KILNAHUE GOREY EIAR

VOLUME II EIAR



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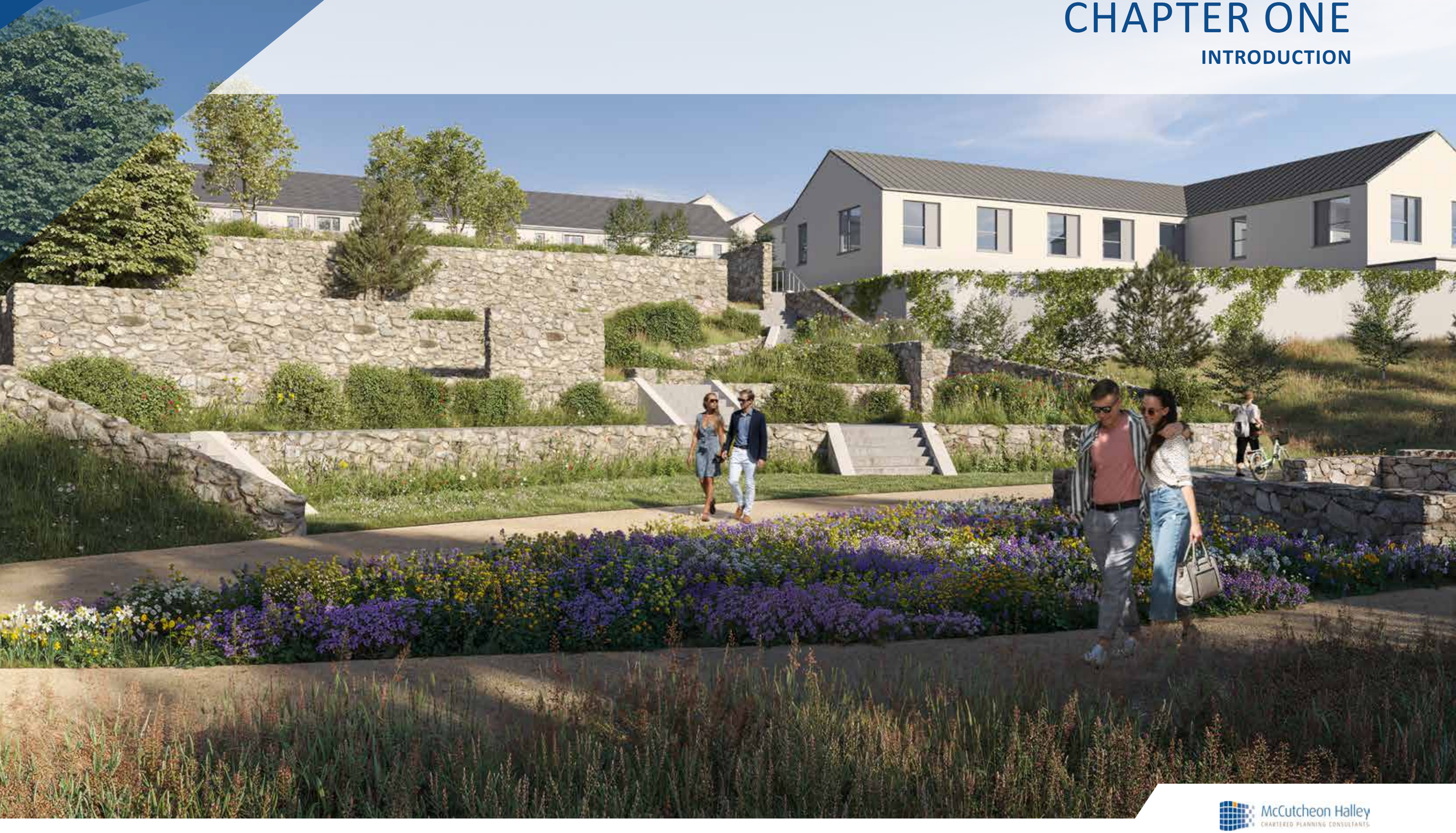
McCutcheon Halley CHARTERED PLANNING CONSULTANTS

CHAPTER ONE

INTRODUCTION



McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

CHAPTER 1

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CHAPTER 1 | INTRODUCTION

1.1 Introduction

This Environmental Impact Assessment Report (EIAR) sets out the results of the environmental assessments which have been completed for the proposed development to inform the planning consent process.

The assessment has been completed as a statutory environment assessment. The environmental impact assessment process has been completed in line with Directive2014/52/EU, based on the guidance presented in the Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA 2022).

The EIAR is a presentation of the potential environmental impacts of the proposed development with a focus on significant impacts.

Chapter 1 introduces the project and described the scope and methodology of the EIA process. The consultation process which was undertaken is outlined and the competencies of the environmental assessment team are provided.

1.1.1 Author Information and Competency

This chapter of the EIAR has been prepared by Saoirse Kavanagh, Executive Planning Consultant, and Lucy O'Donnell, Graduate Planning Consultant, of McCutcheon Halley Planning Consultancy.

Saoirse holds a Bachelor's degree in Arts (International), majoring in Geography, and a Master's in Planning and Sustainable Development. She has over 6 years' experience working with multi-disciplinary teams and has provided input into a variety of projects. In particular, she has co-ordinated the preparation of the following three Environmental Impact Assessment Reports (EIARs) including the completion of the Introduction, Alternatives, and Population and Human Health chapters.

- Dunboyne Phases 1 and 2 Large Scale Residential Development, Dunboyne, Co. Meath
- Rathgowan Large Scale Residential Development, Mullingar, Co. Westmeath
- Castlelands Large Scale Residential Development, Mallow, Co. Cork.

Lucy holds a Bachelor's degree in Arts, in Geography and Irish, and a Master's in Planning and Sustainable Development. While working with McCutcheon Halley Planning Consultants, she has contributed to various projects including the preparation of Environmental Impact Assessment Reports (EIARs) including the Introduction, Development Description, Mitigation Measures, and Population and Human Health chapters.

1.1.2 The Applicant

Glenveagh are a leading Irish home builder founded in 2017, whose vision is to build homes and create sustainable communities through exemplary design. 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.

1.1.3 Brief Project Description

A detailed description of the project is provided in Chapter 2. To summarise, the applicant seeks permission for the development comprising a total of 413 no. residential units, a 102-no. child creche, and all associated site development works. The proposal requires the upgrading of drainage infrastructure and therefore the red line application boundary extends down to Gorey Main Street.

An extract of the main site and the full red line boundary are provided below.



Figure 1.1 Extract from Site Layout Plan



Figure 1.2 Extract from Site Location Map

The overarching vision for this scheme is the establishment of a new high-quality residential development with distinct character areas, varied streetscapes, clear pedestrian links, and useable open spaces which will all work to provide an attractive scheme with a strong sense of place within the existing footprint of Gorey.

1.2 Proposed Development Site

The subject site is located in the townlands of Kilnahue and Gorey Hill at Gorey Co. Wexford. The site is located c. 1.65 kilometres to the west of Gorey Town Centre. The greenfield site currently consists of agricultural fields and field boundaries and slopes from the northeast corner to its southern and eastern extents and is bounded by Kilnahue Lane (L10112) to the northeast and Carnew Road (R725) to the south. There is an old disused laneway that cuts through the site, which is lined by trees and hedgerows. The laneway is very overgrown but would have previously provided a connection between Kilnahue Lane and Carnew Road. At the northern end of this laneway there are historical ruined buildings which are also significantly overgrown.

The site is located within the Creagh NFP area which includes developed and undeveloped lands immediately north/ north-west of the town centre. The Key objectives for Creagh include:

> *To facilitate the design of new development areas using robust urban block structures with a presumption in favour of flexible building typology.*
>
> *To encourage a variety of building types and densities which reflect the function and hierarchy of routes and spaces in the area with the new avenues and focal spaces providing for greater continuity and scale of building form and the secondary streets and spaces providing for lower scale and density.*



Figure 1.3 Site Location

1.2.1 Surrounding Context

Surrounding the site, there are a wide range of amenities that are easily accessible by foot, cycle, and short drive times. This ensures that future residents of the scheme will benefit from convenient access to everyday services and facilities within close proximity to their homes.

In terms of local services, a small convenience store is located on the Carnew Road, providing essential daily items, while Tesco is also readily accessible for larger grocery needs. The wider area offers a range of educational, health, and community facilities that are available to future residents.

Overall, there is a sufficient provision of social and community infrastructure within the surrounding area to support the proposed development.

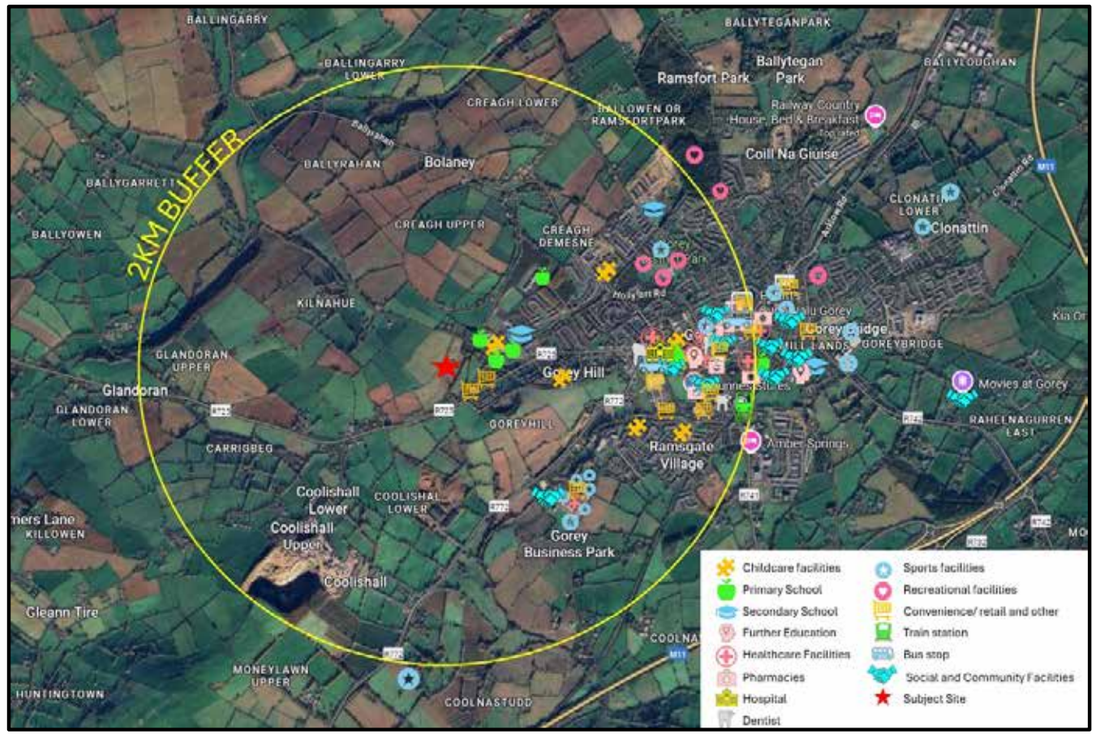

Figure 1.4 Site Context and Social Infrastructure (Source: Google Maps)

1.2.2 Land Use Zoning Objective

Within the *'Gorey Local Area Plan 2017-2023*', the site is located on the boundary of the Gorey LAP and the majority of the site is zoned "Residential (R)" where it is an objective to:

> *"protect and enhance the residential amenity of existing and developed communities and to provide for new residential development, associated residential services and community facilities."*

A section of the site along the northwestern boundary is zoned as Open Space and Amenity.

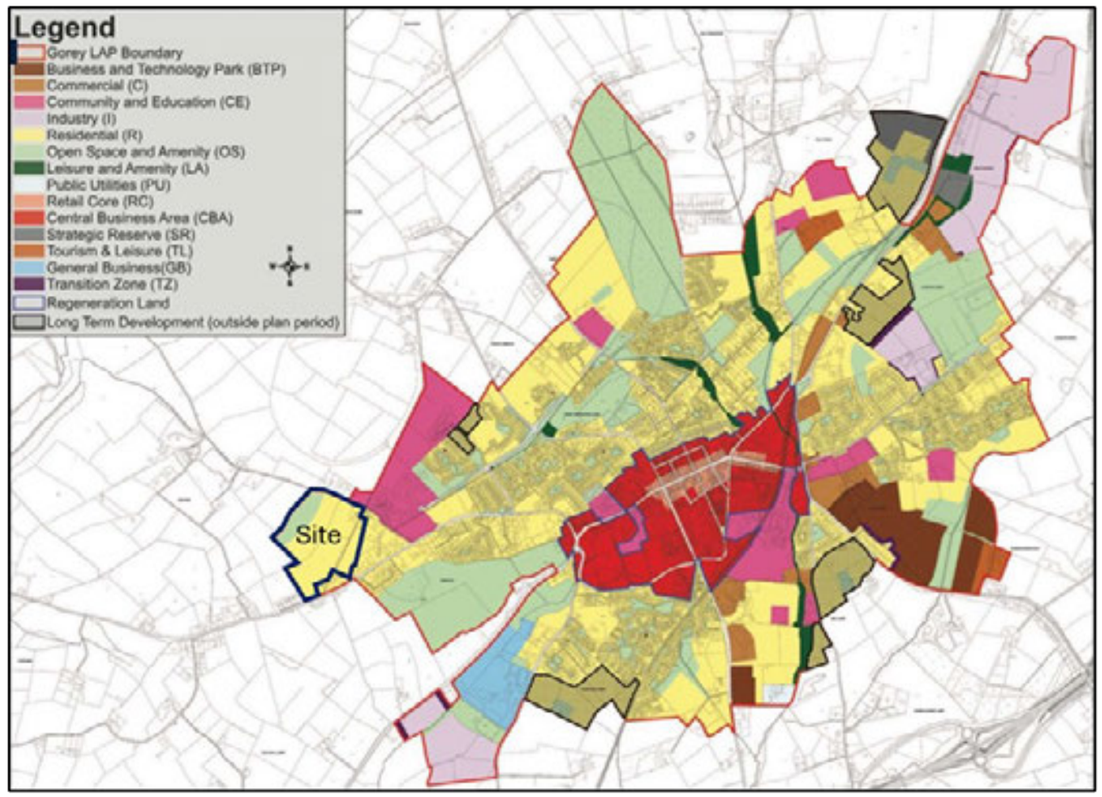

Figure 1.5 Land Use Zoning Objective

In general, the study areas are defined individually for each environmental topic, according to guidance and the geographic scope of the potential impacts or of the information required to assess those impacts. Details are provided by each discipline as part of the description of baseline conditions of the site.

1.3 Requirement for EIAR

Environmental Impact Assessment (EIA) requirements derive from EU Directives. Council Directive 2014/52/EU amended Directive 2011/92/EU and is transposed into Irish Law by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

Proposed development which falls within one of the categories of development specified in Schedule 5 of the Planning and Development Regulations 2001, as amended, which equals or exceeds, a limit, quantity, or threshold prescribed for that class of development must be accompanied by an EIAR.

Section 10 of Part 2 of Schedule 5 includes 'Infrastructure Projects' and provides the following thresholds for requiring an EIA:

10. Infrastructure projects

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

(b)(iv) Urban Development which would involve an area greater than 2 hectares in the case of 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 copy or town in which the predominant land use is retail or commercial use)

The proposed Large Scale Residential Development (LRD) is for 413 no. residential units on a gross site area of c. 19.4 hectares (net site area of 11.5ha). While this does not exceed the threshold of 500 units set out in 10(b)(i), a mandatory EIA is required under the provisions of Part 2, 10(b)(iv) as the proposed development site exceeds the threshold of 10ha within the built-up area of Gorey, Co. Wexford.

1.4 Purpose of Environmental Impact Assessment

The objective of the Directive (Directive 2011/92/EU), as amended by Directive 2014/52/EU, is to ensure a high level of protection of the environment and human health, through the establishment of minimum requirements for environmental impact assessment (EIA), before development consent being given, of public and private developments that are likely to have significant effects on the environment.

The 2014 Directive, for the first time, provides a definition of EIA and this is now defined by section 171A of the Planning and Development Act, 2000 (as inserted by Regulation 16 of the 2018 Regulations).

It is defined as a process consisting of:

a) the preparation of an EIAR by the developer;
b) the carrying out of consultations with the public, prescribed bodies (and, where relevant, any affected Member States);
c) the examination by the competent authority of the EIAR, any supplementary information provided, where necessary, by the developer and relevant information received through the consultation process;
d) the reasoned conclusion of the competent authority on the significant effects of the project on the environment; and
e) the integration of the competent authority's reasoned conclusion into any development consent decision.

The definition of EIA thus provides for a clear distinction between the process of environmental impact assessment to be carried out by the competent authority and the preparation by the developer of an EIAR.

Section 2 of the 2000 Act has been amended to define an EIAR as 'a report of the effects, if any, which proposed development, if carried out, would have on the environment and shall include the information specified in Annex IV of the Environmental Impact Assessment Directive.

As defined in the Environmental Protection Agency - Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, an Environmental Impact Assessment (EIA) is the:

"process of examining the anticipated environmental effects of a proposed project – from consideration of environmental aspects at design stage, through consultation and preparation of an Environmental Impact Assessment Report (EIAR), evaluation of the EIAR by a competent authority, the subsequent decision as to whether the project should be permitted to proceed, encompassing public response to that decision"

1.5 Methodology

The EIAR entails a systematic analysis and assessment of the potential environmental effects of a proposed development on its receiving environment. Article 3(1) of the amended Directive prescribes a range of environmental topics that must be addressed in the EIAR, as follows:

"The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors":

a) A description of the likely significant effects of the project on the environment;
b) 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;
c) 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, considering the effects of the project on the environment ; and
d) A non-technical summary; and,
e) 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.

As is required by Annex IV of the 2014 Directive, this 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.

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

- EPA (2022). Guidelines on the information to be contained in Environmental Impact Assessment Reports.
- Department of Housing, Planning and Local Government (DHPLG) (2018). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment.
- EU (2017) Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report.
- EU (2017) EU Environmental Impact Assessment of Projects: Guidance on Scoping.
- DHPLG (2017). Circular letter PL 1/2017 – Advice on Administrative Provisions in Advance of Transposition.
- European Commission (EC) (2017). Environmental Impact Assessment of Projects. Guidance on the preparation of Environmental Impact Assessment Report.
- EC (2017). Environmental Impact Assessment of Projects. Guidance on Scoping.
- EC (2013). Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment.
- EPA (2003) Advice Notes on Current Practice in the Preparation of Environmental Impact Statements.
- EC (EC) (1999). Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions.

1.6 Competency

Various environmental specialists were commissioned to complete the specialist chapters of the EIAR, as required by Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment. It is a requirement that the EIAR must be prepared by competent experts:

"Experts involved in the preparation of [EIARs] should be qualified and competent. Sufficient expertise, in the relevant field of the project concerned, is required for the purpose of its examination by the competent authorities in order to ensure that the information provided by the developer is complete and of a high level of quality".

For the preparation of this EIAR, the Applicant engaged McCutcheon Halley Chartered Planning Consultants (MH Planning) to direct and coordinate the preparation of the EIAR. A team of qualified specialists were engaged to prepare individual chapters.

The details of each consultancy within the EIAR team are provided in the table below. The qualifications of consultants responsible for each discipline is provided in the introduction to each chapter.

Table 1 1 EIAR Team Consultancy Details Consultancy

Table 1 1 EIAR Team Consultancy Details Consultancy	Address	Phone	Email
MH Planning	6 Joyce Square, Barrack House, Ballincollig, Cork.	(021) 4208710	info@mhplanning.ie
Viridus	Unit 6 Oak Cl, Western Business Park, Dublin, D12 XE63	(01) 963 3064	Info@viridusenergy.ie
AWN	The Tecpro Building, Clonshaugh Business & Technology Park, Dublin 17	(01) 847 4220	info@awnconsulting.com
Modelworks	The Old Courtyard, Newtownpark Avenue Blackrock A94 YD61 Dublin	(01) 289 9039	hello@modelworks.studio
NRB	5th Floor, 40 Mespil Road, Dublin 4, D04 C2N4	(01) 292 1941	info@nrb.ie
AKM	14 Riverwalk, Citywest, Dublin 24, D24 XN32	(0)1 4796234	info@akmdesign.ie
M&E	Unit 4 Oak Close, Western Business Park, Dublin 12	(01) 450 8485	info@mande.ie
Altemar	Greystones, Co. Wicklow	(0)1 2010713	bryan@altemar.ie
John Cronin	28 Upper Main Street, Buncrana, Co. Donegal	(074) 936 1090	john.cronin@johncronin.ie

1.7 Format and Structure of the EIAR

This EIAR is prepared according to the 'Grouped Format Structure' as described in the Guidelines on information to be contained in Environmental Impact Statements (EPA, 2022). This means that each topic is considered as a separate section. The advantages of using this format are that it is easy to investigate a single topic and it facilitates easy cross-reference to specialist studies.

The EIAR is sub divided into 3 no. volumes as follows:

- Volume I Non-Technical Summary;
- Volume II Environmental Impact Assessment Report; and
- Volume III Appendices to Environmental Impact Assessment Report.

Volume II is presented as 19 chapters as outlined in Table 1-2.

Table 1 2 EIAR Chapters and Contributors

Chapter	Chapter Title	Consultant	Lead Consultant
1	Introduction	McCutcheon Halley Planning Consultants	Saoirse Kavanagh
2	Development Description	McCutcheon Halley Planning Consultants	Saoirse Kavanagh
3	Alternatives	McCutcheon Halley Planning Consultants	Saoirse Kavanagh
4	Population & Human Health	McCutcheon Halley Planning Consultants	Saoirse Kavanagh
5	Landscape & Visual	Modelworks	Richard Butler
6	Material Assets: Traffic & Transport	NRB	Brian McMahon
7	Material Assets: Built Services	AKM with M&E input	Cathal Kennedy
8	Material Assets: Waste	AWN	Isabel Gogarty Meade
9	Land, Soils & Geology	Viridus	Darragh Musgrave
10	Hydrology & Hydrogeology	Viridus	Darragh Musgrave
11	Biodiversity	Altemar	Bryan Deegan
12	Noise & Vibration	AWN	Robert Holohan
13	Air Quality	AWN	Ciara O'Connor
14	Climate Change	AWN	Sarah Berry
15	Archaeology and Cultural Heritage	John Cronin	Camilla Brännström and Peter Looney
16	Screening for Major Accidents (Risk)	AWN	Matthew Michie
17	Significant Interaction of Impacts	McCutcheon Halley	Saoirse Kavanagh
18	Summary of Mitigation Measures & Monitoring	McCutcheon Halley	Saoirse Kavanagh

In addition, contributors have had regard to other relevant discipline-specific guidelines, these are noted in individual chapters of the EIAR.

1.8 Cumulative Effects

Directive 2014/52/EU substituted a new Annex IV into Directive 2011/92/EU. Annex IV of the EIA Directive is to be read in conjunction with article 5(1) and sets out the information to be included in an EIAR. Annex IV was transposed into national law via article 97 of the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (the "2018 Regulations") which substituted a new Schedule 6 into the Planning and Development Regulations 2000, as amended.

The Directive requires that the EIAR describes the cumulation of effects with other existing and/or approved projects.

Cumulative effects may arise from:

"- The interaction between the various impacts within a single project;

- The interaction between all the differing existing and / or approved projects in the same areas as the proposed project."

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.

Paragraph 2(e)(i)(V) of Schedule 6 (paragraph 5(e) of Annex IV) provides as follows;

*"the cumulation of effects with other **existing or approved developments, or both**, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources." (emphasis added).*

Accordingly, each chapter of this EIAR assesses the cumulative effect of the following permitted development in combination with the proposed development.

Table 1 3 Applications considered for cumulative impacts

Reference	Development	Decision
20250741	The construction of a 56 unit residential scheme which will consist of the 4no. two-storey detached four-bedroom dwelling units, 40no. two-storey semi-detached three-bedroom dwelling units, 6no. ground floor terraced two-bed apartment units and 6no. first floor terraced two-bed apartment units on lands at Clonatin Lower/Goreybridge, Gorey Rural.	FI response submitted. Awaiting decision
20241284	The construction of 91 no. residential units on lands to the south of Clonattin Village in the townland of Goreybridge, Gorey, Co. Wexford. This development represents 'Phase 2' of a masterplan in Clonattin: The entire masterplan will provide the following once complete: • A nursing home with 96 no. bedrooms and 8 no. independent living units • c. 324 no. residential units (including 64 no. permitted in Phase 1 and 91 no. proposed in Phase 2) • Open spaces and new road connections.	Granted
20241267	The construction of 46 no. residential units including 6 no. 3 bed houses and 40 no. 2 bed apartments.	Granted
20221189	The construction of 89 no. residential units and a creche.	Granted
LAC2110	The construction of 30 no. residential units on the site of the former St. Joseph's Primary School	Granted
ABP 303813	Strategic Housing Development comprising 297 no. residential units and a creche.	Granted
20200467; 20200467E	The construction of 83 no. residential dwellings, 300 Sq.M. single storey community football club clubhouse and allweather sports pitch and all associated site works. Permission is sought for a total of 97 no. dwellings of which 83 no. dwellings, all-weather sports field and community clubhouse are subject to this application and 14 no. units previously granted permission (planning ref. 20180080).	Granted



Figure 1.6 Locations of planning applications considered for cumulative impacts

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. The detail of the identified projects and plans is set out within each specialist chapter of this EIAR.

Cumulative effects are not limited to projects, and it is necessary to also consider relevant Plans. According to the Environment Protection Agency (2020), in Ireland, key cumulative effects – where environmental receptors are at, or near, their thresholds or their capacity to assimilate more change – include climate change; water quality, flood risk, air quality, biodiversity and landscape. For the purpose of this EIAR, the following have been considered in relation to culminative impacts:

- **Wexford Council Development Plan 2022-2028** - gives spatial expression to the county's economic, social, housing, and cultural development. The Plan has a key role in protecting the environment, heritage, and amenities of the city and in mitigating against the impacts of climate change. It includes policies and objectives for all of the aspects included in this EIAR.
- **The Climate Action Plan, 2025** - climate change is the ultimate cumulative effect, nationally and internationally.
- **National Biodiversity Plan** - The Plan sets out actions through which a range of government, civil and private sectors will undertake to achieve Ireland's 'Vision for Biodiversity. It has been developed in line with the EU and International Biodiversity strategies and policies.
- **Standards in the EU Air Quality Directive and 'daughter' directives** - establish the levels of air pollutants that have no significant impacts on human health or the environment.

Each of the chapters considers the above plans as relevant to each chapter. In addition, each of the specialist chapters (4 - 16) considers the cumulative effects of projects and plans relevant to the zone of influence and discipline specific factors.

1.9 Impact Assessment Methodology

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 impact assessment methodology is detailed in the respect of the various environmental topics in the respective chapters herein. The assessment of impacts is based on the source-pathway-receptor model, which dictates that, for an environmental impact to occur, there must be a source, a receptor which is sensitive to the effect in question, and a pathway by which the effect can reach the receptor. Unless otherwise stated, the criteria for effect / impact characterisation are as per the EPA guidelines (as set out in Table 1.4). The significance of an impact is determined through comparison of the character of the predicted effect to the sensitivity of the environment / receptor in question.

Table 1 4 Impact Rating Terminology

Quality of Effect	
Positive	A change which improves the quality of the environment (for example, by increasing species diversity, or the improving the 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	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting less than a year
Short-term	Effects lasting one to seven years
Medium-term	Effects lasting seven to fifteen years
Long-term	Effects lasting fifteen to sixty years
Permanent	Effects lasting over sixty years
Reversible	Effects that can be undone, for example through remediation or restoration
Frequency	Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).
Extent and 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 (Secondary or Off-site)	Effects 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 insignificant 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 SOx and NOx to produce smog).

1.10 Scoping and Public Consultation

The EIAR was scoped following an appraisal of the 2022 EPA Guidelines on Information to be contained within the EIAR, through design team meetings with the specialist consultants, through the pre-planning meetings held with Wexford County Council, and decisions issued on previous applications on the subject site.

The scope of individual assessments is informed by discipline specific guidelines and, where this is the case, they are referenced in each chapter.

Additionally, prior to lodging this application, the required information has been issued for 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.

A dedicated website for this proposed development is established and the EIAR is available at

The following prescribed bodies have been consulted in relation to the general scope of the EIAR.

- Department of Housing, Local Government, and Heritage
- Department of Tourism, Culture, Arts, Gaeltacht, Sport & Media
- Department of Education
- Geological Survey Ireland (Department of the Environment, Climate and Communications)
- The Heritage Council
- Office of Public Works (OPW)
- Transport Infrastructure Ireland (TII)
- The National Transport Authority (NTA)
- The Health and Safety Authority (HSA)
- The Health Service Executive (HSE)
- Inland Fisheries Ireland
- Bat Conservation Ireland
- Uisce Éireann
- An Taisce
- Bord Gais
- ESB
- Environmental Protection Agency
- Fáilte Ireland

Responses received are presented in Appendix 1.1

1.11 References and Sources

Guidelines on the Information to be Contained in Environmental Impact Statements (Environmental Protection Agency (EPA), May 2022); https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf

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Guidelines for Planning Authorities and An Bord Pleanála on carrying our Environmental Impact Assessment (OPR, 2018). https://www.opr.ie/wp-content/uploads/2019/08/2018-Environmental-Impact-Assessment-1.pdf

CHAPTER TWO

DEVELOPMENT DESCRIPTION



McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

CHAPTER 2

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CHAPTER 2 | DEVELOPMENT DESCRIPTION

2.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) sets out the proposed development and provides details in relation to the construction and operational phases of the scheme. The chapter was prepared in conjunction with the relevant member of the Design Team, and it should be read in conjunction with the submitted drawings together with supporting reports.

The EIA Directive requires that an EIAR includes a description of the project comprising information on the site, design, size and other relevant features of the project. Recital 22 of the 2014 Directive requires that

> *"In order to ensure a high level of protection of the environment and human health, screening procedures and environmental impact assessments should take account of the impact of the whole project in question, including, where relevant, its subsurface and underground, during the construction, operational and, where relevant, demolition phases".*

This chapter satisfies the requirements of the EIA Directive, providing detail on the location, size and characteristics of the proposed project.

2.2 Expertise and Qualifications

This chapter of the EIAR has been prepared by Lucy O'Donnell, Graduate Planning Consultant and by Saoirse Kavanagh, Executive Planning Consultant, of McCutcheon Halley Planning Consultancy.

Lucy holds a Bachelor's degree in Arts, in Geography and Irish, and a Master's in Planning and Sustainable Development. While working with McCutcheon Halley Planning Consultants, she has contributed to various projects including the preparation of Environmental Impact Assessment Reports (EIARs) including the Introduction, Development Description, Mitigation Measures, and Population and Human Health chapters.

Saoirse holds a bachelor's degree in arts (International), majoring in Geography, and a master's in planning and Sustainable Development. She has over 6 years' experience working with multidisciplinary teams and has provided input into a variety of projects. In particular, she has co-ordinated the preparation of the following three Environmental Impact Assessment Reports (EIARs) including the completion of the Introduction, Alternatives, and Population and Human Health chapters:

- Rathgowan Large Scale Residential Development, Mullingar, Co. Westmeath.
- Dunboyne Large Scale Residential Development, Dunboyne, Co. Meath.
- Large Scale Residential Development, Ennis, Co. Clare

2.3 Description of Existing Environment

The greenfield site, with a developable area of 11.5ha, is located c. 1.65 kilometres to the west of Gorey Town Centre and is currently characterised by agricultural fields and field boundaries, sloping from the northeast corner to its southern and eastern extents.

The site is bounded by Kilnahue Lane (L10112) to the northeast and the Carnew Road (R725) to the south. There is also an old disused laneway that cuts through the site, which is lined by trees and hedgerows. The laneway is very overgrown but would have previously provided a connection between Kilnahue Lane and Carnew Road. At the northern end of this laneway there are historical ruined buildings which are also significantly overgrown.

The site is within walking distance of several commercial, recreational and community facilities including local shops, churches and schools. Access to the site is currently via Kilnahue Lane, adjacent the Educational Campus.



Figure 2 1 Site Location

The proposed development is located in the townlands of Kilnahue and Gorey Hill within the town boundary of Gorey. The subject site is situated to the west of Gorey town centre. The site lies within close proximity to important routes such as the M11 Dublin-Wexford route. This route is also served by a train station and sufficient bus services from Gorey town centre.

2.3.1 Surrounding Context

Surrounding the site, there are a wide range of amenities that are easily accessible by foot, cycle, and short drive times. This ensures that future residents of the scheme will benefit from convenient access to everyday services and facilities within close proximity to their homes.

In terms of local services, a small convenience store is located on the Carnew Road, providing essential daily items, while Tesco is also readily accessible for larger grocery needs. The wider area offers a range of educational, health, and community facilities that are available to future residents.

Overall, there is a sufficient provision of social and community infrastructure within the surrounding area to sport the proposed development.

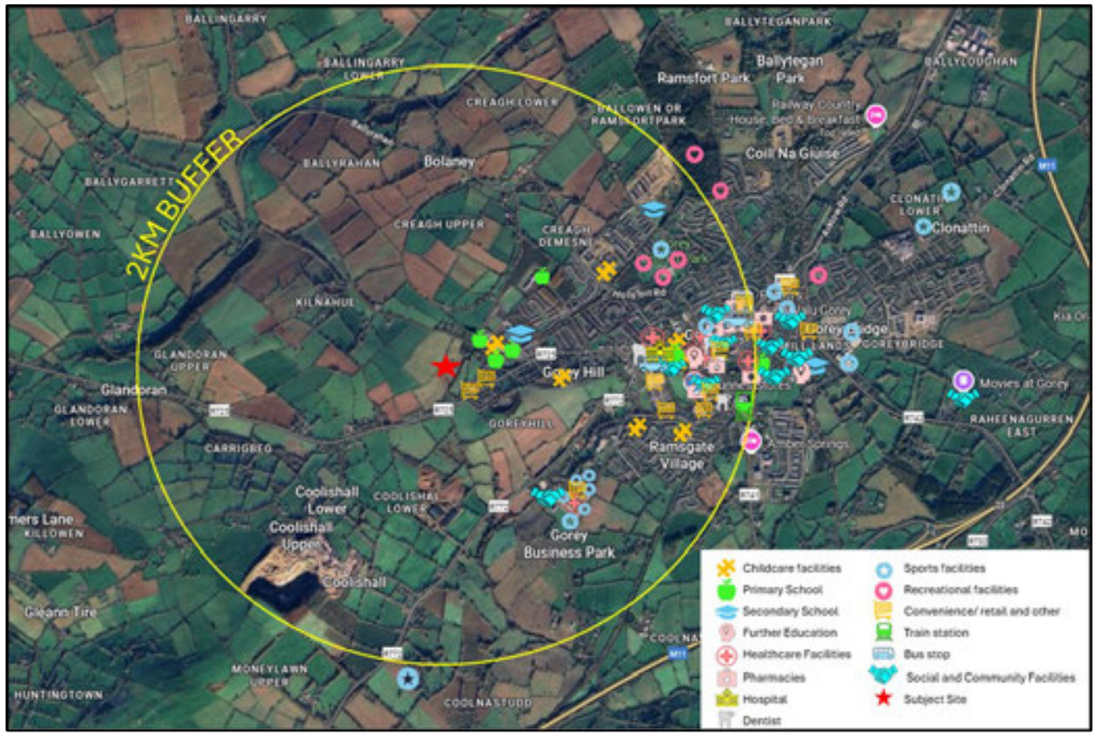

Figure 2 2 Surrounding community amenities and facilities

2.4 Description of Proposed Development

The proposed Large Scale Residential Development comprises the construction of 413 no. residential units (36 no. 1 beds, 134 no. 2 beds, 204 no. 3 beds, 39 no. 4 beds), a creche with 102 no. childcare spaces and a community room, and all associated site development works.

An overview of the key development statistics is set out in the following Table:

Table 2 1 Development Overview

Development Statistics	
Site Area	19.4ha (gross) 11.5ha (developable area)
No. Units	413 no. of units
Unit Types	64 no. maisonette/ apartments/ duplexes: 8 no. maisonettes 28 no. apartments 28 no. duplex apartments 394 no. of houses: 296 no. of townhouses 46 no. semidetached units 7 no. detached units
Amenities & Facilities	Recreational pathways, pocket parks, Parkland, a Community Shed, a Bike Repair station, Community room and a Creche
Density	35.9uph
Building Height	Up to 3 storeys
Unit Mix Summary	36 no. 1 beds, 134 no. 2 beds, 204 no. 3 beds, 39 no. 4 beds
Car Parking	667 no. of Car parking S paces
Bicycle Parking	586 no. of Bicycle Spaces
Public Open Space	17,319sqm (15% developable area) Additional 27,877sqm public space provided on the open space zoned land.
Communal Open Space	876sqm
Plot Ratio	0.20 (gross) and 0.34 (developable area)
Site Coverage	11.5% (gross) and 19.4% (developable area)

2.4.1 Layout

The proposed layout has been informed by the site's context and pre-planning discussions with Wexford County Council. In addition, the proposed layout has been designed in accordance with the following policy documents:

- National Planning Framework
- Regional Spatial & Economic Strategy for the Southern Region
- Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities (2024)
- Wexford County Development Plan 2022-2028

An overview of the site layout is shown in figure 2.3.



Figure 2 3 Proposed Site Layout

2.4.2 Residential

The proposed development consists of 413 no. residential units comprising the following:

- 64 no. 1 and 3 bed apartments
- 349 no. 2, 3 and 4 bed houses

The proposed mix of house types consists of maisonettes, apartments, duplexes, townhouses, semi-detached houses, and detached houses which will add to the existing and permitted housing types with the area.

The scheme proposes a mix of 4-bed (9.4%), 3-bed (49.6%), 2-bed (32.4%), and 1-bed (8.6%) units in an attempt to provide housing across all age profiles and household sizes. The housing mix supports future population growth for both small and larger families, as well as couples and single occupants. The high proportion of 1 and 2 beds reflects the trend towards small household sizes and will ensure there is a variety of household options for the population. Overall, it is considered that the housing mix proposed is appropriate for the area and its population.

The proposed 413 no. residential units on a net site area of 11.5ha provides a density of 35.9 units per hectare, which is in line with the density of 35uph set out in the Wexford County Development Plan for Gorey town. The density is also in line with the density range of 30-50uph identified for suburban sites in key towns in the Sustainable Residential Development and Compact Settlement Guidelines (2024).

At a strategic level, the proposal will contribute to the realisation of housing targets in Gorey by delivering much needed high-quality dwellings to meet existing market demand in the short to medium term. The proposal will also help to achieve the objectives of the National Planning Framework which promotes compact growth and seek to deliver at least 40% of all new homes within the built-up footprint of existing settlements.

This proposal for 413 no. residential units will assist in fulfilling the Council's objective of delivering more housing and contribute to alleviating the current housing crisis.

2.4.3 Childcare Facility

The proposed development includes a crèche of 509.9 sqm with capacity for 102 no. childcare spaces. This facility is located in the southeastern side of the site, to the north of the existing historic buildings. The proposed creche includes a community room which can be used by the wider community.

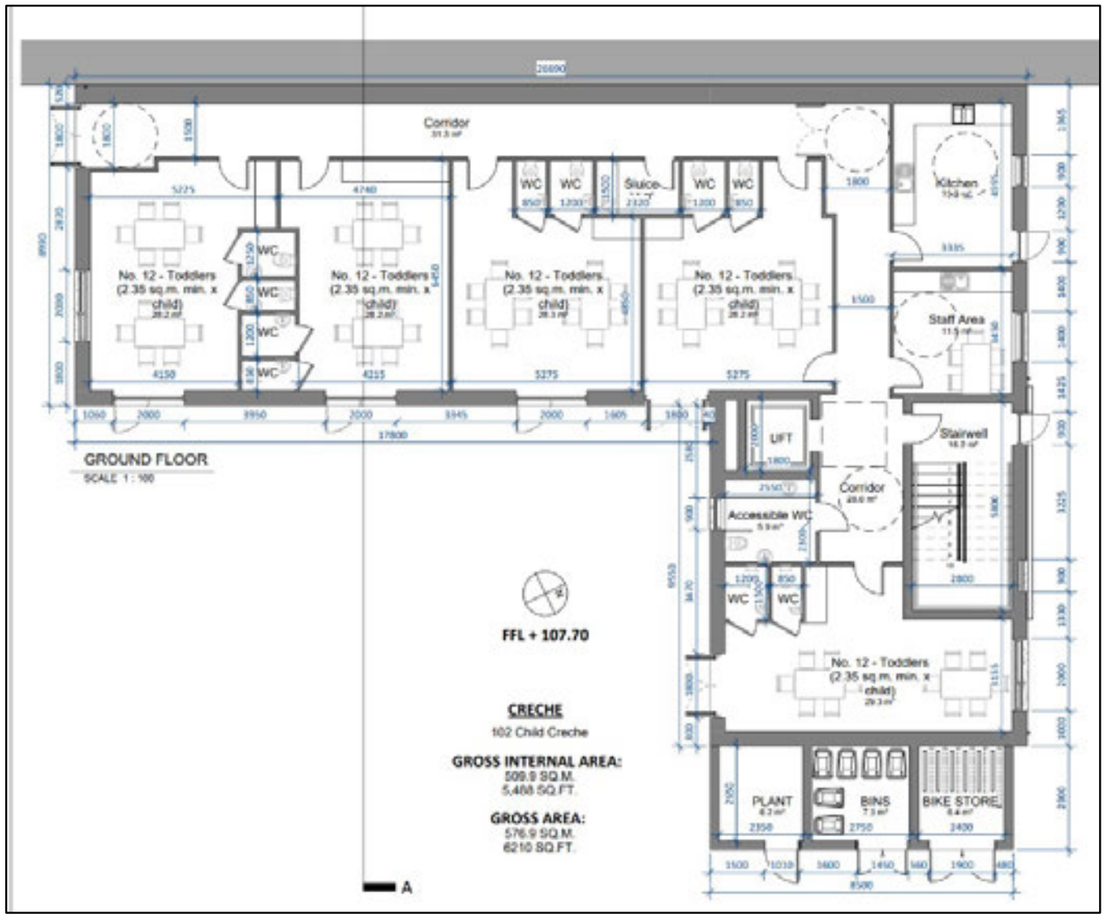

Figure 2 4 Ground Floor Plan of Proposed Childcare Facility

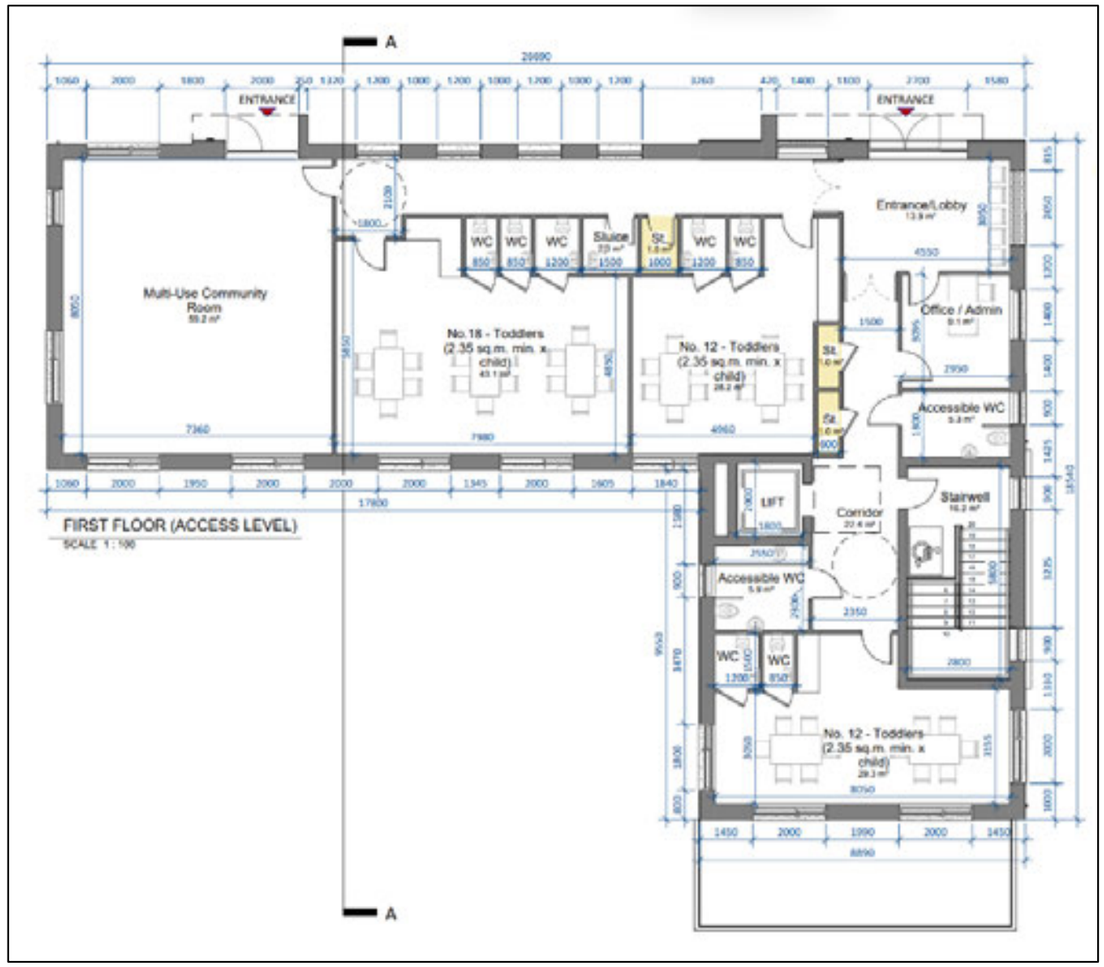

Figure 2 5 First Floor Plan of Proposed Childcare facility including Multi-use Community room.

2.4.4 Historic Buildings

The existing ruined historical buildings will be integrated into the proposed landscaping plan to provide a focal point within the layout, adjacent to the proposed creche. The historic buildings will be maintained as much as possible during the construction to provide community spaces within the landscape plan.



Figure 2 6 Recreational Community space integrating existing ruined buildings.

2.4.5 Access and Connections

The proposed development provides a highly permeable and legible network of streets, pathways, and connections designed, in line with DMURS, to optimise sustainable movement throughout the site for walking and cycling.

The proposed routes throughout the site are designed to create safe, active, and attractive public realms. Active frontages with dwellings accessed directly from the street create activity and passive surveillance, while road junctions and building corners are articulated by units to provide overlooking.

The historic laneway has been incorporated into the layout as a shared pedestrian cycle routes which will provide an attractive route through the site.

The proposed layout also improves connections with the surrounding area. The pedestrian access point near the creche to Kilnahue Lane connects the site to the adjacent educational campus, as well as to Gorey Town Centre, located 1.65km east of the site, providing access to retail, commercial, leisure, employment, and education facilities.

Gorey is approximately 1 hour travel time to both Dublin City and Wexford Town by bus. These destinations are also connected to Gorey by train, travelling each direction 3 times daily.

Public open spaces are universally accessible and designed for a range of active and passive recreational uses, while also integrating the existing character of the site through the reuse of the historic laneway and old buildings. A looped walkway is provided in the open space zoned land to the north which will provide an attractive connection through the site.

Layouts comply with Part M of the Building Regulations and follow “Building for Everyone: A Universal Design Approach”, ensuring all main entrances, pathways, and approaches are fully accessible to all users.

2.4.6 Parking

2.4.6.1 Car Parking

The proposed development will provide 667 no. car parking spaces distributed through in-curtilage, and on street parking. 564 no. car parking spaces are designated for Standard Residential Units. Of the 564 no. of Standard Residential Units Parking, 514 no. are within curtilage, and 50 no. are allocated to units but are not within curtilage.

The remaining 103 no. of car parking spaces are communal spaces and are designated as follows:

- 65 no. communal spaces for the apartments
- 12 no. of which are for the creche (including the drop off area)
- 26 no. of Vistor spaces

Across the site there is a total of 8 no. Accessible parking spaces incorporated into the communal spaces (7.8%) and 6 no. of EV Charging spaces in the form of 3 no. EV Charging Hubs.

Car parking for houses will predominantly be accommodated within the curtilage of each dwelling, while parking for duplexes and apartments will be on the street, located in front of the building blocks in a mix of parallel and perpendicular parking. All parking is located close to dwelling entrances for convenience and security. Materials used within parking areas will comply with local authority standards for areas to be taken in charge.

Dwelling with in curtilage parking pre- wired for future EV includes 134 no. of 2 bed spaces (100%), 352 no. of 3 bed spaces (86.27%), 78 no. of 4 bed spaces (100%) and an additional 14 no. visitors’ spaces (53.85%).

All the 65 no. of spaces allocated for apartments are also pre-wired for future EV, as well as 9 no. of the creche spaces.

The layout has been carefully considered to minimise the overall quantum of parking (in line with SPPR4 where applicable), reduce reliance on private car use, and ensure the public realm remains attractive and pedestrian friendly. On-street parking is distributed along access roads, integrated with landscaped planting, and also, strategically located to support urban design objectives, such as traffic calming and avoiding long stretches of front garden parking.

2.4.6.2 Cycle Parking

The proposed development provides high-quality cycle parking facilities to support sustainable transport use. Houses with private rear gardens will have ample space to store bicycles securely, ensuring secure and convenient storage. Apartment and duplex residents will have access to purpose-built, enclosed bicycle stores. These facilities will be residents-only, well-lit, and maintained by the management company to ensure long-term functionality and safety.

There is a total of 586 no. of bicycle spaces across the site. This includes:

- 112 no. of secure bike spaces within 5 no. of communal bike stores to serve the apartments and duplexes.
- 42 no. of secure bike spaces within Sheffield stands
- 408 no. of secure bike spaces within 136 no. of individual bike stores
- 12 no. of secure bike spaces and 12 no. of visitor spaces within the Creche Bike storage

2.4.7 Landscape

The proposal includes 15% of the developable area as public open space which is provided in a series of high quality landscaped open space areas, overlooked by surrounding residential units, in compliance with the requirements of the Wexford County Council Development Plan

A portion of the site, located to the northwest, is zoned Open Space and amenity. In line with this zoning, the proposed development delivers a high-quality, accessible public open space that is designed to be overlooked by residential units from the south, ensuring passive surveillance and a positive aspect throughout. The area zoned for Open Space and amenity does not contribute to the 15% public open space within the proposed development and instead provides additional recreational space to both the residents and surrounding community.

The design places emphasis on usability and inclusivity. Paved footpaths throughout the development are designed for universal access, accommodating disabled users, runners, walkers, and buggies. Ramped access points are incorporated to ensure that all public open spaces are fully accessible.



Figure 2 7 Landscape masterplan

The layout has been carefully shaped by the site's natural features, topography, and heritage assets. Existing hedgerows are retained wherever possible, significantly determining the layout of neighbourhood areas; by identifying configuration of residential units and creating natural character zones. The public open spaces are arranged along and around the retained hedgerows, with dwellings fronting onto and overlooking them, ensuring they are safe, attractive, and well-integrated into the neighbourhood.

The Open Space Strategy establishes high-quality landscaped amenity areas, structured around and connected by the existing laneway. These create a network of routes and a sequence of distinct spaces across the site, encouraging movement, connectivity, and active use.

2.4.8 Site Services

2.4.8.1 Wastewater

Foul drainage to the site will be provided via gravity to connect to the public network east of the subject site. A Pre-Connection Enquiry was submitted to Uisce Eireann and a Confirmation of Feasibility was received on May 1st, 2025 and is included as an appendix to this Engineering Report. The CoF indicated the following relating to foul drainage supply:

"In order to facilitate the proposed connection at the Development, the Uisce Éireann wastewater network will have to be extended by approximately 120m from Carnew Road. In addition to this required network extension, approximately 2.2km of network upgrades to the existing wastewater network will be required to provide additional network capacity for the proposed scale of development.

Uisce Éireann does not currently have any plans to undertake these works, therefore the applicant will be required to fund these local network extensions and upgrades (the exact extent of which shall be assessed further at connection application stage). These works will be carried out by Uisce Éireann and the costs for this will be included in your connection fee."

A design for the off-site upgrades to the local foul network is included as part of this application and has been submitted to Uisce Eireann for approval

2.4.8.2 Surface Water

The details of the surface water drainage strategy for the subject site are provided within the Engineering report.

The subject site has six primary categories of surface water run-off: green space (Private Gardens), soft landscaping (Public Spaces), roofs, hard landscaping, parking, and roads.

2.4.8.3 Water Supply

Water supply to the development will be provided through 3no. connections to the public network on Carnew Road and Kilnahue Lane. A Pre-Connection Enquiry was submitted to Uisce Eireann and a Confirmation of Feasibility was received on May 1st, 2025 and is included as an appendix to the Engineering report. The CoF indicated the following relating to water supply:

"In order to facilitate the proposed connection at the Development, the Uisce Éireann water network will have to be extended by approximately 150m along Kilnahue Lane. In addition to this required network extension, approximately 860m of network upgrades to the existing water network will be required to provide additional network capacity.

Uisce Éireann does not currently have any plans to undertake these works, therefore the applicant will be required to fund these local network extensions and upgrades. These works will be carried out by Uisce Éireann and the costs for this will be included in your connection fee."

A design for the off-site upgrades to the local water network is included as part of this application and has been submitted to Uisce Eireann for approval.

2.4.8.4 Electrical Supply

All proposed power cables within the development will be buried underground or internal within buildings and will be installed according to the relevant ESB Networks specifications.

2.4.8.5 Telecommunications

The proposed telecommunications infrastructure within the development will be buried underground or internal within buildings.

2.4.9 Traffic

The anticipated traffic generated by the proposed development, along with its potential effects on local roads and junctions, has been assessed in the Traffic and Transport Assessment Report submitted with this application. The assessment concludes that the development will not have a significant impact on traffic levels across the surrounding road network and that all nearby junctions will continue to operate well within capacity.

To prevent congestion along the Carnew road travelling from the east, a right hand turning pocket has been designed by NRB Consulting Engineers at the proposed access to the development

2.5 Demolition & Construction Phase

This application is accompanied by a Construction Environmental Management Plan (CEMP) and a Construction and Demolition Waste Management Plan. Both reports should be read in conjunction with this chapter for a comprehensive description of the construction phase.

2.5.1 Programme

Construction of the residential development will take place over approximately 48 months, in 4 phases:

Phase 1 of construction will take place in the northeast corner of the site and will consist of the construction of 71 no. residential units, the 102 no. child creche and the community room.

Phase 2 of construction will take place in the northwestern area of the site and will consist of the construction of 102 no. residential units and the parkland area.

Phase 3 of construction will take place in the southern area of the site and will consist of the construction of 132 no. of residential units.

Phase 4 of construction will take place in the southwestern area of the site and will consist of 108 no. of residential units.

The construction of social and community uses, public open space and private open space will be staggered throughout each phase.

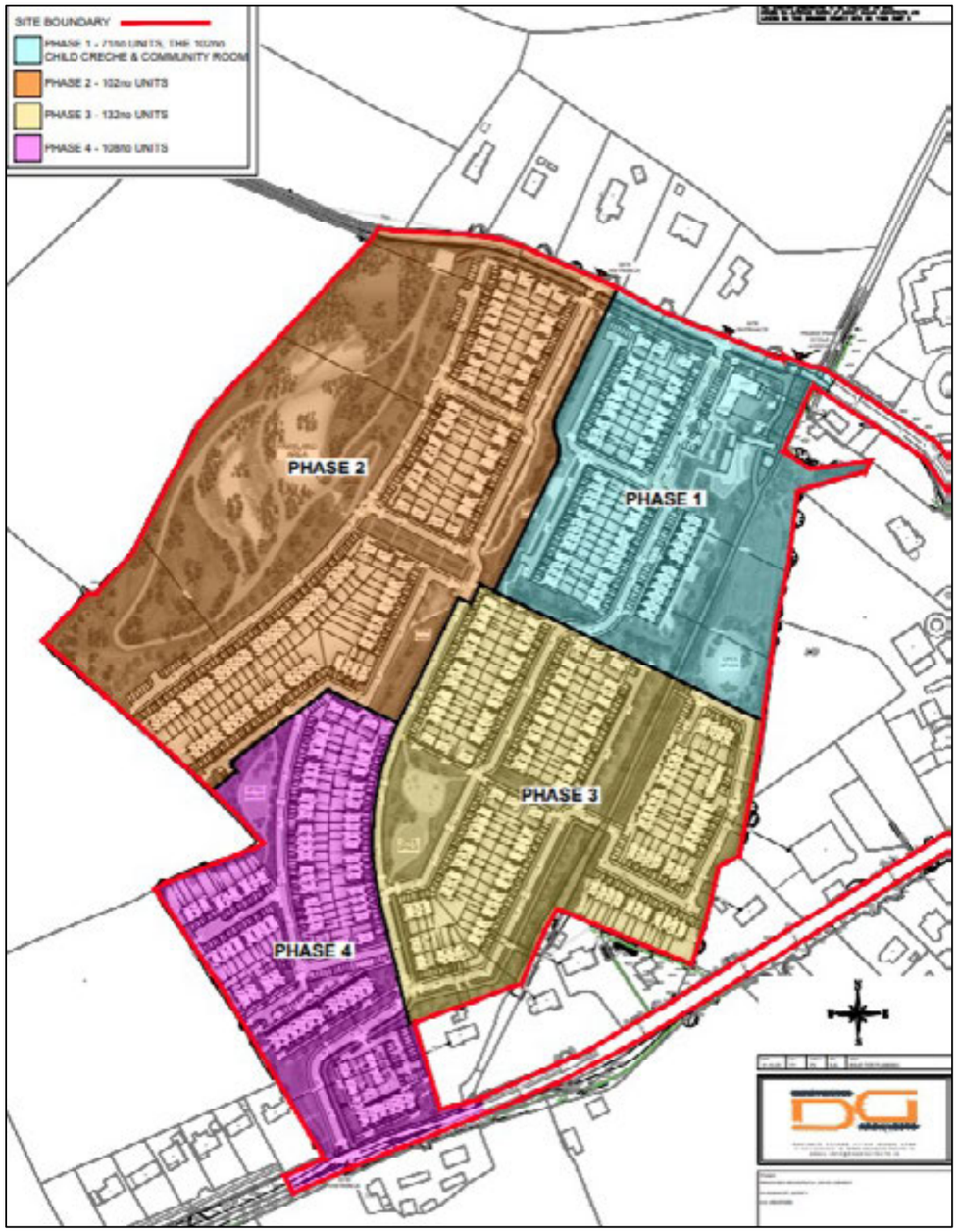

Figure 2 8 Phasing Strategy

2.5.2 Site Establishment and Site Compound

The site establishment works will be carried out by the appointed Contractor, will include erecting perimeter hoardings around the site, construction of the site compound and storage areas, forming site access and egress points, enacting the traffic management plan, and providing site security.

The extent of compound and storage space required by the Main Contractor will vary for the duration of the works.

For the enabling works and earthworks phases, the Main Contractor will likely require a large-scale compound for storage and segregation of hazardous and non-hazardous excavated material. For the main construction works, the Main Contractor will again require a large compound and material storage area.

Given the size and open nature of the site, it is envisaged that there is adequate space on the site for the site compound, and adequate space to store such materials on a temporary basis, with no provisions for off-site storage proposed currently.

The Main Contractor will be responsible for the security of the site for the duration of the works. All reasonable precautions will be taken to prevent unauthorised access to the site, the works and adjoining properties. Adequate safeguards will be put in place to protect the site, the works, products /materials, plant and any existing buildings affected by the construction works from damage, theft and trespass.

2.5.3 Construction Hours

It is proposed that construction works will be carried out between the hours of 08:00 to 19:00 from Monday to Friday and 08:00 to 14:00 on Saturdays. No construction works will be carried out on Sundays or Bank Holidays, without the specific agreement of Wexford County Council and workings hours will be confirmed Council.

The construction shift times will ensure construction traffic will have limited impact on the peak periods on Kilnahue Lane between 08:00 and 9:00 in the morning and between 15:00 and 16:00 in the evening as it is envisaged most construction staff will arrive to work before 08:00 in the morning and leave after 16:00 in the evening.

2.5.4 Construction Traffic Impacts

Mitigation during the construction phase focuses on controlling temporary traffic impacts, ensuring safe movement for vehicles and vulnerable road users, and preventing disruption to the adjacent school zone.

Key mitigation measures include:

- Preparation and implementation of an operational CTMP, outlining haul routes, delivery schedules, signage, access arrangements, and traffic control measures.
- Designation of construction access points to avoid conflict with school peak periods on Kilnahue Lane (particularly 08:00–09:00 and 15:00–16:00).
- Time-restricting HGV and delivery movements outside of school drop-off/pick-up times to minimise risk and local congestion.
- Use of banksmen/marshals at site entrances during busy periods to ensure safe interaction between construction vehicles, pedestrians, and cyclists.

