

GLL PRS Holdco Limited

Proposed Strategic Housing Development
“Kenelm”
Deer Park
Howth
Co. Dublin

VOLUME I
NON-TECHNICAL SUMMARY



MAY 2021

Document Control Sheet

Client	GLL PRS Holdco Limited			
Project Title	Kenelm, Howth			
Document Title	EIAR Volume I Non Technical Summary			
Document No.	3865			
Document Comprises	DCS	TOC	Text	Appendices
	1	1	114	0
Prepared by	PG	Checked by	JK	

Revision	Status	Issue date
A	ISSUED	04.06.2021

Table of Contents

1	Introduction	4
1.1	The Applicant.....	5
1.2	Screening for Environmental Impact Assessment.....	5
1.3	Content of Environmental Impact Assessment Report	6
1.4	Competency.....	7
1.5	Methodology	8
1.6	Scoping.....	11
1.7	Cumulative Projects.....	11
1.8	Consultation.....	12
2	Development Description	13
2.1	Introduction.....	13
2.2	Site Context.....	13
2.3	Design Rationale	17
2.4	Proposed Layout.....	20
2.5	Principle Development Statistics	21
2.6	Open Space	23
2.7	Access, Car & Bicycle Parking.....	27
2.8	Drainage & Water Supply	28
2.9	Services	29
2.10	Construction of Proposed Development.....	31
2.11	Monitoring.....	33
2.12	Commissioning	33
2.13	Decommissioning	33
2.14	Health & Safety	34
3	Alternatives Considered.....	35
3.1	Do-Nothing.....	36
3.2	Alternative Locations.....	36
3.3	Alternative Uses	38
3.4	Alternative Design.....	40
3.5	Alternative Processes	44
4	Assessment of Environmental Impacts	45
4.1	Population & Human Health.....	45
4.2	Landscape & Visual Character	52
4.3	Material Assets: Traffic & Transport.....	60
4.4	Material Assets: Built Services.....	63

4.5	Material Assets: Waste Management	67
4.6	Land & Soils.....	69
4.7	Water & Hydrology	73
4.8	Biodiversity	76
4.9	Noise & Vibration	78
4.10	Air Quality & Climate.....	80
4.11	Cultural Heritage - Archaeology	81
4.12	Built Heritage	83
4.13	Interactions.....	85
5	Summary of Mitigation Measures.....	86

Table of Figures

Figure 1 Howth Castle Architectural Conservation Area.....	15
Figure 2 Howth Special Area Amenity Order	16
Figure 3 Proposed Development Site & Site Context.....	17
Figure 4 Proposed Site Layout.....	21
Figure 5 Proposed Courtyards.....	23
Figure 6 Roof Garden (Extract from Landscape Design Statement).....	24
Figure 7 Proposed Public Open Space (Extract from Landscape Design Statement).....	25
Figure 8 Proposed Woodland Belt (Extract from BSLA Landscape Drawings)	27
Figure 9 Proposed Movement Strategy	28
Figure 10 Alternative Block Locations	43
Figure 11 Site Zoning Designations (Excerpt Sheet No. 10: Baldoyle/Howth)	45

Table of Tables

Table 1 Chapters of EIAR & Contributors	7
Table 2 Impact Rating Terminology.....	10
Table 3 Building Height.....	19
Table 4 Key Development Statistics	22
Table 5 Summary – Building Design Parameters.....	22
Table 6 Proposed Residential Unit Mix	22
Table 7 Water Supply Summary	29
Table 8 Construction programme - Phases	31
Table 9 Do Nothing Description Of Effects.....	36
Table 10 Summary of Impacts of Landuse Zoning.....	38
Table 11 Residential Area - Permitted in Principle Uses	39
Table 12 Operational Phase Landscape Effects.....	54
Table 13 Residual Operational Phase Visual Effects	57
Table 14 Dublin Bus Route Frequencies.....	60
Table 15 Incorporation Design Mitigation.....	94
Table 16 Demolition and Construction Mitigation.....	110
Table 17 Operational Phase Mitigation.....	114

1 Introduction

Article 5(1)(e) of the EIA Directive, transposed into Irish law under article 94(c) of the Planning and Development Regulations 2001, as amended requires the project proponent to include a Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR). The term 'non-technical' indicates that this summary should not include technical terms, detailed data and scientific discussion, that detail is presented in Volume II, the EIAR.

This NTS provides a concise, but comprehensive description of the Project, its existing environment, the potential effects of the project on the environment, the proposed mitigation measures, and the proposed monitoring arrangements, where relevant. The NTS highlights any significant uncertainties about the project. It explains the development consent process for the proposed development and the role of the EIA in that process.

It is important to highlight that the assessments that form part of the EIAR were undertaken as an iterative process rather than a one-off, post-design environmental appraisal. Findings from the individual assessments have been fed into the design process, resulting in a project which achieves a 'best fit' within the environment.

The development description is set out in Section 2. Briefly, the Applicant, GLL PRS Holdco Ltd. intend to apply to An Bord Pleanála for permission to develop 162 no. new homes at a site of approx. 1.7 hectares in Deer Park, Howth, Co. Dublin.

1.1 The Applicant

GLL PRS Holdco Limited, is part of Glenveagh, a leading Irish home builder founded in 2017, whose vision is to build high-quality homes that support sustainable communities. Their focus on people, homes and communities has created successful developments nationally by understanding that well planned, well designed and well-built homes is the essence of thriving communities.

Glenveagh are focused on three core markets - suburban housing, urban apartments and partnerships with local authorities and state agencies. Since the Initial Public Offering (IPO), the company have opened 23 no. sites, delivering more than 1,800 no. units (700 no. units in 2020) with 1,150 no. units in the pipeline for 2021. Glenveagh presently have 6,000 no. units in design/pre lodgment stage.

1.2 Screening for Environmental Impact Assessment

The proposed development does not fall within development classes set out in Part 1 of Schedule 5 and EIA is therefore not mandatory.

The proposed development falls within the category of an 'Infrastructure Project' listed in Schedule 5, Part 2 (10) (b) of the PDRs, which provides that a mandatory EIA must be carried out for projects including inter alia:

10b) (i) Construction of more than 500 dwellings

The proposed development is for 162 no. residential units and is significantly below the 500 dwellings threshold. Accordingly, it does not meet or exceed the threshold of 500 dwellings and EIA is therefore not mandatory.

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

The proposed development site is surrounded by residential development, a golf course and demesne lands and does not satisfy the definition of business district. The applicable area threshold is therefore 10 hectares, and the proposed development site is 1.7 hectares. Accordingly, a mandatory EIA is not mandatory.

1.2.1 Sub-threshold Development

In cases where a project is listed in Part 2 but is classed as 'sub-threshold development', it is necessary for the competent authority, in this instance An Bord Pleanála, to undertake a case-by-case examination to determine whether the proposed development is likely to have significant effects on the environment and requires an EIA. Where the assessment concludes that this is the case, the application for development must be accompanied by an EIAR.

The criteria for determining whether development listed in Part 2 of Schedule 5 should be subject to an EIA are set out in Schedule 7 of the PDRs; and the information to be provided by the Applicant to the Competent Authority for the purposes of screening sub-threshold development for EIA is set out in Schedule 7A. The information requirements are set out in detail in Volume II.

It concludes that the main likely potential effects of the proposed development on the environment are as follows:

- i. Temporary potential effects locally on human health, air quality and noise and vibration from the construction phase.
- ii. Temporary effects on the local road network, specifically Sutton Cross from the construction phase and in particular if the proposed development overlaps with the construction phase of the Claremont development.
- iii. Potential temporary to permanent effects on key ecological features including European Designated Sites, downstream aquatic environment and species which commute / forage within the proposed development site and/or immediate vicinity.
- iv. Potential permanent effect on the townscape and the wider Howth area when viewed from elevated locations and in combination with the approved Claremont development.
- v. Potential permanent effect on cultural heritage in particular built heritage i.e. the demesne wall and local Protected Structures.

To conclude with certainty that the proposed development would not result in likely significant effects on the environment, it is our professional opinion that this sub-threshold project requires EIA to fully address the likely significant environmental effects identified at the screening stage.

1.3 Content of Environmental Impact Assessment Report

The EIAR is presented as 3 no. volumes (NTS, EIAR and Appendices to EIAR) and it provides the following information:

- a) A description of the project comprising information on the site, design, size and any other relevant features of the project;
- b) A description of the likely significant effects of the project on the environment;
- c) A description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
- d) A description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics and an indication of the main reasons for the options chosen, taking into account the effects of the project on the environment;
- e) A non-technical summary; and,
- f) Any additional information specified in Annex IV of the Directive/Schedule 6 to the 2001 Regulations, as amended, relevant to the specific characteristics of the project and to the environmental features likely to be affected.

The EIAR addresses matters including proposed demolition works, risks to human health, major accidents / disasters, biodiversity, climate change and cumulative effects with other existing and / or approved projects.

1.4 Competency

It is a requirement that the EIAR must be prepared by competent experts. For the preparation of this EIAR, the Applicant engaged McCutcheon Halley Chartered Planning Consultants to direct and coordinate the preparation of the EIAR and a team of qualified specialists were engaged to prepare individual chapters, the consultant firms and lead authors are listed in the **Table 1**. Details of competency, qualifications and experience of the lead author of each discipline is outlined in the individual chapters.

Chapter	Aspect	Consultant	Lead Consultant
1	Introduction	McCutcheon Halley Chartered Planning Consultants	Paula Galvin
2	Development Description	McCutcheon Halley Chartered Planning Consultants	Paula Galvin
3	Alternatives	McCutcheon Halley Chartered Planning Consultants	Paula Galvin
4	Population and Human Health	McCutcheon Halley Chartered Planning Consultants	Paula Galvin
5	Landscape and Visual	Modelworks	Richard Butler
6	Material Assets: Traffic & Transport	Barret Mahony Consulting Engineers	Martin Rogers
7	Material Assets: Built Services	Barret Mahony Consulting Engineers & Ethos Engineering	Stephen O'Connor (Barret Mahony Consulting Engineers) & Gavin Murphy (Ethos)
8	Material Assets: Waste Management	Byrne Environmental Consulting Ltd	Ian Byrne
9	Land, Soils, Geology & Hydrogeology	AWN Consulting Ltd	Marcelo Allende & Teri Hayes
10	Water & Hydrology	AWN Consulting Ltd	Marcelo Allende & Teri Hayes
11	Biodiversity	Scott Cawley Ltd	Lorna Gill & Caroline Kelly
12	Noise and Vibration	Byrne Environmental Consulting Ltd	Ian Byrne
13	Air Quality & Climate	Byrne Environmental Consulting Ltd	Ian Byrne
14	Cultural Heritage: Archaeology	John Purcell Archaeological Consultancy	John Purcell
15	Cultural Heritage: Built Heritage	David Slattery Conservation Architects Ltd	James Slattery
16	Interactions of the Foregoing	McCutcheon Halley Chartered Planning Consultants	Paula Galvin
17	Summary of Mitigation Measures	McCutcheon Halley Chartered Planning Consultants	Paula Galvin

Table 1 Chapters of EIAR & Contributors

1.5 Methodology

In preparing the EIAR the following regulations and guidelines were considered:

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

In addition, specialist disciplines have had regard to other relevant guidelines, and where relevant these are noted in individual chapters of the EIAR, see Volume II.

Each chapter of this EIAR assesses the direct, indirect, cumulative and residual impact of the proposed development for both the construction and operational stage of the proposed development.

The identified quality, significance and duration of effects for each aspect is largely based on the terminology set out in the EPAs *Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports* (2017) as summarised in the Table overleaf.

Quality of Effect	
Positive	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities)
Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error
Negative/Adverse Effects	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance)
Significance of Effect	
Imperceptible	An effect capable of measurement but without significant consequences.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
Slight Effect	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effect	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effect	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant Effect	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound Effect	An effect which obliterates sensitive characteristics.
Duration of Effects	
Momentary	Seconds to minutes
Brief	Less than 1 day
Temporary	Less than 1 year
Short-term	1-7 years
Medium-term	7-15 years
Long-term	15-60 years
Permanent	Over 60 years
Extent & Context of Effects	
Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.

Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Probability of Effects	
Likely	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Type of Effects	
Indirect	Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
Cumulative	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
Do Nothing	The environment as it would be in the future should the subject project not be carried out.
Worst Case	The effects arising from a project in the case where mitigation measures substantially fail.
Indeterminable	When the full consequences of a change in the environment cannot be described.
Irreversible	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
Residual	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
Synergistic	Where the resultant effect is of greater significance than the sum of its constituents, (e.g. combination of SO _x and NO _x to produce smog).

Table 2 Impact Rating Terminology

1.6 Scoping

The purpose of scoping is to identify the information to be contained in an EIAR and the methodology to be used in gathering and assessing that information. Applicants are not required to seek a Scoping Opinion.

The scope was informed by;

- the Design Team and specialists engaged to prepare the EIAR;
- Guidance provided by Fingal County Council during the preplanning meetings; and
- Direction provided by An Bord Pleanála in the form of an Opinion issued on foot of a pre-application consultation (PAC) meeting (ABP-308497-20) held on the 13rd of January 2021.

1.7 Cumulative Projects

In August 2018, the Department of Housing, Planning and Local Government issued Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. The Guidelines summarise “cumulative effects” in the following way at page 40;

“Effects are not to be considered in isolation but cumulatively i.e. when they are added to other effects. A single effect on its own may not be significant in terms of impact on the environment but, when considered together with other effects, may have a significant impact on the environment. Also, a single effect which may, on its own, have a significant effect, may have a reduced and insignificant impact when combined with other effects.”

Cumulative effects are not limited to projects, and it is necessary to also consider relevant Plans.

The site is bounded by Howth Road (R105) to the north and beyond that a brownfield site, former ‘Techrete’ site, that has recently received approval (reg. ref. 306102) for a high-density mixed-use development including 512 apartments, 2 shops, a crèche, a café and a restaurant across 4 buildings up to 8 storeys in height. Accordingly, each chapter of this EIAR assesses the cumulative effect of this proposal in combination with the above-mentioned mixed-use scheme.

Individually, each specialist consultant has reviewed under construction, permitted and or under consideration development in the local area and using their expertise they have identified projects relevant to their discipline that may interact to produce a cumulative effect.

Wastewater from the proposed development will be treated at Ringsend Wastewater Treatment Plant prior to its discharge to Dublin Bay. The cumulative effect of the additional loading on the treatment plant is assessed in the Material Assets: Built Services chapter, the Biodiversity Chapter and in the Appropriate Assessment Screening Report that accompanies this application under separate cover.

1.8 Consultation

A dedicated website for the proposed development is established and all application documents including this EIAR are available at www.kenelmshdhowth.ie

Additionally, prior to lodging this application, the required information has been issued to the Department of Housing, Planning and Local Government's EIA Portal. The purpose of this tool is to inform the public, in a timely manner, of applications that are accompanied by an EIAR. The portal reference ID is 2021106.

Pre-planning consultation meetings were held with Fingal County Council in June 2019 and January 2020 in advance of lodging this application. Guidance received is integrated into the proposed design and in turn is assessed in this EIAR.

An Opinion was received from An Bord Pleanála following the pre-application consultation meeting on 13th January 2021 (ABP-308497-20) and it contained details of the prescribed bodies to be notified of the making of this application. We can confirm that each identified body has received a copy of the application including the EIAR. These prescribed bodies include:

1. Irish Water
2. Department of Culture, Heritage and the Gaeltacht
3. The Heritage Council
4. An Taisce
5. An Chomhairle Ealaíon
6. Fáilte Ireland

2 Development Description

2.1 Introduction

The proposed development is for the construction of a 162 new homes, a strategic housing development, at Deer Park, Howth, Co. Dublin, see **Figure 4**.

The development will consist of;

- i. 162 no. residential units distributed across 3 no. blocks (A, B & C) ranging in height from 5-6 storeys, with a cumulative gross floor area (GFA) of 13,337.10 sq.m comprising;
 - a. 29 no. 1-bedroom units, - 17.9%
 - b. 104 no. 2-bedroom units and – 64.2%
 - c. 29 no. 3-bedroom units – 17.9%
- ii. 3 no. resident services and amenity rooms (1 no. in each block A-C) to accommodate co-working space, a community room and a meeting room (combined GFA 108 sq.m)
- iii. 132 no. car parking spaces at basement level (underlying Blocks A & B) including 6 no. accessible spaces, 13 no. electric vehicle spaces and 4 no. car sharing spaces;
- iv. 325 no. residents bicycle parking spaces (long-stay) at basement level, and 30 no. visitor bicycle parking spaces (short-stay) at surface level;
- v. communal amenity space in the form of courtyards and roof gardens (combined 2,192 sq.m)
- vi. public open space of 1,161 sq.m including a botanic garden and pocket park;
- vii. a single storey ESB sub-station and switch room (45.5 sq.m);
- viii. demolition of 2 no. sections of the existing demesne northern boundary wall to provide, a primary access (vehicular/pedestrian/cyclist) to the northwest and a separate pedestrian/cyclist access at the centre;
- ix. restoration and refurbishment of the remaining extant northern and eastern demesne boundary wall;
- x. change of use and regrading of part of the Deer Park Golf Course from active recreation use to passive amenity parkland and planting of a woodland belt on the southern boundary;
- xi. undergrounding of existing ESB overhead lines, and, relocation of the existing gas main; and,
- xii. all ancillary site development works including waste storage and plant rooms at basement level, drainage, landscaping/boundary treatment and lighting.

2.2 Site Context

The site is located in Deer Park, Howth, to the south of the Howth Road, R105, and is part of the Howth Castle demesne. The site (approx. 1.7 ha) encompasses (1.16 ha) of greenfield land zoned for residential development, 'RA', the objective is to provide for residential development and to protect and improve residential amenity. The proposed apartment buildings together with all ancillary infrastructure are contained within the area zoned for residential development

The balance (0.58 ha) of the application area is zoned high amenity, 'HA', and the objective is to protect and enhance high amenity areas. This area encompasses part of the Deer Park golfclub and comprises managed amenity grassland together with a hedgerow (approx. 25 years old) with an east-west alignment, that forms the boundary with the golf course. The lands zoned HA are part of the buffer area for the Howth Special Amenity Area Order (SAAO).

The site is enclosed along its northern and eastern boundary by the demesne wall which while not protected does have heritage value.



Plate 1 Demesne Wall to Howth Road

The proposed development site is approx. 110m south of the castle and approx. 100m west of St Mary's Church, both protected structures. A large area of historic demesne woodland surrounds and offers screening to these buildings and their setting as illustrated in the Plates below.



Plate 2 St. Mary's Church relative to proposed development site



Plate 3 Howth Castle & Associated Building relative to proposed development site

The Howth Castle Architectural Conservation Area (ACA) adjoins the proposed development site to the east as illustrated in the Figure below. Recognising that much of the demesne lands have been altered to accommodate the Deer Park golf course and hotel complex, the boundary of the ACA was limited to a core area surrounding Howth Castle and the entrance avenue.



Figure 1 Howth Castle Architectural Conservation Area

Fingal County Councils (FCC) Statement of Character for the ACA States;

The boundary of the Howth Castle ACA extends from the Howth Road to just south of Howth Castle and includes St. Mary's Church, the formal gardens and old orchard to the castle, the ruins of an ancient church, the Howth Transport Museum complex, a large copse of trees to the west of the castle, as well as Howth Castle itself and adjoining outbuildings."

A large part of Howth Head is covered by a SAO in recognition of the landscape's recreation and amenity value, see Figure below. That part of the subject site, currently within the golf course, comes within an area defined as 'other areas' within the SAO. The Biodiversity Chapter of this EIAR details that amenity grassland is one of the most widespread habitat types in urban and suburban areas. The variant in the golf course is heavily managed through an intensive mowing regime, and application of fertilisers. It is concluded that the habitat is of local importance on account of its low floristic diversity and abundance in the context of the Dublin area.

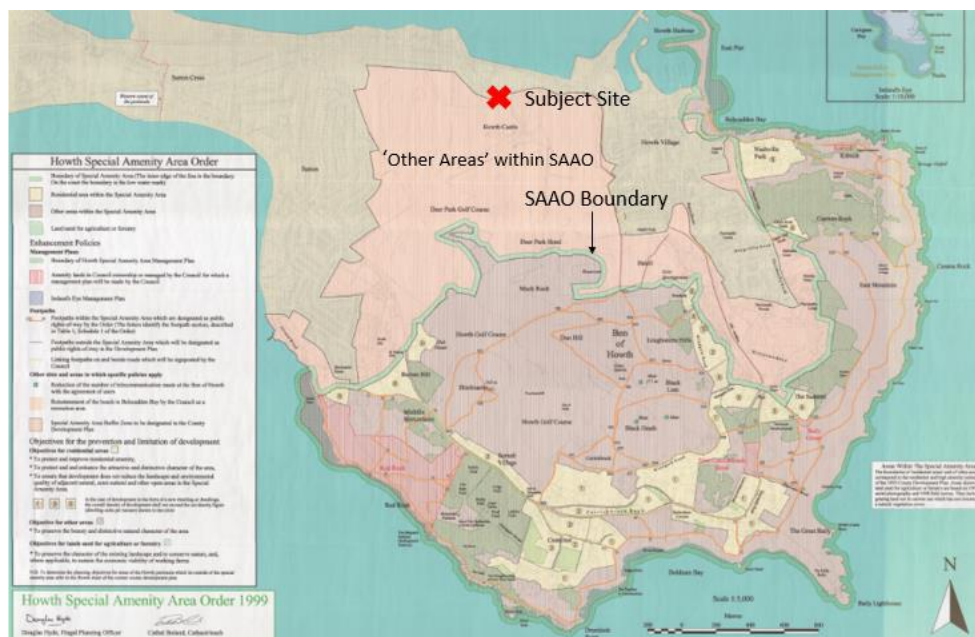


Figure 2 Howth Special Area Amenity Order

The neighbouring lands include:

- to the north across the Howth Road - between the road and the DART line along the coast - a public park (Baltray Park) and the extensive Techrete factory, now disused and the site of the permitted Claremont strategic housing development which extends to the town centre 500m to the east;
- to the west, a corridor of low density housing on both sides of the Howth Road;
- to the south, the Deer Park Golf Club and Howth Castle (protected structure), including an extensive area of historic demesne woodland surrounding the castle, and the National Transport Museum housed in a complex of outbuildings near the castle;
- to the east, the entrance and main access road to Howth Castle and Deer Park Golf Club, and beyond that St Mary's Church (protected structure), surrounded by historic demesne woodland.

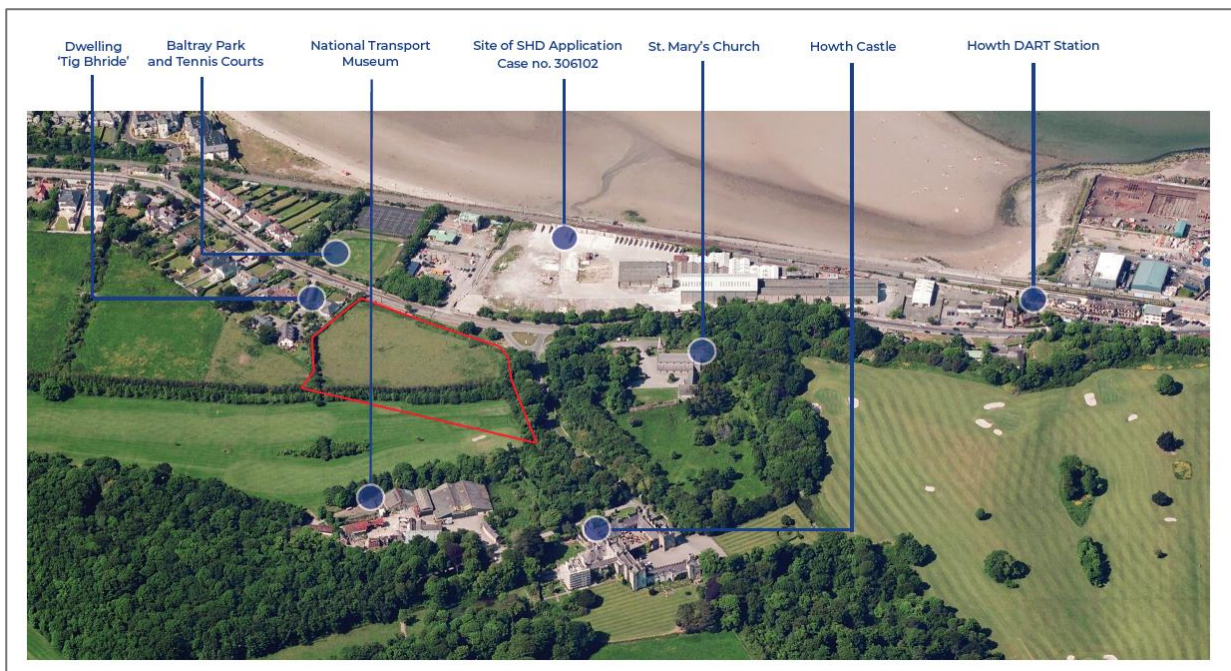


Figure 3 Proposed Development Site & Site Context

2.3 Design Rationale

The proposed development seeks to deliver a high quality, high density residential development, that makes sustainable use of a strategically located development site, which;

- a) is within walking distance of a town centre, Howth, that is within *Dublin City & Suburbs*,
- b) is served by Dublin Bus and DART services, with the DART station only 500m from the site, and
- c) has access to high quality open space amenities locally.

The local cultural and natural heritage assets are both sensitivities and opportunities for development lands in their vicinity and the proposed development responds appropriately to this historic and natural context.

The proposed layout seeks to:

- Respond to the sensitivities and opportunities in the receiving environment and to deliver a high quality living environment that protects the historical setting of the site as part of the Howth Castle demesne.
- Create a strong built frontage to Howth Road and complete the urban gateway effect that will be achieved at the former Techrete site opposite, once the Claremont permission is implemented.
- Create a permeable interconnected series of paths that are easy and logical to navigate around by all which will maximise permeability for both pedestrians and cyclists, leading to places and destinations, not purely functional paths.

2.3.1 Architectural Treatment

The front (Howth Road) and rear (South) volumes of the proposed buildings have different primary materials. The rear volumes are clad in grey brick, the material selected to blend in with the woodlands on the lower slopes of the headland to the rear of the site. The front volumes are of buff brick, the colour intended to provide a lighter presence in the road corridor. The top floors (front and rear volumes) are clad in bronze coloured metal, matching the window frames throughout the buildings.

The front volumes have balconies on the east and west elevations so that the buildings present simple, clean forms to the Howth Road corridor. The rear volumes have projecting balconies, improving the visibility of the surrounding landscape and seascape from the apartments.

A feature of the proposed buildings is their large windows, intended to take maximum advantage of the visual amenities of the site environs. The façade design is informed by this objective, with the elevations all variations of simple grid patterns of glazing framed by brick or zinc cladding. As a result of the large windows, recessed balconies and the variations in material, the facades would be highly articulated and the perception of massing/scale would be reduced.



Plate 4 CGI view of the proposed development as seen from the Howth Road

2.3.2 Height

A full description is contained in the **Architectural Design Statement** (MCA Architects) and plans that accompany this application under separate cover and it should be read in conjunction with this section.

The development is comprised of three buildings (A-C) of linear form arranged side-by-side, aligned north-south, roughly perpendicular to Howth Road. Each building is divided into a front and rear volume, with the two volumes offset so that the floorplan is staggered, providing the apartments in the rear volumes with views north towards the sea.

The height of the three apartment buildings is set out in the Table below.

Block	Front Volume (North)	Rear Volume (South)
A / B / C	5 storeys (fifth storey set back)	6 storeys (6 th storey set back)

Table 3 Building Height

2.3.3 Landscape

The **Landscape Design Report** (Bernard Seymour Landscape Architecture (BSLA)) accompanying this application provides a more detailed description of the communal and open space design rationale. In addition, the **Housing Quality Audit** (MCA Architects) submitted with this application includes a comprehensive schedule of resident amenities areas, including communal and private amenity areas.

The provision of all car parking at basement level allows the ground surface (apart from the access road to the basement) to be dedicated to open space.

A key element of the landscape is the demesne wall which runs around the site's north and east boundaries. It is proposed to retain this wall as a feature of the development, opening two entrances as described above.

Another key feature of the site environs is a belt of historic demesne woodland outside the site's east boundary. This is part of the entrance avenue to Howth Castle, and is included in the Howth Castle ACA. Although the trees are outside the site boundary, many of their canopies overhang the site. The proposed development would preserve this tree belt entirely. It is also proposed to reinforce the woodland belt with new planting inside the east boundary.

The landscape strategy is designed to facilitate passive and active recreation, where residents can interact, all underpinned by a recognition of the site's rich history and the need to promote biodiversity. As mentioned above, the vehicular access and movement is limited to the western edge of the site which ensure no interference with the landscape amenities. The public realm is conceived as a pedestrian priority environment.

A combination of hard and soft landscaping, semi-private courtyards, botanic garden and pocket park play area provide a high-quality open space. In general, the paved components of the proposed landscape sequence will be characterised by durable materials and bespoke detailing sprinkled throughout such as wooden benches situated in planted enclaves.

A significant emphasis has been placed on tree planting and substitution of the hedgerow proposed for removal. The following new tree planting is proposed:

- Mature Trees: 9 no.
- Semi Mature: 12 no.
- Standards/multi stems: 44 no.
- Whips: (replanting to reoriented section of shelter belt to south, and fill in areas to west and east): 1960 no.

2.4 Proposed Layout

The proposed development comprises three apartment blocks (A-C), each with a resident amenity room, communal amenity space at ground and roof level. Private amenity space is predominately balconies with ground floor units incorporating private terraces.

