation of this document).

The EIA process may be summarised as follows:

1. Screening – Is EIA Required?
2. Scoping – If EIA is Required, what aspects of the Environment should be considered?
3. Preparation of EIAR
4. EIAR informs EIA (as part of the consent process)

1.3 The Need for EIA

The proposed development has been screened for EIA in accordance with the *European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018*), in accordance with the EIA Directive.

Section 172(1) of the Acts sets out the requirement for EIA. Mandatory EIA is required for Projects listed in Part 1 of Schedule 5 of the *Planning and Development Regulations 2001-2020* ("the Regulations"), referred to as Annex I Projects, in accordance with the EIA Directive.

The Project is not listed within Part 1 of Schedule 5 of the Regulations and therefore mandatory EIA is not required in this instance.

With respect to Part 2 of Schedule 5 (Annex II Projects), the Project has been assessed against the following relevant criteria:



Class 10 – Infrastructure Projects

Subsection 10(b)(i):

“Construction of more than 500 dwelling units”

This Project comprises a mixed-use development comprising 241 no. residential dwellings in a mix of apartments and duplex units. This is below the threshold for an EIAR.

However, as noted above, Ardstone Homes Ltd are also progressing with a separate application for c. 137 no. residential units on a site immediately south of White Pines East, known as White Pines Central (see Figure 1.2). Furthermore, Ardstone Homes Ltd have also recently developed 175 no homes at White Pines North and 106 no. homes at White Pines South. When considered cumulatively, the total number of units being proposed and provided across the White Pines Masterplan Site, c. 659 no. residential units, is in excess of the threshold set out in Class 10 of Schedule 5, as noted above.

Although it is not strictly necessary to include homes that have already been completed within the above threshold, in the interest of comprehensively addressing any environmental concerns, and given the no. of homes recently delivered in the area by our client, it is considered appropriate to provide an EIAR to consider any potential impacts, in line with the provisions of the EIA Directive.

As noted above, Ardstone Homes Ltd. are also in progressing a separate SHD application on a site adjacent to the Subject site, White Pines Central. Given both SHD Applications (White Pines East and White Pines Central) are being submitted independently, a separate standalone EIAR will be provided with each planning application. Each EIAR will consider the impacts of their subject development and also the cumulative impacts of both developments in tandem.

1.4 Purpose of the Environmental Impact Assessment Report

As noted, the 2014 Directive has redefined EIA as a process, whereby an EIAR is a key informing element. An EIAR's purpose is to predict and assess likely significant effects (direct and indirect) on the environment arising from the proposed development. It is used during the consent process to inform EIA.

As per Article 5(1) of the amended Directive, an EIAR should provide the following information:

- Description of Project
- Description of Baseline Scenario
- Description of Likely Significant Effects
- Description of Avoidance / Mitigation Measures
- Description of Reasonable Alternatives (and rationale for chosen option)
- A Non-Technical Summary

Annex IV of the Directive sets out a more detailed outline of the information required in an EIAR. The subject EIAR has been prepared in full accordance with these stated requirements of Annex IV.



The preparation of the *Environmental Impact Assessment Report* has been co-ordinated by Tom Phillips + Associates, Town Planning Consultants², in association with other members of the Project Team as identified in Table 1.3 below. Details in respect of the competence of the various experts is set out in Appendix 1.1.

1.5 Scoping of The Environmental Impact Assessment

An informal EIA Scoping Report was undertaken by TPA, dated April 2020, with respect to the proposed development. The purpose of the EIA Scoping exercise was to inform consultees of the proposed development, having regard to the extent of information to be contained within the EIAR for the project.

The scope of the EIAR has been prepared in consultation with the respective specialists within the EIA team. The Report set out a detailed justification relating to the environmental aspects to be considered in detail in the EIAR for the proposed development on the basis of the potential for significant effects. The Report also related to the construction and operational phases of the proposed development.

The non-statutory scoping report was issued to a range of stakeholders / prescribed bodies as listed in Appendix 1.2.

All matters raised in the responses received from the stakeholders have been addressed within this EIAR and appropriate mitigation measures identified where necessary.

1.6 EIAR Format

In addition to the 2014 Directive, the subject EIAR has been informed by:

- *Draft Guidelines On The Information To Be Contained In Environmental Impact Assessment Reports* (EPA, August 2017);
- *Advice Notes for Preparing Environmental Impact Statements*, Draft, (EPA September 2015);
- *Environmental Impact Assessment of Projects: Guidance on Screening* (European Commission, 2017);
- *Environmental Impact Assessment of Projects: Guidance on Scoping* (European Commission, 2017);
- *Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report* (European Commission, 2017);
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*, (August 2018);

Environmental Impact Assessment Reports require the assimilation, co-ordination and presentation of a wide range of relevant information in order to allow for the overall assessment of a proposed development. To allow for ease of presentation, and consistency when considering the various environmental factors considered, a systematic structure is used for the main body of the Report.

² Tom Phillips + Associates, Town Planning Consultants, 80 Harcourt Street, Dublin 2, D02 F449



The structure of the EIAR is outlined below. This structure is followed in each chapter so as to systematically identify, assess and where necessary mitigate the environmental impacts of the proposed development.

1.6.1 Receiving Environment (Baseline Situation)

This section provides a description of the current state of the environment related to the subject site, and a description of its likely evolution in the event that the Project is not implemented.

1.6.2 Characteristics of the Proposed Development

This section provides a description of the location, nature and extent of the project along with its construction and operational characteristics. The description includes estimates of any residues, emissions, or waste produced during the construction and operational stages.

1.6.3 Environmental Factors Affected

This section provides a list of the environmental factors likely to be impacted by the Project.

1.6.4 Likely Impact of the Proposed Development and Remedial and Mitigation Measures

This section allows for a description of the direct and indirect impacts that the proposed development is likely to have on aspects of the environment affected. This is done with reference to both the *Receiving Environment* and *Characteristics of the Proposed Development* sections, while also referring to the magnitude, duration, consequences (including use of natural resources) and significance of any impact.

1.6.5 Assessment of Alternatives

This part of the EIAR describes the reasonable alternatives considered and provides a rationale for the chosen Option.

1.6.6 Avoidance, Mitigation or Compensation Measures

This section provides a description of the measures envisaged to prevent, reduce and (where possible) offset any significant adverse effects on the environment that are practicable or reasonable, having regard to the potential impacts.

1.6.7 Monitoring

This section outlines monitoring measures (for both construction and operational stages), where appropriate, in cases where significant adverse impacts have been identified.

1.6.8 Non-Technical Summary

As per the requirements of the Directive, a separate Non-Technical Summary (NTS) comprises an easily accessible summary of the EIAR, using non-technical language. It is formulated to be understandable to those without a prior background to the project or particular environmental expertise.



1.6.9 EIAR Study Team and Guarantee of Competency and Independence

The Environmental Impact Assessment Report was completed by a project team led by Tom Phillips + Associates, who also prepared a number of the chapters.

In accordance with EIA Directive 2014/52/EU, we confirm that the experts involved in the preparation of this EIAR are fully qualified and competent in their respective fields. Each has extensive proven expertise in the relevant field concerned, thus ensuring that the information provided herein is complete and of high quality. The individual members of the team and their respective inputs and competency are detailed in Appendix 1A. Table 1.3 below provides an overview of the various consultancies who prepared the relevant chapters.

Chapter	Aspects of the Environment Considered	Contributor
Chapter 1	Introduction	TPA
Chapter 2	Site Location and Context	TPA
Chapter 3	Description of the Proposed Development	TPA
Chapter 4	Examination of Alternatives	TPA
Chapter 5	Archaeology, Architectural and Cultural Heritage	Irish Archaeological Company
Chapter 6	Population and Human Health	AWN Consulting
Chapter 7	Biodiversity	Altamar Marine and Environmental Consultants
Chapter 8	Land and Soils (Geology and Hydrogeology)	DBFL Consulting Engineers
Chapter 9	Landscape and Visual Impact	Mitchell & Associates
Chapter 10	Hydrology including Flood Risk Assessment	DBFL Consulting Engineers
Chapter 11	Air and Climate	AWN Consulting
Chapter 12	Noise and Vibration	AWN Consulting
Chapter 13	Material Assets – Waste	AWN Consulting
Chapter 14	Material Assets – Traffic and Transportation	DBFL Consulting Engineers
Chapter 15	Material Assets – Site Services	DBFL Consulting Engineers
Chapter 16	Interactions and Cumulative Impacts	TPA
Chapter 17	Mitigation and Monitoring	TPA
Chapter 18	Difficulties Encountered	TPA
NTS	Non – Technical Summary	TPA

Table 1.3: EIAR Chapter Headings and Contributors



1.7 The Developer

The development is proposed by the owners of the site, Ardstone Homes Ltd. The registered office of which is 48 Fitzwilliam Square, Dublin 2, D02 EF89.



Figure 2.2: Surrounding context [source, Bingmaps, cropped and annotated by TPA 2020]

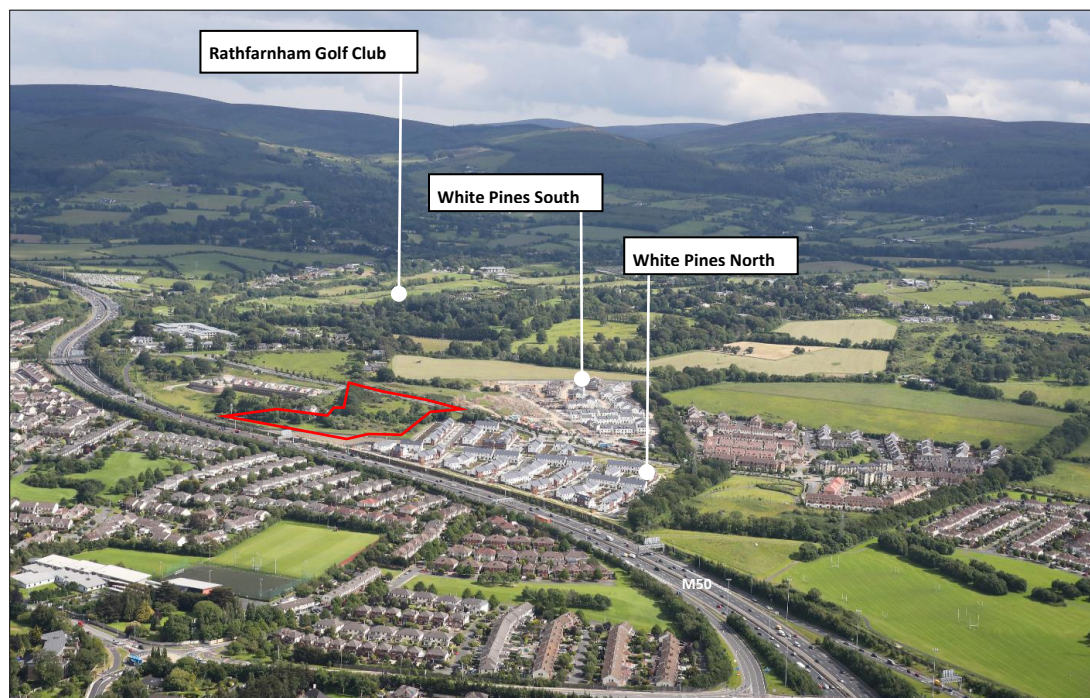


Plate 2.1: Ariel View of Site, Looking South (Site Boundary Outlined Red)

2.1.1 Southern Site Boundary

The site is bound to the south by Stocking Avenue. As shown in Figure 2.2, the site is surrounded by a number of existing residential areas and a number of vacant sites, zoned for new residential with extant planning permissions (see Table 3.2 for further information).

South of the subject site, another residential development of 106 homes (White Pines South), which completed construction in 2020 and is currently being occupied. White Pines Central and White Pines Retail are two further undeveloped sites which lie directly south of Stocking Avenue (see Figure 1.2).

White Pines Retail (SDCC Ref. SD19A/0345) was granted planning permission in February 2020 for the construction of a neighbourhood centre comprising: a single storey convenience retail unit (c.1,688 sq.m. GFA) and a three storey creche building (c.591sq.m. GFA). The White Pines Retail site commenced construction in 2020. Completion is scheduled for Q3 2021, with immediate occupation by National Retailer. Please refer to Table 3.2 of this EIAR for a breakdown of surrounding development sites.

As noted above, Ardstone Homes Ltd are in the process of delivering a separate standalone SHD planning application for the construction of c.137 residential units on a site of c2.2 Ha, directly south of the subject site, known as White Pines Central SHD. This development will be subject to a separate standalone SHD planning application to An Bord Pleanála and will be supported by a separate EIAR.

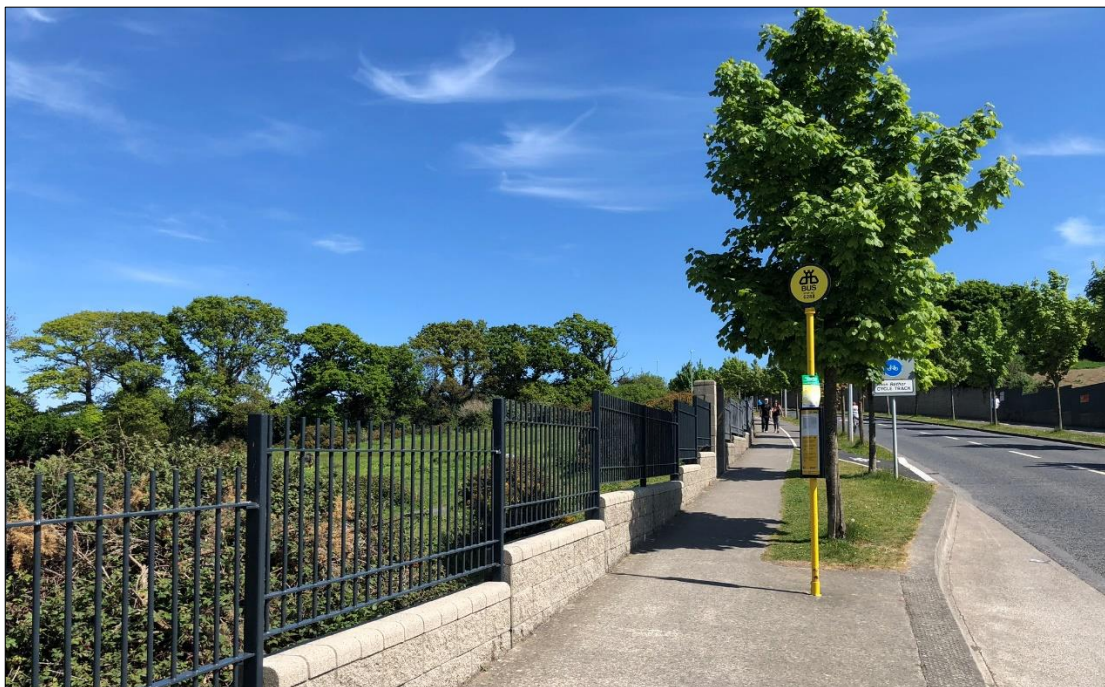


Plate 2.2: View of southern site boundary, looking east. Source: TPA, 2021



Plate 2.3: View of southern site boundary, looking west, Source: TPA, 2021

2.1.2 Western Site Boundary

The site is bound to the west by the White Pines North Residential Development. This development was built by Ardstone Homes Ltd and has recently been completed providing 167 no. houses and 8 no. apartments.



Plate 2.4: View of southwestern site boundary, Source: TPA, 2021



Plate 2.5: View of western site boundary, Source: TPA, 2021

2.1.3 Northern Site Boundary

The site is bounded to the north by a linear park (shown below in Plate 2.6) adjacent to the M50, providing pedestrian and cycle connections from White Pines North.

North of the M50, lies the established residential areas of Airpark, Orlagh and Prospect, comprising a mix of 2 two storey semi-detached houses, see Figure 2.2 above.



Plate 2.6: View of Northern site Boundary, Looking West, M50 Right, Source: TPA, 2021



Plate 2.7: View of Linear Park at Northern site Boundary, M50 Left, Source: TPA, 2021

2.1.4 Eastern Site Boundary

The site is bound to the east by Green Acres House, shown in Plate 2.9 below. The Stocking Hill residential development is also located further east. The eastern boundary of the site is screened by a number of mature trees and hedgerows, the majority of which will be retained as part of this application.



Plate 2.8: View of South Eastern Site Boundary. Source: TPA, 2021



Plate 2.9: View of North Eastern Site Boundary, showing Green Acres House. Source: TPA, 2021

2.2 PLANNING CONTEXT

a) South Dublin Development Plan 2016-22

The application site is located within the administrative boundary of South Dublin County Council and as such is guided by the policies and objectives set out in the South Dublin County Council Development Plan 2016-22 (SDCCDP).

The site is zoned for 'New Residential' in the SDDP 2016-22. This zoning objective for this designation seeks;

"To provide for new residential communities in accordance with approved area plan"

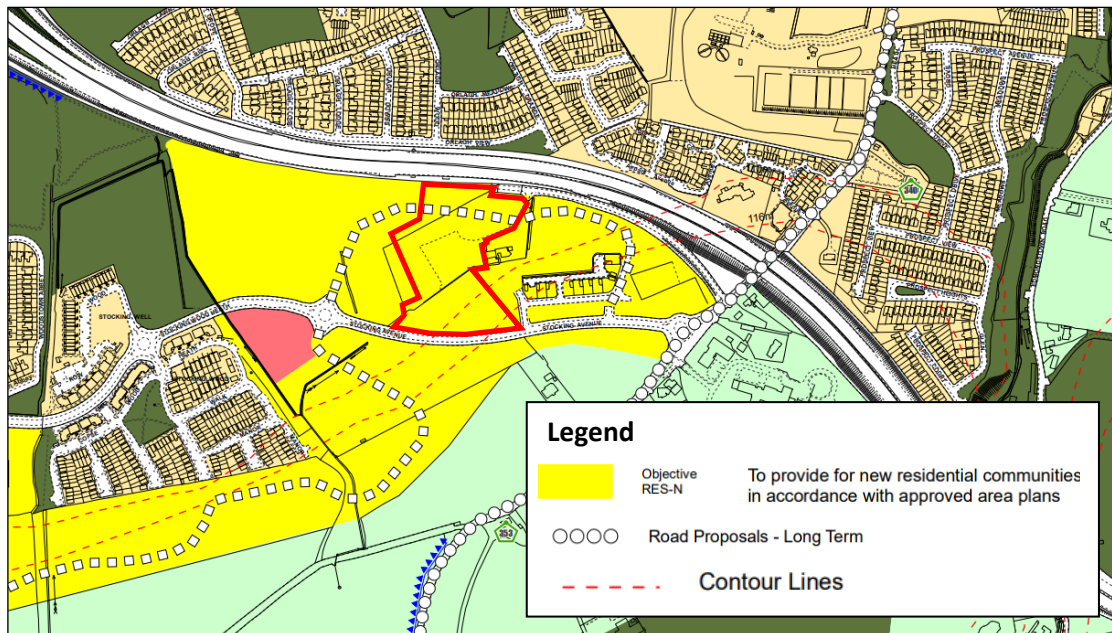


Figure 2.3: Zoning Map SDDP 2016-22, Application Site Outlined Red (cropped and annotated by TPA, 2021)

a) Ballycullen Oldcourt LAP 2016-22

There is also an adopted Local Area Plan for the area, the Ballycullen - Oldcourt Local Area Plan (BOLAP) 2014 (Extended 2019), which will expire on 2nd June 2024.