- Temporary traffic management signage, including advance warning signs, speed controls and localised barriers as required.
- Clear separation between construction areas and public pedestrian/cycle routes, with fencing, hoarding and controlled crossing points as required.
- Wheel-wash and sediment control facilities at exits to prevent mud and debris on the public road.
- Monitoring of road condition on the R725 and Kilnahue Lane, with repair works undertaken by the Contractor if damage arises.
- Provision of safe temporary footpaths/cycleways where existing public routes are affected by works, ensuring continuous safe access to nearby schools.
- Construction worker mobility planning, including car-pooling, shuttle services or designated off-site parking to avoid overspill onto local roads

In general, the impact of the construction period will be temporary in nature.

HGV vehicle movements per hour during the busiest period of construction works are estimated at a peak of 20 earth-moving vehicles on site at once.

To manage the temporary increase in construction traffic on R725 and L10112, a Construction Traffic Management Plan (CTMP) including haul routes, delivery scheduling, temporary traffic controls, and restrictions on HGV movements during school peak hours will be implemented

2.6 Conclusion

This chapter sets out the development parameters for the proposed development including an overview of the Architectural, Landscape and Engineering strategy. An overview of the phasing for construction has also been provided, and further information can be found in the Construction and Environmental Management Plan prepared by AWN Consulting.

CHAPTER THREE

ALTERNATIVES



McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

CHAPTER 3

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CHAPTER 3 | ALTERNATIVES

3.1 Introduction

This chapter of the EIAR provides details on the evolution of the scheme design through the reasonable alternatives examined and provides an outline of the main alternatives considered and justification for the final proposed development.

3.1.1 Author Information and Competency

This chapter of the EIAR has been prepared by Saoirse Kavanagh, Executive Planning Consultant and Lucy O'Donnell, Graduate Planning Consultant of McCutcheon Halley Planning Consultancy.

Saoirse holds a Bachelor's degree in Arts (International), majoring in Geography, and a Master's in Planning and Sustainable Development. She has over 5 years' experience working with multi-disciplinary teams and has provided input into a variety of projects. In particular, she has co-ordinated the preparation of the following three Environmental Impact Assessment Reports (EIARs) including the completion of the Introduction, Alternatives, and Population and Human Health chapters.

- Dunboyne Phases 1 and 2 Large Scale Residential Development, Dunboyne, Co. Meath
- Rathgowan Large Scale Residential Development, Mullingar, Co. Westmeath
- Castlelands Large Scale Residential Development, Mallow, Co. Cork.

Lucy holds a Bachelor's degree in Arts, in Geography and Irish, and a Master's in Planning and Sustainable Development. While working with McCutcheon Halley Planning Consultants, she has contributed to various projects including the preparation of Environmental Impact Assessment Reports (EIARs) including the Introduction, Development Description, Mitigation Measures, and Population and Human Health chapters.

3.1.2 Reference to Guidelines Relevant to Discipline

This chapter will set out why the final layout was selected and provides details of alternative layouts considered throughout the design and consultation process. This serves to indicate the main reasons for choosing the layout as proposed.

The Annex IV(2) of the amended Directive 2014/52/EU, notes that the following is required in relation to the consideration of alternatives in the preparation of the EIAR:

"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"

Alternatives may be described at six levels: do-nothing alternative, alternative locations, alternative layouts, alternative design, alternative processes and alternative mitigation measures. Nevertheless, Section 3.4.1. of the 2022 EPA Guidelines stated that "in some instances some of the alternatives described below will not be applicable". The consideration of the main alternatives in respect of the development of the subject land was undertaken by the Design Team and the main alternatives considered are identified below.

3.1.3 Difficulties Encountered in Compiling Information

Several different scenarios and layouts were taken under consideration before arriving at the final layout which has been described in Chapter 2, Project Description. All these scenarios and layouts were developed in consultation with the Design Team. As it has been described in Chapter 2, the site has presented several challenges and issues to be resolved along the design process.

3.2 Do-Nothing Scenario

The 'Do-nothing' alternative is a general description of the evolution of the key environmental factors of the site and environs if the proposed project did not proceed.

The site comprises of a number of agricultural fields subdivided by a variety of hedgerows, with a sloping topography.

The site is located within the settlement boundary of Gorey and is identified for residential development in the Wexford County Development Plan 2022-2028 and Gorey LAP 2017-2023 (extended to 2026).

Under a 'do-nothing' scenario, the site would remain a greenfield area and fail to deliver on its residential zoning objective. Likewise, the proposed primary parkland would remain inaccessible and underutilised, failing to meet its Open Space zoning objective or its potential as a recreational amenity for providing to the wider community of Gorey. As a result, there would be a negative impact on the local population, as this approach would not help address the housing shortage in Gorey. The proposed development optimises the use of zoned land and is therefore of significant strategic importance.

There would be no increase in traffic under the 'do nothing' scenario, however, the site would fail to achieve the National Planning Framework, National Strategic Outcomes for compact growth and sustainable mobility, both of which have a positive climate and human health benefits.

A 'do-nothing' scenario is an inappropriate and unsustainable approach that would result in the inefficient use of a strategically located and easily serviced area of zoned residential lands. A 'do nothing' approach is likely to result in a neutral impact on the environment in relation to material assets, water, land, air, climate, cultural heritage, biodiversity and landscape.

Each Chapter of this EIAR includes a description of the 'Do Nothing' alternative and should be referenced in conjunction with this Chapter.

3.3 Alternative Locations

The leading vision of the Applicant and the Design Team since the inception of the project has been to develop a high-quality residential scheme on zoned land. The site is located to the west of Gorey Town Centre, with pedestrian and vehicular connections to Gorey town centre to the east. There are a variety of connections to nearby towns and both Dublin and Wexford. Within the context of the site, a range of amenities are located within walking distance including various schools, recreational uses and shops.

The Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities, issued by the Department of Housing, Local Government and Heritage (DHLGH) in 2024, encourages increased densities in towns to achieve the national objectives of compact growth and to ensure a sustainable pattern of development.

Gorey is identified as a Key Town and the Compact Settlement Guidelines note that densities of between 30uph to 100uph are suitable in Key Towns. This density range is divided into 30uph to 50uph for suburban/urban extensions and 40uph to 100uph for centres and urban neighbourhoods.

The site offers significant opportunity to deliver a large residential development on underutilised greenfield site in close proximity to existing services and in close proximity to Gorey town centre and the site has capacity to absorb development without significantly effecting the existing landscape and visual characteristics of the surrounding area. In terms of alternative locations therefore, the location of the proposed within the development boundary of Gorey is entirely appropriate for residential development and the site is capable of delivering housing as a scale which is supported at a national level. Overall, this location would result in an increased number of new homes being delivered on the proposed development site with a positive effect for population.

Accordingly, having regard to the significant positive benefit that could be achieved and the fact that the amenities of existing dwelling surrounding the site will be safeguarded, this location was deemed appropriate.

3.4 Alternative Layouts

The layout has been informed by the site context and constraints, including the steep topography, the existing vegetation, the historic ruined buildings and historic laneway, the adjacent dwellings and school buildings, the site's zoning in the Gorey LAP, and the indicative layout provided in the Creagh Neighbourhood Framework Plan. In addition, pre-planning discussions with Wexford County Council have been taken into account in design of the proposed layout.

The layout has also been informed by the previous applications submitted on site, including the Strategic Housing Development (SHD) application (ABP 313226) which was submitted in April 2022, and subsequently withdrawn, and the application submitted in 2016 (20160623; ABP PL26.248159).

The final layout, presented in the Architectural Drawings and the Design Statement which should be read in conjunction with this chapter of the EIAR, has evolved since the initial design stage. The intermediate design progressions are described in the following subsections.

3.4.1 Alternative Layout A – 2016 Application

The 2016 application included a layout with 219 no. residential units, which was granted by Wexford County Council, but this decision was overturned by An Bord Pleanála, following a third party appeal.

The proposed houses in this layout were located on the full site area, including the lands zoned open space, which resulted in a low density and contravened the land use zoning and the Creagh Neighbourhood Framework Plan. In addition, the An Bord Pleanála considered that the proposal was premature pending the completion of road and junction improvement works.



Figure 3.1 Alternative Layout A

3.4.2 Alternative Layout B – 2022 SHD Application

The previously submitted SHD (ABP 313226) included a layout with 421 no. residential units, with a mix of houses and apartments set out broadly in line with the Creagh Neighbourhood Framework Plan. This layout provided an appropriate density for the site but resulted in the loss of a significant quantum of the existing trees and vegetation on site. The layout also resulted in the loss of the historic laneway through the site which was identified in submissions on the SHD as a locally important route historically.

The application was withdrawn on the 15th January 2025 before a decision was made. Wexford County Council were supportive of the application and had recommended a grant of permission in their Chief Executive Report.



Figure 3.2 Alternative Layout B

3.4.3 Alternative Layout C – LRD Pre-Planning Layout

As part of the LRD process, two pre-planning meetings were held with Wexford County Council – a LRD Section 247 meeting and a Section 32B meeting.

The layout presented at the S247 meeting included 409 no. residential units (42 no. 4 bed, 204 no. 3 bed, 143 no. 2 bed and 20 no. 1 bed) and a creche with 120 no. childcare. This layout provided a density of 35.6uph. The council welcomed the layout and requested additional visitor car parking spaces and noted that there was scope to include some additional housing units.

Following the S.247 meeting, the layout was revised slightly to provide some additional units and to further develop the layout with additional visitor car parking. The layout presented at the S.32B meeting provided 413 no. residential units, with a slightly increased density of 35.9uph. This layout also included a 120 no. child creche and a range of open spaces.

Both layouts included a looped pathway through the open space zoned land to avoid any interaction with the adjacent agricultural lands. In addition, both layouts incorporated the historic laneway into the layout as an amenity walkway for residents and incorporated the ruined historic buildings into the landscape plan.



Figure 3.3 Alternative Layout C – S.247 Layout



Figure 3.4 Alternative Layout C – S.32B Layout

3.4.4 Alternative Layout D – Final LRD Scheme

The final layout evolved following the pre-planning meetings with Wexford County Council and now includes a community room within the creche building and a right-hand turning lane from Carnew Road into the site. In addition, the internal street hierarchy has been amended.

Throughout the design evolution of the subject site, the disadvantages of each early and alternative option were examined, with solutions considered in detail and the promising elements threaded through to the final and preferred strategy.

The multidisciplinary design and EIAR team placed respecting the existing environment and achieving environmental enhancements at the centre of the design development process. The final scheme is consistent with both local and national planning policy and will create a new community with a strong identity, within a built-up urban environment. This chapter demonstrates that the proposed preferred alternative performs better than other alternatives considered during the design process.



Figure 3.5 Alternative Layout D – Final Submitted LRD Layout

3.5 Alternative Design

The proposed residential development has been prepared in accordance with the requirements of the "Wexford County Development Plan 2023-2029", the Gorey Local Area Plan 2017-2023 (extended to 2026), the "Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities (2024)" and the "Design Manual for Urban Roads and Streets".

The design has therefore been informed by the need to achieve an appropriate density, by the need to provide a good mix of housing typologies which meet current market demand, and by the need to deliver a good quality residential development within the existing urban environment. It is also considered that the proposed development will have a positive impact on human health due to the quality open spaces and sustainable modes of transport available to future residents.

The design of the layout has also been informed by the characteristics and the constraints of the site that consists of a sloping topography with some native hedgerows that subdivide the greenfields. The project is focused in

following and working with the contours and in retaining the native trees and hedgerows where possible that give a distinctive character to the development.

Permeability is also very important and is achieved by providing connections throughout the proposed development, to the educational campus to the east, and Gorey Town Centre with pedestrian connections to these locations included as part of this proposed development.

The overall development provides a mix of style, size and type of housing, arranged to provide a selection of units in varying configurations. The various housing types add to the choice available in the area ensuring the provision of homes that will meet the needs of the future residents of Gorey. For all these reasons the Design Team consider that the proposed design and layout is the optimal scheme for the subject site.

3.6 Alternative Processes

This is not considered relevant to the EIAR having regard to the nature of the proposed residential development. The proposed construction work comprises relatively of standard building construction processes, as such there are no specific alternative construction processed identified in this EIAR. It is also considered there is no new or technical challenging operational techniques required, and no alternative operational process have been considered as part of this development.

3.7 Cumulative Impact

Each design iteration considered any potential impacts on neighbouring developments (existing, under construction and future), transforming the edges of the scheme to provide an appropriate transition to its direct context and reducing the potential of cumulative impacts.

3.8 Mitigation Measures

The mitigation measures outlined throughout the various EIAR chapters are considered appropriate for the proposed development therefore no alternative mitigation measures were considered in the preparation of this chapter.

3.9 Conclusion

The alternatives considered demonstrate that multiple approaches were evaluated to address both the challenges and objectives associated with the site. Following an assessment of the several alternatives, and the feedback received from Wexford County Council and An Bord Pleanála, in relation to both previous planning applications on the site and the proposal submitted for the LRD pre-planning meetings, the final LRD option was determined to provide the most balanced solution, maximizing long-term value, providing a high quality design and supporting sustainable development. This chapter ensures that the selected approach is justifiable and forms a robust scheme.

CHAPTER FOUR

POPULATION & HUMAN HEALTH



McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

CHAPTER 4

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CHAPTER 4 |POPULATION & HUMAN HEALTH

4.1 Introduction

This chapter of the EIAR assesses the potential impact of the proposed development on population and human health. Proposed mitigation measures are outlined where considered necessary. It is noted that other chapters of the EIAR also deal with likely significant environmental effects on population and human health arising from traffic and transportation, air quality and climate, noise and vibration, landscape and visual, material assets: utilities and the risk of major accidents and/or disasters and those chapters should be referenced in conjunction with this chapter of the EIAR.

4.2 Expertise and Qualifications

This chapter of the EIAR has been prepared by Saoirse Kavanagh, Executive Planning Consultant and Lucy O'Donnell, Graduate Planning Consultant of McCutcheon Halley Planning Consultancy.

Saoirse holds a Bachelor's degree in Arts (International), majoring in Geography, and a Master's in Planning and Sustainable Development. She has over 5 years' experience working with multi-disciplinary teams and has provided input into a variety of projects. In particular, she has co-ordinated the preparation of the following three Environmental Impact Assessment Reports (EIARs) including the completion of the Introduction, Alternatives, and Population and Human Health chapters.

- Dunboyne Phases 1 and 2 Large Scale Residential Development, Dunboyne, Co. Meath
- Rathgowan Large Scale Residential Development, Mullingar, Co. Westmeath
- Castlelands Large Scale Residential Development, Mallow, Co. Cork.

Lucy holds a Bachelor's degree in Arts, in Geography and Irish, and a Master's in Planning and Sustainable Development. While working with McCutcheon Halley Planning Consultants, she has contributed to various projects including the preparation of Environmental Impact Assessment Reports (EIARs) including the Introduction, Development Description, Mitigation Measures, and Population and Human Health chapters.

4.3 Methodology

4.3.1 Relevant Legislation & Guidance

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

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)
- Guidelines on the Information to be Contained in Environmental Impact Statements (EPA, 2002)
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- Advise Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA, 2003)
- Planning and Development Regulations 2001 (as amended)
- Planning and Development Act 2000 (as amended)

The impact assessment section of this chapter follows the terminology (where applicable) used in the EPA Guidelines as set out in Chapter 1 of this EIAR.

4.3.2 Defining Population and Human Health

This chapter has been prepared pursuant to Schedule 6 of the Planning and Development Regulations 2001 (as amended). Section 2 of Schedule 6 sets out the additional information relevant to the specific characteristics of the project required, which includes a description of the likely significant effects on the environment of the proposed development resulting from, among other things:

> (IV) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters).

Recital 22 to the EIA Directive provides that:

> "in order to ensure a high level of protection of the environment and human health, screening procedures and environmental impact assessments should take account of the impact of the whole project in question, including, where relevant, its subsurface and underground, during the construction, operational and, where relevant, demolition phases."

According to the European Commission's Environmental Impact Assessment of Projects: Guidance on the Preparation of the Environmental Impact Assessment Report (2017), human health is

> "a very broad factor that would be highly project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation, and decommissioning of a Project in relation to workers on the Project and surrounding population."

The Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022) advise that

> "in an EIAR, the assessment of impacts on population and human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in this EIAR e.g. under the environmental factors of air, water, soil etc."

The EPA Advice Notes (EPA 2003) recommend considering the following issues when assessing the potential impacts and effects of a proposed development on Population and Human Health:

- Economic Activity Likely to Lead to Projects – will the development stimulate additional development and/or reduce economic activity, and if either, what type, how much and where?
- Social Consideration – will the development change the intensity of patterns and types of activities and land use?
- Land Use – will there be severance, loss of rights of way or amenities, conflicts, or other changes likely to ultimately alter the character and use of the surroundings?
- Tourism – will the development affect the tourism profile of the area?
- Health – have the vectors through which human health impacts could be caused been assessed, including adequate consideration of inter relationships between those assessments.

For the purposes of this assessment impacts on tourism have been scoped out, as the proposed project comprises a residential development in a built-up area, and the site does not have any intrinsic tourism value and is not in proximity to any important tourism or amenity resources.

4.3.3 Site Surveys/Investigation

The appraisal of the likely significant effects of the proposed development on population and human health was conducted by reviewing the current socio-economic environment in the EIAR study area. This comprised visual assessments of the proposed site and the surrounding area, as well as an analysis of aerial photography and Ordnance Survey (OS) mapping. Information was gathered with respect to the demographic and employment characteristics of the resident population within the relevant catchment area, sourced from the 2016 and 2022 Census date.

The data included information on population, age profile, household size, number of persons at work, and the unemployment profile. A desktop study of the following documents and websites was also undertaken:

- Wexford County Council Development Plan 2022 – 2028
- Central Statistics Office (CSO) website www.cso.ie;
- Department of Education and Sciences (DES) website www.education.ie

4.3.4 Consultation

Consultations with both the local authority and statutory bodies were also used to ensure that environmental issues, including socio-economic, recreational and amenity issues relating to the proposed development were addressed. Further information on the consultation process and responses received is provided in Appendix 1.1

4.3.5 Difficulties Encountered in Compiling Information

No significant difficulties were encountered in accessing information during the preparation of this chapter.

4.3.6 Study Area

The study area for the demographic assessment includes 3 Electoral Divisions (EDs). The subject site is located within the Gorey Rural Electoral Division (ED) which comprises the land surrounding Gorey Town Centre. Gorey Town Centre itself is in its own ED, 'Gorey Urban' which was included in the study area, as well as Hungtingtown Electoral Division which is significantly close to the western boundary of the site. The location of the site in relation to these 3 EDs is shown in Figure 1 below.

The 2022 and 2016 Census data for these 3 EDs, which comprise the study area, is assessed to provide an overview of the local demographics.

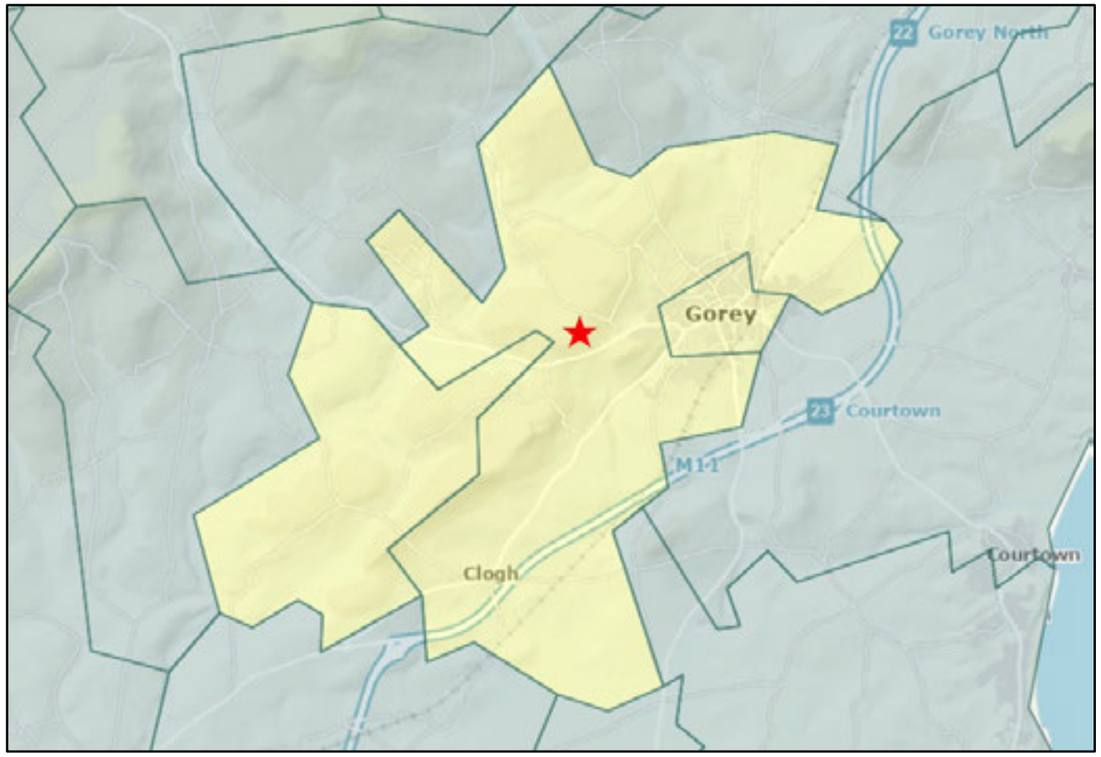

Figure 4 1 The Research Area (CS0 2022 Study Area indicated with a Red Star)

4.4 Baseline Environment

4.4.1 Demographic Profile of Local Population

The identified study area had a population of 12,516 no. persons in the 2022 census. This represented an increase of 1,754 no. persons, or 16.3%, on the 2016 census population of 10,762 no. persons.

The population pyramid in Figure 4.2 demonstrates that the proportion of the population within each age group, divided by male and female.

The primary school aged population (aged 5-12) represented 12.8% of the 2022 population, which is a slight decrease from the 13.8% in the 2016 census. The post primary school aged populated (aged 13-18) represented 10.3% of the 2022 population, which is a slight increase from the 6.8% aged 13-18 in the 2016 census. Similar to the primary school level, those aged 0-4 decreased from 8.6% in the 2016 census to 6.4% in the 2022 census.

The 2022 Population Pyramid represents the 2022 population by age and sex within the study area. It highlights a relatively small 20–29 age cohort (11%) compared to the age cohort above and below. This may reflect outward migration to cities for education and employment. The smallest age cohorts being those aged 70–79 (6.2%) and 80+(2.6%). In contrast, the largest cohort is aged 40–49 (16%).

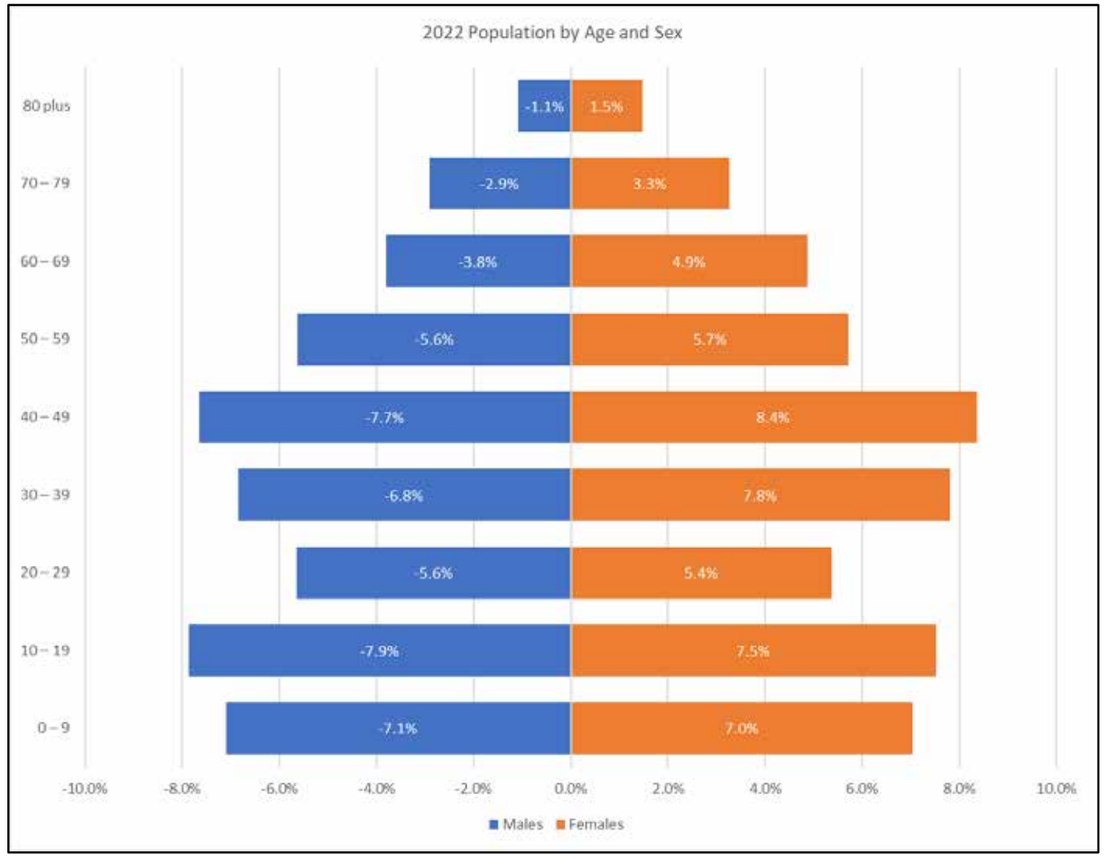

Figure 4 2 Study Area 2022 Population Pyramid

The following figure presents a comparison of the 2022 census with the 2016 census for the study area. It demonstrates a significant decline in both the 30-34 age cohort and the 0-4 age cohort.

Overall, the data reveal a pronounced aging trend within the study area. However, this may be due to the low population baseline within these age groups.

The most substantial growth occurred in the older age cohorts, particularly those aged 70–74 (+44.3%) and 75-79 (+44.1%), reflecting an aging population and increased longevity. Significant growth is also evident in the 45-54 age groups (ranging from +34.5% to +38.7%), which now represent a larger share of the working-age population and will continue to contribute to the aging of the population in the coming years.

Moderate growth was observed among younger adults, with the 15-24 age groups increasing between +32.6% and +38.6%. This may represent a cohort effect, with children from earlier census periods aging into these brackets.

In contrast, the 0-4 (-14.4%) and 5-9 (-0.3%) age groups declined, suggesting lower recent birth rates or out-migration of families with young children. The most notable decline was in the 30-34 age group (-14.6%), which may indicate outward migration of individuals in their early 30s, potentially in search of employment, housing opportunities, or urban amenities.

Taken together, these trends suggest a progressively aging population, with future population growth expected to be concentrated in the 55+ cohorts as today's largest groups move into older age brackets. At the same time, declines in younger age cohorts may have implications for future workforce availability and service demand for children and young families.

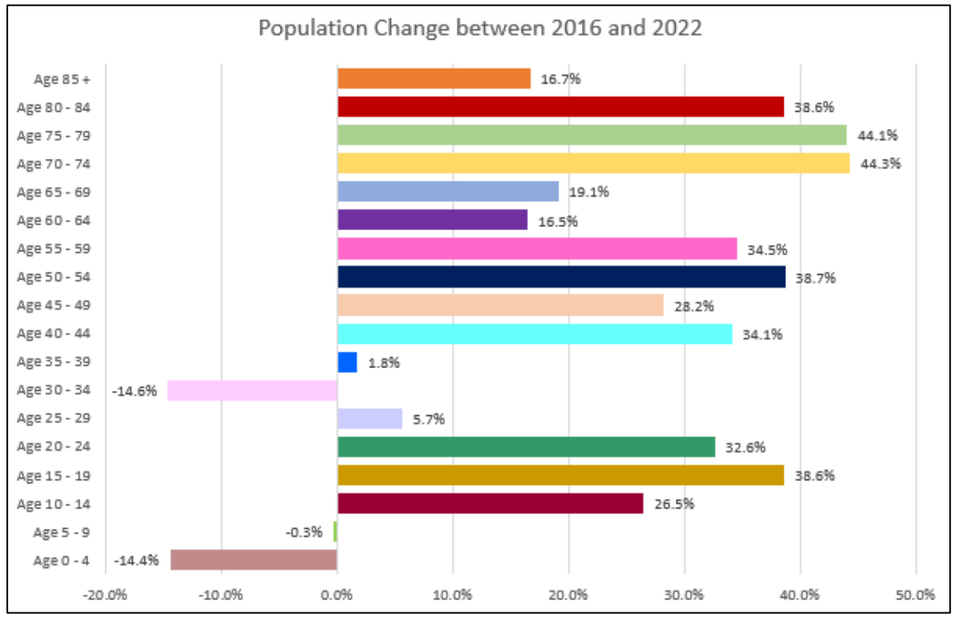

Figure 4 3 Study Area Population Change 2016 to 2022

4.4.2 Household Size

The study area is home to a total of 12,321 individuals residing in 4,502 households, resulting in an average household size of 2.74 persons. Although the population has grown since 2016, the average household size remains largely unchanged from the 2016 figure of 2.73 persons. Approximately 44% of households consist of three to four people, while just over 29% of households comprise one to two persons. Households with five to six members account for slightly more than 22%, and only 3.3% of households include seven or more people.

Table 4 1 Private Households by Size – CSO 2022

	Households		Persons	
	Number	%	Number	%
1 person households	1,105	24.5%	1,105	9.0%
2 person households	1,238	27.5%	2,476	20.1%
3 person households	812	18.0%	2,436	19.8%
4 person households	747	16.6%	2,988	24.3%
5 person households	399	8.9%	1,995	16.2%
6 person households	128	2.8%	768	6.2%
7 person households	46	1.0%	322	2.6%
8 or more persons households	27	0.6%	231	1.9%
Total households	**4,502**	**100.0%**	**12,321**	**100.0%**

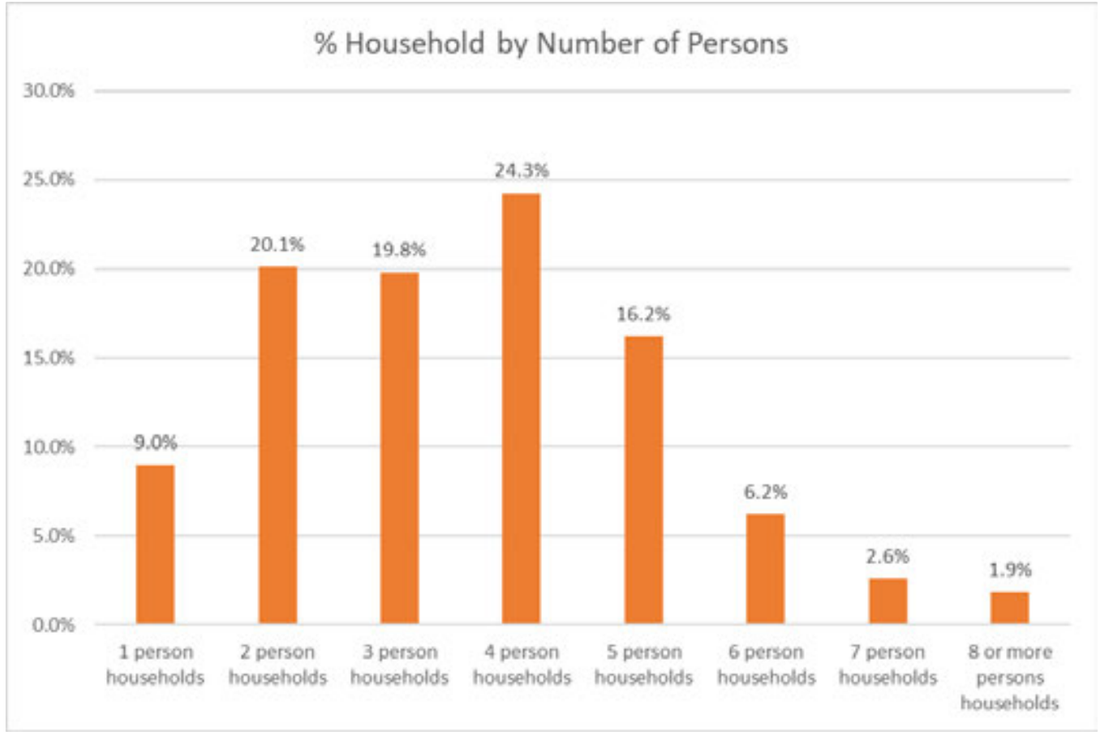

Figure 4 4 Private Households by % Number of Persons

Table 4 2 Permanent Private Households by number of Bedrooms – CSO 2022

	Households		Persons	
	Number	%	Number	%
1 person households	10	0.2%	16	0.1%
2 person households	129	2.9%	173	1.4%
3 person households	330	7.3%	633	5.1%
4 person households	639	14.2%	1,354	11.0%
5 person households	1,389	30.9%	3,942	32.0%
6 person households	960	21.3%	2,884	23.4%
7 person households	495	11.0%	1,512	12.3%
8 or more persons households	461	10.2%	1,564	12.7%
Not stated	86	1.9%	238	1.9%
Total households	**4,499**	**100.0%**	**12,316**	**100.0%**

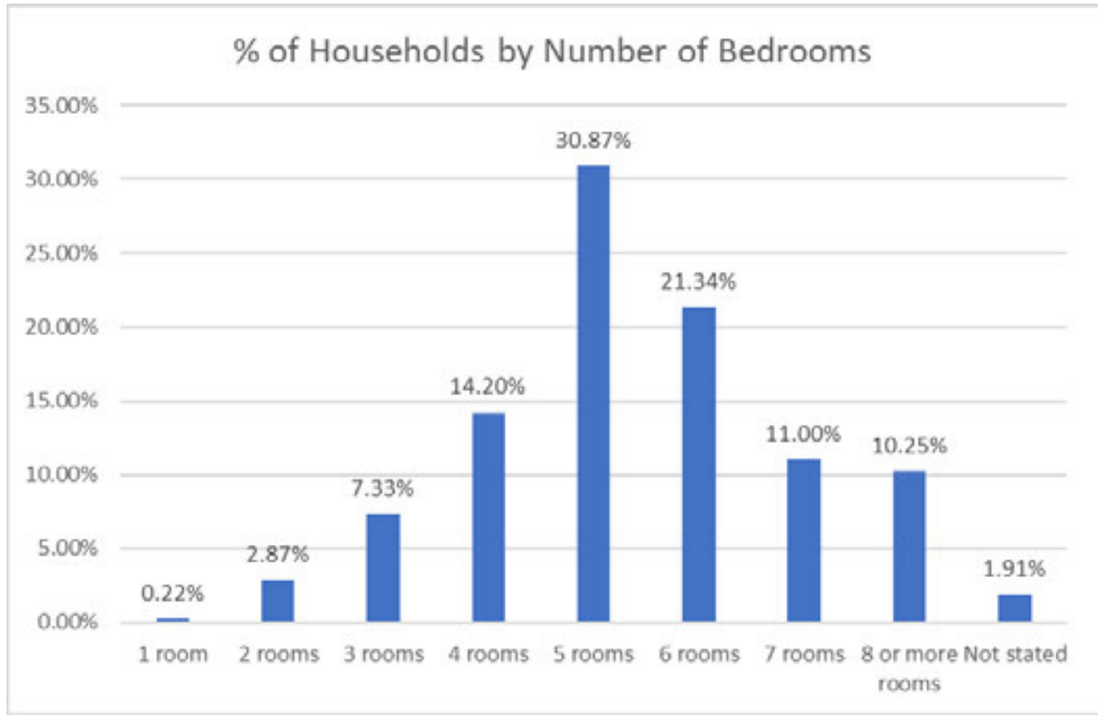

Figure 4 5 Private Households by Number of Bedrooms (%)

4.4.3 Household Occupancy

The majority of households (60.7%) own their homes, either with a mortgage or outright. 20.4% of households rent their homes from a private landlord with a further 10.8% renting their homes from the local authority.

91.1% of homes within the area are occupied with almost 5.4% vacant on the night of the 2022 census.

Table 4 3 Permanent Private Households by Type of Occupancy

	Households		Persons	
	Number	%	Number	%
Owned with mortgage or loan	1,342	29.8%	4,340	35.2%
Owned outright	1,391	30.9%	3,045	24.7%
Rented from private landlord	916	20.4%	2,637	21.4%
Rented from Local Authority	484	10.8%	1,396	11.3%
Rented from voluntary/co-operative housing body	173	3.8%	435	3.5%
Occupied free of rent	77	1.7%	161	1.3%
Not stated	116	2.6%	302	2.5%
Total	**4,499**	**100.0%**	**12,316**	**100.0%**

Table 4 4 Occupancy Status of Permanent Dwellings on Census Night

	Households	Households %
Occupied	4,520	91.1%
Temporarily absent	124	2.5%
Unoccupied holiday homes	48	1.0%
Other vacant dwellings	267	5.4%
Total	**4,959**	**100.0%**

4.4.4 Employment

According to the 2022 census, 53.7% of the local population aged over 15 years were at work, which is just below the national rate of 56.1%. 14.7%% are retired which is slightly below the national rate of 15.9%.

The majority of population aged over 15 (26.8%) are engaged in managerial and technical work and 18.3% are engaged in non-manual work. While just 3.9% of the population are in unskilled employment.

29.93% of the population at work stated that they work from home in the 2022 census.

Table 4 5 Population Aged 15 years and over by principal economic status and sex

	Male		Female		Total	
	Number	%	Number	%	Number	%
At work	2,749	28.3%	2,461	25.3%	5,210	53.7%
Looking for first regular job	65	0.7%	49	0.5%	114	1.2%
Unemployed having lost or given up previous job	112	1.2%	100	1.0%	212	2.2%
Student	202	2.1%	140	1.4%	342	3.5%
Looking after home/family	477	4.9%	513	5.3%	990	10.2%
Retired	85	0.9%	721	7.4%	806	8.3%
Unable to work due to permanent sickness or disability	678	7.0%	751	7.7%	1,429	14.7%
Other	263	2.7%	283	2.9%	546	5.6%
Total	**19**	**0.2%**	**42**	**0.4%**	**61**	**0.6%**

Table 4 6 Population aged 15 years and over by working from home

	Number	%
Persons who work from home	1,236	23.93%
Persons who never work from home	3,516	68.06%
Work From Home status - Not stated	414	8.01%
All working persons	5,166	100.00%

4.4.5 Land Use Zoning and Amenity

The site is located within the Gorey LAP and the majority of the site is zoned "Residential (R)" where it is an objective to *"protect and enhance the residential amenity of existing and developed communities and to provide for new residential development, associated residential services and community facilities."*

A section of the site along the northwestern boundary is zoned as Open Space and Amenity.

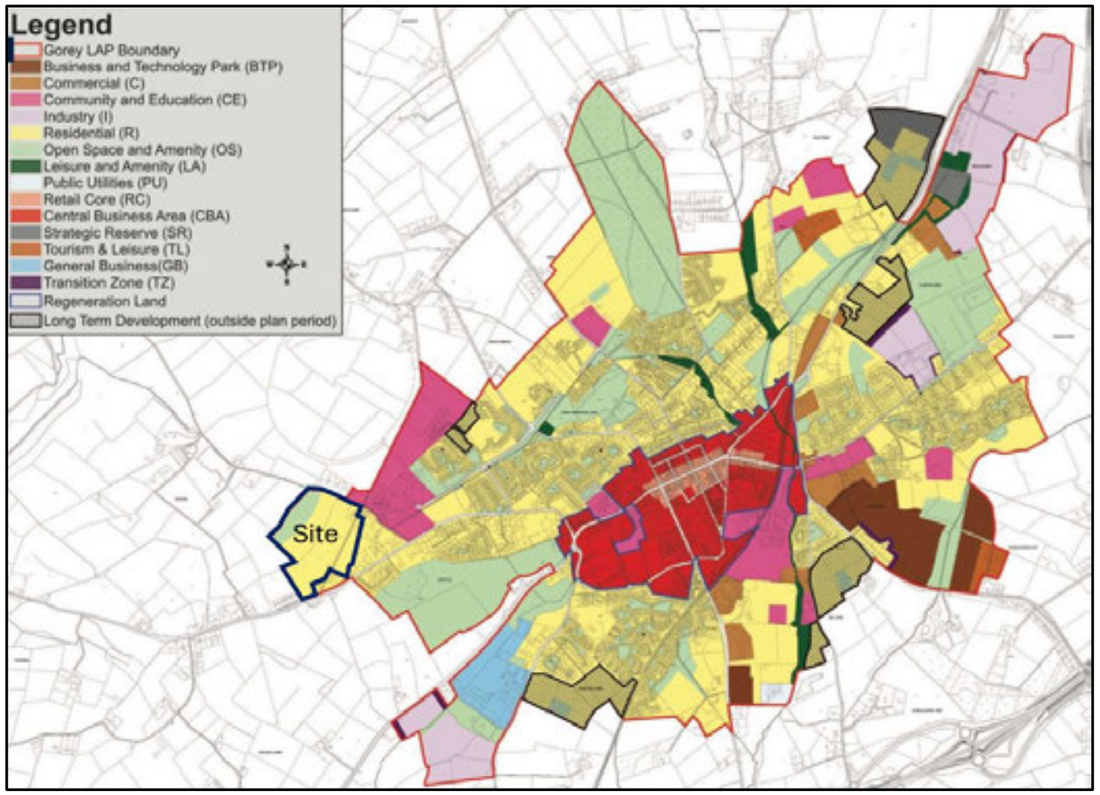

Figure 4 6 Site Zoning from the Gorey Local Area Plan (outlined in Black).

The LAP is divided into five-character areas and a Neighbourhood Framework Plan (NFP) is included for each. The NFP sets out detailed urban design objectives and key components for each area.

The site is located within the Creagh NFP area which includes developed and undeveloped lands immediately north/ north-west of the town centre. The area extends from Kilnahue townland to Ramsfort Forest to the east. There are existing residential developments within this 'neighbourhood' including Creagh Woods, Newborough, Hunters Green, Cois Doire and Sean Doire. The landscape in the undeveloped areas remains rural in character.

4.4.6 Transport and Accessibility

The majority of the population (40.99%) aged over 5 have a commute time of less than 15 minutes to work, school, or childcare.

The most common mode of transport is the car with 35.3% of all commuters travelling as the driver of a car and another 23.3% travelling as a car passenger. 20.4% of all commuters travel by foot, with 12.2% of all school/college commuters travelling by foot.

4.4.7 Social Infrastructure

4.4.7.1 Education

There are 6 no. primary schools, 3 no. post primary schools, and 2 no. further education centres in Gorey. Gorey Educate Together National School, Gaelscoil Moshíológ and Creagh College are all located within the educational campus adjacent the site. The locations of these schools are shown in the map below and details of the schools are provided in the table below.



Figure 4 7 Location of educational facilities in relation to the site

Table 4 7 List of educational facilities within proximity to the site

No.	Educational Establishment	Location	Student Enrolment 2024/2025
Primary School			
1	Gorey Educate Together National School	330.5m	373
2	Gaelscoil Moshíológ	365m	153
3	Scoil Naomh Ioseph	767m	514
4	Gorey Central School	1.54km	244
5	Bunscoil Loreto Gorey	2.08km	641
6	Gorey Educate Together National School	330.5m	373
Post-Primary			
14	Creagh College	479m	1,067
15	Gorey Educate Together Secondary School	1.62km	260
16	Gorey Community School	2.20km	1,536
Further Education			
18	Gorey Institute of Further Education	1.61km	N/A
19	Gorey Adult Education	2.20km	N/A

4.4.7.2 Childcare Facilities

There are a total of 7 no. existing childcare facilities within 2km of the site. These facilities are mainly based around the town centre of Gorey. The closest creche is located in the educational campus adjacent the site 364m from the proposed development. These facilities are mapped and listed in the figure and table below.

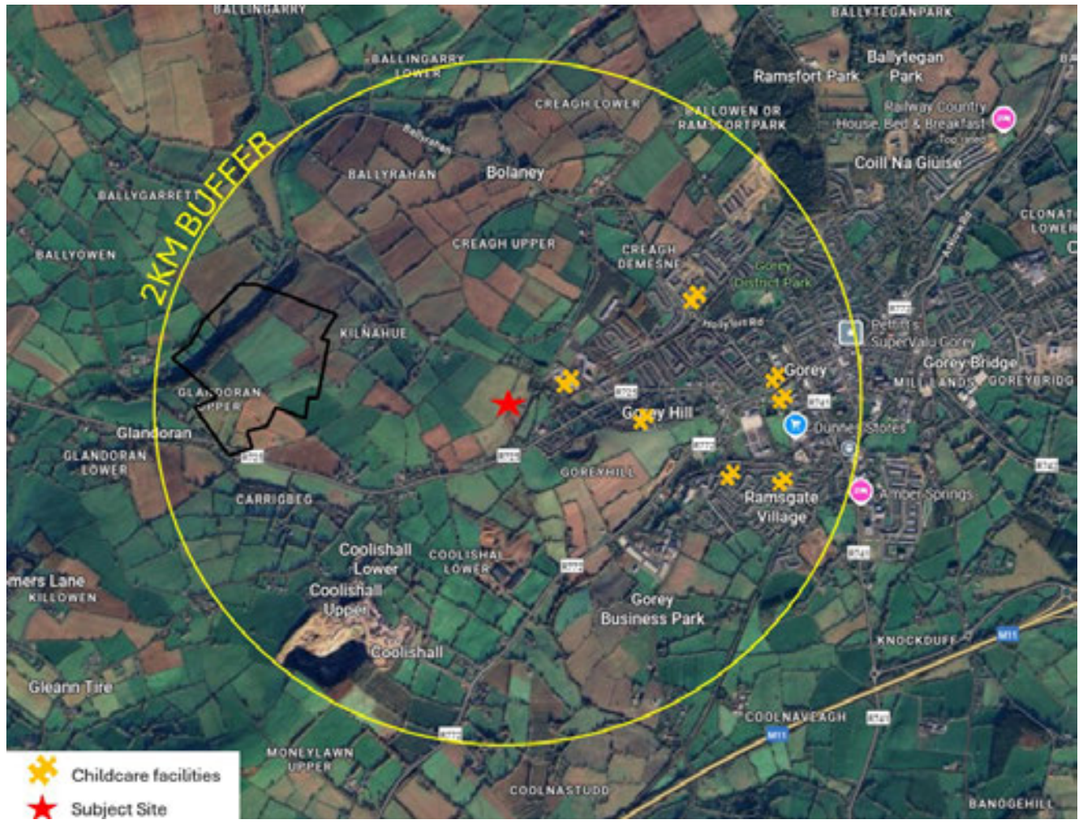

Figure 4 8 Location of Childcare Facilities in relation to site (red star)

Table 4 8 List of Childcare Facilities within 2km of the site

	Facility Name	Distance to Site
1.	Naíonra na Síolta Óga	364m
2.	Little Lambs Montessori & Creche	765.5m
3.	Little Crickets Creche & Childcare - Gorey, Co. Wexford	1.20 Km
4.	Little Oaks Academy	1.31 Km
5.	Giant Steps Montessori	1.53 Km
6.	Little Oaks Academy Afterchool	1.55 Km
7.	Higgys House Creche & Montessori	1.62 Km

4.4.7.3 Health Services

There are a wide range of medical and health services available in Gorey town including the following:

- 1 no. hospitals
- 3 no. dental practices
- 7 no. pharmacies
- 8 no. health care facilities

The table below provides the details of 19 no. health and medical facilities in the town and their distance from the subject site. This distance between each facility and the subject site has been measured from the centre of the site, in a straight-line distance. The travel distance and time for walking, cycling, and driving would vary depending on the route taken. However, it is worth noting that all of the services listed below are within a 10 min cycle of the site and the majority are within a 30min walk of the site.

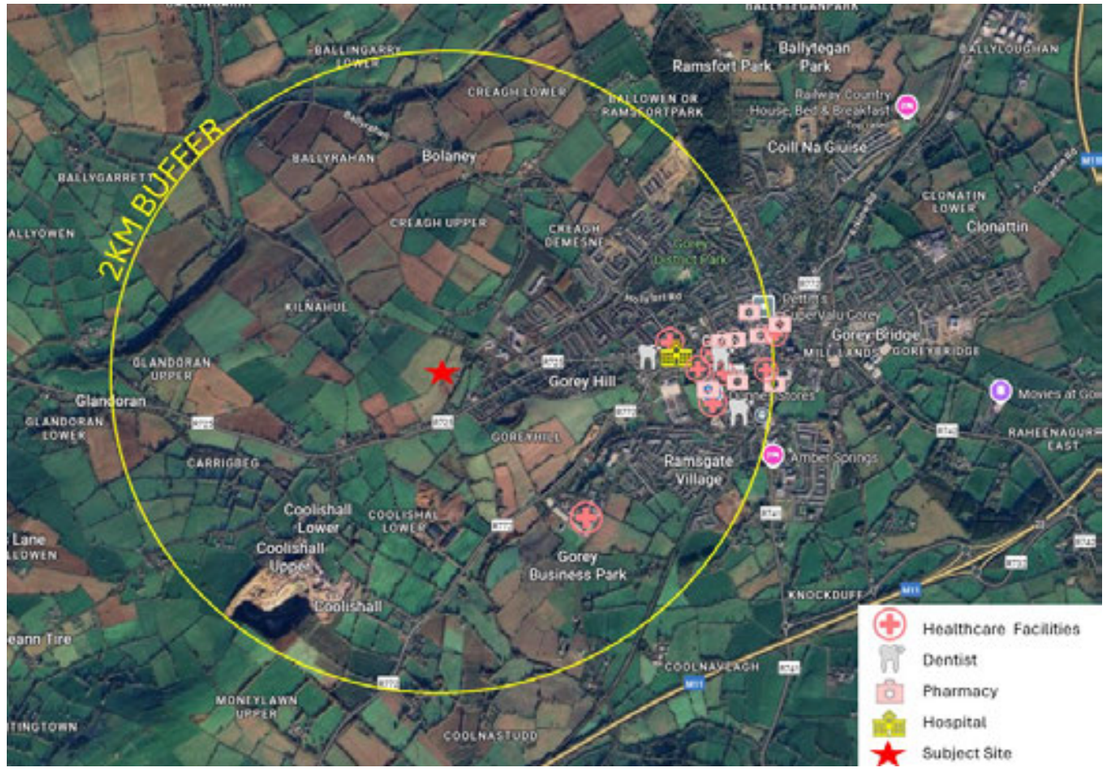

Figure 4 9 Location of Medical Facilities in relation to the site

Table 4 9 Medical Facilities in Study Area

No.	Medical Facility	Distance
Hospitals:		
1	Gorey District Hospital	1.40 Km
Dentists:		
2	Gorey Dental Practice	1.27 Km
3	Gorey Denture Clinic	1.70 Km
4	OC Dental Surgery	1.81 Km
Healthcare Facilities:		
5	Get Healthcare Gorey Clinic	1.24 Km
6	Caredoc Gorey	1.40 Km
7	Gorey Family Practice	1.64 Km
8	Wexford Hearing Centre	1.68 Km
9	The Avenue Primary Care Centre	1.70 Km
10	The Palms GP surgery	1.71 Km
11	Conal House Primary Care Centre	2.00 Km
12	Gorey Medical Centre	2.00 Km
Pharmacies:		
13	Hickey's Pharmacy	1.63 Km
14	Grants Pharmacy	1.72 Km
15	McCabe's Pharmacy	1.74 Km
16	McCauley Pharmacy	1.80 Km
17	Boots Pharmacy	1.90 Km
18	Roches Allcare Pharmacy	1.95 Km
19	Whelan's Pharmacy	2.00 Km

4.4.7.4 Sports and Recreational Facilities

There is a wide sports and recreational facilities in the area, which are identified in the table below. The distances in the table are measured from the centre of the subject site to the centre of identified facilities. There is a total of 22 no. of sports and recreational facilities surrounding the site. This includes 9 no. of sports facilities within 2km of the site and 7 no. of sports facilities outside of the 2km buffer zone from the site, 3 no. of recreational facilities within 2km of the site and 3 no. of recreational facilities outside 2km from the site. These facilities are mapped and listed below.



Figure 4 10 Location of Sports and Recreational facilities in relation to the site

Table 4 10 Sports and Recreational Facilities in Study Area

No.	Facility	Distance from Site
Sports facilities:		
1	Gorey Yoga	1.17 Km
2	Time 4 Fitness Gorey PT	1.21 Km
3	Nebula Gym	1.22 Km
4	Fitness 1st Gorey Gym	1.30 Km
5	MyFitt Gym	1.31 Km
6	Gorey Rangers FC	1.36 Km
7	Gorey Athletics Club	1.58 Km
8	PWR Pilates	1.68 Km
9	Ályth's Chair Yoga (Yoga for Every Body)	1.68 Km
10	The Stables Fitness	2.05 Km
11	Gorey Boxing Club	2.20 Km
12	Gorey Tennis Club	2.21 Km
13	CrossFit Gorey	2.56 Km
14	Richie Ivory Jiu Jitsu Academy	2.58 Km
15	Naomh Eanna Gaa Grounds	3.20 Km
16	Gorey Rugby Club	3.37 Km
Recreational Facilities:		
1	Public Playground	1.52 Km
2	Public skatepark	1.61 Km
3	Gorey Park	1.62 Km
4	Creagh Woods	2.03 Km
5	Ramsfort Woods	2.04 Km
6	Ashdown Leisure Club	2.47 Km

4.5 Impact Assessment

For the purpose of this chapter, the primary sensitive receptors are local residents, and the community facilities and services identified in the area.

This section describes the environmental effects that are likely to arise during the construction and operation of the proposed development. Section 4.6 sets out the mitigation measures required to alleviate identified effects.

Potential Impacts are considered under the following headings in line with the EPA Guidelines:

- Land Use Patterns
- Demographics and Settlement Pattern
- Employment and Economics
- Human Health
- Residential Amenity
- Local Amenity

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.

4.5.1 Construction Phase

The potential impacts of the proposal during the construction phase of the development are outlined below.

4.5.1.1 Land Use.

The construction phase is temporary in nature and the impact on the land use patterns of the area is expected to be short-term and imperceptible.

4.5.1.2 Population

Due to the short-term nature of the construction phase, the impact on the local demographics and settlement patterns is expected to be short-term and imperceptible.

4.5.1.3 Employment & Economics

The construction phase of the development is anticipated to result in a short-term boost to the local economy as workers employed at the site can be expected to make use of local retail facilities and other services. If the application is successful, construction works will continue until the final phase of the development is completed. There will be indirect benefits to other industries as a result of demand for construction materials and services.

The construction phase will generate increased employment and capital spend on materials and services, which will benefit the local economy. In addition to direct employment, there will be substantial off-site employment and economic activity associated with the supply of construction materials and the provision of services such as professional firms supplying financial, architectural, engineering, legal and a range of other professional services to the project. The impact of the construction phase will at least extend to the county in terms of the requirement for labour, goods and services.

Overall, the impact during the construction phase on the local economy will be slight, positive, and short-term.

4.5.1.4 Residential Amenity

The construction phase has the potential to result in dust and noise emissions that could impact the amenity of the nearby residential dwellings. These are explored further in Chapter 12 Noise and Vibration and Chapter 13 Air Quality.

4.5.1.1 Local Amenity

The construction phase is not expected to have a significant impact on local amenities in the area including schools, childcare facilities, sport and recreation amenities, or health services. Any potential impact on these during the construction phase is likely to be related to dust and noise emissions which are detailed in Chapter 12 Noise and Vibration and Chapter 13 Air Quality.

4.5.2 Operational Phase

4.5.2.1 Land Use

The proposed development will replace the existing fields with a residential development, in line with the land use zoning and national objectives for compact growth and increased densities. The provision of the additional homes in Gorey is expected to have a permanent, positive impact on the town.

The loss of the agricultural lands is anticipated to have a permanent, neutral effect as the lands were under the ownership of the applicant and were not in active agricultural use.

4.5.2.2 Population

Based on the local household size of 2.74 no. persons, the proposed 413 no. residential units is likely to result in a population of 1,132 no. people.

Based on the 2022 population, the proposal will likely result in c. 72 no. children aged 0-4, c. 145 no. primary school aged children, and c. 117 no. post primary school aged children.

4.5.2.3 Employment & Economy

The local population increase as a result of the proposed development will support the local economy by providing new homes for potential employees and also increasing the customers in the area. This is considered a long-term, positive impact.

4.5.2.4 Health

There are no significant impacts expected on human health during the operational phase.

The expected in traffic will result in an increase in the associated greenhouse gas emissions, which can in turn decrease the local air quality and impact on human health. This is assessed in Chapter 13 Air Quality.

4.5.2.5 Residential Amenity

The visual change to the landscape and its impact on the nearby residential houses is assessed in Chapter 5 Landscape and Visual Impact Assessment.

4.5.2.5.1 Schools

The proposed 413 no. houses are expected to increase the local population by 1132 no. people. Based on the 2022 population, the proposal will likely result c. 145 no. primary school aged children, and c. 117 no. post primary school aged children.

The enrolment figures for the local schools in 2023/24 and 2024/25 were compared as part of the Social Infrastructure Audit prepared by McCutcheon Halley Chartered Planning Consultants. The enrolment figures show that 3 of the 6 primary schools had a higher enrolment in 2023/24 compared to 2024/25.

The Department of Education calculates enrolment projections for primary and post primary level on a regular basis. The most recent national projections were published in March 2024 and includes projections for 2023 to 2042. This publication includes the first set of national projections developed since the COVID-19 pandemic and since the beginning of the war in Ukraine.

This report notes that prior to COVID-19 net migration into Ireland was at its lowest and has seen its largest increase since. Despite this, national enrolment figures for both primary and post primary level are expected to decrease.

Based on national projections prepared by the Department of Education, the primary school enrolment peaked in 2023 and is expected to decrease for the next 10 years. The schools in Gorey appear to be slightly behind this projection, but assuming the enrolments decrease in line with national projections, it is expected that there will be capacity in these schools as the development matures.

The post primary schools had a higher enrolment in 2024/25 compared to 2023/24. This is in line with national projections prepared by the Department of Education which predict peak post-primary enrolment in 2025. The enrolment for post primary schools is projected to decrease for the next 10 years. Assuming Gorey follows these projections, it can be expected that there will be capacity in the schools as the proposed development matures.

4.5.2.5.2 Childcare Facilities

The proposed 413 no. houses are expected to increase the local population by 1132 no. people, c. 72 no. are expected to be aged 0-4 (6.4% of the population based on the local Census 2022).

The 2001 Childcare Guidelines for Planning Authorities establishes an indicative standard of one childcare facility, with 20 no. childcare spaces, per 75 dwellings in new housing areas. Based on this standard of 20 no. childcare spaces per 75 no. residential units, the proposed 377 no. residential units (excluding one-bedroom units, as these are unlikely to accommodate children) would require 100.5 no. childcare spaces.

The proposal includes a creche with 102 no. childcare spaces, which is considered to be sufficient to cater for this expected demand. Therefore, the impact on childcare facilities is expected to be long-term and neutral.

4.5.2.5.3 Health Services

The local increase in population as a result of the proposed development will increase the demand for health and medical services. Due to the extent of health and medical services in the area, it is expected that there is sufficient capacity in the area to cater for the increased demand resulting from the proposed development. Therefore, the impact is expected to be long-term and neutral.

4.5.2.5.4 Sports and Recreational Amenities

The increase in local population from the proposed development will increase the demand for social and recreational amenities. This will support the ongoing development of these facilities in the area and ensure the various groups and clubs continue to thrive in the town.

4.5.3 Cumulative Effects

The cumulative impact of proposed and permitted residential developments in Gorey, Co. Wexford, represents a significant intensification of residential use in the area, contributing to the ongoing growth of the town and supporting its role as a key regional settlement.

The proposed Phase 2 Clonattin Village development (Ref. 20241284) will deliver 91 residential units as part of a larger masterplan, which, when fully built, will provide approximately 324 residential units, a 96-bed nursing home with 8 independent living units, associated open spaces, and new road connections. Phase 1A (nursing home) and Phase 1B (64 units) are already under construction, and future phases (3 and 4) will be subject to separate applications.

Nonlah Developments (Ref. 20241267) received a grant in June of 2025 for the construction of 46 residential units, permission granted June 2025.

Shane Houlihan (Ref. 20221189) received a grant in April 2023 for the construction of 89 residential units and a crèche, permitted April 2023.

The Former St. Joseph's Primary School site (Ref. LAC2110) was subject to a granted planning permission for 30 residential units under Part VIII. This was granted in March 2022 and construction has not yet commenced.

AMIL Properties (ABP 303813) was granted permission in 2019 for a Strategic Housing Development with 297 residential units and a crèche, currently under construction.

Closest to our development site, Trinity Homes (Ref. 20200467) was granted permission in August 2020, compromising 97 dwellings including 83 permitted under this application, as well as a community clubhouse and all-weather sports pitch.

Collectively, these granted developments (if all are constructed), as well as our proposed development compromising 413 no. units, will deliver over 1,000 new residential units to the Gorey area in the medium term, alongside community facilities such as a nursing home, crèches, and sports amenities.