Car parking is proposed in a basement that underlies Blocks A and B and this measure facilitates a high-quality landscape design at surface level. Vehicular movement and access are restricted to the north-western boundary of the site which allows for segregation from the landscape amenities.

The historic boundary wall that wraps around the northern and eastern site boundary will be largely retained. Two openings are proposed in the northern wall, one to the north west to facilitate vehicular, pedestrian and cyclists access and the second to facilitate pedestrian/cyclist access only.

Each Block is separated by a landscaped courtyard, ensuring that visual connections are maintained. All open space is overlooked by surrounding homes so that the amenities enjoy passive surveillance at all times.

Public open space including a botanic garden, lawns, and pocket park play area are proposed to the north of the proposed buildings adjacent to the public road. A combination of hard and soft landscaping that facilitate active and passive uses, provide a high-quality landscape.

The existing boundary treatment along the east and west of the proposed development site will be retained and supplemented with additional planting.

To the south, it is proposed to largely remove the existing hedgerow that forms the boundary with the golf course. This area will be reprofiled and reinstated as amenity grassland, consistent with its zoning designation and allowing it to continue as a buffer area for the SAAO. The landscape proposal includes planting of a new hedgerow further south along the application area boundary and this will connect with the existing landscaping in the wider demesne.

The layout would create a strong built frontage to the road, on the road's approach to the town centre, while retaining a visual connection between the buildings to the woodlands and upland to the south. The north-south aligned spaces between the buildings allow for sunlight penetration to the scheme.

The Daylight and Sunlight Report demonstrates that the proposed Block A, located in closest proximity to existing dwellings to the west of the proposed development site will retain their amenity in terms of sunlight to gardens and daylight within dwellings and is compliant with the BRE standards. As such, the proposed development will not negatively affect existing residential properties.



Figure 4 Proposed Site Layout

2.5 Principle Development Statistics

The principal development statistics of the proposal are as shown below:

Proposed Development – Key Characteristics	
Exiting Site	Undeveloped greenfield (1.16 ha) & part of Deer Park golf course (0.58 ha)
Site - Area	1.7 ha <ul style="list-style-type: none"> • 1.16 ha zoned Residential - RA • 0.58 ha zoned High Amenity - HA
Density	140 units per ha
Dual Aspect Units	61% (99 units)
Plot Ratio	1.46
Site Coverage	32%
No. Units / Mix of Units	162 no. apartment units <ul style="list-style-type: none"> • 29 no. 1-bedroom units, - 17.9% • 104 no. 2-bedroom units and – 64.2% • 29 no. 3-bedroom units – 17.9%
Building Height	3 no. Blocks (A, B & C): 5 to 6 storeys <ul style="list-style-type: none"> • Southern Elevation (5 storeys + 6th recessed) • Northern Elevation (5 storeys + 5th recessed)

Proposed Development – Key Characteristics	
Car Parking	132 no. car parking spaces (basement level), including: <ul style="list-style-type: none"> • 6 no. accessible spaces • 13 no. electric vehicle spaces • 4 no. 'Go-Car' spaces
Bicycle Parking	355 no. bicycle parking spaces, including: <ul style="list-style-type: none"> • 325 no. spaces at basement (long term stay) • 30 no. spaces at ground level (short term stay – visitors)
Resident Amenity Rooms	1 no. room in each Block <ul style="list-style-type: none"> • 108 sq.m cumulative to facilitate co-working floor space, community room and meeting room)
ESB Substation & Switch room	45.5sq.m
Total Private Amenity Space <i>(Balconies & ground floor terraces)</i>	2,435.8 sq.m
Total Communal Amenity Space	2,192 sq.m
Total Public Open Space	1,161 sq.m

Table 4 Key Development Statistics

Table 4 sets out a summary of the key design parameters of the three proposed buildings.

Block	Height	No. Units	Residential GFA (inc. circulation)	Residents Amenity	Communal Amenity Space Roof Garden
A	5-6 storey	52	5,355m ²	36 m ²	244 m ²
B	5-6 storey	52	5,355 m ²	36 m ²	244 m ²
C	5-6 storey	58	5,801 m ²	36 m ²	244 m ²
Total			16,277.10 m²	108 m²	732.5 m²

Table 5 Summary – Building Design Parameters

The development provides for a diverse range of apartment types that will cater for a range of household sizes. The total number and mix of apartment units is set out below.

Building Ref.	1 Bed	2 Bed (3P)	2 Bed (4P)	3 Bed	Total
A	9	1	31	11	52
B	9	1	31	11	52
C	11	1	39	7	58
Total	29	3	101	29	162
Mix	17.9 %	64.2 %		17.9 %	

Table 6 Proposed Residential Unit Mix

2.6 Open Space

2.6.1.1 Communal Open Space

A generous quantity of communal open space (2,192 sq.m) is provided. This is over double the quantity required by the Design Standards for New Apartments (2018, as amended 2020). The communal open space is distributed in courtyards at ground level, at roof level in each of the 3 no. blocks as roof gardens.

The courtyards accommodate active and passive uses for all age groups and include space for exercise stations, play areas, slides, and seating. Passive enjoyment is facilitated by plentiful sheltered seating. The courtyards integrate both hard and soft landscaping, see **Figure 5**.

Additionally, to the south of the application area, the land zoned 'HA' will be retained as amenity grassland and residents of the proposed development will have access to this area.



Figure 5 Proposed Courtyards

Rooftop amenity space will further supplement the range of communal open space available for residents to build a sense of community, see **Figure 6**.

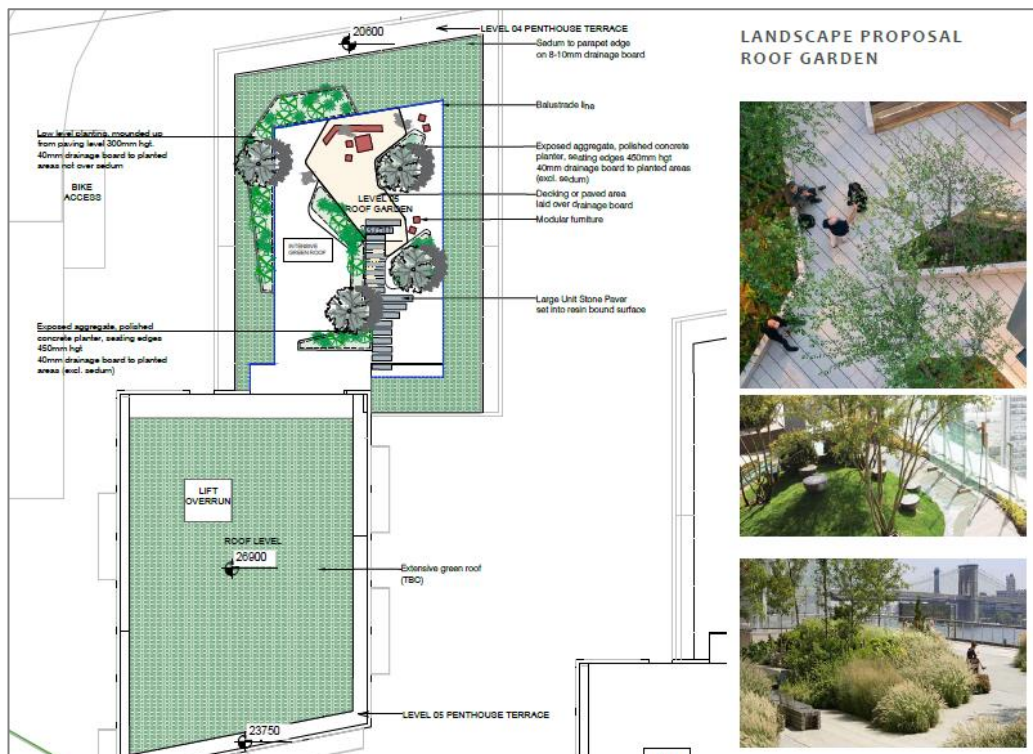


Figure 6 Roof Garden (Extract from Landscape Design Statement)

2.6.1.2 Public Open Space

The public open space (1,161 sq.m) is provided to the north of the proposed site, immediately behind the demesne wall (see **Figure 7**) and comprises a series of different spaces. It meets the Fingal Development Plan's quantitative requirement of 10% of the developable area.

Access to the public open space is from the entrances proposed to the east and west on Howth Road.

This area of Howth has an unusually favourable micro-climate, demonstrated by the existence of several private gardens noted for the planting of unusual species, including Howth Castle. The proposed public open space is sheltered to the north by the historic demesne wall and presents an immediate canvas to display unusual climbing species fronted by larger shrub species, a botanic garden which will thrive in the south facing aspect.

A pocket park incorporating a play area has a grass area for informal activities such as playing with a ball and more formal activities with the provision of play equipment. The equipment will be aimed at the 3-10 years age group and composed of timber to further assimilate the area into the surrounding garden landscape. Sheltered seating benches are dotted around the play area for those supervising children at play. Circulation through the space connects east to west bringing the user further through the garden for a variety of experiences.



Plate 5 CGI of Pocket Park Play Area & Botanic Garden

A Taking in Charge Plan is included in the architectural suite of drawings. It is noted that should Fingal County Council decide to not take the proposed public open space in charge, the Applicant would maintain this area and are satisfied to accept a condition requiring them to keep it accessible for public use.



Figure 7 Proposed Public Open Space (Extract from Landscape Design Statement)

2.6.1.3 Private Amenity Space

Private amenity space is predominately in the form of balconies with private terraces at ground floor screened by raised planting beds. The private amenity space achieve and/or exceed the prescribed minimum areas of the 2018 Design Standards for New Apartments.

2.6.1.4 Hedgerows & Trees

The layout has been directly and indirectly influenced by the existing tree cover on site. The default position has been to avoid development within the canopy or root protection area of any retained tree.

There is an existing early mature boundary hedgerow belt traversing the zoned High Amenity area in an east-west alignment. It is proposed to largely remove this hedgerow belt. The hedgerow comprises a mix of predominately native species (Scots pine, Birch, Oak and occasional Beech) and is approx. 25 years old as evidenced on aerial photography from 1995 on www.heritagemaps.ie and reproduced below, Plate 6.

The Arboricultural Impact Assessment & Method Statement (submitted under separate cover), identifies that individually the species are of low arboricultural quality. The project ecologist identified that the band of trees provide a link with other woodland habitats in the immediate area and as such have local importance. The tree line was surveyed for bats and the project ecologist confirmed that it does not host potential roost features (PRF). It is stated in the Biodiversity Chapter that *“the trees in the hedgerow are mostly of small diameter at breast height and have not developed wounds/cavities which could accommodate roosting bats. For these reasons, the trees across the proposed development site are of negligible suitability for roosting bats.”*



Plate 6 Aerial View of Subject Site, 1995

The project arborist, ecologist and landscape architect worked together to mitigate the loss of the hedgerow, and the resulting design approach includes;

- a) compensation - application of measures to create new benefits, and,
- b) enhancement - offset tree removal with appropriate replacements.

A new native woodland shelter belt will be planted along the western and southern boundaries of the application area. This native woodland feature will connect mature trees in the east with those that extend along the Deer Park Golf Course boundary in the west and south and will improve the long term arboricultural and ecological biodiversity and significantly increase future canopy within the local landscape.



Figure 8 Proposed Woodland Belt (Extract from BSLA Landscape Drawings)

2.7 Access, Car & Bicycle Parking

A combined vehicular, cyclist and pedestrian entrance is located on the north-western site boundary of the site. The design and location of this entrance will allow for separation by more than 22 metres between Block A and the closest existing dwellings to the west. From this entrance point, an internal access road leads to a basement that underlies Blocks A and B.

132 no. car parking spaces are proposed, including 6 no. disability parking spaces, 13 no. of the proposed car parking spaces are fitted with electric vehicles (EV) charging points and 4 no 'Go-Car' spaces will also be provided. The proposed car parking provides a ratio of 0.81 no car parking spaces per unit. This is consistent with recent permissions locally, most notably, Claremont (ABP-306102-19), a mixed use SHD scheme to the north of Howth Road, that received permission in April 2020 from An Bord Pleanála for a parking ratio of 0.7 spaces per unit.

Principles of permeability are integrated in the design through the inclusion of separate pedestrian and cyclist access through the existing demesne northern boundary wall which will provide enhanced connectivity eastwards towards Howth Village and the DART Howth Station as well as convenient access for residents to the proposed public park that will form part of the Claremont development.

Development of the entrances will require two openings to be made in the demesne wall. The proposed punctuation of the boundary wall would introduce physical links and would further enhance the visual connectivity and permeability across the site, where none existed previously. The wall, in its current condition, is at risk of degradation, due to ivy growth and the poor condition of stonework. The work to the wall will facilitate an opportunity to rectify these issues and the stone removed for the creation of the openings will be reused in any rehabilitation works in so far as is feasible.

To support a transport modal shift, 355 no. cycle parking spaces are provided, a ratio of 2.19 no. spaces per unit. 325 no. cycle parking spaces are provided in the basement and 30 no. cycle spaces at surface level for short stay visitors.

The proposed development is consistent with both the principles and guidance outlined within the Design Manual for Urban Roads and Streets (DMURS) 2013 (Updated May 2019). The proposed vehicular, pedestrian and bicycle access is illustrated in the Figure below.



Figure 9 Proposed Movement Strategy

2.8 Drainage & Water Supply

A Confirmation of Feasibility and Statement of Design Acceptance has been received from Irish Water and is included with this application.

2.8.1 Surface Water

The proposed development incorporates the most effective suite of sustainable urban drainage (SuDS) measures that can be applied to the site in treating rainfall to GSDS and CIRIA criteria. These measures include general and extensive green roofs, permeable paving, rain gardens, bioretention systems and tree pit interceptors, and attenuation tanks.

The implementation of the SuDS measures is linked in series, this is known as SuDS Management Train (SMT), ensuring that the most effective measures are utilised in the correct sequence throughout the site. This will significantly reduce run-off rates and improve storm water quality discharging to the public storm water system. Prior to discharging to the public surface water network, the SMT will ensure that rainwater falling on site is captured, conveyed, stored, intercepted, and removed of pollutants correctly.

2.8.2 Foul Water

There is no existing foul sewer infrastructure within the site boundary.

A new 225mm diameter foul sewer will connect into an existing 400mm diameter concrete foul sewer and manhole to the north of the site adjacent to Howth Road. This connection will serve as the development's foul connection to the Irish Water wastewater network, which will then discharge to Ringsend wastewater treatment plant via a pump station located in Sutton.

Rainwater run-off from vehicles entering the basement will be collected via ACOs/gulleys and below slab sewer which be pumped to ground floor level and directed to a petrol interceptor before discharging into the foul network.

The foul sewer design has been carried out in accordance with the Irish Water Code of Practice for Wastewater. Foul wastewater discharge from the proposed development will be as follows; Average – 0.835 l/s. Peak – 5.012 l/s. A full breakdown of the calculations is appended to the Infrastructure Report (BMCE) that accompanies this application.

2.8.3 Water Supply

The pre-connection response received from Irish Water noted that, subject to a valid connection agreement being put in place, the proposed connection to the Irish Water network can be facilitated.

There is an existing 160mm diameter MOPVC watermain on Howth to north of the site; however, a new 150mm diameter HDPE water pipe will be installed on site connecting to the exiting water main system on Howth Road.

The watermain connection will incorporate a bulk water meter and sluice valves. A summary of the water demand for the proposed development is in Table 6. A full breakdown of water demand calculations for the proposed developed is appended to the Infrastructure Report (BMCE) submitted with the planning application.

Blocks		Units / m2	Daily Flow (l/day)	Average Flows (l/s)	Peak (l/s)
A, B & C	Residential	162	65,610	0.949	4.746

Table 7 Water Supply Summary

2.9 Services

2.9.1 Electricity

A new underground cable shall connect into the existing network and route through the proposed development to serve 1 new double sub-station located on the western site boundary. A utility metering switch room shall be located at the entrance to each block in which, each apartment will have its own ESB meter.

There are existing overhead lines traversing the site supplying an existing ESB service within the area which will be diverted around the site, underground, in accordance with ESB Standards. Discussions have taken place with ESB regarding the undergrounding of the existing overhead ESB line and the most likely alignment is illustrated in this application.

2.9.2 Gas

There is a medium pressure 4Bar gas pipe traversing the site which will be re-routed as part of the enabling works for the project. There are no natural gas requirements planned for the proposed development.

2.9.3 Telecommunications

The supply of telecommunications infrastructure to the proposed development site will be provided by way of a connection to a telecoms control room from the existing EIR telecommunication networks and new proposed Virgin Media Network on Howth Road.

2.9.4 Energy Strategy

An **Energy Statement** prepared by Ethos accompanies this application under sperate cover. The design intent is to achieve at least an A3 Building Energy Rating.

The Energy Statement confirms that the proposed apartments will comply with Part L Regulations (NZEB). The strategies proposed are:

- U-values for floor and roof will exceed the building regulation backstops;
- Using a specified Glazing U-Value target;
- Better performance air permeability than the backstop, adding to building air tightness;
- High performance thermal bridging;

- Mechanical Extract Ventilation with Heat Recovery via heat pump; and,
- Exhaust Air Source Heat Pump to provide Space Heating (via radiators) and Domestic Hot Water.

2.9.5 Site Lighting

A Site Lighting Report prepared by Ethos accompanies the application under separate cover. Cognisant that bats are light-sensitive species and tend to avoid roosting or foraging in areas subject to artificial illumination. The site lighting proposal was developed in close consultation with the project ecologist, Scott Cawley.

The external lighting design is based upon the following requirements;

- Provide adequate illumination to contribute towards the safe use of the site by both vehicles and pedestrians.
- Enhance site security.
- Provide a visually interesting environment.
- Contain the lighting within the site to lighting levels which will not impact on the neighbouring surroundings.
- Safe access to fire assembly points.
- Minimise light pollution, sky glow and visual glare for pedestrians and surrounding areas.

2.9.6 Waste Management

An Operational Waste Management Plan (OWMP) (Byrne Environmental) accompanies this application and should be referred to in conjunction with this section. Within the scheme, communal waste storage areas are proposed at basement level. Residents will be provided with waste recycling and waste disposal information by the site's Facility Management Company who will be responsible for providing clean, safe and mobility impaired accessible communal waste storage areas. It is expected that a single Waste Collection contractor shall be engaged to remove all mixed domestic waste and recyclable wastes from the waste storage areas and from individual houses on a weekly basis.

2.10 Construction of Proposed Development

2.10.1 Programme

The development will be constructed as one project, but with basic sub-phases such as bulk dig, basement construction and super-structure erection. An outline of the construction phases is shown in Table 7, this is subject to change based on the contractor's construction programme. Based on other developments of a similar scale and complexity, it is considered that the construction works will take approximately 22 months upon commencement.

Construction Phase	Description of works
1	Receipt of a Grant of Planning Permission
2	Progression through detailed design stage
3	Issue of tender documents to shortlisted Contractors followed by period for tender returns, assessment and award of contract
4	Mobilisation of contractor; preparation of Contractor's Construction Management Plan (CMP)
5	Site set-up, installation of perimeter hoarding to secure the site
6	Enabling works and services diversions within the site
7	Excavation works for proposed basement area
8	Commencement of foundation works
9	Completion of super-structures for each of the buildings
10	External facades and completion of internal fit-out works
11	Completion of site works including final services connections
12	Completion of all external landscaping works
13	Final handover and certification

Table 8 Construction programme - Phases

2.10.2 Phasing

The 3 no. proposed blocks together with all ancillary development works will be constructed over a singular programme. It is not intended to release the development in phases. Once the development is fully complete it will then be released.

2.10.3 Construction Hours

The proposed construction hours are;

- 07.00-19.00 Monday to Friday and
- 08.00-14.00 Saturdays

There will be no work on Sundays or bank holidays.

Deviation from these times will only be in exceptional circumstances where prior written approval has been received from the planning authority.

2.10.4 Construction Access

The proposed construction access will be on the north western boundary i.e. the access proposed to serve the development during the operational stage. Sightlines will be 70 metres from a 2 metre set-back within a 60 km/h speed zone.

All HGV's during the construction phase will travel to and from Sutton Cross using Howth Road (R105). This route was chosen as it is the shortest and minimises the effect the development has during the construction phase on Howth Village. Upon reaching Sutton Cross, traffic will take the most direct route to the nearest major roads infrastructure, i.e. the M50/M1.

2.10.5 Site Compound & Parking

A construction compound and car parking facility will be established for the construction phase and will be located to the north within the proposed development site. Further to this, the Contractor will provide and maintain an area within the site for construction and management personnel offices, operative's welfare facility, canteen, visitor parking and for the storage of construction materials

Whereas there will be certain provision for Site Operatives and Visitor Parking, the Contractor will encourage use of public transport where possible and will actively discourage parking on the surrounding residential estate roads, by construction operatives involved in the project. Parking for construction staff will be wholly contained within the proposed development site.

2.10.6 Construction Traffic

Over the course of the construction programme the total number of large vehicle movements is estimated as follows (large vehicles are assumed to include spoil lorries, concrete trucks, large rigid delivery vehicles and HGV's):

- No of private vehicles per day from staff and site visitors – 20
- No. of light good vehicles per day from subcontract staff - 15
- No. of heavy goods vehicles per day during excavation process - 70
- No heavy goods vehicles per day outside of the excavation periods – 10

2.10.7 Construction Waste

A Construction Waste Management Plan (CWMP) has been prepared by Byrne Environmental Consulting Ltd.

The CWMP will be implemented throughout the construction phase of the development to ensure that:

- All site activities are effectively managed to minimise the generation of waste and to maximise the opportunities for on-site reuse and recycling of waste materials.
- All waste materials are segregated into different waste fractions and stored on-site in a managed and dedicated waste storage area.
- All waste materials generated by site activities are removed from site by appropriately permitted waste haulage contractors and that all wastes are disposed of at approved waste licensed / permitted facilities in compliance with the Waste Management Act 1996 and all associated Waste Management Regulations.

The Project Engineers, Barret Mahony Consulting Engineers, have estimated that c. 30,000m³ of soils will be excavated to facilitate the development and exported from the site.

Soils at the site have been classified following waste acceptance criteria (WAC) testing by Ground Investigations Ireland and the completion of a Waste Classification Assessment. The Waste Classification Report is included as an Appendix to the CWMP.

The assessment concluded that on-site soils are classified as non-hazardous. Based on the analysis of the samples collected from the on-site excavations the material sampled is free of contamination.

The subsoils sampled are suitable for removal from site as a by-product which *will not lead to overall adverse environmental or human health impacts*.

Based on the WAC analysis, it is intended to declare the excavated soils a by-product to the EPA in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 and the EPA publication “Guidance on Soil and Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations – Version 3 June 2019.

2.10.8 Tree Protection

A Method Statement is included in the Arboricultural Impact Assessment report has been prepared that accompanies this planning application. The purpose of the statement is to provide a system of working to ensure retained trees are protected at all times during construction. It should be read in conjunction with the Tree Impact & Protection Plan (TIPP) prepared by the project arborist.

A protective fence will be erected around retained trees, prior to the commencement of materials or machinery being brought onto site, removal of soil or any form of construction. The area within this fencing will form the construction exclusion zone (CEZ) and it will be afforded protection at all times. No works will be undertaken within this zone that causes compaction to the soil, severance of tree roots or damage to tree canopies.

Where it is not feasible to erect fencing due to space restrictions, a hessian wrap surrounded by a cleft chestnut pale fence or plywood boards to a minimum thickness of 20mm, securely held in place by a scaffold framework or 4x2 timber frame that is set back a minimum of 500mm from the stem and to a height of 2.4m will provide the necessary protection.

2.11 Monitoring

The CEMP demonstrates the applicant’s commitment to implement the proposed development in such a way as to avoid or minimise the potential environmental effects resulting from construction activities.

Aspects addressed within the CEMP include but are not limited to; noise and vibration; dust and air quality; traffic and vehicle management; pest control, pollution incident control; and protection of vegetation and fauna.

The appointed contractor will be required to implement this CEMP throughout the course of the construction phase. All personnel will be required to understand and implement the requirements of the plan.

2.12 Commissioning

The testing and commissioning of services (drainage, water supply, electricity, telecommunications etc.) will be completed in accordance with relevant codes of practice.

2.13 Decommissioning

The Building Lifecycle Report (BLR) that accompanies this application under separate cover confirms that the proposed design meets the requirements of the Building Regulations with particular reference to BS 7543:2015, ‘*Guide to Durability of Buildings and Building Elements, Products and Components*’.

Materials chosen including brickwork, render systems, powder-coated aluminium framed double-glazed windows and doors, metal rainscreen cladding, powder-coated aluminium balustrades, steel frame deck and sedum roofing all require minimum on-going maintenance and reduce ongoing associated costs.

Appendix A to the BLR is a Building Investment Fund (BIF) table and it sets out the life expectancy of constituent parts of the proposed development and the approximate cost of replacement.

In line with the requirements of the Multi-Unit Developments (MUD) Act, the members of the Management Company will determine and agree each year at a General Meeting of the members, the contribution to be made to the Sinking Fund, having regard to the BIF report produced.

2.14 Health & Safety

The appointed contractor and Project Supervisor Construction Stage (PSCS), will be responsible for managing all aspects of health and safety pertaining to the construction works in line with the requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013. This will include, inter alia, managing the risks from Covid-19.

3 Alternatives Considered

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

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

Reasonable alternatives may include project design proposals, location, size and scale, which are relevant to the proposed development and its specific characteristics. The Regulations require that an indication of the main reasons for selecting the preferred option, including a comparison of the environmental effects be presented in the EIAR.

The Environmental Protection Agency (2017) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports - Draft states:

“The objective is for the developer to present a representative range of the practicable alternatives considered. The alternatives should be described with ‘an indication of the main reasons for selecting the chosen option’. It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account in deciding on the selected option. A detailed assessment (or ‘mini-EIA’) of each alternative is not required.”

The Guidelines also state that the range of alternatives considered may include the ‘do-nothing’ alternative.

The assessment of alternatives is considered under the following headings;

- i. Do Nothing Alternative
- ii. Alternative Use
- iii. Alternative Locations
- iv. Alternative Design
- v. Alternative Processes

3.1 Do-Nothing

The Table below summarises the effect of the ‘Do Nothing’ alternative described above. All of the predicted effects are determined to be likely to occur. It is noted that the duration of effects under this scenario are considered to be short-term (1-7 years), this reflects a reasonable timeframe for a further application for development to come forward on the site, in the absence of this subject application.

Aspect	Quality of Effect	Significance	Context	Duration
Population & Human Health	Negative	Significant	Local/City	Short-term
Landscape & Visual	Neutral	Imperceptible	Local	Short-term
Material Assets: Traffic & Transport	Neutral	Imperceptible	Local	Short-term
Material Assets: Utilities	Neutral	Imperceptible	Local/City	Short-term
Land & Soils	Neutral	Imperceptible	Local	Short-term
Water & Hydrology	Neutral	Significant	Local/City	Short-term
Biodiversity	Neutral	Imperceptible	Local	Short-term
Noise & Vibration	Neutral	Imperceptible	Local	Short-term
Air Quality & Climate	Neutral	Imperceptible	Local/National	Short-term
Cultural Heritage: Archaeology	Neutral	Imperceptible	Local	Short-term
Cultural Heritage: Built Heritage	Negative	Significant	Local/Regional	Short-term

Table 9 Do Nothing Description Of Effects

A ‘Do-nothing’ scenario is an inappropriate and unsustainable approach that would result in the inefficient use of a strategically located and easily serviced landbank of zoned residential lands. It would potentially result in a built heritage asset, the demesne wall being further compromised. With the mitigation measures proposed in this EIAR and having regard to the findings that no significant effects on the environment are expected with such measures in place, the comparative environmental effects are not considered sufficient to rule out the proposed development.

3.2 Alternative Locations

The spatial settlement pattern in Fingal is governed by the National Planning Framework and the Eastern and Midlands Regional Spatial Economic Strategy. These higher order plans mandate;

- the application of the principle of compact growth
- 40% of housing development to be within and close to the existing ‘footprint’ of built-up areas.
- A target of half (50%) of future population and employment growth will be focused in the existing five cities and their suburbs.

Howth is in the Dublin City and Suburbs area. Land supply is limited due to the extensive environmental designations that apply to the peninsula. 16 hectares is identified as suitable for development in the Fingal Development Plan.

In addition to the assessment of policies, objective and land use zoning in the Strategic Environmental Assessment undertaken as part of the plan making process, there is a requirement under the EU Habitats to assess whether the Fingal Development Plan, individually or in combination with other plans or projects, is likely to have significant effect on a European Site, which includes Special Protection Areas (SPAs) and Special Areas of Conservation (SACs), in view of the site’s conservation objectives.

The Natura Impact Report took a precautionary approach and assessed the impacts that would be anticipated from the plan providing the necessary inclusion of mitigation measures and guiding principles at the strategic level of the plan. The policies and objectives within the plan were devised, as part of an iterative approach, to anticipate and avoid as appropriate measures that would likely have a significant adverse effect upon the integrity of the European Sites. Based on the Natura Impact Report, and with reference to the scope of the plan, Fingal County Council determined that the Fingal Development Plan 2017-2023 is compliant with the requirements of Article 6 of the EU Habitats Directive as transposed into Irish law.

The preferred alternative identified in the plan making process is as environmentally proofed as possible i.e. not in conflict with other environmental protection objectives such as those established under the Water Framework or Flood Risk Directives.