The site is also Zoned for 'Proposed Residential' in the *BOLAP 2014*.

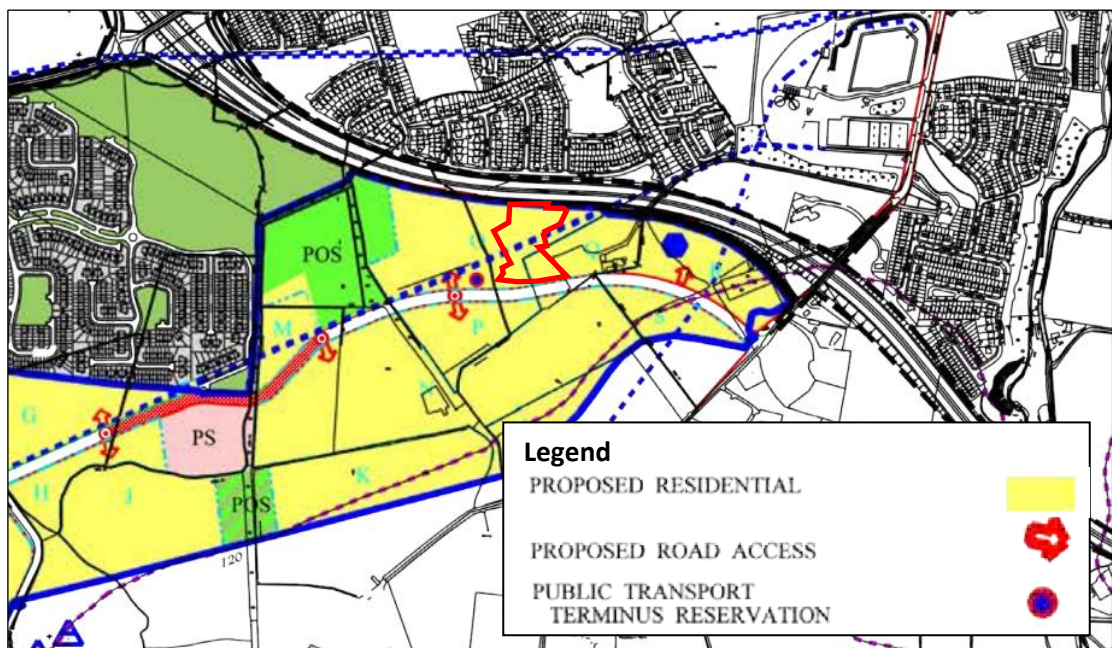


Figure 2.4: Zoning Map Ballycullen-Oldcourt LAP 2014, Application Site Outlined Red (cropped and annotated by TPA, 2021)

For a detailed breakdown of how the proposed development is in accordance with Local and National Planning Policies and Objectives, please refer to the Planning Statement, and Statement of Consistency prepared by TPA, submitted with this application.



2.3 Protected Structures and Monuments

There are no recorded monuments within a 500m radius of the proposed development area. There are two Protected Structures (also recorded by the NIAH), a gate lodge (RPS No. 335) c. 265m to the south associated with Woodtown Park/Manor and the Ballyboden Waterworks (RPS. No. 333) c. 430m to the northeast.



3.0 DESCRIPTION OF PROPOSED DEVELOPMENT

3.1 Introduction

This chapter of the *Environmental Impact Assessment Report* has been prepared by Tom Phillips + Associates in conjunction with John Fleming Architects. It provides a detailed description of the project, together with details of the existing environment surrounding the site. In accordance with Article 5(1)(a) of the 2011 EIA Directive, as amended by Directive 2014/52/EU, the description of the proposal should comprise “...information on the site, design, size and other relevant features of the project”.

In summary, the proposed development will comprise the construction of 241 no. residential units and a c.552 sq.m Community Building Space on a site of c.2.98Ha. All residential units are proposed as build to sell.

3.2 Characteristics of the Proposed Development

The project will comprise:

- 241 no. residential units comprising:

Units Type	Number of Units Proposed
One Bed Apartments	93
Two Bed Apartments	148
TOTAL	241

Table 3.1: Proposed Residential Mix

The development primarily comprises 5 No. buildings (Described in the application as Blocks A to E) ranging in height from 4 –6 storeys. The development will also provide 28 no. 2 bed apartments, provided within 3 no. 3 storey Duplex building, located to the west of the site. The residential blocks are positioned to provide pedestrian routes through the site, incorporating landscaped public open spaces.

A new vehicular access to the site will be provided from Stocking Avenue. Internal pedestrian and vehicular access to/from White Pines North will also be provided to the north west of the site. Additional pedestrian and cycle access will also be provided from White Pines North, to the south west of the site, internally, adjacent to the vehicular entrance on Stocking Avenue.

Existing public foul drainage infrastructure is located along the northern boundary of the site. As the site falls from its high point on its southern boundary toward its northern boundary, this will facilitate a gravity foul drainage connection. For further information, please refer to Chapter 10 of this EIAR.

The proposed development will provide 204 no. car parking spaces as follows;

Units	Provision
Resident On-Street Parking Spaces; (15 accessible spaces and 106 remainder)	194
Community Building Parking Spaces	10
TOTAL	204

Table 3.2: Proposed Car Parking

In total 360 no. long stay secure cycle parking spaces will be provided to serve the residential element of the proposed development. 55 no. additional short stay spaces are also provided throughout the development site, adjacent to apartment entrances and significant areas of open space. 7 no. additional cycle parking space will also be provided to serve the community building space.

A more detailed description of the proposed development is set out in section 3.2.4 below.



Figure 3.1: White Pines East Development Sites [Source: JFA Site Layout Plan]

3.2.1 Site Area

The site has an overall area of c.2.98 ha. The planning application site forms part of a larger masterplan development site, comprising White Pines North, White Pines South, White Pines Retail and White Pines Central.



Figure 3.2: Ardstone Homes Ltd Development Sites [Source: Bing Maps], annotated by TPA 2021.

3.2.2 Density of Development

As noted above, this planning Application at White Pines East represents the third residential phase of development for the wider White Pines Masterplan Site. It is therefore considered, in the interest of providing a balanced and sustainable community, with a mix of tenure types and housing, the proposed development should be assessed as a component of the wider White Pines Masterplan development.

White Pines Phases	Residential	No. of units	Site Area	Dwellings per Ha
1. White Pines North		175	6.17	28.3
2. White Pines South		106	2.83	37.45
3. White Pines East		241	2.98	80.9
Subtotal		522	11.98	43.57
Forthcoming Planning Applications				
4. White Pines Central SHD		c.137	2.2	62.27
TOTAL		659	14.18	c.46.47

Table 3.3: White Pines Masterplan Site Densities

As noted in Table 3.3 above, as a result of the subject application the proposed development at White Pines East will result in an overall residential density for the White Pines masterplan site of c. 43.6 units per Ha.

3.2.3 Detailed Description of Development

The development will consist of:

- *“The construction of 241 no. residential units, in 5 no. apartment blocks, ranging in height from 4-6 storeys, and 3no. three storey duplex block. The development will provide 93 no. 1 Bed and 148 no. 2 bed units, as follows;*



- Block A is a 5 storey block comprising 40 units (20 no. 1 bed units; and 20 no. 2 bed units). Block A includes balconies on southern, northern and western elevations. A dedicated community building space comprising 552sq.m will also be provided on the ground floor of Block A.
- Block B is a 4 storey block comprising 34 units (18 no. 1 bed units; and 16 no. 2 bed units). Block B includes balconies on southern, southern, western and eastern elevations;
- Block C is a Part 4 Part 5 storey block comprising 43 units (21 no. 1 bed units; 22 no. 2 bed units) Block C includes balconies on southern, eastern and western elevations. Residential Tenant Amenities comprising c.171sq.m is provided at ground floor level of Block C to serve all residential units, comprising; a reception area, games space, residents lounge and gym space.
- Block D is a 5 storey block comprising 49 no units (21 no. 1 bed units and 28 no. 2 bed units). Block D includes balconies on southern, western and eastern elevations;
- Block E is a 6 storey block comprising 47 no units (13 no. 1 bed units and 34 no. 2 bed units). Block E includes balconies on southern, western, eastern and northern elevations;
- 3 no. 3 storey duplex blocks are provided to the western boundary of the site, comprising 28 no. 2 bed units. Balconies and terrace space is provided to the eastern elevation.
- Provision of 204 no. on street car parking spaces
- Omission of creche as approved under SDCC Ref. SD14A/0222;
- The main vehicular access to the scheme will be from Stocking Avenue. A second new vehicular access is proposed from White Pines North to the east.
- Provision of 401 no. bicycle parking spaces;
- All other ancillary site development works to facilitate construction, site services, piped infrastructure, ESB sub-stations, plant, public lighting, bin stores, bike stores, boundary treatments and provision of public and private open space including hard and soft landscaping, plant, provision of public and private open space areas comprising hard and soft landscaping, site services all other associated site excavation, infrastructural and site development works above and below ground."

3.2.4 Site Clearance Works

Topsoil and subsoil will be excavated to facilitate site preparation, construction of foundations, and the installation of underground services. The volume of material to be excavated has been estimated by the project engineers to be c.10,000m³. It is anticipated that c.7,500m³ of excavated material will need to be removed offsite for appropriate reuse, recycling or disposal, however it is envisaged that c.2,500m³ of soil be reused onsite in landscaping and non-structural fill.

3.2.5 Building Height/Form/Massing

The proposed development comprises 5 no. residential blocks, and 3 no. three storey duplex blocks. The proposed building heights have been carefully designed in response to the site's topography with the development's tallest building, Block E at 6 stories, located at the lowest part of the site, along the site's boundary to the M50.

The overall heights within the scheme vary from 3 to 6 storeys over basement level in height, with the overall heights of the blocks ranging from +c.10.205m OD to +c.19.125m OD.



Figure 3.3: Blocks C & B North-western Aspect, Source:3D Design Bureau 2021.

3.2.6 Design and Building Materials

There is a broad range of materials proposed within this development, varying depending on use and location within the development. In general, the elevations comprise the use of brick, render and glass within the elevations of Blocks A, B, C and D and the duplex blocks.

3.2.7 Residential Use

The proposed development comprises a total of 241no. residential units. The development has been designed to exceed standards as set out in the *Sustainable Urban Housing: Design Standards for New Apartments: Guidelines for Planning Authorities*, 2020, prepared by the Department of Housing, Planning and Local Government.

Residential Accommodation

All residential units will be provided as traditional build to sell apartments, in a mix of 1 and 2 bed units over 5 apartment blocks and a 3 duplex blocks.

A c.171sq.m residential amenity space is also provided, at the ground floor of Block C, to serve the residential units. A detail description of each of the Blocks is provided below.



Figure 3.4: CGI 1, View of Proposed Development Internal Open Space; Source: Source:3D Design Bureau 2021.

Block A

Block A, the 5 Storey (+c.16.245m OD) building will provide 40 no. residential units, in a mix of 20 no. one beds and 20 no. two beds.

Block A comprises balconies on southern, northern and western elevations. Block A also provides c.552sq.m of residential amenity space at ground floor level to serve the residential units.

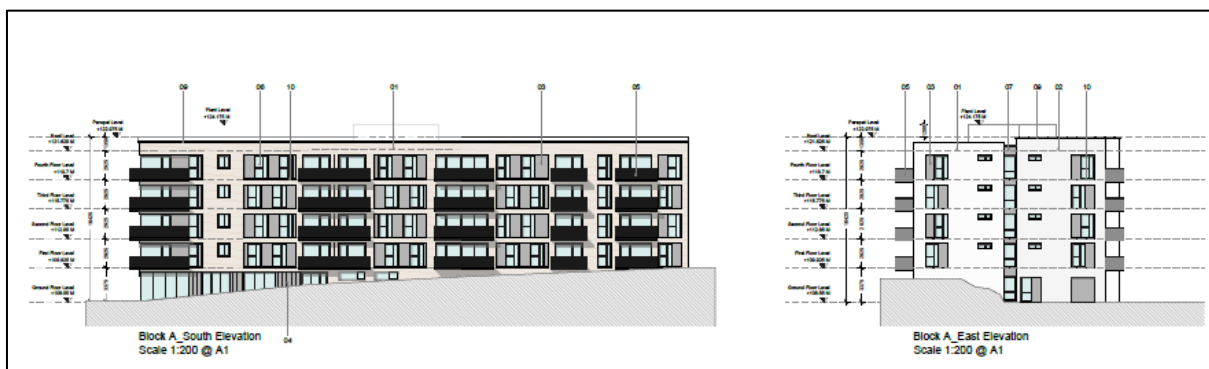


Figure 3.5: Block A South and Eastern Elevations [Drawing no. WPE-JFA-EL-AB-DR-A-P4001, prepared by JFA]

Block B

Block B, the 4 Storey (c.+13.575m OD) building will provide 34 no. residential units, in a mix of 18 no. one beds and 16 no. two beds.

Block B comprises balconies on southern, eastern and western elevations.



Figure 3.6: Block B East Elevation [Drawing no. WPE-JFA-EL-AB-DR-A-P4002, prepared by JFA]

Block C

Block C, the 5 Storey (+c.16.35m OD) building will provide 43 no. residential units, in a mix of 39 no. one beds and 32 no. two beds. Tenant amenity Space of 171sq m is also provided on the ground floor of Block C

Block C includes balconies on southern, eastern and western elevations.



Figure 3.7: Block C East Elevation [Drawing no. WPE-JFA-EL-AB-DR-A-P4003, prepared by JFA]

Block D

Block D, the 5 Storey (+c.16.2m OD) building will provide 49 no. residential units, in a mix of 17 no. one beds and 32 no. two beds.

Block D includes balconies on southern, northern, western and eastern elevations.



Figure 3.8: Block D North West Elevation [Drawing no. WPE-JFA-EL-AB-DR-A-P4004, prepared by JFA]

Block E

Block E, the 5 Storey (+c.19.125 OD) building will provide 47no. residential units, in a mix of 13 no. one beds and 34 no. two beds.

Block E comprises balconies on southern, northern, western and eastern elevations.



Figure 3.9: Block E North Elevation [Drawing no. WPE-JFA-EL-AB-DR-A-P4005, prepared by JFA]

Duplex Units

28 No. 2 bed units will be provided to the western boundary of the site within 3 no. 3 storey (+c. 10.205 OD) duplex buildings. The buildings will provide 14 no. 2 Bed (77.4 sq.m GFA) units at ground floor level and 14 no. 2 Bed (95.4 sq.m GFA) units at first and second floor level.

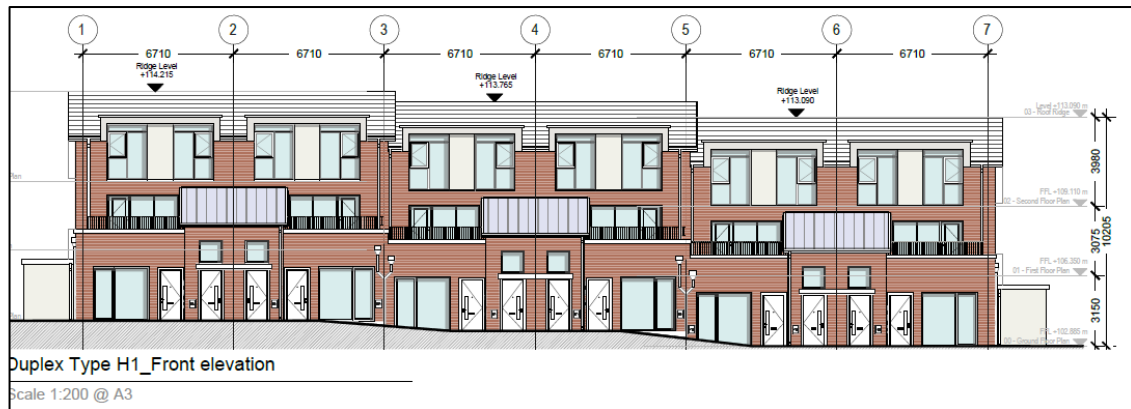


Figure 3.10: Duplex Units [Drawing no WPE-JFA-EL-H1-DR-A-P4001, prepared by JFA]

3.2.8 Community Use

As noted above, a c.552 sq.m Community Building space will also be provided on the ground floor of Block A. The building will provide adaptable multi-function rooms, meeting room, Kid's Room, a shared kitchen/lounge space, administration space and ancillary spaces.

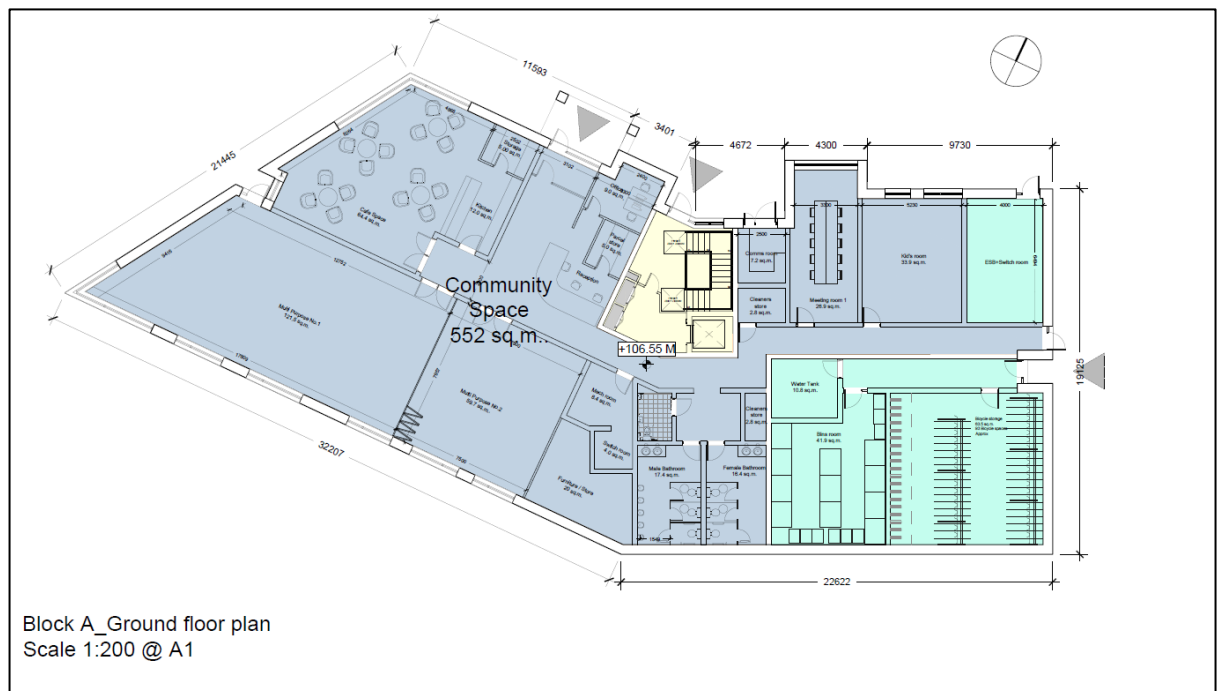


Figure 3.11: Block A Ground Floor Plan [Drawing no WPE-JFA-XX-AA-DR-A-P2001, prepared by JFA]

3.2.9 Access Arrangements

As shown in Figure 3.11 below, the main vehicular access to/from the subject development will be provided via Stocking Avenue, on the southern boundary of the site. There will also be a secondary vehicular access to/from White Pines North, via a new junction on the north-western boundary of the site.