From a cumulative effects perspective, the combined developments will:

- Significantly address housing demand and support population growth.
- Deliver new open spaces, road improvements, sports facilities, and social infrastructure.
- Temporary construction and operational traffic will occur over multiple overlapping phases
- Support local services, schools, and businesses through increased population and employment opportunities.

Overall, the cumulative effect is positive in terms of housing provision and community benefit but will necessitate transport, utilities, and social infrastructure to accommodate the significant population growth and minimise potential short-term disruption during construction phases.

4.6 Mitigation Measures

4.6.1 Incorporated Design Mitigation

The proposed development has been designed to avoid negative impacts in relation to local amenities and recreational facilities by:

- Incorporating the provision of a creche within the design proposal.
- Incorporating amenity facilities within the layout, including a primary parkland north of the site, pocket park areas, provision for walking and cycling throughout the development.
- Incorporating a bike repair station and community recreational space and a community room within the design proposal.

4.6.2 Construction Phase Mitigation

It is anticipated that that the construction phase will have a short term slight positive economic impact on the area due to the influx of construction workers to the town.

Health and safety risks will be managed in accordance with the Safety, Health, and Welfare at Work (Construction) Regulations, 2013. Measures are also set out in the CEMP, and include;

- Securing of site boundary and erecting of fencing or hoarding as required
- Minimising disruption of services through adequate engagement with utility and service providers;
- Restriction of construction working hours and traffic access;
- Personnel, pedestrian and vehicle segregation;
- Preparation of a site-specific Safety Statement;
- Preparation of an Emergency and Evacuation Plan.

The design of the proposed development will be subject to safety design reviews to ensure that all requirements of the project are safe. A Project Supervisor for the Design Process (PSDP) will be appointed as part of this process. Where issues are identified, corrective actions will be implemented to amend design issues prior to the issuance of final design for construction.

A contractor safety management programme will be implemented identifying potential hazards associated with the proposed works.

Temporary contractor facilities and areas under construction will be fenced off from the public with adequate warning signs of the risks associated with entry to these facilities. Entry to these areas will be restricted and they will be kept secure when construction is not taking place.

Measures to ensure public safety, with respect to construction traffic will be included in the final Construction Traffic Management Plan, to be agreed with the Planning Authority prior to commencement of development.

4.6.3 Operational Phase Mitigation

Measures to avoid potential negative impacts on population and human health have been fully considered in the design of the project and are integrated into the final layout and design. Compliance with the layout and design will be a condition of the permitted development. As such no mitigation measures are required.

4.7 Monitoring

No specific monitoring is proposed. In general, monitoring will be undertaken by the Building Regulations certification process and by the requirements of specific conditions of a planning permission. Monitoring of compliance with Health & Safety requirements will be undertaken by the Project Supervisor for the Construction Process (PSCP).

4.8 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented.

4.8.1 Construction Phase

Following the implementation of the mitigation measures, the construction phase is expected to have a short term slight positive impact with a benefit to the local economy.

4.8.2 Operational Phase

During the operational phase, the proposed development is expected to have a moderate positive impact with overall economic and social benefits for the local community and the wider Gorey area. The delivery of much needed housing will realise a likely significant positive effect for the local area.

4.9 Risk of Major Accidents or Disasters

The risk of major accidents and disasters is described in Chapter 16.

4.10 The 'Do Nothing' Scenario

If the development were not to proceed there would be no immediate impact on the existing population, or economic activity for residents living in the area. However, it would also prevent the development of a greenfield site which will be a catalyst for development within proximity to Gorey town. This would have a very significant negative long-term impact on both Gorey town centre and the projected population targets of both the National Planning Framework and Wexford County Development Plan.

This development will facilitate an appropriate, sustainable settlement pattern which will accommodate residential, community, leisure and recreational facilities to satisfactorily match the level of population growth and household generation envisaged by the NPF 2040.

The land would likely remain vacant, with occasional agricultural use. The impacts on the land use are therefore envisaged to be a neutral 'do nothing scenario'.

4.11 Worst Case Scenario

The worst-case scenario, in terms of the impact on population and human health, would be where construction on the proposed development was started, but not completed, and the site fails to provide the necessary housing in Gorey to support the local population while leaving an incomplete construction site in place of the current agricultural fields.

During the construction phase, the worst-case scenario would be where the mitigation measures are not implemented resulting in an unmitigated impact on noise, air quality, and traffic during the construction phase. When considering the mitigation measures that will be in place, the event of a worst-case scenario is deemed to be unlikely.

4.12 Interactions

4.12.1 Air Quality

Interactions between Air Quality and Population and Human Health have been considered as both the Construction and Operational Phases have the potential to cause health issues as a result of impacts on air quality from dust nuisances and potential traffic derived pollutants. The mitigation measures employed at the proposed development will ensure that all impacts are compliant with ambient air quality standards and human health will not be affected. Furthermore, traffic related pollutants have been assessed and determined as not significant, therefore, air quality impact from the proposed development are not expected to have a significant impact on population and human health

4.12.2 Landscape or Visual

During the Construction Phase there will be visual changes combined with noise and dust emissions from the construction site to negatively impact the residential amenity of residential receptors near the site. The receptors most likely to experience such impacts are the neighbouring houses along the R725 Carnew Road and the houses along Kilnahue Lane. During the Operational Phase there will be permanent visual changes to the landscape character of Creagh and the town's western edge transitioning the site from an agricultural field to a residential development. A full impact assessment has been carried out in Chapter 5 Landscape and Visual Impact to quantify this impact.

4.12.3 Material Assets: Traffic and Transport

There can be a significant interaction between population and human health and traffic. This is due to traffic-related pollutants that may arise. During construction, increased HGV and construction traffic has the potential to temporarily affect Population and Human Health through short-term changes in accessibility, road safety and travel times. Construction traffic may also indirectly influence Air, Noise and Vibration, and Climate through short-term emissions and noise associated with vehicle movements, although these impacts are limited and well controlled through the Construction Traffic Management Plan (CTMP).

During the operational phase, the development's upgraded access arrangements, pedestrian links and shared cycle infrastructure positively interact with Population and Human Health by improving safety, connectivity and active mobility options. Traffic generated by the scheme could influence Air, Noise and Vibration, and Climate through vehicle noise and emissions, though the predicted volumes are modest and significantly offset by the substantial active travel measures and Mobility Management Plan.

4.12.4 Material Assets: Services

Extended power or telecommunications outages, or disruption to water supply or sewerage systems for existing properties in the area could negatively impact on the surrounding human population and their overall health.

4.12.5 Material Assets: Waste

The potential impacts on human beings are in relation to incorrect management of waste during construction and / or operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity.

4.13 References and Sources

- National Planning Framework, Ireland 2040 – Our Plan (Government of Ireland, 2018)
- Regional Planning Guidelines for the Greater Dublin Area 2010-2022
- Eastern and Midlands Regional Spatial and Economic Strategy
- Dublin City Development Plan 2016-2022
- 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 (EPA, 2022)
- Central Statistics Office (CSO) website www.cso.ie
- Department of Education and Sciences (DES) website www.education.ie.

CHAPTER FIVE

LANDSCAPE AND VISUAL



McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

CHAPTER 5

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CHAPTER 5 | LANDSCAPE AND VISUAL

5.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects of the proposed development on the landscape character and visual amenity of the receiving environment. It should be read in conjunction with the book of Verified Photomontages provided under separate cover.

5.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Richard Butler MILI MIPI of Model Works Ltd. Richard has degrees in landscape architecture (BLArchHons) and town planning (MSc) and is a member of the Irish Landscape Institute and the Irish Planning Institute. He has over 25 years' experience in development and environmental planning, specialising in LVIA. In the last number of years, he has prepared LVIA EIAR chapters for the following projects among others:

- Pembroke Quarter (Irish Glass Bottle and Fabrizia sites) Phases 1, 1B, 2, A, Poolbeg West Strategic Development Zone, Dublin;
- St Vincent's Hospital and Residential Development, Fairview, Dublin;
- Guinness Quarter, James's Street, the Liberties, Dublin;
- Project Montrose (former RTÉ lands) LRD, Donnybrook, Dublin;
- Sandford Road LRD, Dublin;
- Emmet Road SHD, Inchicore, Dublin;
- Dublin Arch (Connolly Quarter).

5.3 Proposed Development

The proposed Large Scale Residential Development (LRD) comprises the construction of 413 no. residential units, a creche, and all associated site development works at Kilnahue, Gorey, Co Wexford. A full description is provided in the statutory notices and in Chapter 2 of the EIAR.

5.3.1 Aspects Relevant to this Assessment

5.3.1.1 Development Typology and Character

The proposed development is a mixed density residential development comprised of 349 no. houses, 64 no. apartments, duplexes and maisonettes, with a 102-place creche and a network of open space/ green infrastructure including a large neighbourhood park. The proposed mix of housing typologies achieves a density of 35.9 units per hectare (uph) on the 11.5 ha developable area of the site.

The development typology and density were determined by a combination of the Sustainable Residential Development and Compact Settlement Guidelines 2024 (and related density guidance in the Wexford Coun ty Development Plan 2022-2028), and the indicative layout for development on the site in the Creagh Neighbourhood Framework Plan, contained in the Gorey Local Area Plan 2017-2023 (extended to 2026).

The proposed layout was determined principally by (a) the site's hillside topography (the land falls steeply to the east and south across the site from the ridgeline to the north west), as prescribed in the Creagh Neighbourhood Framework Plan; (b) the objective to retain as much of the existing hedgerows and trees as possible; and (c) the land use zoning (see Figure 5-9 below). The housing is generally arranged in rows parallel to the contours, stepping down the slope.

The proposal includes terraced, semi-detached, and a small number of detached houses, all of two to three storeys. The three storey units are used to emphasise junctions, gateway and spaces, for legibility and visual interest. The scheme also includes terraces/blocks of apartments and duplexes designed to sit into the slope (with one elevation three storeys and the other two storeys). All the buildings are clad in a combination of render and brick. A higher proportion of brick is used to give accent in combination with the variations in height. Variations in brick colour are used to distinguish character areas within the neighbourhood, for local identity and legibility.



Figure 5-1 CGI view of proposed houses beside the hilltop woodland park



Figure 5-2 CGI view of proposed apartment and duplex terrace overlooking the pedestrian and cycle spine and an open space including a water attenuation pond

5.3.1.2 Response to Key Landscape Assets

The proposal's treatment of the site's key landscape assets is as follows:

- 'OS' (Open Space and Amenity) zoned hilltop area. The Gorey Town and Environs Local Area Plan 2017-2023 (Gorey LAP, extended to 2026) zones the majority of the site 'R' (Residential), apart from the elevated north western part of the site, which is zoned OS. The proposed development includes a large woodland park occupying the OS zoned hilltop area.



Figure 5-3 Gorey LAP land use zoning plan and proposed landscape masterplan, showing the hilltop woodland park's fulfilment of the Open Space and Amenity objective on part of the site

- Internal field boundary hedgerows and trees. There are hedgerows along the internal field boundaries of the site, and on both sides of an old lane that crosses the site. The north eastern field hedgerow contains the greatest number of trees. The proposed layout retains a proportion of the hedgerow and trees (see Figure 5-4 below), incorporating these into the green infrastructure/open space network.
- Roadside boundary hedgerows and trees. There are hedgerows along the site boundaries fronting the R725 Carnew Road to the south (approximately 70m frontage) and Kilnahue Lane to the north east (approximately 280m frontage). In the lower section of the Kilnahue Lane hedgerow there are several fine oak trees. To make the road safe for two-way vehicular traffic and to provide a pedestrian and cycle path, it is proposed to remove the hedgerow along Kilnahue Lane, including the oak trees. This constitutes a loss of an existing landscape/visual asset, but the upgrade of the road is required to facilitate the site's development for anything other than its current agricultural use. To compensate for the loss, a new hedge and row of trees (a double row) is proposed in a wide green corridor alongside the road (see Figure 5-4). It is also required to remove part of the existing hedgerow/tree line along the Carnew Road boundary. Here, the partial exposure of the new roadside apartment/duplex building (Figure 5-5) would signal the road's imminent arrival in the urban area.



Figure 5-4 Proposed treatment of the Kilnahue Lane road corridor, including (a) removal of the existing roadside hedgerow and trees, (b) widening of the road surface for safe two-way traffic, (c) provision of a segregated pedestrian and cycle path, and (d) a wide green corridor comprised of a hedge, grass verge and trees to maintain the road's green/leafy character.



Figure 5-5 Photomontage view of the proposed site frontage to the R725 Carnew Road

- Net biodiversity gain. While some loss of existing vegetation is unavoidable in the conversion of the lands from agricultural to residential use, it is intended that the development will result in net biodiversity gain - through the retention of a proportion of the existing hedgerows and trees, the generous overall provision of open space (including the large hilltop woodland park) and new vegetation (1,734 no. new trees are proposed), and the considered selection of plant species (specifically pollinator friendly planting).



Figure 5.6 Proposed removal (red) and retention (dark green) of existing hedgerow and trees (refer to the Landscape and Green Infrastructure Report by Simon Ronan Landscape Architects for further detail)

- Ruined vernacular buildings. The site includes a cluster of vernacular stone buildings in ruin on an overgrown plot off Kilnahue Lane. It is proposed to incorporate the structures into a park functioning as a community hub, co-located with the creche, and positioned alongside the pedestrian and cycle route spine (the repurposed old lane crossing the site).



Figure 5-7 CGI view showing the repurposed lane, the retained ruined vernacular buildings in a park and the creche, together forming a community hub

5.4 Methodology

The LVIA was carried out with reference to:

- Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA), published by the Landscape Institute;
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, 2022, published by the EPA;
- Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment, 2018, published by the Department of Housing, Planning and Local Government.

The EPA guidelines 2022 provide a general methodology and impact ratings for all EIA topics. The GLVIA provides specific guidelines for landscape and visual impact assessment. Therefore, a combination of the EPA guidelines and the GLVIA has informed the methodology for this assessment. The GLVIA requires that effects on views and visual amenity be assessed separately from the effects on landscape, although the two topics are inherently linked.

- 'Landscape' results from the interplay between the physical, natural and cultural components of our surroundings. Different combinations and spatial distribution of these elements create variations in landscape character. Landscape impact assessment identifies the changes to this character which would result from the proposed development, and assesses the significance of those effects on the landscape as a resource.
- Visual impact assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area's visual amenity.

5.4.1 Assessment of Landscape Effects

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

5.4.1.1 Landscape Sensitivity

The sensitivity of the landscape is a function of its character, which may be determined by its land use pattern, field pattern or urban grain, building typologies and architecture, cultural and natural heritage elements (including topography, vegetation and drainage features), and the quality of the public realm. These factors determine the value that is placed on the landscape. The policy pertaining to the area (e.g. the land use zoning), and any related trend of change, are taken into account. The nature and scale of the proposed development are also considered (a particular landscape can have varying sensitivity to different development types). Five categories are used to classify sensitivity, as set out in Table 5-1.

Table 5 1 Categories of Landscape Sensitivity

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

5.4.1.2 Magnitude of Landscape Change

Magnitude of change is a factor of the scale, extent and degree of change imposed on the landscape by a development, with reference to its key elements, features and characteristics and the affected surrounding character areas (collectively termed 'landscape receptors'). Five categories are used to classify magnitude of change, as set out in Table 5-2.

Table 5 2 Categories of Magnitude of Landscape Change

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

5.4.1.3 Significance of Effects

To classify the significance of effects (for both landscape and visual impacts) the magnitude of change is measured against the sensitivity of the receiving environment/receptor using the guide in Table 5-3 below. The matrix (Table 5-3) is derived from the EPA's Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, 2022, specifically Figure 3.4 of the Guidelines (Figure 5-8 below).

Table 5 3 Guide to Classification of Significance of Landscape and Visual Effects

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

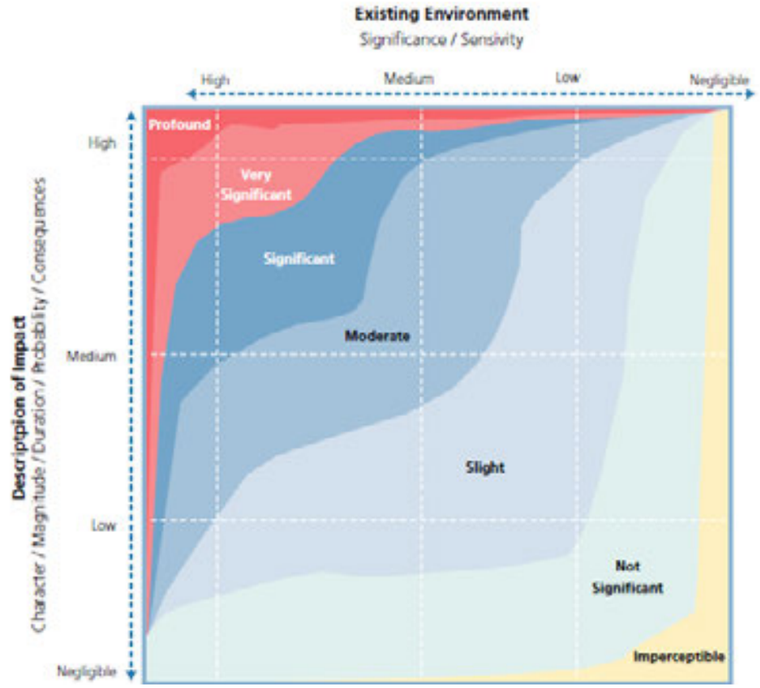

Figure 5-8 'Chart showing typical classifications of the significance of impacts' (Source: Figure 3.4 of the EPA's Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, 2022)

The matrix (Table 5-3) and the EPA's chart (Figure 5-8) are only a guide to the classification of impact significance. The assessor also uses professional judgement informed by their expertise, experience and common sense to arrive at a classification that is reasonable and justifiable. In the EPA Guidelines 2022 the chart is accompanied by a footnote that states: *"The depiction of significance classifications is indicative and should not be relied on as being definitive. It is provided for general guidance purposes."* (EPA Guidelines 2022, Section 3, page 53)

The matrix and chart are therefore used as a starting point for the impact significance classification – with the assessor using their judgement to arrive at a classification that is reasonable and sensible. For example, according to the EPA chart (above) a change of high magnitude affecting a receptor of medium sensitivity may be classified as either 'significant' or 'moderate'. That judgement must be made by the assessor.

The impact significance classifications are taken from the EPA Guidelines 2022, which defines the classifications as follows (Table 5-4):

Table 5 4 Impact significance Classifications

Significance	Description
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	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.

5.4.2 Assessment of Visual Effects

Assessment of visual effects involves identifying a number of representative viewpoints in the site's receiving environment, and for each of these classifying: (a) the viewpoint sensitivity, and (b) the magnitude of change that would result from the proposed development (informed by verified photomontages). These factors are combined to arrive at a classification of significance of the effects on each viewpoint.

5.4.2.1 Viewpoint Sensitivity

Viewpoint sensitivity is a function of two main considerations:

- Susceptibility of the visual receptor to change. This depends on the occupation or activity of the people experiencing the view, and the extent to which their attention is focused on the views or visual amenity they experience at that location. Visual receptors most susceptible to change include residents at home, people engaged in outdoor recreation focused on the landscape (e.g. trail users), and visitors to heritage attractions and places of congregation where the setting contributes to the experience. Visual receptors less sensitive to change include travellers on road, rail and other transport routes (unless on recognised scenic routes), people engaged in outdoor recreation where the surrounding landscape does not influence the experience, and people in their place of work or shopping.
- Value attached to the view. This depends to a large extent on the subjective opinion of the visual receptor but also on factors such as policy and designations (e.g. scenic routes, protected views), or the view or setting being associated with a heritage asset, visitor attraction or having some other cultural status (e.g. appearing in arts).

Five categories are used to classify a viewpoint's sensitivity, as set out in Table 5-5.

Table 5 5 Categories of Viewpoint/Visual Sensitivity

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

5.4.2.2 Magnitude of Visual Change

Classification of the magnitude of change takes into account the size or scale of the intrusion of development into the view (relative to the other elements and features in the composition, i.e. its relative visual dominance), the degree to which it contrasts with, or integrates with, the other elements and the general character of the view, and the way in which the change would be experienced (e.g. in full view, partial or peripheral view, or in glimpses). Five categories are used to classify the magnitude of change to a view, as set out in Table 5-6.

Table 5 6 Categories of Magnitude of Visual Change

Sensitivity	Description
Very High	Full or extensive intrusion of the development in the view, or partial intrusion that obstructs valued features or characteristics, or introduction of elements that are completely out of character in the context, to the extent that the development becomes dominant in the composition and defines the character of the view and the visual amenity.
High	Extensive intrusion of the development in the view, or partial intrusion that obstructs valued features, or introduction of elements that may be considered uncharacteristic in the context, to the extent that the development becomes co-dominant with other elements in the composition and affects the character of the view and the visual amenity.
Medium	Partial intrusion of the development in the view, or introduction of elements that may be prominent but not necessarily uncharacteristic in the context, resulting in change to the composition but not necessarily the character of the view or the visual amenity.
Low	Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context, resulting in minor alteration to the composition and character of the view but no change to visual amenity.
Negligible	Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.

5.4.2.3 Significance of Effects

As for landscape effects, to classify the significance of visual effects the magnitude of change to the view is measured against the sensitivity of the viewpoint using the guidance in Table 5-3 and Figure 5-6 above.

5.4.3 Quality of Effects

In addition to predicting the significance of the effects, EIA methodology requires that the quality of the effects be classified as positive/beneficial, neutral, or negative/adverse. For landscape to a degree, but particularly for visual effects, this is an inherently subjective exercise. This is because landscape and visual amenity are perceived by people and are therefore subject to variations in the attitude and values - including aesthetic preferences - of the receptor. One person's attitude to a development may differ from another person's, and thus their response to the effects of a development on a landscape or view may vary.

Additionally, in certain situations there might be policy encouraging a particular development in an area, in which case the policy is effectively prescribing landscape and visual change. (This is relevant because, in the case of land use, the policy is written by the democratically elected local government. Therefore, the policy can be assumed to reflect the values of the local population). If a development achieves the policy objective, the resulting effect might be considered positive, even if the landscape character or views are profoundly changed. The classification of quality of landscape and visual effects should seek to take these variables into account and provide a reasonable and robust assessment.

5.4.4 Relevant Policy

5.4.4.1 Wexford County Development Plan 2022-2028

5.4.4.1.1 Core Strategy and Development Approach to Gorey

In Chapter 3 (Core Strategy) for the WCDP, it is stated: "The strategy focuses on the development of the Key towns of Wexford and Gorey in order to build centres of scale capable of being regional economic drivers that will also bring opportunities and advantages to our county. The delivery of these centres will require significant population growth, compact growth and creative place making".

The CDP identifies Gorey as one of two 'Level 1 Key Towns' (the other being Wexford Town), the highest level in the County's settlement hierarchy. The CDP states: "In order to fulfil its designation as a Key Town in the RSES and in line with RPO 11 and RPO 25, the Council will:

> *1. Allocate significant population growth to the town to contribute to the development of a self-sustaining critical mass of population…*
>
> *10. Protect and enhance amenities, heritage, green infrastructure and biodiversity in the town."*

The CDP states that the spatial planning framework for the town is set out in the Gorey Town and Environs Local Area Plan 2017-2023 (see Section 5.4.4.2 below).

5.4.4.1.2 Design and Place-making

In Section 5.5, the design and place-making strategy is set out as follows:

"The Council's strategy is to create attractive, healthy, safe and efficient places through its own interventions and ensuring that all future developments achieve the highest standards in design and layout. Having regard to this, the key aims of the strategy are:

- *Design Quality - To ensure that our towns and villages are attractive places to live and visit and that the design of development and the public realm is of exceptional quality.*
- *Place Based Design - To ensure that all new development is designed to respect, enhance and respond to its natural, built, cultural and social context.*
- *Connected Places - To ensure that future development has a coherent urban structure, is permeable and places people at the heart of the public realm.*
- *Compact and Rejuvenated - To ensure that development results in the efficient use of land, encourages walking and cycling and rejuvenates the area within which it is located.*
- *Vibrant, Inclusive, Resilient and Adaptable - To ensure our towns and villages are self-sustaining places which are vital and vibrant, with appropriate services, jobs, amenities and community facilities which are inclusive, accessible to all and are resilient to challenges such as climate change and economic instability."*

CDP Objective TV04: "To promote compact urban form, which is appropriate to context, in the interests of the efficient use of resources and optimising the opportunities to walk and cycle and the feasibility of public transport."

CDP Objective TV06: *"To require high quality design in the public realm, architecture and in building functionality."*

CDP Objective TV08: *"To ensure, through the development management process and in local authority own development, that new development adds to the sense of place, quality, distinctiveness and character of our towns and villages."*

CDP Objective TV14: *"To require that new buildings are of exceptional architectural quality, and are fit for their intended use or function, are flexible in the face of unknown future demands, durable in terms of design and construction, respectful of setting and the environment and to require that the overall development is of high quality, with a well-considered public realm."*

CDP Objective TV15: *"To ensure that the appearance of buildings, in terms of details and materials (texture, colour, patterns and durability), is of a high standard with enduring quality and has a positive impact on the visual quality of the area."*

5.4.4.1.3 Landscape Character

The CDP includes a Landscape Character Assessment (LCA) of Co. Wexford in Volume 7. The LCA identifies four different 'Landscape Character Units' (LCUs) across the county, as well as 'Distinctive Landscape Features' within these units.

Gorey falls into the Lowlands LCU. This is the most extensive/widespread landscape type in the county. It has generally higher levels of population, more intensive agriculture, and includes the principal towns and infrastructure. The CDP states: *"The Lowlands LCU generally has characteristics which have a higher capacity to absorb development without it causing significant visual intrusion although, care still needs to be taken on a site by site basis, particularly to minimise the risks of developments being visually intrusive".*

The CDP defines 'Landscape Sensitivity as follows: *"Landscape sensitivity is a measure of the ability of the landscape to accommodate change or intervention without suffering unacceptable effects to its character and value. Table No.5.9 below also identifies the sensitivity rating for each landscape type…*

Landscape Sensitivity Rating			
	Low	Moderate	High
Uplands			
Lowlands			
River valleys			
Coastal			
Distinctive Landscpaes			

Figure 5.9 Extract from Table 7-3 in the Wexford County Development Plan Landscape Character Assessmentin

"Low sensitivity landscapes [such as the Lowland landscape in which Gorey and the subject site are located] are more robust landscapes which are tolerant to change and have the ability to accommodate development without significant adverse impacts on the character of the landscape."

CDP Objective L04 *"To require all developments to be appropriately sited, designed and landscaped having regard to their setting in the landscape, ensure that any potential adverse visual impacts are minimised and that natural features and characteristics of the site are retained."*

CDP Objective L06: *"To ensure that developments are not unduly visually obtrusive in the landscape, in particular, in or adjacent to the Upland, River Valley, Coastal or Distinctive Landscape Character Units."*

5.4.4.1.4 Scenic Routes, Protected Views and Visual Impact

The CDP states: *"This plan does not designate specific routes but notes that scenic routes may fall into a number of categories:*

Routes through Upland, Coastal, River Valley and Distinctive Landscapes.

Trails such as the Eurovelo, Norman Way, Greenways and Wexford Walking Trails where sightseeing visitors are more likely to be concentrated along these routes."

None of the above occur in the vicinity of the site, i.e. there are no particularly scenic or sensitive routes that may be affected by development on the subject site.

CDP Objective L11: *"To protect views worthy of protection, including views to and from the sea, rivers, landscape features, mountains, tourism sites and landmark structures such as bridges and urban settlements from inappropriate development that by virtue of design, scale, character or cumulative impact would block or detract from such views."*

CDP Objective L12: *"To protect planned views and vistas, such as those that might be associated with planned settlements, heritage properties and monuments and ensure that new development does not detract from such views as may be identified within towns, formal settings and designated landscapes. In evaluating planning applications for development in the foreground of such views and vistas, consideration shall be given to the effect such development may have on the view or prospect."*

There are no planned views or vistas, heritage properties or monuments in the vicinity of the site, which may be affected by development on the site.

The CDP states: *"The capacity of an area to visually absorb development is also influenced by a combination of the following factors:-*

1. *Topography - development in elevated areas will usually be visible over a wide area; development in enclosed areas will not.*

2. *Vegetation - areas which support (or which have the potential to support) trees, tall hedges and woody vegetation can screen new development from view. Areas which cannot easily sustain such vegetation will be unlikely to screen new development.*

3. *Development - New development is less likely to be conspicuous in the context of existing development in the landscape.*

The three points above are all relevant to the site. The site includes an elevated area, the hilltop inside the north west boundary. This part of the site is however precluded from development by its Open Space zoning.

There is extensive woody vegetation (trees) around the site, and proposed in the open space, which can help to screen development on the site from view.

Since the site adjoins the existing urban area, it offers potential for development to be less conspicuous than if it were separate/removed from the urban area.

Regarding visual impacts, the CDP states: "their [visual impacts'] significance depends on both the nature of the development, the capacity of the landscape to absorb and the value that is placed on the specific landscape…

"Impacts may be due to the siting of a development or they may be due to the scale or design. They may also be because the resulting development is alien to the environment in which it is situated…

"There will be a presumption against developments which are located on elevated and exposed sites. The impacts associated with such developments are further increased when the development, when viewed in context, will break the skyline."

The above policy is relevant to this assessment. The nature of the development (houses and small apartment and duplex blocks up to three storeys) is not 'alien' to its environs, and the proposal avoids placing buildings on the skyline (due to the Open Space zoning of the most elevated part of the site).

5.4.4.1.5 Protection of Trees and Hedgerows

CDP Objective NH10: "To ensure that traditional field boundaries, ponds or small woods which provide important ecological corridors, stepping stones or networks are protected. Where such features exist on land which is to be developed the applicant should demonstrate that the design of the development has resulted in the retention of these features insofar as is possible and that the existing biodiversity value of the site has been protected and enhanced."

CDP Objective NH11: *"To protect trees or groups of trees and woodlands of particular amenity and nature conservation value and make tree preservation orders where appropriate."*

CDP Objective NH12: *"To protect individual trees, groups of trees, woodlands and hedgerows of amenity and biodiversity value, from damage and/or degradation and work to prevent the disruption of the connectivity of the woodlands and hedgerows of the county…"*

CDP Objective NH13: *"To ensure applications for development include proposals for native planting and leave a suitable ecological buffer zone between the development works and any areas or features of ecological importance. To minimise the removal of hedgerow and natural boundaries, and where hedgerows are required to be removed the applicant/ developer will be required to reinstate the hedgerows with a suitable replacement of native species."*

5.4.4.1.6 New Development and the Landscape

CDP Objective ROS11: *"To require the provision of good quality, accessible, well located and functional open spaces in new residential developments…"*

CDP Objective ROS12: *"To require public open spaces to create positive and defined relationships between buildings and spaces and interesting urban forms such as squares and crescents, contributing to a sense of enclosure and comfort, place value and quality and ownership by the residents."*

CDP Objective ROS19: *"To ensure that the design of residential schemes, including open spaces, optimises the existing features and topography of the site such as rivers, streams, rock outcrops, trees and hedgerows, and to ensure that biodiversity and green infrastructure are fully considered and integrated into schemes."*

5.4.4.2 Gorey Town and Environs Local Area Plan 2017-2023

The Gorey Town and Environs Local Area Plan 2017-2023 (LAP) has been extended to 2026. In the LAP (see Figure 5-6 below), the majority of the site is zoned 'R' (Residential), and the western part of the site, up the hillside, is zoned 'OS' (Open Space and Amenity).

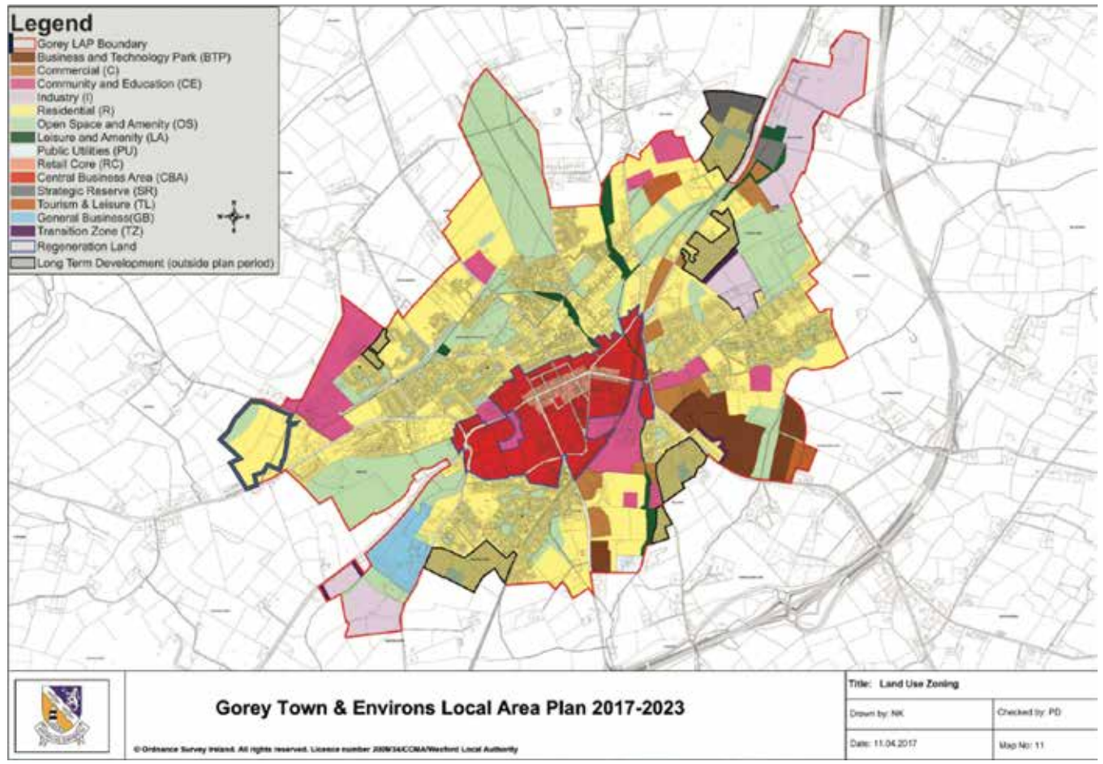

Figure 5-10 Gorey Town & Environs Local Area Plan 2017-2023 (extended to 2026) Land Use Zoning map (main site development area outlined red; for full site boundary refer to the Site Location Plan)

The LAP is divided into five character areas, with a Neighbourhood Framework Plan (NFP) provided for each area. The site is located in the Creagh character area. The NFP for Creagh is based around three concepts, 'Place Concept', 'Route Concept' and 'Landscape Concept'. The LAP's concept plans are included below (Figure 5-10).

- The LAP provides strong guidance on the urban grain to be introduced to the site. This is derived from the existing field pattern, which itself responds to the steep slope of the site.
- A neighbourhood park is to be provided at the top of the hill inside the north west boundary of the site. Two 'Local Links' in the form of tree lines are required crossing the site. The eastern one of these is the tree-lined lane that crosses the site (i.e. this is to be retained). The western link is along the perimeter of the neighbourhood park.
- The LAP designates the R725 Carnew Road as a 'Main Street', and Kilnahue Lane as a 'Country Road/Street'. This has implications for any development fronting those streets (in terms of typology, scale, etc.).
- The LAP also identifies where built frontage is required to streets. Notably, this is required along Kilnahue Lane, but set back from the lane behind a green strip.

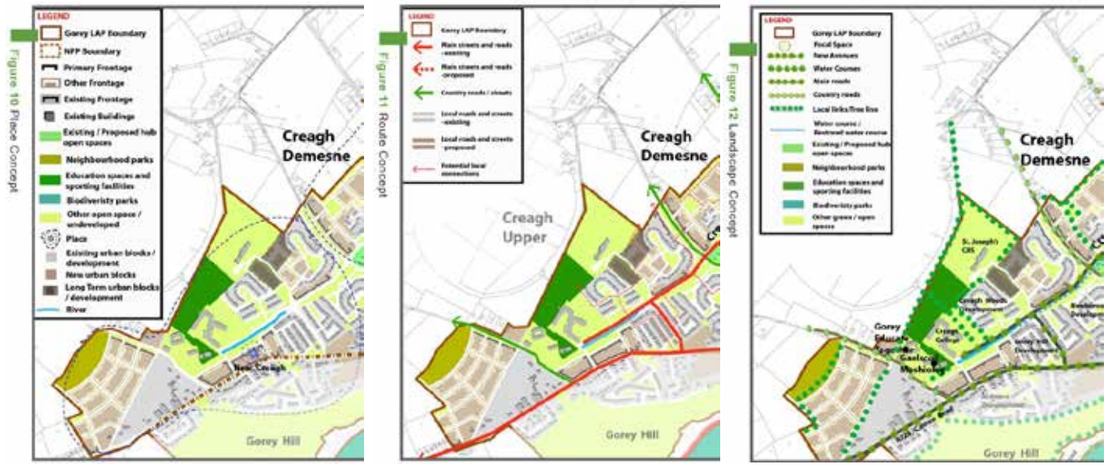

Figure 5-11 Gorey LAP Place Concept, Route Concept and Landscape Concept diagrams

5.4.5 Site Surveys/Investigations

Survey of the receiving environment for this chapter was carried out by the chapter author in September 2025. The baseline photography and survey for the verified photomontages was carried out in October 2025 following receipt of Wexford County Council's Opinion.

5.4.6 Consultation

A Section 247 pre-planning consultation meeting was held with Wexford County Council on 29th April 2025 via MS Teams. A Section 32B meeting was held in person in Wexford County Council's offices on 11th September 2025.

An LVIA baseline report (titled Landscape and Visual Impact Assessment – Preliminary Report) was issued to the Council as part of the submission requesting the Section 32B meeting. That report included a baseline analysis of the receiving environment, an analysis of relevant policy (specifically the Gorey LAP), and a map of viewpoints which were suggested for detailed assessment (informed by verified photomontages) in the final LVIA, i.e. this chapter.

Following the Section 32B meeting, the Council issued its Opinion. No specific commentary was made on the LVIA Preliminary Report's suggested viewpoints.

5.5 Difficulties Encountered

No difficulties were encountered in the preparation of this chapter.

5.6 Baseline Environment

5.6.1 Landscape Character

The site is located at the western edge of Gorey, within the settlement boundary (as defined in the Gorey LAP), approximately 1.5km from the commercial core of the town.



Figure 5-12 Site location in the context of Gorey (settlement boundary outlined white) (the red line is indicative; for the full application site boundary refer to the Site Location Plan)

The site has frontage to Kilnahue Lane to the north east, and the R725 Carnew Road to the south. Carnew Road is the main road entering the town from the west, and leads directly to Main Street in the town centre.

The landscape of the receiving environment is peri-urban in character, i.e. composed of both urban and rural elements and influences, typical of an area in the process of urban expansion (see Figure 5-10):

- The existing urban area lies to the east of the site. This area is characterised by modern suburban housing and schools. There is a multi-school campus just across Kilnahue Lane/Gorey Hill from the site. The large-footprint but low school buildings give the area a particular character and identity. Gorey Hill, the road leading to the schools, has been upgraded to an urban specification.
- Along Kilnahue Lane and Carnew Road, which passes to the south of the site, there is a relatively high density of ribbon development (see Figure 5-12, 5-13, 5-14 below), giving the roads a suburban character in places as they approach the town. Among the houses are a number of business premises typical of peri-urban areas, including a petrol station and motor dealership, a car wash and a vet.
- Extending to the south, west and north of the site, beyond the settlement boundary, is Gorey's rural hinterland. The area is characterised by fields of various size and shape divided by hedgerows, with scattered farm clusters. The most notable characteristic of the area is the steeply undulating topography.

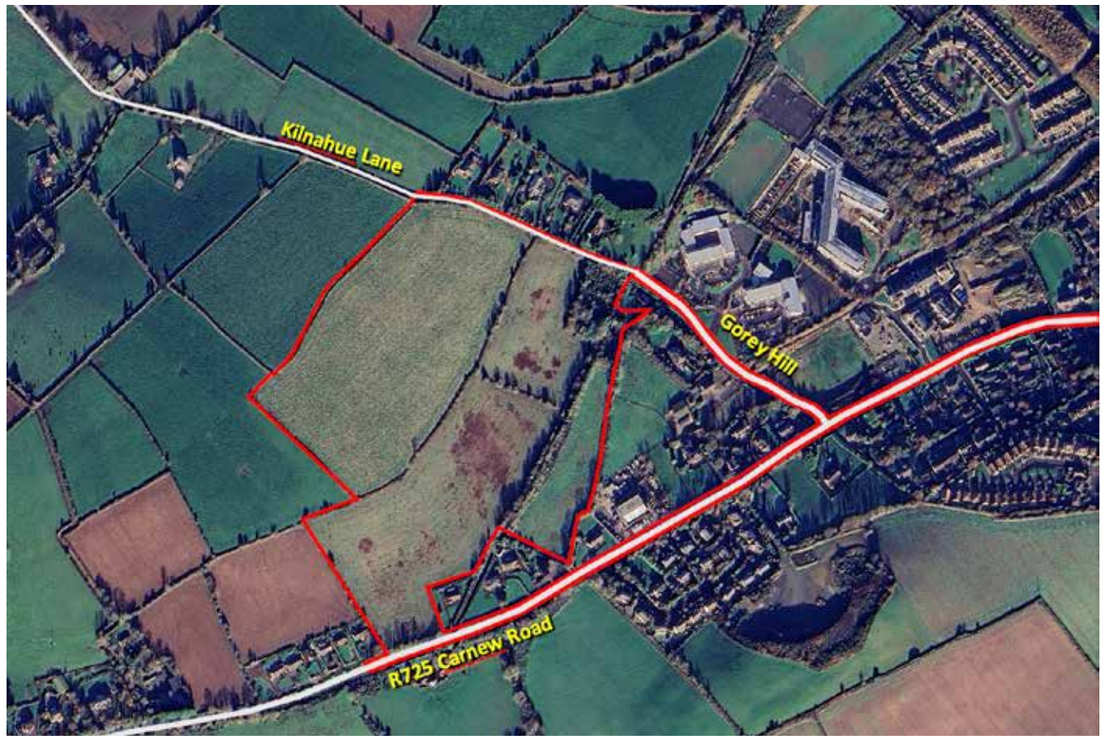

Figure 5-13 The site's immediate environs (the red line is indicative; for the full application site boundary refer to the Site Location Plan)



Figure 5-14 Bird's eye view looking west over the site, with Gorey Hill, the school campus and the houses across Kilnahue Lane to the right, and the R725 Carnew Road to the left - clearly illustrating the peri-urban character of the landscape



Figure 5-15 A row of houses to the west of the site along the Carnew Road



Figure 5-17 The school campus to the east of the site across Kilnahue Lane/Gorey Hill



Figure 5-16 A house, service station with shop and motor dealership along the Carnew Road as it passes to the south of the site, entering Gorey



Figure 5-18 The evolving landscape of Creagh to the east of the site

5.6.2 The Site

The site is comprised of (a) four fields of varying shape and size on the side of a steep hill, (b) an overgrown plot containing the ruins of stone farm buildings, and (c) an old lane that separates the bottom field from the other fields up the hillside.



Figure 5-19 Survey and aerial photo showing the site's main landscape features

The fields are divided by hedgerows. These are mostly low, with few trees, apart from the eastern field's hedgerows which contain a number of trees of substantial size (see Figures 5-16, 5-17). The overgrown plot in the north east corner of the site is enclosed by a shelter belt of trees, and there is a stand of scrubby woodland east of this, extending into the lower field. The historic lane that traverses the site (dividing the lower field from the remainder of the site) is enclosed by dense, overgrown hedgerows.

There are hedgerows with trees on the site boundaries along both the Carnew Road (see Figure 5-20) and Kilnahue Lane (Figure 5-21). While mostly of limited aesthetic value (ref Figure 5-21), there are a number of fine oak trees (Quercus robur) in the roadside hedgerow of the north eastern field (Figure 5-22).



Figure 5-20 Bird's eye view along the R725 Carnew Road heading east towards Gorey town centre, with the site rising up the hill to the left. Note the lane traversing the site, enclosed by dense, overgrown hedgerows

Figure 5-19 above gives some impression of the site's topography. The ridge of the hill runs parallel to the north west boundary, just outside the site. (As a result, the site is hidden from view from the north and west, from the far side of the ridgeline.) The land falls 30m from the north west corner to the south and east corners. This gradient will be a determining factor in the design of any development on the site. This was reflected in the guidance provided in the Gorey LAP. The LAP's zoning/reservation of the north western part of the site for Open Space also took account of the topography. This ensures that no buildings can be positioned on the ridgeline.





Figure 5-21 The hedgerow/tree line on the site boundary along the R725 Carnew Road



Figure 5-22 The hedgerow on the site boundary (right) along the northern/upper stretch of Kilnahue Lane



Figure 5-23 The hedgerow with oak trees on the site boundary (right) along the eastern/lower stretch of Kilnahue Lane

In summary, the key landscape elements and characteristics of the site are the following:

- The steeply sloping landform, with a fall of 30m from the north west corner to the south and east corners of the site;
- The internal field boundaries;
- The old lane that traverses the site, enclosed by dense, overgrown hedgerows;
- The ruined vernacular stone buildings on the overgrown plot in the north east corner of the site;
- The boundary hedgerows and tree lines along the R725 Carnew Road and Kilnahue Lane.

While the site is zoned for development, these elements and characteristics require consideration in the design and future use of the site.

5.6.3 Potential Receptors of Landscape and Visual Change

Due to the local topography, specifically the ridgeline that runs parallel to the site's north west boundary, there is limited visibility of the site from the north and west. The potential receptors of landscape and visual change are all located to the south and east. The main potential receptors are as follows:

- The users of the R725 Carnew Road, which passes to the south of the site. The site has approximately 70m frontage to the road. Along this stretch, as the road approaches Gorey, there is already a relatively high density of ribbon development (on the north side of the road). The landscape is peri-urban in character, and road users are typically of lower sensitivity to change (particularly on non-scenic routes and entering an urban area). There is thus capacity to accommodate change – and to consolidate the land use in line with sustainable development and compact growth policy.

- The existing houses fronting the Carnew Road immediately to the west and south of the site (see Figure 5-12 above). These houses form part of the peri-urban landscape and are themselves urban-generated. Nonetheless, as residential receptors they are sensitive to change in their environs.
- The users of Kilnahue Lane, which passes to the north east of the site. The site has approximately 280m frontage to the lane. The lane is narrow and enclosed by vegetation, giving it a rural character. However, (a) there is a row of suburban houses directly across the lane, opposite the site, and (b) this stretch of the lane falls inside the Gorey settlement boundary; this is the final stretch of the lane before it enters the urban area. Therefore, while the lane is attractive in its current form, it must be recognised that its context is - at least in part - urban. This context demands some tolerance for change.
- The houses on the north east side of Kilnahue Lane, opposite the site. While these houses enjoy a high level of landscape and visual amenity currently (owing to their enclosure on three sides by agricultural land), it must be recognised that they are themselves urban-generated and they adjoin the urban area. They are sensitive receptors, but due to their urban-edge location there must be some tolerance for change in their environs.
- Gorey Hill and the Creagh schools campus. The large, modern campus diagonally across Kilnahue Lane from the site is of low sensitivity to change. The schools were located to serve the expanding urban area.

5.7 The 'Do Nothing' Scenario

In the do-nothing scenario, the site would remain in agricultural use, forming part of the peri-urban landscape at the western edge of the Gorey urban area. The residential and open space land use objectives for the site, as expressed in the Gorey LAP, would remain unrealised.

5.8 Potential Significant Effects

5.8.1 Construction Phase – Landscape Effects

5.8.1.1 Landscape Sensitivity

Informed by the analysis of the baseline environment (Section 5.6 above), and consideration of relevant policy (Section 5.4.4), the landscape sensitivity of the receiving environment can be classified 'medium'.

(Definition of medium sensitivity (see 5.4.1.1 above): Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong, or has evidence of alteration, degradation or erosion of elements and characteristics. The landscape character is such that there is some capacity for change. These areas may be recognised in landscape policy at local or county level and the principle management objective may be to consolidate landscape character or facilitate appropriate, necessary change.)

The classification of medium sensitivity is based on the following factors:

- The site lies within the settlement boundary of Gorey and is zoned for residential development and public open space. (The Wexford County Development Plan and Gorey LAP were subject to Strategic Environmental Assessment; therefore the principle of urban development of the lands was deemed desirable/acceptable in principle.)
- The site adjoins the urban area, and extends into a landscape of peri-urban character, composed of both urban and rural elements and influences. Peri-urban landscapes are not highly valued; sustainable development, urban consolidation and compact growth policy favour a clear delineation between urban and rural landscapes.
- The site includes a number of elements of local landscape value. These include the internal field boundary hedgerows (particularly those featuring trees), the historic lane (enclosed by overgrown hedgerows), a cluster of ruined vernacular stone buildings (and the trees on this plot), and the boundary hedgerows/ tree lines along the R725 Carnew Road and Kilnahue Lane. The site's key characteristic is its steeply sloping landform. While the site is zoned for development, these elements and characteristics require consideration – and protection/ reuse where possible - in the design and future use of the site.
- Due to its urban-edge location and peri-urban context, there are a number of houses in proximity to the site, notably along the R725 Carnew Road and across Kilnahue Lane from the site. As residential receptors these houses are sensitive, but due to their location (adjoining or close to the urban area and lands zoned for urban expansion), there must be some tolerance for change in their environs.
- Gorey and the site are located in Co. Wexford's 'Lowlands' Landscape Character Unit (LCU). The Lowlands LCU has a landscape sensitivity rating of 'Low'. The CDP states: "Low sensitivity landscapes [such as the Lowlands LCU] are more robust landscapes which are tolerant to change and have the ability to accommodate development without significant adverse impacts on the character of the landscape."
- There are no scenic routes or protected views in the vicinity of the site. Nor are there any planned views or vistas, heritage properties, monuments or Architectural Conservation Areas, etc. on or close to the site.

5.8.1.2 Magnitude of Landscape Change

Over the course of the estimated 48 month construction period, the site would be disturbed by construction activity including the erection of site hoarding, site clearance and earth works, haulage and storage of materials, general construction activity and the incremental growth of buildings on site.

The magnitude of landscape change would be medium in the immediate environs (e.g. affecting the nearby houses on The R725 Carnew Road and Kilnahue Lane), reducing with increased distance from the site.

5.8.1.3 Significance of Landscape Effects

Measuring the magnitude of change against the landscape sensitivity (refer to Table 5-3 and Figure 5-8), and taking account of the limited duration of the construction phase, the significance of the landscape effects would be 'moderate-slight' (the effects reducing with increased distance from the site). Construction is inherently disturbing of the landscape. In summary, the landscape effects during construction would be of 'moderate-slight' significance, negative, and direct.

5.8.2 Construction Phase – Visual Effects

Construction is also inherently unsightly. The visual effects of construction are therefore negative. The magnitude of visual change and the significance of the effects however vary considerably depending on the location of the viewer. The construction phase visual effects are classified for each of the representative viewpoints in Table 5-7 below.

5.8.3 Operational Phase – Visual Effects

Informed by the analysis of the receiving environment and relevant policy, 11 no. viewpoints were selected for detailed visual effects assessment informed by verified photomontages.

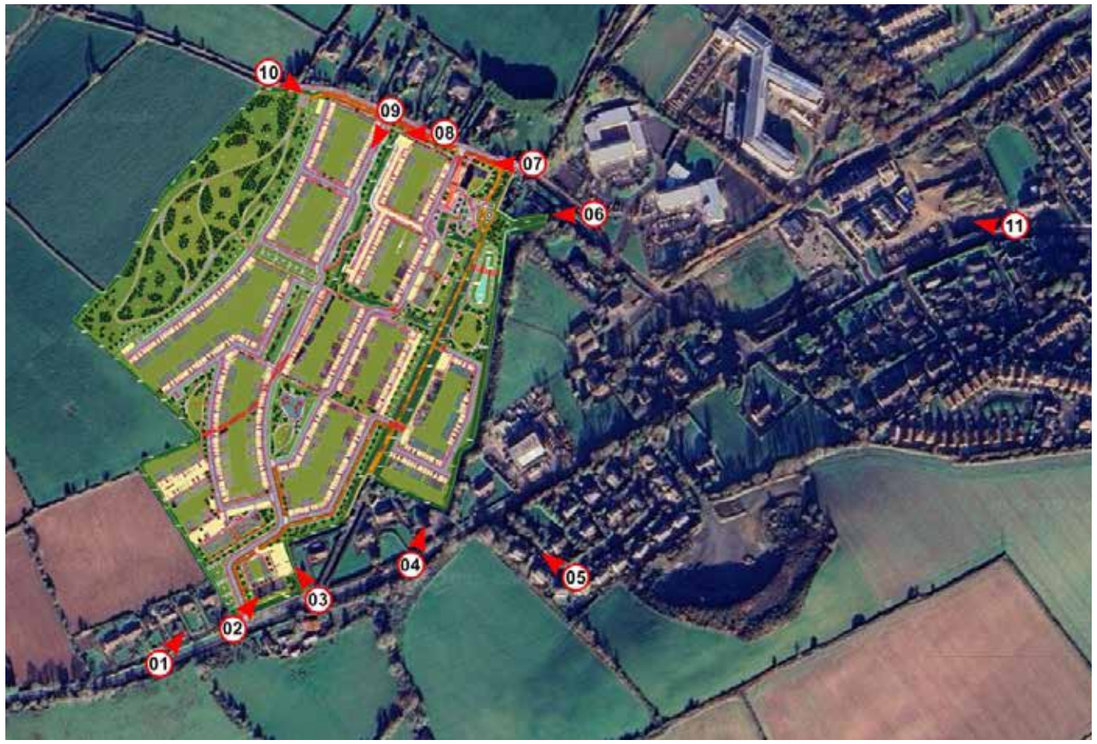

Figure 5-24 Viewpoints for visual effects assessment

The potential effects on these views are assessed below. The assessments should be read in conjunction with the photomontages provided under separate cover.

5.8.3.1 Viewpoint 1 – R725 Carnew Road approaching site (and Gorey) from the west

Existing View

- As the Carnew Road approaches Gorey there is an increasing density of roadside housing, changing the character of the landscape from rural to peri-urban.
- Along this stretch, a row of six houses are set back behind an access road parallel to the Carnew Road, on its north side. These houses can be seen in the view, protruding above their garden vegetation.
- The prominent clump of trees in the middle distance are on the property of the house neighbouring the site. The hedgerow/tree line on the site's southern boundary is hidden behind this vegetation.
- Viewpoint sensitivity: Medium. The existing houses on the north side of the road, as the road approaches the urban area (c. 40 seconds from the Gorey Hill junction, travelling at 60km/h), contribute to a capacity for change. Clearer delineation of the urban edge could be a positive change in landscape/urban design terms.



Figure 5-25 Viewpoints along the R725 Carnew Road

Proposed View

- The roofs of the proposed 2-3 no. storey buildings inside the site's west boundary are just protrude marginally above the foreground garden vegetation. (The taller, three storey apartment buildings are positioned lower down the slope, closer to the road, to avoid excessive protrusion.)
- Magnitude of change: Low. The introduction of additional houses to the peri-urban landscape corridor along the road would constitute a low magnitude of change.
- Effect Significance
- Slight neutral. There would be no significant change to the character of the landscape, or to the visual amenity the experienced along this stretch of the road.

5.8.3.2 Viewpoint 2 – R725 Carnew Road along site frontage

Existing View

- The view is taken from the southern verge beside a farmhouse located opposite the site.
- The overgrown hedgerow/tree line on the site boundary dominates the view. Ahead along the road are the tall garden boundary hedges of the neighbouring houses. A footpath and street lights on the north side of the road add to the somewhat 'urban' character of the road corridor, although there are notably no buildings visible.

- Viewpoint sensitivity: Medium. The landscape character and visual amenity are mixed along this stretch of road. There is capacity for change, including clearer reflection of the road's imminent entry to the urban area.

Proposed View

- In the foreground the road is widened to include a turning lane into the new neighbourhood, and a roadside footpath is introduced (connecting to the existing footpath further along the road, leading into town). These changes to the road corridor require the partial removal of the hedgerow/tree line, opening the development to view.
- **A 2-3 storey terrace/block of apartments is positioned facing the road, set back behind the partially retained roadside vegetation, a boundary wall with pedestrian gate, and an internal footpath. The end-of-terrace unit beside the entrance is turned perpendicular to present its gable to the road, and clad in brick - to function as a local landmark identifying the entrance to the neighbourhood (and the road's entry to the Gorey urban area).**
- The access road climbs the hill into the site, and further houses and apartment/duplex buildings can be seen within the site, rising up the slope.
- Magnitude of change: Medium-High. Although the building's presence is softened by the partial retention of the roadside vegetation, **the road corridor is urbanised by the road's widening and the introduction of a building of urban typology** (and the visibility of further development within the site).

Effect Significance

- Moderate positive. The development would change the character of the road corridor - appropriately and positively - along this stretch, announcing the entry of the R725 into the Gorey urban area. The design responds appreciably to the site characteristics and the landscape context, and the proposed buildings and landscaping are of high design and material quality.

5.8.3.3 Viewpoint 3 – R725 Carnew Road opposite neighbouring house

Existing View

- The view is taken from the southern verge opposite an existing house beside the site. The house and garden are largely hidden by a tall roadside hedge that encloses the property. The site rises up the hill behind the house. In its current greenfield condition it contributes to a relatively high level of visual amenity experienced by the house occupants.
- Viewpoint sensitivity: Medium. The house is one of several that line the Carnew Road as it enters Gorey. The houses are themselves urban-generated and benefit from their proximity to the town. There must therefore be some tolerance for change in their urban-edge/peri-urban environs.

Proposed View

- The road-front terrace/block of apartments is visible to the left, well removed from the neighbouring house – although visible from the house and garden. A small green space at the gable end of the building is densely planted and in time this vegetation will mature to soften the building's presence.
- Within the site, up the hill behind the house, are further terraces of houses, mostly two storeys tall, set at varying angles and elevations – resulting in a relatively permeable collective built form.
- A belt of vegetation is proposed directly behind the house, along the old lane on the site. In time this vegetation will mature to partially screen the new neighbourhood to the rear.
- Magnitude of change: Medium-High. The landscape context - and views from - the neighbouring house (and the Carnew Road) are changed from peri-urban to urban by the development.

Effect Significance

- Moderate neutral. The visual amenity afforded (to the neighbouring house) by the site's greenfield condition would be lost, but in this context - at the urban edge, within the Gorey settlement boundary - this change is not inappropriate. The separation distance of the proposed buildings to the neighbouring house, and the positioning of the buildings in response to the topography results in a not unattractive composition of built form, and in time the buildings' presence will be softened by the maturing landscaping, neutralising any initial negative effects.

5.8.3.4 Viewpoint 4 – R725 Carnew Road entering Gorey

Existing View

- This view is taken a short distance further east along the road, where the lower field (part of the site) extends closest to the road, between the neighbouring houses. (The large tree in view marks the corner of the site.)
- The existing houses are mostly hidden behind high boundary hedges. Just ahead (c. 120m) is a petrol filling station with shop and motor dealership, announcing the road's arrival in the urban area. The footpath and street lights along the road reinforce the change in character.
- Viewpoint sensitivity: Low-Medium. The character of the road corridor shifts from suburban to urban in this view, and there is capacity for change in the landscape.

Proposed View

- The roofs of the houses in the lower part of the site (which wraps around the existing neighbouring houses) are visible over the foreground hedges and garden vegetation, to the rear of the existing houses.
- Magnitude of change: Low. The intrusion in the view is minimal, and the visibility of houses in this location is not alien/unexpected.
- Effect Significance
- Not significant neutral. There would be no significant change to the landscape character or visual amenity.

5.8.3.5 Viewpoint 5 – The Lask estate

Existing View

- The Lask is an estate of houses on the south side of the R725 Carnew Road, on the side of a hill facing the site. The viewpoint was selected to assess whether the upper row of houses would have a view of the proposed development across the Carnew Road.
- The Lask is a mature estate with large houses and extensive tree cover, creating a high degree of visual enclosure. There is limited visibility of the surrounding landscape. This is reflected in View 05. The upper field of the site can just be discerned in the distance through a gap in the trees of the intervening landscape.
- Viewpoint sensitivity: Medium. Residential receptors are sensitive to inappropriate change, but, as a residential estate/setting within the urban environment, there is some tolerance for change of similar type.

Proposed View

- The roofs of the uppermost houses on the site are just discernible in the distance, but the majority of the development is hidden.
- Magnitude of change: Negligible.

Effect Significance

- Not significant neutral. There would be no significant change to the view.

5.8.3.6 Viewpoint 6 – Creagh schools campus entrance

Existing View

- The view is taken from the entrance to Gorey ETNS and Gaelscoil Moshiolog. One of the school buildings is visible to the right. Gorey Hill/Kilnahue Lane is to the left, and two houses across the road from the school are hidden behind high boundary hedges.
- Viewpoint sensitivity: Low-Medium. The schools are busy community gathering places and therefore this view is experienced by many people. However, as schools serving an urban population, they are not sensitive receptors to change of the type proposed.