The proposed residential development is wholly confined to the area zoned 'RA' in the extant Fingal Development Plan and it satisfies the key positive environmental characteristics of the preferred alternative;

- Maximising the use of investment in existing and planned transport, water services and social infrastructure.
- Focussing high density development in an established settlement on a transport corridors
- Is confirmed by Irish Water as having available capacity in water services.
- Protects sensitive areas through infill development.
- Consolidates the urban area of Howth thereby reducing urban sprawl and the inefficiencies associated with dispersed settlement patterns.

An assessment of the Residential Area land-use zoning policy with respect to the subject site, against the range of environmental parameters considered in the SEA for the Fingal Development Plan has been undertaken and the results are summarised below.

Aspect	Quality of Effect	Notes
Population & Human Health	Positive	Delivery of homes at a location that is proximate to amenities & services.
Landscape & Visual	Positive	Subject to sensitive design response.
Biodiversity, Flora & Fauna	Neutral	The land zoned residential is of low ecological value.
Climate	Positive	Promotes a modal shift to public transport & active travel modes (cycling & walking)
Air (Air Quality)	Positive	Reduction in car usage brought about by proximity to public transport would have a positive effect on local air quality.
Land & Soils	Neutral	Change in landuse and loss of soils is limited in Howth owing to the extensive environmental designations of the peninsula that limit development in the area.
Water	Neutral	Capacity exists in the municipal drainage and water supply systems to accommodate development.
Material Assets (Transport)	Positive	Proximity to public transport, amenities and services would promotes a modal shift to public transport & active travel modes (cycling & walking)

Aspect	Quality of Effect	Notes
Cultural Archaeology Heritage:	Likely Neutral	No known archaeological features present on the site.
Cultural Heritage: Built Heritage	Likely Neutral	Site is part of Howth Castle demesne and there are protected structures and an ACA proximate to the zoned area. Subject to sensitive design response.

Table 10 Summary of Impacts of Landuse Zoning

The development of the site has been determined to be acceptable in principle with regard to the environmental matters considered in the SEA. The site and proposed development present an opportunity to deliver a substantial quantum of housing in the form of the sustainable urban expansion and consolidation of Dublin City and Suburbs and thereby contribute in a sustainable manner to meeting strategic planning objectives at a local and regional level.

It is noted that prior to the acquisition, the site’s ability to satisfy environmental criteria was considered by the Applicant and it was found to offer the following attributes;

- The application area offered the opportunity to bring a greenfield infill site in close proximity to Howth into productive use, thus promoting the principles of compact growth.
- The site’s location within walking distance of public transport modes would promote a modal shift from the private car to more sustainable forms of transport. This in turn would assist with achieving overarching environmental objectives such as improved air quality (CO₂, NO₂ and particulate emissions).
- The site is not within a European Designated Site.
- The site is not located within an area identified as susceptible to flooding.
- The site does not contain Protected Structures

The Applicant recognised that development of the site would achieve the principle of a compact growth which is a sustainable urban form. It will allow people to live close to their daily living needs and contribute to reducing urban sprawl as well as enhancing quality of life. It will reduce the need for car based travel and in doing so contribute to a critical mass which is needed to realise the full potential of sustainable transport modes while reducing greenhouse gas emissions.

3.3 Alternative Uses

Howth is identified as a Consolidation Area within the Metropolitan Area. The policy approach is to gain maximum benefit from existing transport, social, and community infrastructure through the continued consolidation of the city and its suburbs. Future development should happen in a planned and efficient manner utilising opportunities to achieve increased densities where appropriate.

The Fingal Development Plan 2017-2023 establishes the overall guiding principles for development of the application area.

The proposed development site has dual zoning, Residential Area ‘RA’ and High Amenity ‘HA’.

The bulk of the application area is RA and the zoning objective is to;

Provide for new residential communities subject to the provision of the necessary social and physical infrastructure.

This objective is supported by a vision to;

Ensure the provision of high quality new residential environments with good layout and design, with adequate public transport and cycle links and within walking distance of community facilities. Provide an appropriate mix of house sizes, types and tenures in order to meet household needs and to promote balanced communities.

The permissible in principle use classes for 'RA' zoned lands is as follows.

Permitted in Principle		
Amusement Arcade ⁹	Bed and Breakfast	Betting Office ⁹
Childcare Facilities	Community Facility	Education
Funeral Home/Mortuary ⁹	Guest House	Health Centre
Health Practitioner	Hospital	Office Ancillary to Permitted Use
Office ≤ 100sqm ⁹	Office > 100sqm and < 1,000sqm ¹¹	Open Space
Place of Worship	Public House ⁹	Public Transport Station
Recreational Facility/Sports Club	Residential	Residential Care Home/ Retirement Home
Restaurant/Café ⁹	Retail - Local < 150 sqm nfa	Retail - Convenience ≤ 500 sqm nfa ⁹
Retail - Comparison ≤ 500 sqm nfa ⁹	Retail - Supermarket ≤ 2,500 sqm nfa ⁹	Retirement Village
Sheltered Accommodation	Sustainable Energy Installation	Taxi Office
Traveller Community Accommodation	Utility Installations	Veterinary Clinic

Table 11 Residential Area - Permitted in Principle Uses

In principle, an application for any one or a combination of the uses listed above could be progressed on the site subject to compliance with other policies and objectives in the Development Plan.

Having regard to the site's Residential Area zoning designation the reasonable alternative scenarios for development of the proposed development site are;

- i. A residential led mixed use scheme incorporating some permitted in principle uses ; or,
- ii. A residential development.

The anticipated environmental effects of either alternative, mixed use or residential, would be similar and no likely significant adverse effects are anticipated subject to the implementation of standard proven construction measures, high quality design and adherence to development management standards. Thus, the environmental effects of delivering either of the 2 no. alternatives are largely similar and either scenario is justifiable.

However, the primary difference between the 2 no. scenarios is that a residential scheme would deliver a greater quantity of much needed homes. When this is compared with a mixed use development, with a lower residential yield, and in the context of the historically low conversion of zoned lands in Howth to residential development, the effect on population would be negative.

Accordingly, it was concluded that use of the site for residential development is the optimum use of the proposed development site having regard to the outcome for population i.e. delivery of housing.

3.4 Alternative Design

3.4.1 Density

There is 14 hectares of zoned lands available in Howth with a potential to deliver 426 units. This equates to 31 units per hectare gross.

The 2009 Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas states that there is no upper limit on the number of dwellings that could be provided in town centres subject to other normal planning criteria. Section 5.8 states that densities of less than 50 dwelling per hectare net on public transport corridors should be discouraged. Section 5.11 of the guidance states that development at net densities of less than 30 dwellings per hectare is generally discouraged in the interests of land efficiency, particularly on sites in excess of 0.5 hectares.

The 2018 (updated 2020) Guidelines for Planning Authorities on Urban Development and Building Heights includes SPPR 1, which favours increased density in locations with good public transport accessibility.

Locally, the Claremont scheme, to the north of Howth Road, opposite the proposed development site, received permission for a net density of 191 dwellings per hectare.

There are 2 no. reasonable alternatives with respect to density;

- i. Low density development as advocated by the Fingal Development Plan
- ii. High density development as advocated by National Planning Policy and Guidelines and supported in the recent pattern of development locally i.e. Claremont.

A low density approach to development of this site would be unsustainable and contrary to national policy to develop infill sites with excellent access to high quality and high frequency public transport at a low density. This alternative would have very significant negative environmental effects.

In contrast, a high density approach offers the opportunity to realise significant environmental benefits and accordingly this alternative was selected for the proposed development site.

3.4.2 Height

The reasonable alternatives with respect to the approach to height are;

- i. Low rise – consistent with existing dwellings to the west of the site

Reduced height of 2-4 storeys on the proposed development site would be consistent with the existing ribbon development that stretches west toward Sutton. Under this alternative, a reduced quantity of new homes would be delivered and the effect on population would be significantly negative.

To increase the number of homes at this lower scale of development would necessitate a higher site coverage. This would in turn erode the area available for the delivery of open space and the effect on the health of future occupants of the scheme would be compromised and the effect would be significant and negative.

Lower building heights would likely safeguard the amenities of dwellings that adjoin the site to the west and the effect on occupants would be neutral and not significant.

The magnitude of change to the landscape and visual amenity would be neutral and slight to moderate.

- ii. Medium Rise – consistent with national planning policy and guidelines and the permitted Claremont scheme, up to 8-storeys.

By applying increased building height, a high number of new homes could be delivered and the effect is very significantly positive. The site coverage is reduced and a high quality and diverse landscape can be achieved resulting in positive effects for the health and well-being of the future population.

While the site's immediate context is currently characterised by low density residential and industrial typologies, this will change with the construction of Claremont. The proximity of the Protected Structures, Howth Castle and St. Mary's Church (although buffered from the site by broad belts of woodland) adds sensitivity. Given this mix of building typologies, scale, built heritage and architecture, the landscape/townscape character is considered to be of medium sensitivity to increased height.

Introducing urban scale height would contribute (together with Claremont) to the ongoing shift in character at the western edge of the town centre, (a) forming a corridor of contemporary urban buildings as the Howth Road enters/exists the town centre, and (b) through its contrast with the houses to the west, strengthening the urban edge, improving the coherence and legibility of the landscape/townscape and bringing about a positive effect.

Considered in isolation, increased height may be deemed to negatively affect the nearest houses to the west. However, considered at the wider scale, in the context of the Howth urban area, the introduction of modest height is not inappropriate, being located on the final approach to the town centre, being complementary to the Claremont development, and subject to buildings being of high design and material quality, and – due to the contrast with the houses – establishing a strong urban edge in compliance with the principles of good urban design.

The two protected structures, Howth Castle and St Mary's Church, form the core of an ACA that also includes their surrounding woodlands, which buffer the proposed development site and their immediate setting from the site. There is no direct visual relationship between the site and the core features of the ACA, despite the two areas being adjacent. However, visitors to the historic buildings and the wider area arrival and departure. Development on the site thus has potential to indirectly affect the setting of the buildings. Owing to the dense mature woodland that surrounds these features, the zone of visual influence is limited to the castle/demesne entrance, and from the edge of the ACA along the golf course to the south. Height would be prominent when approaching or departing the castle grounds or the church along the Howth Road. These indirect changes to the wider setting would amount to a low magnitude of change on the castle and St Mary's, with no reduction in the landscape and visual amenity experienced when visiting the historic buildings. The significance of the effect would be slight and neutral.

The upper slopes of Howth Head, to the south of the proposed development site, are a highly valued recreation and tourism resource and form part of the Howth SAAO. The elevation of this area affords panoramic views of Howth and Sutton urban areas, the wider city (including the city centre, the airport, etc.) and the seascape. The potentially most affected view is from Muck Rock 1km directly to the south of the site.



Plate 7 Effect of Increased Height when viewed from upper slopes to the south

When seen from this location and in combination with the permitted Claremont development, increased height would amount to a low magnitude of change. The buildings would take their place in the existing built up strip along the coastline leading into the town centre, well removed from Howth Castle. In the vast and diverse panorama, the effect of increased height (on Muck Rock and the other Howth Head Peaks and the wider SAAO) would be slight and neutral.

Overall, the effect of increasing height at this location on the local landscape character and visual amenity and setting of Howth Castle would be appropriate for the following reasons;

- a) in the context of the significant screening afforded to the site when viewed from within the ACA - this natural attribute mitigates the effect of increased height and the effect would be neutral and not significant.
- b) the emerging pattern of development locally, specifically Claremont, which introduces height of up to 8-storeys that will change the landscape and visual context of this location.
- c) The existing low rise residential development to the west of the proposed development site along the Howth Road (as well as sporadically located apartment developments of four storeys within this area), is not an area of valued character. The site context is equally characterised/defined by the Techrete/Claremont development and increased height would act in concert with Claremont to define a new, unique and identifiable corridor of contemporary urban character on the final approach/entry into the town centre.

The introduction of modest height, ranging from 5-6 storeys, would complement the evolving pattern of land use in the area, filling a gap in the otherwise continuous strip of development along the Howth Road, and contributing (in combination with the Claremont scheme) to the establishment of an appreciable edge between the town centre and the suburban area to the west. The significance of the effect would be slight and having regard to the trend of change in the area, the effect of increased height at this location on landscape/townscape character would be positive.

The effect of the building heights (5-6 storeys) on the amenities of the adjacent dwellings to the west of the proposed development site has been assessed by 3D Design Bureau and their report is included under separate cover with the application. The analysis included an assessment of the;

- Effect on daylight (Vertical Sky Component (VSC)) to surrounding properties;
- Effect on sunlight (Annual Probable Sunlight Hours (APSH)) to surrounding properties; and,
- Effect on sunlight to surrounding external amenity spaces

The surrounding context was carefully considered to ensure all properties and amenity spaces that may potentially experience a level of effect were included in the study. The assessment also included the permitted Claremont scheme to identify any cumulative effects. The proposed development would also have an Imperceptible effect on the level of daylight and sunlight received by the gardens of the neighbouring properties. The assessed windows and gardens comply with the recommendation outlined in the BRE Guidelines. Therefore, it can be concluded that the effect of the proposed increased height on the amenities of neighbouring properties is neutral and imperceptible.

3.4.3 Building Layout

Following the initial concept design, a layout was developed and the locations of Block A-C are illustrated by the dashed red line in the Figure below. The impact of Block A (most easterly building) was identified as potentially giving rise to a significant negative effect on the entrance to Howth Castle, which is included in the ACA.

An alternative design of Block A was proposed and the amended footprint is illustrated in the Figure below. This layout increased the distance between Block A and the entrance to Howth Castle, approx. 16m set back, and to the castle gates, approx. 45m set back. This alternative design avoids any sense of excessive enclosure, or crowding of the historic setting (the boundary wall, the gate or the woodland). To further mitigate any likely significant effect, tree planting inside the eastern boundary was introduced to contribute further to the softening of the development's presence, despite its urban character and scale.



Figure 10 Alternative Block Locations

3.4.4 Vehicular Access

The alternatives available to facilitate access to the site are;

- i. Use the existing entrance to Howth Castle and Deer Park Golf Course
- ii. Create a new entrance

The existing entrance to the demesne is off the Howth Road It is considered that intensifying the use of this entrance would have a significant negative effect on particularly on the protected gates that are set back from the public road in the avenue.

The alternative, to create a new entrance along the northern boundary would have a moderate effect on the demesne wall. There is precedence for interventions in the northern boundary wall to facilitate access as evidenced by the access to Tig Bhríde, immediately west of the proposed development site. The wall is not protected and is not within the Howth Castle ACA, therefore direct impacts on protected built heritage do not arise. The wall was visually assessed by the project conservation architect and it was concluded that its integrity is undermined due to lack of maintenance and ivy growth. The works proposed to the wall offer an opportunity to restore the remainder of the wall and safeguard it into the future. This is a direct significant and positive effect for cultural heritage.

Having regard to the identified negative effect of using the existing demesne entrance for the proposed development and the very significant positive effect that could be achieved for the wider wall as part of the work to create an entrance on the northern boundary, creating a new entrance is the preferred alternative.

3.5 Alternative Processes

Within each design solution there can be several different options as to how the processes or activities of the project can be carried out. For this proposed development, alternative processes for energy supply were examined. 8 no. low and zero carbon renewable energy technologies were analysed and the assessment is set out in the list below.

- i. Wind Power
- ii. Photovoltaic Cells (PV)
- iii. Solar Thermal Collectors
- iv. Biomass Heating
- v. Ground Source Heat Pumps (GSHPs)
- vi. Air Source Heat Pumps (ASHPs)
- vii. Exhaust Air Heat Pumps (EAHPs)
- viii. Combined Heat & Power (CHP)

Each of the renewable energy technologies examined is more advantageous than burning conventional fossil fuels to satisfy the scheme's energy demand.

The preferred technology for the proposed development, having regard to the site's characteristics, the need to balance other environmental criteria with the production of renewable energy and the profile of energy use associated with residential developments is heat pump technology.

4 Assessment of Environmental Impacts

The EIA process essentially identifies, describes and assesses in an appropriate manner, the direct and indirect significant effects of a project on a series of specified environmental factors;

- Biodiversity, with particular attention to protected species and habitats
- Land, soil, water, air and climate
- Material assets, cultural heritage and the landscape
- Interaction between the above factors

4.1 Population & Human Health

The assessment of Population & Human Health is contained within Chapter 4 of Volume II.

4.1.1 Existing Environment

The application site is 1.7 ha, encompasses 1.16 ha of greenfield land zoned for residential development (RA) within the Fingal County Council administrative area. The objective of the RA Zoning is to provide for residential development and to protect and improve residential amenity. The balance (0.58 ha) of the application area is zoned high amenity (HA), and the objective is to protect and enhance high amenity areas. The proposed residential development is confined to the area zoned for residential purposes.



Figure 11 Site Zoning Designations (Excerpt Sheet No. 10: Baldoyle/Howth)

For the purpose of this assessment, the primary sensitive receptors identified are;

- i. residential dwellings in the vicinity of the site, in particular, existing low-rise suburban residential dwellings to the west of the site;
- ii. users of the public road network, specifically the Howth Road, the golf club and the wider demesne lands;
- iii. future occupants of the former Techrete lands (Claremont) for which permission has been granted (Reg. Ref. 306102) for the construction of a mixed-use development of residential, retail/café/café uses, creche, civic plaza and landscaped park.

4.1.2 Impact Assessment

This section describes the environmental effects that are likely to arise during the construction and operation of the proposed development.

Potential Impacts are considered under the following headings;

- Do-Nothing
- Land use
- Population & Human Health
- Employment and Economics
- Residential Amenity
- Local Amenity Impacts

Specific effects with respect to matters such as air quality, noise, traffic, visual impact etc. are dealt with in the respective assessments in this EIAR.

4.1.2.1 Do Nothing

A 'do nothing' scenario, which is to say not developing these lands, would represent a lost opportunity to develop lands for residential use in close proximity to the centre of the Howth village. Thus, the site would remain under-utilised and it would not contribute to increasing the provision of housing in this area.

4.1.2.2 Construction Phase

Land use

The redevelopment of this zoned greenfield site to provide much needed new homes would have a likely significant permanent positive effect locally.

Population

It is estimated that during peak construction there will be 40-50 people employed on site. It is not anticipated that this will generate a temporary increase in population locally as employees will travel to the site from their existing place of residence. The likely impact on population is thus neutral.

Employment & Economic Activity

A key characteristic of the proposed development in terms of its potential economic impact relates to its capital value, of which a significant portion will be for the purchase of Irish sourced goods and services. The construction phase will provide a boost for the local construction sector in terms of employment generation (40-50 people employed on site at peak construction period), capital spend on materials and construction labour costs, and it will generate additional spending on the local economy (retail and local shops).

In addition to direct employment, there will be substantial off-site employment and economic activity associated with the supply of construction materials, provision of services such as professional firms supplying financial, architectural, engineering, legal and a range of other professional services to the project, and additional spending in local shops and other local retail services and as consequence of the presence of construction staff during the construction phase. The effect is likely and will be not-significant, positive in the short-term.

Health

Construction sites pose potential risks to the health and safety of the public. Unauthorised access would be considered trespassing on private property. In the absence of mitigation, the effect would be likely, negative with an effect that might range from slight to profound depending on the magnitude of the incident.

The wider potential for effects on health during the construction phase are dealt with in this EIAR under the more specific topics of the environmental media by which they might be caused including air, traffic and noise.

Residential Amenity

The anticipated likely significant effects in the absence of mitigation on residential amenity relate to disruption due to increased construction traffic movements on the local road network, noise, dust and visual impact arising from plant (e.g. cranes) necessary to deliver the development. In the absence of mitigation, the anticipated impact would be local and of temporary to short-term duration with a moderate significance.

Specific potential for effects on residential amenities during the construction phase are dealt with in this EIAR under the more specific topics of the environmental media by which they might be caused including air, traffic and noise.

4.1.2.3 Operational Phase

Land use

The subject development will deliver 162 residential units to the market on an accessible urban site proximate to Howth Village, Howth DART Station, and Dublin city centre, of which 10% (16 no.) will be Part V social housing. The predicted effect is positive, significant and of permanent duration as it would realise the objectives of urban consolidation through the efficient use of a zoned and serviced landbank to provide much needed housing together with high-quality amenities for future occupants.

Population

The proposed development will accommodate a projected full-time population of approximately 4241 persons.

The Childcare Demand Report that accompanies this application notes that the scheme would generate a demand for 18 no. spaces in conjunction with the provision of 133 no. units capable of accommodating families on the subject site. There is a demand for 302 no. childcare spaces in the Howth ED and there are at least 332 no. places provided by the existing and permitted facilities within the Howth ED, meaning the future demand arising from the proposed development can be comfortably accommodated. The impact of the proposed development on childcare facilities is determined to be locally neutral.

The School Demand Assessment Report that accompanies this application estimates that the proposed development will generate a demand for 36 no. primary school children and a requirement for 25 no. post-primary school places. There are eight primary schools and five post-primary schools within the study area (4.5km catchment, equivalent to 15-minute cycling time or 10-minute drive time). A newly Gaelscoil primary school (Sept 2021) and new post-primary school (2022) are proposed to be located in the Donaghmede/Howth area according to the Department of Education and Skills. The impact of the proposed development on primary and post primary schools is determined to be locally neutral.

¹ Estimated future population based on applying a future occupancy of 1 per studio, 2 per 1-bed and the national household average of 2.75 to the remainder of the units.

There is a wealth of existing amenities in the wider area including sports and recreational facilities. The increase in population will place additional demands on existing amenities but will also provide a critical mass to support the delivery of social infrastructure. Within the proposed development a series of public and communal open spaces are planned that will ensure future occupants benefit from access to a range of recreational opportunities within the site.

Development of the site at Howth would deliver a critical mass of growth in population that would ensure the long-term viability of public transport infrastructure presented in the area. The effect is thus determined to be moderate-significant, positive, and permanent.

Employment & Economic Activity

The potential employment opportunities will be limited given that residential is the predominant land use proposed. There will be some employment created in the servicing and maintenance of the apartment buildings (maintenance of lifts, communal spaces, etc), and for the upkeep of the landscaped areas. The economic impact of the operational phase on the immediate area would therefore positive be permanent, and given the modest nature of employment opportunities, of imperceptible significance.

The new residential population will generate additional spending within the Howth area which will likely have a permanent, slight, and positive impact on local economic activity generated through the multiplier effect.

Local Services & Amenities

The proposed development provides high quality communal and public open space. The public open space is conveniently located to the north of the site where it will be most accessible. It will incorporate a botanical garden with a dedicated play area. Accordingly, the effect is deemed locally positive with a permanent duration.

The Social Infrastructure Audit, submitted with the application, demonstrates that there is a deficit regarding children's play provision within the study area. The proposed development incorporates dedicated play areas within the communal and public open space. In addition to this, the approved Claremont scheme at the former Techrete site (reg. ref. ABP 306102) includes a dedicated play area in the western parkland with dedicated space for different age groups. The impact is deemed to be locally neutral to positive with a significance that at worst would have a moderate effect.

Health & Residential Amenity

The proposed scheme provides for reduced carparking and prioritises both pedestrians and cyclists. 355 no. cycling spaces with 325 no. long-term bicycle parking spaces are proposed at basement level and 30 no. at ground floor level for short stay visitors to promote active travel modes. The layout provides for the segregation of pedestrians and traffic and incorporates the principles of universal access and the requirements of Part M of the Building Regulations. The predicted effect of these combined measures on the health and wellbeing of future occupants is significantly positive.

The integration of energy efficient measures into the design will provide for healthier living standards for future occupants and less dependence on fossil fuels for energy generation. This coupled with the low level of carparking (132 no. spaces, which equates to 0.81 no. spaces per units) which will result in significant CO2 savings will contribute to improved air quality and the impact is likely to be locally significantly positive and of permanent duration.

Achieving a high quality living environment requires an integrated and balanced approach when designing a scheme. In this regard, the proposed new home benefit proportions and layouts that

meet modern living expectations. The configuration of the proposed development in 3 no. buildings of modest height (max. 6 storeys), 54% of the application area is retained as open space and this is a positive effect. High quality and sufficient quantum of open space is critical to health and well-being and is an important design consideration where higher density development to achieve compact growth is an overarching objective.

There are significant benefits for population and human health in pursuing this approach, bringing people closer to where they can access daily living needs, improving air quality and reducing greenhouse gas emissions.

The design of the proposed apartments includes a combined Living, Kitchen, Dining (LKD) format. This results in a layout with generously proportioned deep floor plans that exceed minimum requirements, see Housing Quality Audit.

Dual-aspect dwellings greatly enhances the likelihood that the internal environment of a dwelling will perform well and have a positive effect on the well-being of the occupants. The design maximises the number of dual-aspect apartments to achieve the many inherent benefits of this approach. These include better daylight, a greater chance of direct sunlight for longer periods, natural cross-ventilation, a greater capacity to address overheating, a choice of views, greater flexibility in the use of rooms, and more potential for future adaptability by altering the use of rooms. The site is central and accessible, so under SPPR 4 of the Design Standards for New Apartments 33% of the apartments should have dual aspect. Within the proposed development 99 units or 61% are dual aspect. This is determined to be a Very Significant Positive.

To provide private amenity space, each apartment benefits from access to balconies and a ground floor terraces. The position of balconies is carefully considered to avoid overlooking thereby providing quality private amenity space. The effect of these measures is positive.

This application is accompanied by a Daylight & Sunlight Report prepared by 3D Design Bureau and should be referenced in conjunction with this chapter. In terms of amenity areas (public and communal amenity area) the report demonstrates that communal amenity areas, located on the ground floor of each block and dedicated roof garden, and public open space will have excellent levels of daylight and will receive a level of sunlight well in excess of the recommended levels as per the BRE Guidelines.

Achieving the high quality design e.g. generous room sizes and private amenity space results in a deep floor plan for LKDs and this can affect daylight penetration. The design incorporates extensive glazing to mitigate this. Having regard for the need to achieve a balance between all the elements that contribute to a high quality living environment, it is considered appropriate that an ADF target value of 1.5% is satisfactory for the proposed LKDs. Should full compliance for the higher target value of 2% be sought, design changes that would negatively affect individual homes would result, such as the removal of balconies or a reduction of unit sizes. Such mitigation measures could reduce the quality of living within the proposed units to a greater degree than the improvements that would be gained with increased ADF values.

The Daylight & Sunlight Report demonstrates that when measured against a 1.5% target, the scheme achieves an approx. compliance rate of 96%. When measured against the 2% criteria the approx. overall compliance rate is 93%.

Overall and having regard to the wider design criteria, it is determined that the design would provide future residents with a high quality and comfortable living environments and the effect is positive.

4.1.2.4 Cumulative Impact

The approved Claremont scheme together with this proposed development will provide 674 no. new homes in Howth. Having regard to the historical low delivery of homes in the area and the housing crisis that exists across Dublin City and Suburbs, this is a Very Significant Positive effect.

The Claremont scheme includes a childcare facility and play areas dedicated to different age groups. The Department of Agriculture, Food and the Marine has recently launched a public consultation on the plans to develop a new 100-metre-wide infill area on the outside of the Howth West Pier, c. 700 m from the development site, which will create a new public amenity area including a new coastal linear park. Together with the proposed development the realisation of new services and amenities, particularly play areas is deemed Very Significant and Positive.

The proposed development together with the Claremont scheme will increase demand on local infrastructure and services. This will include increased demand on potable water supply, foul water treatment capacity, gas supply, electricity supply, and telecommunication (fibre / broadband) capacity. Irish Water has confirmed the feasibility of both schemes. It is noted that works to the municipal water supply are currently underway in Howth.

4.1.3 Mitigation

4.1.3.1 Incorporated Design

The proposed development complies with the Building Regulations which provide for the safety and welfare of people in and about buildings. The Building Regulations cover matters such as structure, fire safety, sound, ventilation, conservation of fuel and energy, and access, all of which safeguard users of the buildings and the health of occupants.

The proposed design provides for the segregation of pedestrians and bicycle traffic from motorised traffic. The design also incorporates the principles of universal design and the requirements of Part M of the Building Regulations so that the development will be readily accessible to all, regardless of age, ability or disability.

The integration of energy efficient measures into the design will provide for healthier living standards for future occupants, less dependence on fossil fuels and associated improved air quality. The availability of on the doorstep public open space, amenity spaces, and a highly accessible layout across the scheme including segregated pedestrians entrance which is strategically located proximate to the village of Howth will encourage sustainable modes of outdoor access for a wide age group.

4.1.3.2 Construction Phase

A Construction and Environmental Management Plan (CEMP) (BCME), and Construction Waste Management Plan (CWMP) (Byrne Environmental) for the proposed development are included in the application documentation. The CEMP & CWMP will be further updated by the contractor, agreed with Fingal County Council prior commencement, and implemented by the selected contractor after any consent is received.

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

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

Adherence to the construction phase mitigation measures presented in this EIAR will ensure that the construction of the proposed development will have an imperceptible and neutral impact in terms of health and safety during the short-term duration of the works.

4.1.3.3 Operational Phase

The proposed development was designed to modern standards that incorporate measures that reduce risks to and enhance amenity in terms of population and human health. The impact assessment section did not identify likely significant environmental impacts on population and human health arising from the operational phase of the proposed development. Accordingly, mitigation measures are not proposed.

4.1.4 Residual Impact Assessment

It is considered that the proposed development will realise significant positive overall economic and social benefits for the local community and the wider Howth area for both the construction and operational phases. The delivery of much needed housing and amenity for Howth while being located to avail of existing utility infrastructure and to integrate community and social infrastructure are considered to be beneficial to Howth.