These vehicular accesses are also accessible to both pedestrian and cyclists. There are additional pedestrian access points located to the south, providing access to Stocking Avenue, and to the north, providing access to the pedestrian / cycle connection, shown below. This pedestrian / cycle connection directly connects Stocking Lane and Scholarstown Road.

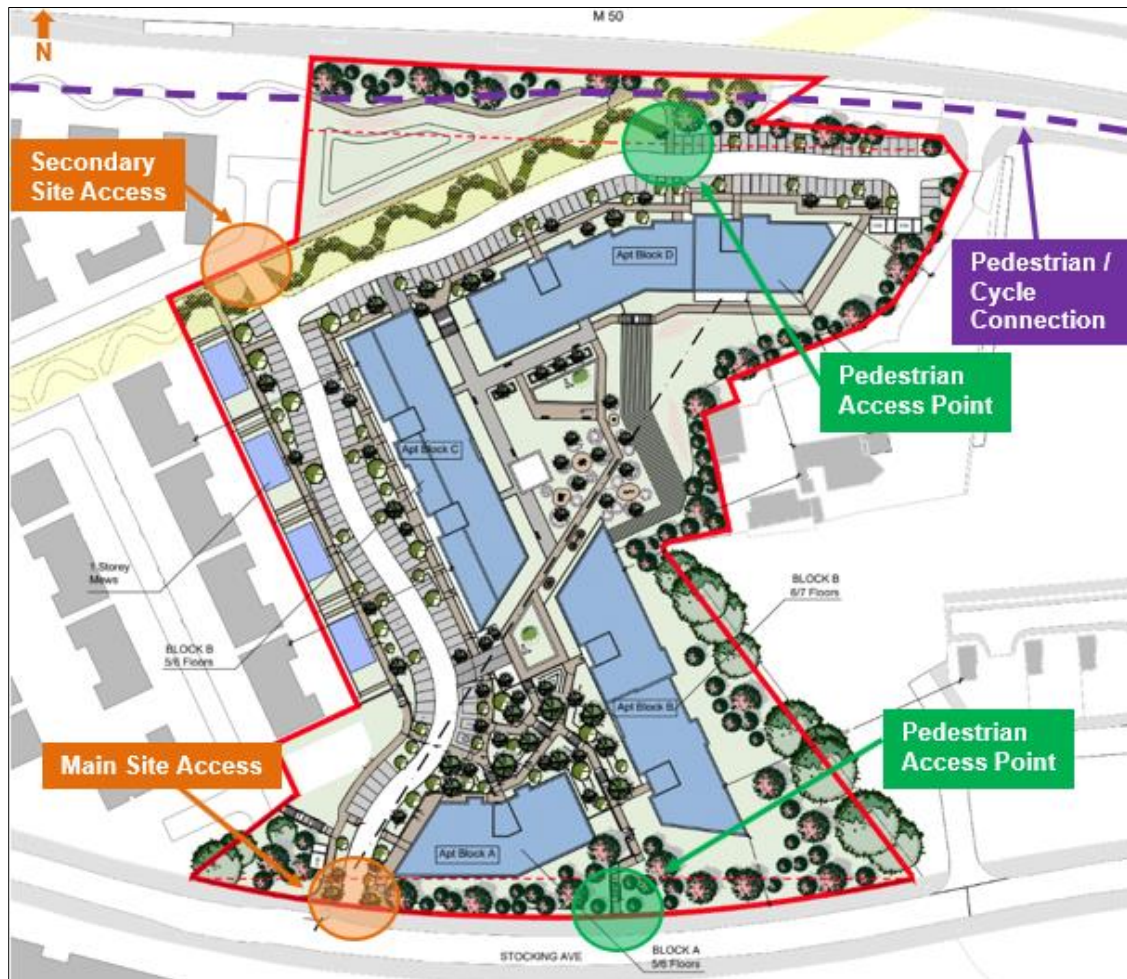


Figure 3.12: Proposed Site Access Locations, [Source DBFL, Figure 14.5 of this EIAR]

We refer to Chapter 14 Material Assets – Traffic and Transportation, which provides full description and assessment of the traffic and transportation impacts arising from the proposed development.

3.2.10 Landscaped Spaces

The architect landscaped spaces have been designed to create a sense of place, supporting the urban design layout in the creation of streetscapes and residential spaces. The design strategy aims to promote sociability, providing places for social interaction and the creation of a sense of community.

The strategy has been prepared by Mitchell and Associates in the context of the provisions of the *Ballycullen and Oldcourt LAP 2014* and informed by detailed assessments undertaken as part of the development process, as outlined further in the EIAR and supporting planning application documents. Mitchell and Associates were the Landscape Architects responsible for the adjoining White Pines North Scheme.

The approach to the site layout and landscape masterplan prioritises non-vehicular traffic on internal roads with pedestrian desire lines catered to. Inherent to the design is a people-friendly layout.

The provision of a landscaped amenity space with various character areas (e.g. landscaped buffer zone (wild grasses); kickabout / key public realm nodes; and children's play area) will cater for a wide range of future users.



Figure 3.13: Proposed Landscape Layout [Source: MA]

3.2.11 Drainage Infrastructure

Foul Drainage

Existing public foul drainage infrastructure is located along the northern boundary of the site. As the site falls from its southern boundary toward its northern boundary, this existing infrastructure will facilitate a gravity foul drainage connection. For further information please refer to Section 10.4.4 of this EIAR.

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”*. Refer to Appendix 10.B for Correspondence with Irish Water.

Surface Water Drainage



Existing public surface water drainage infrastructure is located along the northern boundary of the site and outfalls via a pipeline under the M50 and onwards through piped networks in the Scholarstown / Knocklyon areas (ultimately discharging to the River Dodder).

As the site falls from its southern boundary toward its northern boundary, this existing infrastructure will facilitate a gravity surface water drainage connection.

For further information please refer to Section 10.4.5 of this EIAR.

Water

An existing 500mm watermain is located along the South side of Stocking Avenue. It is proposed for the development to take a 200mm diameter watermain from the existing infrastructure on Stocking Avenue. Which will also connect to Stocking North creating a single looped connection to serve the development.

All connections, valves, hydrants, meters etc. have been design and are to be installed in accordance with Irish Water's Code of Practice / Standard Details and the Department of the Environment's Building Regulations "Technical Guidance Document Part B Fire Safety".

A post development average hour water demand of 1.41 l/sec and a post development peak hour water demand of 7.06 l/sec has been calculated as outlined in Irish Water's Pre-Connection Enquiry Application Form. For further information please refer to Section 10.4.6 of this EIAR.

3.2.12 Site Clearance and Construction

Details of the demolition and construction programme are outlined in greater detail in a Construction Management Plan, prepared by DBFL Consulting Engineers, and included with this EIAR.

3.2.13 Development Projects Proximate to Subject Site

The following projects are known to have permission / be under construction in the wider area:

Reg. Ref.	Address	Decision	Description
Completed/Approved Ardstone Homes Development			
South Dublin Reg. Ref. SD19A/0345, as amended SDCC Ref. SD20A/0322)	White Pines Retail	Granted 10.02.2021	Planning permission was granted permission for the construction of a neighbourhood centre comprising: a single storey convenience retail unit (c.1,688 sq.m. GFA) and a three storey creche building (c.591sq.m. GFA).
South Dublin Reg. Ref. SD19A/0099/ ABP Ref. PL06S.304670	White Pines South	Granted 26.09.2019	Retention permission was sought for works proposed to 65 no. houses. The overall development related to the construction of 99 no. houses permitted under Ref. SD17A/0359 on a site of c.2.29 ha at Stocking South.
South Dublin Reg. Ref. SD14A/0222, as	White Pines North -	Granted 20.03.2015	Planning permission was granted for a 10-year permission for the construction of 175 no. residential units; 167 no. houses and 8 no. apartments.

Reg. Ref.	Address	Decision	Description
amended SD14A/0222 SD17A/0359			
Forthcoming Planning Applications			
ABP Ref. PL06S.307307	White Pines Central SHD	N/A	An SHD Pre-application submission was made to ABP in November 2020, by Ardstone Homes, comprising the development of 137 no. residential units, on a site opposite the subject site on Stocking Avenue, see Figure 1.2 above. A Pre-application tripartite SHD meeting is scheduled to be held with ABP and SDCC February 2021.

Table 3.3: Ardstone Development Sites surrounding White Pines East



Figure 3.12: Site Location, Subject Site Outlined Red. [Source: Bing Maps: Cropped/Annotated by TPA, 2021]

3.2.14 Production of Waste

A Construction & Demolition Waste Management Plan and Operational Waste Management Plan, prepared by AWN, have been included with this EIAR in order to document the anticipated levels of and types of waste likely to be generated by the proposed development.

The Construction and Demolition Waste Management Plan provides details regarding the anticipated waste generation on foot of the construction phase of the proposed development, potential impacts and proposed mitigation measures to ameliorate any anticipated negative impacts.

The Operational Waste Management Plan provides details on the anticipated levels of waste the operational phase of the development may give rise to, also detailing measures for the collection, recycling and disposal of this waste.



In summary, all waste generated during the construction and operational periods is proposed to be appropriately disposed of in accordance with the relevant waste management policy and waste management plans.

3.2.15 Emissions and Nuisances

No significant impacts are likely to arise in terms of emissions and nuisances during the construction and operational period of the development. A detailed assessment of the potential impacts on noise and vibration and air quality is contained in Chapters 11 and 12 of this EIAR respectively. In addition, the preliminary Construction Management Plan details the mitigation measures proposed to ameliorate any potential negative impacts.

3.2.16 Risk of Accidents

The risk of accidents arising as a result of the proposed development at both construction and operational phases will be minimised through detailed design considerations and health and safety management. Details of these design considerations and management measures are contained in the Preliminary Construction Management Plan appended to this EIAR.

3.2.17 Secondary Projects

The subject proposal is not reliant on the completion of secondary projects and is thus a fully functioning independent project.

As shown in Figure 3.1 above, Ardstone Homes Ltd have developed a number of sites surrounding White Pines East for residential development and are also in the process of delivering 2 no. additional developments. A convenience retail store and creche known as White Pines Retail and a separate SHD planning application known as White Pines Central, south of the subject site. These projects are entirely independent and in no way reliant on each other.



4.0 EXAMINATION OF ALTERNATIVES

4.1 Introduction

This chapter of the *Environmental Impact Assessment Report* was prepared by Tom Phillips + Associates and examines the alternative development options which were considered for the subject site during the design development process.

The chapter is prepared in accordance with the requirement to consider alternatives within an EIAR is set out in Annex IV (2) of the EIA Directive (2014/52/EU) and in Schedule 6(1)(d) of the *Regulations*, which require the following information to be included:

*“A description of the **reasonable alternatives** studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics and an indication of the main reasons for the options chosen, taking into account the effects of the proposed development on the environment” (our emphasis).*

Reasonable alternatives may relate to project design, technology, location, size and scale which were studied in the preparation of the EIAR relevant to the proposed development and its particular characteristics, together with an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

4.2 Rationale for the Proposed Development

The rationale for the development is to provide residential accommodation in accordance with the zoning designation for the site. This is fully supported in National, Regional and Local planning policy. In this regard, the *National Planning Framework 2040- Our Plan (2018)*, identifies the need for consolidated growth in urban areas,

*“making better use of **under-utilised land and buildings**, including ‘infill’, ‘brownfield’ and publicly owned sites and vacant and under-occupied buildings, **with higher housing and jobs densities**, better serviced by existing facilities and public transport”.*

The provision of high-density apartment development is advocated in the *Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities 2018*.

The development of the site is also supported under the *Eastern & Midland Regional Assembly - Regional Spatial & Economic Strategy 2019-2031*(RSES)Objective (RPO) 4.3, which seeks the consolidation and re-intensification of infill / brownfield sites,

“to provide high density and people intensive uses within the existing built up area of Dublin city and suburbs and ensure that the development of future development areas is co-ordinated with the delivery of key water infrastructure and public transport projects.”

4.3 Main Alternatives Studied

The main alternatives studied during the development of the project comprise alternative design solutions and layouts for the redevelopment of White Pines East to provide a



residential development on the site, in accordance with National, Regional and Local planning policy guidelines, as discussed further in Section 4.3.4 below.

4.3.1 Alternative Locations

Given the project comprises the redevelopment of White Pines East, a site zoned for new residential development, the consideration of alternative locations is not relevant in this instance.

4.3.2 “Do-Nothing” Alternative

In the “Do-Nothing” scenario, the application site at White Pines East would remain a greenfield site. This would be contrary to National and Regional Policy where it is the stated aim to progress development of zoned and serviced site such as the application site. Zoned serviced sites which do not progress towards development are subject to a vacant site levy.

4.3.3 Alternative Processes

Given the zoning objectives for the site, the rationale for the project, the nature of the proposed development, no reasonable alternative processes were considered appropriate.

4.3.4 Alternative Design Approach – Alternate Block Layouts

At the outset the project architects, JFA, undertook an extensive site appraisal to determine the appropriate scale, mass and layout of this scheme.

The analysis includes an assessment of:

- Existing and permitted development adjoining the site and within the wider area which changes the character of the site environs, i.e. White Pines North, White Pines South, White Pines Retail and White Pines Central.
- The characteristics of the site to consider how the proposed development should appropriately respond to adjoining site, specifically; Stocking Lane, Green Acres House, White Pines North and the M50.
- The existing residential mix at Stocking Avenue, with a high proportion of 3-5 bed houses.
- The provisions of Local, Regional and National planning policy as referenced above and in particular, the provisions of the *South Dublin Development Plan 2014 and Ballycullen Oldcourt LAP, 2014* (extended to 2022), which sets out proposed uses and design criteria.

The masterplan for the site, and surrounding sites in the ownership of Ardstone (please refer to Figure 1.1 of the EIAR) has been informed by National, Regional and Local planning policies, in particular the BOLAP, which sets out a number of specific adjustives for the area, e.g. the provision of a Community Building.

A number of design options were thereafter developed for the site, as shown below in Figures 4.1 – 4.4 of the EIAR.

The final layout, as progressed, provides a large centrally located area of open space which is surrounded by apartment blocks to the north, south and west. The proposed orientation



allows for increased sunlight penetration into the scheme, whilst also providing passive surveillance of this space.

The design of the proposed development also ensures this space is sheltered from all sides, by the proposed apartment blocks and mature trees, to create a high-quality attractive centrally located area of public open space, with a number of incidental child play areas, kick about spaces and hard and soft landscaping features.

4.4 Final Proposed Development

A detailed description of the proposed development is set out in 3.2.3 above.



5.0 ARCHAEOLOGY, Architectural & Cultural Heritage

5.1 Introduction

5.1.1 General

IAC Archaeology Ltd. has prepared this section of the EIAR to assess the impact, if any, on the archaeological, architectural, and cultural heritage resource of a proposed residential development at Stocking Avenue, Dublin 16 (Figures 5.1). The assessment was carried out by Grace Corbett of IAC Archaeology Ltd.

5.2 Conclusions

The proposed development area occupies an area on the north side of Stocking Avenue in the townland of Woodtown, Dublin 16, within the Parish of Cruagh and the Barony of Uppercross. A house, garden and associated outbuildings (Green Acres House) lie immediately adjacent to the east of the proposed development. The eastern border of the proposed development lies along the townland boundary separating Newtown and Woodtown.

There are no recorded monuments within a 500m radius of the proposed development area. There two Protected Structures (also recorded by the NIAH), a gate lodge (RPS No. 335) c. 265m to the south associated with Woodtown Park/Manor and the Ballyboden Waterworks (RPS. No. 333) c.430m to the northeast

A review of the Excavations Bulletin (1970–2019) has shown that while no archaeological investigations have previously taken place within the proposed development area, several have been carried out within the 500m study area (three of which did not identify any archaeological deposits or features). Extensive archaeological investigations have taken place in association with the construction of Stocking Avenue and residential developments adjacent to, and in the wider vicinity of, the proposed development area. A number of small archaeological sites were identified, including a possible Bronze Age structure.

From the 18th century onwards the proposed development area appears relatively unchanged, shown as occupying open land within an area marked as Hide/Hyde Park until the mid-19th century, after which this park is no longer marked and the area is shown corresponding to its present-day field boundaries. The proposed development area is located partially within the demesne landscape associated with Woodtown Lodge (DL 1). This demesne landscape has been recorded by the NIAH garden survey which records that much of the demesne features are no longer present. The 1843 OS maps shows the house (CH 1) to the east of the proposed development area, with a formal garden to the west of this, within the site boundary. The demesne is confined to the northern half of the site, with the southern half occupying an agricultural field.

An inspection of the aerial photographic coverage did not reveal any previously unknown archaeological features, but did indicate that the proposed development area has been subject to some superficial disturbance associated with the construction of Stocking Avenue, an area of hard standing at the centre of the site, and disturbance at the northern end of the site as a result of the construction of the M50.



5.3 Description of Potential Impacts

5.3.1 Construction Phase Impact

Archaeology

There are no predicted impacts to any known archaeological remains or recorded monuments during the construction phase of the proposed development.

There is potential for previously unrecorded archaeological features to be located at the site, impacts on any such remains may range from moderate to profound direct adverse and result from removal during construction.