Proposed View

- The proposed creche is visible in the middle distance, up the hill behind the houses across the road. The creche building is of modest scale (not dissimilar to a house) and partially screened by retained vegetation inside the site boundary.
- Magnitude of change: Low.
- Effect Significance
- Not significant neutral. The development would take its place comfortably in the landscape, causing no significant change in character or visual amenity.

5.8.3.7 Viewpoint 7 – Kilnahue Lane near north east corner of site

Existing View

- This view highlights the rural character of Kilnahue Lane north of the school campus. (The school is directly behind the camera/viewer.) South of this point, Kilnahue Lane/Gorey Hill has been widened and upgraded to an urban specification to cater for the school traffic (vehicular, pedestrian and cyclists).

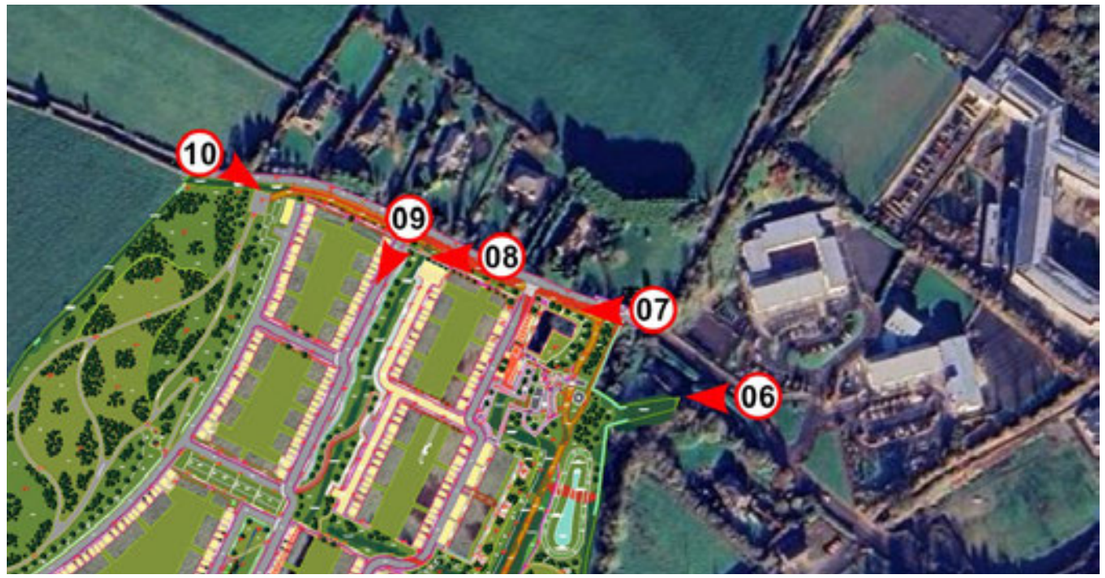

Figure 5-26 Viewpoints along Kilnahue Lane

Figure 5-26 Viewpoints along Kilnahue Lane

- The site is to the left of the road. The overgrown boundary vegetation contributes to the rural character and visual enclosure of the road. It must be recognised that this stretch of road is within the Gorey settlement boundary, adjacent to a busy school campus. The context is urban.
- To the right is the first of a row of suburban houses north east side of the road, opposite the site (see Figure 5-25 above). The houses are all located on large plots with mature gardens, which screen the houses from the road.
- Also of note in the view is the steep gradient of the road.
- Viewpoint sensitivity: Medium. The landscape at this point is of mixed character. Directly behind the viewer is a large, modern school campus. To the right (in the view) is a strip of suburban housing. To the left is the site, currently greenfield but within the settlement boundary and zoned for residential use. There is capacity for change in the view, although the houses across the road from the site are sensitive to inappropriate change.

Proposed View

- The road corridor is transformed by the development:
  - The road surface is widened to accommodate vehicular traffic in both directions.
  - This requires the removal of the roadside hedgerow and trees, reducing visual enclosure considerably.
  - A wide, shared pedestrian and cycle path runs alongside the road (separated by a green verge). At the near corner of the site, this route branches to cross the new neighbourhood along the historic lane, connecting to the Carnew Road on the far side.
  - A new hedge inside the footpath marks the boundary of the neighbourhood. Inside the hedge is a row of trees, compensating for the loss of existing hedgerow trees and softening the new built frontage.

- The creche is positioned at the near corner of the site. Like the houses further up the road, it is set well back from the road behind the green corridor (comprised of verge, hedge and trees). The roofs of the 2-3 storey houses can be seen stepping up the hill behind the creche.
- Also of note in the view is the wide separation distance between the proposed buildings and the existing house across Kilnahue Lane.
- Magnitude of change: High. A substantial part of the landscape in view, including the road and the area to one side of the road, is transformed from rural to suburban in character.

Effect Significance

- Moderate positive. An attractive residential estate would be introduced to Gorey's urban landscape, within the settlement boundary, adjacent to three schools (Gorey ETNS, Gaelscoil Moshiolog and Creagh College). Although the currently rural character of the lane would be changed, (a) the change is appropriate in this location, and (b) it would retain a 'country road' character (as required by the Gorey LAP) due to the wide setback of the buildings from the road, and the hedge and trees planted to replace the roadside hedgerow. Importantly, the photomontage shows that there would be no negative visual effect on the existing house across the road. The property would retain a high level of visual amenity.

5.8.3.8 Viewpoint 8 – Kilnahue Lane midway along the site frontage

Existing View

- The view shows the rural character of Kilnahue Lane, despite the row of houses across the road from the site, the boundary walls and gates of which are visible to the right.
- The site boundary hedgerow along this stretch includes a number of fine oak trees, some of which can be seen in the view.
- Viewpoint sensitivity: Medium. The landscape is of mixed character, with a row of suburban houses on one side of the road and agricultural fields on the other. This stretch of the road is within Gorey's settlement boundary, and the site is zoned for residential use. Given this context, there is capacity for change, although the houses across the road from the site are sensitive receptors.

Proposed View

- The road corridor is transformed by the development:
  - The roadside hedgerow and trees (including a number of fine oak trees – valuable landscape features) are removed to create a formal road edge and provide a new shared pedestrian and cycle path beside the road, separated by a green verge. Visual enclosure along the road is considerably reduced.
  - A new hedge is planted alongside the path, marking the boundary of the neighbourhood. Inside the hedge is a row of trees, compensating for the loss of the existing hedgerow trees and softening the new built frontage.
- Houses of 2-3 storeys are set back from the road behind the green corridor (verge, hedge, trees). The steps in roofline emphasise the steep topography of the site, and disaggregate the built form, adding visual interest.
- Ahead, inside the entrance, is a row of houses (parallel to the contours) fronting the internal access road.
- There is notable variety in the façade treatment and materials of the different houses.
- The wide separation distance of the new houses from the existing houses across the road is notable.
- Magnitude of change: High. A substantial part of the landscape in view, including the road and the area to one side of the road, is transformed from rural to suburban in character.

Effect Significance

- Moderate positive. An attractive residential estate would be introduced to the landscape, within Gorey's settlement boundary and across the road from an existing row of suburban houses. These houses would experience no loss of visual amenity. Although the currently rural character of the lane would be thoroughly changed, (a) the change is appropriate in this location, and (b) the road would retain a leafy, green quality owing to the setback of the buildings and the new hedge and trees. The removal of the oak trees would constitute a loss, but the generous new planting will compensate for this in time.

5.8.3.9 Viewpoint 9 – Kilnahue Lane at proposed entrance

Existing View

- The view is taken from a gate into the upper field of the site. The field, now disused and covered in rough grassland, rises to the right (north) towards the ridgeline. A scrubby hedgerow divides the upper field from another field down the slope.
- The undulating rural landscape surrounding Gorey can be seen in the distance to the west and south.
- Viewpoint sensitivity: Low-Medium. This view is seldom experienced, or only briefly glimpsed by people passing the gate along Kilnahue Lane. The rural landscape is attractive, but the lands in the foreground lie within Gorey's settlement boundary, are zoned for development, and are currently unused.

Proposed View

- A road traverses the site along the contours, beside a green corridor incorporating the retained field boundary hedgerow.
- To either side of this open space corridor are rows of terraced houses, also aligned with the contours – thus reflecting the site topography and taking advantage of the views and aspect. The sub-neighbourhoods either side of the central corridor feature different house types, with a variation in brick colour contributing to the variety.
- Magnitude of change: Very High. The grassland fields are transformed into a new residential neighbourhood.

Effect Significance

- Moderate neutral. While the landscape is profoundly altered (and the landscape in its current greenfield condition is attractive), the resulting view is equally visually pleasing: (1) the layout and design respond visibly to the site - specifically its distinctive topography, and by the retention of the hedgerow, and (2) the houses and public realm are of high design and material quality. The view across a field is replaced by a view into an attractive new neighbourhood.

5.8.3.10 Viewpoint 10 – Kilnahue Lane near north west corner of site

Existing View

- As Kilnahue Lane approaches Gorey the road crosses over a ridge before descending past the site and entering the urban areas (the schools are c. 300m from this location). At this point near the top of the ridge, a gate into the upper field (part of the site) affords a view over the site towards the surrounding rural hills.
- Passing by the gate, the roadside hedgerow again blocks the view.
- To the left (out of view) across the road is the first of the row of suburban houses opposite the site.

- Viewpoint sensitivity: Medium-High. The elevated vantage point provides an attractive view of the rural landscape surrounding Gorey, and at this point there is little indication of the proximity to the town.

Proposed View

- The upper field in the foreground is densely planted with a woodland mix, with the field developed into a woodland park. The trees block this particular view, but the park will be accessible to the public, providing an open space amenity as well as vantage points for views of the rural landscape to the west and south.
- Ahead along the road, the hedgerow is removed and a new house can be seen, set back from the road behind a wide pedestrian and cycle lane and green verge with trees.



Figure 5-27 The proposed hilltop woodland park

- Magnitude of change: Medium. While the blocking of the panoramic view by the new woodland constitutes a substantial change at this particular vantage point, it must be recognised (a) that this view is only briefly glimpsed when passing by the gate, and (b) there would be other similar views available from the new park.

Effect Significance

- Moderate positive. The development of a public woodland park on the ridgeline, accessible from Gorey along the improved Kilnahue Lane (with segregated pedestrian and cycle path connecting to the park) would constitute an important gain in Gorey's green infrastructure network and the local area's landscape and visual amenity. (The briefly glimpsed panoramic view from the passing road would be blocked by a patch of woodland, but (a) the woodland itself would be attractive, and (b) the park would provide other, better vantage points than the road.)

5.8.3.11 Viewpoint 11 – Westhill Park

Existing View

- This view is taken from Westhill Park, a housing estate on a hillside south of the R725 Carnew Road, inside the existing urban area of Gorey. Where not blocked by the houses of the estate, the hillside location affords views towards the site.



Figure 5-28 Location of Westhill Park relative to the site

- The view shows the evolving urban landscape in the western part of Gorey. In the foreground across the Carnew Road is a new housing estate, and behind this is the Creagh schools campus.
- The upper field of the site can be seen in the distance through the canopies of the trees at lower elevation. Some of these trees are on the site, around the ruined vernacular buildings and along the old lane that crosses the site.
- Viewpoint sensitivity: Low-Medium. This is a view from an existing housing estate, of the evolving urban area. As a receptor, Westhill Park and its residents are not sensitive to similar development within the settlement boundary.

Proposed View

- The roofscape of the new estate is visible in the distance on the hillside above the Carnew Road, Gorey Hill and the Creagh schools.
- Magnitude of change: Low. Although visible, the development is not prominent due to (a) the modest scale of the buildings (limited to three storeys), and (b) the LAP's preservation of the elevated part of the site from built development (by its zoning for Open Space).

Effect Significance

- Slight neutral. The urban area would be expanded (in accordance with the Gorey LAP), but the view would remain characterised by an abundance of green space and vegetation. There would be significant change in landscape character or loss of visual amenity.

Table 5 7 Summary of Potential Visual Effects Assessment

Viewpoint Location	Viewpoint Sensitivity	Visual Effects - CONSTRUCTION PHASE (Temporary)		Visual Effects - OPERATION PHASE (Permanent)	
		Magnitude of Change	Significance of Effects	Magnitude of Change	Significance of Effects
1. R725 Carnew Road approaching site from west	Medium	Low	Not significant negative	Low	Slight neutral
2. R725 Carnew Road along site frontage	Medium	Medium-High	Slight negative	Medium-High	Moderate positive
3. R725 Carnew Road at neighbouring house	Medium	Medium-High	Moderate negative	Medium-High	Moderate neutral
4. R725 Carnew Road entering Gorey	Low-Medium	Low	Not significant negative	Low	Not significant neutral
5. The Lask estate	Medium	Negligible	Not significant neutral	Negligible	Not significant neutral
6. Creagh schools campus entrance	Low-Medium	Low	Not significant negative	Low	Not significant neutral
7. Kilnahue Lane near north east corner of site	Medium	High	Slight negative	High	Moderate positive
8. Kilnahue Lane midway along the site frontage	Medium	High	Slight negative	High	Moderate positive
9.Kilnahue Lane at proposed entrance	Low-Medium	Very High	Slight negative	Very High	Moderate neutral
10.Kilnahue Lane near north west corner of site	Medium-High	Medium	Slight negative	Medium	Moderate positive
11. Westhill Park	Low-Medium	Low	Slight negative	Low	Slight neutral

5.8.4 Operational Phase – Landscape Effects

5.8.4.1 Landscape Sensitivity

The landscape sensitivity of the receiving environment is 'medium' (refer to Section 5.8.1.1 for explanation).

5.8.4.2 Magnitude of Landscape Change

Magnitude of change is a factor of the scale and the degree of change imposed on the landscape by a development, with reference to its key elements, features and characteristics.

The magnitude of landscape change that would result from the proposed development can be classified 'medium' (definition (refer to Table 5-2 above): Change that is moderate in extent, resulting in partial loss or alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that may be prominent but not necessarily substantially uncharacteristic in the context. Such development results in change to the character of the landscape).

The medium magnitude of change classification is based on the following:

- With a developable site area of 11.5 ha and comprised of 413 homes, a creche and an extensive network of open space, the proposed development is of large scale/spatial extent (in the context of Gorey).
- However, due to (a) the local topography, (b) existing vegetation in the landscape, (c) the modest height of the buildings, (d) avoidance of building on the upper slope of the site (as required by the Gorey LAP), and (e) the separation of the majority of the site from the existing public realm and private properties, the proposed development's zone of visibility/ influence would be limited. The main areas and receptors potentially affected are the stretches of the R725 Carnew Road and Kilnahue Lane as they pass by the site, and the relatively small number of houses along those roads beside or opposite the site.
- These limited areas/receptors would experience a change in landscape character - from peri-urban to urban. The site's development would expand the urban area and effectively incorporate the adjacent roads and existing residential properties into Gorey's urban landscape, albeit at the urban-rural edge.
- While this change would be locally significant, it must be considered that (a) the site falls into the defined settlement boundary and is zoned for development in the Gorey LAP, and (b) the nature of the proposed development is not alien in the context:
  - The proposal does include some higher density housing typologies (apartment/duplex blocks, as required by compact growth policy), but these buildings are limited in number (relative to terraced and semi-

detached houses, which make up the majority of the scheme) and in scale (only three storeys tall).

- It is also a factor that some larger scale buildings already occur in the vicinity (the three schools and a motor dealership/showroom).

In summary, the local area (Creagh and the western edge of Gorey) would experience a shift in landscape character, from peri-urban to urban. This change is plan-led and already in process (with other residential developments taking place elsewhere in the Creagh area). Additionally, the visibility of the change would not be widespread; the landscape and visual effects would be localised.

5.8.4.3 Significance of Landscape Effects

Measuring the magnitude of change against the landscape sensitivity (refer to Table 5-3 and Figure 5-8), the landscape effects of the development in the operational phase would be of 'moderate' significance (EPA definition of moderate: An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends).

The key question is whether the effects can be classified positive, neutral or negative. In this regard:

- The development includes a large neighbourhood park, a woodland parkland on the OS-zoned hilltop portion of the site. This would be a significant gain in landscape and visual amenity of the area, and an important addition to the town's green infrastructure network.
- A proportion of the internal field boundary hedgerows and trees would be retained and incorporated into the neighbourhood's open space/green infrastructure network. The objective to retain the hedgerows informed the proposed layout/block structure of the neighbourhood (see Figure 5-28).



Figure 5-29 Proposed open space network and planting

- The proposed species mixes throughout the scheme have been selected to support native pollinators and strengthen local ecosystems, with the objective to achieve net biodiversity gain (see p. 22 of the Landscape and Green Infrastructure Report by Simon Ronan Landscape Architects, October 2025).
- The proposal is thus in compliance with Objective NH10 of the Wexford County Development Plan 2022-2028 (CDP): *"To ensure that traditional field boundaries, ponds or small woods which provide important ecological corridors, stepping stones or networks are protected. Where such features exist on land which is to be developed the applicant should demonstrate that the design of the development has resulted in the retention of these features insofar as is possible and that the existing biodiversity value of the site has been protected and enhanced."*
- The proposal would require the removal of some 280m of hedgerow along the Kilnahue Lane boundary. This includes several fine oak trees in the hedgerow. This constitutes a loss of existing landscape/visual assets, but the upgrade of the road is required to facilitate the site's development for anything other than its current agricultural use. To compensate for the loss, a new row of trees (and a double row in places) is proposed in a wide green verge alongside the road. This would maintain a leafy/green character along Kilnahue Lane (refer to Figure 5-4 above).
- The proposal is thus compliant with CDP Objective NH13: *"To ensure applications for development include proposals for native planting and leave a suitable ecological buffer zone between the development works and any areas or features of ecological importance. To minimise the removal of hedgerow and natural boundaries, and where hedgerows are required to be removed the applicant/ developer will be required to reinstate the hedgerows with a suitable replacement of native species."*
- The proposed development retains and repurposes the cluster of ruined vernacular buildings on the site, incorporating them in an open space beside the creche, as part of a community hub.
- The development would infill an existing area of peri-urban landscape and thereby consolidate the urban area and clearly define the western urban edge of Gorey. These are positive changes in urban design terms, as well as representing a more sustainable use of land. The development would thus realise Objective TV04 of the CDP: *"To promote compact urban form, which is appropriate to context, in the interests of the efficient use of resources and optimising the opportunities to walk and cycle and the feasibility of public transport".*
- The proposed development's inclusion of a hilltop woodland park, and the associated avoidance of buildings on the ridgeline (in accordance with the Gorey LAP), would ensure that the development is not unduly visually intrusive. As well as realising the LAP's Open Space objective, this complies with Objective L06 of the CDP: *"To ensure that developments are not unduly visually obtrusive in the landscape, in particular, in or adjacent to the Upland, River Valley, Coastal or Distinctive Landscape Character Units".*
- The positioning of a three storey apartment/duplex block (an urban building typology) fronting the R725 Carnew Road is in accordance with the Gorey LAP's designation of the road as a 'Main Street' (see Figure 11 'Route Concept' of the Creagh Neighbourhood Framework Plan contained in the LAP). The building would reinforce the road's status in the urban structure, and mark its entrance into the urban area.
- In contrast, the deep setback of the houses along Kilnahue Lane, behind a hedge and a wide green verge with trees, is in keeping with the Gorey LAP's designation of that road as a 'Country Road/Street'.
- The verified photomontages and CGI views, which informed the visual effects assessment, show that the proposed development is designed with consideration and respect of the landscape context (its natural and built elements). The proposed buildings and public realm are of high design and material quality. The proposal is thus in accordance with:
  - CDP Objective TV14: *"To require that new buildings are of exceptional architectural quality, and are fit for their intended use or function, are flexible in the face of unknown future demands, durable in terms of design and construction, respectful of setting and the environment and to require that the overall*

development is of high quality, with a well-considered public realm".

- CDP Objective TV15: *"To ensure that the appearance of buildings, in terms of details and materials (texture, colour, patterns and durability), is of a high standard with enduring quality and has a positive impact on the visual quality of the area."*

- In its layout, architecture and landscape design the proposed development responds to, and reflects, the site's hillside topography, seeking to translate the design challenge of the gradient into a landscape/ neighbourhood asset. This is in keeping with Objective ROS19 of the CDP: *"To ensure that the design of residential schemes, including open spaces, optimises the existing features and topography of the site such as rivers, streams, rock outcrops, trees and hedgerows, and to ensure that biodiversity and green infrastructure are fully considered and*

In summary, based on the analysis above and the visual effects assessment in Section 5.8.3, the operational phase landscape effects are classified as being of moderate significance, positive, and direct.

5.8.5 Cumulative Effects

No potential cumulative effects have been identified.

5.8.6 Summary

5.8.6.1 Likely Visual Effects – Construction Phase

The following Table summarises the identified likely visual effects during the construction phase of the proposed development before mitigation measures are applied.

Table 5 8 Summary of Construction Phase Likely Significant Visual Effects in the absence of mitigation

Viewpoint Location	Viewpoint Sensitivity	Visual Effects - CONSTRUCTION PHASE (Temporary)	
		Magnitude of Change	Significance of Effects
1. R725 Carnew Road approaching site from west	Medium	Low	Not significant negative
2. R725 Carnew Road along site frontage	Medium	Medium-High	Slight negative
3. R725 Carnew Road at neighbouring house	Medium	Medium-High	Moderate negative
4. R725 Carnew Road entering Gorey	Low-Medium	Low	Not significant negative
5. The Lask estate	Medium	Negligible	Not significant neutral
6. Creagh schools campus entrance	Low-Medium	Low	Not significant negative
7. Kilnahue Lane near north east corner of site	Medium	High	Slight negative
8.Kilnahue Lane midway along the site frontage	Medium	High	Slight negative
9. Kilnahue Lane at proposed entrance	Low-Medium	Very High	Slight negative
10. Kilnahue Lane near north west corner of site	Medium-High	Medium	Slight negative
11.Westhill Park	Low-Medium	Low	Slight negative

5.8.6.2 Likely Landscape Effects – Construction Phase

The likely landscape effects during construction would be of moderate-slight significance, negative, and direct (refer to Section 5.8.1.3 above).

5.8.6.3 Likely Visual Effects – Operational Phase

The following Table summarises the identified likely significant visual effects during the operational phase of the proposed development before mitigation measures are applied.

Table 5 9 Summary of Operational Phase Likely Significant Visual Effects in the absence of mitigation

Viewpoint Location	Viewpoint Sensitivity	Visual Effects - CONSTRUCTION PHASE (Temporary)	
		Magnitude of Change	Significance of Effects
1. R725 Carnew Road approaching site from west	Medium	Low	Slight neutral
2. R725 Carnew Road along site frontage	Medium	Medium-High	Moderate positive
3. R725 Carnew Road at neighbouring house	Medium	Medium-High	Moderate neutral
4. R725 Carnew Road entering Gorey	Low-Medium	Low	Not significant neutral
5. The Lask estate	Medium	Negligible	Not significant neutral
6. Creagh schools campus entrance	Low-Medium	Low	Not significant neutral
7. Kilnahue Lane near north east corner of site	Medium	High	Moderate positive
8. Kilnahue Lane midway along the site frontage	Medium	High	Moderate positive
9. Kilnahue Lane at proposed entrance	Low-Medium	Very High	Moderate neutral
10. Kilnahue Lane near north west corner of site	Medium-High	Medium	Moderate positive
11. Westhill Park	Low-Medium	Low	Slight neutral

5.8.6.4 Likely Landscape Effects – Operational Phase

The likely landscape effects during operation would be of moderate significance, positive, and direct (refer to Section 5.8.4.3 above).

5.9 Mitigation Measures

5.9.1 Incorporated Design Mitigation

- The 'OS' (Open Space and Amenity) zoned hilltop portion of the site would be developed as a woodland park. The avoidance of built development in this more elevated/exposed part of the site would ensure that the development would not be unduly visually intrusive.
- In its layout, architecture and landscape design the proposed development responds to and reflects the site's hillside topography.

- A proportion of the internal field boundary hedgerows and trees, including the hedgerows enclosing the old lane crossing the site, would be retained and incorporated into the open space/green infrastructure network. The alignment of the hedgerows informed the proposed layout/block structure.
- The proposal would require the removal of some 280m of hedgerow along the Kilnahue Lane boundary. This includes several fine oak trees in the hedgerow. This constitutes a loss of existing landscape/visual assets. To compensate for the loss, a new row of trees (and a double row in places) is proposed in a wide green verge behind a hedge alongside the road. This would maintain a leafy/green character along Kilnahue Lane (refer to Figure 5-4 above).
- The proposed houses along Kilnahue Lane are set well back from the road to allow for the compensation planting. This would also reduce the houses visibility/prominence from the existing houses across the road.
- While some loss of existing vegetation is unavoidable in the conversion of the lands from agricultural to residential use, it is intended that the development will result in net biodiversity gain - through the retention of a substantial proportion of the existing hedgerow and trees, the generous overall provision of open space (including the hilltop woodland park) and new vegetation (1,734 no. new trees are proposed), and selection of plant species mixes to support native pollinators.
- The ruined vernacular stone buildings on the site would be incorporated in a park functioning as a community hub, co-located with the creche, and positioned alongside the pedestrian and cycle route spine (the repurposed old lane crossing the site).

5.9.2 Construction Phase Mitigation

The most effective mitigation for the negative landscape and visual effects of construction is site hoarding. This is only effective for ground level activity. When buildings under construction rise above ground level they are exposed and unsightly, as are the materials stockpiles, vehicles, etc. typical of a construction site. Some negative effects are therefore unavoidable in the construction phase. Nonetheless, to minimise the effects, it is recommended that site hoarding be erected around the site – where this is compatible with the protection of the boundary vegetation.

Good practice in site management can reduce unnecessary visual impacts. These may include (a) considered layout of the construction site with regard to the most sensitive visual receptors, (b) dust control (e.g. water sprays to avoid dust plumes; spraying of vehicles before site departure to avoid dirtying roads), (c) waste control (e.g. netting/covering of storage bins/areas; regular site inspection for litter), and (d) considered positioning of security lighting.

A Construction Environmental Management Plan (CEMP) has been prepared and submitted with the LRD application. The CEMP includes measures – or a framework for the agreement of measures - such as those identified above.

A Tree Protection Plan and Tree Appraisal and Arboricultural Assessment has been prepared by Charles McCorkell B.Sc. (Hons), MICFor, MArborA Chartered Arboriculturist. This includes measures for the protection of the site hedgerows and trees during construction.

5.9.3 Operational Phase Mitigation

The design of the proposed development incorporates all necessary mitigation measures for operational phase impacts. No further operational phase mitigation measures are required.

5.10 Residual Impact Assessment

5.10.1.1 Residual Visual Effects – Construction Phase

The following Table summarises the identified residual visual effects during the construction phase of the proposed development.

Table 5 10 Summary of Construction Phase Residual Visual Effects

Viewpoint Location	Viewpoint Sensitivity	Visual Effects - CONSTRUCTION PHASE (Temporary)	
		Magnitude of Change	Significance of Effects
1. R725 Carnew Road approaching site from west	Medium	Low	Not significant negative
2. R725 Carnew Road along site frontage	Medium	Medium-High	Slight negative
3. R725 Carnew Road at neighbouring house	Medium	Medium-High	Moderate negative
4. R725 Carnew Road entering Gorey	Low-Medium	Low	Not significant negative
5. The Lask estate	Medium	Negligible	Not significant neutral
6. Creagh schools campus entrance	Low-Medium	Low	Not significant negative
7. Kilnahue Lane near north east corner of site	Medium	High	Slight negative
8. Kilnahue Lane midway along the site frontage	Medium	High	Slight negative
9. Kilnahue Lane at proposed entrance	Low-Medium	Very High	Slight negative
10. Kilnahue Lane near north west corner of site	Medium-High	Medium	Slight negative
11. Westhill Park	Low-Medium	Low	Slight negative

5.10.1.2 Residual Landscape Effects – Construction Phase

The residual landscape effects during construction would be of moderate-slight significance, negative, and direct (refer to Section 5.8.1.3 above).

5.10.1.3 Residual Visual Effects – Operational Phase

The following Table summarises the residual visual effects during the operational phase of the proposed development after mitigation measures are applied.

Table 5 11 Summary of Operational Phase Residual Visual Effects

Viewpoint Location	Viewpoint Sensitivity	Visual Effects - CONSTRUCTION PHASE (Temporary)	
		Magnitude of Change	Significance of Effects
1. R725 Carnew Road approaching site from west	Medium	Low	Slight neutral
2.R725 Carnew Road along site frontage	Medium	Medium-High	Moderate positive
3. R725 Carnew Road at neighbouring house	Medium	Medium-High	Moderate neutral
4. R725 Carnew Road entering Gorey	Low-Medium	Low	Not significant neutral
5. The Lask estate	Medium	Negligible	Not significant neutral
6. Creagh schools campus entrance	Low-Medium	Low	Not significant neutral
7. Kilnahue Lane near north east corner of site	Medium	High	Moderate positive
8. Kilnahue Lane midway along the site frontage	Medium	High	Moderate positive
9. Kilnahue Lane at proposed entrance	Low-Medium	Very High	Moderate neutral
10. Kilnahue Lane near north west corner of site	Medium-High	Medium	Moderate positive
11. Westhill Park	Low-Medium	Low	Slight neutral

5.10.1.4 Residual Landscape Effects – Operational Phase

The residual landscape effects during operation would be of moderate significance, positive, and direct (refer to Section 5.8.4.3 above).

5.10.2 Cumulative Residual Effects

No residual cumulative effects have been identified.

5.11 Worst Case Scenario

Mitigation measures not implemented: If the mitigation measures were not implemented, specifically the protection measures for retained hedgerows and trees, a greater volume of existing vegetation could be lost from the site than currently proposed/envisioned. In this case, new planting could take place in compensation for the loss.

5.12 Interactions

5.12.1 Landscape/Visual and Population and Human Health (Noise and Dust Emissions)

During the construction stage, there is potential for negative landscape and visual effects of construction to combine with noise and dust emissions from the construction site to negatively impact the residential amenity of residential receptors near the site. The receptors most likely to experience such impacts are the neighbouring houses along the R725 Carnew Road and the houses along Kilnahue Lane.

5.12.2 Landscape/Visual and Population and Human Health

The proposed development would deliver a high quality new residential neighbourhood within walking distance of Gorey town centre, with access to schools, retail, employment, open space and other land uses and amenities provided by the town. The related change to the landscape character (of Creagh and the town's western edge) would have significant positive population and human health benefits (by providing homes offering a high level of residential amenities and encouraging Active Travel).

5.12.3 Landscape/Visual and Biodiversity

The proposed development would result in the loss of some of the site's hedgerows and trees (most notably along the Kilnahue Lane boundary). As well as being of landscape and visual amenity value, these are important habitat features, and their loss would have negative biodiversity impacts. A large volume of compensation planting is proposed, along Kilnahue Lane and elsewhere in the site, including in the new woodland park. This park would be a significant gain in landscape and visual amenity, as well as contributing to a net biodiversity gain.

5.13 Monitoring

A key aspect of the proposed development is the retention of hedgerows, hedgerow trees and tree groups. During the construction phase, this vegetation would be vulnerable to damage caused by construction activity. It is therefore recommended that (1) the measures recommended by the arboricultural consultant for the protection of this vegetation be monitored throughout construction (to ensure its structural integrity and efficacy), and (2) that the health of the retained vegetation be monitored throughout construction (to ensure the efficacy of the protection measures and inform adjustment to the measures if required).

5.14 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 5 12 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Negative visual effects of construction activity on site	Site hoarding	Regular inspection and maintenance of hoarding
Possible unplanned damage/loss of boundary hedgerow, hedgerow trees and tree groups during construction	Hedgerow and tree protection measures recommended by Arboricultural consultant	Monitoring of the structural integrity and efficacy of hedgerow and tree protection measures throughout construction phase
Possible unplanned damage/loss of boundary hedgerow, hedgerow trees and tree groups during construction	Hedgerow and tree protection measures recommended by Arboricultural consultant	Monitoring of the health of the retained hedgerows and trees throughout construction phase

No mitigation or monitoring measures are required or recommended for landscape or visual impacts in the operational phase.

5.15 Conclusion

Based on the assessment in this chapter, the proposed development can be considered an appropriate, positive intervention in the landscape. The proposal demonstrates consideration and respect for the natural and built elements and characteristics of the landscape, and compliance with the landscape and visual-related policies of the CDP and the Gorey LAP. No significant negative landscape or visual effects have been identified.

5.16 References and Sources

- *Architectural Design Statement*, Deady Gahan Architects, 2025.
- *Gorey Town and Environs Local Area Plan 2017-2023*, Wexford County Council.
- *Wexford County Development Plan 2022-2028*, Wexford County Council.
- *Guidelines for Landscape and Visual Impact Assessment,* 3rd edition, 2013 (GLVIA), published by the Landscape Institute.
- *Guidelines on the Information to be Contained in Environmental Impact Assessment* Reports, 2022, published by the EPA.
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment,* 2018, published by the Department of Housing, Planning and Local Government.
- *Landscape and Green Infrastructure Report*, Simon Ronan Landscape Architects, October 2025.
- *Urban Design Manual – A Best Practice Guide*, Department of Environment, Heritage and Local Government, 2009.

CHAPTER SIX

MATERIAL ASSETS: TRAFFIC & TRANSPORT



CHAPTER 6

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CHAPTER 6 | MATERIAL ASSETS: TRAFFIC & TRANSPORT

6.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects of the proposed development on the traffic and transport environment.

It should be read in conjunction with the complete Traffic and Transport Assessment (TTA) prepared by NRB Consulting Engineers Ltd and it follows the requirements of the EPA (2022) EIAR Guidelines, TII Traffic and Transport Assessment Guidelines (2014), the Design Manual for Urban Roads and Streets (DMURS), and relevant Wexford County Development Plan Policies.

6.2 Expertise and Qualifications

This chapter of the EIAR has been prepared by Brian McMahon of NRB Consulting Engineers Ltd.

Brian McMahon holds a BE (Hons) and MSc in Civil Engineering. Brian McMahon has carried out Traffic and Transport Assessments, with 20 year's experience, and been involved in the preparation of EIARs for the following projects:

- LRD Green Vale, Greenhills Rd, Walkinstown, Dublin 12.
- LRD Cromcastle Road, Dublin 5.
- LRD Lough Atalia Road, Galway City.

6.3 Proposed Development

The proposed development comprises 413 residential units (349 houses and 64 apartments), a creche, internal roads and footpaths, active travel links, parking, drainage and associated infrastructure. Vehicular access is provided via a new ghost-island priority junction onto the R725 and two DMURS-compliant priority junctions onto the L10112 Kilnahue Lane. A 4.0 m shared pedestrian/cycle route along Kilnahue Lane will connect the development to the existing pedestrian and cycle network.

Vehicular access to the proposed development will be provided via three junctions, a ghost-island priority junction on the R725 Carnew Road and two smaller DMURS-compliant junctions on Kilnahue Lane. The primary access will comprise a ghost-island junction on Carnew Road incorporating a dedicated right-turn lane (refer to drawings in Appendix A of the submitted TTA.). Two secondary access points are proposed on the L10112 Kilnahue Lane, which in turn connects to the R725 to the south.

It is proposed to provide a ghost island priority junction onto Carnew Road at an appropriate point where there is no impediment to achieving the required sightline or stopping sight distance. The proposed junction layout, with Drawing NRB-TA-001, provided in Appendix A of the submitted TTA. It is proposed to extend the existing footpath along the northern side of the R725 Carnew Road, adjacent to the site boundary, to provide a continuous pedestrian link connecting future residents with Gorey Town Centre.

Two smaller DMURS-compliant junctions on are proposed on Kilnahue Lane. It is proposed to widen Kilnahue Lane adjacent to the site, providing a 5.5m wide road carriageway. A 4.0m wide shared pedestrian / cycle route is proposed adjacent and parallel to Kilnahue Lane, which will link to the existing pedestrian and cycle facilities to the south along by Gorey Educate Together National School via a raised zebra crossing on Kilnahue Lane.

6.3.1 Aspects Relevant to this Assessment

The Traffic and Transport Assessment for the proposed Gorey development evaluates the likely transportation impacts arising from the scheme within the context of the local road network in Gorey. The assessment focuses on the capacity, operation and safety performance of the proposed site access junctions, and examines how the development will interact with the immediate road network, including its key junctions and connections to Gorey town. It also considers the adequacy of existing infrastructure, and the ability of the network to accommodate the anticipated development-generated traffic in a safe and efficient manner.

6.4 Methodology

The assessment includes review of baseline traffic conditions, trip generation based on Irish TRICS datasets, distribution and assignment, junction capacity modelling using TII-approved software (PICADY and ARCADY), and evaluation of impacts during opening and design years. Site visits and traffic surveys undertaken in February 2025 form the basis of baseline conditions.

6.4.1 Relevant Legislation & Guidance

The methodology for this chapter is based on recognised national guidance including:

- Transport Infrastructure Ireland (TII) Traffic and Transport Assessment Guidelines (2014);
- Transport Infrastructure Ireland Project Appraisal Guidelines (2017);
- Design Manual for Urban Roads and Streets (DMURS, 2019);
- Wexford County Development Plan 2022–2028;
- EPA EIAR Guidelines (2022).

6.4.2 Site Surveys/Investigations

NRB commissioned a 2025 Traffic Survey of the existing affected roads and junctions in order to establish base background traffic conditions. Details of the traffic surveys are included as Appendix B of the submitted TTA and are reproduced as commuter peak hour Network Flow Diagrams as Appendix D of the submitted TTA.

6.4.3 Consultation

A S247 note outlining the scope of the Traffic and Transport reports, was prepared and issued to Wexford County Council, in March 2025. A S247 Meeting with Wexford County Council was held on the 29 April 2025. A S32B Traffic / Roads Technical Note outlining the proposed traffic survey and predicted trip generation was prepared and issued to Wexford County Council, in July 2025. A LRD Opinion meeting was held with Wexford County Council meeting was hold on the 11th September 2025.

6.5 Difficulties Encountered

No limitations or difficulties were encountered in compiling the required information for the Traffic and Transport Assessment.

6.6 Baseline Environment

6.6.1 Site Location

The site is located to the west of Gorey, with access available via the R725 Carnew Road and the L10112 Kilnahue Lane;

6.6.2 Road Network Infrastructure & Traffic Conditions

R725 Carnew Road – this is a regional road connecting Gorey to Carnew, Tullow and Carlow Town to the west. It consists of a single carriageway road. The proposed site access location is within the 60km/h urban speed limit area of Gorey Town. There are presently no dedicated pedestrian or cycling facilities provided at the point of the proposed site access, but it is proposed to extend the pedestrian footpath to the site, as part of the development works.

L10112 Kilnahue Lane – is a narrow local road connecting Gorey to rural areas to the north. The road width is narrow, approximately 5.0m wide. While the site access junction locations are within the 80km/hr speed limit, the 50km/hr speed limit is located a short distance to the south of the proposed development.

Kilnahue Lane widens to the south of the proposed site, with wide pedestrian and cycle facilities provided adjacent to the two schools located to the east of Kilnahue Lane.

Site 1: R725 Carnew Road / L10112 Kilnahue Lane Priority Junction: This priority junction has twice recently been upgraded, first in 2009 as part of the improvement in pedestrian and cycle access works for the nearby schools, and again in 2018 with the provision of a footpath to the west of the junction on the northern side of the junction. The Carnew Road is a two-way single carriageway road, with a one lane approach from Kilnahue Lane. Pedestrian footpaths are provided on the northern side of the junction, and an off-road cycle track on the eastern and northern arms of the junction, connecting the schools to the north. As highlighted in the traffic surveys, the junction is at its busiest in the AM peak, with traffic accessing the two schools to the north.

Site 2: R725 Carnew Road / Woodbury Mini-Roundabout Junction. This 3-arm mini-roundabout junction. The junction was upgraded from its original layout as a priority – T-Junction. Pedestrian footpaths are provided on all arms of the junction. On-Road cycle lanes are provided on the Woodbury arm of the junction, although these are not continued on the Carnew Road. The Woodbury arm of the junction serves as a link to residential areas in the north-west of Gorey and provides access to Creagh College.

Site 3: R725 Grattan Row / R772 McCurtain Street / R772 Enniscorthy Road Gyratory. This junction has also been subject to recent upgrades in Gorey, incorporating a one-way system to the west and north of the 1798 Gorey Hill Monument. The section of the R725 west of the monument now operates as northbound only, with traffic from the Enniscorthy Road entering via an entry-only junction onto the R725. Conversely, McCurtain Street operates as eastbound only, allowing traffic from the R725 to exit towards the Enniscorthy Road through an exit-only junction. As a result, two new junctions have been introduced, an entry-only junction and an exit-only junction, replacing the former full-movement junctions and thereby improving overall traffic flow and operational efficiency.

Site 4: Existing R772 Enniscorthy Road / L1038 Roundabout Junction. This is a 3-arm 35m ICD roundabout. The northern R772 and the southern L1038 approaches both consists of a flared two lanes, while the western approach has a single lane. Footpaths are provided on all arms, with zebra crossings provided on the northern and southern arms of the junction. Off-road cycle lanes are provided on the southern L1038 arm of the junction.

6.6.3 Current Traffic Movements

Observation indicates that, like the vast majority of roads in or on the approach to successful town centre environments, there was some short duration peak commuter period traffic during the AM peak. This is typical in any urban road network during peak periods.

The majority of the AM peak traffic locally appears to be from the three schools located in close proximity to the proposed site. Gorey Educate Together National School (c. 400 students), opened in 2005, is accessed via Kilnahue Lane, while the Gaelscoil Moshíológ (c. 200 students), officially opened in 2016, is co-located on Kilnahue Lane. The post-primary level, Creagh College (c. 700 students), opened in 2011, is a purpose-built campus accessed via Woodbury.

During the morning peak hour (8am – 9am), approximately 430 vehicles were recorded accessing Kilnahue Lane, the majority of which are likely associated with school-related trips. During the evening peak hour (5pm – 6pm), this volume decreased significantly to 53 vehicles, reflecting the conclusion of all classes at the two schools prior to 3pm.

Woodbury also likely sees significant school-related trips during the AM peak (8am – 9am), where approximately 900 vehicles were recorded accessing Woodbury, a significant number likely associated with school-related trips. During the evening peak hour (5pm – 6pm), this volume decreased significantly to 567 vehicles (a c.40% reduction), reflecting the conclusion of all classes at Creagh College prior to 4pm.

6.6.4 Road Safety

The RSA currently do not provide local collision statistics, but there are no known collisions clusters or road safety issues on the local road network.

6.6.5 Future Infrastructural Improvement

There are no local authority road links or improvements currently proposed locally.

6.7 The ‘Do Nothing’ Scenario

In the absence of the Proposed Development, the existing site conditions and associated traffic patterns would remain unchanged. No additional vehicular trips would be generated, and the current baseline traffic volumes, junction performance, and network capacity would be maintained. As such, there would be no new traffic on the

local road network, and no requirement for the new site access junctions or improved pedestrian and cycle links.

6.8 Potential Significant Effects

Potential significant effects associated with the proposed Kilnahue, Gorey LRD relate primarily to temporary construction-phase impacts and limited operational-phase traffic changes.

6.8.1 Demolition Phase

No demolition works are proposed as part of this development.

6.8.2 Construction Phase

Direct effects may include short-term increases in construction traffic on the R725, resulting in localised increases in HGV movements, temporary delays, and potential pedestrian vehicle conflicts. Indirect effects may arise from construction-related noise, dust and journey time variability influencing the surrounding residential and educational environment.

Earthworks export is c. 26,000 m³, equating to ~2,167 HGV loads over c. 12 weeks (≈ 36 HGV/day). If deliveries concentrate in a single peak hour (20% worst case), the added ~14 PCU/h could increase two-way PM peak flow on the R725 (baseline ~589 PCU/h) by ~2.4%.

With unmanaged timing/routeing, short-lived surges in HGV arrivals could lengthen queues at network junctions which may impact traffic during network peaks.

Without formal traffic management, temporary conflicts at the site frontage (turning HGVs, intermittent lane encroachment, footpath pinch-points, debris on carriageway) could reduce pedestrian/cyclist level of service.

If contractor parking/loadings spill on the R725 at peaks, short interruptions to flow and sight-line obstruction could occur.

No persistent capacity exceedances are anticipated, but short-duration peak-period effects (delay/queuing, localised safety disbenefits) could arise on specific days if heavy activity coincides with commuter peaks, as is normal at any construction site in an urban area.

6.8.3 Operational Phase

The traffic analysis in this report has been prepared in accordance with the requirements, and methodologies set out in TII's PE-PDV-02045 Traffic & Transport Assessment Guidelines. These are the professional Guidelines used to assess the impact of developments on public roads, with the methodology in line with best practice.

The methodology included Trip Generation using the TRICS database, Trip Assignment/Distribution, Traffic Analysis (as set out below) and proposed mitigation measures if required.

Both the Institution of Highways and Transportation (IHT) Guidelines for Traffic Impact Assessment and the TII Traffic and Transport Assessment Guidelines sets out a mechanism for assessment of developments of this nature and determining whether further assessment is indeed required.

6.8.4 Cumulative Effects

The Trip Rate Information Computer System (TRICS) database is ordinarily used to ascertain vehicular trip generation associated with the use of any particular site. This represents industry-standard practice for Traffic and Transport Assessments in Ireland, and is indeed the recommended assessment methodology within the TII Guidelines for Traffic & Transport Assessment. In this case the worst-case TRICS assessment has been undertaken based on the licensed version of TRICS, specifically selecting Irish Residential Housing sites for assessment purposes, and including Residential Apartments and a Creche.

A robust and onerous assessment has been undertaken of the impact on the immediate local network as described above, in order to ensure that we thoroughly assess the effect of the development, in terms of stress testing the road capacity impact of the scheme on the local links (conscious that the site represents development on zoned residential lands on an accessible site within the urban area).

The TRICS assessment output for the subject site is included herein as Appendix C of the submitted TTA, (Irish Residential Housing Surveys only). The resulting Total Trip Rates applied based on TRICS are as set out below as Table 6.1.

Table 6 1 Traffic Generation by Proposed Development based on TRICS Database

349 Residential Houses	Arrivals (PCU)		Departs (PCU)		2-Way
Network Period	Per	Dev	Per	Dev	
Weekday AM Peak Hr 8-9	0.202	70	0.568	198	269
Weekday PM Peak Hr 5-6	0.488	170	0.311	109	279
24 Hour Day	3.281	1145	3.463	1209	2354
64 Resi Apartments	**Arrivals (PCU)**		**Departs (PCU)**		**2-Way**
Network Period	Per	Dev	Per	Dev	
Weekday AM Peak Hr 8-9	0.087	6	0.141	9	15
Weekday PM Peak Hr 5-6	0.196	13	0.185	12	24
24 Hour Day	1.500	96	1.685	108	204
510m2 GFA Creche	**Arrivals (PCU)**		**Departs (PCU)**		**2-Way**
Network Period	Per	Dev	Per	Dev	
Weekday AM Peak Hr 8-9	3.184	18	3.412	19	38
Weekday PM Peak Hr 5-6	2.805	16	4.246	24	40
24 Hour Day	17.588	100	17.515	100	200

TOTAL TRAFFIC GENERATED - WORST CASE*			
Network Period	Arrivals (PCU)	Departs (PCU)	2-Way
Weekday AM Peak Hr 8-9	80	211	291
Weekday PM Peak Hr 5-6	186	125	311
24 Hour Day	1241	1316	2558

**Creche Trips are Discounted by 80% to Reflect Internal Traffic / Uses, being a normal approach*

We have undertaken detailed modelling and assessment of the network junctions in order to confirm adequacy. The junctions have been assessed using the TII-approved TRL Modelling Software Package Junctions 10-PICADY (Priority Intersection Capacity And DelaY). This package enables the user to predict the capacity, queues and delays at priority-controlled junctions.

We have used the TII-approved software package 'Junctions 10' ARCADY' (Assessment of Roundabout Capacity And Delay) software package (as part of the TRL Package 'Junction 10') to assess the capacity of the mini-roundabout junction. ARCADY produces results based on a ratio of flow to capacity (RFC) and queue length.

The outputs from the software present RFC (Ratio of Flow to Capacity) and queue lengths as indicators of the operational efficiency of the specific junction.

We have appended the detailed computer simulation model results of the capacity modelling for the proposed junctions, as Appendix E to Appendix K of the submitted TTA. A summary of the results is reproduced below, as Tables 6.2 to 6.8.

Table 6 2 Capacity Assessment of Proposed R725 Site Access, Priority Controlled Junction

Modelled Year & Scenario	Period "Mean-Max" Q (PCUs)	Period Max RFC
2028 Opening Year AM Peak Hr 8-9	0.3	0.21
2028 Opening Year PM Peak Hr 5-6	0.2	0.17
2043 Design Year AM Peak Hr 8-9	0.3	0.21
2043 Design Year PM Peak Hr 5-6	0.2	0.17

Table 6 3 Capacity Assessment of Proposed Southern L10112 Site Access, Priority Controlled Junction

Modelled Year & Scenario	Period "Mean-Max" Q (PCUs)	Period Max RFC
2028 Opening Year AM Peak Hr 8-9	0.2	0.14
2028 Opening Year PM Peak Hr 5-6	0.1	0.07
2043 Design Year AM Peak Hr 8-9	0.2	0.14
2043 Design Year PM Peak Hr 5-6	0.1	0.07

Table 6 4 Capacity Assessment of Existing R725 / L10112, Priority Controlled Junction

Modelled Year & Scenario	Period "Mean-Max" Q (PCUs)	Period Max RFC
2028 Opening Year AM Peak Hr 8-9	0.1	0.12
2028 Opening Year PM Peak Hr 5-6	0.1	0.07
2043 Design Year AM Peak Hr 8-9	0.1	0.12
2043 Design Year PM Peak Hr 5-6	0.1	0.07

Table 6 5 Capacity Assessment of Existing R725 / Woodbury, Mini-Roundabout Junction

Modelled Year & Scenario	Period "Mean-Max" Q (PCUs)	Period Max RFC
2028 Opening Year AM Peak Hr 8-9	3.2	0.71
2028 Opening Year PM Peak Hr 5-6	0.8	0.31
2043 Design Year AM Peak Hr 8-9	3.8	0.75
2043 Design Year PM Peak Hr 5-6	0.8	0.32

Table 6 6 Capacity Assessment of Existing R772 McCurtain Street / R772 Enniscorthy Road Exit Only Junction, Priority Controlled Junction

Modelled Year & Scenario	Period "Mean-Max" Q (PCUs)	Period Max RFC
2028 Opening Year AM Peak Hr 8-9	5.0	0.84
2028 Opening Year PM Peak Hr 5-6	2.6	0.73
2043 Design Year AM Peak Hr 8-9	6.1	0.87
2043 Design Year PM Peak Hr 5-6	2.9	0.75

Table 6 7 Capacity Assessment of R772 Enniscorthy Road / R725 Grattan Row Entry Only Junction, Priority Controlled Junction

Modelled Year & Scenario	Period "Mean-Max" Q (PCUs)	Period Max RFC
2028 Opening Year AM Peak Hr 8-9	8.6	0.93
2028 Opening Year PM Peak Hr 5-6	1.7	0.64
2043 Design Year AM Peak Hr 8-9	12.1	0.97
2043 Design Year PM Peak Hr 5-6	1.9	0.66

Table 6 8 Capacity Assessment of R772 Enniscorthy Road / R725 Grattan Row Entry Only Junction, Priority Controlled Junction

Modelled Year & Scenario	Period "Mean-Max" Q (PCUs)	Period Max RFC
2028 Opening Year AM Peak Hr 8-9	1.7	0.56
2028 Opening Year PM Peak Hr 5-6	4.8	0.80
2043 Design Year AM Peak Hr 8-9	1.9	0.59
2043 Design Year PM Peak Hr 5-6	5.7	0.82

The above analyses confirms that the completion and occupation of the proposed development will have an acceptable impact upon the capacity and safety of the road network in the area, and the associated traffic effects can easily be accommodated with the subject development in place. Two junctions, the Existing R725 / Woodbury, Mini-Roundabout Junction and the Existing R772 McCurtain Street / R772 Enniscorthy Road Exit Only Junction are approaching capacity but within acceptable operational limits.

6.8.5 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

Table 6 9 Summary of Construction Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Temporary increase in construction traffic on R725, including HGV movements	Negative	Slight	Local (R725 / Kilnahue Lane)	Likely	Short-term	Direct
Localised construction-related delays near schools during AM peak	Negative	Slight	Local	Possible	Short-term	Indirect
Increased pedestrian–vehicle conflict risk during construction	Negative	Slight	Local	Possible	Short-term	Direct

The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 6 10 Summary of Operational Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Additional operational traffic (291 AM / 311 PM PCUs)	Neutral	Imperceptible	Local Network	Likely	Long-term	Direct
Increased active travel demand generated by pedestrian/cycle upgrades	Positive	Moderate	Local	Likely	Long-term	Indirect

6.9 Mitigation Measures

The following mitigation measures form part of the proposed design and are consistent with DMURS and TII guidance:

- Provision of a new ghost-island junction with right-turn lane on the R725;
- Widening of Kilnahue Lane to 5.5 m adjacent to the site;
- A 4.0 m shared pedestrian/cycle facility linking to existing school routes;
- Zebra crossing on Kilnahue Lane providing safe access to schools;
- Raised tables at internal junctions to reduce vehicle speeds;
- EV charging infrastructure in accordance with Development Plan requirements;
- Footpath provision along the R725 connecting to Gorey town.
- An independent Stage 1 Road Safety Audit and a Statement of Consistency with DMURS have been completed. Any recommendations therein will be implemented during detailed design.

6.9.1 Incorporated Design Mitigation

The proposed development incorporates a range of embedded design measures that inherently avoid or minimise potential traffic and transport impacts. These design features have been integrated from the outset in accordance with DMURS, TII Traffic & Transport Assessment Guidelines and Wexford County Development Plan requirements. Key embedded mitigation includes:

- Provision of a new ghost-island priority junction on the R725, with a dedicated right-turn lane to ensure safe access while protecting through-traffic movement.
- Two DMURS-compliant priority junctions on Kilnahue Lane, with associated local road widening to 5.5 m to improve safety and capacity.
- A 4.0 m shared pedestrian/cycle facility along Kilnahue Lane, directly connecting residents to the existing school campus and wider active travel network.
- Extension of the existing R725 footpath to the site boundary, ensuring a continuous pedestrian route to Gorey town.
- Provision of a raised zebra crossing on Kilnahue Lane, improving pedestrian safety and enabling safe school access.
- Internal road network designed to DMURS, with low design speeds, raised junction tables, permeability for walking/cycling, and street layouts prioritising vulnerable road users.
- Car parking provided at Development Plan-level standards, avoiding oversupply and reducing car dependency.
- EV charging infrastructure with 20% of spaces active and the remainder ducted to future-proof the scheme.
- Secure and accessible bicycle parking, supporting modal shift and active travel.
- Site layout designed to minimise vehicular dominance, ensuring clear pedestrian priority and maximising sustainable travel convenience.

These incorporated measures significantly reduce the need for additional mitigation at operational stage and ensure that long-term effects on the surrounding road network remain minor or imperceptible.

6.9.2 Demolition Phase Mitigation

No Demolition works are proposed as part of this development.

6.9.3 Construction Phase Mitigation

Mitigation during the construction phase focuses on controlling temporary traffic impacts, ensuring safe movement

for vehicles and vulnerable road users, and preventing disruption to the adjacent school zone. All measures will be implemented through a detailed Construction Traffic Management Plan (CTMP) prepared by the Contractor and agreed with Wexford County Council prior to commencement.

Key mitigation measures include:

- Preparation and implementation of an operational CTMP, outlining haul routes, delivery schedules, signage, access arrangements, and traffic control measures.
- Designation of construction access points to avoid conflict with school peak periods on Kilnahue Lane (particularly 08:00–09:00 and 15:00–16:00).
- Time-restricting HGV and delivery movements outside of school drop-off/pick-up times to minimise risk and local congestion.
- Use of banksmen/marshals at site entrances during busy periods to ensure safe interaction between construction vehicles, pedestrians, and cyclists.
- Temporary traffic management signage, including advance warning signs, speed controls and localised barriers as required.
- Clear separation between construction areas and public pedestrian/cycle routes, with fencing, hoarding and controlled crossing points as required.
- Wheel-wash and sediment control facilities at exits to prevent mud and debris on the public road.
- Monitoring of road condition on the R725 and Kilnahue Lane, with repair works undertaken by the Contractor if damage arises.
- Provision of safe temporary footpaths/cycleways where existing public routes are affected by works, ensuring continuous safe access to nearby schools.
- Construction worker mobility planning, including car-pooling, shuttle services or designated off-site parking to avoid overspill onto local roads.

These measures ensure that construction impacts remain short-term, manageable and not significant, while maintaining the safe operation of the road network throughout the works.

6.9.4 Operational Phase Mitigation

Operational phase mitigation focuses on minimising private car dependency, promoting active and sustainable travel, and ensuring the safe and efficient operation of the surrounding network. The development incorporates a balanced car parking strategy consistent with national and local policy, providing sufficient parking while discouraging unnecessary car ownership. High-quality pedestrian and cycle facilities—including a 4.0 m shared pedestrian/cycle route along Kilnahue Lane, extension of the R725 footpath, and a raised zebra crossing linking directly to the adjacent schools—will support safe, direct and attractive active travel. Car-share facilities, extensive EV charging infrastructure and secure cycle storage will further reduce reliance on private vehicles. These combined measures ensure the operational phase of the development will generate minimal transport impacts while maximising sustainable mobility outcomes.

Key Operational Mitigation Measures:

- Balanced / reduced car-parking provision consistent with Development Plan standards to discourage car dependency.
- Extensive secure cycle parking (provision aligned with or exceeding Development Plan and DMURS expectations).
- High-quality pedestrian and cycle connections, including:
  - 4.0 m shared pedestrian/cycle route on Kilnahue Lane,
  - Extension of the R725 northern footpath to the site,
  - New controlled pedestrian crossing on Kilnahue Lane providing direct access to nearby schools.
- Integrated car-share and electric vehicle charging spaces (20% active, remainder ducted).

6.10 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented.

6.10.1 Demolition Phase

No demolition works are proposed as part of the proposed scheme.

6.10.2 Construction Phase

Taking account of the design features and the proposed mitigation measures, the residual traffic and transportation impacts of the Proposed Development are negligible. Construction-related traffic will be temporary, limited in scale, and effectively managed through the CTMP, such that no significant residual congestion or safety issues are anticipated.

During the construction phase, traffic generation will be limited and temporary in nature, with peak activity associated with the movement of excavated materials and deliveries. The number of HGVs and staff vehicle trips will be modest and programmed to avoid the commuter peak periods. A Construction Traffic Management Plan (CTMP), integrated within the Construction Environmental Management Plan, will be implemented to manage vehicle routing, delivery scheduling and site access arrangements. With these measures in place, no significant adverse impacts on the local road network are predicted during construction.

6.10.3 Operational Phase

In the operational phase, the balanced car parking provision, extensive cycle parking, enhanced pedestrian and cycle connections, will ensure that junctions operate well within capacity and sustainable travel modes are prioritised. Some minor, localised effects may still arise intermittently during peak network periods; however, these will be of short duration, low magnitude, and not significant. Overall, no significant residual adverse impacts on traffic, transport, safety, or network capacity are predicted.

During the operational phase, the Proposed Development will generate a low volume of traffic. Comprehensive pedestrian and cycle infrastructure is integrated into the scheme, consistent with national and local policy objectives promoting modal shift towards sustainable transport. Junction capacity modelling confirms that all assessed junctions will continue to operate within capacity in both the opening year (2028) and the design year (2043), even under worst-case and cumulative development scenarios.

6.10.4 Summary of Post-mitigation Effects

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 6 11 Summary of Construction Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Controlled and managed construction traffic resulting from CTMP	Neutral to Positive	Imperceptible	Local	Likely	Short-term	Direct
Improved pedestrian safety due to active traffic management and marshals	Positive	Imperceptible–Slight Positive	Local	Likely	Short-term	Indirect
Enhanced awareness of vulnerable road users through signage and speed controls	Positive	Imperceptible–Slight Positive	Local	Likely	Short-term	Direct
Temporary delays reduced to negligible levels through scheduling outside peak school hours	Neutral	Imperceptible	Local	Likely	Short-term	Indirect
Maintenance and monitoring resulting in improved road cleanliness and condition	Positive	Imperceptible–Slight Positive	Local	Possible	Short-term	Direct
Safe temporary pedestrian/cycle diversions improving connectivity during works	Positive	Slight Positive	Local	Likely	Short-term	Direct / Indirect

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

Table 6 12 Summary of Operational Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Improved pedestrian and cyclist safety due to new DMURS-compliant active travel facilities	Positive	Slight–Moderate Positive	Local	Likely	Long-term	Direct
Enhanced connectivity between development, schools, and Gorey town centre via new footpath and shared route	Positive	Moderate Positive	Local	Likely	Long-term	Indirect
Reduced private car dependency arising from balanced parking supply	Positive	Slight–Moderate Positive	Local	Likely	Long-term	Indirect
Minor increase in vehicular movements accommodated fully within available road network capacity	Neutral	Imperceptible	Local Network	Likely	Long-term	Direct
Increased uptake of sustainable mobility modes supported by cycle parking, EV provision and active travel routes	Positive	Moderate Positive	Local	Likely	Long-term	Indirect
Improved junction performance and safety at site accesses due to upgraded R725 ghost-island junction	Positive	Slight Positive	Local	Likely	Long-term	Direct

6.10.5 Cumulative Residual Effects

The cumulative residual effects of the proposed Kilnahue LRD, when considered alongside existing development, permitted schemes and established network conditions within Gorey, are assessed as not significant. The operational traffic generated by the development is modest, is fully accommodated within the available capacity of the R725 and L10112, and does not give rise to any material deterioration in junction performance when combined with background growth. In addition, the scheme delivers meaningful positive contributions to the wider mobility environment, including new active travel infrastructure, improved school connectivity, safer crossing facilities and enhanced permeability, which collectively offset and surpass any minor increases in vehicle movements. When viewed cumulatively and post-mitigation, the development supports sustainable travel behaviour and does not contribute to any significant adverse traffic, transport or road safety effects in the wider Gorey area.