4.1.5 Monitoring

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

No specific monitoring is proposed in relation to this section. Monitoring of standard construction mitigation measures as outlined in this EIAR will be undertaken by the appointed contractor.

4.2 Landscape & Visual Character

The assessment of Landscape & Visual Character is contained within Chapter 5 of Volume II.

4.2.1 Existing Environment

4.2.1.1 The Site

The site is comprised of a large grassland field, currently in agricultural use, on the south side of the Howth Road, and a small portion of the Deer Park golf course to the rear/south of the field. The field has 130m frontage to the Howth Road just to the west of the entrance to Howth Castle, St Mary's Church and the Deer Park Golf Club. Across the Howth Road from the site are the Techrete site, a disused halting site and Baltray Park.

The site is enclosed along the roadside boundary by an approximately 3.5m stone wall, an historic feature of the Howth Demesne. To the west of the site are two residential properties, part of the corridor of low density housing to the west along the Howth Road. To the east of the site there is a woodland belt alongside the entrance road to Howth Castle and the Deer Park golf club. A part of the golf course lies to the south of the site.

Although currently greenfield, the site is mostly zoned for residential development in the Fingal County Development Plan 2017-2023. A small part of the site - the strip to the rear, extending into the golf course - is zoned High Amenity. It is thus the objective of the local authority that the site (apart from the High Amenity zoned area) should be developed for residential use, forming part of the continuous strip of urban development along the Howth Road and the northern shoreline of the peninsula.

4.2.1.2 Receiving Environment

The site is located at the western edge of the Howth urban area, some 500m from the DART station, the harbour and the historic town centre. Although currently somewhat removed from the main urban area, the Town Centre zoning extends to the west on the north side of the Howth Road, covering the Techrete site and the former halting site across the road from the site. The planning permission for the Claremont development on the Techrete site will dramatically alter the site's context and effectively extend the town centre west as far as the site.

The site was once part of the Howth Castle demesne. It is close to the castle (c. 110m) and to St Mary's Church (c. 100m), both of which are protected structures. They are also covered by Architectural Conservation Area (ACA) designation along with an area of historic demesne woodland which surrounds the buildings. A large part of Howth Head is covered by Special Amenity Area Order (SAAO) in recognition of the landscape's recreation and amenity value. (It should be noted that the residential zoned area does not fall into the SAAO area, nor into the Special Amenity Area 'buffer zone' surrounding the SAAO). These cultural and natural heritage assets are both sensitivities and opportunities for development lands in their vicinity, including the site.

The following are the landscape/townscape elements and character areas which could potentially be affected by the proposed development (i.e. the main potential landscape/ townscape receptors):

- The Howth Road corridor;
- The low density residential strip along Howth Road to the west of the site;
- The Claremont (former Techrete) site;
- Howth town centre and harbour;
- Howth Castle and St Mary's Church (the Howth Castle ACA);
- Howth Head.

4.2.2 Impact Assessment

4.2.2.1 Do Nothing

If the site were to remain in undeveloped the landscape character and views in the receiving environment would nonetheless undergo significant change as a result of the permitted Claremont development on the Techrete site across the road.

However, the site is zoned for residential use and there are other factors driving its development, including (a) its frontage to the main road entering Howth; (b) its location at the gateway to the expanded urban area (once the permission for the Claremont development is implemented); (c) its proximity to the town centre; (d) its access to the DART station and bus services; (e) its access to an abundance of open space on Howth Head and along the coastline.

These characteristics combined with compact growth policy and factors such as (f) the predominantly low density typology of existing development in the area (albeit with some clusters of medium and high density), and (g) a large proportion of the peninsula being preserved from future development by high amenity zoning and SAAO designation, suggest that the site's development must be of relatively high density, i.e. of apartment typology. This is necessary to make more sustainable use of Howth's high-quality amenities and public transport infrastructure.

Therefore, it is unlikely that the site will remain in greenfield condition, and any alternative development proposal for the site will seek to achieve a similar yield of residential units, in accordance with compact growth policy.

4.2.2.2 Construction Phase

During construction the site and immediate environs would be disturbed by construction activities and the incremental growth of the buildings on site. The magnitude of change to the site itself would be high, and to the surrounding landscape/townscape receptors high to low (reducing with distance from the site). The effects would be negative, although short-term.

4.2.2.3 Operational Phase – Landscape Effects

The assessment of potential landscape/townscape effects involves (a) classifying the sensitivity of the receptors (the main elements, features, characteristics and character areas that could be affected), (b) classifying the potential magnitude of change to each of the receptors, (c) combining these factors to arrive at an assessment of significance of the effects on each receptor. The table below summarises the identified likely effects of the development on the identified landscape receptors in the operational phase.

Landscape/ Townscape Receptor	Quality	Significance	Extent	Probability	Duration	Type
Key Landscape/Townscape Characteristics						
Land use pattern	Positive	Slight	Local	Likely	Permanent	Direct
Building typologies, scale and architecture	Positive	Moderate	Local	Likely	Permanent	Direct
Landscape, GI and trees	Neutral	Moderate	Local	Likely	Permanent	Direct
Surrounding Character Areas						
Howth Road corridor including Claremont development site	Positive	Moderate	Local	Likely	Permanent	Direct
Howth town centre and harbour	Positive	Slight	Local	Likely	Permanent	Indirect
Low density residential strip along Howth Rd west of site	Positive/ Negative	Moderate	Local	Likely	Permanent	Direct

Landscape/ Townscape Receptor	Quality	Significance	Extent	Probability	Duration	Type
Howth Castle and St Mary's Church	Neutral	Slight	Local	Likely	Permanent	Indirect
Howth Head	Neutral	Not significant	Local	Likely	Permanent	Indirect

Table 12 – Operational Phase Landscape Effects

Key Townscape Characteristics

- Land use pattern:** The site is at the point of transition between the evolving town centre to the east and an area of residential use and predominantly suburban character to the west, although there are clusters of higher density residential use west of the site, e.g. Howth Lodge, Corr Castle and Offington Manor apartments. The introduction of a high density residential scheme would complement the evolving pattern of land use in the area, (a) filling a gap in the otherwise continuous strip of development along the Howth Road, (b) increasing the density and sustainability of residential use in proximity to the town centre and the DART station, and (c) contributing (in concert with the Claremont scheme) to establishing an appreciable edge between the town centre and the suburban area to the west. The change (high density use in proximity to public transport and other urban amenities) is encouraged by compact growth policy. The significance of the effect would be slight, and due to the proposal's accordance with policy and the trend of change in the area, the effect on landscape/townscape character would be positive.
- Plot and building typologies, scale and architecture:** The receiving environment is characterised by variety in building typology and scale, including two storey detached and semi-detached houses, historic buildings/ protected structures of large scale, late 20th and early 21st century apartment buildings of up to four storeys west of the site and 7/8 storeys on the Techrete/Claremont site. The proposed development would introduce apartment buildings of urban scale and contemporary architecture to the townscape, addressing but set back from the Howth Road. The change would be in keeping with the policy-driven trend represented most clearly by the Claremont permission. It would contribute (along with Claremont) to the ongoing shift in character at the western edge of the town centre, strengthening the urban edge. The significance of the effect would be moderate and positive.
- Landscape/green infrastructure:** The site is in greenfield condition, comprised of an agricultural field and a small part of the neighbouring golf course. In the wider context, characterised by an abundance of high value open space and woodland, the field is of limited landscape/GI value. Its zoning for residential development is also pertinent. The field itself would be occupied by built development, in keeping with its land use zoning. The development would preserve the highly valuable woodland belt to the east of the site, and supplement this with planting inside the site boundary. A substantial portion of the golf course shelter belt on the site would be removed (with selected trees relocated on the site where feasible). It is proposed to replace the removed section of shelter belt with a realigned woodland belt along the southern site boundary, so that the east-west woodland connection across the site would be retained. In total, the development would include the planting of 9 no. mature trees, 12 no. semi-mature trees, 44 no. standard/multi-stem trees, and 1,960 whips (in the new/relocated shelter belt). This large number of trees would perform screening, landscape/visual amenity and biodiversity functions. The Arboricultural Impact Assessment concludes (Paragraph 5.44) that "... within 25-30 years of planting, there will be a significant increase in canopy cover in the local landscape. Therefore, the long-term result will be an improvement on the pre-development baseline". The portion of the site zoned High Amenity,

would be retained as open space to the rear of the buildings, in the form of a terraced grassland. Overall, given (a) the site's zoning, (b) the preservation of the most valuable local landscape/GI feature (the woodland belt outside the east boundary), (c) the retention of the High Amenity area as open space, and (d) the volume of trees proposed to be planted in compensation for the removed shelter belt, the quality of the effect would be neutral.

Townscape character areas:

- **The Howth Road corridor:** The development would introduce a cluster of buildings of contemporary urban character, scale and arrangement, complemented by specimen trees, at a key point along the road corridor. While distinct in its layout, architecture and materials, it would complement the Claremont development by addressing the Howth Road (with similarly strong frontage and sufficient height to generate a degree of built enclosure), shifting the road corridor's character towards that of an urban street – appropriate to the main entrance to the town. Due to the winding alignment of the road, the development's effect, while strong, would affect a relatively short stretch of the road, that being the final approach into the town centre. Through its contrast with the housing to the west, it would establish (in concert with Claremont) a strong urban edge to the town centre. The significance of the effect would be moderate and positive.
- **Howth town centre and harbour:** Howth town centre, particularly the harbour area, has a rich character deriving from the town's distinctive topography, a fine grain of development including many buildings and sites of heritage value, the activity of a working harbour, a generous public realm and the seascape. Much of the town centre is designated ACA and is highly sensitive to change. Due to a combination of the winding alignment of the Howth Road and the (protected) woodland on the south side of the road, the site is not visible from the harbour/ town centre area. The development would have no direct effect on the town centre, except for views from the ends of the piers, in which the Claremont development will be far more prominent. The only effect on the historic town centre would be the experience of contrast between this area and the new contemporary urban gateway/corridor formed by a combination of Claremont and the proposed development, on arrival and departure from the harbour area. The significance of the effect would be slight and positive.
- **The low density residential strip along Howth Road to the west of the site:** West of the site the road is lined by houses on large plots, and a public park diagonally across the road from the site. The area potentially affected by the development is a stretch of less than 200m to the west of the where the road meets and runs alongside the railway line. This stretch is suburban in character. In building typology, scale and architecture the development would contrast strongly with this suburban strip (while complementing the Claremont development across the road and extending into the town centre to the east), changing the townscape character of this area. The significance of the effect would be moderate. Considered in isolation, the change in character may be deemed to negatively affect the nearest houses to the west. However, considered at the wider scale, in the context of the Howth urban area, the change is not inappropriate, being located on the final approach to the town centre, being complementary to the Claremont development, being of high design and material quality, and – due to the contrast with the houses – establishing a strong urban edge in compliance with the principles of good urban design.
- **Howth Castle and St Mary's Church:** The two protected structures form the core of an ACA that also includes their surrounding woodlands, which buffer the buildings and their immediate setting from the site. There is no direct visual relationship between the site and

the core features of the ACA, despite the two areas being adjacent. However, visitors to the historic buildings pass by the site on their arrival and departure. Development on the site thus has potential to indirectly affect the setting of the buildings. The photomontages (for Viewpoints 11-18) show that the development would not be visible from the castle (exterior or interior), St Mary’s Church or much of the ACA area. It would only be discernible through the woodland belt near the castle/demesne entrance, and from the edge of the ACA along the golf course. The development would however be prominent when approaching or departing the castle grounds or the church along the Howth Road. These indirect changes to the wider setting would amount to a low magnitude of change on the castle and St Mary’s, with no reduction in the landscape and visual amenity experienced when visiting the historic buildings. The significance of the effect would be slight and neutral.

- **Howth Head:** The lower slopes of Howth Head to the south of the site are occupied by a golf course, with linear woodland belts between fairways and around the perimeter of the course, limiting the visibility of the surrounding landscape. The clubhouse is located up the hillside 750m from the site, buffered from the site by woodland in the intervening landscape. The upper slopes of Howth Head are a highly valued recreation and tourism resource and form part of the Howth SAAO. The elevation of this area affords panoramic views of the headland itself, the Howth and Sutton urban areas, the wider city (including the city centre, the airport, etc.) and the seascape. The potentially most affected view is the view from Muck Rock 1km directly to the south of the site. When seen from this location the development would amount to a low magnitude of change. The buildings would take their place in the existing built up strip along the coastline leading into the town centre, well removed from Howth Castle. In the vast and diverse panorama the effect (on Muck Rock and the other Howth Head Peaks and the wider SAAO) would be slight and neutral.

4.2.2.4 Operational Phase – Visual Effects

To assess the proposal’s potential visibility and visual effects, 20 no. viewpoints were selected for assessment informed by verified photomontages. The viewpoints were selected to represent the key townscape character areas and visual receptors in the receiving environment, and to provide photomontage views from a range of angles and distances.

The viewpoint selection also took account of pre-planning consultation with Fingal Co. Co. and An Bord Pleanála; a number of views were included specifically to address the potential cumulative effects of the proposed development and the permitted Claremont development on their immediate environs (e.g. Viewpoints 1, 2, 3, 4, 5).

The residual visual effects during operation are summarised in the table below.

Visual Receptor	Quality	Significance	Extent	Probability	Duration	Type
1. Howth Harbour, west pier	Neutral	Slight	Local	Likely	Temporary	Direct
2. Howth Rd east of site beside Techrete/ Claremont site - A	Positive	Slight	Local	Likely	Temporary	Direct
3. Howth Rd east of site beside Techrete/ Claremont site - B	Positive	Moderate	Local	Likely	Temporary	Direct

Visual Receptor	Quality	Significance	Extent	Probability	Duration	Type
4. St Mary's Church Access Road	Positive	Moderate	Local	Likely	Temporary	Direct
5. Howth Rd approaching site from east	Positive	Significant	Local	Likely	Temporary	Direct
6. Howth Rd entry to Howth Castle demesne	Positive	Significant	Local	Likely	Temporary	Direct
7. Howth Road along-side site – view east	Positive	Moderate	Local	Likely	Temporary	Direct
8. Howth Rd from west – A (approx.. 40m)	Positive	Significant	Local	Likely	Temporary	Indirect
9. Howth Rd from west – B (approx.. 100m)	Positive	Significant	Local	Likely	Temporary	Indirect
10. Howth Rd from west – C (approx. 200m)	Positive	Moderate	Local	Likely	Temporary	Indirect
11. St Mary's Church	Neutral	No effect	n/a	n/a	n/a	n/a
12. Exit From Howth Castle Demesne	Neutral	Slight	Local	Likely	Temporary	Direct
13. Howth Castle grounds near 'Black Jack's well'	Neutral	No effect	n/a	n/a	n/a	n/a
14. Howth Castle east facade	Neutral	No effect	n/a	n/a	n/a	n/a
15. Howth Castle upper floor window	Neutral	No effect	n/a	n/a	n/a	n/a
16. Howth Castle outbuildings (National Transport Museum)	Neutral	No effect	n/a	n/a	n/a	n/a
17. Howth Castle grounds west of castle – A	Neutral	No effect	n/a	n/a	n/a	n/a
18. Howth Castle grounds west of castle – B	Neutral	Slight	Local	Likely	Temporary	Direct
19. Muck Rock	Neutral	Slight	Local	Likely	Temporary	Indirect
20. Portmarnock	Neutral	Not significant	Local	Likely	Temporary	Indirect

Table 13 Residual Operational Phase Visual Effects

4.2.2.5 Cumulative Impact

there is potential for the proposed development and the permitted Claremont development to have cumulative effects on the landscape/townscape and some views. The two developments would form

a corridor of contemporary urban buildings as the Howth Road enters/exits the town centre, forming a distinct western edge to the town centre, and emphasising the historic character of the harbour area by their contrast with it. The two developments would subtly diminish each other's presence/impact in the townscape, but complement each other's urbanising effect.

4.2.3 Mitigation

4.2.3.1 Incorporated Design

The proposed layout and the design of the buildings and landscape are a considered response to the sensitivities and opportunities in the receiving environment - intended to have a positive effect on the local landscape/townscape and views, and to deliver a high-quality living environment in a setting that is both urban and sylvan.

The provision of the car parking in the basement (as opposed to ground level) is a key incorporated mitigation measure. This allows for the site to retain a substantial proportion of open space, and to introduce a large number of trees to the site, for visual screening and residents' amenity.

The three buildings are arranged and scaled to have a strong visual presence in the Howth Road corridor, but with the facades angled to present towards the west and east (the approaches to the site), as opposed to facing the road in front of the site. This recognises the fact that the greatest number of visual receptors would be moving towards the site as opposed to seeing it face-on from or across the street. The wide, landscaped corridors between the buildings would however provide relief in the built frontage and glimpses of the trees and the headland to the south, when seen from the road as it passes the site.

The angled front facades also create three triangles of green space in front of the buildings, in which large specimen trees are proposed, softening the built frontage.

The buildings - set back behind the existing road-side verge, the retained demesne wall and the green space and trees described above - are five storeys at the road-front (with the fifth storey set back). This is an appropriate scale for a development intended to have an urbanising effect on the road corridor at the gateway to the town. They would generate a degree of built enclosure - but with no buildings directly opposite, a sense of space would be retained, orientated towards the coastline and sea to the north. There would be no sense of excessive enclosure. The buildings each step up to six storeys in their rear volume, the step in height reflecting the gradient of the site (like the top floor of the front volume, the sixth storey of the rear volume is set back).

The landscape proposals include retention of the historic woodland belt (part of the demesne woodland framework) outside the site's east boundary. Only one tree, inside the boundary, is proposed to be removed in this area. It is proposed to reinforce and enhance the woodland belt with supplementary planting inside the boundary.

A part of the golf course perimeter woodland belt (a modern/late 20th century intervention) would be removed from the rear portion of the site. This would be replaced with a new belt of woodland planting along the rear (south and west) boundaries of the applicant's land holding, resulting in a net gain on woodland cover.

4.2.3.2 Construction Phase

No mitigation measures are proposed other than standard best practice construction site management (e.g. erection and maintenance of site hoarding, orderly storage of materials and vehicles, etc.).

However, given the importance of the existing trees to be retained within and in close proximity to the site, particular attention should be paid during construction to the arboricultural inspection and supervision programme.

Similar attention should be paid to the measures recommended by Slattery Conservation for (a) the protection of the demesne wall during construction, and (b) the creation of the two new openings in the wall.

4.2.3.3 Operational Phase

The incorporated design mitigation would ensure that the development's landscape/ townscape effects would be generally positive after the construction phase. No operational phase mitigation is deemed necessary, other than a programme of monitoring and maintenance of the existing and proposed woodland and other landscaping to ensure its establishment and continued health.

4.2.4 Residual Impact Assessment

4.2.4.1 Construction Phase

During construction the site and immediate environs would be disturbed by construction activities and the incremental growth of the buildings on site. The magnitude of change to the site itself would be high, and to the surrounding landscape/townscape and visual receptors high to low (reducing with distance from the site). The effects would be negative, although temporary.

4.2.4.2 Operational Phase

Since no landscape or visual-specific mitigation is recommended, the residual effects would be the same as those identified above.

4.2.5 Interactions

The potential interactions of townscape and visual impacts with other environmental factors are as follows:

During the construction phase the potential impact is;

- Population & Human Health: The emergence of plant to facilitate the development resulting in short-term, slight to not-significant, neutral visual effects for the existing resident population and users of the surrounding road network.

During the operational phase the potential interactions are:

- Population & Human Health: The landscape plan will impact on the quality of the private and communal open spaces, which will impact on people's health and well-being;
- Biodiversity: The landscaping has significant interaction with biodiversity in relation to the potential of the proposed planting maximising biodiversity benefits. Although a part of the golf course perimeter tree belt would be removed from the site, the most valuable trees/woodland in the area – the woodland belt outside the east site boundary – would be retained. New woodland planting is proposed inside the east, south and west boundaries of the applicant's land holding, ultimately resulting in a net increase in tree cover and diversity on the site – with amenity and biodiversity benefits.
- Cultural Heritage – Built Heritage: There would be a direct impact on the northern demesne wall arising from opening the wall to facilitate traffic and pedestrian movements. The sensitive approach to this together with the wider proposal to rehabilitate the wall at this location would safeguard its future.

There would be no direct visual effects on Howth Castle or St Mary’s Church, nor the majority of the ACA of which they are part, despite its proximity to the site. The dramatic change of character of the site itself would however indirectly affect the wider setting of the protected structures and the ACA, emphasising the historic character (and its value) by juxtaposition.

4.2.6 Monitoring

No landscape or visual-specific mitigation measures or monitoring are recommended, for either the construction or operation phases. This assumes that (a) the inspection and supervision programme by an Arboricultural Clerk of Works (ACoW), as recommended in the Arboricultural Impact Assessment prepared by John Morris Arboricultural Consultant, and (b) a programme of inspection and supervision of protection measures and works to the demesne boundary wall, as recommended by Slattery Conservation, will be implemented.

4.3 Material Assets: Traffic & Transport

The assessment of Material Assets: Traffic & Transport is contained within Chapter 6 of Volume II.

4.3.1 Existing Environment

Howth Road is directly to the north of the proposed development site. There is currently no access from the site along this frontage. There are existing capacity issues at Sutton Cross junction to the west of the proposed development site.

The Howth DART Station is within 400 metres (4 minutes’ walk) of the Proposed Development. From the centre of the site this would equate to 10-minute walk. The DART operates a service to the city centre every 12 to 15 minutes during the morning and evening peak time.

The Dublin Bus services in the area provide direct linkage to the city, the Route 31/a along Howth Road towards the city centre, and the 31b Route along Carrickbrack Road towards the city centre.

The frequency of each route during the morning peak is detailed in the Table below.

Route	Origin	Destination	Frequency (08:00-09:00)
Route 31/a	Howth Road / Carrickbrack Road	Talbot Street	2 per hour
Route 31b	Carrickbrack Road	Talbot Street	1 per hour

Table 14 Dublin Bus Route Frequencies

4.3.2 Impact Assessment

The analysis demonstrates that junctions locally are well within capacity, except for the Sutton Cross signalised junction which is presently operating at capacity. The analysis within this report demonstrates that the proposed development will add marginally to the queuing at all approaches to this junction on the day of opening of the development relative to the assumed ‘without development’ scenario. The additional queuing is predicted to increase marginally in the design year in 2038, fifteen years after the projected opening day. These queues are predicted based on 21% traffic growth in the 2019 to 2039 period. Such a growth assumption is highly pessimistic given existing transport planning policies in place within the Greater Dublin area. The impact of COVID

has also seen the introduction of working from home. It can be expected that this would have a positive impact on traffic growth over the design years.

It can be stated that the impact of the proposed development, relative to those of the 'without project' are neutral, thus making the proposal totally sustainable in transport planning terms.

The impact is thus not significant in the long-term.

The impact during the construction phase on the traffic route network is described in detail in the report. During the excavation phase of the construction which is the most critical, there will be an increase of 0.02% on the existing traffic volumes during peak periods at Sutton Cross. The impact on other more local junctions to the site is up to 5% but as these junctions currently perform well within capacity the impact will also be slight.

Thus, the impact during this construction phase will be imperceptible impact of neutral and temporary effect during the construction phase.

4.3.2.1 Do Nothing

Due to the low flows at Offington Park, Church Road and Church Street junctions, only the 'with development' scenarios have been analysed. The results would be virtually indistinguishable from the 2023 results with total development flows in place. Therefore, the potential impact for the do-nothing situation is imperceptible and will have neutral long-term effects.

Analysing the Sutton Cross junction, by 2023, assuming network flow increases of 4.2%, until the projected day of opening of the proposed development, without any development in place, maximum queuing will increase by up to 3 No. vehicles during both peaks relative to the existing situation. It is predicted that this junction will at capacity on one of its approaches by 2023 assuming network flows increase by 4.2% between 2019 and 2023. Therefore, the potential impact for the do-nothing situation is slight and will have negative long-term effects.

There are no planned upgrades to the cycle and footpath network, therefore if there is to be no development then the potential impact will be imperceptible with neutral long-term effects.

In regard to public transport the planned improvements for the upgrades to the DART service and the new bus orbit route will still happen. Therefore, the potential impact if there was no development is positive with increased carriage capacity and a positive long-term effect.

4.3.2.2 Construction Phase

The impact during the construction phase on the traffic route network is described in detail in the report. During the excavation phase of the construction which is the most critical, there will be an increase of 0.02% on the existing traffic volumes during peak periods at Sutton Cross. The impact on other more local junctions to the site is up to 5% but as these junctions currently perform well within capacity the impact will also be slight.

Thus, the impact during this construction phase will be imperceptible impact of neutral and temporary effect during the construction phase.

4.3.2.3 Operational Phase

The analysis demonstrates that junctions locally are well within capacity, except for the Sutton Cross signalised junction which is presently operating at capacity. The analysis within this report demonstrates that the proposed development will add marginally to the queuing at all approaches to this junction on the day of opening of the development relative to the assumed 'without development' scenario. The additional queuing is predicted to increase marginally in the design year in 2038, fifteen years after the projected opening day. These queues are predicted based on 21%

traffic growth in the 2019 to 2039 period. Such a growth assumption is highly pessimistic given existing transport planning policies in place within the Greater Dublin area. The impact of COVID has also seen the introduction of working from home. It can be expected that this would have a positive impact on traffic growth over the design years.

It can be stated that the impact of the proposed development, relative to those of the 'without project' are neutral, thus making the proposal totally sustainable in transport planning terms.

The impact is thus not significant in the long-term.

4.3.2.4 Cumulative Impact

While the Balcadden permission was quashed by the High Court, the potential development of the Balcadden site has been considered and we deem this results in a very robust analysis. The potential cumulative impact on the road network for the combined developments (Claremont, Balcadden and the proposed development) is moderate in the medium term and significant in the long term with regards to Sutton Cross Junction. All other junctions are operating well within capacity and the potential impacts are slight, in short, medium and long term.

4.3.3 Mitigation

4.3.3.1 Construction Phase

To reduce the potential impact with morning traffic particularly between the hours of 8am and 9am, no HGV's will be allowed to leave site during this period. However, vehicles coming to site will be against morning traffic and will therefore have minimal impact on the local road network. These vehicles will be able to enter site and wait in the waiting area, if necessary, be loaded and ready to leave site after 9am.

Car parking for construction personnel will be provided on site. Promote usage of public transport by site staff by clearly displaying local bus, DART and rail services with a map and timetable indicating routes and travel times.

4.3.3.2 Operational Phase

Given that the critical junction under analysis is congested, it is appropriate that there is mitigation to minimise car usage by residents and visitors to the Proposed Development. This comprises the limited on-site car parking spaces. It is proposed within this development to provide car parking space for 81% of the 162 no. apartment units proposed.

4.3.4 Residual Impact Assessment

4.3.4.1 Construction Phase

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

4.3.4.2 Operational Phase

There is an increase of road usage by private vehicles in the operational phase, however given the reduced car parking provisions set out in this development, the consequent model shift will result in the mitigation effect traffic flow on the network set out in section 6.1.9. The potential impact of the proposed development without such model shift will have significant impact with a negative and long term effect on the Sutton Cross junction in 2039. An increase in use of public transport will result in a moderate impact with negative and long term effects on Sutton Cross Junction.

4.3.5 Interactions

During the construction phase, the following aspects would interact with traffic and transport and in the absence of mitigation may give rise to likely significant effects;

- Noise & Vibration: Construction traffic, excavation works and the build out of the blocks may result in short-term localised noise and vibration effects; and,
- Air Quality and Climate: Emissions from construction traffic may impact local air quality and climate in terms of increased emissions of greenhouse gases from vehicles.
- Population & Human Health: Increased noise and dust may impact the amenities and health of existing residents in close proximity to the site.

During the operational phase the potential interactions are;

- Population & Human Health: Allowing people to live closer to services and amenities and high quality public transport modes would interact with patterns of traffic and transport locally.
- Noise & Vibration: Vehicular traffic flows generated by the development may result in corresponding changes to noise levels locally.
- Air Quality and Climate: Emissions from traffic associated with future occupants may impact local air quality and climate in terms of increased emissions of greenhouse gases from vehicles. Increasing population at this location, close to high quality public transport and with convenient access to services and amenities would interact with air quality and climate in terms of the opportunity to reduce greenhouse gas emissions associated with car usage.

4.4 Material Assets: Built Services

The assessment of Material Assets: Built Services is contained within Chapter 7 of Volume II.

4.4.1 Existing Environment

There are no existing watermain connections into the proposed development site. Located on Howth Road directly adjacent to the site, there are two existing watermains. Under the Howth Water Supply Scheme, Irish Water are working in partnership with Fingal County Council to upgrade the water mains in Howth to secure the water supply for local businesses and residents into the future. Some of these works include upgrade works to Dungriffen Pump Station and pipe laying/chamber building to Dungriffen Reservoir.

There are no existing wastewater connections to the public sewer that serve the site. There is an existing 400mm diameter concrete wastewater sewer located adjacent to the entrance to Howth Castle. The Howth foul sewer catchment is directed to Ringsend Wastewater Treatment Plant, via a foul pump station in Sutton.

There are no existing surface water connections to the public sewer that serve the site. There is an existing 450mm diameter surface water sewer located to the north west of the site and discharges north towards the Irish Sea.

There is an existing 90mm 4bar gas main within Howth Road which traverses the site. Consultation has taken place with GNI with regard to the diversion of the existing medium pressure gas main. No concerns have been raised by GNI during the consultation process about this proposal.

Eir have confirmed that they have existing infrastructure routing in Howth Road. This infrastructure adjacent to the site is sufficient to meet the requirements of the proposed development.