Architecture

There are no predicted impacts to any known architectural heritage assets during the construction phase of the proposed development.

Cultural Heritage

The construction of the proposed development will result in a moderate negative impact on the remaining elements of Woodtown Lodge demesne (D 1).

5.3.2 Operational Phase Impact

There are no predicted impacts to any archaeological, architectural or cultural heritage assets during the operation of the proposed development.

5.3.3 Do Nothing Impact

If the proposed development were not to proceed there would be no negative impact on the archaeological, architectural or cultural heritage resource.

5.3.4 Worst Case Impact

In the event that the development proceeds without cultural heritage mitigation in place, it is possible that features of culture heritage value will be destroyed without proper record.

5.4 Mitigation Measures

All topsoil stripping outside of the areas of previous disturbance will be monitored by a suitably qualified archaeologist. Full provision should be made for the resolution of any archaeological features/deposits that may be discovered, should that be deemed the appropriate way to proceed.

A written and photographic record of the surviving elements of Woodtown Lodge demesne (DL 1) will be carried out prior to the construction of the proposed development.



5.4.1 Monitoring

The mitigation measures recommended above would also function as a monitoring system to allow the further assessment of the scale of the predicted impacts and the effectiveness of the recommended mitigation measures.

5.5 Cumulative Impacts

A number of developments, both proposed and those granted permission, in the surrounding area have been considered in the assessment of cumulative impacts.

There are no predicted cumulative impacts to the archaeological or cultural heritage resource. Should any archaeological or cultural heritage remains be identified on the site, they will be preserved by record, mitigating any negative impacts and adding to the understanding of the historical development of this area. Where proposed and granted developments in the surrounding area have the potential to impact on archaeological remains, it is highly likely that mitigation measures have also been proposed to preserve by record any identified archaeological remains.

5.6 Residual Impacts

Following the implementation of the above mitigation measures, there would be no residual impacts on the archaeological, architectural or cultural heritage resource.



6.0 POPULATION AND HUMAN HEALTH

6.1 Introduction

This chapter of the EIAR was prepared by AWN. The chapter evaluates the impacts of the proposed development on population and human health.

In accordance with the Draft EPA EIA Report Guidelines (2017) and EPA Draft Advice Notes for EIS (2015), this chapter has considered the “existence, activities and health of people” with respect to “topics which are manifested in the environment such as employment and housing areas, amenities, extended infrastructure or resource utilisation and associated emissions”. Natural hazards are considered in Chapter 2 (Section 2.7) and Chapter 6. Issues examined in this chapter.

6.2 Assessment of Significance & Sensitivity

The assessment of significance is a professional appraisal based on the sensitivity of the receptor and the magnitude of effect.

Within any area, the sensitivity of individuals in a population will vary. As such, it would be neither representative of the population, nor a fair representation of the range of sensitivities in a population, were an overall sensitivity classification assigned to the population in question. As such, the precautionary principle has been adopted for this assessment, which assumes that the population within the Study Area is of a uniformly high sensitivity.

6.3 Magnitude of Impact

The magnitude of predicted impacts has been quantified in this assessment using the terms outlined in Table 6.1 below:

Magnitude	Description of Magnitude
High	Change in an environmental and/or socio-economic factor(s) as a result of the proposed development which would result in a major change to existing baseline conditions (adverse or beneficial)
Medium	Change in an environmental and/or socio-economic factor(s) as a result of the proposed development which would result in a moderate change to existing baseline conditions (adverse or beneficial)
Low	Change in an environmental and/or socio-economic factor(s) as a result of the proposed development which would result in a minor change to existing baseline conditions (adverse or beneficial)
Negligible	Change in an environmental and/or socio-economic factor(s) as a result of the proposed development which would not result in change to existing baseline conditions at a population level, but may still result in an individual impact (adverse or beneficial)
No change	No change would occur as a result of the proposed development which would alter the exiting baseline conditions (adverse or beneficial)

Table 6.1: Magnitude of Predicted Impacts

6.4 Significance of Effects

The assessment of significance of effects in this assessment is a professional appraisal and has been based on the relationship between the magnitude of effects (Section 5.2.2) and the



sensitivity of the receptor. Table 6.2 below provides a matrix on the measure of the significance of effects based on these parameters.

		Magnitude of Impact			
		Negligible	Low	Medium	High
Sensitivity of Receptor	Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
	Low	Negligible or minor	Negligible or minor	Minor	Minor or moderate
	Medium	Negligible or minor	Minor	Moderate	Moderate or major
	High	Minor	Minor or moderate	Moderate or major	Major

Table 6.2: Matrix illustrating the significance of effects as determined by the relationship between the magnitude of impact and the sensitivity of receptors

The Study Area selected for the assessment of baseline population factors and of the impact the proposed development would have on the human health of people within this population was defined as Electoral Division (ED) as per the 2016 census data surrounding the proposed development site (CSO, 2016) These electoral divisions chosen are;

- Firhouse – Ballycullen (ED Code 03012)
- Firhouse Village (ED Code 03014)
- Firhouse – Knocklyon (ED Code 03013)
- Ballyboden (ED Code 03002)
- Edmondstown (ED Code 13011)
- Bohernabreena (ED Code 03003)

The study area is presented in Figure 6.1 below.

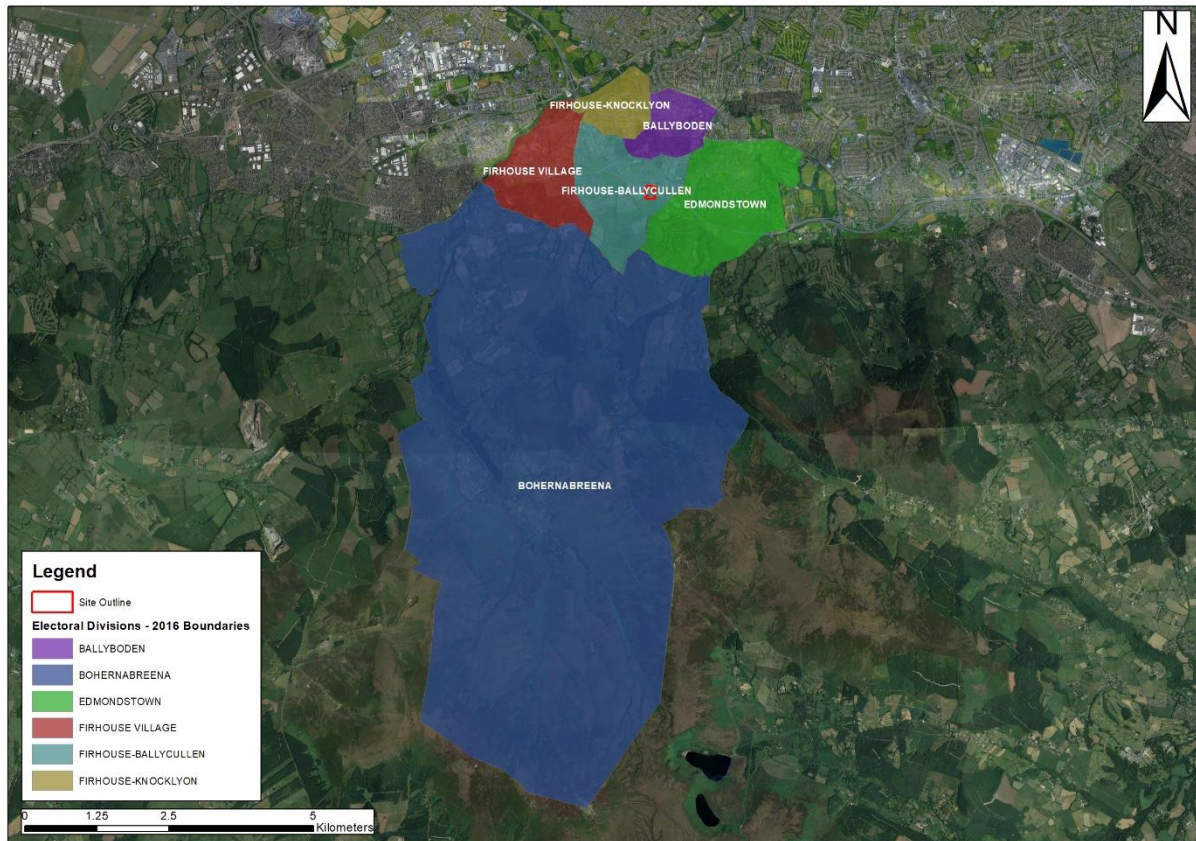


Figure 6.1: Map illustration the selected Study area for the proposed development (CSO, 2016)

6.5 Remedial and Mitigation Measures

The impacts on the local population in terms of residents and businesses are considered to be mainly positive in the sense of creating direct employment opportunities and indirect additional business, both during the construction and operational phases.

Mitigation measures proposed to minimise the potential impacts on human health in terms of air quality and climate and noise and vibration are discussed in the relevant sections of Chapters 11 and 12, respectively.

Chapter 14 Traffic and Transportation addresses mitigation measures proposed to reduce the impact of additional traffic movements to and from the development.

6.6 Residual Impacts

It is expected that the proposed development will have a not significant, positive and long-term impact on the immediate hinterland through continued employment opportunities and the associated economic and social benefits.

There are no predicted adverse impacts with respect to socio-economic factors, land-use or the amenity value and tourism potential of the area, primarily due to the location of the proposed development which is in an area of established residential development.



All other environmental aspects relating to the human environment which have the potential to impact on the local population such as air quality and climate, noise and vibration, material assets and traffic are addressed in Section 6.6.8 and in more detail in the relevant chapters of this EIA Report.

Measures outlined in Sections 6.5.6 and 6.6.5 will be put in place to ensure the health and safety of all site personnel and residents during both construction and operational phases.

6.7 Cumulative Impacts

Permitted developments in the vicinity of the proposed development are listed in Table 3.1, set out in Chapter 3. There is no predicted significant cumulative impact associated with the construction or operational phase of these projects.

The proposed development has been designed to ensure there are no significant residual effects on human health when taking into account the surrounding land uses. As such it is anticipated that the proposed development will not have a significant effect on human health.

As the proposed development will have a positive impact on the immediate hinterland and the South Dublin Region through economic and social benefits, it is concluded that any cumulative impacts on population and human health will be positive and long-term.

6.8 Conclusion

It is not predicted that the proposed development will have any adverse effects on human health during either the construction or operational phase.

The proposed development will have numerous direct and indirect benefits on a regional and national scale and will have an overall positive effect on the local, regional and national population in terms of providing key residential development to ameliorate the effects of the current housing crises.



7.0 BIODIVERSITY

7.1 Introduction and Methodology

This section of the Environmental Impact Assessment Report (EIAR) was carried out by Altamar Ltd. It assesses the biodiversity value of the proposed development area and the potential impacts of the development on the ecology of the surrounding area within the potential zone of influence (ZOI). It also outlines the standard construction, operational and monitoring measures that are proposed to minimise potential impacts and to improve the biodiversity potential of the proposed development site.

Desk studies were carried out to obtain relevant existing biodiversity information within the ZOI. The assessment extends beyond the immediate development area to include those species and habitats that are likely to be impacted upon by the project. Details of the proposed development are seen in Chapter 2 of the EIAR.

The programme of work in relation to biodiversity aspects of the EIAR have been designed to identify and describe the existing ecology of the area and detail sites, habitats or species of conservation interest. It also assesses the significance of the likely impacts of the scheme on the biodiversity elements and outlines measures to alleviate identified impacts.

A separate Appropriate Assessment Screening, in accordance with the requirements of Article 6(3) of the EU Habitats Directive, has been produced. It was determined that “having taking into consideration the effluent discharge from the proposed development works, the distance between the proposed development site to designated conservation sites, lack of direct hydrological pathway or biodiversity corridor link to conservation sites and the dilution effect with other effluent and surface runoff, it is concluded that this development that would not give rise to any significant effects to designated sites. A Preliminary Construction Management Plan has been prepared by DBFL.

7.2 Methods for the Ecology Assessment

A pre-survey data search was carried out. This included examining records and data from the National Parks and Wildlife Service, National Biological Data Centre, the Environmental Protection Agency, in addition to aerial, 6 inch maps and satellite imagery. A detailed desktop review and field surveys were carried out, initially in November 2019, with additional site visits up to April 2020 as outlined in Table 7.1. All ecological elements were carried out by Bryan Deegan MCIEEM.

Proximity to designated conservation sites and habitats or species of conservation interest
Designated conservation sites within 15km of the site outline were studied. This included sites of National importance ((Natural Heritage Areas (NHA), proposed Natural Heritage Areas (pNHA) and Ramsar sites in addition to Natura 2000 sites (Special Areas of Conservation (SAC) and Special Protection Areas (SPA)).

Up to date GIS data (National Parks and Wildlife Service (NPWS) WMS data in addition to shapefiles) were acquired and plotted against 5, 10 and 15km buffers from the proposed development site. Where there was a potential for the ZOI to be influenced by natural biodiversity corridors e.g. rivers or woodland these were also take into account and assessment extended. A data search of rare and threatened species within 5km of the



proposed site was provided by NPWS. Additional information on rare and threatened species was researched through the National Biodiversity Data Centre maps data search and previous planning applications in the vicinity.

Habitats, Flora and Avian Ecology

A pre-survey data search was carried out. This included a literature review to identify and collate relevant published information and ecological studies previously conducted and comprised of information from the following sources; the National Parks and Wildlife Service, NPWS Rare and Protected Species Database, National Biodiversity Data Centre, in addition to aerial, 6 inch, satellite imagery. Following the desktop study, a walk-over assessments of the site was carried out on the 10th March 2020 and on the 16th April 2020. Habitat mapping was carried out according to Fossitt (2000) using ArcGIS 10.5 and displayed on Bing satellite imagery. Flora assessment was carried out on the 16th April 2020. Any rare or protected species were noted. Two transects of 200m long were carried out along treelines within the site and bird species seen or heard within 100m of the recorder were noted. Additional observations were noted on species within the fields and additional records were noted. A survey for mammals was carried out by means of a thorough search within the study area. The presence of mammals is indicated principally by their signs, such as resting areas, feeding signs or droppings - though direct observations are also occasionally made. The survey also included search for habitats suitable for amphibians and reptiles.

The nature and type of habitats present are also indicative of the species likely to be present; the habitats present were assessed in general accordance with techniques adopted for the Badger & Habitat Survey of Ireland (Smal, 1995) and habitats listed by Fossitt (2000). The field survey was supplemented by an evaluation of relevant literature and existing information. Survey for mammals was conducted in March, within the appropriate season for badger *Meles meles* surveys. Badger surveys are best conducted in winter (December to April, with optimum period mid-January to April). Survey for amphibians is best conducted in spring (late February to late March) when breeding sites can be identified.

Bat Fauna

A bat assessment was undertaken on 16th April 2020 by Bryan Deegan, within the optimal survey period. The onsite habitats were visually assessed for their favourability for bats and the site survey was supplemented by a review of Bat Conservation Ireland's (BCIreland) Bat Records Database. No artificial structures were present on site that would be of bat roosting potential. Onsite trees were assessed for their bat roosting potential. The presence of bats is often shown by grease staining, droppings, corpses, feeding signs such as invertebrate prey remains and/or the presence of bat fly Nycteribiidae pupae, although direct observations are also occasionally made. The site survey was supplemented by a review of Bat Conservation Ireland's (BCIreland) National Bat Records Database. The bat assessment was undertaken within the active bat period (March – October) when a detector survey is possible. Temperatures were 10°C after sunset that at night. Winds were light and there was no rainfall.

Invasive Species

On the 20th April 2020 the proposed development site was surveyed and an assessment carried out for the presence of invasive species that are listed under the European legislation, the Birds and Natural Habitats Regulations 2011 (SI 477 of 2011), Section 49(2) which prohibits the introduction and dispersal of species listed in the Third Schedule whereby "any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow shall be guilty of an offence."

Difficulties Encountered

No difficulties were encountered in relation to the preparation of the Biodiversity chapter of the EIAR. The second fieldwork date was in the initial stages of the Covid 19 pandemic. The site survey was carried out on site by a single outdoor fieldworker with no contact with any other person.

7.3 Proximity to Designated Conservation Sites and Habitats or Species of Conservation Interest

As can be seen from Figures 7.1 to 7.6 there are no conservation sites within one kilometre of the proposed development site. The distance and details of the Natura 2000 sites (SAC & SPA) within 15km and NHA (including pNHA's) within 10km of the proposed development are seen in Table 7.2. There is an indirect pathway to the River Dodder via the public surface water network. It should be noted that no species of conservation importance were noted on site, based on NPWS and NBDC records. The common frog (*Rana temporaria*) was noted by NPWS 500m to the west of the site. The Irish Stoat (*Mustela erminea* subsp. *Hibernica*) and common frog (*Rana temporaria*) were noted in the 1km² grids to the south. No species of conservation importance were noted by NBDC within or in the vicinity of the site.

Site Code	Conservation Site	Distance
SAC		
IE0001209	Glenasmole Valley SAC /pNHA	4.0 km
IE0002122	Wicklow Mountains SAC	4.2 km
IE0000210	South Dublin Bay SAC/pNHA	8.7 km
IE0001209	Knocksink Wood SAC	9.5 km
IE000713	Ballyman Glen	12.1 km
IE0000206	North Dublin Bay SAC/pNHA	13.1 km
IE0003000	Rockabill to Dalkey Island SAC	14.6 km
SPA		
IE0004040	Wicklow Mountains SPA	3.9 km
IE0004024	South Dublin Bay and River Tolka Estuary SPA	8.6 km
IE0004006	North Bull Island SPA/Ramsar	13.2 km
IE0004172	Dalkey Islands SPA	14.4km
Other pNHA's		
000991	Dodder Valley	2.4 km
001209	Glenasmole Valley	4.2 km
001753	Fitzsimon's Wood	4.9 km
001212	Lugmore Glen	6.4 km
002104	Grand Canal	6.6 km
001202	Ballybetagh Bog	8.8km
000211	Slade of Saggart and Crooksling Glen	8.8 km
001207	Dingle Glen	9.2 km
000210	Boosterstown Marsh & South Dublin Bay	8.5 km
000725	Knocksink Wood	9.3 km
002103	Royal Canal	9.5 km
001755	Glencree Valley	9.7 km

Table 7.1. Proximity to designated sites of conservation importance.