6.11 Risk of Major Accidents or Disasters

This section is not relevant to traffic / transportation.

6.12 Worst Case Scenario

The combined worst-case traffic volumes were applied to the local road network to evaluate junction performance under maximum stress conditions. The results demonstrate that all assessed junctions are expected to operate well within their design capacity limits, indicating that the cumulative effect on the network remains negligible and does not give rise to significant effects in EIA terms.

6.13 Interactions

Interactions between Material Assets (Transport) and other environmental factors arise during both the construction and operational phases of the proposed development.

During construction, increased HGV and construction traffic has the potential to temporarily affect Population and Human Health through short-term changes in accessibility, road safety and travel times. Construction traffic may also indirectly influence Air (Noise and Vibration) and Climate (Air Quality) through short-term emissions and noise associated with vehicle movements, although these impacts are limited and well controlled through the Construction Traffic Management Plan (CTMP). There is limited potential for interaction with Biodiversity, Land, Soil and Geology, and Water, primarily where temporary changes in surface conditions, sediment transport or accidental spillages could occur, though these are minimised through standard best-practice construction management measures. Road works may generate small quantities of construction waste, linking to Material Assets (Waste), while temporary service diversions may interact with Material Assets (Utilities).

During the operational phase, the development's upgraded access arrangements, pedestrian links and shared cycle infrastructure positively interact with Population and Human Health by improving safety, connectivity and active mobility options. Traffic generated by the scheme could influence Air (Noise and Vibration) and Climate (Air Quality) through vehicle noise and emissions, though the predicted volumes are modest and significantly offset by the substantial active travel measures and Mobility Management Plan. Interactions with Climate (Climate Change) arise through long-term modal shift, reduced car dependency and increased provision for sustainable travel, contributing positively to emissions reduction objectives. Road layout, visibility, and street hierarchy interact with Landscape and Visual Impact, particularly regarding streetscape character and legibility, while the enhanced mobility network may also interact positively with Cultural Heritage by facilitating safe access without generating significant traffic-related impacts. Overall, post-mitigation residual interactions across environmental topics are slight, neutral or positive, with no significant adverse cumulative effects predicted.

6.14 Monitoring

Construction traffic will be monitored under the CTMP framework in consultation with WCC. No specific ongoing monitoring is proposed during the operational phase.

6.15 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 6 13 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Temporary increase in construction traffic on R725 and L10112	Implementation of a Construction Traffic Management Plan (CTMP) including haul routes, delivery scheduling, temporary traffic controls, and restrictions on HGV movements during school peak hours.	Regular review of CTMP compliance; on-site supervision of access/egress; weekly contractor audits; liaison with Wexford County Council.
Localised delays near schools during AM peak	Scheduling of HGV arrivals outside 08:00–09:00 and 15:00–16:00; use of banksmen at access points; temporary signage and speed controls.	Daily logs of delivery times; monitoring by site manager; periodic checks during school peak periods.
Increased pedestrian–vehicle conflict risk	Use of traffic marshals, controlled crossing points, temporary footpath/ cycleway protection and barriers; safe pedestrian detours.	On-site audits to ensure barriers and diversions remain in place and unobstructed; safety inspections.
Potential debris/mud on public roads	Wheel-wash facilities and road-sweeping as required to maintain road cleanliness.	Daily visual checks of road condition; contractor log of cleaning activities.
Construction worker parking causing local congestion	Worker mobility plan including off-site parking, car-pooling and shuttle options.	Periodic monitoring of roadside parking; enforcement through site management.
Temporary disruption of pedestrian/cycle links	Provision of safe temporary diversion routes; clear signage and lighting.	Inspections during construction to ensure routes remain safe and unobstructed.

The following Table summarises the Operational Phase mitigation and monitoring measures.

Table 6 14 Summary of Operational Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Minor increase in operational traffic	Delivery of upgraded R725 ghost-island junction and two DMURS-compliant accesses on Kilnahue Lane ensuring capacity and safety.	None required beyond normal local authority road network monitoring.
Increased active travel demand	Delivery of 4.0 m shared pedestrian/cycle route, extended footpath on R725, raised zebra crossing, and internal DMURS street design.	None required—embedded design measures inherently achieve the desired outcome.
EV and cycle parking usage	Provision of EV charging (20% active, remainder ducted) and secure cycle parking to Development Plan standards.	None required unless specified by condition.
Localised servicing/traffic activity	Designated internal servicing arrangements and safe kerbside management.	None required—low significance and standard operational controls apply.
Improved network safety at site accesses	Enhanced junction geometry, visibility, raised tables and pedestrian protection features.	None required—post-construction RSA Stage 3 & 4 processes apply under normal procedures.

6.16 Conclusion

The Traffic & Transport Assessment confirms that the established existing road network, and the proposed development access junctions, are more than adequate to accommodate the worst-case traffic associated with the development.

The assessment confirms that the full occupation of the scheme will have a negligible and unnoticeable impact upon the operation of the adjacent road network.

Based on our studies, we conclude that there are no adverse or significant traffic/transport, capacity or operational issues associated with the proposed high quality Residential Development which would prevent planning permission being granted by Wexford County Council.

6.17 References and Sources

- Transport Infrastructure Ireland (TII) Traffic and Transport Assessment Guidelines (2014);
- Transport Infrastructure Ireland Project Appraisal Guidelines (2017);
- Design Manual for Urban Roads and Streets (DMURS, 2019);
- Wexford County Development Plan 2022–2028;
- EPA EIAR Guidelines (2022).

CHAPTER SEVEN

MATERIAL ASSETS: BUILT SERVICES



McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

CHAPTER 7

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CHAPTER 7 | MATERIAL ASSETS: BUILT SERVICES

7.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects of the proposed development on the surface water drainage, wastewater drainage, water supply and utilities (electricity, telecommunications and gas) in the existing environment.

It should be read in conjunction with the Lands & Soils, Water & Hydrology and Biodiversity Chapters in this EIAR and also the engineering design drawings and Infrastructure Report prepared by AKM Design Group and submitted as part of the planning application.

7.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Cathal Kennedy and Daniel Oliviera of AKM Design Group. Both are qualified Civil Engineers and members of Engineers Ireland. Cathal Kennedy is a Chartered Engineer with extensive experience in the design and delivery of urban development schemes.

Further input on utilities was provided by Ronan Kerrigan of Kerrigan Consulting Engineers, who is also a Chartered Engineer and member of Engineers Ireland.

7.3 Proposed Development

The proposed LRD is comprised of 413no. residential units and 1no. creche comprising off 349no. houses and 64no. apartment/duplex units. The proposal also includes all associated site and development works including landscaping and amenity areas, infrastructure and services and a mixed-use greenway and bicycle & pedestrian paths on Kilnahue Lane.

7.3.1 Aspects Relevant to this Chapter

7.3.1.1 Surface Water Drainage

Existing: No existing surface water infrastructure is present within the site with the exception of a small drainage ditch which runs along the north side of Carnew Rd to the south of the site. The steep topography of the existing site means that most site runoff currently flows overland across the subject site and adjacent private lands to this existing ditch.

Proposed: Surface Water runoff from the proposed development will be designed in accordance with the requirements of the Greater Dublin Strategic Drainage Study (GDSDS), CIRIA SuDS Guide and the requirements of the Wexford County Council Taking in Charge Policy. A 20% climate change factor and a 10% urban creep factor will be applied to the design of the surface water network.

7.3.1.2 Wastewater Drainage

Existing: A study of Uisce Eireann records and survey commissioned for the planning application on the surrounding area show an existing 150mm gravity sewer south of the proposed development on Carnew Road. This flows east towards Gorey town centre and increases in size to 225mm once it passes the Ardmore estate 500m east of the subject site. All foul drainage ultimately drains eastward through Gorey town centre to the Gorey Wastewater Treatment Plant (WWTP) and Pump Station before being pumped to the Courttown WWTP.

Proposed: The proposed site will be served by a new internal wastewater network within the roads which will be designed as per the Uisce Eireann Code of Practice for Wastewater Infrastructure. A Confirmation of Feasibility and Statement of Design Acceptance were received from Uisce Eireann and are appended to the Infrastructure Report. Per the requirements of the CoF, upgrades will be required to the existing public foul network to accommodate the additional flows associated with the proposed development. This involves extending and upsizing the existing gravity sewer on Carnew Road and upsizing approximately 2.2km of existing foul gravity pipe east of the proposed site. Circa 500m of existing 150mm dia gravity pipe to be upsized to 225mm from the southern site access on Carnew Road east to the junction with Kilnahue Lane. Approximately 1800m of existing 225mm dia sewer to be increased to 300mm dia and circa 200m of 300mm dia pipe to be upsized to 375mm. It is proposed that the offsite works are to be undertaken by Uisce Eireann.

7.3.1.3 Water Supply

The proposed development will be served via 3 separate connections to the off-site water network. A 200mm dia watermain will be built on Kilnahue Lane, from which 2no. 150mm dia internal site connections will be made and 1no additional connection at the south site entrance on Carnew Road.

Per the CoF, to facilitate the proposed connection at the Development, the Uisce Éireann water network will have to be extended by approximately 150m along Kilnahue Lane. In addition to this required network extension, approximately 860m of network upgrades to the existing water network will be required east of the site to provide additional network capacity.

7.3.1.4 Electrical Supply

A new underground power cable shall connect into the existing network and route through the proposed development to serve the new ESB kiosk substation. Existing 10kV / 20kV overhead (O/H) powerlines traverse the site and shall be diverted and undergrounded as part of the proposed development. All works will be carried out in full accordance with the ESB's requirements.

7.3.1.5 Gas Supply

It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site.

7.3.1.6 Telecommunications

It is proposed that telecoms services for the site are provided via SIRO network.

7.4 Methodology

7.4.1 Relevant Legislation & Guidance

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

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)

7.4.2 Site Surveys/Investigations

The following desktop reviews and physical surveys were undertaken:

- Review of Wexford County Council existing services records
- Uisce Éireann (UÉ) Water & Wastewater records
- ESB Utility Plans
- Gas Networks Ireland existing services records
- Eir Utility Plans
- Initial Topographical Survey by PCA, Jan 2007
- Supplementary Topographical Survey by Metroscan, Sep 2025
- Geotechnical Survey by Site Investigations Ltd, Jun 2021

7.4.3 Consultation

Throughout the pre-planning process the applicant consulted with a number of relevant authorities relating to the provision of services to the proposed site:

7.4.3.1 Water Supply

A Pre-Connection Enquiry was submitted to Uisce Éireann (UÉ) as part of the pre-planning process. UÉ issued a Confirmation of Feasibility letter in May 2025 which confirmed that connection from the proposed development to the existing Water Supply network was feasible but subject to upgrades to the existing network:

“In order to facilitate the proposed connection at the Development, the Uisce Éireann water network will have to be extended by approximately 150m along Kilnahue Lane. In addition to this required network extension, approximately 860m of network upgrades to the existing water network will be required to provide additional network capacity.”

7.4.3.2 Wastewater Drainage

A Pre-Connection Enquiry was submitted to Uisce Éireann (UÉ) as part of the pre-planning process. UÉ issued a Confirmation of Feasibility letter in May 2025 which confirmed that connection from the proposed development to the existing Wastewater network was feasible but subject to upgrades to the existing network:

“In order to facilitate the proposed connection at the Development, the Uisce Éireann wastewater network will have to be extended by approximately 120m from Carnew Road. In addition to this required network extension, approximately 2.2km of network upgrades to the existing wastewater network will be required to provide additional network capacity for the proposed scale of development.”

7.4.3.3 Stormwater Drainage

The applicant engaged Wexford County Council (WCC) throughout the pre-planning process through a S247 meeting which took place on 29/04/2025 and an LRD Opinion meeting which took place on 11/09/2025. This culminated in the issuing of LRD Comments by WCC on 02/10/2025.

7.4.3.4 Electricity Supply

The Applicant has engaged with the ESB who have reviewed and commented on the proposed ESB design and capacity for the proposed development. This is applicable to the network design, connection with the existing ESB network external to the site and capacity availability. No official confirmation can be provided from the ESB until official applications are submitted with an approved planning reference number.

7.4.3.5 Telecoms

The Applicant has engaged with the telecoms services providers and reviewed existing as-installed network layouts. With regard to the existing as-installed layouts and infrastructure, the telecoms services are sufficient to cater for the proposed development. Official confirmation and connection to the area network systems will be provided and supplied by the service providers upon submittal of official applications, post planning approval.

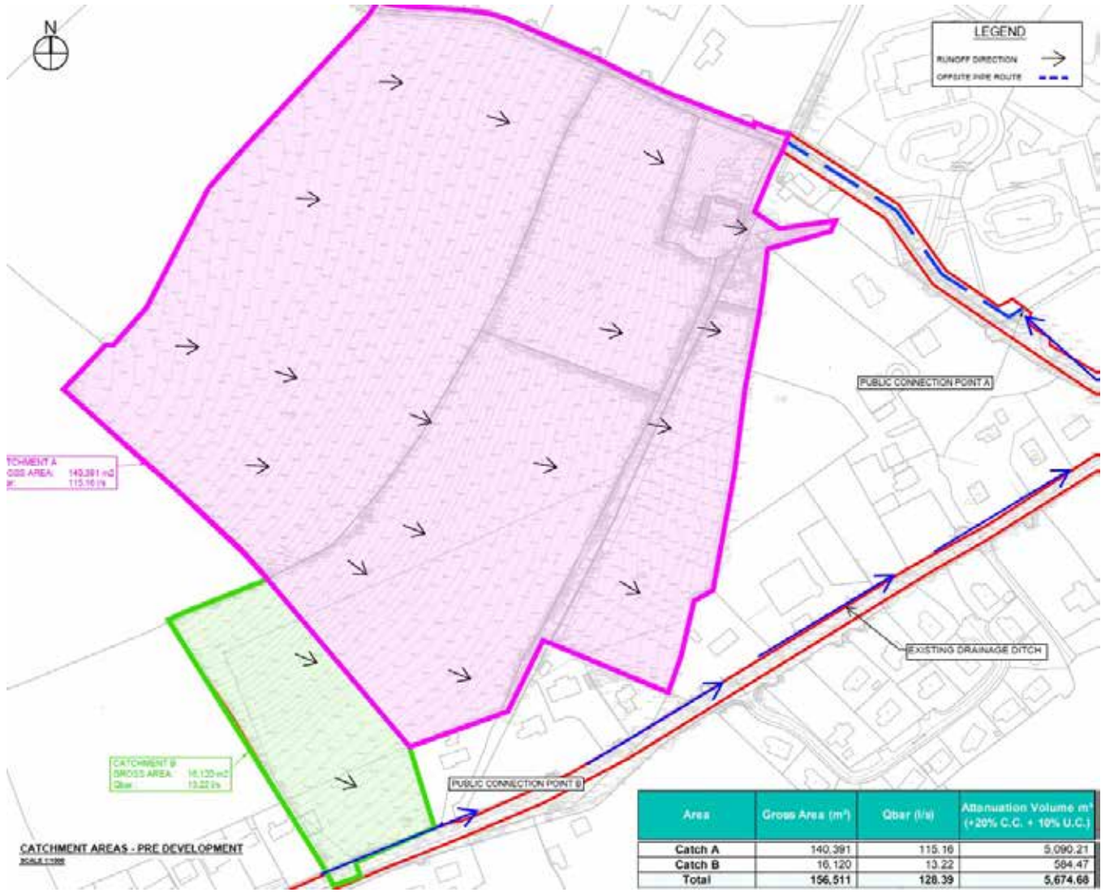
7.5 Difficulties Encountered

No clear limitations were encountered in accessing and assessing the relevant information relating to built services.

7.6 Baseline Environment

7.6.1 Surface Water Drainage

No existing surface water infrastructure is present within the site with the exception of a small drainage ditch which runs along the north side of Carnew Rd to the south of the site. The steep topography of the existing site means that most site runoff currently flows overland across the subject site and adjacent private lands to this existing ditch. Figure 7.1 details the pre-development drainage catchments and flow paths and details the approximate location of the existing roadside ditch.



Area	Gross Area (m²)	Qbar (l/s)	Attenuation Volume m³ (+20% C.C. + 10% U.C.)
Catch A	140,391	115.16	5,090.21
Catch B	16,120	13.22	584.47
Total	156,511	128.39	5,674.68

Figure 7.1 – Pre-Development Catchments & Flow Paths

7.6.2 Wastewater Drainage

A study of Uisce Eireann records and survey commissioned for the planning application on the surrounding area show an existing 150mm gravity sewer south of the proposed development on Carnew Road. This flows east towards Gorey town centre and increases in size to 225mm once it passes the Ardmore estate 500m east of the subject site. All foul drainage ultimately drains eastward through Gorey town centre to the Gorey Wastewater Treatment Plant (WWTP) and Pump Station before being pumped to the Courttown WWTP. Figure 7.2 shows existing water and wastewater services in the vicinity of the subject site.

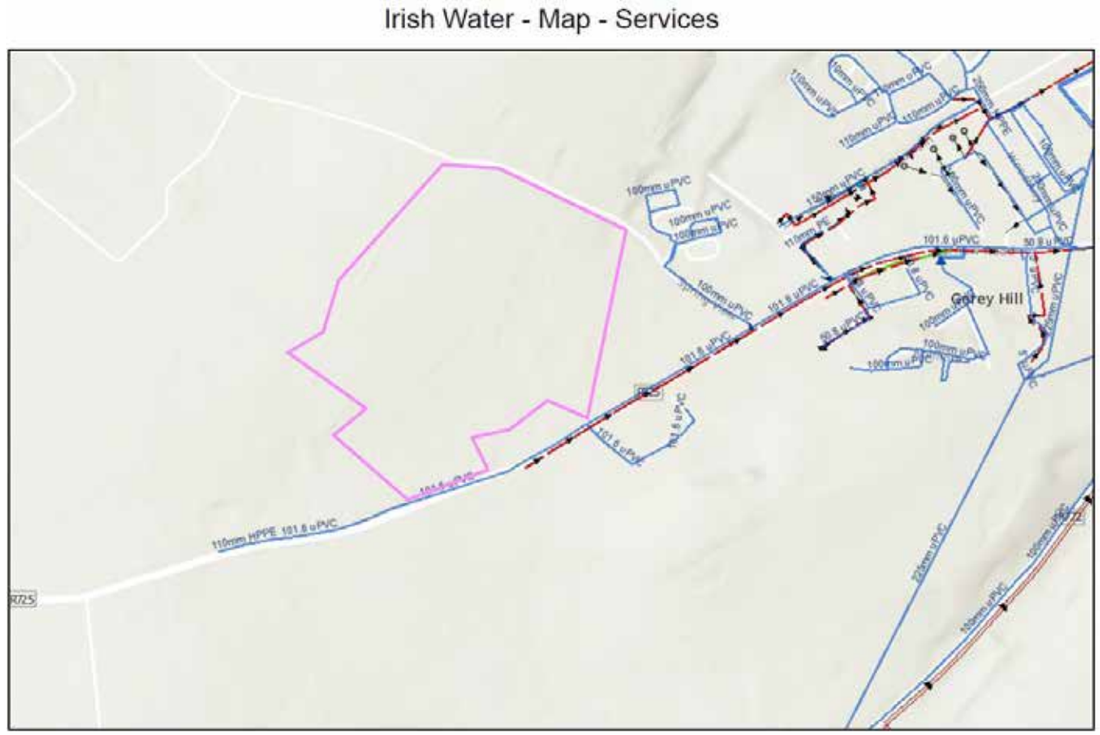


Figure 7.2 Uisce Eireann Existing Services Map [Source: Uisce Eireann]

7.6.3 Water Supply

There are two existing 100mm dia watermains in the vicinity of the subject site: on Carnew Road to the south and on Kilnahue Lane terminating at the entrance to the school.

7.6.4 Electrical Supply

ESB records indicate that there are a number of existing powerlines present within the site including MV (10KV/20KV) and LV (400V/230V) – See Figure 7.3 for existing utility records.

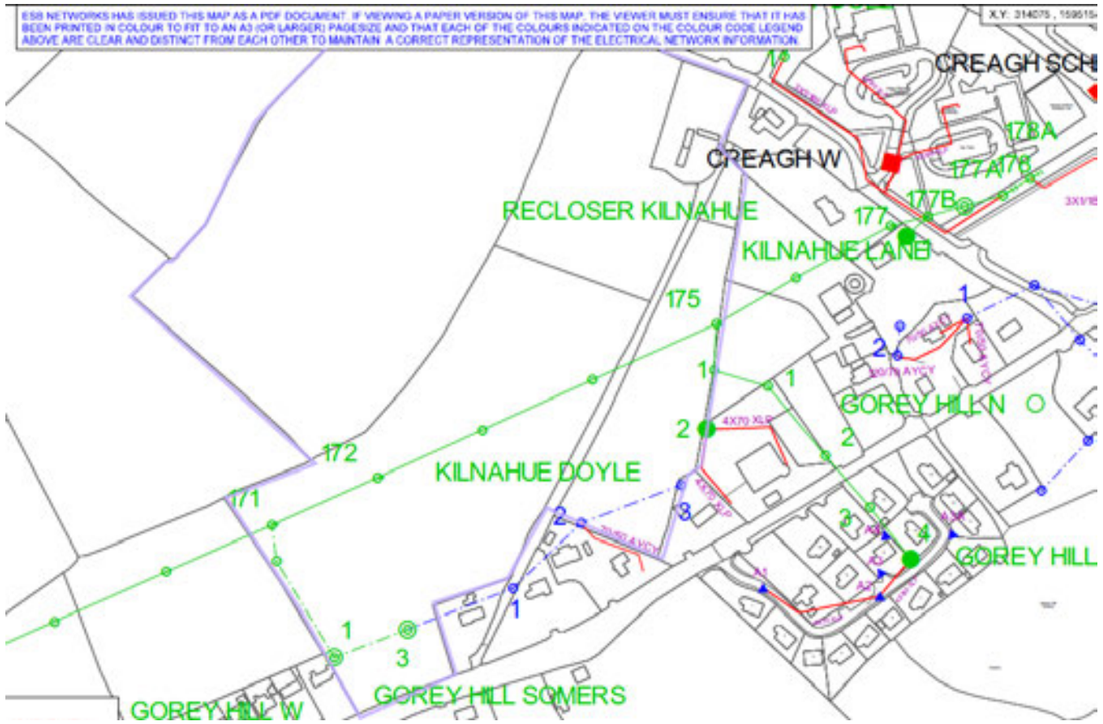


Figure 7.3 – Existing ESB Utility Plan [Source ESB]

7.6.5 Gas Supply

It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site.

7.6.6 Telecommunications

Eir existing services maps show a number of existing services in the vicinity of the site on Carnew Road and on Kilnahue Lane. See Figure 7.4 below.

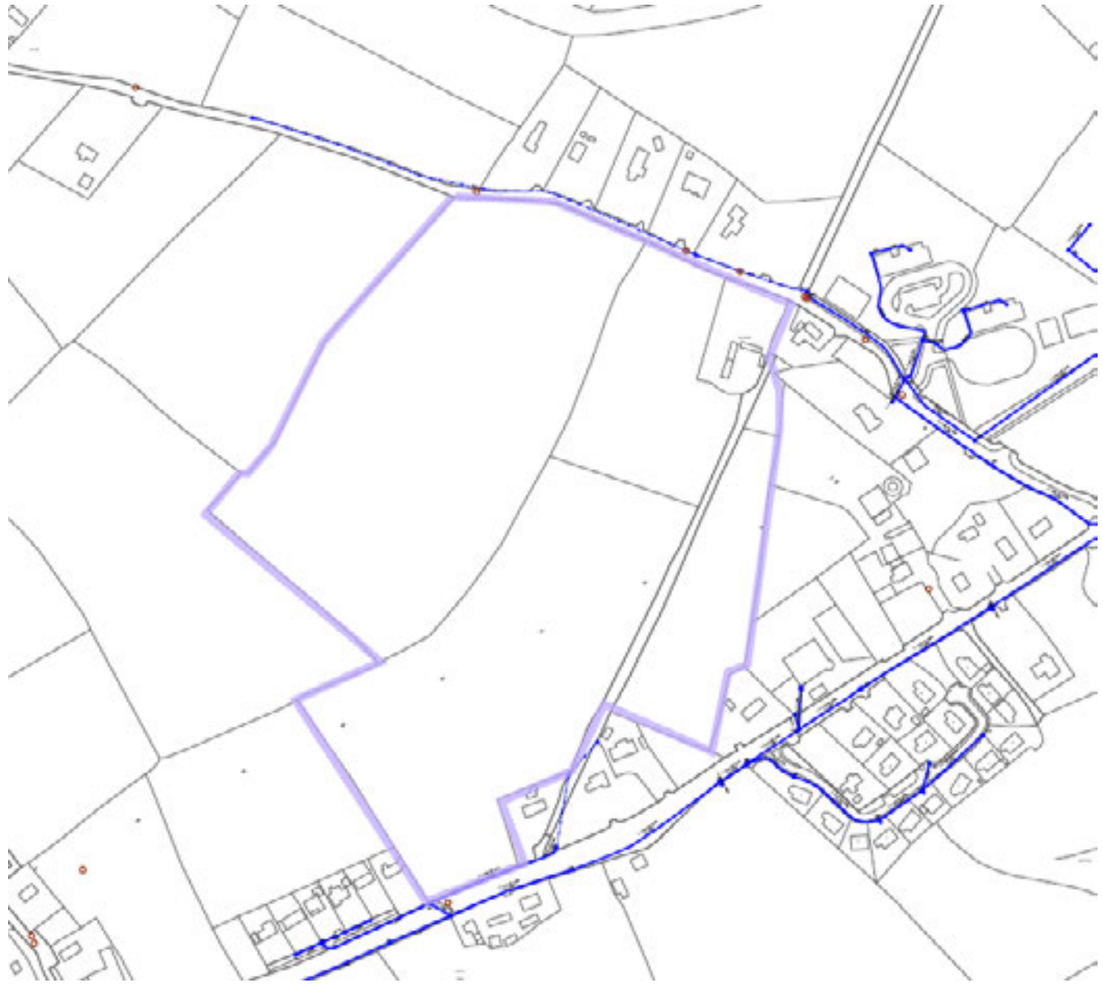


Figure 7.4 – Existing Telecoms Utility Plans [Source Eir]

7.7 The 'Do Nothing' Scenario

Should the proposed development not take place, there would be no expected change to the baseline environment for material assets. It should be noted that the majority of the subject site is currently zoned for residential development according to the Wexford County Development Plan. It can be expected that another, similar residential development would take place on the subject site in the future with similar impacts to those expected from this development.

7.7.1 Surface Water Drainage

During the 247 Consultation with WCC in April 2025, concerns were raised by the Environment Division regarding excess capacity within the existing ditch on the north side of Carnew Road. This comment was acknowledged and the proposed stormwater drainage network for the proposed development has been designed to divert runoff from within the site away from this ditch, thereby reducing the catchment of the ditch. Ultimately, through the use of SUDS, the development is expected to have a net positive impact on the local drainage network.

7.7.2 Other Utilities

Should the proposed development not take place, there would be no expected change to the wastewater flows, water demands or demands on ESB/Telecoms in the public networks in the vicinity of the subject site.

7.8 Potential Significant Effects

7.8.1 Demolition Phase

There are no significant demolition works required on the subject site to facilitate the proposed development. Existing structures along the north-eastern boundary are intended to be retained and repurposed as per the proposed landscape design.

7.8.2 Construction Phase

7.8.2.1 Surface Water Drainage

During the construction phase of the development, any excess surface/groundwater runoff shall be retained in settlement ponds and provided with silt removal prior to discharge to the public drainage network. Should appropriate interventions not be used, the following significant impacts can be expected:

- Mobilisation of silts and sediments during the construction phase, due to exposed soil and earth movement/ excavation, which may wash into the watercourse during rainfall events. These materials can also arise from dewatering of tranches or runoff from stockpiles on site. Waterborne silts can have negative impacts on receiving watercourses causing blockages, erosion or damage to fisheries.
- Accidental spills of chemicals or hydrocarbons during the delivery and storage or by leakages from construction machinery. Construction materials such as concrete and cement are alkaline and corrosive and can cause pollution in watercourses.

Without the implementation of mitigation measures these effects are considered to be adverse, moderate/ significant and temporary.

7.8.2.2 Wastewater Drainage

Wastewater discharge from site facilities shall be discharged to the public wastewater network or tanked and removed via trucks depending on the outcome of a Temporary Connection Application to Uisce Eireann which will be submitted prior to construction. This discharge licence will dictate the location and flow rate that effluent can enter the public network. Should appropriate interventions not be used, the following significant impacts can be expected:

- The rate of discharge to the public network can exceed the capacity of the network and potentially lead to surcharging or flooding of the network.
- Excess water from other sources (groundwater/rainwater discharge) could enter the wastewater system and exceed the capacity of the receiving network or introduce polluting chemicals or harmful silts/ sediments to the network.

Without the implementation of mitigation measures these effects are considered to be adverse, moderate/ significant and temporary.

7.8.2.3 Water Supply

Subject to the outcome of a Temporary Connection Application to Uisce Eireann, the Contractor will obtain a connection to the public water network to provide water for site facilities. The demand of this connection is considered to be relatively small and so the potential impacts are considered to be neutral, of low significance and temporary.

7.8.2.4 Electrical Supply

Electricity will be required for the construction activities for temporary lighting, equipment use etc. It is anticipated that a temporary connection to existing spurs at the site boundary will facilitate electricity supply to the site during construction, subject to the appropriate agreements. The power demands during the construction phase on the existing electricity network are considered to be a neutral, of low significance and temporary.

The use of diesel generators on-site should be minimised but, where necessary, will create some noise and air pollution from exhaust. These impacts are considered to be negative, of low significance and temporary.

When the structures, ducting and new cabling is in place and ready for connection there will need to be a short-scheduled outage of power supply to the local area as the overhead cables are shut down and the underground cables become live. This outage will be agreed with the ESB, local residents and businesses and they will be warned and the impact from the construction phase of the proposed development on the local electrical supply network is likely to be brief and imperceptible and is considered a negative, significant and short-term.

7.8.2.5 Gas Network

It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site. No effects are expected to the gas network based on the proposed development during construction phase. Should any gas networks be uncovered a diversion would be required. These impacts are considered to be negative, of low significance and temporary.

7.8.2.6 Telecommunications

There are no existing telecommunications lines within the subject site and all existing telecommunication cables in the vicinity of the subject site are located in underground ducts within the adjacent roads. As such, there

will be no likely significant effects on telecommunications infrastructure during the construction phase of the proposed development. Where the excavation strategy or temporary works require any temporary diversion of local telecommunication services or utilities on the site perimeter, this would be undertaken with prior agreement of the relevant service provider. These works are considered as neutral, of low significance and short-term in duration.

7.8.3 Operational Phase

7.8.3.1 Surface Water

The existing site is steeply graded greenfield site with poor infiltration characteristics. Runoff from the site discharges to an open channel along the southern border of the site which runs along Carnew Road. It is estimated that the current greenfield runoff rate (Qbar) is 128 l/s and the post-development runoff rates from the two drainage catchments will not exceed this rate. Flowrates will be limited by hydro-brake flow controls and excess runoff from hardstanding areas will be stored in below & above-ground attenuation storages. Filtration and treatment of runoff will be achieved through the use of an extensive SUDS strategy incorporating swales, a pond, permeable paving and oil interceptors ensuring the removal of any potential pollutants. Post-development runoff will have effects on the surface water drainage network which will be neutral, of low significance and permanent.

7.8.3.2 Wastewater

Wastewater from the proposed development will drain via gravity through the public network east towards the Gorey Wastewater Treatment Plant (WWTP). The applicant engaged Uisce Eireann (UE) with a Pre-Connection Enquiry and the resulting Confirmation of Feasibility (CoF) provided UE commentary on the capacity of the existing network to accommodate flow from the proposed development:

“In order to facilitate the proposed connection at the Development, the Uisce Éireann wastewater network will have to be extended by approximately 120m from Carnew Road. In addition to this required network extension, approximately 2.2km of network upgrades to the existing wastewater network will be required to provide additional network capacity for the proposed scale of development.”

An approved connection to the public wastewater drainage network is conditional upon the completion of these upgrade works. After their completion, the impacts to the wastewater network will be neutral, of low significance and permanent.

7.8.3.3 Water Supply

The applicant engaged Uisce Eireann (UE) with a Pre-Connection Enquiry and the resulting Confirmation of Feasibility (CoF) provided UE commentary on the capacity of the existing network to accommodate flow from the proposed development:

“In order to facilitate the proposed connection at the Development, the Uisce Éireann water network will have to be extended by approximately 150m along Kilnahue Lane. In addition to this required network extension, approximately 860m of network upgrades to the existing water network will be required to provide additional network capacity.”

An approved connection to the public water network is conditional upon the completion of these upgrade works. After their completion, the impacts to the wastewater network will be neutral, of low significance and permanent.

7.8.3.4 Electrical Supply

The proposed development will increase the demand on the electricity supply system. However, it is expected that infrastructural requirements for future development will be accommodated by ESB Networks. Therefore, the impact of the proposed development on the electricity supply network is expected to be neutral, of low significance and permanent.

7.8.3.5 Gas Supply

It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site. No effects are expected to the gas network based on the proposed development during the operational phase.

7.8.3.6 Telecommunications

The proposed development will increase the demand on the telecommunications systems which may potentially lead to a reduction in the level of service to existing customers. It is expected that infrastructural requirements for future development will be accommodated by utility service providers. In the absence of mitigation measures, these potential impacts are considered to be adverse, of low significance and permanent.

7.8.4 Cumulative Effects

7.8.4.1 Surface Water Drainage

It is expected that any future development in the area will adhere to Wexford County Council Taking-In-Charge Policy, GDSDS and the CIRIA SuDS Guide. These policies will ensure that stormwater runoff from future developments will be limited in volume using flow controls & on-site attenuation and will receive treatment prior to discharge to the public network. These effects will be expected to be neutral, of low significance and permanent.

7.8.4.2 Wastewater Drainage

The Confirmation of Feasibility (CoF) received from Uisce Eireann (UE) detailed upgrade works required to the public wastewater gravity network to facilitate the connection of the proposed development. No other concerns were raised regarding capacity in the wider wastewater network or downstream Gorey WWTP. The cumulative impacts to the wastewater network are expected to be neutral, of low significance and permanent.

7.8.4.3 Water supply

The Confirmation of Feasibility (CoF) received from Uisce Eireann (UE) assessed the capacity of the local water network and detailed upgrade works required to the network to facilitate the connection of the proposed development. No other concerns were raised regarding capacity in the wider water network and I was confirmed that the capacity is available after completion of the upgrades. The cumulative impacts to the wastewater network are expected to be neutral, of low significance and permanent.

7.8.4.4 Electricity Supply

Any redevelopment in the area resulting in an intensification of land use or increased density of occupation would likely lead to an increase in demand on the electricity supply network. While there is substantial existing electricity supply infrastructure in place, continued cumulative development will tend to necessitate future provision of new electricity supply infrastructure with increased capacity. The cumulative effect is a neutral, of low significance and short-term.

7.8.4.5 Gas Network

It is not proposed to supply gas within the proposed development and changing trends away from fossil fuels mean that it is unlikely that there will be significant further development of the gas network in the area of Gorey town. The cumulative effect will be neutral, of low significance and permanent.

7.8.4.6 Telecommunications

Any redevelopment in the area resulting in an intensification of land use or increased density of occupation would likely lead to an increase in demand on the telecommunications networks. While there is substantial existing telecommunications infrastructure in place, continued cumulative development will tend to necessitate future provision of new telecommunications infrastructure with increased capacity. The cumulative effect is a neutral, of low significance and short-term.

7.8.5 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

Table 7 1 Summary of Construction Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Surface water – mobilisation of silt, sediment or pollutants into drainage system	Adverse	Moderate/ significant	Local	Likely	Temporary	Direct
Wastewater – Excess/polluted temporary discharge to network	Adverse	Significant	Local	Likely	Temporary	Direct
Water Supply – Temporary network connection	Neutral	Low	Local	Likely	Temporary	Direct
Gas Supply – Diversion	Neutral	Low	Local	Unlikely	Short Term	Direct
Telecoms	Neutral	Low	Local	Unlikely	Short Term	Direct

The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 7 2 Summary of Operational Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Surface water connection to public network	Neutral	Low	Local	Likely	Permanent	Direct
Wastewater connection to public network	Neutral	Low	Local	Likely	Permanent	Direct
Water connection to public network	Neutral	Low	Local	Likely	Permanent	Direct
Electricity	Neutral	Low	Local	Likely	Permanent	Direct
Gas	Neutral	Low	Local	Likely	Permanent	Direct
Telecoms	Neutral	Low	Local	Likely	Permanent	Direct

7.9 Mitigation Measures

7.9.1 Incorporated Design Mitigation

7.9.1.1 Surface Water

The proposed surface water drainage network will be designed in accordance with the requirements and recommendations of Wexford County Council Taking-in-Charge policy, the Greater Dublin Strategic Drainage Study & Regional Code of Practice and CIRIA SuDS Guide. The measures incorporated into the design will:

- limit the discharge rate of stormwater runoff;
- provide attenuation volume for excess runoff and;
- provide treatment prior to discharge to the public network.

7.9.1.2 Wastewater

The proposed public wastewater network has been designed in accordance with the Uisce Eireann Code of Practice and all private drainage will be in accordance with the Building Regulations Technical Guidance Document Part H. Any required upgrades to the public drainage network are to be fully agreed with UE at connection application stage. This will ensure capacity in the internal & receiving networks and adequate performance of the network by preventing contamination and ensuring adequate flow velocities.

7.9.1.3 Water Supply

The water supply network has been designed in accordance with the Uisce Eireann Code of Practice and any upgrades to the existing network to provide capacity for the proposed development will be fully agreed with UE at connection application stage

7.9.1.4 Electricity Supply

All proposed power cables within the development will be buried underground or internal within buildings and will be installed according to the relevant ESB Networks specifications.

7.9.1.5 Gas Supply

It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site.

7.9.1.6 Telecommunications

The proposed telecommunications infrastructure within the development will be buried underground or internal within buildings.

7.9.2 Demolition Phase Mitigation

The only existing buildings within the site are to be repurposed as part the of the landscape plan for the proposed site. Not other demolition work is expected to be required to develop the subject site.

7.9.3 Construction Phase Mitigation

7.9.3.1 Surface Water Drainage

At construction stage the contractor will write and adhere to a Surface Water Management Plan which will dictate how excess water within the site is to be treated and managed during construction. This will include details on mitigation measures including, but not limited to:

- implementing settlement ponds and silt removal measures for any water prior to discharge to the existing network
- Providing bunds to chemical/fuel storage and generators

7.9.3.2 Wastewater Drainage

All wastewater pipework and manholes will be designed and constructed in accordance with the Uisce Eireann Code of Practice and Standard Details and will be subject to inspection by the UE Field Engineer and the Consultant Design Engineer during construction. Upon completion the contractor will submit for review a QA pack for review which will include:

- CCTV analysis
- As-Built Drawings
- Pressure Test Records
- Manhole Exfiltration Test Records

Any defects will be identified and repaired prior to connection to the public network.

7.9.3.3 Water Supply

All water pipework and manholes will be designed and constructed in accordance with the Uisce Eireann Code of Practice and Standard Details and will be subject to inspection by the UE Field Engineer and the Consultant Design Engineer during construction. Upon completion the contractor will submit for review a QA pack for review which will include:

- Chlorination
- As-Built Drawings
- Pressure Test Records

7.9.3.4 Electricity Supply

The ESB shall install all new incoming supplies to the proposed development. The ESB shall also liaise with residents and keep existing customers fully informed of any brief outages which may be required due to the diversion and undergrounding of the existing overhead 10/ 20kV lines or connections to the proposed development. The Contractor shall ensure that construction works on site adhere to the ESB Networks / HSA “Code of Practice for Avoiding Danger from Overhead Electricity Lines”.

7.9.3.5 Gas Supply

It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site.

7.9.3.6 Telecommunications

The relevant utility provider shall install the new incoming supplies to the proposed development and shall liaise with existing customers to advise of possible outages in order to facilitate the connections. The works shall be carried out such that they minimise disruption to surrounding areas.

7.9.4 Operational Phase Mitigation

7.9.4.1 Surface Water

The proposed surface water drainage network will be designed in accordance with the requirements and recommendations of Wexford County Council Taking-in-Charge policy, the Greater Dublin Strategic Drainage Study & Regional Code of Practice and CIRIA SuDS Guide. The measures incorporated into the design will:

- limit the discharge rate of stormwater runoff;
- provide attenuation volume for excess runoff and;
- provide treatment prior to discharge to the public network thereby minimising impact.

7.9.4.2 Wastewater

The proposed public wastewater network has been designed in accordance with the Uisce Eireann Code of Practice and all private drainage will be in accordance with the Building Regulations Technical Guidance Document Part H. This, combined with a regular maintenance regime by UE, will ensure the network continues to operate as designed.

7.9.4.3 Water Supply

All water pipework will be designed and constructed in accordance with the Uisce Eireann Code of Practice and Standard Details. This, combined with a regular maintenance regime by UE, will ensure the network continues to operate as designed.

7.9.4.4 Electricity Supply

The proposed electricity supply system shall be commissioned and subject to a regular operational inspection and maintenance regime, in accordance with the Utility providers procedures, to ensure the system keeps operating within the design specifications.

7.9.4.5 Gas Supply

It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site.

7.9.4.6 Telecommunications

The proposed telecommunications system shall be commissioned and subject to a regular operational inspection and maintenance regime, in accordance with the Utility providers procedures, to ensure the system keeps operating within the design specifications.

7.10 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented.

7.10.1 Demolition Phase

The only existing buildings within the site are to be repurposed as part the of the landscape plan for the proposed site. Not other demolition work is expected to be required to develop the subject site.

7.10.2 Construction Phase

7.10.2.1 Surface Water

The implementation of mitigation measures detailed in the Surface Water Management Plan (settlement ponds, silt removal, etc.) will ensure that the volume and quality of any water discharged during construction will have minimal impact on the receiving network. This impact will be neutral, of low significance and temporary.

7.10.2.2 Wastewater

The wastewater network will be constructed as per design and in accordance with the Uisce Eireann Code of Practice and all private drainage will be in accordance with the Building Regulations Technical Guidance Document Part H. This will ensure minimal impact on the existing wastewater network during construction. This impact will be neutral, of low significance and temporary.

7.10.2.3 Water Supply

All water pipework will be designed and constructed in accordance with the Uisce Eireann Code of Practice and Standard Details. This will ensure minimal impact on the existing water network during construction. This impact will be neutral, of low significance and temporary.

7.10.2.4 Electricity Supply

Construction of the proposed electricity supply network will adhere to the ESB Networks / HSA “Code of Practice for Avoiding Danger from Overhead Electricity Lines” and all relevant procedures and specifications. This will ensure minimal impact on the existing electricity network during construction. This impact will be neutral, of low significance and temporary.

7.10.2.5 Gas Supply

It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site.

7.10.2.6 Telecommunications

Construction of the proposed telecoms supply network will adhere to all relevant procedures and specifications of Utility providers. This will ensure minimal impact on the existing network during construction. This impact will be neutral, of low significance and temporary.

7.10.3 Operational Phase

7.10.3.1 Surface Water

It is estimated that the current greenfield runoff rate (Qbar) is 128 l/s and the post-development runoff rates from the two drainage catchments will not exceed this rate. Flowrates will be limited by hydro-brake flow controls and excess runoff from hardstanding areas will be stored in below & above-ground attenuation storages. Filtration and treatment of runoff will be achieved through the use of an extensive SUDS strategy incorporating swales, a pond, permeable paving and oil interceptors ensuring the removal of any potential pollutants. Post-development runoff will have effects on the surface water drainage network which will be positive, of low significance and permanent.

7.10.3.2 Wastewater

The proposed public wastewater network has been designed in accordance with the Uisce Eireann Code of Practice and all private drainage will be in accordance with the Building Regulations Technical Guidance Document Part H. This, combined with a regular maintenance regime by UE, will ensure the network continues to operate as designed. The upgrade works required to facilitate the development will have a positive impact on the local drainage network. The impact on the existing network will be positive, significant and permanent.

7.10.3.3 Water Supply

All water pipework will be designed and constructed in accordance with the Uisce Eireann Code of Practice and Standard Details. This, combined with a regular maintenance regime by UE, will ensure the network continues to operate as designed. The upgrade works required to facilitate the development will have a positive impact on the local drainage network. The impact on the existing network will be positive, significant and permanent.

7.10.3.4 Electricity Supply

The proposed electricity supply system shall be commissioned and subject to a regular operational inspection and maintenance regime, in accordance with the Utility providers procedures, to ensure the system keeps operating within the design specifications. The effects will be neutral, of low significance and permanent.

7.10.3.5 Gas Supply

It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site. Any impacts will be neutral, of low significance and permanent.

7.10.3.6 Telecommunications

The proposed telecommunications system shall be commissioned and subject to a regular operational inspection and maintenance regime, in accordance with the Utility providers procedures, to ensure the system keeps operating within the design specifications. The effects will be neutral, of low significance and permanent.

7.10.4 Summary of Post-mitigation Effects

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 7 3 Summary of Construction Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Surface Water Drainage network	Neutral	Low	Local	Likely	Short Term	Direct
Wastewater Drainage	Neutral	Low	Local	Likely	Short Term	Direct
Water Supply Network	Neutral	Low	Local	Likely	Short Term	Direct
Electricity Supply	Neutral	Low	Local	Likely	Short Term	Direct
Gas Supply	Neutral	Low	Local	Unlikely	Short Term	Direct
Telecoms	Neutral	Low	Local	Likely	Short Term	Direct

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

Table 7 4 Summary of Operational Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Surface Water Drainage	Positive	Low	Local	Likely	Permanent	Direct
Wastewater Drainage	Positive	High	Local	Likely	Permanent	Direct
Water Supply	Positive	High	Local	Likely	Permanent	Direct
Electricity	Neutral	Low	Local	Likely	Permanent	Direct
Gas	Neutral	Low	Local	Unlikely	Permanent	Direct
Telecoms	Neutral	Low	Local	Likely	Permanent	Direct

7.10.5 Cumulative Residual Effects

7.10.5.1 Surface Water Drainage

It is expected that any future development in the area will adhere to Wexford County Council Taking-In-Charge Policy, GDSDS and the CIRIA SuDS Guide. These policies will ensure that stormwater runoff from future developments will be limited in volume using flow controls & on-site attenuation and will receive treatment prior to discharge to the public network. These effects will be expected to be neutral, of low significance and permanent.

7.10.5.2 Wastewater Drainage

The Confirmation of Feasibility (CoF) received from Uisce Eireann (UE) detailed upgrade works required to the public wastewater gravity network to facilitate the connection of the proposed development. No other concerns were raised regarding capacity in the wider wastewater network or downstream Gorey WWTP. The cumulative impacts to the wastewater network are expected to be neutral, of low significance and permanent.

7.10.5.3 Water Supply

The Confirmation of Feasibility (CoF) received from Uisce Eireann (UE) assessed the capacity of the local water network and detailed upgrade works required to the network to facilitate the connection of the proposed development. No other concerns were raised regarding capacity in the wider water network and I was confirmed that the capacity is available after completion of the upgrades. The cumulative impacts to the wastewater network are expected to be neutral, of low significance and permanent.

7.10.5.4 Electricity Supply

Any redevelopment in the area resulting in an intensification of land use or increased density of occupation would likely lead to an increase in demand on the electricity supply network. While there is substantial existing electricity supply infrastructure in place, continued cumulative development will tend to necessitate future provision of new electricity supply infrastructure with increased capacity. The cumulative residual effect is a neutral, of low significance and short-term.

7.10.5.5 Gas Network

It is not proposed to supply gas within the proposed development and changing trends away from fossil fuels mean that it is unlikely that there will be significant further development of the gas network in the area of Gorey town. The cumulative residual effect will be neutral, of low significance and permanent.

7.10.5.6 Telecommunications

Any redevelopment in the area resulting in an intensification of land use or increased density of occupation would likely lead to an increase in demand on the telecommunications networks. While there is substantial existing telecommunications infrastructure in place, continued cumulative development will tend to necessitate future provision of new telecommunications infrastructure with increased capacity. The cumulative residual effect is a neutral, of low significance and short-term.

7.11 Risk of Major Accidents or Disasters

There are no expected significant adverse effects on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters.

7.12 Worst Case Scenario

7.12.1 Surface Water

The 'worst-case' scenario for the surface water drainage systems is that flooding occurs on-site and in the surrounding area due to this development. The design of the system ensures that the pipe sizes, gradients etc. will be adequate for the design stormwater flows. As per GDSDS, Wexford County Council Taking-In-Charge Policy & the CIRIA SUDS Guide a 20% climate change uplift was applied to the design storm and 10% urban creep factor applied to the design catchment.

7.12.2 Wastewater

The 'worst-case' scenario would be flooding of the wastewater system and/or contamination of groundwater with effluent from the network. This issue is mitigated by ensuring that the network is constructed in accordance with best practice guideline laid out in the Uisce Eireann Code of Practice and Standard Details.

7.12.3 Water Supply

The 'worst-case' scenario would be contamination of the water supply during construction. This risk is mitigated by ensuring all watermains in accordance with best practice guideline laid out in the Uisce Eireann Code of Practice and Standard Details and appropriate disinfection is carried out prior to connection.

7.12.4 Electricity Supply

The 'worst-case' scenario would be the striking of the existing overhead power lines which traverse the subject site which would be fatal and lead to an unplanned power outage. The existing overhead lines shall be diverted underground prior to new construction taking place in their vicinity to minimise risk. The Contractor shall

liaise at all times with the ESB and adhere to the ESB/ HSA "Code of Practice for Avoiding Danger from Overhead Electricity Lines to mitigate against this.

7.12.5 Gas Supply

The 'worst-case' scenario would be striking a piece of existing live gas infrastructure during excavation works and causing an unplanned outage of service to customers. The Contractor shall ensure that all of the works will be carried out by authorised personnel who have expertise in the required works. This will minimise disruption to surrounding areas.

7.12.6 Telecommunications

The 'worst-case' scenario would be striking the existing telecommunications infrastructure during excavation works and causing an unplanned outage of service to customers. The Contractor shall ensure that all of the works will be carried out by authorised personnel who have expertise in the required works. This will minimise disruption to surrounding areas.

7.13 Interactions

Interactions are addressed in detail in Chapter 17 of this EIAR report.

7.14 Monitoring

7.14.1 Surface Water Drainage

During the construction of the Surface Water drainage, the system shall be inspected and monitored for compliance with the design and relevant Wexford Co. Co. and GDSDS standards in accordance with the Preliminary Inspection Plan. Pressure testing shall be carried out on all sewer installations during construction while exfiltration testing shall be carried out on all manholes. Records of these tests shall be maintained by the Contractor. The connection to the existing open water course will not be made until all the works are complete within each Phase, and temporary surface water management will remain in place until this time to ensure only clean, uncontaminated surface water is discharged to the public drainage network.

7.14.2 Wastewater

All wastewater pipework and manholes will be designed, constructed and tested in accordance with the Uisce Eireann Code of Practice and Standard Details and will be subject to inspection by the UE Field Engineer and the Consultant Design Engineer during construction. Upon completion the contractor will submit for review a QA pack for review including but not limited to:

- CCTV analysis
- As-Built Drawings

- Pressure Test Records
- Manhole Exfiltration Test Records

No connection to the public network will be made until all QA information is reviewed and approved by the Consultant Design Engineer and UE Field Engineer.

7.14.3 Water Supply

During the construction of the water supply network, the system shall be inspected, tested and monitored in accordance with the requirements of the relevant Uisce Éireann Code of Practice. Records of these tests shall be maintained by the Contractor as required and shall be witnessed by Uisce Éireann in accordance with the relevant Quality Procedures. No connection to the public network will be made until all relevant QA information is reviewed and approved by the Consultant Design Engineer and UE Field Engineer.

7.14.4 Electricity Supply

The ESB shall monitor the existing and proposed networks during the diversion and undergrounding of the existing overhead MV (10KV/20KV) and LV (400V/230V) powerlines. The ESB shall carry out ongoing testing and commissioning of the installed infrastructure during construction.

7.14.5 Gas Supply

It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site. As such monitoring will not be required.

7.14.6 Telecommunications

The incoming telecommunications provider shall monitor the existing and proposed networks during the installation of the proposed telecommunications network throughout the site during construction. The incoming telecommunications provider shall carry out ongoing testing and commissioning of the installed infrastructure during construction.

7.15 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 7 5 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Contamination of Surface Drainage Network	Implementation of surface water management plan	Monitoring of settlement ponds and silt removal
Contamination of Wastewater Network	Construction as per UE Code of Practice	Regular inspections by Consultant Design Engineer
Water Supply	Construction as per UE Code of Practice	Regular inspections by Consultant Design Engineer
Electricity supply diversion impacts on services	Testing and commissioning of diverted network	ESB to monitor all works
Impacts to gas network	No works proposed	GNI provider to monitor existing network
Impact on existing Telecommunications network	Testing and commissioning of new network connections	Utility provider to monitor all works

The following Table summarises the Operational Phase mitigation and monitoring measures.

Table 7 6 Summary of Operational Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Contamination/blockage of surface water network	Regular inspection and maintenance as per SUDS Maintenance Plan	Regular inspections as per SUDS Maintenance Plan
Leaks/Blockages of Wastewater System	Regular inspections and maintenance per UE policies	Regular inspections by UE
Leaks from water supply system	Construction in accordance with UÉ COP. Metering of supply.	Review and assessment of water meter readings. Water Audit by Uisce Éireann.
Increase in electrical load	Regular monitoring & maintenance	ESB periodic inspections
Gas network impacts	No gas works proposed	GNI provider to monitor existing network
Increased Load on Telecoms network	Regular monitoring & maintenance	Regular inspections by Telecommunications provider

7.16 Conclusion

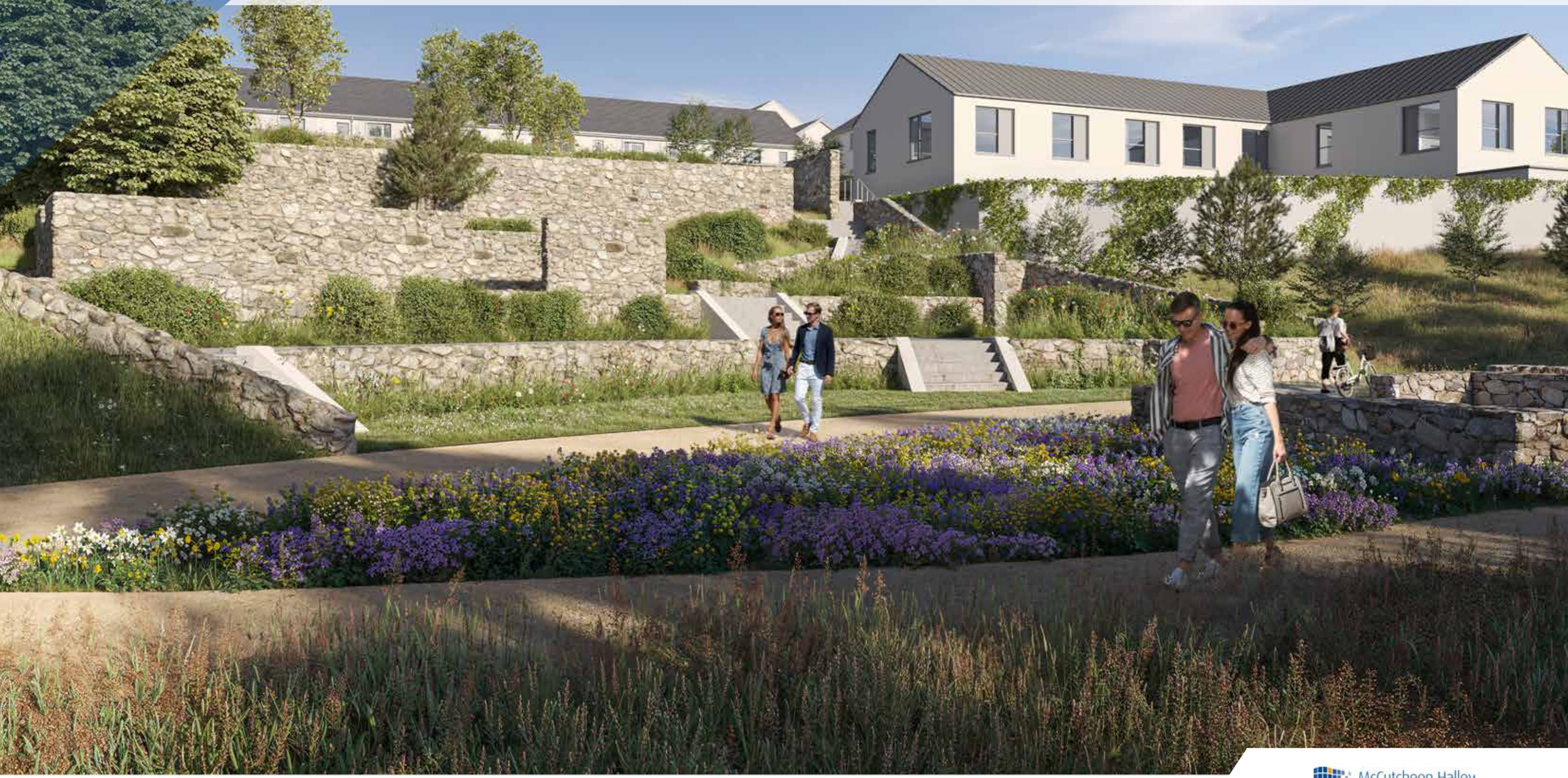
The assessment concludes that there will no significant negative effects in terms of Material Assets from the development when considered alone, or in combination with other developments, during either the demolition, construction or operational phases of the development.

7.17 References and Sources

- Wexford County Council County Development Plan 2022 – 2028
- Wexford County Council Taking in Charge of Residential Estates – Policy Document
- The SuDS Manual C753, 2015, Construction Industry Research and Information Association
- The Greater Dublin Region Code of Practice for Drainage Works, 2012
- Greater Dublin Strategic Drainage Study, 2005
- Technical Guidance Document H Drainage & Wastewater Disposal, 2016, Department of Housing, Planning, Community and Local Government
- Standard Details for Wastewater Infrastructure IW-CDS-5030-01 Rev 04
- Code of Practice for Wastewater Infrastructure IW-CDS-5030-03 Rev 02
- Standard Details for Water Infrastructure CDS-5020-01 Rev 05
- Code of Practice for Water Infrastructure CDS-5020-03 Rev 03
- Gorey LRD, Infrastructure Report, AKM Design Group, 2025

CHAPTER EIGHT

MATERIAL ASSETS: WASTE



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CHAPTER 8 | MATERIAL ASSETS: WASTE

8.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects of the proposed development on Material Assets - Waste as defined in the EIA Directive (Directive 2011/92/EU as amended by Directive 2014/52/EU) and the EPA 2022 Guidelines on the information to be contained in Environmental Impact Assessment Reports during the construction and operational phases of the proposed development, as described in Chapter 2 (Project Description).

A site-specific Resource Waste Management Plan (RWMP) has been prepared by AWN Consulting to guide and manage the waste generated during the construction (including excavation) phase of the proposed development (including excavation works) and has been included as Appendix 8.1. The RWMP was prepared in accordance with the Environmental Protection Agency's (EPA) document *Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects (2021).*

A separate Operational Waste Management Plan (OWMP) has been prepared for the operational phase of the proposed Development and is included as Appendix 8.2 of this Chapter.

This Chapter has been prepared in accordance with European Commissions Guidelines, Guidance on the preparation of the Environmental Impact Assessment Report (2017), the EPA Guidelines on the Information to be contained in EIAR (2022).

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

8.2 Expertise & Qualifications

This Chapter has been prepared by Isabel Gogarty Meade (BSc ENV) of AWN Consulting. Isabel is an Environmental Consultant in the Environmental Team at AWN. She holds a BSc in Environmental Science from University College Cork. Isabel has experience working on a range of developments from residential to commercial and specialises in waste management.