There is no existing ESB supply to the site but there is existing below ground and overhead cabling that traverse the site. Consultation has taken place with ESB with regard to the diversion of the existing overhead lines to below ground and to the provision of a new standalone double substation on the west side of the site. No concerns have been raised by ESB Networks during the consultation process about these proposals.

4.4.2 Impact Assessment

4.4.2.1 Do Nothing

If the proposed development was not to proceed, there would be no increase in the demand on the existing built services and the effect would be neutral.

However, the site is zoned for development and having regard to planning policy that supports consolidation of the built environment and high-density development it is likely that in the absence of this subject proposal that a development of a similar nature, with similar demand requirements, would be progressed on the site.

4.4.2.2 Construction Phase

The water demand during construction will be significantly less than that required for the development in operational phase. Irish Water have carried out an assessment of the operational phase water demand through the Pre-Connection Enquiry process and confirmed a feasibility of a connection without any upgrade requirements to the public water supply and wastewater system to facilitate that connection. Therefore, the effect of increased water demand and wastewater during the operational phase when compared to the demand during construction, while likely, will be neutral, imperceptible and short term.

4.4.2.3 Operational Phase

A Pre-Connection Enquiry Application was submitted to Irish Water for the proposed development with a proposed connection location to the public watermain and wastewater sewer on Howth Road. Irish Water issued a letter, confirming the feasibility of a connection based on a water demand slightly larger than the final water demand outlined above, without a requirement for network upgrades. Irish Water subsequently reviewed the design documents for the proposed new watermain within the development and issued a Statement of Design Acceptance. On the basis of Irish Water's review of the design and confirmation of feasibility of supply for same, there are no likely significant effects anticipated during the operational stage and the effect on water supply is considered to be imperceptible and long-term.

New development discharge rates are limited to 2l/s/ha or Qbar, whichever is greater. The reason for this is to replicate pre-development flows. For this site, this equates to 7.91 l/s (reference BMCE Infrastructure Report for calculations). Qbar is the peak rate of flow from a catchment for the mean annual flood (based on a return period of approx. 1:2.3 years). This attenuated flow from the site development is required to protect the downstream catchment. The effect on the public surface water drainage network will be neutral, imperceptible, and long-term.

The Proposed Development will require a 1300kVA MV electricity supply during the operational phase of the scheme and this will be provided by the installation of new double sub-station within the development, all in agreement with ESB Networks. As the new cables services will be located underground, this will result in a permanent but imperceptible effect. In addition the existing overhead cables, will be diverted below ground, improving resilience of the local network.

The likely impact from the operational phase on the electricity supply network is considered to provide a positive effect as key infrastructure is provided to the neighbourhood and existing cabling infrastructure moved underground.

The proposed development will require telecommunication connections during the operational phase of the scheme. The end user will have choice of service between Eir and Virgin Media and this will provide the building users with a choice of service and will result in a positive effect for the end users. As the new Eir and Virgin Media services will be located underground this will result in an imperceptible impact of long term and positive effect.

The additional demand on the Eir telecoms network is not deemed to have any material impact on the surrounding area as there is sufficient capacity in the telecoms network system to manage the additional demand created by the development. The likely impact from the operational phase on the telecoms network is likely to be imperceptible impact of long term and neutral effect.

Virgin Media have plans in place to deliver Virgin media network down Howth Road to serve the site as well as providing availability of their fibre network solution to neighbours. Therefore, it is considered that the cumulative impact of the proposed development on the Virgin Media infrastructure will give rise to significant positive long-term effects.

4.4.2.4 Cumulative Impact

As Irish Water have provided confirmation of feasibility through the Pre-Connection Enquiry process (appended to Infrastructure Report prepared by BMCE) that the proposed development can be catered for within the capacity of the current water supply and wastewater network, as no network upgrades are required, and that this process includes a review of the effect on the existing water supply network from both existing and all other known consented and proposed developments, it is considered that the cumulative effects are not significant and long term.

The provision of sustainable drainage systems to treat and attenuate surface water discharge in new developments to replicate pre-development flows, shall ensure that the cumulative effect on the surface water infrastructure is neutral, imperceptible and long term.

Following initial discussions with ESB, no issues have been raised about capacity for the development being available in the existing local network, however should network upgrades be required these would benefit the local community as it would modernise the network in this area. Therefore, it is considered that the cumulative impact of the proposed development on electricity supply infrastructure will not be significant, with neutral long-term effects.

As the development is not proposed to require natural gas, it is considered that there is no cumulative impact of the proposed development on gas supply infrastructure, with neutral long-term effects.

Eir have been contacted and utility maps received from them. Eir have no raised any concerns about availability of network in the area. Therefore, it is considered that the cumulative impact of the proposed development on the telecom's infrastructure will not be significant, with neutral long-term effects.

4.4.3 Mitigation

4.4.3.1 Incorporated Design

The design has been prepared based on relevant codes of practice, design guidance and in consultation with relevant local and statutory authorities to ensure best practice design, considering the effect on local and wider network for water supply, foul and surface water drainage, gas supply, electrical network and the telecommunication network.

The development will be constructed to the Part L Near Zero Energy Building (NZEB)¹ standard which will result in an improved thermal performance along with the incorporation of renewable technology, accordingly, the demand on energy infrastructure will be reduced.

4.4.3.2 Construction Phase

The Construction Environmental Management Plan submitted under separate cover incorporates a range of integrated control measures and associated management activities with the objective of mitigating the effect of the proposed development's on-site construction activities.

4.4.3.3 Operational Phase

Prior to completion of the defect liability period, a water and wastewater audit will be carried out by Irish Water to ensure the construction is fully in compliance with Irish Water Code of Practice and standard details prior to taking in charge.

All sustainable drainage systems will be maintained by the applicant. Regular maintenance of the SuDS systems will maintain their function of treating surface water prior to discharge. This will prevent silt build-up and other contaminant discharge to the surface water network. Regular maintenance of the attenuation storage and flow control device will maintain controlled discharge of stormwater in rainfall events and prevent inundation of the surface water system.

The design and construction of the required telecommunication services infrastructure in accordance with the relevant guidelines and codes of practice is likely to mitigate any potential service outage impacts during the operational phase of the development, with the exception of any routine maintenance of the site services.

The power demands during the operational phase on the existing electricity network are considered to be low due to the energy efficient design including LED lighting and high performance heating equipment.

The design and construction of the required electrical services infrastructure in accordance with the relevant guidelines and codes of practice is likely to mitigate any potential impacts during the operational phase of the development, with the exception of any routine maintenance of the site services.

4.4.4 Residual Impact Assessment

4.4.4.1 Construction Phase

Taking into account the above-mentioned mitigation measures, which are designed to avoid and prevent any adverse issues arising during construction, any residual effects on the built services from during the construction phase are considered to be temporary in nature and imperceptible, where supply is unavoidably disrupted to facilitate the construction phase.

4.4.4.2 Operational Phase

Based on the advice of Irish Water and Fingal County Council that the existing water supply, wastewater and surface water network has capacity to cater for the development water demand without network upgrades and the above-mentioned mitigation measures, the residual effect to the water supply infrastructure from the operational phase will be neutral, imperceptible and long term.

All excavations will be fully reinstated to the requirements of ESB Networks/GNI/Telecommunications provider ensuring there are no residual impacts to the electrical/gas/telecommunications infrastructure remaining on the site.

4.4.5 Monitoring

All works shall be carried out in accordance with Irish Water Code of Practice for Water and Wastewater Infrastructure. Laying of watermains/wastewater sewers and testing of same will be in accordance with Irish Water standard details. The works shall be inspected on an ongoing basis

during construction by both the applicant's engineers and Irish Waters' Area Engineer. Applicable testing shall be carried out prior to connection to the public watermains.

All surface water works shall be carried out in accordance with The Greater Dublin Area Regional Code of Practice for Drainage Works. Laying of surface water sewers and testing of same will be in accordance with the standard details laid out in the same document. The works shall be inspected on an ongoing basis during construction by both the applicant's engineers and Fingal County council's Area Engineer. Applicable testing shall be carried out prior to connection to the public surface water sewer.

All works shall be carried out in accordance with ESB/GNI/Telecoms code of practice for services infrastructure. Laying of cables and testing of same will be in accordance with ESB standard details. The works shall be inspected on an ongoing basis during construction by both the applicant's engineers and ESB/GNI/Telecoms site engineer. Applicable testing shall be carried out prior to connection to the network.

4.5 Material Assets: Waste Management

The assessment of Material Assets: Waste Management is contained within Chapter 8 of Volume II.

4.5.1 Existing Environment

The subject site is located on undeveloped lands in an urban area located off the Howth Road. The only identified use of the site is as part of a race track, Howth Park Racecourse, that ceased in 1842. Since then, the proposed development site exists as a greenfield undeveloped site. Therefore, the risk of existing contaminated land being present is unlikely and this is confirmed by the Site Investigations (SI) undertaken by Ground Investigations Ireland, January 2020. Soils at the site have been classified following WAC testing by Ground Investigations Ireland and the completion of a Waste Classification Assessment. The assessment concludes that on-site soils are classified with as non-hazardous and are defined as a Category A Criteria as follows. *"Soil and Stone only which are free from anthropogenic materials such as concrete and timber. Soils must be from "contamination" e.g. PAH's, Hydrocarbons and Asbestos"*.

The assessment of the existing environment has shown that there is sufficient construction and operational waste management capacity and infrastructure in the Leinster Region to facilitate construction and operational waste generated by the development.

4.5.2 Impact Assessment

4.5.2.1 Do Nothing

Should the site remain undeveloped, there will be no additional impact on regional waste infrastructure capacity. The site may however be susceptible to illegal dumping and fly-tipping.

4.5.2.2 Construction Phase

The construction phase of the proposed development will introduce new volumes of waste into the Regional waste management infrastructure in terms of the short-term generation of construction waste.

4.5.2.3 Operational Phase

The operational phase of the proposed development will introduce new volumes of waste into the Regional waste management infrastructure in terms of the long-term generation of domestic waste.

4.5.2.4 Cumulative Impact

Cumulative effects have been considered, with no additional significant residual effects predicted following implementation of mitigation measures.

4.5.2.5 Mitigation

4.5.2.6 Demolition & Construction Phases

Wastes generated during the construction phase shall be minimised through the implementation of a Site Specific Construction Waste Management Plan which will define how wastes generated shall be managed in accordance with the Eastern-Midlands Region Waste Management Plan 2015-2021 and Fingal County Development Plan 2017-2023 Waste Management Objectives.

Based on the WAC analysis, it is intended to declare the excavated soils a by-product to the EPA in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 and the EPA publication "Guidance on Soil and Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations – Version 3 June 2019.

The notification of a potential by-product gives industry an opportunity to demonstrate, with an appropriate level of rigour, that:

- the material can have a further use and no longer be defined as waste;
- the material can be used as a 'secondary' resource in place of, and fulfilling the same role as a non-waste derived or virgin 'primary' resource; and
- the material can be used without causing overall adverse impacts to the environment or human health.

4.5.2.7 Operational Phase

Wastes generated during the operational phase shall be minimised through the implementation of an Operational Management Plan which will define how wastes generated shall be managed in accordance with the Eastern-Midlands Region Waste Management Plan 2015-2021 and Fingal County Development Plan 2017-2023 Waste Management Objectives.

4.5.3 Residual Impact Assessment

4.5.3.1 Construction Phase

With the implementation of a Site-Specific Construction Phase Waste Management Plan, it is predicted that the residual impact of the construction phase of the development will not have an adverse impact on the receiving environment, existing material assets or local and regional waste management services.

4.5.3.2 Operational Phase

The development shall be designed to provide adequate domestic waste infrastructure and storage areas for all units. This will promote the appropriate segregation at source of domestic generated waste from all residential units at the development and thus reduce the potential for the generation of mixed un-recyclable domestic waste streams, thus reducing the impact on regional waste management infrastructure.

4.5.4 Monitoring

4.5.4.1 Construction Phase

In order to ensure that construction wastes generated during the course of the development are being effectively managed and recorded, waste management audits shall be conducted to assess compliance with the Site-Specific Construction Waste Management Plan.

4.5.4.2 Operational Phase

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

4.5.5 Interactions

During the construction phase, the following aspects would interact with waste management and in the absence of mitigation may give rise to likely significant effects;

- Population & Human Health: management of waste in the construction phase may interact with population and human health due to the potential for nuisance litter and dust arisings.
- Land & Soils: the excavations to facilitate the development will require the removal of soils and subsoils.
- Traffic & Transport: excavated material will increase the intensity of construction traffic related movements.
- Air Quality and Climate: excavation may give rise to the generation of dust.

During the operational phase the potential interactions are;

- Population & Human Health: increased generation of domestic waste generation if not managed appropriately may give rise to nuisance locally.

4.6 Land & Soils

The assessment of Land & Soils is contained within Chapter 9 of Volume II.

4.6.1 Existing Environment

Inspection of available GSI data shows that the bedrock geology underlying the site and surrounding area is dominated by limestones of Carboniferous Age. The site and local area is underlain by Massive, unbedded lime mudstones of the Waulsortian Formation. The GSI categorise the bedrock aquifer underlying the site as having a 'High' aquifer vulnerability which indicates that the soil cover is 3-5m of low permeability soil at the site, given by the Tills deposits underlying the site. However, site investigations carried out in 2019 show that the bedrock was encountered at depths of 6.6-7.3 mbgl. Therefore, the actual vulnerability at the subject site can be classified as 'Moderate'.

The GSI/Teagasc subsoil mapping database of the quaternary sediments in the area of the subject site indicates that the majority of the site and surrounding area is underlain by Till (TLs) and Gravels (GLs) derived from limestones. Site investigation carried out in 2019 show that the subsoil underlying the subject site is mainly sandy gravelly Clay (i.e., no gravels were detected).

The site is underlain by a Locally Important Aquifer (LI), which is described by the GSI as bedrock as 'moderately productive only in local zones' and is related to the Waulsortian Formation above described. The Groundwater Body (GWB) underlying the site is the Dublin GWB. Currently, the most recent WFD groundwater status for this water body (2013-2018) is 'Good' with a current WFD risk score 'Under Review'.

Based on the TII methodology (2009), the criteria for rating the importance of geological features, the importance of the geological features at this site is rated as Moderate Importance. This is based on the presence of a county geological site in the vicinity of the subject site (Claremont Strand) but considering that the site is underlain by very low permeability subsoil and therefore there would be poor hydraulic connectivity with Claremont Strand.

Based on the TII methodology (2009), the criteria for rating the importance of hydrogeological features, the importance of the hydrogeological features at this site is rated as Moderate Importance. This is based on the close distance between the local aquifer and the Baldoyle Bay SAC/pNHA EU Natura site which is located c. 170m to the north of the site. However, as the site is underlain by very low permeability subsoil, there would be poor hydraulic connectivity between the site and the Baldoyle Bay.

4.6.2 Impact Assessment

4.6.2.1 Do Nothing

In the event that the site is not developed it would remain in its current condition, a greenfield site. This scenario would not have any likely significant impact on land use or the soils and geology beneath the site.

4.6.2.2 Construction Phase

Excavation within the proposed site will be required as part of the basement construction. It is anticipated that foundations will require moderate scale excavations, since the excavation level for the projected basement and foundations will be expected to be at an average level of 3.5 mAOD. Based on site conditions, no rock breaking will be necessary. It is expected during the excavation works that localised dewatering of the subsoils will be required to address perched groundwater.

During construction of the development, there is a risk of accidental pollution incidences from the following sources if not adequately mitigated: (i) Spillage or leakage of oils and fuels stored on site; (ii) Spillage or leakage of oils and fuels from construction machinery or site vehicles and (iii) The use of concrete and cement during pad foundation construction.

4.6.2.3 Operational Phase

The change of land use from greenfield to residential is the main effect on the land environment. Potential for negative impacts on subsoils, geology and hydrogeology during operation are low. The storage volume of any liquid hazards is low and there will be no direct discharges to the water or soil environment during the operational phase. Leakage of petrol/ diesel fuel may occur from car park/road areas. However, given the petrol/ oil interceptor system considered in the design (SuDS elements), this effect is considered unlikely.

The implementation of the SuDS elements and the increasing of hard standing areas decrease the potential vulnerability of the subsoils and groundwater regime

4.6.2.4 Cumulative Impact

There are a number of granted planning permissions for activities/plans/projects which may be in construction at the same time as the proposed development. These developments will have to incorporate measures to protect soil and water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010 and S.I. 266 of 2016)).

During operational phase, all developments are required to manage groundwater discharges in accordance with S.I. 9 of 2010 and S.I. 266 of 2016 amendments. As such there is no likely cumulative impact on the natural groundwater regime.

4.6.3 Mitigation

4.6.3.1 Incorporated Design

The proposed development will be designed in accordance with the principles of Sustainable Drainage Systems (SuDS) and will maintain run-off rates at the existing greenfield condition and

improve storm water quality discharging to the public storm water system. The SuDS will be addressed by the provision of an interception storage system and an attenuation storage.

The SuDS measures proposed are linked in series and will ensure that rainwater falling on a site is captured, conveyed, stored, intercepted and removed of pollutants correctly and efficiently before it is discharged back into the surrounding water course or network.

4.6.3.2 Construction Phase

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

It is unlikely that contaminated material will be encountered during construction of the Proposed Development. Nonetheless, excavation works will be carefully monitored by a suitably qualified person to ensure that potentially contaminated soil is identified and segregated from clean/inert soil. In the unlikely event that potentially contaminated soils are encountered, they should be segregated, tested and classified as hazardous or non-hazardous in accordance with the EPA Guidance Document: Waste Classification – List of Waste and Determining if Waste is Hazardous or Non-Hazardous (2015) and Council Decision 2003/33/EC. It should then be removed from site by a suitably permitted waste contractor to an authorised waste facility.

During the construction phase, all excavations and exposed sub-soils in open cuts will be blinded and protected with clean broken stone as soon as possible after exposing the subsoil in order to prevent erosion. Silt and sediment barriers will be installed at the perimeter of earthworks construction areas to limit transport of erodible soils outside of the site.

An appropriate dewatering system and groundwater management system specific to the site conditions will be designed and maintained.

Any discharge of construction surface water or groundwater from excavations shall pass through appropriate filtration and sedimentation system, designed in accordance with “Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (CIRIA C532)”.

To minimise any impact on the underlying subsurface strata from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas. Leakages of oil from oil stores will be prevented by storing these oils in bunded tanks which have a capacity of 110% of the total volume of the stored oil. Ancillary equipment such as hoses and pipes will be contained within the bunded storage container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal. Refuelling of construction machinery and vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated refuelling areas using a prescribed re-fueling procedure.

4.6.3.3 Operational Phase

No mitigation measures have been considered during the operational phase as the SuDS elements incorporated in the design address any potential leakage from car parks. These measures ensure that any potential pollutants associated with car park areas will be captured, conveyed, stored, intercepted and removed.

4.6.4 Residual Impact Assessment

4.6.4.1 Construction Phase

There are no likely significant negative impacts on the status of the local aquifer and on the land, geological or hydrogeological environment associated with construction activities with mitigation

measures aforementioned in place. No perceptible effects on the Baldoyle Bay Natura Site are expected.

4.6.4.2 Operational Phase

There are no likely significant negative impacts on the status of the local aquifer and on the land, geological or hydrogeological environment associated with construction activities with mitigation measures aforementioned in place. No perceptible effects on the Baldoyle Bay Natura Site are expected.

4.6.5 Interactions

During the construction phase, the following aspects would interact with land and soils and in the absence of mitigation may give rise to likely significant effects;

- Water & Hydrology: Site preparatory works (i.e. site clearance, re-profiling etc.) during the construction stage have the potential to impact on the hydrology and hydrogeology due to the risk of suspended solids becoming entrained in surface water runoff and accidental spills etc.
- Biodiversity: Site preparatory works have the potential to cause impact on the biodiversity of the site, through removal and disturbance of habitats and species.
- Cultural Heritage- Archaeology: Site clearance works may impact on sub-surface archaeology.

No potential operational interactions were identified.

The potential significant impacts on land, soils, geology and hydrogeology arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative impacts will occur.

4.6.6 Monitoring

During construction phase the following monitoring measures will be considered:

- Regular inspection of surface water run-off and sediments controls e.g. silt traps will be carried during the construction phase.
- Soil sampling to confirm disposal options for excavated soils.
- Regular inspection of construction/mitigation measures will be undertaken e.g. concrete pouring, refuelling, etc.

There will be no requirement for soil or groundwater monitoring as there is no likely discharge to ground. Maintenance of the surface water drainage system and foul sewers as per normal urban developments is recommended to minimise any accidental discharges to ground.

4.7 Water & Hydrology

The assessment of Water & Hydrology is contained within Chapter 10 of Volume II.

4.7.1 Existing Environment

The proposed development site lies within the Liffey and Dublin Bay Catchment; River Mayne sub-catchment and Howth river sub-basin. The Bloody Stream flows from Howth Head towards the Baldoyle Bay coastal waterbody which includes Special Area of Conservation (SAC)/proposed Natural Heritage Area (pNHA). The Baldoyle Bay is located c.170 to the north of the subject site.

The local lands are drained by the Bloody Stream and a network of local streams which directly discharges to the Bay. There are a number of local streams in the vicinity of the site that form part of the Bloody Stream catchment. The Bloody Stream flows towards the bay c. 180 m east of the site (i.e., to the east side of St. Mary's Church).

The Bloody Stream is not designated for water quality status by the EPA presently. As such, its WFD status is classified as 'Unassigned' and its risk score is 'under review'. The Irish Sea Dublin (HA 09) coastal waterbody hosts the Baldoyle Bay and according to the EPA information, has a 'Good' WFD status and is 'Not at risk' of not achieving good status.

There is no risk of flooding affecting the site from fluvial or coastal sources, since the site lies within Flood Zone C (i.e., where the probability of flooding from rivers is less than 0.1% or 1 in 1000). The likelihood of flooding on site is low from either Tidal, Fluvial, Pluvial Surface Water or Groundwater.

Based on the TII methodology (2009), the criteria for rating the importance of hydrological features, the importance of the hydrological features at this site is rated as Extremely High Importance. This is based on the connectivity through surface water drainage with Baldoyle Bay SAC/pNHA EU Natura site which is located c. 170m to the north of the site.

4.7.2 Impact Assessment

4.7.2.1 Do Nothing

In the event that the site is not developed it would remain in its current condition, a greenfield site. This scenario would not have any likely significant impact on the hydrological environment.

4.7.2.2 Construction Phase

Surface water runoff during the construction phase may contain increased silt levels or become polluted from construction activities. Runoff containing large amounts of silt can cause damage to surface water systems and receiving watercourses. Silt water can arise from dewatering excavations, exposed ground, stockpiles and access roads. Previous uses of the site (greenfield site) and site testing has not indicated any evidence of soil contamination at the site.

During construction of the development, there is a risk of accidental pollution incidences from the following sources if not adequately mitigated: (i) Spillage or leakage of oils and fuels stored on site; (ii) Spillage or leakage of oils and fuels from construction machinery or site vehicles and (iii) The use of concrete and cement during pad foundation construction.

4.7.2.3 Operational Phase

Leakage of petrol/ diesel fuel may occur from car park/road areas. However, given the petrol/ oil interceptor system considered in the design (SuDS elements), this effect is considered unlikely. The drainage system will discharge following the characteristics of a greenfield run-off into the existing public surface water sewer located at the northern boundary of the site. As such the potential for silt laden runoff is low.

The development will be fully serviced with separate foul and stormwater sewers which will have adequate capacity for the facility and discharge limits as required by Irish Water licencing requirements. The foul discharge from the site will join the public sewer and will be treated at the Irish Water Ringsend Wastewater Treatment Plant (WWTP) prior to subsequent discharge to Dublin Bay.

4.7.2.4 Cumulative Impact

There are a number of granted planning permissions for activities/plans/projects which may be in construction at the same time as the proposed development. These developments will have to incorporate measures to protect surface water quality in compliance with legislative standards for receiving water quality (S.I No 77/2019 EU Environmental Objectives (Surface Waters) Amendment Regulations 2019).

During operational phase, all developments are required to manage groundwater discharges in accordance with S.I. 272 of 2009 and S.I. 79 of 2019 amendments. As such there is no likely cumulative impact on the natural hydrological regime.

4.7.3 Mitigation

4.7.3.1 Incorporated Design

The proposed development will be designed in accordance with the principles of Sustainable Drainage Systems (SuDS) and will maintain run-off rates at the existing greenfield condition and improve storm water quality discharging to the public storm water system. The SuDS will be addressed by the provision of an interception storage system and an attenuation storage.

The SuDS measures proposed are linked in series and will ensure that rainwater falling on a site is captured, conveyed, stored, intercepted and removed of pollutants correctly and efficiently before it is discharged back into the surrounding water course or network.

4.7.3.2 Construction Phase

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

During the construction phase, specific measures to prevent the release of sediment over baseline conditions in the downstream receiving water environment. These measures include, but not limited to, the use of silt fences, silt curtains, settlement lagoons and filter materials. These will be maintained by the contractor to the satisfaction of Inland Fisheries Ireland for the entire construction period.

Provision of exclusion zones and barriers (e.g. silt fences) between earthworks, stockpiles and temporary surfaces to prevent sediment washing into the existing drainage systems and hence the downstream receiving water environment. A wheel wash will be provided for heavy vehicles exiting the site to ensure that roads outside of the site boundary are clean.

To minimise any impact on the underlying subsurface strata from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas.

Leakages of oil from oil stores will be prevented by storing these oils in bunded tanks which have a capacity of 110% of the total volume of the stored oil. Ancillary equipment such as hoses and pipes will be contained within the bunded storage container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal. Refuelling of construction machinery and vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated refuelling areas using a prescribed re-fuelling procedure.

4.7.3.3 Operational Phase

No mitigation measures have been considered during the operational phase as the SuDS elements incorporated in the design address any potential leakage from car parks. These measures ensure that any potential pollutants associated with car park areas will be captured, conveyed, stored, intercepted and removed. There are no other potential hazards during operation.

4.7.4 Residual Impact Assessment

4.7.4.1 Construction Phase

There are no likely significant impacts on the status of the water and hydrological environment associated with construction activities with mitigation measures aforementioned in place. No perceptible effects on the Baldoyle Bay Natura Site are expected.

4.7.4.2 Operational Phase

There are no likely significant negative impacts on the status of the water and hydrological environment associated with construction activities with mitigation measures aforementioned in place. No perceptible effects on the Baldoyle Bay Natura Site are expected.

4.7.5 Interactions

During the construction phase, the following aspects would interact with water and hydrology and in the absence of mitigation may give rise to likely significant effects;

- **Material Assets Built Services:** The construction of the proposed services (water supply, drainage and IT etc.) may affect the local hydrological and hydrogeological environment as there is a risk of suspended solids run off.
- **Land & Soils:** Site preparatory works (i.e. site clearance, re-profiling etc.) during the construction stage have the potential to impact on the hydrology and hydrogeology due to the risk of suspended solids becoming entrained in surface water runoff and accidental spills etc.
- **Biodiversity:** Any impacts on surface water drainage would interact with biodiversity having regard to due to the presence of a sensitive aquatic receptor in the vicinity of the subject site (Baldoyle Bay SAC/pNHA).

During the operational phase the potential interactions are;

- **Material Assets Built Services:** There will be an increased demand on potable water supply and on the municipal drainage system.

4.7.6 Monitoring

During construction phase the following monitoring measures will be considered: Regular inspection of surface water run-off and sediments controls and regular inspection of construction/mitigation measures.

4.8 Biodiversity

The assessment of Biodiversity is contained within Chapter 11 of Volume II.

4.8.1 Existing Environment

Following a suite of site surveys from October 2019 to March 2021, key ecological receptors identified on site were hedgerows (WL1) of local importance (higher value), mixed broadleaved woodland (WD1) of county importance, bats of local importance (higher value), terrestrial mammals (excluding bats) of local importance (higher value), breeding birds of local importance (higher value) and winter birds of local importance (higher value).

4.8.2 Impact Assessment

4.8.2.1 Do Nothing

The proposed development site is zoned for residential development and it is likely that in the absence of this subject proposal that a development of a similar nature would be progressed on the site that accords with National policy for compact growth. In a development scenario, the impact would likely be similar to that set out in the biodiversity chapter, chapter 11, of this EIAR.

In the absence of development, the existing management of the amenity grassland, dry meadows, hedgerow, woodland and scrub is expected to maintain the existing habitat types close to their current form.

4.8.2.2 Construction Phase

Significant effects are predicted to arise at the construction phase of the proposed development from: the removal of vegetation and the potential generation and mobilisation of silts, sediments and other pollutants to the local surface water network. Disturbance impacts have been considered during construction but are not predicted to be significant.

With regards to habitats, significant impacts are predicted during the construction phase of the proposed development. This would arise from the loss of hedgerow and treeline habitats during site clearance works; potential accidental damage to retained trees through machinery strikes or compaction of soils during construction works; and accidental pollution of watercourses downstream of the lands. Measures have been provided for the protection of retained trees, including the use of protective barriers and the utilisation of a root protection area, calculated by a qualified arborist. Mitigation measures have been proposed for the loss of hedgerow habitat: the remaining section of the western hedgerow and the southern hedgerow will be kept intact and planted with a range of native species to prevent further deterioration of the habitat and there is new tree planting proposed to the south of the proposed development site.

With regards to fauna, significant effects are predicted to arise from loss of suitable habitat for bats, birds and from mortality of birds arising from the destruction of bird nests, and accidental pollution of watercourses downstream of the lands during the construction phase of the proposed development. Construction phase lighting has been designed by Ethos Engineering (2021) to be sensitive to the presence of commuting and foraging bats along the southern hedgerow. In the case of birds, measures have been proposed to prevent mortality during construction and infilling works.