7.4 Mitigation Measures & Monitoring

Mitigation measures will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the ZOI. These measures are outlined below in sequence and incorporate elements outlined elsewhere in this EIAR and in the DBFL Construction Management Plan. It should be noted however, that additional measures may be incorporated into the proposed project following detailed discussions with County Council

As the main potential vector for impacts would be seen to be via the indirect pathway to the River Dodder via the public surface water connection measures should be in place to protect the biodiversity of the River Dodder and the Dodder Valley pNHA. However, there is significant dilution and mixing in the River Dodder, when it meets the River Liffey and when the River Liffey enters into its estuarine stage and Dublin Bay. Based on this mixing and dilution there would be deemed to be no significant effects on the Natura 2000 sites in the absence of controls on site. The measures outlined are not necessary for the protection of Natura 2000 sites. No additional mitigation measures are required besides those outlined below, during the construction and operational phases of the development, to protect against potential negative impacts on designated conservation sites.

Mitigation Measures & Monitoring

Mitigation measures will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the ZOI. These measures are outlined below in sequence and incorporate elements outlined elsewhere in this EIAR and in the DBFL Construction Management Plan. It should be noted however, that additional measures may be incorporated into the proposed project following detailed discussions with County Council

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Construction Phase

Relevant mitigation measures relating to the construction phase of the proposed development are set out in the preliminary Construction Management Plan, prepared by DBFL, appended to the EIAR.

7.4.1 Additional measures to be carried out to prevent impacts on Habitats, Botany and Avian Ecology

- Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) in relation to the removal of trees and timing of nesting birds will need be followed e.g. do not remove trees or shrubs during the nesting season (1st March to 31st August).



- Replanting of the perimeter treelines, hedgerows and wildflower meadows should be carried out with native species.
- Construction operations outside of daylight hours should be kept to a minimum in order to minimise disturbance to fauna in addition to roosting bird species.
- Removal of deciduous trees. Should any mature broadleaved tree be scheduled for removal as part of the development plans, it should first be surveyed for bat presence by a suitably experienced specialist. If bats are found, an application for a derogation licence should be made to the National Parks and Wildlife Service to allow its legal removal. Such trees should ideally be felled in the period late August to late October, or early November, in order to avoid disturbance of any roosting bats as per National Roads Authority guidelines (NRA 2006a and 2006b) and also to avoid the bird breeding seasons. Tree felling should be completed by mid-November at the latest as bats roosting in trees are very vulnerable to disturbance during their hibernation period (November – April). Trees may be removed at other times but the likelihood of encountering bats during works will be higher. Trees with ivy-cover, once felled, should be left intact onsite for 24 hours prior to disposal to allow any bats beneath foliage to escape overnight.
- Trees to be retained. Several species of bats roost in trees. Where possible, treelines and mature trees that are located immediately adjacent to planned construction areas or are not directly impacted should be avoided and retained intact. Overall impacts on these sites should be reduced through modified design and sensitivity during construction. Retained trees should be protected from root damage by machinery by an exclusion zone of at least 5 metres or equivalent to canopy height. Such protected trees should be fenced off by adequate temporary fencing prior to other works commencing.
- Boundary vegetation. Linear features such as hedgerows and treelines serve as commuting corridors for bats (and other wildlife) and the onsite boundary vegetation should be retained and/or replaced once construction ends. Native species should be chosen in all landscaping schemes. Planting schemes should attempt to link in with existing wildlife corridors (hedgerows and treelines), both onsite and off, to provide continuity of wildlife corridors. Retention of boundary hedgerows and treelines will also serve to screen the development.
- Lighting restrictions. In general, artificial light creates a barrier to bats so lighting should be avoided where possible. Where lighting is required, directional lighting (i.e. lighting which only shines on work areas and not nearby countryside) should be used to prevent overspill. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvers and shields to direct the light to the intended area only. Mature trees should not be directly lit during construction or operation of the proposed development.

7.5 Residual Impacts

None of the Natura 2000 sites (SAC & SPA) are within the potential Zone of Influence of this development. The nearest conservation site with a hydrological connection (Dodder Valley pNHA via public surface water network) to the site is 2.4 km downstream from the proposed



development. No intact terrestrial biodiversity corridors connect the development area to a designated conservation site. The development footprint is dominated agricultural grassland and scrub habitat. The majority of the oak treeline will be retained. The ash and sycamore treeline across the centre of the site will be removed.

The successful implementation of a the CMP and additional measures outlined in this chapter of the EIAR would be seen as important elements to the successful mitigation/offsetting of the loss of biodiversity on site.

The proposed development has satisfactorily addressed the current ecology on site into its design so that application of the mitigation measures outlined in this EIAR will help reduce its impact on the local ecology to an adequate level. It is felt that where possible biodiversity enhancement measures have been retained and implemented into design to enhance the overall biodiversity value of the site. The overall impact on the ecology of the proposed development will result in a long term slight neutral residual impact on the existing ecology of the site and locality overall. This is primarily as a result of the loss of terrestrial habitats on site, supported by the creation of additional terrestrial biodiversity features, mitigation measures and a sensitive native landscaping strategy.

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Removal of deciduous trees. Should any mature broadleaved tree be scheduled for removal as part of the development plans, it should first be surveyed for bat presence by a suitably experienced specialist. If bats are found, an application for a derogation licence should be made to the National Parks and Wildlife Service to allow its legal removal. Such trees should ideally be felled in the period late August to late October, or early November, in order to avoid disturbance of any roosting bats as per National Roads Authority guidelines (NRA 2006a and 2006b) and also to avoid the bird breeding seasons. Tree felling should be completed by mid-November at the latest as bats roosting in trees are very vulnerable to disturbance during their hibernation period (November – April). Trees may be removed at other times but the likelihood of encountering bats during works will be higher. Trees with ivy-cover, once felled, should be left intact onsite for 24 hours prior to disposal to allow any bats beneath foliage to escape overnight.

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equivalent to canopy height. Such protected trees should be fenced off by adequate temporary fencing prior to other works commencing.

Boundary vegetation. Linear features such as hedgerows and treelines serve as commuting corridors for bats (and other wildlife) and the onsite boundary vegetation should be retained and/or replaced once construction ends. Native species should be chosen in all landscaping schemes. Planting schemes should attempt to link in with existing wildlife corridors (hedgerows and treelines), both onsite and off, to provide continuity of wildlife corridors. Retention of boundary hedgerows and treelines will also serve to screen the development.

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8.0 LAND AND SOILS

8.1 Introduction

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

8.2 Methodology

An assessment of the likely impact of the proposed development on soils and the geological environment included the following activities:

- Preliminary Ground Investigation Study.
- Review of information available on the Geological Survey of Ireland (GSI) online mapping service.

Preliminary Ground Investigations for the proposed development were carried out by Ground Investigations Ireland in March 2020 and included the following scope of work:

- 11 No. Dynamic Probes
- 2 No. Infiltration Tests
- 10 No. Trial Pits
- 4 No. Window Samples

Refer to Appendix 8-A for Preliminary Ground Investigation Information (GII, Project No. 9411-02-20 – Dynamic Probe Logs, Infiltration Test Results, Trial Pit Logs and Window Samples).

8.3 Receiving Environment

8.3.1 Soils

Ground conditions at the site, as observed during Preliminary Ground Investigations, are summarised as follows:

- 0.2m to 0.4m thick topsoil layer overlying;
- 0.3m to 0.75m stratum of soft to firm, slightly sandy, slightly gravelly CLAY with occasional subangular to subrounded cobbles overlying;
- Firm to very stiff, slightly sandy, slightly gravelly CLAY with occasional subangular to subrounded cobbles (to target trial pit depth of 3.0m);
- Made ground (comprising of slightly sandy gravelly Clay with plastic, brick and concrete fragments) was encountered at two trial pit locations (TP 03 and TP 009 adjacent to the site' western and eastern boundary) to a depth of approx. 1.1m. Sublayers consistent with the rest of the site was observed below made ground at these locations (as described above);
- A thin layer of Tarmacadam above made ground was also observed at Trial Pit 03 (approx. 0.1m thick). Sublayers consistent with the rest of the site was observed below this asphalt layer (as described above);
- Groundwater ingress was encountered at trial pits located in the southern portion of the site (at depths ranging from 0.9m and 2.8m below existing ground level).



Infiltration tests were carried out at two locations (sites of proposed attenuation facilities). Test results indicate that soils are impermeable with no infiltration recorded.

8.4 Potential Impact of the Proposed Development

8.4.1 Construction Phase

8.4.1.1 Stripping of Topsoil

Removal of the existing topsoil layer will be required. As noted previously, it is expected that all stripped topsoil will be reused on site (incorporated into landscaping of back gardens, public open spaces and on the podium deck).

Stripping of topsoil will result in exposure of the underlying subsoil layers to the effects of weather and construction traffic and may result in subsoil erosion and generation of sediment laden runoff.

	Volume (m ³)
Topsoil strip (200mm to 400mm)	10,000
Topsoil reuse (landscape of gardens, open space, podium deck etc.)	10,000

Table 8.1: Preliminary Estimated Topsoil Volumes (+/- 10%)

8.4.1.2 Excavation of Subsoil Layers

Excavation of existing subsoil layers will be required in order to allow road construction, basement construction, foundation excavation, drainage and utility installation and provision of underground attenuation of surface water.

Underlying subsoil materials generally comprise sandy slightly gravelly CLAY (refer to Section 8.3.1).

Due to the proposed site layout (basement construction with ground floor levels and external pavement levels designed to follow the natural topography of the site), there is limited potential for reuse of excavated material as non-structural fill.

As such, it is proposed to remove the majority of the excavated material from site to a licenced waste receiving facility (subject to the approval of the facility operator in accordance with their facility permit or licence).

	Volume (m ³)
Cut (excavation of subsoil layers as described in 7.5.1.2 above)	10,000
Disposal of Excavated Subsoil	7,500
Reuse of excavated material as non structural fill	2,500

Table 8.2: Excavation of Subsoil / Reuse of Excavated Material (+/- 10%)



8.4.1.3 Imported Fill

Materials imported to site for use as fill will be natural stones sourced from locally available quarries or materials that have been approved as by-products by the EPA in accordance with the EPA's criteria for determining a material is a by-product, per the provisions of article 27(1) of the European Communities (Waste Directive) Regulations, 2011.

Imported fill materials will be granular in nature and used in the construction of pavement foundations, drainage and utility bedding and surrounds and as structural fill under buildings.

Materials will be brought to site and placed in their final position in the shortest possible time. Any imported material will be kept separate from the indigenous arisings from the site.

All excavation to accommodate imported material will be precisely co-ordinated to ensure no surplus material is brought to site beyond the engineering requirement.

	Volume (m ³)
Imported Granular Material (granular material beneath road pavement, under floor slabs and for drainage and utility bedding and surrounds)	10,000

Table 8.3: Imported Granular Material (+/- 10%)

8.4.1.4 Construction Traffic

Earthworks plant (e.g. dump trucks) and vehicles delivering construction materials to site (e.g. road aggregates, concrete deliveries etc.) have potential to cause rutting and deterioration of the topsoil layer and any exposed subsoil layers, resulting in erosion and generation of sediment laden runoff.

This issue can be particularly noticeable at site access points (resulting in deposition of mud and soil on the surrounding road network). Dust generation can also occur during extended dry weather periods as a result of construction traffic.

8.4.1.5 Accidental Spills and Leaks

During the construction phase there is a risk of accidental pollution from the sources noted below. Accidental spills and leaks may result in contamination of the soils underlying the site.

- Storage of oils and fuels on site
- Oils and fuels leaking from construction machinery
- Spillage during refuelling and maintenance of construction machinery
- Use of cement and concrete during construction works

8.4.1.6 Geological Environment

Due to the proposed site layout (basement construction with ground floor levels and external pavement levels designed to follow the natural topography of the site), any excavations are expected to be relatively shallow and are not expected to impact on the underlying geology.



8.4.2 Operational Phase

On completion of the construction phase, there will be no further impact on soils and the geological environment.

8.4.3 'Do Nothing' Scenario

There will be no impact on soils and the geological environment if the development does not proceed.

8.5 Ameliorative, Remedial or Reductive Measures

8.5.1 Construction Phase

8.5.1.1 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.

8.5.1.2 Excavation of Subsoil Layers

Design of proposed road and floor levels has minimised excavation of existing subsoil layers. Disturbed subsoil layers will be stabilised 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).



8.5.1.3 Imported Fill

As noted in section 8.5.1.3 of the EIAR, 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.

8.5.1.4 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.

8.5.1.5 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.

Refuelling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any surface water inlets (when not possible to carry out such activities off site).

8.5.1.6 Geological Environment

No mitigation measures are proposed in relation to the geological environment.

8.5.2 Operational Phase

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.

8.5.3 'Do Nothing' Scenario

No mitigation measures are proposed in relation to soils and the geological environment if the development does not proceed.



9.0 Landscape & Visual Impact Assessment

9.1 Introduction

Mitchell + Associates was engaged by Ardstone Homes to prepare a Landscape and Visual Impact Assessment (LVIA) as part of the Environmental Impact Assessment Report (EIAR) for this proposed residential development at White Pines East, Rathfarnham, Dublin 16. This Chapter of the LVIA will assess 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 will consider these in the context of the site, in the south-western suburbs of Dublin. It will describe the landscape character of the subject site and its hinterland, together with the visibility of the site from significant viewpoints in the locality. It will include 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 will be considered and the resultant predicted (residual) impacts outlined.

This preliminary report should be read with reference to the Architectural Design Statement prepared by John Fleming Architects and with the initial photomontages, which are contained in a separate A3 report prepared by 3D Design Bureau.

9.2 Potential Impact of the Proposed Development

A development such as this proposal has the potential to impact significantly upon the landscape and visual aspects of the existing environment in a number of ways, at both construction and operational stages. Effects can be short or long term; temporary or permanent. The purpose of this section of the report is to describe the potential effects of such proposed development; upon the visual and landscape aspects of the immediate area, and further afield, where relevant.

9.2.1 Construction Phase

Potential visual impacts during the construction phase are related to temporary works, site activity, and vehicular movement within and around the subject site. Vehicular movement may increase in the immediate area, and temporary vertical elements such as scaffolding, site fencing, gates, plant and machinery etc., will be required and put in place. All construction impacts will be temporary, and may include the following:

- Site preparation works and operations (incl tree protection measures)
- Site excavations and earthworks
- Site infrastructure and vehicular access
- Construction traffic, dust and other emissions
- Temporary fencing/hoardings
- Temporary site lighting
- Temporary site buildings (including office accommodation)
- Cranes and scaffolding



9.2.2 Operational Phase

The proposed development will consist of the insertion of new residential buildings, road infrastructure and associated ancillary elements onto the subject site and will replace the existing green fields currently covering the site. It should be noted that the location and effectiveness of some of the existing field boundary hedgerows and mature trees if retained, will assist in restricting and screening existing views into the site from without. The potential impact of the proposed development however, could be negative, particularly if some of the more valuable existing boundary vegetation is damaged or degraded. Many aspects of the proposed scheme design are included specifically to respond to such issues and any associated concerns. The design approach and specific mitigation measures employed to address such sensitive contextual issues and to respect and enhance the local rural environs are outlined in Section 9.6 'Avoidance, Remedial and Mitigation Measures', below.

9.2.3 'Do Nothing' Impact

If the proposed development were not to proceed, the site would presumably (in terms of its landscape impact), remain in its present form for a period. In such circumstances the current pattern of land degradation would also presumably continue. All existing tree and scrub vegetation, including boundary hedgerows would continue to grow and mature, subject to their maintenance and management by the current landowner and adjoining occupiers, as appropriate to the circumstances.

9.3 Avoidance, Remedial & Mitigation Measures

9.3.1 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. This is generally viewed as a temporary and unavoidable feature of construction in any setting. Other mitigation measures proposed during this delivery 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. Such mitigation will be set out in the Preliminary Construction Management Plan prepared by DBFL Consulting Engineers. This is a working document which will be continually reviewed and amended to ensure effective mitigation throughout the construction period. The Preliminary Construction Management Plan references construction phase mitigation measures as relevant to the assessment of Landscape and Visual impact.

9.3.2 Operational Phase

The proposed scheme is designed to integrate well within its existing context. This will be accomplished through:

- Establishing an integrated and respectful relationship between the existing housing and the proposed development, incorporating aspects of prevalent built forms, scale, texturing, colour and materials;



- The insertion, positioning and modelling of the built elements, in order to assist in the visual reduction of the apparent mass of buildings – in particular, the siting of the higher 8-storey apartment block along the northern edge of the site, closer to the M50 and the siting of the 3 no. single storey 2-bed houses adjacent to the existing 2-storey houses on the eastern edge of the White Pines North residential development;
- Appropriate architectural detailing to assist in the respectful integration of the external building facades – including the modulation of openings and fenestration in a manner that reflects current local proportions and rhythms.
- Rationalisation of all services elements and any other potential visual clutter and its incorporation internally within building envelopes (as far as practically possible).
- Use of appropriate and harmonising colour, tones and materials
- The provision, maintenance and management of a sensitively considered soft landscape design for the development, which assists in the integration and screening of the buildings within the existing landscape.

9.4 Residual Impacts

9.4.1 Introduction

The proposed development will impact on the landscape to varying degrees in terms of its perceived nature and scale. These impacts are tempered and conditioned by sensitivities associated with the receptor, however the adjacent and surrounding land uses are also residential in character so adverse sensitivity on the basis of the nature of the development would not be expected. The duration of such impacts is however determined by the design life of the proposed development as tempered by the mitigating effect of the maturing designed landscape proposed as an integral part of the development. In this case the development has an expected life of up to 60 years. Impacts on landscape character are therefore deemed to be of long-term duration in this instance.

In assessing the landscape character impacts specifically, there are three main inter-related aspects to be addressed in considering the development proposals, namely:

- The perceived character of the existing residential urban edge/rural landscape – how it is impacted by the proposal;
- Impacts of the proposed development on social and cultural amenity and;
- The proposed views of the development relative to the existing site (outlined in 9.8) and the associated impact on visual amenity.

9.4.2 Construction Phase

Initially the erection of site hoarding and tree protection fencing will be completed, site access points established and site accommodation units placed. Early in the construction period, topsoil stripping and excavations for building foundations will commence. Removal and/or storage of excavated materials from site and the delivery of construction materials will generate increased traffic within, to and from the site.

As construction progresses over the construction period, visual impacts will vary, with the on-going business of construction - delivery and storage of materials, the erection of the buildings, etc. Mitigation measures have been proposed as per section 9.6.1 'Avoidance, Remedial and Mitigation Measures' to minimise the impact of the construction works on the site environs.



People living in the existing residential estate to the west of the site will be impacted negatively to a slight extent by the construction of the proposed development. For the more sensitive of these receptors (occupiers of existing houses backing onto the subject site boundary), the visual impact of the proposed development during construction will vary from slight and neutral to moderate and negative, depending on the stage of construction, and the intensity of site activity. The construction impacts will be of short-term duration.