This Chapter has been approved by Chonaill Bradley (Bsc ENV,PG Dip Circ Econ, AssocCIWM) of AWN Consulting. Chonaill is an Associate in the Environment Team at AWN. He holds a BSc in Environmental Science from Griffith University, Australia and a Postgraduate Diploma in Circular Economy Leadership for the Built Environment from the Atlantic Technological University, Galway. He is an Associate Member of the Institute of Waste Management (AssocCIWM). Chonaill has over ten years' experience in the environmental consultancy sector and specialises in waste management.

8.3 Proposed Development

The applicant intends to apply for planning permission for a large-scale residential development consisting of 413 no. units, in a mix of detached, semi-detached, townhouses and apartments/duplexes and a creche to cater for 102 no. children and all associated site development works at Killnahue & Gorey Hill, Gorey, Co Wexford.

A full description is included in Chapter 2 of this EIAR and in the statutory notices.

8..3.1 Aspects Relevant to this Chapter

The aspects of the development that will be considered as part of this chapter are the existing site conditions, existing site use and the waste that will be generated as part of the construction and operation of the proposed development. These aspects will be considered together with the proposed development use. This section should be read in conjunction with the design drawings and reports which accompany this planning application.

8.4 Methodology

The assessment of the impacts of the proposed development, arising from the consumption of resources and the generation of waste materials, was carried out taking into account the methodology specified in relevant guidance documents, along with an extensive document review to assist in identifying current and future requirements for waste management; including national and regional waste policy, waste strategies, management plans, legislative requirements and relevant reports.

This Chapter is based on the proposed development, as described in Chapter 2 (Project Description) and considers the following aspects:

- Legislative context;
- Construction phase (including site excavation works); and
- Operational phase.

A desktop study was carried out which included the following:

- Review of applicable policy and legislation which creates the legal framework for resource and waste management in Ireland;
- Description of the typical waste materials that will be generated during the Construction and Operational phases; and
- Identification of mitigation measures to prevent waste generation and promote management of waste in accordance with the waste hierarchy.

Estimates of waste generation during the construction and operational phases of the proposed development have been calculated and are included in Section 8.6 of this chapter. The waste types and estimated quantities are based on published data by the EPA in the National Waste Reports and National Waste Statistics, data recorded from similar previous developments, Irish and US EPA waste generation research.

Mitigation measures are proposed to minimise the effect of the proposed development on the environment during the construction and operational phases, to promote efficient waste segregation and to reduce the quantity of waste requiring disposal. This information is presented in Section 8.9.

A detailed review of the existing ground conditions on a regional, local and site-specific scale are presented in Chapter 9 (Land & Soils).

8..4.1 Relevant Legislation & Guidance

Waste management in Ireland is subject to EU, national and regional waste legislation and control, which defines how waste materials must be managed, transported and treated. The overarching EU legislation is the Waste Framework Directive (2008/98/EC) which is transposed into national legislation in Ireland. The cornerstone of Irish waste legislation is the Waste Management Act 1996 (as amended). European and national waste management policy is based on the concept of 'waste hierarchy', which sets out an order of preference for managing waste (prevention > preparing for reuse > recycling > recovery > disposal) (Figure 8.1).



Figure 8.1 Waste Hierarchy (Source: European Commission).

EU and Irish National waste policy also aims to contribute to the circular economy by extracting high-quality resources from waste as much as possible. Circular Economy (CE) is a sustainable alternative to the traditional linear (take-make-dispose) economic model, reducing waste to a minimum by reusing, repairing, refurbishing and recycling existing materials and products. (Figure 8.2).



Figure 8.2 Circular Economy (Source: Repak).

The Irish government issues policy documents which outline measures to improve waste management practices in Ireland and help the country to achieve EU targets in respect of recycling and disposal of waste. The most recent policy document, *Waste Action Plan for a Circular Economy (WAPCE) – Waste Management Policy in Ireland,* was published in 2020 and shifts focus away from waste disposal and moves it back up the production chain. The move away from targeting national waste targets is due to the Irish and international waste context changing in the years since the launch of the previous waste management plan, A Resource Opportunity, in 2012.

One of the first actions to be taken from the WAPCE was the development of the *Whole of Government Circular Economy Strategy 2022-2023 'Living More, using Less'* (2021) to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021.

The *Circular Economy and Miscellaneous Provisions Act 2022* was signed into law in July 2022. The Act underpins Ireland's shift from a "take-make-waste" linear model to a more sustainable pattern of production and consumption, that retains the value of resources in our economy for as long as possible and that will work to significantly reduce our greenhouse gas emissions. The Act defines Circular Economy for the first time in Irish law, incentivises the use of recycled and reusable alternatives to wasteful, single-use disposable packaging, introduces a mandatory segregation and incentivised charging regime for commercial waste, streamlines the national processes for End-of-Waste and By-Products decisions.

The strategy for the management of waste from the construction phase is in line with the requirements of the EPA's *'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects'* (2021). The guidance documents, *Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects and Construction and Demolition Waste Management: A Handbook for Contractors and Site Managers* (FÁS & Construction Industry Federation, 2002), were also consulted in the preparation of this assessment.

There are currently no national guidelines on the assessment of operational waste generation, and guidance is taken from industry guidelines, plans and reports including the *National Waste Management Plan for a Circular Economy 2024 – 2030* (NWMPCE) (2024), BS 5906:2005 *Waste Management in Buildings – Code of Practice, the Wexford County Council (WCC) County of Wexford (Segregation, Storage and Presentation of Household and Commercial Waste) Bye-laws (2018), the EPA National Waste Database Reports 1998 – 2020, the Circular Economy and National Waste Database Report 2021-2022 (2024) and the EPA National Waste Statistics Web Resource.*

8.4.2 Terminology

Note that the terminology used herein is consistent with the definitions set out in Article 3 of the Waste Framework Directive. Key terms are defined as follows: -

Waste - Any substance or object which the holder discards or intends or is required to discard.

Prevention - Measures taken before a substance, material or product has become waste, that reduce:

a) the quantity of waste, including through the re-use of products or the extension of the life span of products;

b) the adverse impacts of the generated waste on the environment and human health; or

c) the content of harmful substances in materials and products.

Reuse - Any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.

Preparing for Reuse - Checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing.

Treatment - Recovery or disposal operations, including preparation prior to recovery or disposal.

Recovery - Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II of the Waste Framework Directive sets out a non-exhaustive list of recovery operations.

Recycling - Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

Disposal - Any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy. Annex I of the Waste Framework Directive sets out a non-exhaustive list of disposal operations.

8.4.3 Site Surveys/Investigations

Site investigations were undertaken by Site Investigations Ltd (S.I. Ltd) in June 2021. 8 No. trial pits were excavated using a wheeled excavator and environmental testing was performed on the 8 samples. No asbestos was detected in any of the samples. All 8 samples results were classified as non-hazardous and inert. Further details on the site investigations can be found in Chapter 9 (Land & Soils).

The assessment of the impacts of the proposed development, was carried out taking into account the methodology specified in relevant guidance documents, along with an extensive document review to assist in identifying current and future requirements for waste management; including national and regional waste policy, waste strategies, management plans, legislative requirements and relevant reports.

8.4.4 Consultation

Consultation was undertaken with Wexford County Council in the form of a pre-application consultation.

8.5 Difficulties Encountered

Until final materials and detailed construction methodologies have been confirmed, it is difficult to predict with a high level of accuracy the construction waste that will be generated from the proposed works as the exact materials and quantities may be subject to some degree of change and variation during the construction process.

While it is possible to initially select a licensed waste facility for soil disposal, there is potential to encounter contaminated material or material with naturally occurring variations in minerals and chemicals that necessitates sending it to a different suitably licensed facility. The sampling and testing carried out in the Site Investigations (SI) process provides spot samples, and further testing is required during the excavation process, as the true condition of all excavated material cannot be ascertained with certainty until this is undertaken.

There are a number of licensed, permitted and registered waste facilities in the Wexford Area, Southern regions and across Ireland and Northern Ireland. However, these sites may not be available for use when required or may be limited by the waste contractor selected to service the development in the appropriate phase. In addition, there is potential for more suitably placed waste facilities or recovery facilities to become operational in the future which may be more beneficial from an environmental perspective.

Licensed waste facilities have annual limitations on material that they can import as part of their license agreements. Because of this it would not make it possible to commit to a singular specific receiving facility as it is not available throughout the excavation phase. It would not be viable to cease a development and wait until a receiving facilities annual receiving quotas are reset. In a normal development waste facilities would switch between facilities with available capacity.

The ultimate selection of waste contractors and waste facilities would be subject to appropriate selection criteria proximity, competency, capacity and serviceability. The waste facilities selected will ultimately be selected to minimise the environmental impacts on the surrounding environment.

8.6 Baseline Environment

In terms of waste management, the receiving environment is largely defined by Wexford County Council (WCC) as the local authorities responsible for setting and administering waste management activities in the areas. This is governed by the requirements set out in the NWMPCE 2024 – 2030 and the WAPCE.

The waste management plans set out the following targets for waste management in the region:

- *Achieve a recycling rate of 55% of managed municipal waste by 2025; and*
- *Reduce to 0% the direct disposal of unprocessed residual municipal waste to landfill (from 2016 onwards) in favour of higher value pre-treatment processes and indigenous recovery practices.*

The Regional Waste Management Planning Offices have issued a National Waste Management Plan for a Circular Economy 2024 - 2030 (NWMPCE) in March 2024, which supersedes the Eastern-Midlands regional waste management plan and the two other regional waste management plans. The NWMPCE does not however dissolve the three regional waste areas. The NWCPCE sets the ambition of the plan to have a 0% total waste growth per person over the life of the Plan with an emphasis on non-household wastes including waste from commercial activities and the construction and demolition sector.

The Wexford County Development Plan 2022 - 2028 set out the policies and objectives for the WCC area which reflect those set out in the regional waste management plan and can be found in the RWMP (Appendix 8.1).

In terms of physical waste infrastructure, there are a number of waste permitted and licensed facilities located in the Wexford Area, Eastern Midlands regions and across Ireland and Northern Ireland for management of waste from the construction industry as well as municipal sources. These include soil recovery facilities, inert C&D waste facilities, municipal waste landfills, material recovery facilities and waste transfer stations.

However, these sites may not be available for use when required or may be limited by the waste contractor selected to service the development in the appropriate phase. In addition, there is potential for more suitably placed waste facilities or recovery facilities to become operational in the future which will be more beneficial from an environmental perspective.

The ultimate selection of waste contractors and waste facilities would be subject to appropriate selection criteria proximity, competency, capacity and serviceability.

8.6.1 Demolition

There will be no demolition associated with the proposed development.

8.6.2 Construction

During the construction phase, waste will be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete, tiles, bricks, etc. Waste from packaging (cardboard, plastic, timber) and oversupply of materials may also be generated.

There will be soil and stones excavated to facilitate construction of new foundations and landscaping. The project engineers (AKM Design) have estimated that c. 120,000 m³ of material will need to be excavated to do so. It is anticipated that c. 85,000 m³ will be reused on site and c. 35,000 m³ will need to be removed off site by a licensed contractor and will be taken for appropriate reuse, recycling or disposal. In the case that any excavated soil is tested and deemed contaminated and unfit for reuse on-site, it will need to be removed offsite. This will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

When material that requires removal from the site is deemed to be a waste, removal and reuse / recycling / recovery / disposal of the material will be carried out in accordance with the Waste Management Act 1996 (as amended), the Waste Management (Collection Permit) Regulations 2007 (as amended) and the Waste Management (Facility Permit & Registration) Regulations 2007 (as amended). The volume of waste requiring recovery / disposal will dictate whether a Certificate of Registration (COR), permit or licence is required for the receiving facility. Alternatively, the material may be classed as by-product under Regulation 27 (By-products), as amended, of S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2011-2020, (Previously Article 27 of the European Communities (Waste Directive)). For more information in relation to the envisaged management of by-products, refer to the RWMP (Appendix 8.1).

In order to establish the appropriate reuse, recovery and / or disposal route for the soils and stones to be removed off-site, it will first need to be classified. Waste material will initially need to be classified as hazardous or non-hazardous in accordance with the EPA publication Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous (2019). Environmental soil analysis will be carried out prior to removal of the material on a number of the soil samples in accordance with the requirements for acceptance of waste at landfills (Council Decision 2003/33/EC Waste Acceptance Criteria). This legislation sets limit values on landfills for acceptance of waste material based on properties of the waste, including potential pollutant concentrations and leachability. Any surplus excavated material will be suitable for acceptance at either inert or non-hazardous soil recovery facilities / landfills in Ireland or, in the unlikely event of hazardous material being encountered, be transported for treatment / recovery or exported abroad for disposal in suitable facilities.

Waste will also be generated from construction phase workers e.g. organic / food waste, dry mixed recyclables (waste paper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and, potentially, sewage sludge from temporary welfare facilities provided on-site during the Construction phase. Waste printer / toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated in small volumes from site offices.

Further detail on the waste materials likely to be generated during the excavation and construction works are presented in the project-specific RWMP (Appendix 8.1). The RWMP provides an estimate of the main waste types likely to be generated during the Construction phase of the proposed development. These are summarised in Table 8.1, below.

Table 8.1 Predicted On and Off-Site Reuse, Recycle and Disposal Rates for Construction Waste.

Waste Type	Tonnes	Reuse		Recycle / Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	761.9	10	76.2	80	609.5	10	76.2
Timber	646.5	40	258.6	55	355.5	5	32.3
Plasterboard	230.9	30	69.3	60	138.5	10	23.1
Metals	184.7	5	9.2	90	166.2	5	9.2
Concrete	69.3	30	20.8	65	45.0	5	3.5
Other	346.3	20	69.3	60	207.8	20	69.3
Total	**2239.5**		**503.3**		**1522.6**		**213.6**

8.6.3 Operational Stage

All waste materials will be segregated into appropriate categories and will be stored in appropriate bins or other suitable receptacles in a designated, easily accessible areas of the site. It is envisaged that waste types will be generated from the residential units and the creche unit.

The total estimated waste generation for the proposed development for the main waste types, based on the AWN waste generation model (WGM) incorporating EPA National Waste reports data, EPA National Waste Statistics Web Resource, predicted occupancy of the units and floor use per m2 of the proposed development, is presented in Tables 8.2 – 8.4, below, and is based on the uses and areas as advised by the project architect. Further break down of the estimated waste generation during the operational phase for each of the residential units can be found in the OWMP (Appendix 8.2).

Table 8.2 Estimated Waste Generation During Operational Phase for Commercial Units.

Waste Type	Waste Volume (m3 / week) Creche Unit
Organic Waste	0.06
Dry Mixed Recyclables	2.10
Glass	0.01
Mixed Non-Recyclables	1.14
Total	**3.31**

Table 8.3 Estimated Waste Generation During Operational Phase for Residential Units.

Waste Type	Waste Volume (m3 / week)		
	Area 1 (Shared WSA)	Area 2 (Shared WSA)	Area 3 (Shared WSA)
Organic Waste	0.19	0.34	0.34
Dry Mixed Recyclables	1.32	2.41	2.41
Glass	0.04	0.07	0.07
Mixed Non-Recyclables	0.69	1.27	1.27
Total	**2.23**	**4.08**	**4.08**

Table 8.4 Estimated Waste Generation During Operational Phase for Residential Units.

Waste Type	Waste Volume (m^3 / week)			
	1-Bed House Unit (Individual WSA)	2-Bed House Unit (Individual WSA)	3-Bed House Unit (Individual WSA)	4-Bed House Unit (Individual WSA)
Organic Waste	0.01	0.02	0.02	0.02
Dry Mixed Recyclables	0.08	0.11	0.13	0.18
Glass	0.01	0.01	0.01	0.01
Mixed Non-Recyclables	0.05	0.07	0.08	0.09
Total	**0.15**	**0.21**	**0.24**	**0.30**

The residents and creche unit staff will be required to provide and maintain appropriate waste receptacles within their units to facilitate segregation at source of these waste types. As required, the residents and creche tenants will need to bring these segregated wastes from their units to their respective Waste Storage Areas (WSAs). All WSA's can be viewed on the plans submitted with the application and in the OWMP (Appendix 8.2).

The OWMP seeks to ensure the development contributes to the targets outlined in the NWMPCE and the WCC Waste Bye-laws.

8.7 The 'Do Nothing' Scenario

If the proposed development was not to go ahead (i.e. in the Do-Nothing scenario) there would be no excavation or construction at this site. There would continue to be no operational waste generated from at the site. There would, therefore, be a ***neutral effect*** on the environment in terms of waste.

The site is zoned for 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 and regional policies, which can be found in the RWMP (Appendix 8.1) and the OWMP (Appendix 8.2), and therefore the likely significant effects would be similar to this proposal.

8.8 Potential Significant Effects

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

8.8.1 Demolition Phase

There will be no demolition associated with the proposed development.

8. 8.2 Construction Phase

The impact assessment in this section relates to all phases of construction including site excavation works.

The proposed Development will generate a range of non-hazardous and hazardous waste materials during site excavation and construction. General housekeeping and packaging will also generate waste materials, as well as typical municipal wastes generated by construction employees, including food waste. Waste materials will be required to be temporarily stored on-site pending collection by a waste contractor. If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the development site and in adjacent areas. The indirect effect of litter issues is the presence of vermin in areas affected. In the absence of mitigation, the effect on the local and regional environment is likely to be ***short-term, significant and negative***.

The use of non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste, resulting in indirect negative environmental impacts, including pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. In the absence of mitigation, the effect on the local and regional environment is likely to be ***long-term, significant and negative***.

Wastes arising will need to be taken to suitably registered / permitted / licenced waste facilities for processing and segregation, reuse, recycling, recovery, and / or disposal, as appropriate. There are numerous licensed waste facilities in the Eastern-Midlands Region which can accept hazardous and non-hazardous waste materials, and acceptance of waste from the development site would be in line with daily activities at these facilities. At present, there is sufficient capacity for the acceptance of the likely C&D waste arisings at facilities in the region. The majority of construction materials are either recyclable or recoverable. However, in the absence of mitigation, the effect on the local and regional environment is likely to be ***short-term, significant and negative.***

There is a quantity of material which will need to be excavated to facilitate the proposed development. A detailed review of the existing ground conditions on a regional, local site-specific scale are presented in Chapter 9. It is anticipated that c. 85,000 m³ will be reused on site and c. 35,000 m³ will need to be removed off site by a licensed contractor and will be taken for appropriate reuse, recycling or disposal. In the event that excavated material is found to be contaminated it will need to be removed off-site. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site. However, in the absence of mitigation, the effect on the local and regional environment is likely to be ***short-term, significant and negative.***

8.8.3 Operational Phase

The potential impacts on the environment of improper, or a lack of, waste management during the operational phase would be a diversion from the priorities of the waste hierarchy which would lead to small volumes of waste being sent unnecessarily to landfill. In the absence of mitigation, the effect on the local and regional environment is likely to be ***indirect***, ***long-term, significant and negative***.

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

If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the development site and in adjacent areas. The knock-on effect of litter issues is the presence of vermin in affected areas. However, in the absence of mitigation, the effect on the local and regional environment is likely to be ***indirect***, ***short-term, significant and negative.***

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

8.8.4 Cumulative Effects

If waste material are not managed and stored correctly and in the absence of mitigation, the effect on the local and regional environment is likely to be ***long-term, significant and negative***.

8.8.5 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

Table 8.5 Summary of Construction Phase Likely Significant Effects in the Absence of Mitigation.

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Litter Pollution	Negative	Significant	Local	Likely	Short-Term	Indirect & Direct
Unlicensed Waste Collection (Illegal Dumping)	Negative	Significant	Local & Regional	Likely	Long-Term	Direct
Insufficient Waste Facilities	Negative	Significant	Local & Regional	Unlikely	Short-Term	Direct
Lack of waste Classification	Negative	Significant	Local & Regional	Likely	Short-Term	Direct

The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 8.6 Summary of Operational Phase Likely Significant Effects in the Absence of Mitigation.

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Unlicensed Waste Collection (Illegal Dumping)	Negative	Significant	Local & Regional	Likely	Long-Term	Direct
Poor Waste Segregation	Negative	Significant	Local & Regional	Likely	Long-Term	Direct
Litter Pollution	Negative	Significant	Local & Regional	Likely	Short-Term	Direct

8.9 Mitigation Measures

8.9.1 Incorporated Design Mitigation

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

The concept of the 'Waste Hierarchy' and 'Circular Economy' is employed when considering all mitigation measures. The waste hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling / recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal. The circular economy principle aims to keep materials, components, and products in-use in the economy for as long as possible. In circularity, the key objective is to design consumption and production systems to create and retain value. Both principles have been applied and will further be applied during the detailed design, construction and operational phases.

8. 9.2 Demolition Phase Mitigation

There will be no demolition associated with this development and therefore there will be no demolition mitigation.

8.9.3 Construction Phase Mitigation

The following mitigation measures will be implemented during the excavation and construction phase of the proposed development:

As previously stated, a project specific RWMP has been prepared in line with the requirements of the *EPA Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects'* (2021) and is included as Appendix 8.1. The mitigation measures outlined in the RWMP will be implemented in full and form part of mitigation strategy for the site. The mitigation measures presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction phases of the proposed development.

- Prior to commencement, the appointed Contractor(s) will be required to refine / update the RWMP (Appendix 8.1) in agreement with WCC and in compliance with any planning conditions, or submit an addendum to the RWMP to WCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
- The Contractor will implement the RWMP throughout the duration of the proposed excavation and construction phases and should treat the document as outlined in the guidance as a live document.

A quantity of topsoil and sub soil will need to be excavated to facilitate the proposed development. The project design team have anticipated that c. 85,000 m³ will be reused on site and c. 35,000 m³ will need to be removed off site by a licensed contractor and will be taken for appropriate reuse, recycling or disposal. In the event that any excavated soil is found to be contaminated it will need to be removed off-site. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

In addition, the following mitigation measures will be implemented:

- Building materials will be chosen to 'design out waste';
- On-site segregation of waste materials will be carried out where possible to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated:
  - Concrete rubble (including ceramics, tiles and bricks);
  - Plasterboard;
  - Metals, and
  - Timber.
- Left over materials (e.g. timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible;
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;
- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);

- A Resource Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works;
- All construction staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal;
- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Regulation 27 of the EC (Waste Directive) Regulations (2011-2020). EPA approval will be obtained prior to moving material as a by-product.

These mitigation measures will ensure that the waste arising from the construction phase of the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997, the NWMPCE (2024). It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.

8.9.4 Operational Phase Mitigation

The following mitigation measures will be implemented during the operational phase of the proposed development:

All waste materials will be segregated into appropriate categories and will be temporarily stored in appropriate bins, skips or other suitable receptacles in a designated, easily accessible areas of the site.

- The Staff / Facilities Management, creche tenants and residents of the Site during the operational phase will be responsible for ensuring – allocating personnel and resources, as needed – for the authoring and implementation of an Operational Waste Management Strategy, ensuring a high level of recycling, reuse and recovery at the site of the proposed development. The households with individual waste stores will be required to manage their own waste.
- The Staff/ Facilities Management will regularly audit the onsite waste storage facilities and infrastructure and maintain a full paper trail of waste documentation for all waste movements from the site.
- The following mitigation measures will be implemented:
- The Residents/ Staff / Facilities Management will ensure on-Site segregation of all waste materials into appropriate categories, including (but not limited to):
  - Organic waste;
  - Dry Mixed Recyclables;
  - Mixed Non-Recyclable Waste;
  - Glass;
  - Cardboard;
  - Plastic;
  - Waste electrical and electronic equipment (WEEE) including computers, printers and other ICT equipment;
  - Waste Electrical and Electronic Equipment
  - Cooking oil;
  - Cleaning chemicals (paints, adhesives, resins, detergents, etc.);
  - Furniture (and from time-to-time other bulky waste); and
  - Abandoned bicycles
- The Staff / Facilities Management will ensure that all waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials;
- The Staff / Facilities Management will ensure that all waste collected from the site of the proposed development will be reused, recycled or recovered, where possible, with the exception of those waste streams where appropriate facilities are currently not available; and
- The Staff / Facilities Management will ensure that all waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities.

These mitigation measures will ensure the waste arising from the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations, the Litter Pollution Act 1997, the NWMPCE (2024) and the WCC waste bye-laws. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.

8.10 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented.

The implementation of the mitigation measures outlined in Section 8.9 will ensure that targeted rates of reuse, recovery and recycling are achieved at the site of the proposed development during the construction and operational phases. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

8.10.1 Demolition Phase

There will be no demolition associated with this development and as such there will be no residual impact on the environment caused from demolition.

8.10.2 Construction Phase

A carefully planned approach to waste management as set out in Section 8.9.3 and adherence to the RWMP (which includes mitigation) (Appendix 8.1) during the construction phase will ensure that the predicted effect on the environment will be ***short-term, imperceptible and neutral.***

8.10.3 Operational Phase

During the operational phase, a structured approach to waste management as set out in Section 8.9.4 will promote resource efficiency and waste minimisation. Provided the mitigation measures are implemented and a high rate of

reuse, recycling and recovery is achieved, the predicted impact of the operational phase on the environment will be ***long-term, imperceptible and neutral***.

8.10.4 Summary of Post-mitigation Effects

The implementation of the mitigation measures outlined in Section 8.9 will ensure that high rates of reuse, recovery and recycling are achieved at the site of the proposed development during the construction and operational phases and the waste will be correctly managed. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

The following Table summarises the identified likely significant residual effects during the construction phase (including site excavation works) of the proposed development following the application of mitigation measures.

Table 8.7 Summary of Construction Phase Effects Post-Mitigation.

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Litter Pollution	Negative	Not Significant	Local	Unlikely	Short-Term	Indirect & Direct
Unlicensed Waste Collection (Illegal Dumping)	Negative	Significant	Local & Regional	Unlikely	Long-Term	Direct
Insufficient Waste Facilities	Negative	Significant	Local & Regional	Unlikely	Short-Term	Direct
Lack of waste Classification	Negative	Significant	Local & Regional	Unlikely	Short-Term	Direct

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

Table 8.8 Summary of Operational Phase Effects Post-Mitigation.

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Unlicensed Waste Collection (Illegal Dumping)	Negative	Significant	Local & Regional	Unlikely	Long-Term	Direct
Poor Waste Segregation	Negative	Not Significant	Local & Regional	Unlikely	Long-Term	Direct
Litter Pollution	Negative	Not Significant	Local & Regional	Unlikely	Short-Term	Direct

8.10.5 Cumulative Residual Effects

8.10.5.1 Construction Phase

Developments that potentially could overlap during the construction phase are identified in Chapter 2. All cumulative developments outlined in Chapter 2 have been taken into account.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the effect will be short-term, not significant and neutral.

8.10.5.2 Operational Phase

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

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

8.11 Risk of Major Accidents or Disasters

There is no Risk of Major Accidents or Disasters related to Material Assets Waste and the proposed development.

8.12 Worst Case Scenario

In a worst-case scenario, if no mitigation measures found in Section 8.9 are followed, poor onsite waste management, non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste offsite and result in negative environmental impacts or pollution as shown in Section 8.8.

8.13 Interactions

This section discusses interactions between this Chapter and other specialist environmental topics considered in this EIAR.

8.13.1 Land & Soils

During the construction phase, excavated soil and stone (c. 120,000 m3) will be generated from the excavations required to facilitate site levelling, construction of new foundations and installations of site services. It is currently anticipated that c. 85,000 m3 will be reused on site and c. 35,000 m3 will need to be removed off site by a licensed contractor and will be taken for appropriate reuse, recycling or disposal. In the event that any excavated soil is found to be contaminated it will need to be removed off-site.

If material has to be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort. Adherence to the mitigation measures in Chapter 8, Chapter 9 (Land & Soils) and the requirements of the RWMP (Appendix 8.1), will ensure the effect is long-term, imperceptible and neutral.

8.13.2 Traffic & Transport

Local traffic and transport will be impacted by the additional vehicle movements generated by removal of waste from the site during the construction and operational phases of the proposed Development. The increase in vehicle movements as a result of waste generated during the construction phase will be temporary in duration. There will be an increase in vehicle movements in the area as a result of waste collections during the operational phase but these movements will be imperceptible in the context of the overall traffic and transportation increase. Traffic-related impacts during the construction and operational phases are addressed in Chapter 6 (Material Assets - Traffic & Transport). Provided the mitigation measures detailed in Chapter 6 and Chapter 8 are adhered to, the predicted effects are short to long-term, imperceptible and neutral.

8.13.3 Population & Human Health

The potential impacts on human beings are in relation to incorrect management of waste during construction and / or operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity. A carefully planned approach to waste management and adherence to the project specific RWMP and mitigation measures in Chapter 4 (Population & Human Health) and Chapter 8, will ensure appropriate management of waste and avoid any negative impacts on the local population. The effects should be long-term, imperceptible and neutral.

8.13.4 Biodiversity

The potential impacts on biodiversity in relation to the generation of waste during the construction or operational phases are that the incorrect management of waste could result in littering, pollution issues or vermin in areas affected.

Adherence to the mitigation measures set out in this chapter (Chapter 8), RWMP (Appendix 8.1) and in Chapter 11 (Biodiversity) will ensure the associated effect is long-term, imperceptible and neutral.

8.14 Monitoring

The management of waste during the construction phase will be monitored by the Contactor's appointed Resource Manager to ensure compliance with the above-listed mitigation measures, and relevant waste management legislation and local authority requirements, including maintenance of waste documentation.

The management of waste during the operational phase will be monitored by the Operator / Buildings Manager to ensure effective implementation of the mitigation measures outlined in Section 8.9 internally and by the nominated waste contractor(s).

8.14.1 Construction Phases

The objective of setting targets for waste management is only achieved if the actual waste generation volumes are calculated and compared. This is particularly important during the excavation, demolition and construction works, where there is a potential for waste management objectives to become secondary to other objectives, i.e. progress and meeting schedule targets. The RWMP specifies the need for a Resource Manager to be appointed, who will have responsibility for monitoring the actual waste volumes being generated and ensuring that contractors and sub-contractors are segregating waste as required. Where targets are not being met, the Resource Manager will identify the reasons for this and work to resolve any issues. Recording of waste generation during the demolition phase of the proposed Development will enable better management of waste contractor requirements and identify trends. The data should be maintained to advise on future developments.

8.14.2 Operational Phase

During the operational phase, waste generation volumes should be monitored by the Operator / Buildings Management. There may be opportunities to reduce the number of bins and equipment required in the Waste Storage Area (WSA's), where estimates have been too conservative. Reductions in bin and equipment requirements will improve efficiency and reduce waste contactor costs.

8.15 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 8.9 Summary of Construction Phase Mitigation and Monitoring.

Likely Significant Effect	Quality	Significance
Litter Pollution	The Contractor will be required to fully implement the RWMP throughout the duration of the proposed construction phase.	The Contractor will review and maintain waste records and site audits
Unlicensed Waste Collection (Illegal Dumping)	All waste leaving the site will be recorded and copies of relevant documentation maintained.	A register will be maintained and reviewed. A copy of all waste collection permits will be maintained.
Insufficient Waste Facilities	All waste leaving the site will be recorded and copies of relevant documentation maintained.	A register will be maintained and reviewed. A copy of all waste collection permits will be maintained.
Lack of waste Classification	All waste material leaving site will be correctly classified and segregation prior to removal where possible.	An appointed Waste Manager will monitor all onsite waste segregation and classification

The following Table summarises the Operational Phase mitigation and monitoring measures.

Table 8.10 Summary of Operational Phase Mitigation and Monitoring.

Likely Significant Effect	Quality	Significance
Unlicensed Waste Collection (Illegal Dumping)	The Operator / Buildings Manager will ensure that all waste leaving the Site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities.	The Operator / Buildings Manager will maintain waste receipts onsite for a period of 7 years and make available to WCC as requested.
Poor Waste Segregation	The Operator / Buildings Manager will ensure that all waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials.	Waste generation volumes will be monitored by the Operator / Buildings Manager.
Litter Pollution	The Operator / Buildings Manager will ensure that all waste collected from the Site of the proposed Development will be reused, recycled or recovered, where possible, with the exception of those waste streams where appropriate facilities are currently not available	Waste storage areas will be monitored by the Operator / Buildings Manager.

8.16 Conclusion

This chapter has reviewed and analysed the potential and the predicted impacts of the proposed development with regards to waste management. These impacts have been considered for both the construction and operational phases of the proposed development. The cumulative impact of the proposed development and surrounding developments have also been considered.

Provided all mitigation measures as set out in this chapter and the attached RWMP and OWMP, the overall predicted impact of the proposed development is ***long-term, imperceptible and neutral.***

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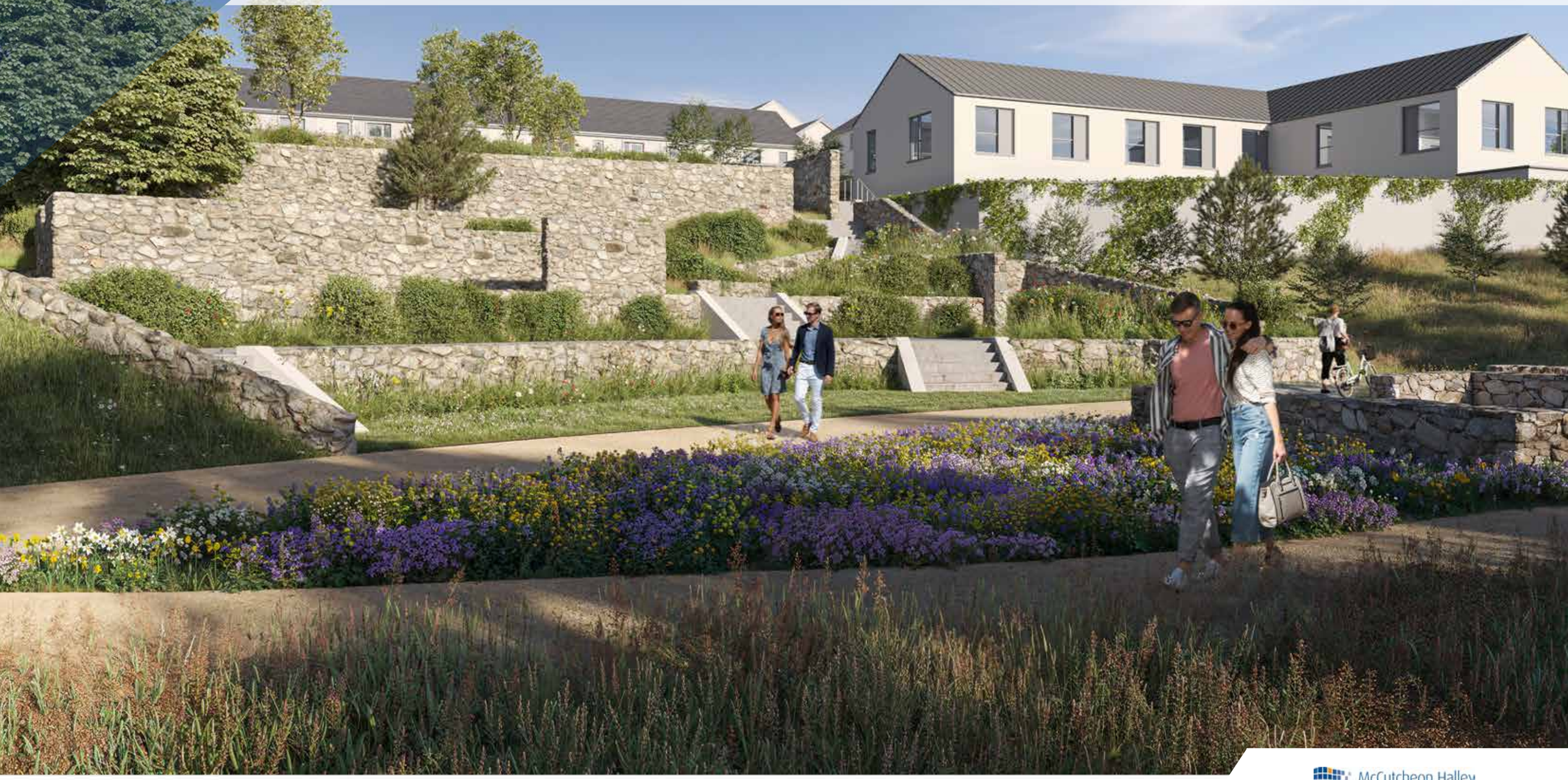
CHAPTER NINE

LAND AND SOILS



McCutcheon Halley
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CHAPTER 9 | LAND AND SOILS

9.1 Introduction

Viridus Consulting Ltd., (VCL) were appointed to prepare this chapter of the Kilnahue EIAR in order to assess the potential significant effects of the proposed Large Scale Residential Development on the Land and Soils (Geology) attributes of the study area.

It should be read in conjunction with Chapter 1 (Introduction), Chapter 2 (Site Location & Proposed Development), Chapter 6 (Material Assets: Traffic and Transport), Chapter 7 (Material Assets: Built Services), Chapter 10 (Water), Chapter 11 (Biodiversity) and Chapter 17 (Interactions of Impacts).

9.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Mr. Darragh Musgrave, a senior Geo-Environmental Consultant with VCL. Darragh holds an honours degree in Earth Science/Geology from the National University of Ireland Galway (1992) and a Diploma in Environmental Protection from the Atlantic Technological University Sligo, (2006). He has over 30 years of experience working in the geological, geo-technical, contaminated land, and soil/surface water/groundwater environmental assessment sector as a Geo-Environmental Scientist and been involved in the preparation of a number of EIARs including the following related to similar large residential development projects:

- Dunkettle, Ballinglanna, Glanmire & Lakeview, Midleton, Co. Cork – O'Flynn Group,
- Marybourough Ridge, Douglas, Cork & The Paddocks, Waterford City – Glenveagh Homes
- Coolcarron, Fermoy, Co. Cork – Cumnor Construction

9.3 Proposed Development

The proposed development relates to a Large-scale Residential Development (LRD) on a greenfield site on the east side of Gorey Town. The EIAR Chapter 1 – Introduction, Figure 1.1 presents the site boundary, while in Chapter 2 – Site Location & Proposed Development, provides a description of the proposed site location and more detailed information of the development.

Aspects of the proposed development relevant to this chapter relate to the land take, soil and bedrock type, ground conditions such as drainage, stability and geological risk, proposed site levels, potential cut and fill required to obtain these levels and the potential effects of the geology on the proposed development.

9.3.1 Activities Associated with the Proposed Development

As per Step 4 of the Institute of Geologists of Ireland (IGI) Guidelines, a range of Generic Activities that can potentially interact and effect with the geological/hydrogeological environment are presented in the Activities/ Environment Matrix identified as Figure 2 of the IGI Guidelines. A copy of IGI EIA Assessment Flow Chart and theActivities Matrix is presented in Appendix 9.1.

The activity which is associated with the initial construction phase of the proposed Kilnahue development relates to:

EARTHWORKS AND EXCAVATION OF MATERIALS ABOVE THE WATER TABLE.

This activity will be completed in a Type A (passive) geological environment.

As recommended by the IGI Activities/Environments Matrix invasive site investigations in the form of trial pits have been undertaken to characterise the nature and thickness of the soil/subsoils and depth to bedrock around the site. The completed Site Investigation Report, (Site investigations Ltd., June 2021), including the trial pit excavations and related soil testing and soakaway assessment data is included with the AKM Design Group Infrastructure Report, included in Chapter 7 of the EIAR.

It is proposed to complete the earthworks and construction of the site area in an orderly and structured site development. Refer to the construction schedule described in Chapter 2.

9.3.2 Construction Phase Cut and Fill Activities

Given the sloped nature of the site, in order to achieve the requirements of the Design Manual for Urban Roads and Streets and to fulfil the requirements for access to buildings in accordance with the building regulations, cut and fill earthworks will be required for the development across the site area.

Based on the site topography and the site investigation (SI) data from the trial pit investigation initial calculations on the volume of Cut and Fill have been made by AKM for the development. Allowing for a general site strip and material cut of 119,497m3, the calculations indicate that, after a 95,983m3 re-use in backfilling and landscaping, there will be an excess of 23,514m3 of subsoil and/or rock from the development area. It is anticipated that all topsoil material will be re-used on the site.

In areas where cut and fill is needed the AKM modelling indicates that the vast majority of the site area will only require relatively minor, (+3m to -3m), cut and fill activities. Given the sloped nature of the natural topography and requirement to create level areas for roads and housing development across the slope, some deeper areas of cut are required towards the western side of the site area.

Excavations below -3m, to a maximum depth of -5.16m, are required in an area of about 9,120m2 in the central part of the excavated area. Similarly the areas of highest fill, +3m, to a maximum height of +4.92m, are based in a small area of about 5,988m2, in the central part of the site. Generally the main cut areas are located in the western half of the development, including the upper parkland area in the northern part of the site, while the fill areas are in the eastern and southern areas.

Where deeper excavations are required the volume of either subsoils or bedrock to be excavated will increase depending on the depth of subsoil in those areas. It is expected that the majority of the total rock volume will be excavated using normal tracked excavators while some of the deeper excavation areas may require heavier excavators or rock hammers to break out the bedrock prior to its removal.

It is expected that some of the excavated rock material will be suitable for re-used as fill on site but a large volume of engineering aggregate (clause 808 or similar) material will need to be imported for use as fill material under roads and the residential areas. Aggregate material will also be needed for under the storm and foul drainage network around the site. Refer to the AKM Cut and Fill Layout Drawing – Ref 25007-AKM-XXXX-XX-DR-C01-700001 and Chapter 7 – Material Assets: Built Services.

9.3.3 Operational Activities

There will be no operational activities related to land changes or excavations so there will be no interaction with the land and soil (geology) elements once the site area is fully constructed.

9.4 Methodology

The assessment methodology involved the completion of a Desk Study and Walkover observational survey of the study area which included the collation and review of available information pertaining to the study area, including any relevant land use or geological data, including the following:

- Kilnahue Gorey LSD S32B EIAR Summary Report - MHP July 2025.
- Tailte Éireann, On-line Maps and Aerial Photographs, (www.geohive.ie),
- Geological Survey of Ireland (GSI) On-line Geological Datasets, (www.gsi.ie/mapping.htm),
- Teagasc/Cranfield Soil Mapping On-line Data sets, (www.teagasc.ie/soils),
- Environmental Protection Agency (EPA) web based mapping, (www.epa.ie),
- Gorey Hill Site Investigation Report Site Investigations Ltd., (SIL 25th June 2021).
- AKM Design Group Infrastructure Report for Lands at Kilahue, Gorey, (2025).

The Site Walkover recognisance survey enabled the physical examination of the geological, geomorphological and land use characteristics of the site and its setting in the locality.

In this chapter the existing baseline conditions and character of the land, soil and geological characteristics of the site are presented and the potential effects anticipated from the development are identified and discussed. Mitigation measures are proposed, residual effects are assessed, and any relevant monitoring options are considered.

9.4.1 Relevant Legislation & Guidance

The Land and Soils (Geology) Chapter for the EIAR follows the guidelines outlined by the EPA guidance document, Guidelines on the information to be contained within an EIAR from May 2022, in Directive 2014/52/EU and Annex IV amendments, as well as the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

The work also is cognisance of the previous EPA EIAR Draft Guidelines and the Environmental Impact Statement (EIS), EPA draft guidelines, from September 2015, which outline the process of preparation and the content required for an EIS.

The assessment work also follows the Institute of Geologists of Ireland (IGI) Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of EISs, (IGI April 2013), and National Roads Authority (NRA) Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes, (NRA 2009). (NRA is now Transport Infrastructure Ireland (TII)).

9.4.2 Site Surveys/Investigations

As well as a detailed topographical survey, a site specific Site Investigation was completed in June 2021, comprising of the excavation of eight shallow trial pits, to a maximum depth of 3m, eight dynamic probes, to a maximum depth of 6m, and soak-away tests with associated soil sampling, geotechnical and environmental laboratory testing and related reporting, which was issued by Site Investigations Ltd. (SIL) on 25th June 2021.

The full SI Report is included in AKM Infrastructure Report and a summary table and discussion on the trial pit findings is presented in Section 9.6.3.

The trial pits were completed throughout the central and southern areas of the site area and while they tended to be excavated near the field boundaries there was a good special distribution across these areas. The ground was found to be composed of thin topsoil over either dark grey sandy gravels across the central area or brown gravelly silty clays towards the southern and eastern areas. No water or groundwater or evidence of same, was encountered by any of the trial pit excavations.

A senior scientist from VCL completed an observational walkover of the site on Wednesday 17th September 2025.

9.4.3 Potential Effect Assessment Methodology

The EPA 2022 Guidance (Section 3.7) requires the EIAR to focus on the effects that both likely and significant and the description of effects that are accurate and credible.

An analysis of the predicted effects of the proposed Development on the land and soils/geology during and after the construction phase is presented below. (This been completed as per the EPA Guidance notes (2022 & 2015) and Appendix C of the IGI EIS Preparation Guidelines (IGI 2013).

The description and assessment of the effects was undertaken using the EPA terminology outlined in Chapter 1. The rating of the potential magnitude and significance of impacts/effects at EIAR stage are defined by the NRA guidance (2008), which includes typical examples, as outlined in Table 9.1.

Table 9 1 Criteria for rating land/soil impact magnitude at EIS stage, (NRA Guidance Box 5.1).

MAGNITUDE	CRITERIA	TYPICAL EXAMPLE
Large Adverse	Results in loss of attribute and/or quality and integrity of attribute	Irreversible loss of high proportion of local high fertility soils Removal of entirety of geological heritage feature Requirement to excavate and replace a high proportion of peat, organic soils and/or soft mineral soils
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute	Irreversible loss of moderate proportion of local high fertility soils Removal ofapart of geological heritage feature Requirement to excavate and replace a moderate proportion of peat, organic soils and/or soft mineral soils
Small Adverse	Results in minor impact on integrity or attribute or loss of small part of attribute	Irreversible loss of small proportion of local high fertility soils and/or high proportion of local low fertility soils. Removal of small part of geological heritage feature Requirement to excavate and replace a small proportion of peat, organic soils and/or soft mineral soils
Negligible	Results in an impact on attribute but insignificant magnitude to affect either use or integrity	No measurable changes in attributes.

The rating of potential environmental impacts on the land/soil/geology environment can also be assessed based on the matrix presented in Table 9.2, which takes account of both the importance of an attribute and the magnitude of the potential environmental impacts of the proposed development on it. The criteria apply to potential impacts during the initial site development, construction and operational phases of the development.

Table 9 2 Criteria Rating of Significant Environmental Impacts at EIA Stage***

Importance of Attribute (Table 9.5)	Magnitude of Impact (Table 9.1)				
		Negligible	Small Adverse	Moderate Adverse	Large Adverse
	Extremely High	Imperceptible	Significant	Profound	Profound
	Very High	Imperceptible	Moderate/ Significant	Significant/ Profound	Profound
	High	Imperceptible	Slight/Moderate	Moderate/ Significant	Significant/ Profound
	Medium	Imperceptible	Slight/Not Significant	Moderate	Significant
	Low	Imperceptible	Imperceptible	Slight	Slight/Moderate

(***Based on NRA Guidelines (2009) – Box 5.4 Page 106).

The magnitude of each impact was considered from negligible to large. Negligible impacts are effects that result in an impact on an attribute but of insufficient magnitude to affect either its use or integrity. A major impact results in the significant loss of an attribute and/or quality and integrity of an attribute.

9.4.4 Cumulative Impact

Directive 2014/52/EU requires that the EIAR examine the interaction between all the differing existing and/or approved projects in the same areas as the proposed project. While there are a number of other residential projects identified in Gorey Town area, (these are listed in the EIAR Chapter 1 – Introduction), none are considered to have a significant cumulative effect on the Kilnahue development in terms of the Land and Soils (Geology) Attributes.

9.5 Difficulties Encountered

No difficulties were encountered in accessing information during the preparation of this chapter.

9.6 Baseline Environment

The following provides a description of the receiving environment, with a focus on land use, soils and geology.

9.6.1 Site Location, Setting & History

The Kilnahue study area is located in a semi-rural urban setting on the eastern side of a broad hill about 1.5 kilometres east of Gorey Town Centre. It comprises an undeveloped sloping greenfield site, comprising mainly of three large, rectangular shaped, open agricultural fields divided by mature hedge rows. A smaller triangular shaped field in the southern part of the site is divided from the other fields by an old overgrown track which used to connect the public road to the old farmstead that is located in the small area of overgrown scrubby woodland located in the north eastern corner of the site.

The site is bounded by agricultural fields to the north and west. The third class road R725 forms the boundary in the south western corner of the site and there are a number of residential and commercial units in the lands between the site and the road for the remainder of the southern boundary. There is as a liner development of seven individual residential homes with gardens along the road to the west and a small estate of individual residences with gardens, (known as The Lask), across the R725, at the bottom of Gorey Hill opposite the site. There are also a number of individual residences with gardens located along the Kilnahue Lane public road (L10112) which forms the site boundary to the north of site. The Gaelscoil, Naíonra na Síolta Óg and Creagh Collage Secondary School occupy lands to the east towards Gorey Town. Refer to the Google aerial photograph included as Figure 9.1.

Figure 9 1 Aerial Photo of site setting, (source Google Maps.) (Study area is orange line.)



Some old Ordnance Survey of Ireland (now Tailte Éireann) maps and aerial photos of the study area are presented in Appendix 9.2. A general Talite Éireann topographical map is included in Appendix 9.2.

The history of the site is one of agricultural use and the general field pattern evident today is seen on the old OSI 1840's 6" and early 1900's 25" Map Surveys, despite some old hedge lines being removed.

The old road/track that leads to the old farm stead in the eastern corner of the site, that are both now very overgrown, are evident on the old maps, as is a Holy Well spring feature, called Toberchreet located to the south of the old farm buildings. There are no drainage features, such as streams, drains or ditches identified in the site area.

Gorey Hill, a local topographical feature located about 300m to the south-east of the site, was partly quarried prior to the 1990's but has not been quarried since. There is no evidence of bedrock outcrop and/or geological features, such as quarries, on the old maps and aerial photographs for the site.

While the study area has remained undeveloped the general locality has become much more urbanised with educational school and residential developments to the east and south of the site.

Refer to the old OSI maps and aerial photographs of the locality presented in Appendix 9.2.

9.6.2 Land Use and Topography

The primary land use in the study area is agricultural farmland, under tillage and/or grass pasture. The fields are separated by mature hedge rows. Refer to the aerial photo included in Figure 9.1.

The topography of the site slopes in an east south-easterly direction from highs of 133.5m OD in the eastern corner and 128m OD in the northern corner, to the lower lying ground at 105m OD in the southern corner, where it meets the public road, and to about a ground height of 102m OD along the southern boundary of the site. The slope across the site is relatively consistent with little undulation occurring. There is a general contour map for the area included in Appendix 9.2 and there is a detailed topographic map of the site included in the AKM Infrastructure Report.

The study area is about 16 hectares in size with a 2.842 Ha area at the northern portion of the site being retained and developed as Parkland and the remainder being developed for residential housing and a creche facility. The low lying area in the north eastern portion of the site will be used to develop a surface water retention and attenuation pond for managing the sites stormwater runoff and about 15% of the residential area will be developed as open space around the buildings.

A portion of the woodland area in the north east part of the site is to be retained, as is the old track that goes from the public road (R725) in the southwest to the old farm stead in the northeast area.

At the time of the observational site walkover completed by VCL in mid September 2025, there were no tillage crops or animals in the fields. The area of scrubby woodland located around the old farm stead, and old track leading to it, were inspected but were very found to be overgrown and inaccessible. The Holy Well is on private property in an overgrown area and was not visually inspected.

Refer to the VCL site walkover photographs included in Appendix 9.3.

9.6.3 Soils and Subsoils

Topsoils and Subsoils (Quaternary sediments) of Ireland were deposited during or after the last ice age that effected this part of the country which reportedly occurred over 100,000 years ago, and essentially comprise the unconsolidated natural mixes of clay, silt and sand with gravel and cobble stone materials overlying the bedrock.

Subsoils in Ireland are dominated by natural glacial tills with more segregated outwash deposits of sands and gravels, deposits of peat, river alluvial and coastal sediments occurring in particular environmental settings.

The old An Foras Talúntais soils mapping for the Soil Map of Ireland, (1980), indicates that this part of Wexford is defined by Rolling Lowland Physiography and the whole site area is underlain by very common Acid Brown Earths and Grey Brown Podzolics with Ordovician Silurian-Cambrian shale glacial till parent material. Refer to the extract of the National Soil Map in Appendix 9.4.

Acid Brown Earths are described as mature well drained soils with a uniform brown horizon capable of high fertility while Gery Brown Podzolics tend to be poorer acidic soils formed in hilly areas with a good mix of mineral and organic matter towards the surface layer.

More recent (2013) mapping presented in the online EPA/Teagasc/Cranfield Database identify that the soil association is called Clonroche (1100CL) and is described as "fine loamy drift with sillceous stones". This soil association is very widespread and a map of its local extent is shown in Appendix 9.4.

Mapping of the Teagasc Soils the On-line GSI database describes the soils in the majority of the study area as comprising of 'Shallow well drained mineral (mainly acidic) soils' (AminSW) with 'Bedrock at surface Non-calcareous', while the southern and south-eastern, lower portion, of the site area is composed of 'Shale Till, derived chiefly from Lower Palaeozoic rock' (TLPS) of the Acid Brown Earths, Brown Podzolics soil group, (AminDW). These soil deposits are very extensive across the county and especially in Co. Wexford.

The GSI Quaternary Subsoil types are described as 'Bedrock Outcrop or Sub-crop' in the majority of the site area., while the southern and south-eastern portion of the site is described as Till derived from Lower Palaeozoic Shales, (TLPS). Refer to the GSI Topsoil and Subsoils Maps in Appendix 9.4.

A total of 8 trial pits were completed across the study area by Site Investigations Ltd., (SIL), in 2021 and the findings of these excavations are summarized in Table 9.2.

Table 9 3 General Summary of trial pit logs from the Kilnahue site area by SIL June 2021.

Trial Hole ID	Top Soil	Subsoil Depth	Gravels	End At	End On	Probe End
Trial Pit TP01	0.3m	None	0.3 to 2.0m	2.0m	Boulders/Rock?	2.5m
Trial Pit TP02	0.2m	Gravelly Clay to 0.6m	0.6 to 1.8m	1.8m	Boulders/Rock?	1.5m
Trial Pit TP03	0.3m	Gravelly Clay to 0.5m	0.5m to 2.0m	2.0m	Boulders/Rock?	2.0m
Trial Pit TP04	0.2m	Gravelly sandy Clay	None	3.0m	Subsoil	6.0m
Trial Pit TP05	0.1m	Gravelly sandy Clay	None	3.0m	Subsoil	4.8m
Trial Pit TP06	0.2m	Gravelly Clay to 1.1m	1.1 to 2.4m	2.4m	Boulders/Rock?	2.0m
Trial Pit TP07	0.1m	Gravelly Clay to 2.7m	None	3.0m	Subsoil	2.0m
Trial Pit TP08	0.2m	Gravelly Clay to 2.4m	None	2.4m	Boulders	1.9m

All the trial pits had reportedly stable sides and were dry with no evidence of groundwater or water ingress into any of the excavations. The photos of the trial pits show very stable ground conditions.

The description of 'Gravels' reflects the transition from subsoils to weathered rock and the photos of the trial pits in the Site Investigation Report shows that the gravels represent shaley weathered rock in Trial Pits TP01, TP02, TP03 and TP06. The logs report 'boulders' at depth but boulders are not characteristic of this type of shaley bedrock and it more likely reflects more competent bedrock.

These four trial pits were completed in the upper western and northern portions of the site while the trial pits completed in the southern and eastern areas were the ones that ended in subsoils with less reference of 'boulders' apart from Trial Pit 08 at 2.4m The Dynamic Probes were also completed next to the trial pits and they generally terminated at depths similar to the trial pits except for TP04 and TP05, that went to 6m and 4.8m respectively. The thin organic topsoil layer of typically 100mm to 300mm thickness, and was identified by the trial pits across the site which would be typical in this type of rolling hill topography agricultural grass land.

The soil profile transitioned from sandy very gravelly Clay material into Gravelly weathered bedrock which was found to be shaley and easily excavated. The trial pits SI survey findings generally reflected the regional geological mapping with thinner subsoils and rock close in the upper areas and deeper subsoils in the southern and eastern sides of the site.

Environmental Waste Acceptance Criteria (WAC) testing was completed on eight soil samples from the eight trial pits with no evidence of potentially polluting materials or contamination identified. The SIL SI Report is included in the AKM Infrastructure Report and discussed further in Chapter 7.

9.6.4 Bedrock Geology

The majority of the study area of the proposed Kilnahue development is identified, by the on-line GSI mapping, as being underlain by the Ordovician aged Oakland Formation, (OA), consisting of "metasediments of green, red or purple buff and occasionally grey slates interbedded with siltstones."

The eastern edge of the site is reportedly underlain by the Campile Formation (CA) which is described as "rhyolitic volcanics, brown and grey slates".

The bedrock units have a SW to NE regional trend and are separated by a North-South fault line that has a number of other smaller faults mapped in the Campile Formation to the east of the site. An anticlinal fold feature is mapped in the Campile Volcanics to the east of the site which would represent the topographical high ground around Gorey Hill to the south of the site. The GSI Mapping shows areas of rock outcrop in the general location but none within the study area and no outcrop was observed during the site walkover survey. Refer to the GSI Geology Map presented in Appendix 9.5.

Typically the upper horizons of the stratified shaley bedrock of the Oaklands Formation, which is extensively encountered in the Wexford area, are weathered and very fractured, which makes them diggable and/or rippable by heavy construction machinery. If areas of less weathered, more massive shaley bedrock are encountered during the site excavations, then these are typically broken out by heavy excavators or rock breakers and can be removed by heavy construction or quarry equipment.

9.6.5 Groundwater

The GSI classify the aquifer potential of a locality primarily on the bedrock type and Ordovician aged Oakland Formation metasediments, present under the majority of the study area, are classified by the GSI as a "Locally Important Aquifer, which is moderately productive only in local zones", (LI).

The Campile Formation volcanics, which occur along the eastern and south-eastern portion of the site are classified by the GSI and a "regionally important fissured aquifer", (Rf).

The groundwater (hydrogeology) and aquifer assessment of the site is included in the EIAR Water Chapter (Chapter 10). Rock Unit Group and Aquifer Maps are also included in Appendix 9.5.

9.6.6 Groundwater Vulnerability

The vulnerability of a groundwater body is the term used to describe the ease with which the groundwater in the area can be contaminated by human activities. The vulnerability is determined by many factors including the speed at which the contamination can enter the aquifer, the quantity of contaminants and the capacity of the deposits overlying the bedrock to attenuate contaminants.

These factors in turn are based on the type, thickness and permeability of the subsoils, e.g. groundwater in bedrock which has a thick cover of low permeability clay is less vulnerable than the groundwater in bedrock which is exposed at the surface.

The criteria for determining groundwater vulnerability, as developed by the GSI and Department of Environmental and Local Government (DoELG), are shown in Table 9.3.

Table 9 4 GSI Groundwater Vulnerability Mapping Guidelines (DoELG 1999)

Vulnerability Rating	Hydrogeological Conditions				
	Subsoil Permeability (Type) & Thickness			Unsaturated Zone	Karst Features
	High Permeability (sand/gravel)	Moderate permeability (e.g. sandy subsoil)	Low permeability (e.g. clayey subsoil, clay, peat)	(sand/gravel aquifers only)	(<30m radius)
Extreme (E)	0 – 3.0m	0 – 3.0m	0 – 3.0m	0 – 3.0m	-
High (H)	>3.0m	3.0 – 10.0m	3.0 – 5.0m	>3.0m	N/A
Moderate (M)	N/A	>10.0m	5.0 – 10.0m	N/A	N/A
Low (L)	N/A	N/A	>10.0m	N/A	N/A

Notes: (1) N/A = not applicable
(2) Precise permeability values cannot be given at present
(3) Release point of contaminants is assumed to be 1-2m below ground surface

Regional Groundwater Vulnerability Maps have been produced for the country by the GSI, (in association with the local county councils), and these have six classifications. 'Extreme' and 'Extreme rock near surface' or 'karst' are those areas most at risk from contamination and mitigation measures should be put in place for their protection. Areas classified as having 'High' or 'Moderate' vulnerability are less vulnerable to groundwater contamination; however they still need a certain measure of protection. 'Low' vulnerability areas have natural protection in place and mitigation measures do not normally need to be put in place here. In areas which have been classified as 'High-Low' only an interim study has taken place and the site specific depth of overburden is not known.

The GSI has identified Rock Close (X) to Extreme (E) Vulnerability rating over the majority of the Kilnahue study area with an area of High Vulnerability (H) occurring in the eastern and south-eastern areas of the site. The Rock Close and Extreme vulnerability occurs along the higher ground in the central, western and northern parts of the study area. Refer to the Vulnerability Map in Appendix 9.5.