4.8.2.3 Operational Phase

Operational phase impacts are predicted from the operation of artificial lighting and disturbance from increased human traffic within the lands. Operational phase lighting has been designed by Ethos Engineering (2021) to be sensitive to the presence of commuting and foraging bats along the southern hedgerow.

4.8.2.4 Cumulative Impact

Cumulative effects have been considered, with no additional significant residual effects predicted following implementation of mitigation measures.

4.8.2.5 Mitigation

A suite of mitigation measures are laid out to protect European sites during the construction phase for release of hydrocarbons, polluting chemicals, sediment/ silt and contaminated waters control.

4.8.3 Residual Impact Assessment

With the full and successful implementation of the mitigation measures outlined above, no residual impacts are predicted at any geographical scale.

4.8.4 Interactions

During the construction phase, the following aspects would interact with biodiversity and in the absence of mitigation may give rise to likely significant effects;

- Land & Soils: Site preparatory works have the potential to cause impact on the biodiversity of the site, through removal and disturbance of habitats and species.
- Water & Hydrology: Interactions between water & hydrology and biodiversity including habitats, flora and fauna can occur through impacts to water quality either arising from an accidental pollution event or increased sedimentation during the construction stage or an accidental pollution event during the operational stage. This interaction has the potential to result in significant impacts on hydrologically connected habitats and sensitive fauna that rely on these habitats.
- Noise & Vibration: Interactions between noise and sensitive fauna, namely birds that occur in adjacent wetland habitats in Baldoyle Bay, can occur and arise from increased noise levels during the construction stage.
- Air Quality & Climate: Interactions between air quality and sensitive flora and fauna in adjacent habitats and designated sites can occur during the construction stage due to dust emissions arising from construction works.

During the operational phase the potential interactions are;

- Landscape & Visual: The quality of the landscaping plan and appropriateness of the species may impact biodiversity.

4.8.5 Monitoring

All mitigation measures implemented on site will be monitored throughout the duration of construction to ensure that they are working effectively, to implement maintenance measures if required/applicable and to address any potential issues that may arise.

4.9 Noise & Vibration

The assessment of Noise & Vibration is contained within Chapter 12 of Volume II.

4.9.1 Existing Environment

The existing baseline noise climate has been assessed at the site over the course of typical daytime and night time periods by conducting attended noise and vibration measurements. The principal sources of existing noise experienced at the site include road traffic noise from the surrounding road network.

4.9.2 Impact Assessment

4.9.2.1 Do Nothing

Should the development not proceed, the existing ambient noise climate shall remain unchanged.

4.9.2.2 Construction Phase

Ambient noise levels in the vicinity of the site shall temporarily increase during the construction phase, however noise levels shall be controlled, minimised and managed through the implementation of best practice construction noise and vibration mitigation measures. The operational phase of the development will not have an adverse or unacceptable outward noise impact on the receiving environment including existing noise sensitive receptors located in the vicinity of the site.

4.9.2.3 Operational Phase

The operational phase of the development will not have an adverse or unacceptable outward noise impact on the receiving environment including existing noise sensitive receptors located in the vicinity of the site.

4.9.2.4 Cumulative Impact

Cumulative effects have been considered, with no additional significant residual effects predicted following implementation of mitigation measures.

4.9.2.5 Mitigation

All apartments shall have acoustically rated windows to prevent breakthrough of external noise. In addition, Heat Recovery and Mechanical Ventilation systems will be incorporated into the design thus there will be no requirement for passive air vents.

Best practice noise and vibration control and mitigation measures shall be implemented during the construction phase to minimise the impact on the receiving environment.

- Site hoarding comprised of 18mm marine plyboard extending to a height of 4m shall be installed from the outset of site activities along the western site boundary adjacent residential receptors.
- Plant used on-site will not be permitted to cause an ongoing public nuisance due to noise.
- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on-site operations;
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract;
- Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers;
- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use;

- During construction, the appointed Contractor will manage the works to comply with noise limits outlined in *BS 5228-1:2009+A1 2014. Part 1 – Noise*;
- All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures;

During the operational phase the Facility Management Company shall be responsible for regulating the hours of use of the 5th floor roof garden amenity spaces.

4.9.3 Residual Impact Assessment

The residual construction noise impact will be negative, temporary to short-term and moderate to significant.

Site activities, in particular ground clearance and piling works will generate perceptible vibration at the closest residential receptors located west of the site. It is predicted that vibration levels associated with construction activities at the closest receptors to the site will not exceed 15 mm/sec PPV. Human response to groundborne vibrations will be perceptible at levels between 0.14 to 1.0 mm/sec PPV. The residual construction vibration impact will be negative, short-term and not significant.

The operational phase of the development will not adversely impact the existing noise climate at local receptors. The residual operational noise impact will be neutral, long-term and not significant.

The operational phase of the development will not generate ground borne vibration levels. The residual operational vibration impact will be neutral, long-term and imperceptible.

4.9.4 Interactions

During the construction phase, the following aspects would interact with noise and vibration and in the absence of mitigation may give rise to likely significant effects;

- Population & Human Health: There is potential for interaction with population and human health associated with noise generated during the construction phase.
- Traffic & Transport: Construction traffic may give rise to localised noise and vibration effects.

During the operational phase the potential interactions are;

- Traffic & Transport: Operational traffic may give rise to localised noise and vibration effects.

4.9.5 Monitoring

A noise and vibration monitoring plan will be implemented for the duration of the construction phase to verify the effectiveness of the control and mitigation measures and to assess compliance with noise and vibration limit criteria.

4.10 Air Quality & Climate

The assessment of Air Quality & Climate is contained within Chapter 13 of Volume II.

4.10.1 Existing Environment

Existing ambient air quality at the site has been assessed with reference to site specific air quality monitoring data and published air quality data EPA, 2020.

All air quality parameters at the site are below National Air Quality Standards limit values.

4.10.2 Impact Assessment

4.10.2.1 Do Nothing

Should the development not proceed, the existing ambient air quality shall remain unchanged.

4.10.2.2 Construction Phase

The construction phase of the development has the potential to generate short term fugitive dust emissions and diesel engine exhaust emissions associated with construction vehicles and plant however these emissions will be controlled by appropriate mitigation techniques and through the implementation of a construction phase air quality management and monitoring plan throughout the duration of the construction phase.

4.10.2.3 Operational Phase

The operational phase the development will see the functioning of modern, well insulated thermally efficient buildings in which energy efficiency shall be achieved by implementing sustainable features into the buildings and infrastructure design. The design of the residential units will ensure their operation will have a minimum impact on the receiving climate and that their design will withstand future potential extreme weather events associated with climate change.

4.10.2.4 Cumulative Impact

Cumulative effects have been considered, with no additional significant residual effects predicted following implementation of mitigation measures.

4.10.2.5 Mitigation

Best Practice construction phase control and mitigation measures shall be implemented for the duration of the construction phase to minimise the impacts on ambient air quality in the receiving environment, on local population and human health, on local flora and fauna and on climate.

The development will incorporate design mitigation measures in terms of energy efficiency to reduce the impact on local air quality and on climate

4.10.3 Residual Impact Assessment

Various elements associated with the construction phase of the proposed development have the potential to impact local ambient air quality, human health and climate. However, the potential construction phase impacts shall be mitigated as detailed above to ensure there is no adverse impact on ambient air quality for the duration of all construction phase works. It is predicted that the construction phase of the development will not generate air emissions that would have an adverse impact on local ambient air quality or on local human health or on the local micro-climate or the wider macro-climate.

The sustainable features that are incorporated into the design of all residential units will ensure that the operational phase of the development will not have an adverse impact on human health, local air quality, local ecology or on local or global climate patterns. The residential units will be designed to ensure that they can withstand the potential changes in climate which may generate more extreme and prolonged meteorological events in the future.

4.10.4 Interactions

During the construction phase, the following aspects would interact with air quality and climate and in the absence of mitigation may give rise to likely significant effects;

- Population & Human Health: There is potential for impact on human health from dust associated with construction activities.
- Material Assets Traffic & Transport: Emissions from construction traffic may impact local air quality and climate in terms of increased emissions of greenhouse gases from vehicles.
- Biodiversity: Interactions between air quality and sensitive flora and fauna in adjacent habitats and designated sites can occur during the construction stage due to dust emissions arising from construction works.

During the operational phase the potential interactions are;

- Population & Human Health: There is potential for impact on human health from a deterioration in air quality associated with emissions from vehicles.
- Material Assets Traffic & Transport: Emissions from traffic associated with future occupants may impact local air quality and climate in terms of increased emissions of greenhouse gases from vehicles.
- Material Assets Built Services: The built services have an interaction with climate in the availability and use of non-greenhouse gas reliant power and heat sources.

4.10.5 Monitoring

An air quality monitoring plan will be implemented for the duration of the construction phase to verify the effectiveness of the control and mitigation measures and to assess compliance with air quality limit criteria.

4.11 Cultural Heritage - Archaeology

The assessment of Cultural Heritage - Archaeology is contained within Chapter 14 of Volume II.

4.11.1 Existing Environment

The proposed development is located with the Demesne for Howth Castle. The proposed development two distinct areas, the northern section is within Golf Club. The south is a small field of approx. 1.2ha in pasture. The proposed development is located at a remove from Howth Castle which is located 185m to the south. The closest archaeological monument is St. Marys Church which is located 80m to the east. Field walking at the site did not identify any archaeological remains. Largescale earthworks have taken place within the golfclub which would have removed surface markers of any potential remains.

4.11.2 Impact Assessment

The proposed development will not have a direct or indirect impact on the known archaeological monuments in its environs. A geo physical survey was undertaken across the site to identify sub surface remains. None of which were in evidence. The geophysical survey data is dominated by modern magnetic disturbance, largely the result of the landscaping and design of the golf course and the presence of multiple modern services. Some possible isolated pit-type responses have been identified; however, an archaeological interpretation is highly tentative. Possible former agricultural

activity is suggested by multiple linear trends. The results of the geophysical survey negated the need for archaeological testing.

4.11.2.1 Do Nothing

Should the development not proceed this will not impact on or enhance the archaeological heritage of the site. Should this development not proceed, given that the site is a brownfield site in an area zoned for residential development it is likely that development of a similar nature would occur at some time and the impact and effects would likely be similar to that of this proposed development.

4.11.2.2 Demolition Phase

There will be no impact on the archaeological landscape as a result of demolition works at the site.

4.11.2.3 Construction Phase

The proposed development will have no direct or indirect impact on recorded archaeological features. The proposed development is at a remove from the recorded archaeological monuments and construction will have no negative impact on them. Construction access to the site will be at the northwest, at the furthest distance from the recorded archaeological monuments in the area. No subsurface remains were identified during a geophysical survey of the site. This survey showed modern disturbance across the study area.

4.11.2.4 Operational Phase

Having regard to the information gathered to determine the baseline archaeological environment, There are no potential impacts on archaeological cultural heritage expected as a result of the operational phase of the proposed development. Therefore the effect is determined to be unlikely and neutral.

4.11.2.5 Cumulative Impact

There will be no impact on the cultural heritage resource locally.

4.11.2.6 Mitigation

4.11.2.7 Demolition & Construction Phases

A suitably qualified archaeological consultant shall be appointed to undertake licenced archaeological monitoring of the excavation of topsoil during the construction phase of the development. This will be under license from the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht.

4.11.2.8 Operational Phase

As there will be no impact on any archaeological remains during the operation phase of the proposed development, no mitigation measures are required.

4.11.3 Residual Impact Assessment

Subject to the implementation of appropriate archaeological mitigation measures, no residual impacts on archaeology or cultural heritage are predicted. as should any archaeological remains be identified they will be subject to full resolution (i.e. archaeological excavation), thereby being preserved by record.

4.11.4 Interactions

During the construction phase, the following aspects would interact with cultural heritage and in the absence of mitigation may give rise to likely significant effects;

- Land and Soils: Site clearance works may impact on sub-surface archaeology.

No operational interactions were identified.

4.11.5 Monitoring

A suitably qualified archaeological consultant shall be appointed to undertake licenced archaeological monitoring of the excavation of topsoil during the construction phase of the development. This will be under license from the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht.

4.12 Built Heritage

The assessment of Built Environment is contained within Chapter 15 of Volume II of this EIAR.

4.12.1 Existing Environment

The subject site is undeveloped and forms part of the historic demesne of Howth Castle. The site is located along the Howth Road and has been visually disconnected from the historic demesne in modern times through the development of the Deer Park golf course and the extensive planting of trees along the southern and eastern sections of the subject site. It should be noted that the subject site was excluded from the Howth Castle Architectural Conservation Area.

The northern boundary wall of the subject site is the historic demesne wall to Howth Castle and is of architectural and historic significance. This is the only feature of built heritage existing at the application area.

The boundary walls of the Howth Demesne are included on the National Inventory of Architectural Heritage, Reg. Ref. 11358027. This record refers to the Entrance Gateway, Walls and Railings to the Castle Demesne from the Howth Road. The description provided in the NIAH record reads: "*WALLS: Limestone ashlar to pedestrian gateways; undulating profiles to piers; moulded capping (broken in parts).*" The boundary wall on the subject site does not fit this description, and is constructed of rubble limestone rather than ashlar.

Within the immediate environs, the Fingal County Council Record of Protected Structures includes three listings within the demesne of Howth Castle;

- RPS No.0556 Howth Castle - Medieval castle (with later additions and alterations) including wings, towers, stables and 19th century entrance gates
- RPS No.0557 Church (ruin), medieval chapel in grounds of Howth Castle.
- RPS No.0594 St. Mary's Church (C of I) Howth Demesne, Gothic-style mid-19th century Church of Ireland church with spire.

These structures, and the demesne lands of Howth Castle are also included in Fingal County Council's Howth Castle and Demesne Architectural Conservation Area. This ACA extends to include St. Mary's Church, a Protected Structure to the northeast of Howth Castle, along Howth Road.

The demesne wall not included in the description of the Howth Castle listing on the Record of Protected Structures, nor is it included within the boundary of the Howth Castle ACA. The curtilage of Howth Castle is described in the Howth Castle ACA, and as such it is considered that the historic demesne walls on the subject site are not part of the curtilage of the Protected Structure. It is considered that the wall is part of the attendant grounds of Howth Castle and as such has no statutory protection. The wall will nonetheless be treated with consideration and protected and retained within the proposed scheme, with limited intervention and conservation works to the fabric to be carried out.

There are four National Monuments on the Howth Castle demesne; the Chapel (Ref. No: DU015-026), the Castle Tower-House (Ref. No: DU015-027001), the Gate-House Tower (Ref. No: DU015-027002), an Armorial Plaque on the Castle (DU015-027003), and the Burial Ground at St. Mary's Church (Ref. No: DU015-042).

4.12.2 Impact Assessment

4.12.2.1 Do Nothing

The subject site is primarily zoned RS for residential development, and in the absence of the proposed development it is likely that a comparable residential scheme would be proposed, having regard to national planning policy that advocates compact growth and increased density at sites proximate to public transport, such as the subject site.

In the absence of the proposed development going ahead and consequently no conservation works carried out, the historic fabric of the section of the demesne boundary wall will inevitably deteriorate due to the impact of the ivy growth.

The unbroken demesne walls presently create a barrier to engagement of the community with the site. Should the proposed development not proceed the opportunity to introduce this social improvement will be lost.

4.12.2.2 Construction Phase

The creation of two new access points into the subject site will require the taking down of two sections of the historic boundary wall to the north.

The proposed design is considered to be an acceptable and necessary intervention. The design will read as a clearly modern intervention, ensuring historical legibility and clarity. The design will not detract from the character of the Howth Road, as the demesne wall will be largely retained in situ. The principle of creating new openings within this demesne wall has been established as an acceptable intervention as this also appears to have been carried out at the modern house to the immediate west of the subject site. The proposed conservation works to the historic demesne wall will have a positive impact on the historic fabric and on the contribution of the wall to the character of Howth Road and the approach into Howth.

The proposed works will include conservation works to the surviving historic demesne wall, thereby ensuring its ongoing survival and enhancing the impact and contribution of the wall to the character of the approach to Howth Village and to Howth Castle.

4.12.2.3 Operational Phase

The proposed name of the new development is 'Kenelm', named for Kenelm Lee Guinness, a formula-one racing driver and yachtsman. His mother was a Gaisford-St. Lawrence of Howth. One of the towers of Howth Castle has been named after Kenelm Guinness. The naming of the proposed development for this historical figure creates a link to the historic demesne of Howth Castle and respects the special heritage of the wider setting.

The proposed landscape design by Bernard Seymour Landscape Architects has been carefully considered to take into account the significance of the existing historic landscape of the adjoining Howth Castle demesne. The visual impact of the proposed development will be minimised through the retention of existing mature trees in the eastern section of the subject site, which will ensure screening between the site and Howth Castle. There is also significant mature woodlands and tree belts to the south of the subject site, which provide visual screening to the Castle. The proposed new landscape design will also involve the planting of new trees. This will ensure that the character of the historic demesne is maintained and protected. The proposed landscape design will be in keeping with the parkland character of the adjoining historic demesne. The level of retention of the

existing trees can be clearly seen in the Tree Impact and Protection Plan, prepared by John Morris Arboricultural Consultancy Ltd.

4.12.2.4 Cumulative Impact

Permission has been granted by An Bord Pleanála for the residential development of the former Techrete site (Claremont SHD), opposite the subject site (Reg. Ref. 306102-19). This permitted scheme will include four residential blocks with a height up to a maximum of eight storeys.

As demonstrated by the photomontages submitted in support of this application, there will be no cumulative visual impact from the proposed new development and the neighbouring Claremont scheme on the setting of the neighbouring Protected Structures.

4.12.3 Residual Impact Assessment

Following the implementation of the mitigation measures, the proposed development will have a positive impact on the historic architectural character of the site.

4.12.4 Interactions

During the construction phase, the following aspects would interact with cultural heritage and in the absence of mitigation may give rise to likely significant effects;

- Landscape and Visual: The proposed openings in the norther demesne wall will result in the removal of historic fabric. However, it is intended to reuse this fabric to carry out remediation works to the remainder of the wall.

The emergence of construction plant and hoarding to secure the development site would interact with the landscape and visual environment in the short term.

During the operational phase the potential interactions are;

- Landscape and Visual: The proposed new buildings may have a visual impact on the character of the neighbouring architectural conservation area and Protected Structures.

4.12.5 Monitoring

The proposed works to the northern boundary wall are to be carried out under the supervision of a Conservation Architect and in line with the method statement included as an Appendix to the EIAR, see Volume III.

4.13 Interactions

Likely significant interactions are set out in Chapter 16 of the EIAR. In practice many impacts have slight or subtle interactions with other disciplines. During the preparation of this EIAR each of the specialist consultants engaged with each other with respect to the likely interactions between effects predicted as a result of the proposed development. Mitigation measures to alleviate identified likely significant effects address identified interactions. This approach meets with the requirements of Part X of the Planning and Development Act 2000, as amended, and Part 10, and schedules 5, 6 and 7 of the Planning and Development Regulations 2001, as amended.

5 Summary of Mitigation Measures

A key objective of the Environmental Impact Assessment process is to identify likely significant environmental impacts at the pre-consent stage and where necessary to propose measures to mitigate or ameliorate such impacts.

This section summarises the proposed mitigation measures set out in Chapters 4 to 16 of Volume II of this EIAR.

It is proposed that the appointed contractor will develop a site-specific Construction and Environmental Management Plan (CEMP) prior to works commencing on-site. All the mitigation and monitoring measures proposed within the individual specialists' assessments will be incorporated into the plan.

Table 15 Incorporated Design Mitigation

Aspect	Incorporated Design Mitigation
<p>4 - Population & Human Health</p>	<ul style="list-style-type: none"> • The proposed design complies with the Building Regulations to safeguard users and the health of occupants. • The proposed development incorporates the principles of universal design and the requirements of Part M of the Building Regulations. • The design includes landscaped public, communal and private open space. • Provision of segregated pedestrian entrance and separation of vehicular traffic. • The inclusion of energy efficient measures, less dependent on fossil fuels, into the design to provide for healthy living standards.
<p>5 - Landscape & Visual</p>	<ul style="list-style-type: none"> • The provision of the car parking in the basement (as opposed to ground level) is a key incorporated mitigation measure. This allows for the site to retain a substantial proportion of open space, and to introduce a large number of trees to the site, for visual screening and residents' amenity. • The three buildings are arranged and scaled to have a strong visual presence in the Howth Road corridor, but with the facades angled to present towards the west and east (the approaches to the site), as opposed to facing the road in front of the site. This recognises the fact that the greatest number of visual receptors would be moving towards the site as opposed to seeing it face-on from or across the street. The wide, landscaped corridors between the buildings would provide relief in the built frontage and glimpses of the trees and the headland to the south, when seen from the road as it passes the site. • The angled front facades also create three triangles of green space in front of the buildings, in which large specimen trees are proposed, softening the built frontage. • The buildings - set back behind the existing road-side verge, the retained demesne wall and the green space and trees described above - are five storeys at the road-front (with the fifth storey set back). This is an appropriate scale for a development intended to have an urbanising effect on the road corridor at the gateway to the town. They would generate a degree of built enclosure - but with no buildings directly opposite, a sense of space would be retained, orientated towards the coastline and sea to the north. There would be no sense of excessive enclosure. The buildings each step up to six storeys in their rear volume, the step in height reflecting the gradient of the site (like the top floor of the front volume, the sixth storey of the rear volume is set back). • The landscape proposals include retention of the historic woodland belt (part of the demesne woodland framework) outside the site's east boundary. Only one tree, inside the boundary, is proposed to be removed in this area. It is proposed to reinforce and enhance the woodland belt with supplementary planting inside the boundary. • A part of the golf course perimeter woodland belt (a modern/late 20th century intervention) would be removed from the rear portion of the site. This would be replaced with a new belt of woodland planting along the rear (south and west) boundaries of the applicant's land holding, resulting in a net gain on woodland cover.
<p>6 – Material Assets: Traffic & Transport</p>	<ul style="list-style-type: none"> • Reduced car parking ratio to promote modal shift. • Inclusion of 2nd pedestrian entrance to facilitate desire line and ease of movement east to Howth centre.
<p>7 - Material Assets: Built Services</p>	<ul style="list-style-type: none"> • The design has been prepared based on relevant codes of practice, design guidance and in consultation with relevant local and statutory authorities to ensure best practice design, considering the effect on local and wider network for water supply, foul and surface water drainage, gas supply, electrical network and the telecommunication network.

Table 15 Incorporated Design Mitigation

Aspect	Incorporated Design Mitigation
	<ul style="list-style-type: none"> The development will be constructed to the Part L Near Zero Energy Building (NZEB)² standard which will result in an improved thermal performance along with the incorporation of renewable technology, accordingly, the demand on energy infrastructure will be reduced.
<p>8 - Material Assets: Waste Management</p>	<ul style="list-style-type: none"> A dedicated construction waste compound shall be developed which will include a range of storage skips and bunded storage units to allow inert, non-hazardous or hazardous wastes to be segregated and securely stored prior to off-site disposal. The apartments which will include a 3-bin waste segregation at source system together with the communal waste storage areas have been designed with regard to Section's 4.8 and 4.9 Refuse Storage of The Department of Housing, Planning and Local Government – Sustainable Urban Housing : Design Standards for New Apartments – Guidelines for Planning Authorities. 2018.
<p>9 - Land, Soils, Geology & Hydrogeology</p>	<p>The proposed development will be designed in accordance with the principles of Sustainable Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS) and will maintain run-off rates at the existing greenfield condition and improve storm water quality discharging to the public storm water system.</p> <p>The SuDS will be addressed by the provision of the following elements:</p> <ul style="list-style-type: none"> Interception storage: Green roofs, permeable paving, rain gardens, oil/petrol interceptors and bioretention tree-pits Attenuation storage: It is proposed to provide an attenuation tank within the site. This will be designed for the 1 in 100 year storm + 20% climate change, and will form the last part of the SuDS management train. A Hydrobrake will be fitted downstream the tank in order to restrict the flow to the greenfield equivalent runoff for the catchment area. <p>The basement car park is covered by a podium slab and does not receive direct rainfall. There will be very limited outflow from the basement, rainfall coming off cars & rainwater coming in through car park vents. The car park drainage is pumped to the nearest foul manhole and is not at risk of any backflow from the surface water system during storm conditions.</p> <p>The main source of pollutant is potentially from surface water run-off from the basement car park & access roads.</p> <p>The SuDS measures proposed are linked in series, and this is commonly known as a SuDS Management Train, (SMT). The SMT ensures that rainwater falling on a site is captured, conveyed, stored, intercepted and removed of pollutants correctly and efficiently before it is discharged back into the surrounding water course or network.</p>
<p>10 - Water & Hydrology</p>	<p>The proposed development will be designed in accordance with the principles of Sustainable Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS) and will maintain run-off rates at the existing greenfield condition and improve storm water quality discharging to the public storm water system.</p> <p>The SuDS will be addressed by the provision of the following elements:</p> <ul style="list-style-type: none"> Interception storage: Green roofs, permeable paving, rain gardens and bioretention tree-pits

² Building Regulations 1997 to 2020

Table 15 Incorporated Design Mitigation

Aspect	Incorporated Design Mitigation
	<ul style="list-style-type: none"> Attenuation storage: It is proposed to provide an attenuation tank within the site. This will be designed for the 1 in 100 year storm + 20% climate change, and will form the last part of the SuDS management train. A Hydrobrake will be fitted downstream the tank in order to restrict the flow to the greenfield equivalent runoff for the catchment area. <p>These elements will intercept any potential leakage of fuel from car park areas. The main source of pollutant is potentially from surface water run-off from the basement car park & access roads.</p> <p>The SuDS measures proposed are linked in series, and this is commonly known as a SuDS Management Train, (SMT). The SMT ensures that rainwater falling on a site is captured, conveyed, stored, intercepted and removed of pollutants correctly and efficiently before it is discharged back into the surrounding water course or network.</p>
<p>11 - Biodiversity</p>	<p><u>European sites</u></p> <p>Sustainable Urban Drainage Systems (SuDS) are to be implemented to remove any potential for contaminated/polluted surface water to drain via the new surface water sewer network proposed as part of the development. SuDS proposed for the site include:</p> <ul style="list-style-type: none"> Green Roofs – General: - Green roofs are areas of living vegetation, installed on the top of buildings. They provide water quality, water quantity, amenity and biodiversity benefits. Green roofs also intercept rainfall at source reducing the reliance on attenuation storage structures. Green Roof – Extensive: Extensive roofs have low substrate depths and therefore low loadings on the building structure, they are lightweight and have a low cost to maintain. These systems cover the entire roof area with hardy, slow growing, drought resistant, low maintenance plants and vegetation, such as sedums. The planting usually matures slowly, with the long-term biodiverse benefits being the sought-after results. These roofs are typically only accessed for maintenance and are usually comprised of between 20mm – 150mm overall total depth. It is proposed to cover the apartment block roofs with extensive green roofs. The apartment block roofs take up a considerable portion of the site area and therefore by utilising these for green roofs, there will be interception and treatment storage provided at source. The proposed system will be a sedum roof over a drainage tray, which will intercept water. Permeable Paving: Permeable paving provides a surface suitable for pedestrian and/or vehicular traffic, while also allowing rainwater to infiltrate through the surface and into the underlying structural layers. Permeable paving systems are an effective way of managing surface water runoff close to its source. The pathways throughout the site will be of a permeable paving build up. The paving within the podium slab area will incorporate a drainage board which also contributes to the interception storage within the site. Rain Gardens: A rain garden is a bioretention shallow depression designed to collect, store, filter and treat surface water runoff. The rainwater downpipes for the three blocks will be directed to the adjacent rain gardens. The system will incorporate a drainage board to provide a degree of additional interception storage, and outlets below connected to the surface water drainage system.