9.4.3 Operational Phase

9.5 Impact on the landscape character of the area and on social and cultural amenity

Whilst the term 'landscape character' is generally held to involve more than simply appearances, there is little doubt that a place's visual qualities contribute most to its character. Generally speaking, this is particularly so for say, visitors whose experience is often fleeting. In the context of the proposed development, impacts will typically be felt by people who live nearby, who may no longer enjoy a prospect of the green fields behind them, rather a view (albeit in some areas, filtered by retained hedgerows and trees) of a housing scheme similar in many respects to that in which they live.

One might surmise that the current landscape character of this area is perceived largely by local people as essentially former agricultural land located in the Dublin suburbs. However, the actual visual penetration into the site from the main public access routes is somewhat limited due largely to the presence of existing intervening groups of trees and hedgerows – this has the effect of limiting impact to those residing more closely to the site.

It is clear that the insertion of any proposed development into this existing, fairly open site will alter the landscape context of the area to an extent, however this is an emerging, planned trend in the area. In addition, clear views-in are actually quite limited and this will limit associated impacts.

The existing site with limited access into it, offers little in the way of an amenity resource for the local populace. The proposed development will not greatly alter that but will provide open space amenities for residents. The scheme design provides linkage into and through the scheme as appropriate, for both vehicles and pedestrians.

9.6 Visual impact

The assessment of visual impact is determined through the comparison of 'before' and 'after' photomontages – it is therefore, perhaps, a little less subjective than an assessment of landscape character. It too is inevitably influenced to some extent by the standpoint of the viewer (the receptor). The assessment of visual impacts created by the proposed development includes a consideration of the visual impacts on the visual environment likely to be impacted. A total of 15 photomontages has been prepared that illustrate the visual impact of the proposed development on the surrounding landscape. They will be included in a separate A3 report submitted with the planning application for the proposed development. In this photomontage report the existing view from each viewpoint is shown together with the proposed development as seen from the same viewpoint. The red line that appears on some of the proposed photomontages indicates the location of the new development in the background, which in such cases is largely screened from view by distance, the intervening built environment, topography or vegetation.



Because the design life of the proposed development is up to 60 years, the duration of predicted visual impacts is assessed as long term, as is the case for residual landscape character impacts (refer to section 9.7.3.1).

The assessment of visual impacts through the use of comparative photomontages serves to identify impacts upon the visual environment. The photomontages are important in illustrating the impact of the proposed scheme from the more sensitive viewpoints. In this instance, they also serve to support and illustrate an aspect of the landscape character impact assessment.

It is important to remember that whilst photomontages are a useful tool in illustrating comparative visual impact, they are recognised as having their limitations and potential dangers. The guidelines for their use in assessment clearly advocate their use in the context of a site visit to the viewpoint locations and point out that photomontages alone should not be expected to capture or reflect the complexity underlying the visual experience (refer to the GLVIA, 3rd Edition and the Landscape Institute's Advice Note 01/11).

9.7 Assessment of views

The chapter also includes a detailed assessment of 15 no. verified views. As detailed in Section 9.8, photomontages were prepared for 15 views from a range of viewpoints. For each view, the significance/magnitude and quality/sensitivity of the impact are assessed in outline.



10.0 HYDROLOGY

10.1 Introduction

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.

The proposed surface water drainage network accords with SUDS principles, forms a single catchments and discharges to an existing 375mm diameter surface water drain (which runs along the site's northern boundary) at a controlled greenfield runoff rate of 4.6 L/Sec/Ha.

The proposed development's foul drainage network discharges to an existing 300mm diameter foul sewer located along the site's northern boundary. Pre-Connection Feedback has been received from Irish Water (dated 26th March 2020) which 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 500mm diameter water main runs along the southern side of Stocking Avenue. An existing 150mm diameter water main network is also located within the Stocking North development (SD14A/0222) which is located immediately west of the site. The proposed development's water supply is to be taken from the 500mm diameter water main on Stocking Avenue and connect back into the 150mm diameter network located within Stocking North.

Existing 12" and 15" diameter bulk water mains traverse the site from west to east (in the vicinity of the site's northern extents). Irish Water has a wayleave over these water mains.

As noted previously, Pre-Connection Feedback received from Irish Water (dated 26th March 2020) 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".

10.2 Flood Risk

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).

OPW Flood Hazard Mapping

OPW's Summary Local Area Report is included in Appendix 10.A (Flood Hazard Information).



This report is sourced from the OPW website (www.floodmaps.ie) and summarises all flood events within 2.5 km of the site. No flood events or benefitting lands are noted in the immediate vicinity of the site.

Eastern CFRAM Study

Extracts from the Dodder Catchment Flood Risk Assessment and Management Study are included in Appendix 10-A (Flood Hazard Information) which indicates the extent of fluvial flooding in the vicinity of the site.

The closest modelled node to the site is located on the Owendoher River (approx. 900 m east of the site. No fluvial flooding is indicated in the vicinity of the site.

10.3 Foul Drainage

Existing public foul drainage infrastructure is located along the northern boundary of the site (refer to Figure 10.5). As the site falls from its northern boundary toward its southern boundary, this existing infrastructure will facilitate a gravity foul drainage connection.

As previously noted, Pre-Connection Feedback has been received from Irish Water (dated 26th March 2020) 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”.

[Refer to Appendix 10.B for Correspondence with Irish Water.]

10.4 Surface Water Drainage

Existing public surface water drainage infrastructure is located along the northern boundary of the site (refer to Figure 10.2) and outfalls via a pipeline under the M50 and onwards through piped networks in the Scholarstown / Knocklyon areas (ultimately discharging to the River Dodder).

As the site falls from its southern boundary toward its northern boundary, this existing infrastructure will facilitate a gravity surface water drainage connection.

10.5 Water Supply

An existing 500mm diameter water main runs along the southern side of Stocking Avenue.

An existing 150mm diameter water main network is also located within the Stocking North development (SD14A/0222) which is located immediately west of the site. The proposed development's water supply is to be taken from the 500mm diameter water main on Stocking Avenue and connect back into the 150mm diameter network located within Stocking North.

10.6 Potential Impacts of the Proposed Development

10.6.1 Construction Phase

Potential impacts that may arise during the construction phase are noted below:



- Surface water runoff during the construction phase may contain increased silt levels (e.g. runoff across areas stripped of topsoil) or become polluted by construction activities.
- Discharge of rain water pumped from excavations may also contain increased silt levels (potential impact on existing hydrology e.g. accidental discharge to existing surface water drainage network).
- 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. (potential impact on existing hydrology e.g. infiltration to ground).
- Discharge of vehicle wheel wash water (potential impact on existing hydrology e.g. discharge to existing surface water drainage infrastructure).
- Improper discharge of foul drainage from contractor's compound (impact on existing hydrology e.g. cross-contamination of existing surface water drainage.).
- Cross contamination of potable water supply to construction compound.

10.6.2 Operational Phase

Potential operational phase impacts are noted below:

- Increased impermeable surface area will reduce local ground water recharge and potentially increase surface water runoff (if not attenuated to greenfield runoff rate).
- Accidental hydrocarbon leaks and subsequent discharge into piped surface water drainage network (e.g. along roads and in driveway areas).
- Increased discharge to foul drainage network (daily foul discharge volume of 160m³).
- Increased potable water consumption (post development average hour water demand of 2.1 l/sec).

10.7 Potential Cumulative Impacts

The proposed surface water drainage infrastructure has been designed in accordance with the relevant guidelines. Any other future development in the vicinity of the site would have to be similarly designed in relation to permitted surface water discharge, surface water attenuation and SuDS, therefore, no potential cumulative impacts are anticipated in relation to surface water drainage and flooding.

No potential cumulative impacts are anticipated in relation to foul drainage and water supply. As noted previously, Irish Water have advised 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".

10.7.1 Do Nothing Scenario

There are no predicted impacts should the proposed development not proceed.

10.8 Mitigation Measures



10.8.1 Construction Phase

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

- A site-specific Construction and Environment Management Plan has been developed and will be 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 included at Appendix 8 of this EIAR.
- 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 to the surface water network at a controlled rate.
- 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.
- 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).
- 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).
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds.
- 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.
- The construction compound's potable water supply shall be protected from contamination by any construction activities or materials.

10.8.2 Operational Phase

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.

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

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

Surface water runoff from the site will be attenuated to the greenfield runoff rate as outlined in the Greater Dublin Strategic Drainage Study (GSDSDS). 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:

- 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.
- Surface water runoff from mews roofs will be routed to the proposed surface water pipe network via the porous aggregates beneath permeable paved driveways
- 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. The podium will have a typical roof garden build up with a mix of soft landscaping and permeable hard landscaping (over a drainage board which would serve as a reservoir)
- Attenuation of the 30 year and 100 year return period storms
- Installation of a Hydrobrake (limiting surface water discharge from the site to 4.6 l/sec/ha)
- 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 GDSDS.
- Provision of min. freeboard (500mm) from 1% AEP as required by GDSDS (mitigation against impact of climate change).

10.8.3 Do Nothing Scenario

No mitigation measures are proposed in relation to water and the hydrological environment if the development does not proceed.

10.9 Predicted Impact of the Proposed Development



10.9.1 Construction Phase

Implementation of the measures outlined in Section 10.6.1 will ensure that the potential impacts of the proposed development on water and the hydrogeological environment do not occur during the construction phase.

10.9.2 Operational Phase

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

10.9.3 Do-Nothing Scenario

There are no predicted impacts should the proposed development not proceed.

10.10 Monitoring Measures

Construction Stage

Proposed monitoring during the construction phase in relation to the water and hydrogeological environment are as follows:

- Adherence to Outline Construction Management Plan
- Inspection of fuel / oil storage areas.
- Monitoring cleanliness of adjacent road network, implementation of dust suppression and vehicle wheel wash facilities.
- Monitoring sediment control measures (sediment retention ponds, surface water inlet protection etc.)
- 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.

10.11 Reinstatement

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 licensed facility. South Dublin County Council's Environmental Control Section is to be notified of the proposed destination for disposal of any liquid fuels.

All sediment control measures (e.g. sediment retention ponds) are to be decommissioned on completion of the construction phase. Such areas are to be reinstated in accordance with the landscape architects plan and engineer's drawings.



11.0 AIR QUALITY & CLIMATE

11.1 Introduction

This chapter assesses the likely air quality and climate impacts, if any, associated with the proposed White Pines East strategic housing development at Stocking Avenue, Co. Dublin. The proposed residential development will comprise the construction of No. 4 residential blocks on a site of c.2.98 hectares. The development site is located at Stocking Avenue, Ballycullen, Dublin 16.

This chapter has been prepared with regard to the following guidelines:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports – Draft (EPA, 2017);

11.2 Mitigation Measures

11.2.1 Construction Phase

11.2.1.1 Local 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 11.3 and Section 9 of the Construction and Environmental Management Plan, prepared by DBFL, appended to this EIAR.

- 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 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 designated 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.

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.

Monitoring of dust deposition levels (via the Bergerhoff method) shall take place at a number of locations at the site boundary of the development to ensure dust nuisance is not occurring at nearby sensitive receptors. This monitoring aims to ensure that the dust mitigation measures are being implemented properly throughout the site.

11.2.1.2 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 moderate scale of the works, the impact on climate will not be significant.

Nevertheless, some site-specific mitigation measures can be implemented during the construction phase of the proposed development to ensure emissions are minimised. In particular the prevention of on-site or delivery vehicles from leaving engines idling, even over short periods. Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site.

11.2.1.3 Operational Phase

The operational phase air quality impact is considered imperceptible and therefore no site specific mitigation measures are required. In general mitigation measures in relation to traffic-derived pollutants have focused generally on improvements in both engine technology and fuel quality. EU legislation, based on the EU sponsored Auto-Oil programmes, has imposed stringent emission standards for key pollutants (Regulation (EC) No 715/2007) for passenger cars which was complied with in 2009 (Euro V) and 2014 (Euro VI). Current emission standards which took effect in 2017 are Euro 6c and Euro 6d_{temp}.

Emissions of pollutants from road traffic can be controlled most effectively by either diverting traffic away from heavily congested areas or ensuring free flowing traffic through good traffic management plans and the use of automatic traffic control systems (UK DEFRA, 2016; 2018).

The Climate Action Plan 2019 (Government of Ireland, 2019) has outlined a number of actions to reduce the use of petrol/diesel vehicles and promote the uptake of electric vehicles in order to achieve the target of 500,000 electric vehicles on the road by 2030. The measures proposed include changes to VRT and motor tax to allow for this to be calculated based on CO₂eq, therefore higher emitting vehicles will pay increased tax rates, thus incentivising the purchase of lower emitting vehicles. VRT relief and Benefit in Kind exemptions as well as a vehicle



scrappage scheme are among other measures proposed. In addition, as part of Budget 2020, it is planned to introduce a NO_x emissions levy to all passenger cars from January 2020. The levy will be charged on a NO_x mg per kilometre basis. Overall, these measures will reduce pollutant levels in future years thus improving air quality.

11.3 Residual Impacts

11.3.1 Construction Phase

As with the proposed development, the primary source of air quality impacts during the construction phase of nearby committed developments will be the potential for nuisance dust impacts. The dust minimisation measures outlined for the proposed development should be implemented throughout the construction phase for all developments in the vicinity of the site to avoid any nuisance dust impacts occurring. Once these minimisation measures are in place the impact to air quality is considered short-term and imperceptible.

Construction machinery and vehicles have the potential to impact climate through the release of GHG emissions. However, based on the nature and scale of the proposed works CO₂ and N₂O emissions during the two year construction phase, there will be an imperceptible impact on climate.

The mitigation measures that will be put in place during construction of the proposed development should be implemented throughout the construction phase for all developments in the vicinity of the site to ensure that the impact of the developments complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the cumulative impact of construction of the proposed development with nearby developments is likely to be short-term and imperceptible with respect to human health.

11.3.2 Operational Phase

The local air quality impact assessment, regional air quality impact assessment and climate impact assessment described earlier in this section have all been based on cumulative traffic data incorporating projected traffic from existing and committed developments in the vicinity of the project site. As the outcomes of those assessments concluded that impacts will be long-term and imperceptible with respect to air quality and climate, no further cumulative impact assessment is required for the proposed development.

11.4 Monitoring

11.4.1 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.



11.4.1 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.

11.5 Difficulties Encountered

There were no difficulties encountered in preparing this Air Quality and Climate Assessment.



12.0 NOISE AND VIBRATION

12.1 Introduction and Research Methodology

AWN Consulting Ltd. has been commissioned to prepare this chapter of the EIAR, which includes

noise and vibration impact preplanning assessment of the proposed White Pines East development at Stocking Avenue, Dublin 16. This report provides a summary of the baseline environment, the relevant criteria adopted for the project, the key items to be assessed relating to noise and vibration and the methodologies to be employed.

A full description of the development can be found in Chapter 2.0 of this EIAR.

In terms of the site, noise and vibration will be considered in terms of two aspects. The first is the outward effect of the development (i.e. the potential effect of the buildings and commercial activities on existing sensitive receptors in the study area) and the inward effect of the existing noise and vibration sources on the development itself.

The study has been undertaken using the following methodology:

- Baseline noise monitoring has been undertaken at the development site location;
- A review of the most applicable standards and guidelines has been conducted in order to set a range of acceptable noise and vibration criteria for the construction and operational phases of the proposed development;
- Predictive calculations have been performed to estimate the likely noise and vibration emissions during the construction phases of the project at the nearest sensitive locations (NSL's) to the site;
- Predictive calculations have been performed to assess the potential effects associated with the operation of the development at the most sensitive locations surrounding the development site and inward on the development itself;
- A schedule of mitigation measures has been proposed, where relevant, to control the noise and vibration emissions associated with both the construction and operational phases of the proposed development, and;
- An initial risk assessment of the inward effect of noise in the surrounding environment into the proposed buildings has also been undertaken and the provision of outline mitigation measures has been provided to negate the impact.

Typical ambient noise levels across the local area have been measured and these are used to identify appropriate construction phase noise criteria. Proposed construction plant are also identified and expected noise output data used to predict likely noise levels at surrounding receptors. Predicted levels are assessed in the context of identified criteria, and mitigation measures, where required, are outlined.

12.2 Mitigation

12.3 Construction Phase - Noise

In terms of noise mitigation, the following are some typical measures that may be employed to reduce the effects of noise on the surrounding receptors:



- Use of a standard site hoarding, typically 2.4m height will be erected around the perimeter of the construction site for the duration of works;
- Limiting the hours during which site activities likely to create high levels of noise or vibration are permitted;
- Monitoring levels of noise and vibration during critical periods and at sensitive locations;
- Maintaining site access roads even so as to mitigate the potential for vibration from lorries;
- Selection of plant with low inherent potential for generation of noise and/ or vibration;
- Erection of barriers as necessary around items such as generators or high duty compressors;
- Situate any noisy plant as far away from sensitive properties as is reasonably practicable and the use of vibration isolated support structures where necessary;
- Establishing channels of communication between the contractor/developer, Local Authority and residents, and;
- Appointing a site representative responsible for matters relating to noise and vibration.

12.4 Operational Phase – Mechanical and Electrical Plant

As part of the detailed design of the development, plant items with appropriate noise ratings and, where necessary, appropriately selected remedial measures (e.g. enclosures, silencers etc.) will be specified in order that the adopted plant noise criteria is achieved at the façades of noise sensitive properties, including those within the development itself.

12.5 Operational Phase – Inward Noise

Review of the noise predictions indicates that the site is categorised as medium to high risk and as such will require noise mitigation measures. In terms of meeting the recommended internal noise levels consideration will be given to an upgraded acoustic façade specification for the buildings as well as barrier treatment along the M50 to attenuate noise intrusion into sensitive spaces as well as for the protection of external amenity areas.

12.6 Residual Effects

It is predicted that when works take place at the closest distances to the receptors a significant impact will occur. In addition, any rock breaking that may be required is likely to give rise to significant levels of noise temporarily at the various predicted distances. However, aside from breaking works, it's expected that most construction activities will not cause significant impacts at distances further than 25m of the receptor locations. It should be noted that the assessment can be considered worst case and it is unlikely that all items of plant assessed will be in operational simultaneously. Additionally, the predictions only indicate a potential significant effect (based on a worst-case scenario) when working at the closest location to the dwellings, with lesser impacts predicted at all other locations across site.