The GSI regional mapping indicates a generally very thin subsoil cover with thicknesses of less than <1m to a maximum of about 5m depth across the site. This interpretation is generally supported by the site specific trial pit survey results where, as discussed previously, the four excavations in the west central and northern areas encountered weathered bedrock in the form of shaley gravels at depth of 0.3m to 1.1m, while the four trial pits in the southern and eastern area did not encounter weathered rock at depths of 2.4m to 3m and two probes in this area went to 6m and 4.8m depth.

9.6.7 Soft or Unstable Ground and Geohazards

There are no karst or naturally occurring unstable rock features present in the Oakland Formation metasedimentary or volcanic bedrock and there is no risk of subsidence, swallow holes or caves, that are associated with limestone bedrock, occurring.

There is no evidence that potentially soft or unstable materials such as peat, lacustrine clays or alluvial sand/gravel deposits are present in any part of the proposed development area. The angular gravels described in the trial pit logs reflect the transition to weathered bedrock rather that gravel deposits.

The glacial tills and bedrock types underlying the site tend to be very suitable for building on once the thin topsoil and upper subsoil horizons have been removed.

The GSI has developed a database of historical landslides and landslide susceptibility in Ireland, and this indicates that no recorded landslide events have occurred or been recorded in the Gorey area.

No steep soil or bedrock exposures are present within the site area. The proposed construction works will result in some areas of excavations over 3m deep which will result in exposed cuttings of subsoil and bedrock, especially in the western side of the site. The trial pits excavations identified stable ground conditions and any excavations will be supported by adequately designed and engineered retaining walls as necessary. A proposed retaining walls layout is provided by AKM, (DR-C01-600001).

The EPA identify that the locality is in a High Radon Area, (~1 in 5 Homes). Radon is a naturally occurring radioactive gas coming from the soil/geology and which can cause ill health if there is long exposure. All modern buildings are fitted with radon barriers to eliminate the risk of radon entering a property. Refer to the EPA Radon Risk Map presented in Appendix 9.6.

9.6.8 Legacy Landfills and Contaminated Sites

In 1996 the Environmental Protection Agency (EPA) began licensing certain activities in the waste sector. These include landfills, transfer stations, hazardous waste disposal and other significant waste disposal and recovery activities. It has been determined, from the EPA website, that there are no waste licensed facilities within the study area or within the general locality around the site.

Information from Wexford Co. Co. also indicates that there are no 'Legacy Landfills' or contaminated sites situated within the study area or in the general locality of the site.

There are no reports of foreign soil material being imported to the site or of any backfilling activities. None of the eight trial pit excavations encountered any un-natural ground conditions or evidence of backfill and all the environmental testing was uncontaminated.

No evidence of imported soil were identified in the walkover and the potential for extensive or historic soil contamination to be present on the site is considered to be extremely low. No evidence of old quarries or excavations were identified on the historic maps or in the old aerial photographs, as presented in Appendix 9.2.

9.6.9 Economic Geology and Geological Heritage Sites

A review of the on-line GSI web mapping indicates that there is a large active quarry, known as Coolishall Quarry, about 1.2km to the south west of the Kilnahue site. This quarry excavates rhyolite rock within the Ordovician Duncannon Group Rocks.

This quarry locality is also listed as one of County Wexford Geological Heritage Sites, (Site Code WX014). Refer to the GSI Geological Heritage Site Mapping presented in Appendix 9.7.

9.6.10 EPA Industrial Emission (IE) Licensed Facilities

The EPA has been licensing certain large-scale industrial and agriculture activities since 1994 and since 2003 this had been done under the Integrated Pollution Prevention Control (IPPC) Directive and more recently the Industrial Emission (IE) Licencing system.

A review of the EPA On-line mapping resource shows that there is one EPA licensed facility, (Reference Number W0220-01) located at Ramstown, about 1.0km to the south of the study area. This business, Starrus Eco Holdings Limited (Gorey) is a Greenstar waste management facility that handles various waste types, including commercial, household and Construction and Demolition materials. Refer to the EPA map the Gorey area presented in Appendix 9.8.

9.6.11 Areas of Scientific Interest

A review of the National Park & Wildlife Service (NPWS) database has shown that there are no designated sites within the general locality of the Kilnahue site.

Any relevant sites of scientific interest are discussed in more detail in the Chapter 11 – Biodiversity.

9.6.12 Conceptual Site Model

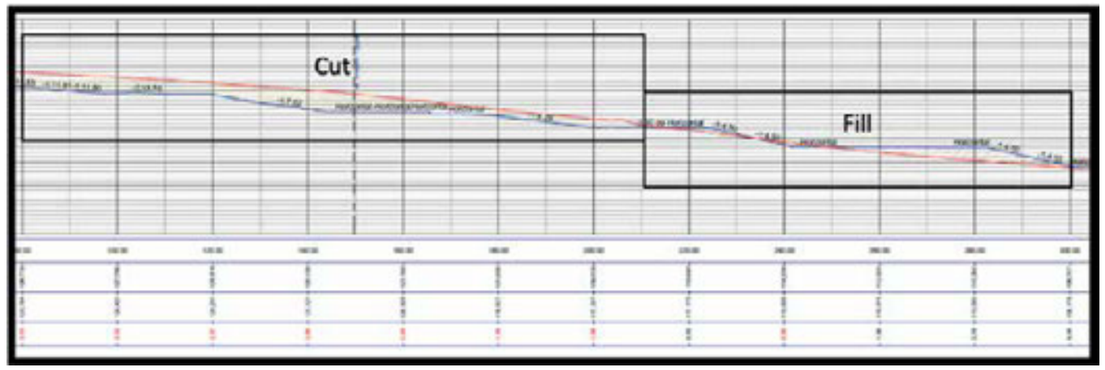
As per the IGI EIA Guidance recommendations a Conceptual Site Model (CSM) has been developed for the site area examining the interaction of the project with the geological environmental. The main land/soil geology interaction is the need for the cut and fill of various parts of the site to enable the road infrastructure and residential building works to proceed.

The AKM engineering and design team have modelled an Earthworks Cut and Fill Layout for the whole site which indicate the areas that will need to be either reduced or raised in ground level in order to enable the construction works to proceed within the required design parameters. Refer to the description of construction activities in Section 9.3.2.

The Earthworks Cut and Fill Layout Plan and related calculations are included in the AKM Cut and Fill Layout plan, (Drawing reference 25007-AKM-XXXX-XX-DR-C01-700001).

A number of cross sections have also been produced by the AKM design team that show the depth of excavation and backfilling across the site, (Drawing reference 25007-AKM-XXXX-XX-DR-C01-700000).

Figure 9 2: Extract from cross section drawing, (AKM 25007-AKM-XXXX-XX-DR-C01-700000)



9.6.13 Type of Land and Soil/Geological Environment

As per Step 3 of the IGI Guidelines the baseline information and CSM enables the type of soil/geological and hydrogeological environment to be determined for the development.

From the range of generic environments outlined in the IGI document (Types A to E) the Kilnahue development area is interpreted to have a:

Type A - Passive geological/hydrogeological environment.

This is based on the fact that the area is underlain by well mapped, reasonably homogenous Ordovician metamorphic sediment or volcanic derived rock types of the Oakland and Campile Formations which represent a historically stable geological environment.

There are no karst features or other geo-hazards associated with this type of bedrock. The majority of the area is underlain by a locally important aquifer, which is generally moderately productive only in local zones. A small portion of the south-eastern area is identified as a regionally important aquifer.

The site does not represent any aspect of a Type B groundwater discharge area with a regionally important aquifer, Type C Man-Made Dynamic Hydrogeological Environment with mining or quarrying below the water table, or with nearby waste discharges to ground or a Type D Sensitive Geological/Hydrogeological environment with karst limestone or water supply SPAs or a Type E Groundwater Dependent Ecosystem or wet land with a river with a high base flow of groundwater.

For rating the Site Importance of Geological Features the relevant guidance follows the NRA use of four importance criteria – Very High, High, Medium and Low depending on the quality of the attribute, The site importance criteria, with the NRA examples, are applied to the Kilnahue site in Table 9.4.

Table 9 5 Criteria for rating Site Importance for Soil/Geology at EIS stage.

IMPORTANCE	CRITERIA	TYPICAL EXAMPLE	KILNAHUE GOREY SITE
Very High	Attribute has a high quality, significance or value on a regional or national scale.	Geological Feature is rare on a regional or national scale	No – very common soil and geological features occur.
High	Attribute has a high quality significance or value on a local scale	Geological feature of high value on a local scale (County Geological Site) Well drained and/or high fertility soils.	No very common acidic soil and no special geological features occur.
Medium	**Attribute has a medium quality significance or value on a local scale**	**Moderately drained and/ or moderate fertile soils.**	YES – moderately drained and fertile soils at a local scale.
Low	Attribute has a low quality significance or value on a local scale	Poorly drained and/or low fertility soils.	No – moderate fertility soils

The Clonroche Soil Association type is a common and well distributed soil type both nationally and especially in Co. Wexford. While the topsoil profile is thin the ground is fertile and would be considered to have a Mediume Importance rating on a local scale.

9.7 The ‘Do Nothing’ Scenario

The ‘Doing Nothing’ Scenario would result in no residential development at the site and the continued use of the land for agricultural tillage and pastoral grassland.

Given the proximity of the lands to Gorey Town, their zoning and suitability for residential development, it is probable that they will be built on at some stage in the future.

9.8 Potential Significant Effects

9.8.1 Construction Phase

The most significant effect of the proposed development on the land and soils/geology attribute is the change from agricultural to residential/urban land use with the removal of the topsoil cover and the excavation of the underlying subsoils and as necessary the excavation of the bedrock down to the required design levels or the backfilling and rising of ground levels to the required design levels.

The removal of the existing unconsolidated soils/subsoils – these comprise of the Glacial Brown Earth Tills, (Clonroche soil association), described as fine loamy drift with siliceous stones. These are very common and extensive soils and no particular agricultural or geological importance or heritage value is attributed to them. This change would be PERMANENT in areas of the site where it is done but given the size of the study area and extensive abundance of this type of soil and subsoil, it would be considered to be a SMALL ADVERSE to NEGLIGIBLE significance with a NEUTRAL quality effect.

The excavation of the underlying bedrock – the interbedded metasediments of the Oaklands Formation or rhyolite volcanics of the Campile Formation are not an unusual geological unit and no geological importance or heritage value has been attributed to them. This effect would be PERMANENT in areas of the site where it is done but given the extensive abundance of this type of bedrock it would be considered to have a NEUTRAL quality with NEGLIGIBLE significance.

In other areas the ground level will be raised by the infilling of excavated subsoils and rock material. The excavation works and backfilling/raising of the ground levels in some areas of the site will change the local topography creating a stepped or terraced ground profile. This will have a PERMANENT effect but one which would not be considered to alter the overall landscape character of the general area and would be considered to have a NEUTRAL quality with NEGLIGIBLE significance. (This is discussed in more detail in the Chapter 5 - Landscape and Visual Assessment).

There is the potential occurrence of unstable soil or rock faces following ground excavations. Temporary retaining structures will be used during the construction phase as necessary to mitigate this effect. Various retaining structures are proposed for the site and any retaining walls would be constructed promptly ensuring that the exposure of soil and rock faces would have a BRIEF to short term TEMPORARY and NEUTRAL effect on the site with NEGLIGIBLE significance.

Activity of plant and machinery and plant equipment operating in the development area which could result in small scale fuel spills to the ground surface. This would be a potential TEMPORARY to SHORT-TERM NEGATIVE effect if a small accidental spill was to occur, but with NEGLIGIBLE significance.

Potential occurrence of dust generation and suspended sediments in rainfall runoff from work areas would be a potential BRIEF to TEMPORARY NEGATIVE effect if uncontrolled fine sediment runoff was to occur, but with a NEGLIGIBLE significance.

The physical vulnerability of the bedrock may increase in some areas of the site with the removal of the overlying soils and subsoils. This would generally be a SHORT TERM to TEMPORARY change and NEUTRAL effect, with NEGLIGIBLE significance, as impermeable hard surfaces, such as houses and roads will be constructed over these areas that will limit the surface water percolation. Changes in the site profile will not change the overall GSI vulnerability classification of the study area.

9.8.2 Operational Phase

Apart from monitoring and maintaining the retaining wall structures across the site, there will be no operational phase activities as there will be no interaction with the land and soil/geology elements once the site areas are fully developed.

9.8.3 Cumulative Effects

A potential cumulative effect is the change of land use from agricultural to urban, with the removal of soil, subsoil or rock material required in order to develop the site with its housing and related infrastructure. Similar changes in land use have occurred in the Gorey Town area over the years.

This cumulative changes in land use is as per the Wexford Co. Council land zoning and is not a significant effect on agricultural land use on a wider county level.

9.8.4 Summary

The following Table 9.6 summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

Table 9 6 Summary of Construction Phase Likely Significant Effects without mitigation.

Likely Significant Effect	Quality	Significance (Table 9.2)	Extent	Probability	Duration	Type
Top-Soil Removal	Negative	Small Adverse	~ 13 Ha	High	Permanent	Irreversible
Subsoil Removal	Neutral	Negligible	~ 10 Ha	High	Permanent	Irreversible
Bedrock Removal	Neutral	Negligible	~5 Ha	Moderate	Permanent	Irreversible
Changes to ground level	Neutral	Negligible	~15 Ha	High	Permanent	Irreversible
Unstable ground	Negative	Small Adverse	Very small	Low	Brief	Worse Case
Ground Contamination	Negative	Negligible	Very small	Low	Temporary	Worse Case
Sediment/Dust Generation	Negative	Negligible	Small	Moderate	Brief to Temporary	Worse Case

9.8.5 Criteria for Rating Site/Attribute Importance – Land/Soil (Geological) Features

Based on the NRA 2008 matrices (Tables C2 of the IGI Guidelines) the importance of the land and soil/geological attributes of the Dunkettle development site are rated in Table 9.5 below.

Table 9 7 Rating of Land/Geological Site Attribute Importance

ATTRIBUTE	CRITERIA	TYPICAL EXAMPLE	IMPORTANCE
Topsoils/Subsoils	Attribute has medium significance or value on a local scale	Moderately drained and/or moderate fertility soils	Medium
Bedrock Resource	Attribute has a low quality significance or value on a local scale	No existing quarry – very common bedrock unsuitable for economic extraction	Low
Geological Heritage	Attribute has a low quality significance or value on a local scale	Common soil/geology with no geological heritage or features of importance	Low

Based on the rating of the site attributes the soil profile is identified as having a medium importance as it represents a reasonably large area of Medium quality, moderately fertile soils on a local scale. All the other attributes are considered to be of Low Importance.

Based on Table C4 of the IGI 2013 Guidelines, Assessing the Criteria for Rating Impact Significance at EIS Stage – Estimation of the Magnitude of Impact on the Geological Attributes, (after NRA 2009), would be considered to be 'Small Adverse' for land/soils as there would be a loss of some of the attribute on a local scale, however on a regional scale the magnitude of impact could be considered to be 'Negligible' as the Kilnahue development would 'result in an impact on the attribute but of insufficient magnitude to effect either use or integrity', as the soil and bedrock types are so extensive on both a County and National level.

Based on Table C6 of the IGI Guidelines, Rating of Significant Environmental Impacts at EIS Stage (after NRA 2009), with the Importance of the land and soils/geology attribute's being 'Medium to Low' and the Magnitude of Impact as 'Negligible' then the Impacting Rating is considered to be 'Imperceptible'.

9.9 Mitigation Measures

While the magnitude of the potential long term effect on the land and soil/geology from the development are considered slight to negligible there are still potential brief to temporary or short term construction effects that may arise during the development/construction stage which could cause environmental risks and there are a number of mitigation measures that would help eliminate and/or reduce the occurrence of these potential effects.

9.9.1 Incorporated Design Mitigation

The planning, timing and scheduling of the earth works across the site is important in limiting, as far as possible, the extent of ground being worked, as reducing the surface area of exposed soil will reduce the potential for the generation of dust and or sediment runoff.

The design seeks to mitigate potential negative effects with all new-build infrastructure to be designed in accordance with the Technical Guidance Documents of the Building Regulations and associated codes of practice, which require due cognisance of the receiving environment. Design depths of proposed infrastructure are to be optimised so that excessive excavations are avoided where possible, and by association a reduction in resultant waste and machinery operation time.

Any deep excavations will be designed in such a way as to be supported both during the construction and operational phases of the site development. The site layout design has kept the extent and depth of retaining walls and supporting structures to a minimum.

9.9.2 Construction Phase Mitigation

- Control of Soil Excavation and Export from Site using the reduce, reuse and recycle approach with any excavation arisings to be reused on site where possible with the implementation of an appropriate earthworks handling protocol to be used.
- The areas where the excavation of unconsolidated soil and subsoils is required within each building phase will be kept to a minimum and only extended as already stripped ground has been built over. Keeping the surface area of exposed soils in the construction areas to a minimum is the most effective way of preventing the release of dust in dry weather and suspended sediments in wet conditions. Potential effects are therefore avoided.
- Limiting activities to designated work areas, thereby not allowing machinery or construction activity in proposed future green, open space and/or undeveloped areas will ensure that there is no dust or sediment runoff generated and no soil compaction will occur in those areas.
- Designated roadways and internal access/construction routes will be clearly designated and fenced off in order to prevent uncontrolled tracking of construction vehicles across the site. This will help reduce the surface area of disturbed ground which will limit the potential for soil compaction, sediment runoff or dust generation.
- Dust can be reduced by damping down of the works areas and especially along roads and access tracks where vehicle activity increases the generation of dust and fine particulates. Vehicle wheel washes, road sweeping and general housekeeping will ensure that the surrounding environment are free of nuisance dust and dirt on roads.
- A designated contractor compounds, located in an area of level ground, will be established for the site. This compound will enable the safe storage of building materials, car parking, waste skips and will include a designated refueling station and wash down area.
- Designated stockpile areas for the temporary storage of topsoil, subsoils and rock material required for site use will be established in areas where the ground level is relatively flat and well away (>10m) from steeper slopes and surface water drainage features.
- Sand and gravel stockpiles will be kept to a minimum, stored on leave ground, away (>10m) from drainage features and will be covered as necessary.
- Shallow berms, silt fences and/or cut-off trenches can be established around compound, work and stockpile areas which will prevent clean surface water runoff from flowing across these areas and will also help contain any impacted runoff flowing away from these parts of the site.
- Any sediment laden runoff will be channeled through silt traps and ponds to allow, as far as possible, the settlement of suspended solids. The discharge of silty water over grass field areas will be considered if necessary.
- Runoff from machine service and/or concrete mixing areas will not be allowed to discharge to ground or enter watercourses. Dedicated service and concrete wash down bunded areas will be established.
- Any finished construction, landscaped and green areas will be finished and re-grassed as soon as possible to limit the potential for dust and surface water generation from those areas.
- Activity of plant equipment and machinery operating in the construction area could result in small scale fuel spills to ground - mitigating against accidental leaks and spillages during the development will involve implementing good practices including regular plant maintenance, use of drip trays, adequate bunding for storage containers, refuelling in designated areas etc.
- All fuel storage areas on the site are sufficiently bunded and any mobile bowsers used on site will be double skinned. Bunds sufficiently large to fully contain accidental spills will be provided around all tanks/storage areas containing harmful substances.

- Spill kit materials will be maintained on site and site staff trained in the response to accidental spills and the use of clean up materials.
- Good housekeeping (site clean-ups, use of disposal bins, etc.) around the site and proper use of storage and disposal facilities for lubricants fuels and oils will be used.
- The construction contractor and design team will prepare a Construction Environmental Management Plan (CEMP) for the development works and this will be reviewed during the construction phase and be augmented with additional controls as and if required.

9.9.3 Operational Phase Mitigation

Apart from the monitoring and maintenance of the retaining wall structures there are no operational phase mitigation measures recommended for land and soil/geology elements as there will be no operational phase activities once the site area is fully developed.

9.10 Residual Impact Assessment

The potential residual impacts are those that will occur after the proposed mitigation measures have taken effect. No significant residual effects are predicted for land and soils/geology aspects of the proposed development.

The mitigation measures described reduce the potential for any significant brief to temporary or short-term impacts occurring during construction.

All identified impacts have a residual environmental impact rating of Imperceptible.

There are no operational phase impacts identified and therefore no residual impacts to assess.

9.10.1 Summary of Post-mitigation Effects

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 9 8 Summary of Construction Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Effect Rating
Removal of top soil	Negative	Negligible	Site wide	High	Permanent	Imperceptible
Removal of subsoil	Neutral	Negligible	~60% of site	High	Permanent	Imperceptible
Removal of bedrock	Neutral	Negligible	~30% of site	High	Permanent	Imperceptible
Dust/Runoff	Negative	Negligible	small	Moderate	Brief	Imperceptible
Fuel Spill	Negative	Negligible	small	Low	Brief	Imperceptible
Excavation slope failure	Negative	Negligible	small	Very Low	Brief to temporary	Imperceptible

9.11 Risk of Major Accidents or Disasters

The risk of Major Accident or Disasters arising from the soil/land (geology) attributes are very unlikely as the scale of the earth works is manageable and would be normal for a large scale residential construction development. While there are some areas of deeper excavations proper planning and structural support design, as necessary, would ensure the likelihood of a major slope stability accident or disaster occurring would be extremely unlikely.

9.12 Worst Case Scenario

In terms of land and soils/geology the 'Worse Case Scenario' Environmental Effect would relate to the accidental loss of fuel from active machinery in the development or the spillage of hydrocarbons during the re-fueling of construction machinery. This would effect on the soil quality which could, if left unmanaged, effect the water quality of the aquifer under the site and may result in surface water runoff being contaminated. In either case the potential volume of fuel loss would be relatively small, in the 10's rather than 100's of liters, and the duration of the effect would be temporary to short term.

The other potential worst case environmental scenario would involve the collapse of soil from a stockpile or exposed excavation face which could pose a human health risk or if weather conditions were bad, result in the runoff of sediment in the site drainage. It is considered that this scenario would be very unlikely once stockpile heights and locations are managed and any steep excavations are properly supported, again the duration of any effect would be brief to temporary.

9.13 Interactions

The main interaction of the land/soil (geology) attribute is on Traffic (Chapter 6) and Waste (Chapter 8) as unsuitable subsoil and bedrock is removed from site and required aggregate material is brought to site. Potentially there could be interactions with air quality (Chapter 13) from dust generation and/or water quality (Chapter 10) with sediment runoff.

9.14 Monitoring

All topsoil, soil and rock excavation work will be observed by a banks man. While there is no evidence of foreign fill or waste material on the site this operative will be instructed to lookout for any physical evidence, (discolouration, odour, sheen etc,), of potential contamination in the excavations.

Runoff from works, stockpile and compound areas will be observed to ensure that it is not impacting the site drainage. Both hydrocarbons and silt cause discolouration so are easy to visually monitor for their presence. If necessary water sampling of downstream drains could be completed to test for Total Suspended Solids (TSS) and Hydrocarbon concentrations.

In areas where temporary retaining structures are required then observations of the exposed face will help monitor for potential collapse. Ideally any retaining wall structures will be constructed promptly after the excavations are completed to ensure good ground stability.

9.15 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 9 9 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Removal of Top/Subsoil & bedrock	Design cut & fill to reduce volumes as much as possible	Banks-person to observe all excavation works
Slope stability of deep or steep excavations	Retaining structures to be used as necessary	Engineering works on deep or steep excavations and observation of stability.
Sediment runoff or dust	No stockpiles on slopes or near drains. Use silt fencing, berms and damping down as required.	Visual inspections and/or water and dust sampling as necessary.

Operational Phase Mitigation and Monitoring

Operational Phase monitoring of the sites retaining structures and maintenance as required, is the only recommended monitoring for the land/soil (Geology) attributes of the development.

9.16 Conclusion

There are no likely Significant Land and Soils (Geology) effects associated with the proposed Kilnahue, Gorey, Large Scale Residential Development.

9.17 References and Sources

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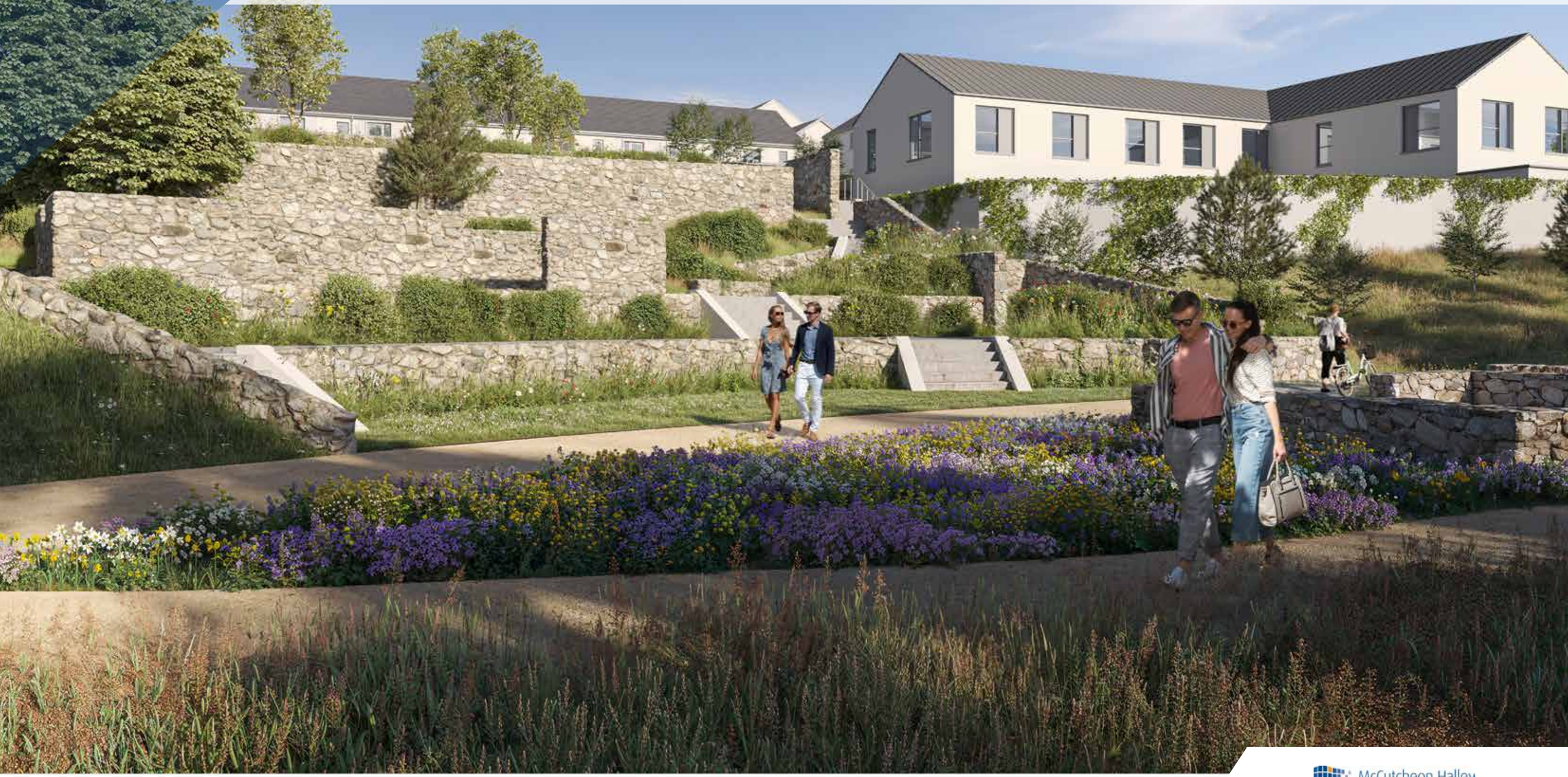
CHAPTER TEN

HYDROLOGY AND HYDROGEOLOGY



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CHAPTER 10

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CHAPTER 10 | HYDROLOGY AND HYDROGEOLOGY

10.1 Introduction

Viridus Consulting Ltd., (VCL) were appointed to assess the potential significant effects of the proposed Kilnahue Gorey Large Scale Residential Development on the Water (hydrology and hydrogeology) attributes of the study area.

It should be read in conjunction with Chapter 1 (Introduction), Chapter 2 (Site Location & Proposed Development), Chapter 5 (Land and Soils (Geology), Chapter 12 (Material Assets: Traffic and Transport), Chapter 13 (Material Assets: Built Services), Chapter 11 (Biodiversity) and Chapter 17 (Interactions of Impacts), of the EIAR.

10.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Mr. Darragh Musgrave, a senior Geo-Environmental Consultant with VCL. Darragh holds an honours degree in Earth Science/Geology from the National University of Ireland Galway (1992) and a Diploma in Environmental Protection from the Atlantic Technological University Sligo, (2006). He has over 30 years of experience working in the hydrological, hydrogeological, geological, and soil/surface water/ groundwater environmental assessment sector as a Geo-Environmental Scientist and has been involved in the preparation of a number of EIARs including the following related to similar large residential projects:

- Dunkettle & Ballinglanna, Glanmire & Lakeview, Midleton, Co. Cork – O'Flynn Group,
- Marybourough Ridge, Douglas, Cork & The Paddocks, Waterford City – Glenveagh Homes
- Coolcarron, Fermoy, Co. Cork – Cumnor Construction

10.3 Proposed Development

The proposed development relates to a Large-scale Residential Development (LRD) on a greenfield site on the east side of Gorey Town. The EIAR Chapter 1 – Introduction, Figure 1.1 presents the site boundary, while in Chapter 2 – Site Location & Proposed Development, provides a description of the proposed site location and more detailed information of the development.

Aspects of the proposed development relevant to this chapter relate to the any local hydrological features, the sites catchment area, site drainage and groundwater classification. Relevant engineering studies related to this attribute include the use of Sustainable Urban Design (SuDS) in drainage design as well as an Assessment of the Flooding Risk for the development.

10.3.1 Activities Associated with the Proposed Development

As per Step 4 of the IGI Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of EISs (See Section 10.4.1), a range of Generic Activities that can potentially interact and effect with the geological/ hydrogeological environment are presented in the Activities/Environment Matrix identified as Figure 2 of the IGI Guidelines. A copy of this Matrix is presented in Appendix 9.1.

The activity which is associated with the construction phase of the Kilnahue development relates to:

EARTHWORKS AND EXCAVATION OF MATERIALS ABOVE THE WATER TABLE.

This activity will be completed in a Type A (passive) geological environment.

The potential impact of the proposed construction activity associated with the development on the hydrological regime is primarily the removal of the topsoil/subsoil cover and the excavation of shallow bedrock and/or build-up of material to achieve the required design levels across the site.

The available Site Investigation information indicates that it is likely that the required excavations will be completed above the natural water table.

Combined with the construction of roads, housing, paving and drainage of all hard surface areas, the excavations/ infilling works will impact the nature of the sites surface water runoff. The excavation work and soil/subsoil removal will create on-site transport and sediment management issues in terms of potential dust generation and suspended sediment runoff from the site to local drainage systems.

It is proposed to complete the earthworks and construction of the area orderly and structured manner. A site compound and laydown areas will be established for the duration of the construction.

The main operational impact of the development on the water attributes relates to the buried drainage infrastructure designed to discharge the storm water runoff and waste-water from the site.

Surface water drainage from the development is proposed to be discharged, via a water attenuation system, from a single location at the topographical low point, in the south eastern corner of the site.

Stormwater runoff will be controlled by implementing a number of Sustainable Urban Drainage Systems (SuDS) components such as, permeable paving, bioretention systems, stone mastic asphalt, tree pits, swales and Detention Basin attenuation systems, on the surface water drainage network, as necessary for the sustainable development of the site.

Sewage will be piped to the existing Uisce Eireann Waste Water Treatment piping infrastructure on the Carnew Road and east towards in Gorey Town. All foul drainage ultimately goes to the Gorey Wastewater Treatment Plant (WWTP) and Pump Station before being pumped to Courtown WWTP.

Potable water for the development will be provided by the Uisce Eireann mains supply that runs to the south of the site on the Carnew Road and along the Kilnahue Lane connecting the adjacent school building with the watermains network within Gorey Town Centre.

A description of waste water drainage system and storm water SuDS scheme is presented in the AKM Design Group Infrastructure Report, (File Reference 25007-AKM-XXXX-XX-RP-C01-10001) and also refer to Chapter 7 - Material Assets: Built Services of the EIAR.

Operational phase activities will include the discharge of surface stormwater and waste water from the site. No interaction with the groundwater table is anticipated for the site's operation.

The use of domestic Air to Heat systems rather than kerosene oil burners in the houses heating systems will greatly reduce the risk of oil spillages impacting the soils, underlying bedrock and aquifer. Proper construction of the sewage network will help ensure no groundwater pollution occurs.

10.4 Methodology

The assessment methodology involved the completion of a Desk Study and Walkover observational survey of the study area that included the collation and review of available information pertaining to the study area, including any relevant water features or hydrological data, including the following:

- Kilnahue Gorey LSD S32B EIAR Summary Report – MHP July 2025.
- Tailte Eireann, On-line Maps and Aerial Photographs, (www.geohive.ie).
- Geological Survey of Ireland (GSI) On-line Geological Datasets, (www.gsi.ie/mapping.htm).
- Environmental Protection Agency (EPA) (www.epa.ie).
- Water Framework Directive (WFD) On-line maps, (www.wfdireland.ie).
- Office of Public Works (OPW) National Flood Hazard Mapping Web site (www.floodinfo.ie).
- Gorey Hill Site Investigation Report Site Investigations Ltd., (SIL 25th June 2021).
- AKM Design Group Infrastructure Report for Lands at Kilahue, Gorey, (Oct 2025).

The Site Walkover recognisance survey enabled the physical examination of the hydrological, geomorphological, topography and land use characteristics of the site and its setting in the locality.

In this chapter the existing baseline conditions and character of the hydrological and hydrogeological characteristics of the site are presented and the potential effects anticipated from the development are identified and discussed. Mitigation measures are proposed, residual effects are assessed, and any relevant monitoring options are considered.

10.4.1 Relevant Guidance & Legislation

The Water Chapter for the EIAR follows the guidelines outlined by the EPA guidance document, “Guidelines on the information to be contained within an EIAR”, from May 2022, in Directive 2014/52/EU and Annex IV amendments, as well as European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018, (S.I No. 296/2018).

The work also is cognisant of the previous EPA Draft EIAR Guidelines (2017) and the Environmental Impact Statement (EIS), EPA Draft guidelines, from September 2015, which outline the process of preparation and the content required for an EIS.

The assessment work also follows the Institute of Geologists of Ireland (IGI) “Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of EISs”, (IGI April 2013), and National Roads Authority (NRA) “Guidelines on Procedures for the Assessment & Treatment of Geology, Hydrology & Hydrogeology for National Road Schemes”, (NRA 2009). (NRA is now Transport Infrastructure Ireland).

As well as the Environmental Impact Assessment requirements there are a number of regulations, acts and directives regarding the Irish legislative context for the assessment of the water attributes of the project, some of which are summarised below.

The main legislation relating to Water in Ireland are grouped under the Water Framework Directive (2000/60/EC) (WFD) which requires all Member States to protect and improve water quality in all waters so that good ecological status can be achieved by 2015 or, at the latest, by 2027. It was given legal effect in Ireland by inter alia the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003) (as amended), European Communities Environmental Objectives (Surface Waters) Regulations (S.I. No. 272 of 2009, amended by S.I. No. 385 of 2015) and Groundwater Regulations (S.I. No. 9 of 2010, amended by S.I No 366 of 2016). It applies to all rivers, lakes, groundwater, and transitional coastal waters.

The Surface Water Regulations set a wide-range of environmental standards for Irish surface waters. The Groundwater Regulations establish environmental objectives for groundwater bodies and include groundwater quality standards and threshold values for the classification of groundwater and the protection of groundwater against pollution.

The Directive requires that management plans, based on River Basin Districts (RBD), be prepared on a river basin basis and specifies a structured method for developing these plans. Under the WFD water quality of River Basin Districts is assessed biologically, physically and chemically. Assessment is done using surveys that are predominately conducted by the EPA and local authorities and supported by other government bodies including Inland Fisheries.

The Salmonoid Regulations, (European Communities (Quality of Salmonoid Waters) Regulations SI 293 of 1988), set water quality standards for salmonoid waters, with identification of salmonoid waters, water quality standards, and frequencies of sampling and methods of analysis and inspection.

The Local Government (Water Pollution) Acts 1977 – 1990, is the main legislation for the prevention and control of water pollution, including the general prohibition of discharge of polluting matter to waters, licensing discharges, fines and prosecution, water quality standards and management plans.

10.4.2 Site Surveys/Investigations

As well as a detailed topographical survey, a site specific Site Investigation was completed in June 2021, comprising of the excavation of eight shallow trial pits to a maximum depth of 3m, eight dynamic probes and soak-away tests with associated soil sampling, geotechnical and environmental laboratory testing and related reporting, which was issued by Site Investigations Ltd. (SIL) on 25th June 2021. The full SI Report is included in the AKM Infrastructure Report.)

The trial pits were completed throughout the central and southern areas of the site area and while they tended to be excavated near the field boundaries there was a good special distribution across these areas.

The ground was found to be composed of thin topsoil over either dark grey sandy gravels across the central area or brown gravelly silty clays towards the southern and eastern areas. No water or groundwater or evidence of same, was encountered by any of the trial pit excavations.

A senior scientist from VCL completed an observational walkover of the site on Wednesday 17th September 2025.

10.4.3 Potential Effect Assessment Methodology

The EPA 2022 Guidance (Section 3.7) requires the EIAR to focus on the effects that both likely and significant and the description of effects that are accurate and credible.

An analysis of the predicted effects of the proposed development on the Water Attributes during and after the construction phase is presented in the following section. (This been completed as per the EPA Guidance notes (2022 & 2015) and Appendix C of the IGI EIS Preparation Guidelines (IGI 2013).

The description and assessment of the effects was undertaken using EPA terminology outlined in Chapter 1. The rating of the potential magnitude and significance of impacts at EIAR stage are defined by the NRA guidance (2008 – Boxes 5.5 & 5.3), including typical examples, as outlined in Table 10.1.

Table 10 1 Criteria for rating Water Impact Magnitude at EIS stage, (NRA Guidance Box 5.1).

IMPACT MAGNITUDE	CRITERIA	TYPICAL EXAMPLE
Large Adverse	Results in loss of attribute and/or quality and integrity of attribute	Loss or extensive change to a water body or dependent habitat. Increase of predicted flood level >100mm. Removal of large proportion of aquifer, or changes to aquifer resulting in extensive change to existing water supply or river base flow. Extensive loss of fishery or high risk of pollution to surface or groundwater from routine runoff.
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute	Moderate loss or change to a water body or dependent habitat. Increase of predicted flood level >50mm. Removal of moderate proportion of aquifer, or changes to aquifer resulting in moderate change to existing water supply systems or river base flow. Moderate loss of fishery or medium risk of pollution to surface or groundwater from routine runoff.
Small Adverse	Results in minor impact on integrity or attribute or loss of small part of attribute	Small loss or change to a water body or water dependent habitat. Increase of predicted flood level >10mm. Removal of small proportion of aquifer, or changes to aquifer resulting in small change to existing water supply systems or river base flow. Minor loss of fishery or potential low risk of pollution to surface or groundwater from routine runoff.
Negligible	Results in an impact on attribute but insignificant magnitude to affect either use or integrity	No measurable changes in attributes. Negligible change in predicted peak flood level. Risk of serious pollution incident <0.5% annually.

The rating of potential environmental impacts on the hydrological and hydrogeological water environment can also be assessed based on the matrix presented in Table 10.2, which takes account of both the importance of an attribute and the magnitude of the potential environmental impacts of the proposed development on it. The criteria apply to potential impacts during the initial site development, construction and operational phases of the development.

Table 10 2 Criteria Rating of Significant Environmental Impacts at EIA Stage***

Importance of Attribute (Table 10.3)	Magnitude of Impact (Table 10.1)			
	Negligible	Small Adverse	Moderate Adverse	Large Adverse
Extremely High	Imperceptible	Significant	Profound	Profound
Very High	Imperceptible	Moderate/ Significant	Significant/ Profound	Profound
High	Imperceptible	Slight/Moderate	Moderate/ Significant	Significant/ Profound
Medium	Imperceptible	Slight/Not Significant	Moderate	Significant
Low	Imperceptible	Imperceptible	Slight	Slight/Moderate

(***Based on NRA Guidelines (2009) – Box 5.4 Page 106).

The magnitude of each impact was considered from negligible to large. Negligible impacts are effects that result in an impact on an attribute but of insufficient magnitude to affect either its use or integrity. A major impact results in the significant loss of an attribute and/or quality and integrity of an attribute.

10.4.4 Cumulative Impacts

Directive 2014/52/EU requires that the EIAR examine the interaction between all the differing existing and/or approved projects in the same area as the proposed project. There are a number of other residential projects in the Gorey Town area, (these are listed in the EIAR Chapter 1 – Introduction), that could have a cumulative effect on the Kilnahue development, in terms of the provision and capacity of potable water and waste water infrastructure. Uisce Eireann have reported that they have the provision and capacity in their water infrastructure to accommodate all these developments.

10.5 Difficulties Encountered

No difficulties were encountered in accessing information during the preparation of this chapter. While there are no site specific monitoring boreholes available for groundwater level measurements, given the elevated nature of the site in the areas where excavations are required for the development it is considered that the risk of encountering the natural water table would be low.

10.6 Baseline Environment

The following provides a description of the receiving environment, with a focus on the Water Attributes.

10.6.1 Site Setting and Topography

The Kilnahue study area is located in a semi-rural urban setting on the eastern side of a broad hill about 1.5 kilometres east of Gorey Town Centre. It comprises an undeveloped sloping greenfield site, comprising mainly of three large, rectangular shaped, open agricultural fields divided by mature hedge rows. A smaller triangular shaped field in the southern part of the site is divided from the other fields by an old overgrown track which used to connect the public road to the old farmstead that is located in the small area of overgrown scrubby woodland located in the north eastern corner of the site.

Some old Ordnance Survey of Ireland (now Táilte Eíreann) maps and aerial photos of the study area are presented in Appendix 9.2. A general Talite Eireann topographical map is included in Appendix 9.2.

The topography of the site slopes in an east south-easterly direction from highs of 133.5m OD in the eastern corner and 128m OD in the northern corner, to the lower lying ground at 105m OD in the southern corner, where it meets the public road, and to about a ground height of 102m OD along the southern boundary of the site. The slope across the site is relatively consistent with little undulation occurring. There is a detailed topographic map of the site included in the AKM Infrastructure Report.

Natural storm water runoff flow direction is east south-eastwards across the site towards a culvert located to the south of the adjacent school property which has a ground height of about 87.5m OD.

There are no water features such as streams or drains on the site but there is an old Holy Well, called Toberchreet, located just outside the red line boundary in the north eastern corner of the site near the old homestead buildings. Some old maps show a ‘well feature’ in a field to the south of the site.

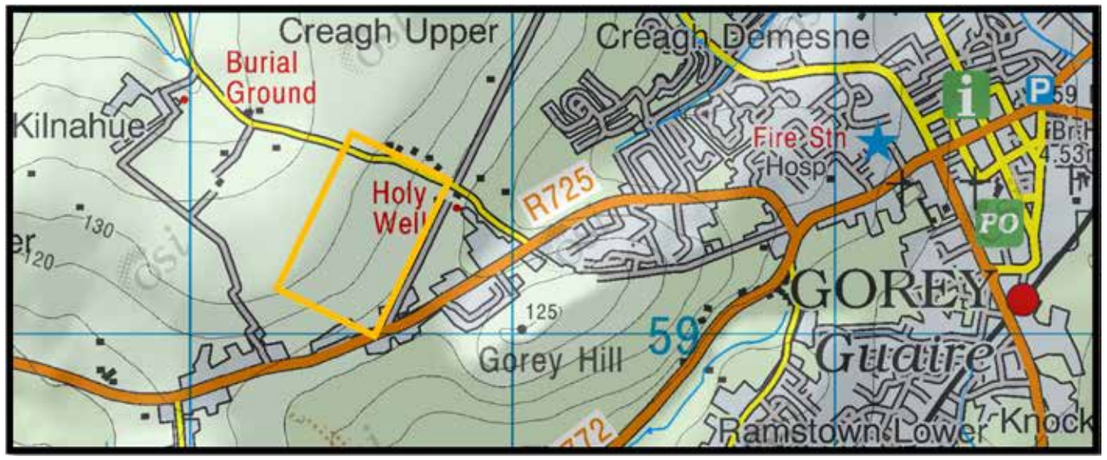

Figure 10.1 Study area (orange) with Holy Well shown outside NE corner & stream ~500m to NE.

No boreholes or wells are identified by the GSI mapping and none were identified during the site walkover. Images of the site setting are presented in the VCL site walkover photographs included in Chapter 9 - Appendix 9.3.

10.6.2 Hydrology

10.6.2.1 WFD Catchments

The Water Framework Directive (WFD), and EPA mapping shows that the site is located in an area identified as Hydrometric Area 11, (HA 11) which is called the Owenavorragh Catchment. It includes all the lands drained by the River Owenavorragh and by all watercourses entering tidal water between Kilmichael Point and Raven Point in Co. Wexford, covering a total catchment area of 395km2.

In order to present water quality information on the status, objectives and measures for more manageable geographical areas Hydrometric Area 11 is divided into three Sub-Catchments, including Inch (Wexford) to the north, Cahore along the east coastal region south of Courtown and the Owenavorragh, which occupies the more inland area and lands around and to the south of Gorey. Refer to Figure 10.2, taken from the WFD EPA Draft Cycle 3 HA 11 Owenavorragh Catchment Report.

The Owenavorragh Sub-Catchment is identified as Hydrometric Area 11_2, and named as Owenavorragh_SC_010. The Gorey area is located at the northern end of this Sub Catchment.

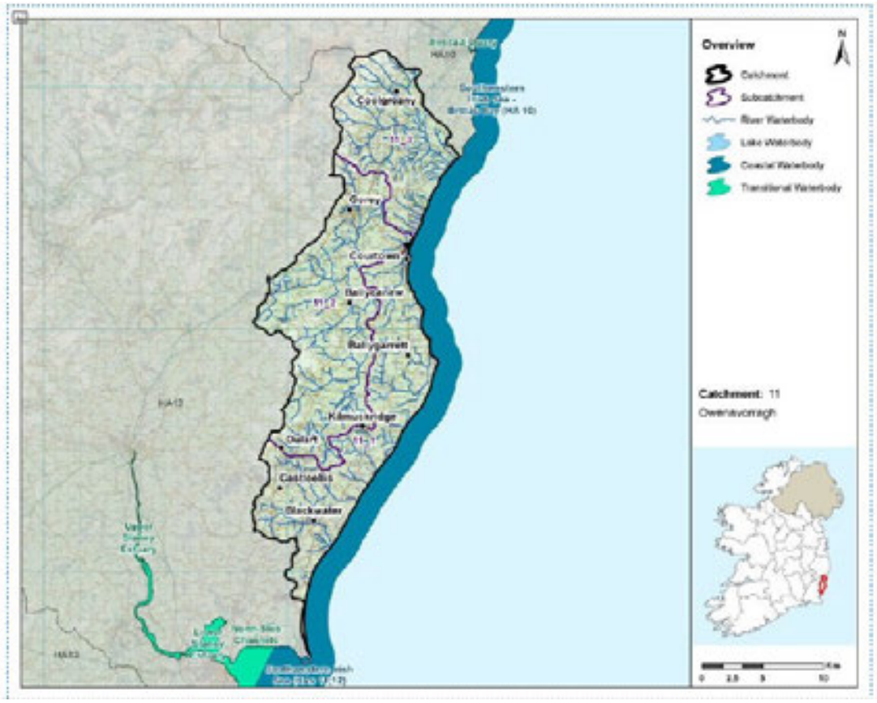

Figure 10.2: WFD EPA Draft Cycle 3 HA 11 Owenavorragh Catchment Map.

The Owenavorragh Sub Catchment area is further divided into eleven WFD River Sub Basins and the site is located on the south western edge of the Banoge River Catchment area. The Banoge River is divided into three WFD River Sub Basins and the majority of the site is shown to be located in the upper river sub basin Banoge_010, that occupies a catchment area of 13.162km².

The western end of the site, approximately 5.5 Ha, is shown to form the upper edge of the sub basin Banoge_030 which is part of the rivers lower catchment, which covers an area of about 7.214 km².

(It is important to note that the EPA River Sub Basin Mapping is done on a regional scale and is primarily based on aerial photography and contour mapping. The positioning of the western edge of the subject site in the Banoge_030 catchment area is possibly an error as in reality the public road acts as a barrier to stormwater runoff coming from the land on the northside of the road in this area and road drainage diverts it eastwards to the Banoge_010 catchment).

The nearest watercourse to the study area is identified as the Ballyowen Stream located about 550m to the east of the site. This stream (identified by the EPA as Ballyowen 11 with River Waterbody Code IE_SE_11B020100) is tributary of the Banoge_010 which it joins on the east side of Gorey Town about 2.3km from the site.

The Banoge River has a full catchment area of about 29.5km2 before it joins the lower section of the River Owenavorragh about 4km south of Gorey Town and about 4.6km from the sea at Courtown. The WFD EPA HA 11 Owenavorragh Catchment Report (May 2024) is presented in Appendix 10.1 and the EPA Catchment Maps are presented in Appendix 10.2.

10.6.2.2 Site Drainage

The Site Investigations completed on the site included soakaway testing of the eight excavated trial pits completed around the site, (SIL June 2021). These showed very good soakage and percolation in the four trial pits (TP01, TP02, TP03 and TP06) completed in the sloping middle western and northern area of the site. In contrast the other four trial pits (TP04, TP05, TP07 and TP08), completed in the less sloped southern and eastern side of the site did not support any soakage or evidence of percolation. This is due to the depth of soil cover with thin gravelly subsoils in the higher western and northern areas and thicker more clay rich deposits in the lower southern and eastern portions of the site.

As outlined in detail in the AKM Infrastructure Report the stormwater drainage design policy is based around protecting river water quality through providing interception storage and treatment, as well as satisfying green field runoff though attenuation and discharge controls. The surface water management strategy is to place source and site-wise treatment and SuDS measures along the various flow routes identified for the site, without including soakaways.

The primary runoff categories identified by the design team include public parks and private garden green spaces, roofs, footpaths and roads. The SuDS strategy for the site will be based around attenuating and reducing the runoff, reducing pollution risk and replicate the natural characteristics of rainfall runoff from the site. SuDS mitigations includes the use of permeable paving, swales, land drains, detention basins including wetlands, bioretention systems and attenuation. Refer to the AKM Proposed Storm and Foul Drainage Map, (25007-AKM-XXXX-XX-DR-C01-300001).

As outlined in the AKM engineering design drawings the topography of the existing side and proposed future layout of the site, results in a number of catchments for the drainage of surface water including (1) the proposed green parkland (Northern Park) area located on the higher ground in a 2.842 Ha area, (2) the central and majority of the site area covering 12.43 Ha (Catchment A) and, (3) a small area of 0.663 Ha (Catchment B), located in the south west corner of the site where the site meets the public road. Refer to the AKM Proposed Catchment Area Map, (25007-AKM-XXXX-XX-DR-C01-300012).

10.6.2.3 Flood Risk

The project engineers AKM have completed a site specific Flood Risk Assessment (FRA) for the lands within the proposed development as outlined in Section 8 of the AKM Infrastructure Report. The FRA was completed as per “The Planning System and Flood Risk Management – Guidelines for Planning Authorities” published by the Department of the Environment, Heritage and Local Government (DEHLG) and Office of Public Works (OPW) in November 2009, (known as the Flood Guidelines).

As outlined previously there are no watercourses or drainage features on the site and examination of the historic OPW flood mapping does not show any evidence of flooding history on the site. There is some record of flooding on the Banoge River in Gorey Town over 2km to the east of the site.

Examination of the OPW Flood Risk Mapping (www.floodinfo.ie) completed under the national Catchment Flood Risk Assessment & Management Programme (CFRAM) shows that the site is not located within Flood Zone A or B and for either the river or coastal High-End Future Scenario therefore is not at risk of flooding, (Zone C). No groundwater flood risk was identified and there is no overlap between the Land Use Zoning and the Indicative Flood Zones for the site area.

The proposed site layout design follows the general topography of the site and facilitates storm water drainage by gravity. As far as possible the proposed development will, in overall terms, respect the general topography of the existing site and an adequate surface water drainage system, including water retention, detention and attenuation, will be developed for the site so that storm water will be discharged in a way that does not significantly raise the risk of flooding in lands outside the site.

The proposed SuDS drainage management including water detention and attenuation will help ensure that the green field runoff rates are maintained and therefore the development will not increase the flooding risk in the Banoge River or wider River Owenavorragh Catchments.

It is worth noting that the size of the site, (~0.016 km²) is extremely small in the context of the upper Banoge_010 (13.16 km²), whole Banoge (29.5 km²) and River Owenavorragh (160.76km2) catchments.

The main surface water drainage system for the majority of the site (Catchment A) will ultimately discharge to the existing piped drainage systems near the southeastern corner of the site boundary.

The very small catchment area in the southwest corner will discharge to the existing drainage system on the public road adjacent to the site. Discharges to the existing piped drainage system will be attenuated to that of the equivalent of greenfield runoff rate from the undeveloped site in accordance with established drainage design principles. This will minimise the impact on the existing drain system and thus minimise the risk of flooding on lands downstream of the development.

10.6.2.4 Water Quality Status and Risk

The WFD Third Cycle Assessment Data, as reported in the EPA Cycle 3 HA11 Owenavorragh Catchment Report, (EPA May 2024 see Appendix 10.1) indicates that the quality designation for Banoge_010 is 'Moderate' and that the Surface Waterbody Quality Risk Projection is 'At Risk', due to agricultural activities resulting in significant nutrient and organic issues and has significant pressures from agricultural activities and urban runoff.

The other two river sub catchments that form the Banoge River are rated as 'Poor' quality and 'At Risk' for similar water quality issues and pressures, but including Urban Waste Water pressures.

The lower section of the Owenavorragh River (Owenavorragh_060) is given a 'Moderate' quality status which is 'At Risk' due to organic and nutrient issues and ongoing significant agricultural pressures.

Refer to the EPA Cycle 3 HA11 Owenavorragh Catchment Report, EPA May 2024 presented in Appendix 10.1 and the EPA Water Quality and Risk Status Maps included in Appendix 10.2.

10.6.3 Hydrogeology

The EPA Catchment Mapping shows that the majority of the proposed site and lands to the south and west are located within the Inch Groundwater Body (WFD EPA Code Ref - IE_SE_G_075), while a small portion (~2.34 Ha) of the south eastern area of the site, and lands to the east and south east, are located within the Gorey Groundwater Body (WFD EPA Code Ref - IE_SE_G_071). While in the field to the north of the site, the Ballyglass Groundwater Body (WFD EPA Code Ref - IE_SE_G_011) is identified.

Refer to the EPA Groundwater Bodies mapping included in Appendix 10.3.

The changes in groundwater body are related to the changes in the underlying geology with the Inch and Ballyglass GWBs composed of Ordovician Metasediment bedrock while the Gorey GWB is composed of Ordovician Volcanics bedrock. The sites geology is discussed in detail in Chapter 9 while the aquifer classification is examined in the following section, (Section 10.6.3.1).

10.6.3.1 Aquifer Classification

Aquifers are described as "bodies of saturated geological materials that both store and transmit important quantities of water", (Young 2007). Given that a groundwater supply suitable for domestic use can be derived from nearly all the bedrock types in Ireland and this would be deemed an "important quantity of water", nearly the whole county is considered by the EPA to be underlain by an "aquifer". The GSI has devised a system for classifying the aquifers in Ireland based on the hydrogeological characteristics of the bedrock as well as the potential size and productivity of the groundwater resource.

Groundwater in Ireland is primarily derived from open fracture or fissures in the bedrock which is identified as secondary permeability rather than groundwater coming from pores or openings in the rock fabric, or from pores in unconsolidated sands and gravels, which is identified as primary permeability. The GSI aquifer classification depends on a number of parameters including, the aerial extent (km^2), well yield (m^3/d), specific capacity ($m^3/d/m$), aquifer transmissivity (m^2/d) and groundwater flow.

The majority of the site area is identified by the GSI mapping as being underlain by the Ordovician aged Oakland Formation (OA) geological unit. This bedrock is described by the GSI as being composed of metamorphosed sedimentary interbedded 'green red-purple, buff slate and sandstones'.

A small portion (~2.3 Ha) of the east and south-eastern edge of the site is mapped as being underlain by the Ordovician aged Campile Formation (CA), composed of 'rhyolitic volcanics, grey and brown slates'. There are a number of faults identified in this locality and it is possible that the spring feature is related to the geological fault boundaries identified by the reginal geological mapping in this area.

Typically the aquifer categories are assigned to bedrock formations with similar age, properties and hydrogeological characteristics which, for simplicity, are combined together form geological Rock Unit Groups (RUGs). The GSI have identified 27 RUGs nationally and the Oaklands Formation (OA), under the majority of the site, is part of the Ordovician Metasediments (OM) Rock Unit Group, while the Campile Formation (CA), under the east and south-eastern edge of the site, is part of the Ordovician Volcanics (OV) Rock Unit Group.

The Ordovician Metasediments bedrock formation are classified by the GSI as a "Locally Important Aquifer, which is moderately productive only in local zones," (LI), while the Ordovician Volcanics are classified as a "Regionally Important Aquifer, with fissured bedrock," (Rf).

Refer to the GSI Rock Unit Aquifer Mapping presented in Appendix 10.4.

The sites geology, soil and bedrock types and aquifer vulnerability are discussed in Chapter 9 with related GSI soils and bedrock geology mapping included in Appendices 9.4 and 9.5 respectively.

10.6.3.2 Groundwater Status & Risk

The WFD EPA Third Cycle Assessment Data (2016 to 2021) indicates that the quality designation for these aquifers is 'Good' and that the Ground Waterbody Quality Risk Projection is 'Not at Risk'. Refer to the EPA Groundwater Catchment Maps in Appendix 10.3.

The more recent WDF EPA Assessment Data (2019 to 2024) groundwater status mapping, available on the EPA On-line Maps, indicates that the quality designation for the OM bedrock aquifer in the Inch GWB is 'Poor' but that the Ground Waterbody Quality Risk Projection status is 'Not at Risk'.

The same EPA on-line maps show that while the groundwater quality in the OV bedrock aquifer in the Gorey GWB is 'Good' its risk status is 'Under Review' and while the OM aquifer in the Ballyglass GWB is 'Good' its risk status is "At Risk". Refer to the EPA Groundwater Catchment Maps in Appendix 10.3.

10.6.3.3 Site Hydrogeology

No groundwater wells or old boreholes were found to be currently present in the Kilnahue study area.

There is one spring, identified as an old Holy Well, called Toberchreet, on the old survey maps. Its located just outside the red line boundary in the southeastern corner of the site. This spring was not found during the site walkover as it is on private property and the area is very overgrown.

A ‘well’ feature is identified on the old 1:25,000 scale map from the early 1900’s but it is not shown on more recent maps or on the GSI well and springs mapping. Refer to the OSI maps in Appendix 9.2.

The GSI Groundwater Wells Mapping identifies a number possible private wells between about >1km to 1.5km to the west, south and east of from the site. No Groundwater Public Water Supply Schemes were identified by the GSI mapping within about 5km of the site. Refer to the GSI Wells & Springs Map presented in Appendix 10.4.

The site specific shallow trial pit excavations completed on the site did not encounter any groundwater or evidence of the natural water table. Although trial pits did not extend to the depth of some of the proposed excavation depths it is considered that given that the deeper excavations are in the upper and central areas of the site where the groundwater is likely to be deep and interaction with the water table is anticipated to be low for the developments construction phase.

There are no deep excavations immediately upgradient of the Holy Well location and it is not anticipated that the construction works will interact with this feature.

The local area is supplied by water mains and the development will be supplied by the existing Uisce Eireann water supply infrastructure servicing this part of Gorey Town.

10.6.4 Groundwater Flow Direction

The direction of natural groundwater movement is principally influenced by topography and the groundwater table is generally a subdued reflection of the ground surface. For the Kilnahue study area it would be expected that the natural groundwater flow direction would follow the local topography and flow to the southeast. Ultimately all groundwaters would be within the catchments of the Banoge River system. Refer to the EPA Surface Water Maps in Appendix 10.2 and Groundwater Maps in Appendix 10.3.

10.6.5 Conceptual Site Model

As per the IGI Guidance recommendations a Conceptual Site Model (CSM) has been developed for the site examining the interaction of the project with the hydrological and hydrogeological environment.

A CSM represents the characteristics of a site, in word, graphic or diagrammatic form, and shows the possible relationships between potential contaminates (source), pathways (pollutant linkages), and receptors (environmental targets).

The main risks to waters from the Kilnahue development from the construction phase are via pollutants, such as fine sediments, directly impacting surface water runoff quality and entering the local drainage network and Banoge River System, or by pollutant losses, such as hydrocarbons leaks from construction vehicles going to ground and entering the hydrological cycle via the groundwater.