Table 15 Incorporated Design Mitigation

Aspect	Incorporated Design Mitigation
	<ul style="list-style-type: none"> • Bioretention Systems & Tree Pits: Bioretention systems are shallow landscaped depressions that can reduce the runoff rates and volumes of surface water. They treat pollution using engineered soils and vegetation. They are very effective in delivering interception and treatment storage. By including tree pits, the effectiveness of the overall system in meeting the requirements of water quality, water quantity, amenity and biodiversity is significantly improved. Trees provide benefits to the SuDS measures by: <ul style="list-style-type: none"> ○ Transpiration – Water evaporates through the stomata on the leaf as a result of photosynthesis. ○ Interception – Leaves, branches and trunk surfaces intercept and absorb rainfall reducing the amount of water that reaches the ground. ○ Infiltration – Root growth increases the soil infiltration capacity and rate, ultimately reducing run-off volumes. ○ Phytoremediation – When drawing up water, trees also take up trace amounts of harmful chemicals. These chemicals can be transformed into less harmful substances within the tree. • Bioretention tree-pits will be used within the landscape podium areas between the apartment blocks and to the north of the site near the existing boundary wall. • Attenuation Tanks: Attenuation tanks are used to create below-ground void space for the temporary storage of surface water before infiltration, controlled release, or use. Attenuation tanks can be constructed using geocellular crates, which offer flexibility in size, shape and constructability meaning that they can be tailored to suit specific site characteristics. It is proposed to provide an attenuation tank within the site. This will be designed for the 1 in 100 year storm + 20% climate change, and will form the last part of the SuDS management train. A Hydrobrake will be fitted downstream of the tank in order to restrict the flow to Qbar for the catchment area. <p><u>Nationally designated sites</u> Incorporated design mitigation measures to protect downstream nationally designated sites are the same as those to protect European sites as discussed in section 0 above.</p> <p><u>Habitats</u> There will be permanent loss of a sections of the southern hedgerow, valued as a local importance (higher value) habitat. New tree planting is proposed along the southern boundary where this habitat will be removed and additional planting is proposed to strengthen linear hedgerow habitats to the west. A strong woodland edge is proposed connecting to the existing retained portion, which will create a new green link of biodiversity. This planting is in accordance with the All-Ireland pollinator plan, in recognition of Fingal County Councils partnership status in the All Ireland Pollinator Plan 2015-2020, which promotes use of native species in order to enhance wildlife. It is proposed that this element of the scheme occurs prior to building works so that maximum time is allowed for the re-establishment of the broken link from west to east of the site. High density planting around the wet zones will consist of species such as Ilex, Birch, Beech, Hazelnut, Rowan, Cherry, Oak, and Alder which provide food and habitats to a wide range of wildlife. All of the species come in varieties, and therefore sourcing the native strains would be important for maximising wildlife value. The landscape restoration strategy proposes using any existing scrub for the underplanting, particularly on the west and eastern boundaries of this area. The scrub will act as a nursery for a variety of trees, such as the native Quercus</p>

Table 15 Incorporated Design Mitigation

Aspect	Incorporated Design Mitigation
	<p>(Q.robur and Q. petraea) and Scots pine, and will protect the young trees from grazing. This will enhance a new woodland type which will be characterised by an early establishment of diverse composition eventually maturing into an oakwood over the passage of time.</p> <p><u>Bats</u> The landscape plan includes additional native woodland planting of scots pine, hawthorn. Blackthorn and oak along the southern hedgerow, creating further light screening from the proposed development and re-establishing the connectivity between the woodland to the east and the severed southern hedgerow.</p> <p><u>Terrestrial mammals (excluding bats)</u> The landscape plan, proposes to plant treelines to link with existing vegetation, creating wildlife corridors and green infrastructure links for small mammals.</p> <p><u>Breeding birds</u> Retained habitats will be enhanced by the landscape plan through provision of additional hedgerows or treeline habitats using native species to support local biodiversity, which are connected to other similar habitats and creating habitat corridors to wider landscape. Additionally, the landscape plan proposes wild bird cover seeding in place of meadow seeding in patches throughout the scheme.</p> <p><u>Wintering birds</u> The landscape plan proposes to plant trees along the altered southern hedgerow boundary. This will provide screening to the amenity grassland habitat within Deer Park golf course, within which surveys found black-headed gulls, herring gulls, light-bellied brent geese, curlew and oystercatcher foraging in the winter of 2019/2020 and winter 2020/2021, thus reducing any increase in noise, vibration and/or human activity levels during the operational phase of the proposed development. Additionally, the landscape plan proposes wild bird cover seeding in place of meadow seeding in patches throughout the scheme.</p>
<p>12 - Noise & Vibration</p>	<p>External noise can enter rooms within dwellings through windows, ventilators, walls, roof and doors. In most cases, however, windows provide the main path and therefore, mitigation by design has focused on this building element to ensure that their insulation is adequate. All apartments shall have external windows shall have acoustically rated windows to prevent breakthrough of external noise. In addition, Heat Recovery and Mechanical Ventilation systems will be incorporated into the design thus there will be no requirement for passive air vents.</p> <p><u>Acoustic Design requirements for residential buildings</u></p> <p><u>Windows</u> In order to ensure a sufficient level of sound insulation is provided for all dwellings within the development, the following lists the minimum sound insulation performance of windows and window frame sets in terms of the in-situ weighted sound reduction index (R_w):</p> <p>40dB R_w for Living rooms & Bedrooms 37dB R_w for Kitchen – Dining Rooms.</p> <p>The acoustic performance specifications detailed are the minimum requirements which shall apply to the overall glazing system when installed on site. In the context of the acoustic performance specification the 'glazing system' is understood to include any and all of the component parts that form part of the glazing element of the façade, i.e. glass, frames, seals,</p>

Table 15 Incorporated Design Mitigation

Aspect	Incorporated Design Mitigation
	<p>openable elements etc. All exterior wall and door frames should be sealed tight to the exterior wall construction.</p> <p><u>Ventilation Systems</u> The ventilation strategy for the development will be in accordance with Part F of the Building Regulations. The apartment units shall include mechanical heat recovery ventilation systems which will negate the requirement for passive wall vents in bedrooms and living spaces which would otherwise allow the transfer of external noise into the building through the air gaps in the passive vents. However, windows may remain openable for rapid or purge ventilation, or at the occupant's choice.</p> <p><u>Wall Constructions</u> The wall construction typically provides the highest level of sound insulation performance to a residential building. The residential dwellings will be built using either masonry or a timber framed construction. The minimum sound insulation performance of the chosen wall construction will be 55dB Rw.</p> <p><u>Roof Construction</u> The insulated roof constructions proposed across the site will provide an adequate level of sound insulation to the properties within the development site. A minimum sound insulation value of 40dB Rw should be used for roof spaces.</p> <p>At the earliest stage during the construction phase, residential test units shall be constructed to their finished level and shall be tested by a suitably qualified independent Acoustic Engineer to ensure that they comply with Department of the Environment, Building Regulations 2014, Technical Guidance Document E – Sound. Table 12-17 above provides detail on the recommended sound insulation values that shall be achieved to ensure acoustic privacy between adjoining residential units and to assess compliance with external noise intrusion criteria as defined in BS 8233: 2014: Guidance on Sound Insulation and Noise Reduction for Buildings.</p> <p>The operational phase of the development is predicted not to have an adverse noise impact on the receiving environment or on existing residential developments adjacent to the site during the operational phase of the scheme. Therefore, no mitigation measures additional to those set out above are proposed.</p> <p><u>Internal Noise Control – Residential Units</u> At the earliest stage during the construction phase, test apartments and houses shall be constructed to their finished level and shall be tested by a suitably qualified independent Acoustic Engineer to ensure that they comply with Department of the Environment, Building Regulations 2014, Technical Guidance Document E – Sound. Table 12-19 of Chapter 12 provides detail on the recommended sound insulation values that shall be achieved to ensure acoustic privacy between adjoining residential units.</p> <p>For other non-traffic related sources appropriate guidance on internal noise levels for dwellings is contained within BS 8233: 2014: Guidance on Sound Insulation and Noise Reduction for Buildings. This British Standard sets out recommended noise limits for indoor ambient noise levels in dwellings as detailed in Table 12-20 of Chapter 12. All residential units shall be designed to achieve the specified ambient noise design range.</p>

Table 15 Incorporated Design Mitigation

Aspect	Incorporated Design Mitigation
<p>13 - Air & Climate</p>	<p>Air Quality & Climate Impact Mitigation Measures by Design</p> <ul style="list-style-type: none"> • Energy Efficiency – All residential units shall be designed and constructed in accordance with The Irish Building Regulations Technical Guidance Document L – Conservation of Fuel & Energy – Dwellings amended in 2017 includes requirements for all residential dwellings to be “Nearly Zero Energy Buildings” (NZEB’s) by 31st December 2020. • Energy Consumption - The following key design features have been integrated into the design and construction of the residential units to reduce energy consumption: • U-values for floor and roof will exceed the building regulation backstops • Using Glazing U-Value target outlined in this report • Better performance air permeability than the backstop, adding to building air tightness • High performance thermal bridging • Mechanical extract ventilation with heat recovery via heat pump • Exhaust air source heat pump to provide space heating (via radiators) and domestic hot water. • Mechanical ventilation heat recovery and air source heat pump heating for the landlord areas and tenant amenities. • Proximity of Public Transport including Dublin Bus and DART services will reduce dependence on private vehicles • Provision of open landscaped areas, to encourage residents to avail of active lifestyle options and which will contribute albeit in a minor way to the adsorption of Carbon Dioxide from the atmosphere and the release of Oxygen into the atmosphere
<p>14 - Cultural Heritage: Archaeology</p>	<p>No mitigation proposed</p>
<p>15 - Cultural Heritage: Built Heritage</p>	<p>The design of the site and the layout of the three proposed residential blocks has been carefully considered with regard to the visual impact of the development on the sensitive setting of neighbouring Protected Structures, the Howth Castle ACA and other significant views and vistas within the wider context.</p> <p>The provision of the car parking in the basement (as opposed to ground level) is a key incorporated mitigation measure. This allows for the site to retain a substantial proportion of open space, and to introduce a large number of trees to the site, for visual screening.</p> <p>The three buildings are arranged and scaled to have a strong visual presence in the Howth Road corridor, but with the facades angled to present towards the west and east (the approaches to the site), as opposed to facing the road in front of the site. This recognises the fact that the greatest number of visual receptors would be moving towards the site as opposed to seeing it face-on from or across the street. The siting of the blocks has been carefully considered, and carefully set back from the road so as to minimise visual impact. The design has taken into account the comments from Fingal County Council at pre-application stage.</p> <p>The architectural treatment and detailing of the new openings has been designed to reflect the robust character of the demesne wall. High quality materials specified are intended to provide immediate and long term resilience and enhanced visual appearance.</p>

Table 15 Incorporated Design Mitigation

Aspect	Incorporated Design Mitigation
	<p>The wide, landscaped corridors between the buildings provide relief in the built frontage, and glimpses of the trees and the headland to the south, when seen from the road as it passes the site.</p> <p>The massing of the buildings has been considered and designed to minimise the visual impact and footprint on the site and to maximise views through permitting glimpses to the open green setting behind the development.</p> <p>The buildings - set back behind the existing road-side verge, the retained demesne wall and the green space and trees described above - are five storeys at the road-front (with the fifth storey set back). This is an appropriate scale for a development intended to have an urbanising effect on the road corridor at the gateway to the town. They would generate a degree of built enclosure - but with no buildings directly opposite, a sense of space would be retained, orientated towards the coastline and sea to the north. There would be no sense of excessive enclosure. The buildings each step up to six storeys in their rear volume, the step in height reflecting the gradient of the site (like the top floor of the front volume, the sixth storey of the rear volume is set back).</p> <p>The landscape proposals include retention of the historic woodland belt (part of the demesne woodland framework) outside the site's east boundary. It is proposed to reinforce and enhance the woodland belt with supplementary planting inside the boundary.</p> <p>A part of the golf course perimeter woodland belt (a modern/20th century intervention) would be removed from the rear portion of the site. This would be replaced with a new belt of woodland planting along the rear (south and west) boundaries of the applicant's land holding, resulting in a net gain on woodland cover.</p> <p>Verified view photomontages have been created by 3D Design Bureau which illustrate the visual impact of the development, and the cumulative impact of the subject proposal and the neighbouring Claremont SHD. These impacts will be assessed under Section 15.12.4 - Residual Impact Assessment (Chapter 15).</p> <p>The proposed landscape design by Bernard Seymour Landscape Architects has been carefully considered to take into account the existing historic landscape of the adjoining Howth Castle demesne and to ensure screening of the proposed new development.</p>

Table 15 Incorporation Design Mitigation

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
<p>4 - Population & Human Health</p>	<ul style="list-style-type: none"> • To adopt and implement the Construction & Environmental Management Plan (CEMP) and the Construction Waste Management Plan (CWMP) by the selected contractor. • All construction personnel to implement the requirements of the CEMP and CWMP. • Appoint project supervisors for the construction phase and the preparation of a Preliminary Health and Safety Plan to address health and safety issues from the design stage through to the construction phases of the development.
<p>5 - Landscape & Visual</p>	<ul style="list-style-type: none"> • No mitigation measures are proposed other than standard best practice construction site management (e.g. erection and maintenance of site hoarding, orderly storage of materials and vehicles, etc.). However, given the importance of the existing trees to be retained within and in close proximity to the site, particular attention should be paid during construction to the arboricultural inspection and supervision programme. • Similar attention should be paid to the measures recommended by Slattery Conservation for (a) the protection of the demesne wall during construction, and (b) the creation of the two new openings in the wall.
<p>6 - Material Assets: Traffic & Transport</p>	<p>The following measures to mitigate the impact of the construction phase on the existing environment are proposed with reference to the road network.</p> <p><u>Road Network Construction Stage Measures to be implemented:</u> To ensure the road network will have a slight impact with short term temporary slight effects, the following migration will be incorporated.</p> <ul style="list-style-type: none"> ▪ To reduce the potential impact with morning traffic particularly between the hours of 8am and 9am, no HGV's will be allowed to leave site during this period. However, vehicles coming to site will be against morning traffic and will therefore have minimal impact on the local road network. These vehicles will be able to enter site and wait in the waiting area, if necessary, be loaded and ready to leave site after 9am. ▪ Works in Howth road will be carried out in a strip process, limiting the extent of works at any given time and given the existing width of the road across the site frontage two way traffic will be managed at all times. ▪ Informing workers and expected visitors regarding access arrangements and parking provision to ensure an appropriate mode of travel is chosen; By enforcing this the potential impacts of road delays will be slight and have short term neutral effect. ▪ Clear and appropriate signage within the site to advise of permitted routes, speed limits, safety requirements. ▪ Any recommendations with regard to construction traffic management made by the Local authority will be adhered to. ▪ All road works will be adequately signposted and enclosed to ensure the safety of all road users and construction personnel. ▪ Provision of sufficient on-site parking and compounding to ensure no overflow of construction generated traffic onto the local network. ▪ A dedicated 'construction site' access / egress system will be implemented during the construction phases. ▪ Site offices and compound will be located within the site boundary. ▪ A series of 'way-finding' signage will be provided to route staff / deliveries into the site and to designated compound / construction areas. <p><u>Pedestrian Construction Stage Measures to be implemented:</u> To ensure the potential impact of the proposed development on the pedestrian routes will be slight with short term temporary neutral effect the following mitigation measures have been incorporated.</p>

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<ul style="list-style-type: none"> ▪ Promote usage of public transport by site staff by clearly displaying local bus, DART and rail services with a map and timetable indicating routes and travel times. ▪ Works carried out in Howth Road, pedestrians will be directed via a temporary footpath, which will be clearly marked out and separated from the vehicle users. This will only be for short periods when drainage and utility connections works are being carried out in Howth Road. ▪ Only Safe-Pass accredited personnel will be permitted on site and daily in-out attendance records will be maintained. ▪ Hoarding to be set up around the perimeter to prevent pedestrian access. ▪ Signage to be implemented to clearly indicate navigation routes around the site. ▪ Provide bike parking locations on site to promote the usage of cycling by site staff.
<p>7 - Material Assets: Built Services</p>	<p>Remedial and mitigation measures describe any corrective measures that are either practicable or reasonable, having regard to the potential effects discussed above. This includes avoidance, reduction, and remedy measures to reduce or eliminate any significant adverse effects identified.</p> <p>The Construction Environmental Management Plan submitted under separate cover incorporates a range of integrated control measures and associated management activities with the objective of mitigating the effect of the proposed development's on-site construction activities. The mitigation measures relevant to this chapter have been reproduced below.</p> <p><u>Water Supply</u></p> <p>Appropriate construction methodology as outlined in Irish Water – Code of Practice for Water Infrastructure, relating most specifically to quality control in material handling, laying, system testing and record keeping will be employed to ensure against contamination risk of the local water supply and all watermain connection works shall be carried out by the Irish Water accredited regional contractor.</p> <p>To avoid contamination of the local water supply and leaks in the system, all watermains will be tested in accordance with Irish Water Code of Practice for Water Infrastructure.</p> <p><u>Wastewater Drainage</u></p> <p>To prevent the ingress of ground water, all new sewers shall be tested and surveyed and, where necessary, repaired or replaced in accordance with Irish Water Code of Practice for Wastewater prior to connection to the public system.</p> <p>Any leakage from foul sewers will be cordoned off and contaminated effluent and soil collected and disposed of by a licenced contractor.</p> <p>The connection of the new foul sewer to the public wastewater sewer network will be carried out by the Irish Water Regional Contractor.</p> <p>To prevent untreated ground water discharge to the surface water sewer system during construction of the basement, the Contractor will employ an on-site treatment system to treat ground water as necessary (refer to Construction Environmental Management Plan) to meet Irish Water or Fingal County Council temporary discharge licence requirements. The treatment will incorporate ongoing testing in accordance with the conditions of the licence agreement.</p> <p><u>Surface Water Drainage</u></p> <p>To prevent the ingress of ground water, all new sewers will be tested and surveyed and, where necessary, repaired in accordance with the Greater Dublin Area Regional Code of Practice for Drainage Works prior to connection to the public surface water system. To prevent untreated ground water discharge to the surface water sewer system, the Contractor will employ an on-site treatment</p>

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<p>system to treat ground water as necessary to meet Irish Water or Fingal County Council temporary discharge licence requirements. The treatment will incorporate ongoing testing in accordance with the conditions of the licence agreement. Dewatering measures should only be employed where necessary. A method statement for all works to be carried out will be prepared by the Contractor and agreed with Fingal County Council prior to commencement of works to outline what measures are to be taken to ensure there is no loss of service during the works. Road sweeping and/or wheel wash facilities will be provided, as required. All oils/diesel stored on site for construction equipment are to be located in appropriately bunded areas. Filters and silt traps will be used to prevent rain washing silts and other materials into the surface water network and creating blockages.</p> <p><u>Gas Supply</u></p> <p>The exact locations of the gas network infrastructure will be confirmed as part of the Detailed Design Phase. Prior to excavation, the Contractor will carry out additional site investigation, including slit trenches, in order to determine the exact location of the gas network pipes. This will mitigate against risk of underground gas network damage during the excavation phase prior to diverting the gas pipe. The gas diversion shall be carried out by GNI and its new location clearly documented to mitigate the risk of a gas main hit during the construction phase.</p> <p>The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained unless this has been agreed in advance with Gas Networks Ireland (GNI).</p> <p>All works in the vicinity of GNI infrastructure will be carried out in ongoing consultation with GNI and will be in compliance with any requirements or guidelines they may have including procedures to ensure safe working practices are implemented when working near live gas mains.</p> <p><u>Telecommunication</u></p> <p>The locations of the telecommunications network infrastructure relative to the proposed works will be confirmed as part of the Detailed Design Phase to mitigate the risk of damage to the telecoms infrastructure before construction starts. Prior to excavation the Contractor will carry out additional site investigation, including slit trenches, in order to determine the exact location of the telecommunications networks in close proximity to the works area. This will ensure that the underground telecommunications network will not be damaged during the construction phase.</p> <p>The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained unless this has been agreed in advance with the relevant telecommunication provider.</p> <p>All works in the vicinity of the telecommunications providers infrastructure will be carried out in ongoing consultation with the relevant provider and will be in compliance with any requirements or guidelines they may have.</p> <p>Where new services are required, the Contractor will apply to the relevant provider for a connection permit where appropriate and will adhere to their requirements to ensure safety of installation.</p> <p><u>Electricity</u></p> <p>The exact locations of the below ground ESB Networks infrastructure will be confirmed as part of the Detailed Design Phase. Prior to excavation the Contractor will carry out additional site investigation, including slit trenches, in order to determine the exact location of the below ground network. This will mitigate against the risk of damage to underground electricity network during the</p>

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<p>excavation phase prior to diverting the ESB network. The ESB diversion shall be carried out by ESB and its new location clearly documented to mitigate the risk of a cable duct damage during the construction phase.</p> <p>The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained unless this has been agreed in advance with ESB Networks.</p> <p>All works in the vicinity of ESB Networks infrastructure will be carried out in ongoing consultation with ESB Networks and will be in compliance with any requirements or guidelines they may have including procedures to ensure safe working practices are implemented when working near live overhead/underground electrical lines.</p>
<p>8 - Material Assets: Waste Management</p>	<p>The Site-Specific Construction & Demolition Waste Management Plan prepared by Byrne Environmental (and included with the planning application) specifically addresses the following points:</p> <p>Waste materials generated by construction activities will be managed according to the Department of the Environment, Heritage and Local Government's 2006 Publication - Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects. Matters to be considered include;</p> <ul style="list-style-type: none"> • Analysis of waste arisings / material surpluses • Specific Waste Management objectives for the Project including the potential to re-use existing on-site materials for further use in the construction phase. • Methods proposed for Prevention, Reuse and Recycling • Waste Handling Procedures • Waste Storage Procedures • Waste Disposal Procedures • Record Keeping <p>Waste minimisation and prevention shall be the primary responsibilities of the Construction Project Manager who shall ensure the following:</p> <ul style="list-style-type: none"> • Materials will be ordered on an "as needed" basis to prevent over supply. • Materials shall be correctly stored and handled to minimise the generation of damaged materials. • Materials shall be ordered in appropriate sequence to minimise materials stored on site. • Sub-contractors will be responsible for similarly managing their wastes. <p><u>Programme of Waste Management for Construction Works</u></p> <p>The construction contractor as part of regular site inspection audits will determine the effectiveness of the waste management statement and will assist the project manager in determining the best methods for waste minimisation, reduction, re-use, recycling and disposal as the construction phase progresses and waste materials are generated.</p> <p><u>Construction Waste Disposal Management</u></p> <p>From the outset of construction activities, a dedicated and secure compound containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the active construction phase of the development site.</p> <p>In order to ensure that the construction contractor correctly segregate waste materials, it is the responsibility of the site construction manager to ensure all</p>

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<p>staff are informed by means of clear signage and verbal instruction and made responsible for ensuring site housekeeping and the proper segregation of construction waste materials.</p> <p>It will be the responsibility of the Project Construction Manager to ensure that a written record of all quantities and natures of wastes exported -off site are maintained on-site in a Waste File at the Project office.</p> <p>It is the responsibility of the Project Manager or his/her delegate that all contracted waste haulage drivers hold an appropriate Waste Collection Permit for the transport of waste loads and that all waste materials are delivered to an appropriately licenced or permitted waste facility in compliance with the following relevant Regulations:</p> <ul style="list-style-type: none"> • Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007) • Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008) • Waste Management (Facility Permit and Registration) Regulations S.I.821 of 2007 and the Waste Facility Permit under the Waste Management (Facility Permit and Registration) Amendment Regulations S.I.86 of 2008. <p>Prior to the commencement of the Project, the Construction / Project Manager shall identify and nominate a permitted Waste Contractor who shall be employed to collect and dispose of all wastes arising from the project works. In addition, the Construction / Project Manager shall identify and all waste licensed / permitted facilities that will accept all expected waste exported off-site and will maintain copies of all relevant Waste Permits / Licences as required.</p> <p><u>On-Site Waste Reuse and Recycling Management</u> Construction waste material such as soils, damaged or broken concrete slabs, blocks, bricks and tiles generated that is deemed by the Project Engineer to be suitable for reuse on the Project site for ground-fill material and landscaping. This initiative shall provide a positive environmental impact to the construction phase as follows:</p> <ul style="list-style-type: none"> • Reduction in the requirement for virgin aggregate materials from quarries; • Reduction in energy required to extract, process and transport virgin aggregates; • Reduced HGV movements associated with the delivery of imported aggregates to the site; • Reduced noise levels associated with reduced HGV movements; • Reduction in the amount of landfill space required to accept C&D waste; and, • Reduction in the volume of soils to be exported off-site. <p><u>Waste Storage Compound</u> A waste storage compound shall be set up on-site from the commencement of site activities. The compound shall include the following:</p> <ul style="list-style-type: none"> • Separate waste skips labelled with signage stating the nature of waste materials that can only be placed in the skips. • Waste oils / containers shall be placed in dedicated mobile bunds units. • Soils contaminated by accidental on-site spillages of oils / construction hydrocarbons shall be stored in clearly identified hazardous waste storage containers. • Spill kits with instructions shall be located in the waste storage compound.

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<p><u>Waste Soils</u> Based on the analysis of the samples collected from the on-site excavations the material sampled is free of contamination. The material sampled was comprised of natural subsoils which were free of anthropogenic materials. Following an appraisal of the chemical analysis and the absence of anthropogenic materials the subsoils sampled are suitable for removal from site as a by-product which will not lead to overall adverse environmental or human health impacts.</p> <p>Based on the WAC analysis, it is intended to declare the excavated soils a by-product to the EPA in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 and the EPA publication “Guidance on Soil and Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations – Version 3 June 2019.</p> <p>The notification of a potential by-product gives industry an opportunity to demonstrate, with an appropriate level of rigour, that:</p> <ul style="list-style-type: none"> • the material can have a further use and no longer be defined as waste; • the material can be used as a ‘secondary’ resource in place of, and fulfilling the same role as a non-waste derived or virgin ‘primary’ resource; and • the material can be used without causing overall adverse impacts to the environment or human health. <p>The by-product test is made up of four conditions, which represent the requirements of Article 27. All four of the following ‘conditions’ must be met for an economic operator to decide that a production residue is a by-product:</p> <ol style="list-style-type: none"> 1. further use of the material is certain; 2. the material can be used directly without any further processing other than normal industrial practice; 3. the material is produced as an integral part of a production process; and 4. further use is lawful in that the substance or object fulfils all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health impacts. <p>Based on the type of material to be excavated i.e. virgin soils, the fact that it is being excavated to facilitate the proposed development and the results of the WAC analysis, conditions 2-4 above are met.</p> <p>Regarding Condition 1, at this stage, it is too early to identify a specific site where the material would be used. This is because, it is necessary first to secure planning permission to have certainty regarding the availability of the by-product and only then can a further use be identified. However, having regard to the scale of development taking place in Dublin, it is reasonably expected that there will be projects seeking to avail of this by-product. The selected location will be identified in the notification to the EPA.</p> <p>Soils at the site have been classified following WAC testing by Ground Investigations Ireland and the completion of a Waste Classification Assessment. The assessment concludes that on-site soils are classified with LoW Codes 17 05 04 may be classified as non-hazardous and are defined as a Category A Criteria as follows. “Soil and Stone only which are free from anthropogenic materials such as concrete and timber. Soils must be from “contamination” e.g. PAH’s, Hydrocarbons and Asbestos.</p> <p>The Waste Classification Assessment completed as part of the Site Investigation Report shall be maintained by the main Contractor who shall issue them to facilities selected to export soils to during the construction phase.</p> <p><u>Contaminated Soils</u> Where contaminated soils/materials are discovered or occur as a result of accidental spillages of oils or fuels during the construction phase, these areas of</p>

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<p>ground will be isolated and tested in accordance with the 2002 Landfill Directive (2003/33/EC) for contamination, and pending the results of laboratory WAC testing, will be excavated and removed to an appropriately licenced waste facility.</p> <p><u>Construction Waste Record Keeping</u> It will be the responsibility of the Construction Project Manager or his/her delegate that a written record of all quantities and natures of all wastes reused / recycled and exported off-site and Article 27 declarations during the project are maintained in a Waste File at the Project office.</p> <p>The following information shall be recorded for each load of waste exported off-site:</p> <ul style="list-style-type: none"> • Waste Type EWC Code and description • Volume of waste collected • Waste collection contractor's Waste Collection Permit Number and collection receipt including vehicle registration number • Destination of waste load including Waste Permit / Licence number of facility • Description of how waste at facility shall be treated, disposal / recovery / export • The waste records shall be issued to FCC as required / requested.
<p>9 - Land, Soils, Geology & Hydrogeology</p>	<p>A Construction Environmental Management Plan (CEMP) is included with this application under separate cover. It will be adopted by the construction contractor prior to commencement of construction. The CEMP will incorporate the mitigation measures outlined below as they relate to the construction phase. The CEMP will include emergency response procedures in the event of a spill, leak, fire or other environmental incident related to construction. This is an active document which is continuously updated to manage risk during the construction programme. All relevant personnel working on the site will be trained in the implementation of the procedures.</p> <p>As a minimum, the manual will be formulated in consideration of the standard best international practice including but not limited to:</p> <ul style="list-style-type: none"> • CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors. • Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005. • BPGCS005, Oil Storage Guidelines. • Eastern Regional Fisheries Board, (2006), Fisheries Protection Guidelines: Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites.. • CIRIA 697, The SUDS Manual, 2007. • UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004. <p><u>Excavations</u> The excavation will require soil and excavation and infill. The re-use of topsoil for completion of the main site works and landscaping will be evaluated. If it is adequate, topsoil will be stored and protected in an appropriate manner on site for the duration of the construction works.</p> <p>Previous uses of the site and site testing has not indicated any evidence of soil contamination at the site. However, where any excavated material is found to be contaminated, an appropriate disposal method shall be selected depending on the type of contaminant found. Testing will be carried out in pre-construction works by the contractor to determine the soil classification; i.e. inert, non-hazardous or hazardous (WAC testing).</p>