Residual impacts associated construction activities undertaken on site are categorised as:

<i>Quality</i>	<i>Significance</i>	<i>Duration</i>
Negative	Significant	Temporary



All other construction activities are categorised as:

<i>Quality</i>	<i>Significance</i>	<i>Duration</i>
Negative	Moderate	Short-term

12.6.1 Construction Vibration

The impacts are predicted to be as follows:

<i>Quality</i>	<i>Significance</i>	<i>Duration</i>
Negative	Not Significant	Short-term

12.6.2 Additional Traffic on Roads

The impacts are predicted to be as follows:

<i>Quality</i>	<i>Significance</i>	<i>Duration</i>
Neutral	Not Significant	Permanent

12.6.3 Operational Outward Noise Impact

The impacts are predicted to be as follows:

<i>Quality</i>	<i>Significance</i>	<i>Duration</i>
Neutral	Not Significant	Permanent

12.6.4 Inward Noise Impact

In terms of the inward noise impacts, specification of noise mitigation will be recommended so that internal noise criterion may be met. With mitigation measures in place it's expected that the impacts will be categorised as:

<i>Quality</i>	<i>Significance</i>	<i>Duration</i>
Neutral	Not Significant	Permanent

12.7 Cumulative Effects

There are a number of approved applications in the local area including Stocking Retail, South Dublin Reg. Ref. SD19A/0345 and Stocking South - South Dublin Reg. Ref. SD19A/0099/ ABP Ref. PL06S.304670. There is also a proposed application for White Pines Central that will lie directly to the south of this development.

It is expected that the phase most likely to be affected by cumulative impacts is the construction phase. Due to the proximity and adjacency of both the Stocking Retail site and the White Pines Central site it is likely that cumulative impacts will occur at the nearest receptor should all sites progress construction works simultaneously. In this scenario elevated construction noise emissions due to cumulative noise are likely to occur at receptor locations equidistant to both sites (i.e. the White Pines North site) as well as a potential increase in the length of time that the receptor will be exposed to construction noise. Hence, cumulative construction impacts will need to be considered and managed during the construction phase. It is recommended that liaison between construction sites is on-going throughout the duration



of the construction phase. Contractors should schedule work in a co-operative effort to limit the duration and magnitude of potential cumulative impacts on nearby sensitive receptors. Cumulative construction noise impacts are expected to be negative, significant and short-term.

During the operational phase any cumulative impacts will be due to an increase in road traffic noise. However, given the insignificant levels of noise increase as a result of the traffic associated with this proposed development, it is not expected that cumulative traffic noise will increase by any significant margin as a result of this proposed development.

12.8 Monitoring

12.8.1 Construction Stage

During the construction phase noise monitoring will be undertaken at the nearest sensitive locations to ensure construction noise limits outlined in Table 12.4 of the EIAR are not exceeded. Noise monitoring will be conducted in accordance with the International Standard ISO 1996: *Acoustics – Description, measurement and assessment of environmental noise* Part 1 (2016) and Part 2 (2017). The selection of monitoring locations will be based on the nearest sensitive buildings to the working areas.

It is recommended that noise control audits are conducted at regular intervals throughout the construction programme in conjunction with noise monitoring. The purpose of the audits will be to ensure that all appropriate steps are being taken to control construction noise emissions and to identify opportunities for improvement, where required.

12.8.2 Operational Stage

There is no monitoring recommended for the operational phase of the development as effects to noise and vibration are predicted to be not significant.

12.9 Reinstatement

Not applicable to noise and vibration.

12.10 1 Difficulties Encountered

There were no difficulties encountered while completing this assessment.



13.0 MATERIAL ASSETS – WASTE

13.1 Introduction

This chapter of the EIAR comprises an assessment of the likely impact of the proposed development on the waste generated from the development as well as identifying proposed mitigation measures to minimise any impacts.

A site-specific Construction and Demolition Waste Management Plan (C&D WMP) has been prepared by AWN Consulting Ltd to deal with waste generation during the construction phase of the project and has been included as Appendix 13.1. The C&D WMP was prepared in accordance with the 'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects' document produced by the National Construction and Demolition Waste Council (NCDWC) in conjunction with the Department of the Environment, Heritage and Local Government in July 2006.

A separate Operational Waste Management Plan (OWMP) has also been prepared for the operational phase of the development and is included as Appendix 13.2 of this chapter.

These documents will ensure the sustainable management of wastes arising at the development in accordance with legislative requirements and best practice standards

13.2 Potential Impacts of the Proposed Development

This section details the potential waste effects associated with the proposed development.

13.2.1 Construction Phase

The proposed development will generate a range of non-hazardous and hazardous waste materials during excavation and construction. General housekeeping and packaging will also generate waste materials as well as typical municipal wastes generated by construction employees including food waste.

Waste materials will be required to be temporarily stored on site pending collection by a waste contractor. Dedicated areas for waste skips and bins will be identified across the site. These areas will need to be easily accessible to waste collection vehicles.

If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the development and on adjacent developments. The knock-on effect of litter issues is the presence of vermin within the development and the surrounding areas.

The use of non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices.

Wastes arising will need to be taken to suitably registered/permited/licenced waste facilities for processing and segregation, reuse, recycling, recovery, and/or disposal as appropriate. There are numerous licensed waste facilities in the Eastern Midlands region which can accept hazardous and non-hazardous waste materials and acceptance of waste from the proposed development would be in line with daily activities at these facilities. At present, there is sufficient capacity for the acceptance of the likely C&D waste arisings at facilities in the region. Where possible, waste will be segregated into reusable, recyclable and recoverable materials. The majority of construction materials are either recyclable or recoverable.

Recovery and recycling of C&D waste has a positive impact on sustainable resource consumption, for example where waste timber is mulched into a landscaping product or waste asphalt is recycled for use in new pavements. The use of recycled materials, where suitable, reduces the consumption of natural resources.

In addition topsoil and subsoil excavated to facilitate site preparation, construction of foundations, and the installation of underground services. The project engineers have estimated that c. 10,000 m³ of material will require excavation. It is envisaged that some of this material will be removed offsite site in with c. 2,500m³ expected to be kept for onsite reuse (see Section 8.5.1.2). These estimates will be refined prior to commencement of construction. If the material that requires removal from site is deemed to be a waste, removal and reuse/recycling/recovery/disposal of the material will be carried out in accordance with the *Waste Management Act 1996 (as amended)*, the *Waste Management (Collection Permit) Regulations 2007 (as amended)* and the *Waste Management (Facility Permit & Registration) Regulations 2007 (as amended)*. The volume of waste requiring recovery/disposal will dictate whether a Certificate of Registration (COR), permit or licence is required for the receiving facility. Alternatively, the material may be classed as by-product under Article 27 classification (*European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011*).

The potential effect of construction waste generated from the proposed development is considered to be **short-term, not significant and neutral**.

13.2.2 Operational Phase

The potential impacts on the environment of improper, or a lack of, waste management during the operational phase would be a diversion from the priorities of the waste hierarchy which would lead to small volumes of waste being sent unnecessarily to landfill.

The nature of the development means the generation of waste materials during the operational phase is unavoidable. Networks of waste collection, treatment, recovery and disposal infrastructure are in place in the region to manage waste efficiently from this type of development. Waste which is not suitable for recycling is typically sent for energy recovery. There are also facilities in the region for segregation of municipal recyclables which is typically exported for conversion in recycled products (e.g. paper mills and glass recycling).



If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the development and on adjacent developments. The knock-on effect of litter issues is the presence of vermin within the development and the surrounding areas.

Waste contractors will be required to service the development on a regular basis to remove waste. The use of non-permitted waste contractors or unauthorised facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices.

The potential impact of operational waste generation from the development is considered to be **long-term, not significant** and **negative**.

13.3 Mitigation Measures

This section outlines the measures that will be employed in order to reduce the amount of waste produced, manage the wastes generated responsibly and handle the waste in such a manner as to minimise the effects on the environment.

13.3.1 Construction Phase

As previously stated, a project specific C&D WMP has been prepared in line with the requirements of the requirements of the guidance document issued by the DoEHLG and is included as Appendix 13.1. Adherence to the high-level strategy presented in this C&D WMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction phases of the proposed development. Prior to commencement, the contractor(s) will be required to refine/update the C&D WMP or submit an addendum to C&D WMP to SDCC to detail specific measures to minimise waste generation and resource consumption and provide details of the proposed waste contractors and destinations of each waste stream.

A quantity of soil, stone, gravel and clay which will need to be excavated to facilitate the proposed development. Project Engineers have estimated that c. 10,000m³ of excavated material will need to be removed offsite, however it is envisaged that c. 2,500m³ excavated material will be reused onsite. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

In addition, the following mitigation measures will be implemented:

- Building materials will be chosen with an aim to 'design out waste';



- On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling and recovery – it is anticipated that the following waste types, at a minimum, will be segregated:
 - o Concrete rubble (including ceramics, tiles and bricks);
 - o Plasterboard;
 - o Metals;
 - o Glass; and
 - o Timber.
- Left over materials (e.g. timber off-cuts, broken concrete blocks/bricks) and any suitable construction materials shall be re-used on-site, where possible;
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;
- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);
- A waste manager will be appointed by the main contractor(s) to ensure effective management of waste during the excavation and construction works;
- All construction staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled or recovered where possible to avoid material designated for disposal;
- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licenced facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Article 27 of the EC (Waste Directive) Regulations (2011). EPA approval will be obtained prior to moving material as a by-product. However, it is not currently anticipated that Article 27 will be used.

These mitigation measures will ensure that the waste arising from the construction phase of the development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997, the EMR Waste Management Plan (2015-2021). It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will encourage sustainable consumption of resources.

13.3.2 Operational Phase

As previously stated, a project specific OWMP has been prepared and is included as Appendix 13.2. Implementation of this OWMP will ensure a high level of recycling, reuse and recovery at the development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus achieving the



targets set out in the EMR Waste Management Plan 2015 – 2021 and abiding by the DCC waste bye-laws.

In addition, the following mitigation measures will be implemented:

- On-site segregation of all waste materials into appropriate categories including (but not limited to):
 - Organic waste;
 - Dry Mixed Recyclables;
 - Mixed Non-Recyclable Waste;
 - Glass;
 - Waste electrical and electronic equipment (WEEE);
 - Batteries (non-hazardous and hazardous);
 - Cooking oil;
 - Light bulbs;
 - Cleaning chemicals (pesticides, paints, adhesives, resins, detergents, etc.);
 - Furniture (and from time to time other bulky waste); and
 - Abandoned bicycles.
- All waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials;
- All waste collected from the development will be reused, recycled or recovered where possible, with the exception of those waste streams where appropriate facilities are currently not available; and
- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities.

These mitigation measures will ensure the waste arising from the development is dealt with in compliance with the provisions of the *Waste Management Act 1996*, as amended, associated Regulations, the *Litter Pollution Act 1997*, the *EMR Waste Management Plan (2015 - 2021)* and the SDCC waste bye-laws. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.

13.4 Predicted Impact of the Proposed Development

The implementation of the mitigation measures outlined in Section 13.6 will ensure that the high rate of reuse, recovery and recycling is achieved at the development during the excavation and construction phases as well as during the operational phase. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

13.4.1 Construction Phase

A carefully planned approach to waste management as set out in Section 13.6 and adherence to the C&D WMP during the construction phase will ensure that the effect on the environment will be **short-term, imperceptible and neutral**.



13.4.2 Operational Phase

During the operational phase, a structured approach to waste management as set out in Section 13.6 will promote resource efficiency and waste minimisation. Provided the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the operational phase on the environment will be **long-term, imperceptible and neutral**.

13.4.3 Potential Cumulative Impacts

Multiple permission remains in place for both residential and commercial developments within the immediate vicinity. Along with current permission it is envisaged that another residential development will be applied for on the lands immediately to the south of this development. In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the construction phase. Due to the high number of waste contractors in the Dublin region there would be sufficient contractors available to handle waste generated from a large number of these sites simultaneously, if required. Similar waste materials would be generated by all the developments.

There are similar existing residential developments close by and proposed, along with the neighbouring residential sites and these developments will generate similar waste types during their operational phases. Authorised waste contractors will be required to collect waste materials segregated, at a minimum, into recyclables, organic waste and non-recyclables. An increased density of development in the area is likely improve the efficiencies of waste collections in the area.

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

13.4.4 Do-Nothing Scenario

If the proposed development was not to go ahead there would be no demolition, excavation or construction or operational waste generated at this site. There will be a neutral effect on the environment.

13.5 Monitoring Measures

The management of waste during the construction phase should be monitored to ensure compliance with relevant local authority requirements, and effective implementation of the C&D WMP including maintenance of waste documentation.



The management of waste during the operational phase should be monitored to ensure effective implementation of the OWMP by the building management company and the nominated waste contractor(s).

13.8.1 Construction Phase

The objective of setting targets for waste management is only achieved if the actual waste generation volumes are calculated and compared. This is particularly important during the excavation and construction phases where there is a potential for waste management to become secondary to progress and meeting construction schedule targets. The C&D WMP specifies the need for a waste manager to appointed who will have responsibility to monitor the actual waste volumes being generated and to ensure that contractors and sub-contractors are segregating waste as required. Where targets are not being met, the waste manager should identify the reasons for targets not being achieved and work to resolve any issues. Recording of waste generation during the project will enable better management of waste contractor requirements and identify trends. The data should be maintained to advise on future projects.

13.8.2 Operational Phase

During the operational phase, waste generation volumes should be monitored against the predicted waste volumes outlined in the OWMP. There may be opportunities to reduce the number of bins and equipment required in the WSAs where estimates have been too conservative. Reductions in bin and equipment requirements will improve efficiency and reduce waste contractor costs.

13.6 Difficulties Encountered

There were no difficulties encountered during the production of this chapter of the EIAR.

13.7 Interactions

Adherence to the mitigation measures outlined in Section 13.9 will ensure that there are no significant impacts on resource or waste management from the proposed development. The management of waste during the construction phase in accordance with the C&D WMP and during the operational phase in accordance with the OWMP will meet the requirements of regional and national waste legislation and promote the management of waste in line with the priorities of the waste hierarchy.

13.10.1 Land and Soils

During the construction phase excavated topsoil and subsoil (c. 25,000 m³) will be generated from the excavations required to facilitate site levelling, construction of new



During the construction phase excavated topsoil and subsoil (c. 10,000 m³) will be generated from the excavations required to facilitate site levelling, construction of new foundations and the installation of underground services. It is estimated that c. 7,500m³ of excavated material will need to be removed offsite, however it is envisaged that c. 2,500m³ material will be reused onsite. Where material has to be taken off site it will be taken for reuse or recovery, where practical, with disposal as last resort. Adherence to the mitigation measures in Chapter 13 and the requirements of the C&D WMP, will ensure the effect is **long-term, imperceptible** and **neutral**.

13.10.2 Traffic and Transportation

Local traffic and transportation will be impacted by the additional vehicle movements generated by removal of waste from the site during the construction and operational phases of the development. The increase in vehicle movements as a result of waste generated during the construction phase will be temporary in duration. There will be an increase in vehicle movements in the area as a result of waste collections during the operational phase but these movement will be imperceptible in the context of the overall traffic and transportation increase and has been addressed in Chapter 14 Traffic and Transportation. Provided the mitigation measures detailed in Chapter 14 and the requirements of the OWMP (included as Appendix 13.2) are adhered to, the effects should be **short to long-term, imperceptible** and **neutral**.

13.10.3 Population and Human Health

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





14.0 TRAFFIC AND TRANSPORTATION

14.1 Introduction

This section of the report assesses and evaluates the likely impact of the proposed development on the existing Traffic and Transportation environment in the vicinity of the site, as well as identifying proposed mitigation measures to minimise any identified impacts arising from the residential development at Stocking Avenue, Dublin 16.

The scope of this assessment covers transport and sustainability issues including access, pedestrian, cyclist and public transport connections. Recommendations contained within this chapter are based on existing and proposed road layout plans, on site traffic observations and junction vehicle turning count data. Traffic surveys were commissioned specifically for this assessment with the objective of providing background information relating to the existing traffic movement patterns across the local road network.

This chapter was prepared by Daniel Garvey BEng (Hons) and approved by Aimee Dunne MEng BEngTech CEng MIEI MIHE of DBFL Consulting Engineers. Aimee is a Chartered Transportation Engineer with DBFL Consulting Engineers with 8 years' experience working in the areas of traffic engineering and transport planning, with considerable knowledge and experience in strategic transport planning and sustainable travel. Daniel is a Graduate Transportation Engineer with DBFL Consulting Engineers and has been involved in the assessment and preparation of traffic and transport assessments pertaining to several residential and mixed use developments.

In summary, the proposed residential development comprises of 359 no. residential dwellings (164 no. 1-bed apartment units, 192 no. 2-bed apartment units and 3 no. single storey mews) and a community building.

This assessment of traffic and transportation was carried out in accordance with the following guidance and established best practice, and was tailored accordingly based on professional judgement and local circumstance:

- Environmental Protection Agency (EPA) Guidelines on the Information to be contained in the Environmental Impact Assessment Reports (EPA, 2017) and will follow all future revisions or finalised EIA guidelines as appropriate; and
- Transport Infrastructure Ireland (TII) (formerly the National Roads Authority) Traffic and Transportation Assessment Guidelines.

14.2 Potential Impact of the Proposed Development

14.2.1 Construction Stage Impacts

14.2.1.1 Management of Construction Activities

All construction activities will be regulated by means of an agreed Construction Traffic Management Plan (CTMP) the details of which will be agreed with the local roads authority



prior to the commencement of construction activities on-site. The principal objective of the CTMP is to ensure that the impacts of all building activities generated during the construction of the proposed residential development upon both the public (off-site) and internal (on-site) environments, are fully considered and proactively managed / programmed respecting key stakeholders requirements. This thereby ensures that both the publics and construction workers safety is maintained at all times, disruptions minimised and works are undertaken within a controlled environment where hazards are either avoided or minimised.

14.2.1.2 Construction Traffic

Construction traffic will only be generated on weekdays (0700-1900 subject to Planning conditions) and will consist of the following two principal categories:

- Private vehicles owned and driven by site construction staff and by full time supervisory staff.
- Excavation plant, dumper trucks and delivery vehicles involved in site development works and material delivery vehicles for the following: granular fill materials, concrete pipes, manholes, reinforcement steel, ready-mix concrete and mortar, concrete blocks, miscellaneous building materials, etc.

The likely impact of the construction works will be temporary in nature. The number of staff on site will fluctuate over the implementation of the subject scheme. Nevertheless, based upon the experience of similar projects, it would be expected that approx. 30 - 40 staff will be on site at any one time, subsequently generating no more than 35 two-way vehicle trips during the peak AM and PM periods over the period of the construction works (a large portion of construction workers will use shared transport). On-site employees will generally arrive before 08:00, thus avoiding the morning peak hour traffic. These employees will generally depart after 16:00. A designated on-site car park area will be made available to workers to avoid any overspill of parking on the surrounding network.

The potential impact during the construction phase with all the above considered would have a short-term slight effect on the surrounding network however, with the CTMP and deliveries managed accordingly, this will have imperceptible effect.