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<p>During the construction phase, all excavations and exposed sub-soils in open cuts will be blinded and protected with clean broken stone as soon as possible after exposing the subsoil in order to prevent erosion. Silt and sediment barriers will be installed at the perimeter of earthworks construction areas to limit transport of erodible soils outside of the site.</p> <p>An appropriate dewatering system and groundwater management system specific to the site conditions will be designed and maintained. These will include measures to minimise any surface water inflow into the excavation, where possible, and the prolonged exposure of groundwater to the atmosphere will be avoided. The pumping of water will be carried out under the conditions of a Trade Effluent Discharge License issued to the construction contractor by Irish Water.</p> <p>Qualitative and quantitative monitoring will be adopted to ensure that the water is of sufficient quality to discharge. The use of silt traps will be adopted if the monitoring indicates the requirement for same with no silt or contaminated water permitted to discharge to the receiving water environment.</p> <p>Any discharge of construction surface water or groundwater from excavations shall pass through appropriate filtration and sedimentation system, designed in accordance with “Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (CIRIA C532)”.</p> <p><u>Accidental Spills and Leaks</u></p> <p>To minimise any impact on the underlying subsurface strata from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas.</p> <p>Leakages of oil from oil stores will be prevented by storing these oils in bunded tanks which have a capacity of 110% of the total volume of the stored oil. Ancillary equipment such as hoses and pipes will be contained within the bunded storage container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal.</p> <p>Refuelling of construction machinery and vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated refuelling areas using a prescribed re-fuelling procedure. Plant nappies or absorbent mats to be place under refuelling point during all refuelling to absorb drips. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as “Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors” (CIRIA 532, 2001) will be complied with.</p> <p>Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby dirty water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility</p> <p>All ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil. The pouring of concrete will take place within a designated area using a geosynthetic material to prevent concrete runoff into the soil/groundwater media. Pours will not take place during forecasted heavy rainfall. Washout of concrete transporting vehicles will not take place on site. Concrete trucks will be washed out off site at the source quarry.</p> <p>To reduce the volume of cementitious water, only concrete truck chutes will be washed down on site. The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound. The location of the chute washdown area will be appropriately located. The system is sealed with no overflow discharge to the drainage system.</p>

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<p>In the event of a spillage on site, the dirty water drains in the immediate area will temporarily be blocked and the pH levels of the water in the associated settlement ponds will be monitored and if necessary will adjust the pH levels using CO2 entrainment. Any spillage will be cleared immediately and deposited in the Chute wash down area.</p> <p>In the case of drummed fuel or other chemical which may be used during construction containers will be stored in a dedicated internally bunded chemical storage cabinet and labelled clearly to allow appropriate remedial action in the event of a spillage.</p>
<p>10 - Water & Hydrology</p>	<p>A Construction Environmental Management Plan (CEMP) is included under separate cover and will be adopted by the construction contractor prior to commencement of construction. The CEMP incorporates the mitigation measures outlined below as they relate to the construction phase. The CEMP will include emergency response procedures in the event of a spill, leak, fire or other environmental incident related to construction. This is an active document which is continuously updated to manage risk during the construction programme. All relevant personnel working on the site will be trained in the implementation of the procedures.</p> <p>As a minimum, the manual will be formulated in consideration of the standard best international practice including but not limited to:</p> <ul style="list-style-type: none"> • CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors. • Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005. • BPGCS005, Oil Storage Guidelines. • Eastern Regional Fisheries Board, (2006), Fisheries Protection Guidelines: Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites.. • CIRIA 697, The SUDS Manual, 2007. • UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004. <p><u>Management of sediment loading and water quality</u></p> <p>During the construction phase, specific measures to prevent the release of sediment over baseline conditions in the downstream receiving water environment. These measures include, but not limited to, the use of silt fences, silt curtains, settlement lagoons and filter materials. These will be maintained by the contractor to the satisfaction of Inland Fisheries Ireland for the entire construction period.</p> <p>Provision of exclusion zones and barriers (e.g. silt fences) between earthworks, stockpiles and temporary surfaces to prevent sediment washing into the existing drainage systems and hence the downstream receiving water environment.</p> <p>Compounds and internal access road will be graded so that all runoff is directed to the dirty water drains. A low mound will be constructed between the compounds / road and the clean water drain to ensure that runoff from the compound / road cannot flow into the clean water system.</p> <p>A wheel wash will be provided for heavy vehicles exiting the site to ensure that roads outside of the site boundary are clean. These can take the form of dry or wet wheel wash facilities. In the case of a wet wheel wash it is recommended that a designated bunded and impermeable wheel wash area is provided and that the resultant waste water is diverted to a settlement pond for settling out of suspended solids.</p> <p>The area of exposed ground will be kept to a minimum by maintaining where possible existing vegetation that would otherwise be subject to erosion in the</p>

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<p>vicinity of the development. The clearing of topsoil will be delayed until just before construction begins rather than stripping the entire site months in advance.</p> <p>Permanent drainage measures such as the underground rainwater harvesting tank, foul tank, oil bypass separator and storm water filtration tank will be installed within the compound.</p> <p>Piped and channel drainage systems incorporating roadside gullies will be installed to collect storm water from the finished compound areas and internal access road. Collected storm water runoff will pass through the oil bypass separator before discharging to the storm water filtration tank.</p> <p>Excavation and stockpiling activities will be minimised during wet weather periods. Stockpiles of excavated soil and/or subsoil will be graded so as to shed water. Stockpiles of soil/subsoil will be restricted to less than 3m in height. Interception and channelling of surface water runoff over exposed soil/subsoil surfaces to sumps, silt traps or settlement ponds, will occur prior to discharge to existing drains or outfalls. Interception and diversion of surface water runoff away from open excavations will occur. Repeated handling of soil will be avoided and ideally all soil stockpiles will remain undisturbed pending later re-use for landscaping.</p> <p>In addition, any discharge of construction surface water or groundwater from excavations shall pass through appropriate filtration and sedimentation system, designed in accordance with "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (CIRIA C532)".</p> <p><u>Fuel and Chemical Handling</u></p> <p>To minimise any impact on the underlying subsurface strata from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas.</p> <p>Leakages of oil from oil stores will be prevented by storing these oils in bunded tanks which have a capacity of 110% of the total volume of the stored oil. Ancillary equipment such as hoses and pipes will be contained within the bunded storage container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal.</p> <p>Refuelling of construction machinery and vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated refuelling areas using a prescribed re-fuelling procedure. Plant nappies or absorbent mats to be placed under refuelling point during all refuelling to absorb drips. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors" (CIRIA 532, 2001) will be complied with.</p> <p>Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby dirty water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility.</p> <p>All ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil. The pouring of concrete will take place within a designated area using a geosynthetic material to prevent concrete runoff into the soil/groundwater media. Pours will not take place during forecasted heavy rainfall. Washout of concrete transporting vehicles will not take place on site. Concrete trucks will be washed out off site at the source.</p>

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<p>To reduce the volume of cementitious water, only concrete truck chutes will be washed down on site. The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound. The location of the chute washdown area will be appropriately located.</p> <p>In the event of a spillage on site, the dirty water drains in the immediate area will temporarily be blocked and the pH levels of the water in the associated settlement ponds will be monitored and if necessary will adjust the pH levels using CO2 entrainment. Any spillage will be cleared immediately and deposited in the Chute wash down area.</p> <p>In the case of drummed fuel or other chemical which may be used during construction containers will be stored in a dedicated internally banded chemical storage cabinet and labelled clearly to allow appropriate remedial action in the event of a spillage.</p>
<p>11 - Biodiversity</p>	<p><u>European sites</u></p> <p>The construction contractor will be required to implement the following specific mitigation measures as a condition if granted by An Bord Pleanála all of which will be incorporated into the CEMP, for release of hydrocarbons, polluting chemicals, sediment/silt and contaminated waters control:</p> <p>Specific measures to prevent the release of sediment over baseline conditions in the downstream receiving water environment, during the construction work. These measures include, but are not limited to, the use of silt fences, silt curtains, settlement lagoons and filter materials.</p> <ul style="list-style-type: none"> • Provision of exclusion zones and barriers (e.g. silt fences) between earthworks, stockpiles and temporary surfaces to prevent sediment washing into the existing drainage systems and hence the downstream receiving water environment. • Provision of temporary construction surface drainage and sediment control measures to be in place before earthworks commence. • Weather conditions will be taken into account when planning construction activities to minimise risk of run-off from the site. • Prevailing weather and environmental conditions will be taken into account prior to the pouring of cementitious materials for the works adjacent to any surface water drainage features, or drainage features connected to same. Pumped concrete will be monitored to ensure no accidental discharge. Mixer washings and excess concrete will not be discharged to existing surface water drainage systems. Concrete washout areas will be located remote from any surface water drainage features, to avoid accidental discharge to watercourses. Washing out of any concrete trucks on site will be avoided. • Any fuels or chemicals (including hydrocarbons or any polluting chemicals) will be stored in a designated, secure banded area(s) to prevent any seepage of potential pollutants into the local surface water network. These designated areas will be clearly sign-posted and all personnel on site will be made aware of their locations and associated risks. • All mobile fuel bowsers shall carry a spill kit and operatives must have spill response training. All fuel containing equipment such as portable generators shall be placed on drip trays. All fuels and chemicals required to be stored on-site will be clearly marked. Care and attention will be taken during refuelling and maintenance operations. Particular attention will be paid to gradient and ground conditions, which could increase risk of discharge to waters. • A register of all hazardous substances, which will either be used on site or expected to be present (in the form of soil and/or groundwater contamination) will be established and maintained. This register will be available at all times and shall include as a minimum:

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<ul style="list-style-type: none"> ○ Valid Safety Data Sheets; ○ Health & Safety, Environmental controls to be implemented when storing, handling, using and in the event of spillage of materials; ○ Emergency response procedures/precautions for each material; and, ○ The Personal Protective Equipment (PPE) required when using the material. <ul style="list-style-type: none"> • Implementation of response measures to potential pollution incidents. • Robust and appropriate Spill Response Plan and Environmental Emergency Plan will be prepared prior to works commencing and they will be communicated, resourced, and implemented for the duration of the works. Emergency procedures/precautions and spillage kits will be available and construction staff will be trained and experienced in emergency procedures in the event of accidental fuel spillages. • All trucks will have a built-on tarpaulin that will cover excavated material as it is being hauled off-site and wheel wash/wheel cleaning facilities will be provided at all site egress points. • If groundwater is encountered during the proposed works and temporary pumping at a very localised location is required: <ul style="list-style-type: none"> ○ An appropriate dewatering system and groundwater management system specific to the site conditions will be designed and maintained. These will include measures to minimise any surface water inflow into the excavation, where possible, and the prolonged exposure of groundwater to the atmosphere will be avoided. ○ Qualitative and quantitative monitoring will be adopted to ensure that the water is of sufficient quality to discharge. The use of silt traps will be adopted if the monitoring indicates the requirement for same with no silt or contaminated water permitted to discharge to the receiving water environment. • Water supplies shall be recycled for use in the wheel wash/wheel cleaning facilities. All waters shall be drained through appropriate filter material prior to discharge from the construction sites. • The removal of any made ground material, which may be contaminated, from the construction site and transportation to an appropriate licenced facility shall be carried out in accordance with the Waste Management Act, best practice and guidelines for same. • A discovery procedure for contaminated material will be prepared and adopted by the appointed contractor prior to excavation works commencing on site. These documents will detail how potentially contaminated material will be dealt with during the excavation phase. • Implementation of measures to minimise waste and ensure correct handling, storage and disposal of waste (most notably wet concrete, pile arisings and asphalt). • All of the above measures implemented on site will be monitored throughout the duration of construction to ensure that they are working effectively, to implement maintenance measures if required/applicable and to address any potential issues that may arise. <p><u>Nationally designated sites</u> Construction phase mitigation measures to protect downstream nationally designated sites are the same as those to protect European sites as discussed in section 0 above.</p>

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<p><u>Habitats</u></p> <p>The following mitigation measures are proposed:</p> <ul style="list-style-type: none"> • All trees and hedgerows marked for retention as identified in the landscaping proposals will be fenced off at the outset of works and for the duration of construction to avoid damage to the trunk, branches or root systems of the trees and structures. • Temporary fencing will be erected at a sufficient distance from the tree so as to enclose the Root Protection Area (RPA) of the tree (NRA, 2005-2011). In general, the RPA covers an area equivalent to a circle with a radius 12 times the stem diameter (measured at 1.5m above ground level for single stemmed trees); • Where fencing is not feasible due to insufficient space, protection for the tree will be afforded by wrapping hessian sacking (or suitable equivalent) around the trunk of the tree and strapping stout buffer timbers around it. It will still be necessary to ensure that the area within the RPA is not used for vehicle parking or the storage of materials (including oils and chemicals). This measure is considered secondary to fencing of retained habitats, and should only be undertaken as a last resort; • Weekly checks of the fences will take place by the project ecologist and/or contractor. • Spoil materials such as rubble, topsoil, building goods and equipment, will not be placed within the RPA of trees or hedgerows. <p><u>Bats</u></p> <p>Construction phase lighting has been designed by Ethos Engineering (2021) to be sensitive to the presence of commuting and foraging bats along the southern hedgerow and adheres to the following guidance:</p> <ul style="list-style-type: none"> • Bats & Lighting: Guidance Notes for Planners, engineers, architects and developers (Bat Conservation Trust, 2010); • Guidance Notes for the Reduction of Obtrusive Light GN01/20 (Institute of Lighting Professionals, 2020); • Bats and Lighting in the UK – Bats and the Built Environment Series (Bat Conservation Trust UK, January 2008). <p><u>Terrestrial mammals (excluding bats)</u></p> <p>There is no construction phase mitigation required for the protection of terrestrial mammals (excluding bats) within the proposed development site.</p> <p><u>Breeding birds</u></p> <p>Where feasible, vegetation (e.g. hedgerows, trees, scrub and grassland) will not be removed, between the 1st March and the 31st August, to avoid direct impacts on nesting birds. Where the construction programme does not allow this seasonal restriction to be observed, then these areas will be inspected by a suitably qualified ecologist for the presence of breeding birds prior to clearance. Areas found not to contain nests will be cleared within 3 days of the nest survey, otherwise repeat surveys will be required.</p> <p><u>Wintering birds</u></p> <p>There is no construction phase mitigation required for the protection of wintering birds within the proposed development site.</p>
<p>12 - Noise & Vibration</p>	<p>The following noise management measures shall be implemented at the site from the outset of site activities to control and manage noise levels during the construction phase of the proposed development:</p>

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<p>Noise Mitigation Measures Site Management Site hoarding comprised of 18mm marine plyboard extending to a height of 4m shall be installed from the outset of site activities along the western site boundary adjacent residential receptors.</p> <p>Noise complaints shall be investigated by site management.</p> <p>Construction Works Noise Control & Mitigation Noise-related mitigation methods are described below and will be implemented for the project in accordance with best practice. These methods include:</p> <ul style="list-style-type: none"> • no plant used on-site will be permitted to cause an ongoing public nuisance due to noise; • the best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on-site operations; • all vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract; • compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers; • machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use; • during construction, the appointed Contractor will manage the works to comply with noise limits outlined in BS 5228-1:2009+A1 2014. Part 1 – Noise; • all items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures; • limiting the hours during which Site activities which are likely to create high levels of noise or vibration are permitted; and • monitoring levels of noise and vibration during critical periods and at sensitive locations. <p>Furthermore, it is envisaged that a variety of practicable noise control measures will be employed. These may include:</p> <ul style="list-style-type: none"> • selection of plant with low inherent potential for generation of noise and/or vibration; • erection of good quality site hoarding to the site perimeters which will act as a noise barrier to general construction activity at ground level; • erection of barriers as necessary around items such as generators or high duty compressors; and situate any noisy plant as far away from sensitive properties as permitted by site constraints. <p>Vibration Mitigation Measures The following specific vibration mitigation and control measures shall be implemented during the construction phase:</p> <ul style="list-style-type: none"> • Choosing alternative, lower-impact equipment or methods wherever possible • Sequencing operations so that vibration causing activities do not occur simultaneously • Isolating the equipment causing the vibration on resilient mounts • Keeping equipment well maintained. <p>In order to protect the amenities enjoyed by nearby residents and a Construction and Environmental Management Plan (CEMP) (including traffic management) shall be included in the application documentation The CEMP which will include the mitigation measures set out in this section.</p>

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
<p>13 - Air Quality & Climate</p>	<ul style="list-style-type: none"> • Avoid unnecessary vehicle movements and manoeuvring, and limit speeds on site so as to minimise the generation of airborne dust. • Use of rubble chutes and receptor skips during construction activities. • During dry periods, dust emissions from heavily trafficked locations (on and off site) will be controlled by spraying surfaces with water and wetting agents. • Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic only. • Re-suspension in the air of spillages material from trucks entering or leaving the site will be prevented by limiting the speed of vehicles within the site to 10kmh and by use of a mechanical road sweeper. • The overloading of tipper trucks exiting the site shall not be permitted. • Aggregates will be transported to and from the site in covered trucks. • Where the likelihood of windblown fugitive dust emissions is high and during dry weather conditions, dusty site surfaces will be sprayed by a mobile tanker bowser. • Wetting agents shall be utilised to provide a more effective surface wetting procedure. • Exhaust emissions from vehicles operating within the construction site, including trucks, excavators, diesel generators or other plant equipment, will be controlled by the contractor by ensuring that emissions from vehicles are minimised by routine servicing of vehicles and plant, rather than just following breakdowns; the positioning of exhausts at a height to ensure adequate local dispersal of emissions, the avoidance of engines running unnecessarily and the use of low emission fuels. • All plant not in operation shall be turned off and idling engines shall not be permitted for excessive periods.
<p>14 - Cultural Heritage: Archaeology</p>	<p>A suitably qualified archaeological consultant shall be appointed to undertake monitoring of works during the construction phase.</p> <p>Licensed archaeological monitoring of the excavation of topsoil during the construction phase of the development. This will be under license from the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht.</p> <p>Should archaeological or architectural heritage features, deposits or structures be uncovered these will be cleaned by hand, investigated, and recorded. The DCHG and the NMI should be contacted and a strategy to resolve these finds should be formulated. This could include preservation in situ or preservation by record.</p>
<p>15 - Cultural Heritage: Built Heritage</p>	<p>Potential negative impacts on the building fabric and integrity of the built heritage arising from the removal of a section of the demesne wall can be minimised during the construction phase by adherence to best practice and to the Architectural Heritage Protection Guidelines for Planning Authorities (2011) and the Advice Series issued by the Department of Arts Heritage and the Gaeltacht.</p> <p>Best practice mitigation measures :</p> <ul style="list-style-type: none"> • Using expert conservation advice • Protecting the special interest • Promoting minimum intervention • Promoting honesty of repairs and alterations • Using appropriate materials and methods

Table 16 Demolition & Construction Mitigation

Aspect	Demolition & Construction Phase Mitigation
	<p>The physical works to the demesne wall will be advanced with design and specifications to a detailed level to indicate all interventions to the wall fabric including interface with the new architectural treatment of the openings and any structural intervention required.</p> <p>As a result of dismantling sections of the wall a quantity of durable limestone will become available. It is proposed to reuse the stone elsewhere to carry out any repairs required to the wall and to integrate within the landscape proposals. The use of specialist contractors with relevant experience, skill and qualifications will be employed to carry out conservation works to the demesne wall.</p> <p>The proposed taking down of two sections of the historic boundary wall to the north of the site will be carried out with care and consideration, and in accordance with the Conservation Specification, (Appendix 15.3, Volume III of the EIAR). This will ensure minimal damage and loss of historic fabric.</p> <p>The proposed new openings will be carried out in accordance with the drawings by MCA Architects. The impact of the proposed design will be assessed under Section 15.12 – Residual Impact Assessment (Chapter 15).</p> <p>Conservation works to the historic demesne wall will be carried out to the surviving historic demesne wall along the northern boundary of the site.</p>

Table 16 Demolition and Construction Mitigation

Table 17 Operational Phase Mitigation

Aspect	Operational Phase Mitigation
4 - Population & Human Health	No operational phase mitigation proposed.
5 - Landscape & Visual	No operational phase mitigation proposed.
6 - Material Assets: Traffic & Transport	<p>The following mitigation measures are proposed for the operational phase of the Proposed Development with reference to the road network:</p> <p><u>Road Network Operational Stage Measures to be implemented:</u></p> <p>The proposed development will have a significant impact with a negative and long term effect on the Sutton Cross junction, the following mitigation measures have been incorporated into the design to limit the effect.</p> <p>The above traffic assessment details that Sutton Cross is at present a busy and congested junction during the morning and evening peak hours of travel, and will continue to experience increased congestion going into the future if the required conservative growth estimates are applied to existing surveyed network flow, with estimated total generated traffic from both proposed and planned adjacent development not adding significantly to existing and future predicted congestion levels at Sutton Cross – the critical junction within this comprehensive traffic analysis.</p> <p>Given that the critical junction under analysis is congested, it is appropriate that there is mitigation to minimise car usage by residents and visitors to the Proposed Development. This comprises the limited on-site car parking spaces. It is proposed within this development to provide car parking space for 81% of the 162 no. apartment units proposed.</p> <p>The trip generation estimates for this project outlined within this report are conservative and robust as they are based on sites with greater car parking provision than proposed for the Proposed Development. It is highly likely, therefore, that the actual traffic impact of the proposal will be less than predicted, as the limited car parking provision will require residents to actively seek out alternative modes of travel particularly for their journey to work / college within the morning and evening peak.</p> <p>Table 6.22 (Chapter 6) demonstrates that, for existing residents close to the Proposed Development, 50%, just half commute by private car as detailed within the 2016 Census, with 29% commuting by bus or train and 8% cycling or walking.</p> <p>It is expected that residents at the Proposed Development would undertake a similar pattern of mode usage, thus resulting in reduced traffic impact on the local road network relative to that envisaged within the conservatively-framed traffic assessment.</p>
7 - Material Assets: Built Services	<p><u>Water Supply</u></p> <p>Prior to completion of the defect liability period, a water audit will be carried out by Irish Water to ensure the construction is fully in compliance with Irish Water Code of Practice and standard details prior to taking in charge.</p> <p>The site watermain system will be metered as directed by Irish Water to facilitate detection of leakage and prevent ongoing water loss.</p> <p><u>Wastewater Drainage</u></p> <p>Prior to completion of the defect liability period, a wastewater audit will be carried out by Irish Water to ensure the construction is fully in compliance with Irish Water Code of Practice and standard details prior to taking in charge.</p> <p>Areas to remain in the charge of the applicant (private side drainage) will be maintained on a scheduled basis as part of the building management plan.</p>

Table 17 Operational Phase Mitigation

Aspect	Operational Phase Mitigation
	<p><u>Surface Water Drainage</u></p> <p>The development has been designed in accordance with Fingal County Council Drainage Department’s guidelines for planning applications, the recommendations of the Greater Dublin Regional Drainage Study (GDSDS) and Ciria Guide C753 – The SuDS Manual, to incorporate best practice Sustainable Drainage Systems. Sustainable Drainage Systems are a collection of water management practices that aim to align modern drainage systems with natural water processes. Integration of SuDS make urban drainage systems more compatible with components of the natural water cycle such as storm surge overflows, soil percolation, and bio-filtration, mitigating the effect human development may have on the natural water cycle, particularly surface runoff and water pollution trends. In the context of this greenfield site, the provision of the sustainable drainage systems including, green roofs to intercept, filter and attenuate surface water at roof level, tree pits/permeable paving to intercept, filter and attenuate surface water at grade and attenuation storage devices to limit peak discharge rates to the public surface water sewer to pre-development flows.</p> <p>All sustainable drainage systems will be maintained by the applicant. Regular maintenance of the SuDS systems will maintain their function of treating surface water prior to discharge. This will prevent silt build-up and other contaminant discharge to the surface water network. Regular maintenance of the attenuation storage and flow control device will maintain controlled discharge of stormwater in rainfall events and prevent inundation of the surface water system.</p> <p><u>Gas Supply</u></p> <p>Gas is not proposed for the development.</p> <p><u>Telecommunication</u></p> <p>The design and construction of the required telecommunication services infrastructure in accordance with the relevant guidelines and codes of practice is likely to mitigate any potential service outage impacts during the operational phase of the development, with the exception of any routine maintenance of the site services.</p> <p><u>Electricity</u></p> <p>The power demands during the operational phase on the existing electricity network are considered to be low due to the energy efficient design including LED lighting and high performance heating equipment.</p> <p>The design and construction of the required electrical services infrastructure in accordance with the relevant guidelines and codes of practice is likely to mitigate any potential impacts during the operational phase of the development, with the exception of any routine maintenance of the site services.</p>
<p>8 - Material Assets: Waste Management</p>	<p>An Operational Waste Management Plan (OWMP) has been prepared by Byrne Environmental as a stand-alone report to accompany this application and has been prepared to demonstrate how the required infrastructure will be incorporated into the design and operational management of the development to ensure that domestic wastes will be managed and monitored with the objective of maximizing the quantity of waste segregated at source and maximizing the volume of clean recyclable materials generated by the residents of the development.</p> <p>The Goal of the OWMP is to achieve a compliance with The Eastern-Midlands Region Waste Management Plan 2015-2021 which defines the following Waste Targets:</p> <ul style="list-style-type: none"> • 1% reduction per annum in the quantity of household waste generated per capita over the period of the plan.

Table 17 Operational Phase Mitigation

Aspect	Operational Phase Mitigation
	<ul style="list-style-type: none"> • Achieve a recycling rate of 50% of managed municipal waste by 2020. • Reduce to 0% the direct disposal of unprocessed residual municipal waste to landfill. <p>Key Aspects of the OWMP to achieve Waste Targets:</p> <ul style="list-style-type: none"> • All residential units shall be provided with information on the segregation of waste at source and how to reduce the generation of waste by the Facilities Management Company. • All waste handling and storage activities shall occur in the dedicated communal apartment waste storage areas located in the basement. • The development’s Facility Management Company shall appoint a dedicated Waste Services Manager to ensure that waste is correctly and efficiently managed throughout the development. <p>The OWMP is defined by the following stages of waste management for both the residential and commercial aspects of the development:</p> <ul style="list-style-type: none"> • Stage 1 Occupier Source Segregation • Stage 2 Occupier Deposit and Storage • Stage 3 Bulk Storage and On-Site Management • Stage 4 On-site treatment and Off-Site Removal • Stage 5 End Destination of wastes <p>The OWMP has been prepared with regard to British Standard BS 5906:2005 Waste Management in Buildings-Code of Practice which provides guidance on methods of storage, collection, segregation for recycling and recovery for residential building.</p> <p>The apartments will include a 3-bin waste segregation at source system together with the communal waste storage areas have been designed with regard to Section’s 4.8 and 4.9 Refuse Storage of The Department of Housing, Planning and Local Government – Sustainable Urban Housing : Design Standards for New Apartments – Guidelines for Planning Authorities. 2018.</p> <p>The proposed development shall be designed and managed to provide residents with the required waste management infrastructure to minimise the generation of un-segregated domestic waste and maximise the potential for segregating and recycling domestic waste fractions.</p> <p>The Objective of the OWMP is to maximise the quantity of waste recycled by residents by providing sufficient waste recycling infrastructure, waste reduction initiatives and waste collection and waste management information services to the residents of the development.</p> <p>The Goal of the OWMP is to achieve a residential recycling rate of 50% of managed municipal waste by 2020 (and future targets in subsequent Eastern-Midlands Regional Waste Management Plans).</p> <p>All apartments will have sufficient space for a 3-bin system (non-recyclable, organic and recyclable) in each kitchen to encourage residents to segregate waste at source.</p> <p>Apartment residents will be provided with waste recycling and waste disposal information by the development’s Facility Management Company who will be responsible for providing clean, safe and mobility impaired accessible communal waste storage areas for the apartment blocks.</p> <p>The Facility Management Company shall maintain a register of all waste volumes and types collected from the development each year including a break-down of recyclable waste and where necessary, shall introduce initiatives to further encourage residents to maximise waste segregation at source and</p>

Table 17 Operational Phase Mitigation

Aspect	Operational Phase Mitigation
	recycling. They shall also provide an annual bulky waste and WEEE collection service for all residents.
9 - Land, Soils, Geology & Hydrogeology	No operational phase mitigation proposed.
10 - Water & Hydrology	No operational phase mitigation proposed.
11 - Biodiversity	<p><u>European sites</u> There is no operational phase mitigation required for the protection of European sites.</p> <p><u>Nationally designated sites</u> There is no operational phase mitigation required for the protection of nationally designated sites.</p> <p><u>Habitats</u> There is no operational phase mitigation required for the protection of habitats within the proposed development site.</p> <p><u>Bats</u> Operational phase lighting has been designed by Ethos Engineering (2021) to be sensitive to the presence of commuting and foraging bats along the southern hedgerow and adheres to the following guidance:</p> <ul style="list-style-type: none"> • Bats & Lighting: Guidance Notes for Planners, engineers, architects and developers (Bat Conservation Trust, 2010); • Guidance Notes for the Reduction of Obtrusive Light GN01/20 (Institute of Lighting Professionals, 2020); • Bats and Lighting in the UK – Bats and the Built Environment Series (Bat Conservation Trust UK, January 2008). <p><u>Terrestrial mammals (excluding bats)</u> There is no risk of the proposed development on terrestrial mammals (excluding bats), mitigation measures intended to avoid or reduce any harmful effects of the proposed development are not required.</p> <p>Increased urbanisation with hindered access to gardens by e.g. stonewalls has led to the decline of hedgehog populations in Ireland. To increase the urban habitat connectivity for hedgehogs, it is recommended that hedgehog holes measuring 13cm by 13cm³ are left in boundary walls and fences where possible to facilitate their movement through the urban landscape.</p> <p><u>Breeding birds</u> There is no operational phase mitigation required for the protection of breeding birds within the proposed development site.</p> <p><u>Wintering birds</u> There is no operational phase mitigation required for the protection of wintering birds within the proposed development site.</p>
12 - Noise & Vibration	<p><u>Roof Garden</u> The Facility Management Company shall be responsible for the maintenance and security of the 5th floor roof garden amenity spaces.</p>
13 – Air Quality & Climate	No operational phase mitigation proposed.
14 - Cultural Heritage: Archaeology	No operational phase mitigation proposed.
15 - Cultural Heritage: Built Heritage	No operational phase mitigation proposed.

Table 17 Operational Phase Mitigation

³ More information on increasing habitat connectivity for hedgehog can be found at: <https://www.hedgehogstreet.org/help-hedgehogs/link-your-garden/> [Accessed: 31/03/2021]