A Construction Traffic Management Plan (CTMP) will be prepared in advance of any works commencing on site. This will detail, amongst other matters, how deliveries and HGV movements will be actively controlled and managed. This will help to ensure HGVs and deliveries arrive at a dispersed rate during the course of the working day. It is anticipated that the proposed development would be constructed over a period of approximately 24 months. Following the completion of the initial site clearance works, the generation of HGV movements during the build period will be evenly spread throughout the day and as such will not impact significantly during the peak traffic periods. For this scale of development, we do not expect HGV vehicle movements to exceed 8 vehicles per hour during the busiest period of construction 'build' works.

An appropriate control and routing strategy for HGVs can also be implemented for the duration of site works as part of the CTMP. It is not proposed to utilise any roads with weight/height restrictions as part of the routing of HGVs during the construction phase. The proposed development gains direct access off Stocking Avenue, which provides direct access to the strategic road network including the M50. HGVs will be directed to use Stocking Avenue and Ballycullen Road when accessing/egressing the site from the wider strategic network.

Considering the site's proximity to the strategic road network and following the implementation of an appropriately detailed CTMP, it is concluded that construction traffic will not give rise to any significant traffic concerns or impede the operational performance of the local road network and its surrounding junctions.

At this initial stage it is assumed that whilst the first 100 units will be completed by the end of 2022, the full scheme is likely to be fully completed by 2027, which is the Interim design year for this proposed development.

14.2.2 Operation Stage Impacts

Once the subject development is fully complete and occupied two distinct peak arrival / departure times are expected during a typical weekday. Specifically, there is expected to be AM peak between 07:30 to 08:30 when people are leaving for work or educational purposes. The PM peak is expected around 17:00 to 18:00 when residents would be returning to the subject site. These peaks have been established by analysing classified vehicle junction turning counts that were conducted over a 12-hour survey period from 07:00 to 19:00 on Tuesday 21st January 2020 at the following three junctions;

- Stocking Lane / Stocking Avenue Roundabout;
- Stocking Avenue / White Pines Way / White Pines Park Roundabout; and
- Stocking Avenue / Stocking Well Row / Stocking Wood Roundabout.

In order to analyse and assess the impact of the proposed development on the surrounding road network, a traffic generation and distribution model (excel based) of the following key junctions was created as illustrated in **Figure 14.1**:

- **Junction 1** – Stocking Avenue / Stocking Well Row / Stocking Wood Roundabout
- **Junction 2** – Stocking Avenue / White Pines Way / White Pines Crescent Roundabout
- **Junction 3** – Stocking Avenue / Site Access Junction
- **Junction 4** – Stocking Avenue / Stocking Lane Roundabout



Figure 14.1: Junctions Included in Network Analysis

14.2.2.1 Trip Generation

To estimate the potential level of vehicle trips that could be generated by the proposed development, reference has been made to the TRICS database. TRICS provides trip rate information for a variety of different land uses and development types, which can be applied to the subject development. TRICS data is primarily UK based, although a number of Irish sites have recently been included and the number of Irish sites continues to expand. Nevertheless, we consider that TRICS will provide a reasonable indication of traffic generation from the proposed development.

Table 14.1 presents the trip rates and the traffic generation for the proposed development during the morning and evening peak hour periods. The proposed residential development will be implemented in two different phases to provide an accurate representation of likely construction and occupational trends for a development of this size.

- 2022 Opening Year = 100 Residential Units
- 2027+ Years – Full Development = 241 Residential Units

Land Use	Period	Trip Rates (Per Unit)		Trip Generation (2022)		Trip Generation (2027+)	
		Arr	Dep	Arr	Dep	Arr	Dep
Apartment / Duplex	AM	0.048	0.187	5	19	11	45
	PM	0.186	0.077	19	8	45	19
Community Centre	AM	11.319	1.429	1	0	1	0
	PM	6.176	10.000	0	1	0	1

Table 14.1: Predicted Development Trip Rates and Vehicle Trips Generation

14.2.2.2 Trip Distribution

The distribution of the subject development traffic is based on the surveyed traffic movements at the nearby key local junctions. The proposed distribution of the subject developments forecast generated vehicle movements as proposed by DBFL are presented in Appendix B of the TTA report.

14.2.2.3 Traffic Growth

An Opening Year of 2022 was assumed for this assessment. In accordance with TII (NRA) Guidance, Future Design years (+5 and +15 years) of 2027 and 2037 have also been adopted.

The TII Project Appraisal Guidelines (PAG) have been utilised to determine the traffic growth forecast rates. The traffic growth forecast rates within the PAG ensures local and regional variations and demographic patterns are accounted for.

Table 6.2 within the PAG provides Annual National Traffic Growth Factors for the different regions within Ireland. The subject site lies within 'County - Dublin' with the growth factors as outlined within **Table 14.2** below.



County	Low Sensitivity Growth				Central Growth				High Sensitivity Growth			
	2016-2030		2030-2040		2016-2030		2030-2040		2016-2030		2030-2040	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Dublin	1.0163	1.0303	1.0046	1.0123	1.0180	1.0317	1.0062	1.0139	1.0211	1.0348	1.0100	1.0170

Table 14.2: National Traffic Growth Forecasts: Annual Growth Factors

Applying the annual factors (central growth) as outlined in **Table 14.5** of the EIAR, for the adopted Opening Year of 2022 and Future Horizon Year of 2037 (+15 years), the following growth rates have been adopted to establish corresponding 2022, 2027 and 2037 baseline network flows:

- 2020 to 2022 – 1.0363 (or 3.6%);
- 2020 to 2027 – 1.1330 (or 13.3%); and
- 2020 to 2037 – 1.2482 (or 24.8%)

14.2.2.4 Assessment Scenarios

In summary the following scenarios are considered:

Do Nothing

- A1 – 2022 Base Flows + Committed Development
- A2 – 2027 Base Flows + Committed Development
- A3 – 2037 Base Flows + Committed Development

Do Something

- B1 – 2022 Do Nothing (A1) + Proposed Development Flows (100 Units Complete)
- B2 – 2027 Do Nothing (A2) + Proposed Development Flows (Fully Complete)
- B3 – 2037 Do Nothing (A2) + Proposed Development Flows (Fully Complete)

14.2.2.5 Impact of Proposals

The Institution of Highways and Transportation document 'Guidelines for Traffic Impact Assessments' (1994) states that the impact of a proposed development upon the local road network is considered material when the level of traffic it generates surpasses 10% and 5% on normal and congested networks respectively. When such levels of impact are generated a more detailed assessment should be undertaken to ascertain the specific impact upon the network's operational performance. These same thresholds are reproduced in the NRA document entitled Traffic and Transport Assessment Guidelines (2014).

Figure 14.2 below details the total amount of two-way vehicle trips that will pass through the key off-site junctions in the 2037 Future Design Year and the resulting percentage increase in traffic flows as a result of the traffic generated by the proposed development.



Figure 14.2: Increase in Vehicle Trips Generated Through Key Of-Site Junctions (2037)

For the key junctions surveyed, it can be seen that the proposed development (241 units) in 2027 & 2037 would result in the following percentage impacts:

Junction No.	Junction	Design Year	Percentage Impact	
			AM Peak Hour	PM Peak Hour
1	Stocking Avenue / Stocking Well Row / Stocking Wood Roundabout	2022	1.5%	1.8%
		2027	3.3%	3.8%
		2037	3.0%	3.5%
2	Stocking Avenue / White Pines Way / White Pines Crescent Roundabout	2022	1.8%	1.9%
		2027	3.8%	4.1%
		2037	3.5%	3.8%
3	Stocking Avenue / Stocking Lane Roundabout	2022	1.5%	1.6%
		2027	3.2%	3.5%
		2037	2.9%	3.2%

Table 14.3: Proposed Developments Network Impact

The resulting percentage increase in traffic flows as a result of the traffic generated by the proposed development is established as being below the 10% threshold at all off-site junctions in both the AM and PM peak periods. As such the proposed development is not anticipated to have a material impact on the adjacent network and a more detailed traffic assessment of the surrounding junctions is not required.

A detailed assessment of the proposed site access junction (Junction 3) was undertaken.

14.2.2.6 Network Analysis

Junction 3: Site Access/Stocking Avenue Junction



The proposed three arm priority site access junction with Stocking Avenue was analysed for all future scenarios using the Junctions 9 PICADY software package. The results of the operational assessment of the junction during the weekday morning and evening peak periods are summarised in **Table 14.4**. The three arms of the priority-controlled junction were labelled as follows:

- Arm A: Stocking Avenue (W)
- Arm B: Site Access
- Arm C: Stocking Avenue (E)

The PICADY results reveal that the site access junction operates within capacity for all design year scenarios, with all RFC values being significantly less than the RFC optimum operational capacity of 0.85 (85%).

Year Scenario	Period	Arm	Description	RFC	Mean Max Queue (pcu)	Delay (s)
2022 DS	AM Peak	A	Stocking Avenue (W)	-	-	-
		B	Site Access	0.05	0.1	9.74
		C	Stocking Avenue (E)	0.01	0.0	6.08
	PM Peak	A	Stocking Avenue (W)	-	-	-
		B	Site Access	0.02	0.0	8.41
		C	Stocking Avenue (E)	0.02	0.0	4.73
2027 DS	AM Peak	A	Stocking Avenue (W)	-	-	-
		B	Site Access	0.12	0.1	10.83
		C	Stocking Avenue (E)	0.02	0.0	6.10
	PM Peak	A	Stocking Avenue (W)	-	-	-
		B	Site Access	0.05	0.1	9.11
		C	Stocking Avenue (E)	0.06	0.1	4.73
2037 DS	AM Peak	A	Stocking Avenue (W)	-	-	-
		B	Site Access	0.12	0.2	11.28
		C	Stocking Avenue (E)	0.02	0.0	6.08
	PM Peak	A	Stocking Avenue (W)	-	-	-
		B	Site Access	0.05	0.1	9.36
		C	Stocking Avenue (E)	0.06	0.1	4.63

Table 14.4: Do Something PICADY Analysis Results

14.3 Mitigation and Monitoring Measures

14.3.1 Construction Stage

14.3.1.1 Mitigation

The trip generation of HGV'S during the construction period will be managed and arranged to ensure movements are evenly spread throughout the day and as such will not impact significantly during the peak traffic periods. Nevertheless, mitigations measures outlined for the Construction Stage include the provision of a Construction Management Plan with an associated Construction Traffic Management Plan (CTMP). The CTMP 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 CTMP will be



agreed with the Local Authority and which will include the following initiatives to avoid, minimize and/or mitigate against the anticipated construction period impacts:

- Prescribed and agreed working hours;
- During the pre-construction phase, the site will be securely fenced off from adjacent properties, public footpaths and adjacent roads;
- Dedicated construction haul routes for incoming materials will be identified and agreed with South Dublin County Council prior to commencement of activities on-site;
- Delivery vehicles to and from the site will be spread across the working day to ensure the number of HGVs travelling during the peak hours will be relatively low;
- Where possible construction team members will be brought to/from site in vans/minibuses, which will serve to reduce trip generation potential;
- Appropriate on-site parking arrangements for construction personnel to prevent overspill parking on the local road network;
- 'Way finding' signage will be provided to route staff / deliveries into the site and to designated compound / construction areas;
- 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;
- Truck wheel wash facilities will be installed at construction entrances and any specific recommendations with regards to construction traffic management made by South Dublin County Council will be adhered to;
- Road cleaning and sweeping measures to be put in place if required;
- 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, implemented and maintained 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);
- Material storage zone will be established in the compound area and will include material recycling areas and facilities; and
- 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.

14.3.1.2 Monitoring

While it has been demonstrated that the proposed development has negligible impact on the operation of the local network, it is nevertheless recommended that the local area should be monitored in terms of transportation efficiencies into the future.

14.3.2 Operational Stage

14.3.2.1 Mitigation

In order to promote and maximise sustainable transportation modes, cycle parking has been provided at a rate which exceeds South Dublin County Development Plan (2016-2022) minimum standards which may act as a facilitator for the growth of Cycle trips undertaken for short to medium distance trips to/from the site, whilst apartment vehicle parking spaces have been provided at a rate slightly below the Department of Housing, Planning and Local



Government's Sustainable Urban Housing: Design Standards for New Apartments Guidelines (0.80/unit), which is lower than those outlined in the South Dublin County Development Plan.

The increase in cycle parking provisions, and simultaneous reduction in vehicle parking provisions for apartment units aim to increase the number of cycle trips taken and therefore encourage a modal split shift towards cycling for short to medium distance trips. Furthermore, the proposed pedestrian access points and pedestrian linkages to/from the subject site will also encourage and support the uptake walking trips for short to medium distance trips.

14.3.2.2 Monitoring

While it has been demonstrated that the proposed development has negligible impact on the operation of the local network, it is nevertheless recommended that the local area should be monitored in terms of transportation efficiencies into the future.

14.4 Residual Impacts

14.4.1 Construction Stage

Provided the above mitigation measures and management procedures are incorporated during the construction phase, the residual impact on the local receiving environment will be temporary in nature and neutral in terms of quality and effect.



15.0 MATERIAL ASSETS – SITE SERVICES

15.1 Introduction

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 ESB, Gas and Telecommunications. Note that Surface Water Drainage, Foul Drainage and Water Supply are addressed in Chapter 10.0 (Water & Hydrology).

15.2 Potential Impact of the Proposed Development

15.2.1 Construction Phase

There is potential interruption to ESB's network, Gas Networks Ireland's infrastructure and Eir's infrastructure while carrying out road works along the Scholarstown Road (e.g. during formation of site access junction) and while carrying out works to provide service connections to the proposed development.

15.2.2 Operational Phase

On completion of the construction phase, there will be no further impact on electrical, gas or telecommunications supplies.

15.2.3 'Do Nothing Scenario'

There are no predicted impacts should the proposed development not proceed.

15.3 Ameliorative, Remedial or Reductive Measures

Noted below are remedial measures associated with the construction and operational phase of the proposed development

15.3.1 Construction Phase

- Contractor to prepare Method Statement detailing proposals for works in the vicinity of existing utilities (method statement to be agreed with PSDP).
- Contractor to locate and record all services on site prior to commencement of excavations.
- Connections to the existing power, gas and telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors.
- Contractor to comply with HSA Code of Practice for Avoiding Danger from Underground Services.
- Contractor to obtain utility company network plans and arrange observation as required.
- 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.



- 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.
- 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.
- 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.

15.3.2 Operational Phase

No mitigation measures are proposed for the operational phase of this development.

15.3.3 'Do Nothing Scenario'

No mitigation measures are proposed in relation the site services described in this chapter if the development does not proceed.

15.4 Predicted Impact of the Proposed Development

15.4.1 Construction Phase

Implementation of measures outlined in Section 15.5.1 of the EIAR will ensure that the potential impacts of the proposed development on site services do not occur during the construction phase and that any residual impacts will be short term.

15.4.2 Operational Phase

Demand from the proposed development during the operational phase is not predicted to impact on the existing power, gas and telecoms network.

15.4.3 'Do Nothing' Scenario

There are no predicted impacts should the proposed development not proceed.

15.5 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.

15.6 Reinstatement

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.



16.0 INTERACTIONS AND CUMULATIVE IMPACTS

16.1 Introduction

This section of the EIAR has been prepared by Tom Phillips + Associates and deals with likely interactions between effects predicted as a result of the proposed development.

In addition to the requirement under the Planning and Development Regulations, 2001 – 2019, to describe the likely significant effects of the proposed development on particular aspects of the environment, it is also required to consider the interaction of those effects. As such, these are assessed below.

This Chapter of the EIAR will address the intra-project significant effects (i.e. those occurring between environmental topics within the project). Inter-project effects (i.e. those which are likely to occur as result of the likely impacts of the proposed development interacting with the impacts of other projects in the locality) have also been considered.

We have established a range of planned / permitted projects have the potential to interact to with either the construction or operational phases of the development. These are identified in Table 3.1 of this EIAR.

As noted in previous sections of this EIAR, Ardstone Homes are in the process of preparing an additional SHD planning application on a site south of White Pines east, known as Stocking Central. The cumulative impacts of the development of both sites in tandem has also been considered in the assessments below.

Further detail relevant to the interaction of impacts may also be found in the earlier chapters of the EIAR.

16.2 Inter-Relationships/ Interactions

It is noted that all aspects of the environment are likely to interact to some extent and to various degrees of complexity. The likely significant interactions between factors arising from the proposed development are set out in the matrix provided as Table 16.1 below.



Matrix of Interactions Between Environmental Factors											
	Archaeology, & Cultural Heritage	Population & Human Health	Biodiversity	Land and Soils	Water & Hydrology	Air Quality/ Climate	Noise & Vibration	Townscape & Visual	Traffic	Waste	Site Services
Archaeology & Cultural Heritage				✓							
Population & Human Health						✓	✓	✓	✓	✓	
Biodiversity				✓	✓	✓	✓	✓		✓	
Land and Soils					✓	✓	✓		✓	✓	
Water & Hydrology											
Air Quality/ Climate									✓		
Noise & Vibration									✓		
Townscape & Visual											
Traffic										✓	
Waste											
Site Services											

Table 16.1: Matrix of Interactions



17.0 MITIGATION MEASURES

The chapters contained within this EIAR have been ordered in a grouped format by their relevant topic. This chapter summarises all mitigation measures proposed in order to provide a comprehensive overview of the full range of mitigation measures discussed within each chapter.

For clarity, the *EPA Guidelines (2017)* define mitigation measures as those “*measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements*”.

The chapter provides a detailed assessment of the mitigation measures as follows;

- Archaeology, Architectural & Cultural Heritage
- Population and Human Health
- Biodiversity
- Land and Soils
- Landscape and Visual Impact
- Hydrology
- Air and Climate
- Noise and Vibration
- Traffic and Transportation
- Site Services

18.0 DIFFICULTIES ENCOUNTERED

No significant difficulties, in terms of technical deficiencies or lack of sources of information, were encountered in compiling the specified information contained in the Statement.

Baseline surveys were undertaken in advance of the Covid-19 restrictions, which were introduced in Ireland on 12th of March and remained in place at the time of submitting this application. As such, the Covid-19 restrictions did not have any substantial impact on the preparation of this EIAR.

References to published sources of information are acknowledged in the text. In addition, studies commissioned specifically for the purposes of this Environmental Impact Assessment Report are also referenced. A list of all consultants involved in the compilation of information for this EIAR is provided in Chapter 1.

As the proposed development will not require the use of natural resources that are in short supply, nor will the development result in the emission of pollutants that will create nuisance or hazard, the matters referred to in Schedule 6(2)(c) of the *Planning and Development Regulations, 2001* (as amended) do not apply.

The full impact analysis was carried out by experienced consultants and the best available methods were employed to forecast environmental effects.