The AKM engineering team have modelled an Earthworks Cut and Fill Layout for the site area which indicates the areas that will need to be either reduced or raised in ground level in order to enable the construction works to proceed within the required design parameters for road and housing schemes.

The Earthworks Cut and Fill Layout Plan and related calculations are discussed in Section 9.3.2 in Chapter 9, with drawings included as part of the engineering design Chapter 7 built Assets.

The main operational impact of the development on the water environment relates to potential pollution due to leaks from the buried sewage drainage infrastructure, the treatment of the resulting waste water, changes to surface water drainage due to changes in topography and the extent of the hard surface areas, its discharge to the local drainage systems and ultimately the Banoge River system.

10.6.6 Type of Environment

As outlined in Section 9.7 of Chapter 9, Step 3 of the IGI Guidelines recommends that the type of Geological and Hydrogeological Environment are assessed. Based on the stable geology and locally important aquifer classification the site is deemed to have a:

Type A - Passive Geological/Hydrogeological Environment,

This is based on the fact that the area is underlain by well mapped, reasonably homogenous Ordovician metamorphic sediment or volcanic derived rock types of the Oakland and Campile Formations which represent a historically stable geological environment. There are no karst features or other geo-hazards associated with this type of bedrock.

The geology under the majority of the site is classified by the GSI as a ‘locally important bedrock aquifer’. The Kilnahue site does not represent any aspect of a Type B groundwater discharge area, Type C Man-Made Dynamic Hydrogeological Environment with mining or quarrying below the water table, or with nearby waste discharges to ground or a Type D Sensitive Geological/Hydrogeological environment with karst limestone or water supply SPAs or a Type E Groundwater Dependent Ecosystem or wet-land with a river with a high base flow of groundwater.

The hydrological attribute Site Importance rating follows the NRA use of five importance criteria – Extremely High, Very High, High, Medium and Low depending on the attribute quality.

The two attributes that are relevant to Kilnahue site are the underlying aquifers and the Banoge River system, which are ultimately the final receiving water that will get either groundwater recharge through percolation or the attenuated storm water runoff discharges from the site.

As recommended by the IGI and TII Guidance the ‘Site Importance Criteria’, with examples, are applied to the hydrological and hydrogeological attributes of the site in Table 10.3.

Table 10 3 Criteria for rating Site Importance for Hydrology/Hydrogeology at EIA stage.

IMPORTANCE	CRITERIA	TYPICAL EXAMPLE	KILNAHUE SITE
Extremely High	Attribute has a high quality or value on an international scale.	River, wetland or surface water body ecosystem protected by E.U Legislation e.g. Salmonoid River or SAC/SPA	No rainfall runoff from the site is proposed to discharge to the Banoge River system that is not designated.
Very High	Attribute has a high quality or value on a regional or national scale.	River, Wetland or Surface Water body ecosystem protected by national legislation e.g. pNHA, Regionally Important Aquifer with multiple wells, Water Supply >2500 homes	No – water from the site is not supporting any national hydrological feature or a protected water ecosystem. Only eastern edge of site is a Regionally Important Aquifer No large wells in area.
High	Attribute has a high quality or value on a local scale	Salmon Fishery, Regionally Important Aquifer, Water Supplying >1000 homes.	No - no salmon fishery or amenity importance locally and limited wells in the area. Locally Important Aquifer
Medium	Attribute has a medium quality or value on a local scale	Coarse Fishery, Locally Important Aquifer Local potable water supply to >50 homes.	Yes – Banoge River has potential for coarse fish. Yes – Locally important Aquifer under site area.
Low	Attribute has a low quality or value on a local scale	Poor Bedrock Aquifer Local potable supply <50 home.	No – no on site watercourses or known local borehole supplies.

The bedrock aquifer classification as being Locally Important gives the groundwater a rating of Medium Importance, as per the relevant guidelines for hydrogeological attributes. The portion of the site underlain by the Regionally Important Aquifer is not significant enough to change the Medium rating.

Given that any surface runoff will eventually enter the local Banoge River system, which is mapped by the EPA to be located >500m east of the site, and the fact that this river system is not a designated protected habitat or salmonoid river gives it a hydrological rating of Medium Importance.

10.7 The 'Do Nothing' Scenario

The 'Doing Nothing' Scenario would result in no residential development at the site and the continued use of the land for agricultural tillage or pastoral grassland. Potential organic runoff from the agricultural activity on the site to the local groundwater and Glashaboy Estuary would continue.

Given the proximity of the lands to Gorey Town, their zoning and suitability for residential development it is probable that they will be built on at some stage in the future.

10.8 Potential Significant Effects

10.8.1 Construction Phase

The main potential direct effect for the initial site establishment construction phase of the development is sediment runoff and/or dust generation from the cut and fill earth moving activities that are required to establish the appropriate final floor level hights for building construction as well as the excavation and backfilling earth works that will be required for establishing the site surface water, waste water piping and internal roadway infrastructure. Fuel spills from machinery is also possible environmental risk at this stage of the development works.

For the building construction phase the main potential effects include chemical runoff in the form of extensive cement use and/or potential fuel spills from construction vehicles and machinery use on site, to the ground and potentially to the local drainage system. Earth works during the construction phase there would also create potential for local sediment runoff and/or dust effects to arise.

10.8.2 Operational Phase

During the operation phase the main potential direct hydrological effect is the change in stormwater runoff to the local receiving drainage system and the increase in waste water loading to the local WWTP infrastructure. There would be a potential risk of leaks from the waste water piping to occur which could affect local groundwater quality.

The supply of potable water to the site will also require an increase in the local mains system.

10.8.3 Cumulative Effects

There could be cumulative effects due to the increase in waste water volumes to the local WWTP infrastructure and increased potable water use from other new developments in the Gorey Town area.

10.8.4 Summary

The following Table summarises the identified likely significant effects during the site establishment and construction phases of the proposed development before mitigation measures are applied.

Table 10 4 Summary of Construction Phase Likely Significant Effects without mitigation

Likely Significant Effect	Quality	Significance (Table 10.2)	Extent	Probability	Duration	Type (Table 10.1)
Sediment Runoff	Negative	Imperceptible	Local	Medium to Low	Brief to Temporary	Negligible
Fuel Spills	Negative	Imperceptible	Local	Low	Brief to Temporary	Negligible
Chemical (cement) losses	Negative	Imperceptible	Local	Low	Brief to Temporary	Negligible

Table below summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 10 5 Summary of Operational Phase Likely Significant Effects without mitigation

Likely Significant Effect	Quality	Significance (Table 10.2)	Extent	Probability	Duration	Type (Table 10.1)
Change to water Runoff Rate	Neutral	Imperceptible	Site Wide	High	Long term to Permanent	Negligible
Soiled Surface Water Runoff	Negative	Imperceptible	Local	Low	Brief to Temporary	Negligible
Change to Groundwater Recharge Rate	Neutral	Imperceptible	Built On Areas	High	Long Term to Permanent	Negligible
Change to Aquifer Vulnerability	Neutral	Imperceptible	Local	High	Long Term to Permanent	Negligible
Wastewater pipe leaks to ground	Negative	Imperceptible	Local	Low	Brief to Temporary	Negligible

10.9 Mitigation Measures

The sensitivity and value of the receiving environment combined with the magnitude and duration of the potential impact defines the environmental significance of the effect and is examined both before and after the application of mitigation measures. Generally, the more significant and long term the impact the more difficult it is to mitigate it.

While the magnitude of the potential long-term impact on the groundwater and surface water attributes from the development are considered to be Negligible, there are potential brief to temporary or short term impacts that may arise, especially during the development/construction stage, which could cause short term to brief pollution and environmental risks and there are a number of mitigation measures that would help eliminate and/or reduce the occurrence of these potentially negative effects.

10.9.1 Incorporated Design Mitigation

All new-build service infrastructure is to be designed in accordance with the relevant service provider and asset owner's code of practice, which require due cognisance of the receiving environment. In particular design, choice and standard of materials for buried waste water pipe work shall be adequate for operating successfully without effecting the local environment for the long term.

The design seeks to mitigate potential negative effects with all new-build infrastructure to be designed in accordance with the Technical Guidance Documents of the Building Regulations and associated codes of practice, which require due cognisance of the receiving environment. Design depths of proposed infrastructure are to be optimised so that excessive excavations are avoided and by association a reduction in potential waste material, machinery operation time and associated risks.

The proposed development will be provided with a surface water management system that is designed in accordance with the principles of Sustainable Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS).

The proposed surface water network for the development is arranged into an interconnected system of water runoff controls that match the natural greenfield runoff from the site.

The proposed surface water networks includes a train of SuDS features which collectively provide for interception, treatment and conveyance of surface water, including nature-based features, which will aid the reduction of runoff volumes by slowing surface water flows, both providing the opportunity for evapotranspiration and rainwater storage. Interception storage requirements of GDSDS will be sufficiently met through the provision of SuDS features. Discharges to existing drainage systems is controlled as necessary to ensure adequate flood protection.

SuDS features suitable for the site layout and site constraints have been identified and incorporated into the proposed surface water drainage scheme. Surface water drainage has been designed to, where necessary, mimic the site run-off characteristics with storm water run-off passing through the necessary treatment systems to prevent pollution.

The operational design of the residential heating systems shall exclude the use of potentially polluting kerosene or fuel oils which will eliminate the risk of pollution for the operational stage.

10.9.2 Construction Phase Mitigation

The phased and controlled nature of the sites development will reduce the foot print of open ground and active earth work areas as the site is being prepared for construction works. The areas where the excavation of unconsolidated soil and subsoils is required within each building area will be kept to a minimum and, as far as practicable, only extended as already stripped ground has been built over. Keeping the surface area of exposed soils in the construction areas to a minimum is the most effective way of preventing the release of dust in dry weather and suspended sediments during or after wet conditions. Potential dust and suspended solids runoff impacts are therefore reduced or avoided.

Limiting excavation works and machinery activity during and immediately after periods of heavy rainfall will also be incorporated into the earth works management to help limit sediment generation.

Control of Soil Excavation and Export from site using the Reduce, Reuse and Recycle approach with all excavation arisings to be reused on site where possible. The implementation of an appropriate earthworks handling protocol with adequate runoff control and dust suppression measures (e.g. damping down during dry periods), vehicle wheel washes, road sweeping and general housekeeping will ensure that the surrounding environment are not significantly impacted by the of nuisance dirt on roads which will reduce sediment runoff and dust generation.

There will be a requirement for a Construction Environmental Management Plan to oversee the development and earthwork operations will be carried out such that surfaces, shall be designed with adequate drainage, falls and profile to control run-off and prevent ponding and suspended sediments from going off site.

Construction Phase Mitigations will include;

- Construction methods used by the contractor are to be tailored to reduce, where possible, sediment runoff and leaks or spills to ground and to minimise effects on the local environment.
- Designated roadways and internal access/construction routes will be clearly designated and fenced off in-order to prevent uncontrolled tracking of construction vehicles across the site. This will help reduce the surface area of disturbed ground which will limit the potential for soil compaction, sediment runoff or dust generation. Similarly existing hedge rows and site features which are to be maintained will be fenced off. Silt fencing to be used as necessary.
- Any spoil or waste material generated from the construction process is to be temporarily stored on more level ground at an approved location on site, and segregated from surface water runoff, before being either re-used on site or removed off-site to a suitably licenced waste management facility. Silt fencing to be used as necessary.
- All fill and aggregate for the project will be sourced from reputable suppliers.
- Designation of bunded refuelling areas on the site (as required) as well as the provision of spill kits across the site will reduce the potential for fuel or oil spills occurring or their extent.
- Fuel, oil and chemical storage should be sited within a bunded area. The bund must be able to take the volume of the largest container plus 10% and be located at least 10m away from drains, ditches, excavations and other locations where it may cause pollution. Bunds should be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination.
- All bowsers to carry a spill kit and operatives must have spill response training; and portable generators or similar fuel containing equipment will be placed on suitable drip trays and/or absorbent fuel 'nappies'. In the case of drummed fuel or other potentially polluting substances (i.e. cement) which may be used during construction the following measures will be adopted:
- The use of a dedicated concrete truck washout areas and secure storage areas for the storage of concrete materials. All containers that contain potential polluting substances to be stored in dedicated internally bunded chemical storage cabinet units or inside concrete bunded areas. Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.
- All new infrastructure is to be installed and constructed to the relevant codes of practice and guidelines.
- Potable water supply networks and waste water infrastructure are to be pressure tested by an approved method during the construction phase and prior to connection to the public networks, all in accordance with the requirements of Uisce Eireann.
- Connections to the service providers are to be carried out to the approval and / or under the supervision of the Local Authority or relevant utility service provider, prior to commissioning.
- All new sewers are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase.
- All construction works will be completed in line with the recommendations of
  - the Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site 4th Ed (C741 - 2015) & Control of Water Pollution from Construction Site (C532 - 2001).
  - The SuDs Manual (C752) Construction Industry Research and Information Association (CIRIA), 2015.
  - UK Environmental Agency Guidance Series for Pollution Prevention (GPP), including GPP5: Works and maintenance in or near water (NRW, NIEA, SEPA), January 2017 and GPP22: Dealing with Spills, (NRW, NIEA, SEPA), October 2018
- Best practice environmental guidance will be incorporated into the projects Construction Environmental Management Plan (CEMP) for the development.

10.9.3 Operational Phase Mitigation

Mitigation measures proposed during the operation phase include

- routine maintenance of the site services;
- regular maintenance of the development's road and retaining wall infrastructure,
- regular maintenance of landscaped areas, bio-retention, percolation and attenuation areas

10.10 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented.

10.10.1 Construction Phases

Once the proposed mitigation measures are fully implemented on the site during the initial site clearance and preparatory earthwork then the risk of any significant negative effects occurring to the water attributes will be greatly reduced or eliminated and are considered neutral Negligible effects.

Once the proposed mitigation measures are fully implemented on the site during the construction period then the risk of any significant negative effects occurring to the water attributes will be greatly reduced or eliminated and are considered neutral Negligible effects.

10.10.2 Operational Phase

Once the proposed mitigation measures are fully implemented for the operational phase of the site then the risk of any significant negative effects occurring to the water attributes will be Negligible.

10.10.3 Summary of Post-mit igation Effects

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 10 6 Summary of Construction Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Sediment Runoff	Negative	Imperceptible	Local	Low	Brief	Negligible
Fuel Spills	Negative	Imperceptible	Local	Very Low	Brief	Negligible
Chemical (cement) losses	Negative	Imperceptible	Local	Very Low	Brief	Negligible

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation

Table 10 7 Summary of Operational Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Increased Runoff from site	Neutral	Imperceptible	Local	Very Low	Brief	Negligible
Wastewater pipe leaks to ground	Negative	Imperceptible	Local	Very Low	Brief	Negligible
Soiled Surface Water Runoff	Negative	Imperceptible	Local	Very Low	Brief	Negligible

10.11 Risk of Major Accidents or Disasters

The risk of Major Accident or Disasters arising from the water attributes are very unlikely as the scale of the construction works is manageable and is normal for a large scale residential development. While there are some local surface water and groundwater receptors proper planning site management will ensure the likelihood of a major accident or disaster occurring would be extremely unlikely.

10.12 Worst Case Scenario

In terms of Water attributes the 'Worst Case Scenario' Environmental Effect would probably relate to the accidental loss of fuel from active machinery in the development or the spillage of hydrocarbons during the re-fueling of construction machinery.

This could impact on the surface or groundwater quality which could, if left unmanaged, could have a significant negative effect on the water quality of the aquifer under the site and may result in local surface waters becoming contaminated. In either case the potential volume of fuel loss would be relatively small, in the 10's rather than 100's of litres, and the duration of the effect would be brief, temporary to short term.

10.13 Interactions

The main interaction of the water attribute is with Chapter 9 Land & Soils (Geology) due to the cut & fill earth work activities that could produce sediment runoff.

Interactions with the groundwater attribute is not anticipated. The SuDS mitigations will provide an opportunity to improve the habitat and potential biodiversity of the locality.

10.14 Monitoring

Runoff from works, stockpile and compound areas will be observed during the construction phase to ensure that it is not impacting on the local watercourse. Both hydrocarbons and silt cause discolouration so are easy to visually monitor for their presence.

If necessary water sampling and monitoring of the Glashaboy River can be completed to test for Total Suspended Solids (TSS) and Hydrocarbon concentrations for the construction phase. No operational monitoring is required`.

10.15 Summary of Mitigation and Monitoring

With the importance of the Surface Water attribute's being 'Extremely High' and the Groundwater attribute being 'Medium' and the potential Magnitude of Impact as 'Negligible' then the potential for significant effects arising from the Dunkettle development are rated as 'Imperceptible'.

The potential residual impacts are those that will occur after the proposed mitigation measures have taken effect. The mitigation measures described will further reduce the potential for any significant brief to temporary or short-term environmental impacts occurring during the development works.

No specific monitoring is proposed. In general, monitoring will be undertaken by the Building Regulations certification process and by the requirements of specific conditions of a planning permission.

Monitoring of compliance with Health & Safety requirements will be undertaken by the Project Supervisor for the Construction Process (PSCP).

Also, with proper maintenance of the water drainage infrastructure, no significant residual operational phase impacts area anticipated.

A Summary of the Construction Phase Mitigation and Monitoring is presented in Table 10.8.

Table 10 8 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Sediment Runoff from work areas	Silt fencing, bunding, drainage control, limit work in very wet weather and maintain buffers	Daily visual checking and if necessary sampling of local watercourse or drains
Fuel losses or leaks to ground	Dedicated fuel areas, spill kits and staff training, pads under plant.	Visual inspection of re-fuelling areas, check leak pads & spill kits.
Chemical (cement) spills or runoff	Proper storage of cement and any other toxic chemicals	Visual inspection of laydown areas, bunds and storage containers.

The following Table summarises the Operational Phase mitigation and monitoring measures.

Table 10 9 Summary of Operational Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Drainage infrastructure blocking/ leaking	Ongoing maintenance of swales, drains, interceptors and piping	Maintenance schedule for monitoring drainage infrastructure.

10.16 Conclusion

No significant residual impacts are predicted for the Surface Water (Hydrology) and Groundwater (Hydrogeology) aspects of the proposed development. The consideration of cumulative projects does not change the residual impact rating.

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CHAPTER ELEVEN

BIODIVERSITY



McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

CHAPTER 11

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CHAPTER 11 | BIODIVERSITY

11 Biodiversity

11.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects of the proposed development on the ecology of the surrounding area and within the potential zone of influence (ZOI).

This Chapter should be read in conjunction with:

- Chapter 2 (Project Description)
- Chapter 6 (Material Assets- Traffic & Transport)
- Chapter 9 (Land & Soils)
- Chapter 10 (Water & Hydrology)
- Chapter 12 (Noise & Vibration)
- Chapter 13 (Air Quality)

The programme of work in relation to biodiversity aspects of the EIAR has been designed to identify and describe the existing ecology of the proposed development site and outline the habitats or species of conservation interest that may be present on site. It also assesses the significance of the likely impacts of the scheme on the biodiversity elements including designated conservation sites and designs mitigation measures to alleviate identified impacts. Mitigation measures and the phasing of the project are contained in the accompanying Outline Construction Environmental Management Plan (CEMP), which has been prepared by AWN.

Standard construction and operational phase control measures, in addition to monitoring measures, will be carried out to minimise potential impacts and to improve the biodiversity potential of the proposed development site.

11.2 Expertise & Qualifications

This chapter has been prepared by Bryan Deegan (MCIEEM) of Altemar Ltd. Bryan is an environmental scientist and marine biologist with 30 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. Bryan Deegan a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture).

The 2025 surveys for this site were undertaken by Emma Peters and Jeff Boyle of Altemar Ltd.

Emma Peters (BSc Environmental Science)

Emma Peters (BSc) of Altemar Ltd. Emma has carried out a range of wintering and breeding ornithological surveys in Ireland. Emma has experience in bat detection through static detector surveys, dusk emergence, and dawn re-entry surveys and is a member of Bat Conservation Ireland. She is also skilled in habitat identification, native and non-native species identification and terrestrial mammal surveys.

Jeff Boyle (BSc Environmental Management)

Jeff is skilled in bat detection through static detector surveys, dusk emergence, and dawn re-entry surveys. He is also experienced in habitat assessment and has undertaken flora/invasive species surveys and breeding/wintering bird surveys to produce numerous ecological assessments on a range of residential, industrial, and commercial projects.

11.3 Proposed Development

The proposed Large Scale Residential Development (LRD) includes the construction of 413 no. residential units, a creche, and all associated site development works at Kilnahue, Gorey, Co. Wexford. A full description is in Chapter 2 of the EIAR and in the statutory notices.

11.4 Methodology

11.4.1 Relevant Legislation & Guidance

This chapter has been prepared having regard to the following guidelines;

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Guidelines for Ecological Impact Assessment in the UK and Ireland, (Chartered Institute of Ecology and Environmental Management) (CIEEM, 2018),
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guide to Habitats in Ireland (Fossitt, 2000).
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)
- Guidelines for Assessment of Ecological Impacts of National Roads Schemes: Revision 2 (National Roads Authority, 2009).
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016).
- Bat Mitigation Guidelines for Ireland (Marnell, Kelleher & Mullen, 2022).
- Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2011).

11.4.2 Desk Study

A pre-survey biodiversity data search was carried out in March 2025. This included examining records and data from the National Parks and Wildlife Service (NPWS), National Biological Data Centre (NBDC) and the Environmental Protection Agency (EPA), in addition to aerial, 6-inch maps and satellite imagery.

Desk studies were carried out to obtain relevant existing biodiversity information within the Zone of Influence (ZOI). As outlined in Office of the Planning Regulator (2021) *"The zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a European site. This should be established on a case-by-case basis using the Source- Pathway-Receptor framework and not by arbitrary distances (such as 15 km)."* The main proposed

development site area is a greenfield site located on the western outskirts of Gorey Town. After consultation with AKM Design Group, surface water drainage from the site will discharge to the nearby Ballyowen Stream, located approximately 140m north-east of the main development site area, via a gravity stormwater sewer along Kilnahue Lane. This stream discharges to the Banoge River, a tributary of the Owenavorragh River, prior to its outfall to the marine environment at Owenavorragh Estuary. As outlined in Chapter 10: Water, '*The WFD Third Cycle Assessment Data, as reported in the EPA Cycle 3 HA11 Owenavorragh Catchment Report, (EPA May 2024 see Appendix 10.1) indicates that the quality designation for Banoge_010 is 'Moderate' and that the Surface Waterbody Quality Risk Projection is 'At Risk', due to agricultural activities resulting in significant nutrient and organic issues and has significant pressures from agricultural activities and urban runoff.*

The other two river sub catchments that form the Banoge River are rated as 'Poor' quality and 'At Risk' for similar water quality issues and pressures, but including Urban Waste Water pressures.

The lower section of the Owenavorragh River (Owenavorragh_060) is given a 'Moderate' quality status which is 'At Risk' due to organic and nutrient issues and ongoing significant agricultural pressures.'

Details of the proposed development are seen in Chapter 2 of this EIAR. The proposed project construction methodology, layout, drainage strategy, Construction Management Plan, Site Investigations, design and landscape design were reviewed to inform this assessment. Further, the other chapters within the EIAR were assessed.

11.4.3 Site Surveys

Habitat, flora, bat, mammal, breeding bird and wintering bird surveys were undertaken within the appropriate seasonal timeframes and in compliance with relevant guidelines. Field surveys were carried out as outlined in Table 11.1. All appropriate surveys were carried out in the appropriate seasons (Smith et al., 2011).

Table 11-1 Survey Details

Survey Type	Surveyors	Survey Dates
Field Survey (habitat, flora)	Emma Peters (Altemar)	14th May 2025
Field Survey (habitat, flora)	Padraic Fogarty (Openfield Ecological Services)	5th April 2017, 23rd September 2020, 22nd January 2021, 28th June 2021
Mammal Survey	Emma Peters (Altemar)	13th March 2025
Bat Survey	Emma Peters & Jeff Boyle (Altemar)	29th April 2025 & 14th May 2025
Bat Survey	Brian Keeley (Wildlife Surveys Ireland)	31st July & 1st August 2018, 27th & 28th September 2020
Static Surveillance Bat Survey	Emma Peters (Altemar)	14th May – 18th June 2025
Static Surveillance Bat Survey	Brian Keeley (Wildlife Surveys Ireland)	27th - 28th September 2020
Breeding Bird Surveys	Emma Peters	29th April, 7th May & 21st May 2025
Breeding Bird Surveys	Padraic Fogarty (Openfield Ecological Services)	April & June 2021
Wintering Bird Surveys (x1)	Emma Peters (Altemar)	13th March 2025

11.5 Difficulties Encountered

No difficulties were encountered in compiling this chapter. All ecological surveys were carried out within optimal survey seasons.

11.6 Baseline Environment

The main site is located to the west of Gorey Town and primarily consists of agricultural grassland and hedgerows with numerous large trees both internally and around the perimeter. Additionally, a number of old stone buildings are located to the north east of the site.

11.6.1 ZONE OF INFLUENCE

As outlined in CIEEM (2018*) 'The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries.'* In line with best practice guidance an initial zone of influence was originally set at a radius of 2km for non-linear projects (IEA, 1995).

Zone of Influence (ZoI) is the 'effect area' over which changes could give rise to potentially significant impacts. In order to define the extent of the study area for ecological assessment, all elements of the project were assessed and reviewed in order to identify the spatial scale at which ecological features could be impacted. The project would involve excavations and construction, which may impact beyond the site through noise, dust, light and downstream impacts. Standard construction phase controls will need to be implemented to limit the potential impact of the proposed development into the surrounding environment including measures to prevent downstream impacts on the Ballyowen Stream and Banogue River. The potential ZOI of the construction phase of the project was deemed to be the site within the site outline, nearby sensitive receptors including the Ballyowen Stream, located adjacent to the site, with potential for downstream impacts. However, the ZOI of the operation of the proposed development would be the immediate area of the proposed development site.

11.6.2 Designated Sites

As can be seen from Figures 11.1 & 11.5., the nearest Natura 2000 site is 1.2km away (Slaney River Valley SAC). There is no hydrological pathway from the proposed development site to this SAC.

Surface water drainage from the proposed development will discharge to a proposed surface water network on Kilnahue Lane prior to outfalling to the nearby Ballyowen Stream. This stream discharges to the Banoge River, a tributary of the Owenavorragh River, prior to its outfall to the marine environment at Owenavorragh Estuary. There is, therefore, a weak indirect hydrological pathway to Courtown Dunes and Glen proposed Natural Heritage Area (pNHA) and European sites located within the marine environment along the Wexford Coast (namely, Cahore Polders and Dunes SAC, Kilpatrick Sandhills SAC & Cahore Marshes SPA) via surface water drainage. However given the minimum distance (4.1 km) to these designated sites and the flocculation and estuarine circulation patterns that occur within Owenavorragh Estuary, any pollutants, silt laden run off or dust that may enter the surface water network will be dispersed or diluted to negligible levels prior to reaching any designated conservaiton sites.

Measures are outlined to comply with Water Pollution Acts. These are standard construction measures and are not deemed necessary for the protection of Natura 2000 sites. In the absence of these measures silt would settle within the Ballyowen Stream, River Banogue, and Owenavorragh watercourse network and, in the event of a pollution incident, dilution, flocculation and mixing would occur within the river catchment and estuarine element of the Owenavorragh River prior to reaching any Natura 2000 sites.

There is no direct or indirect pathway from the proposed development site to any Natural Heritage Area (NHA) or Ramsar Site (see Figures 11.3 & 11.4).

The distance and details of the Natura 2000 sites (SAC & SPA) within 15km are set out in Table 11.2 and pNHAs within 15km of the proposed development are seen in Table. 11.3.

Table 11-2 Proximity to designated sites of conservation importance

Natura 2000 Site	Code	Distance	Direct Hydrological / Biodiversity Connection
Special Areas of Conservation			
Slaney River Valley SAC	IE000781	1.2 km	No
Kilpatrick Sandhills SAC	IE001742	10.2 km	No
Cahore Polders and Dunes SAC	IE000700	14.7 km	No
Special Protection Areas			
Cahore Marshes SPA	IE004134	14.0 km	No

Table 11-3 Proximity to pNHAs

Designation	Site	Distance
pNHAs		
Proposed NHA	Leskinfere Church, Clogh	3.1 km
Proposed NHA	Courtown Dunes and Glen	4.1 km
Proposed NHA	Ballymoney Strand	5.2 km
Proposed NHA	Ardamine Wood	7.0 km
Proposed NHA	Kilgorman River Marsh	8.3 km
Proposed NHA	Donaghmore Sandhills	10.0 km
Proposed NHA	Kilpatrick Sandhills	10.1 km
Proposed NHA	Cahore Point North Sandhills	12.3 km
Proposed NHA	Arklow Rock-Askintinny	13.3 km
Proposed NHA	Cahore Polders and Dunes	14.5 km

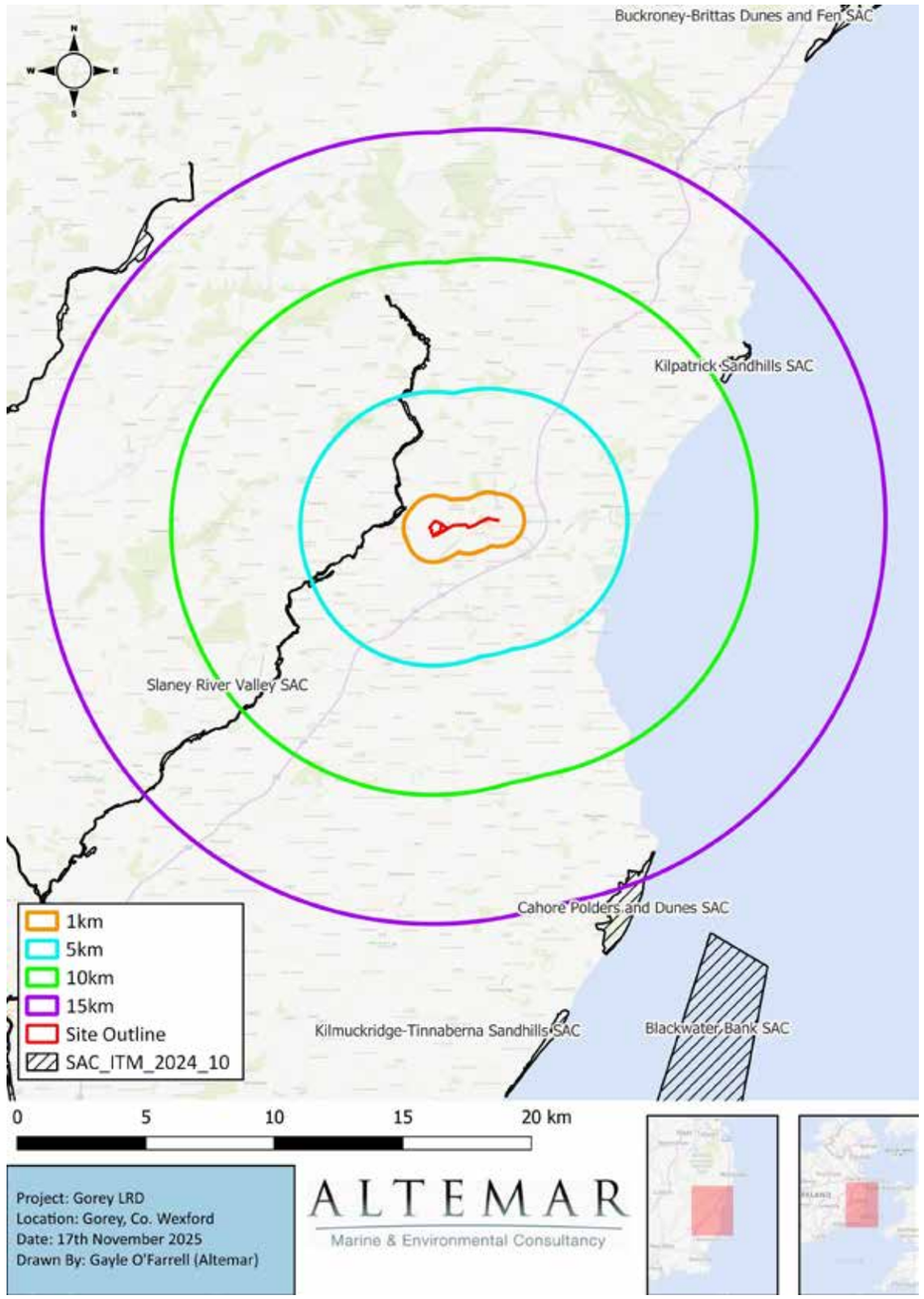

Figure 11.1 Special Areas of Conservation (SAC) within 15km of subject site

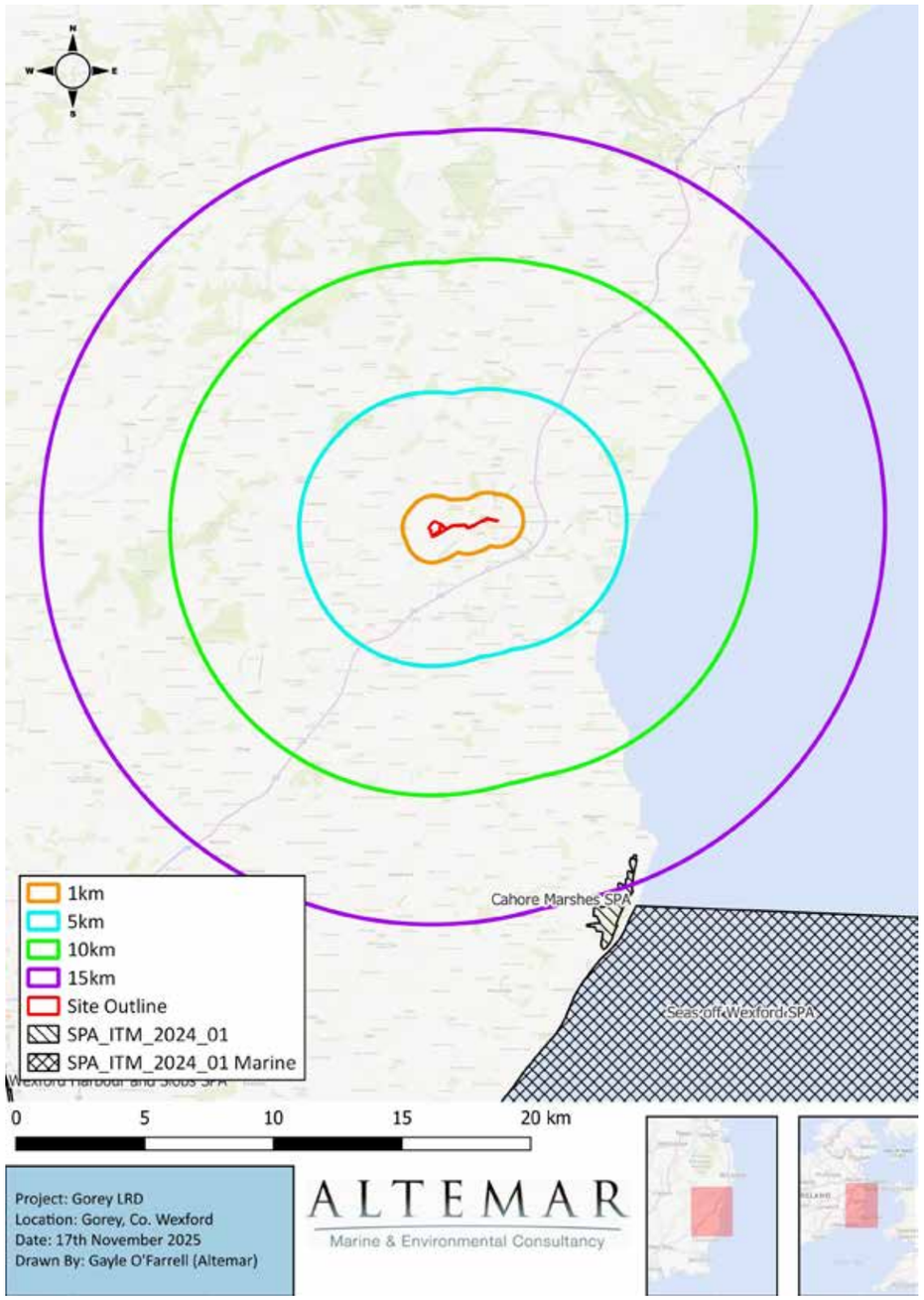

Figure 11.2 Special Protection Areas (SPAs) within 15km of subject site

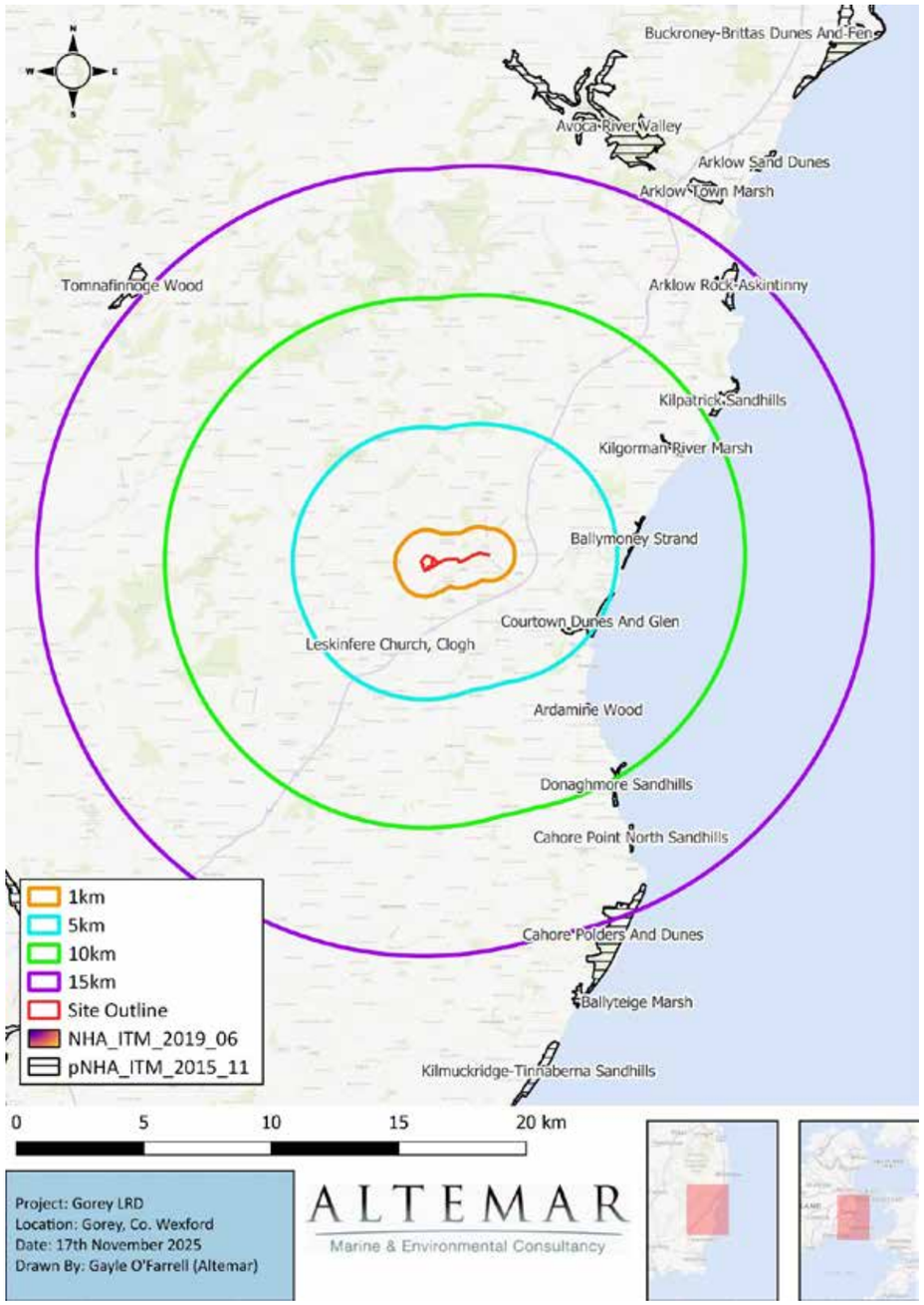

Figure 11.3 Natural Heritage Areas (NHAs) (none) and Proposed Natural Heritage Areas (pNHAs) within 15km of subject site

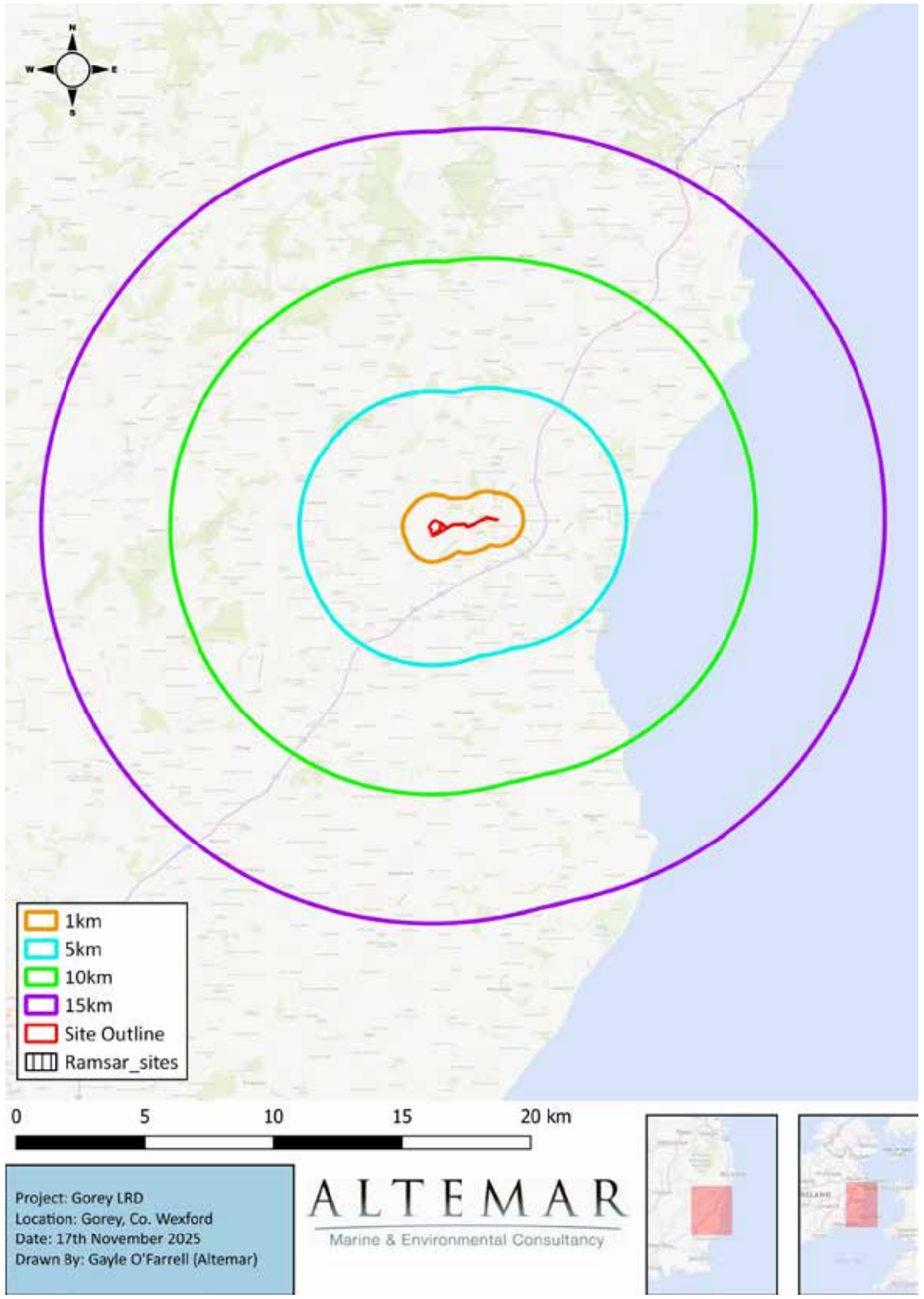

Figure 11.4 Ramsar sites within 15km of subject site (none)

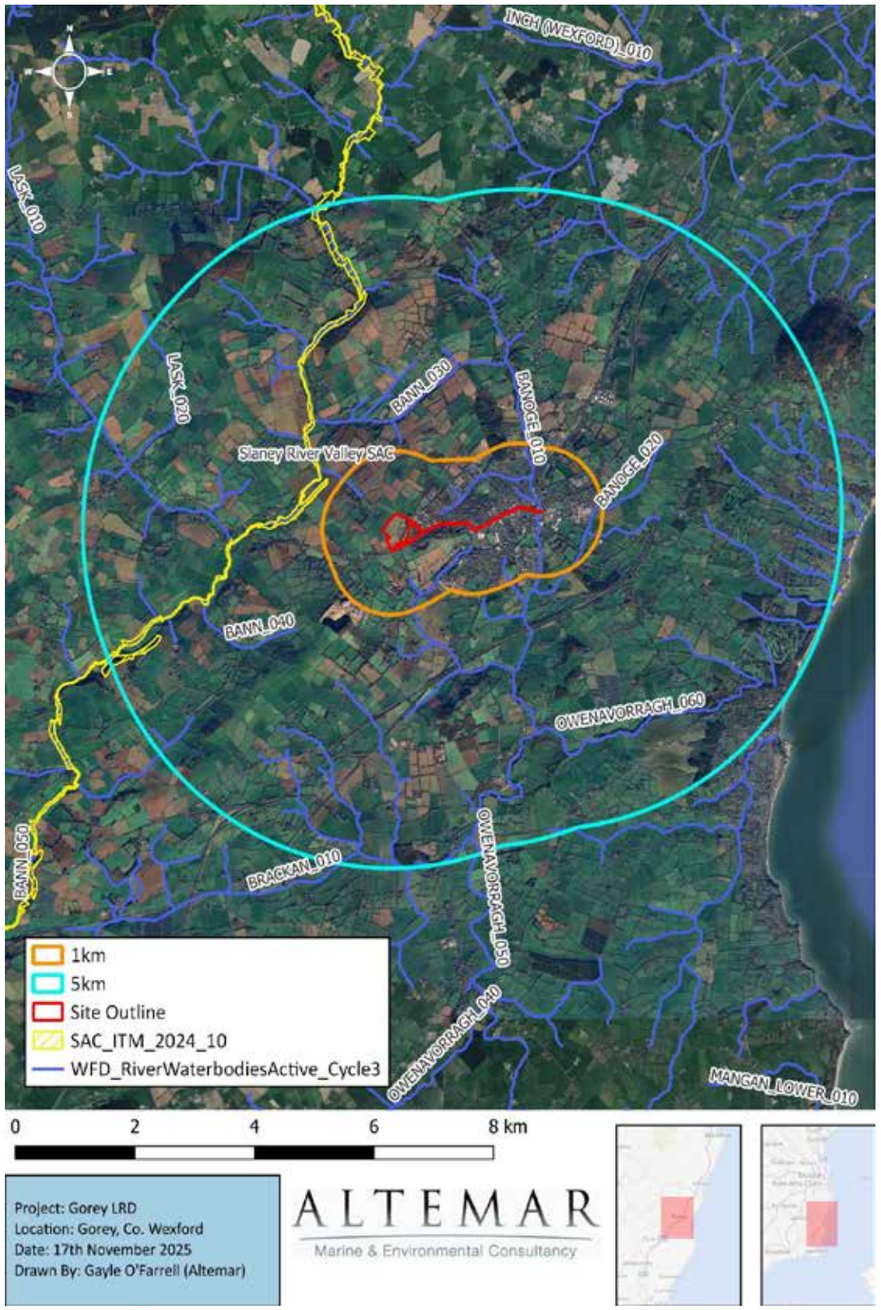

Figure 11.5 Waterbodies and SACs proximate to subject site

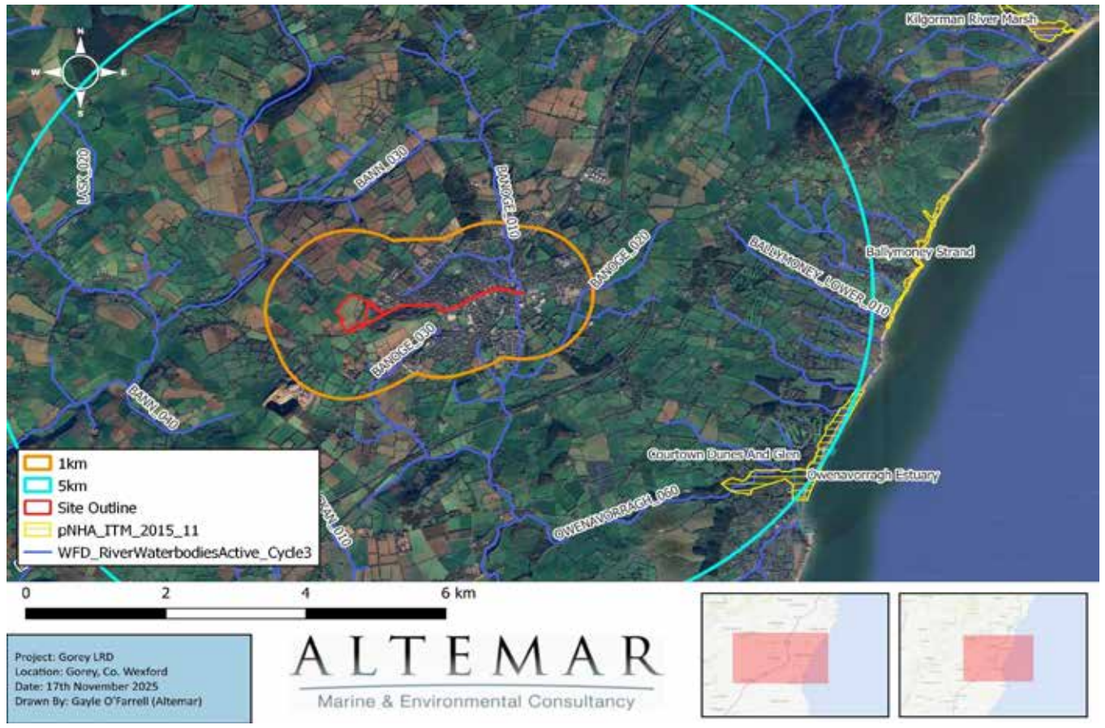

Figure 11.6 Waterbodies and pNHAs proximate to subject site

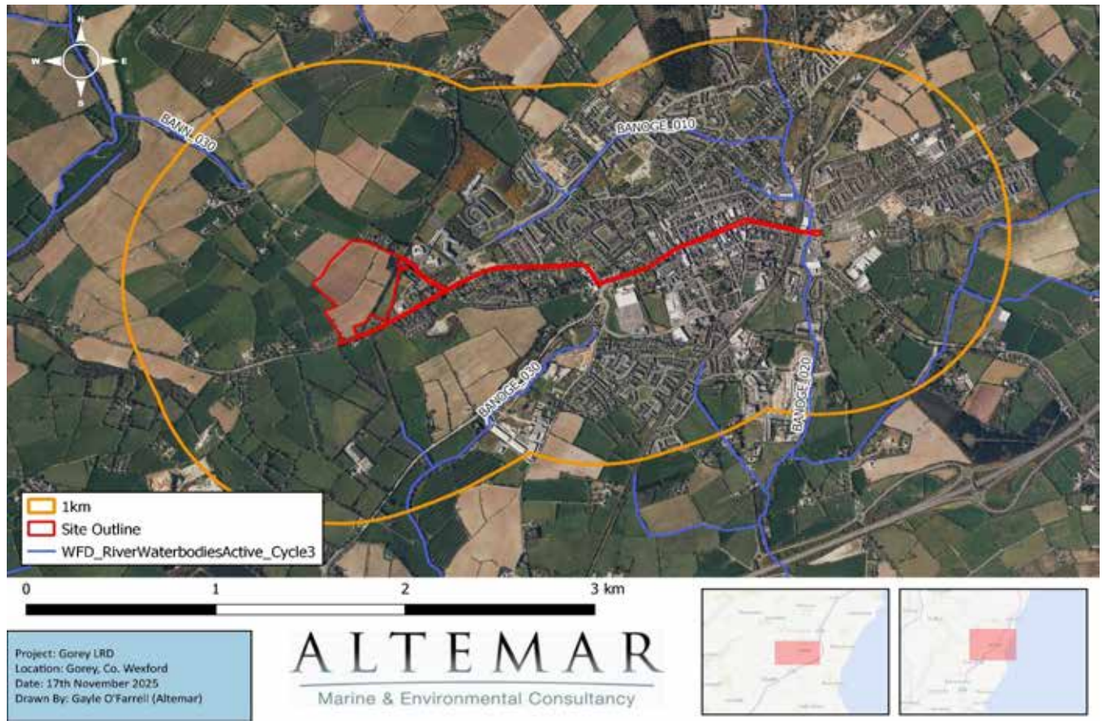

Figure 11.7 Waterbodies within 1km of the proposed development

11.6.3 Species Data

The National Biodiversity Data Centre's online viewer was consulted to determine the extent of biodiversity and / or species of interest in the area. A desk-based assessment was carried out and it recorded no species of interest within the site area. Following this, a 2km^2 grid was assessed (T15J) Table. 11-4 provides a list of all species of interest recorded in the 2km^2 grid area.

Table. 11-4 Species of interest recorded in the 2km^2 grid area.

Species name	Date of last record	Title of dataset	Designation
Goldcrest *(Regulus regulus)*	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Greenfinch *(Chloris chloris)*	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
House Sparrow *(Passer domesticus)*	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Linnet *(Linaria cannabina)*	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Mistle Thrush *(Turdus viscivorus)*	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts
Pheasant *(Phasianus colchicus)*	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Robin *(Erithacus rubecula)*	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts
Rock Dove *(Columba livia)*	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species
Skylark *(Alauda arvensis)*	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Spotted Flycatcher *(Muscicapa striata)*	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Swallow *(Hirundo rustica)*	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Willow Warbler *(Phylloscopus trochilus)*	31/07/1991	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Sycamore *(Acer pseudoplatanus)*	11/09/2003	Species Data from the National Vegetation Database	Invasive Species: Medium Risk Invasive Species (2013 Report)
Hedgehog *(Erinaceus europaeus)*	21/07/2019	Hedgehogs of Ireland	Protected Species: Wildlife Acts

11.7 Habitats and Species

Habitat surveys were carried out on the 5th April 2017, 23rd September 2020, 22nd January 2021, 28th June 2021 (OPENFIELD) and 14th May 2025 (Altemar). Habitats were classified according to Fossitt, 2000 based on the 14th May 2025 site visit.

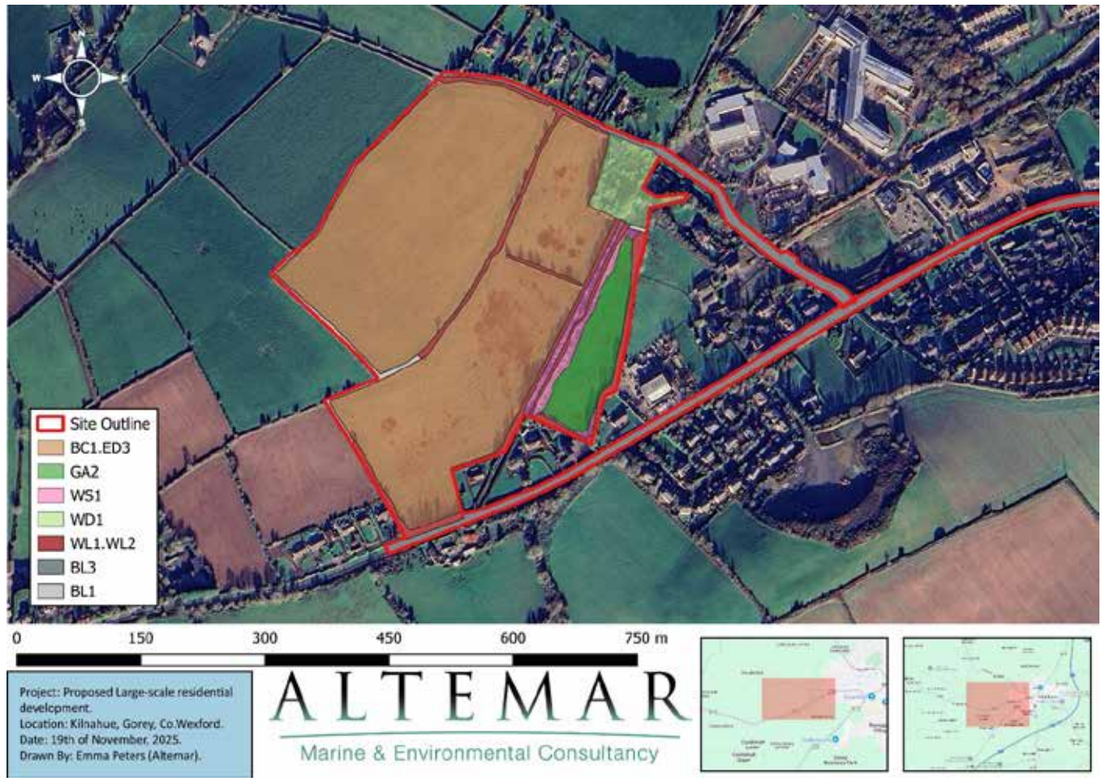

Figure 11.8 Habitat map according to Fossitt (2000)

WL1/WL2- Hedgerow/Treeline

Hedgerows and treelines were a prominent feature on the subject site located along field boundaries. The linear features included multiple mature and semi-mature tree species of hawthorn (*Crataegus monogyna*), ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*), Atlantic ivy (*Hedera hibernica*), gorse (*Ulex europaus*), brambles (*Rubus fruticosus agg*), sessile oak (*Quercus petraea*), rowan (*Sorbus aucuparia*), holly (*Ilex aquifolium*) and blackthorn (*Prunus spinosa*). The following species formed the understory and ground cover of the hedgerow ; hawthorn (*Crataegus monogyna*), hogweed (*Heracleum sphondylium*), ivy (*Hedera helix*), foxglove (*Digitalis purpurea*), hedge bindweed (*Calystegia sepium),* bluebell (*Hyacinthoides non-scripta*), bracken (*Pteridium aquilinum*), creeping buttercup (*Ranunculus repens*), water dock (*Rumex hydrolapathum*), Great Mullein (*Verbascum Thapsus*), primrose (*Primula vulgaris*), common vetch (*Vicia sativa*) and cleavers (*Galium aparine*).



Plate 1 Treeline habitat.



Plate 2 Hedgerow habitat.



Plate 3 Arable crops/ Recolonising bare ground

BC1/ED3 – Arable crops/ recolonising bare ground

A large amount of the land on site was previously used for tillage. However, at the time of the May 2025 site visit, it was unmanaged and thereby allowed an array of wildflowers and broad-leaf vegetation to colonise. The species noted within this habitat included thistles (*Cirsium spp.*), ribwort plantain (*Plantago lanceolata*), greater plantain (*Plantago major*), common dog-violet (*Viola riviniana*), primrose (*Primula vulgaris*), Great Mullein (*Verbascum Thapsus*), field speedwell (*Veronica persica*), dandelions (*Taraxacum officinale* agg.), foxglove (*Digitalis purpurea*), common ragwort (*Jacobaea vulgaris*), hoary willowherb (*Epilobium parviflorum*), wavey bittercress (*Cardamine flexuosa*), white clover (*Trifolium repens*), red clover (*Trifolium pratense*), Canadian fleabane (*Erigeron canadensis*), pineappleweed (*Matricaria discoidea*), common chamomile (*Chamaemelum nobile*), field forget-me-not (*Myosotis arvensis*), creeping forget-me-not (*Myosotis secunda*), common knapweed (*Centaurea nigra*), creeping buttercup (*Ranunculus repens*), common mouse-ear (*Cerastium fontanum*), common figwort (*Scrophularia nodosa*), common centaury (*Centaurium erythraea*), germander speedwell (*Veronica chamaedrys*) and field speedwell (*Veronica persica*).

GA1- Agricultural grassland

This small field to the east of the site has been left un-tilled allowing grasses species to colonise. Other species noted within this habitat included ribwort plantain (*Plantago lanceolata*), greater plantain (*Plantago major*), daisy (*Bellis perennis*), meadow buttercup (*Ranunculus acris*), creeping buttercup (*Ranunculus repens*), dock s (*Rumex spp.*), red clover (*Trifolium pratense*) and yellow rattle (*Rhinanthus minor*).



Plate 4 Agricultural grassland.

WD1 - (Mixed) Broadleaf woodland

A woodland was located in the northwest of the site. The species within this habitat included ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*), Sweet Chestnut (*Castanea sativa*), Elm (*Ulmus glabra*) with an understory of gorse (*Ulex europaus*), blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*), elder (*Sambucus nigra*), brambles (*Rubus fruticosus agg*). The invasive cherry laurel (*Laurocerasus officinalis*) and *Rhododendron sp.* took up a notable portion of the woodland. The ground flora was bare where cherry laurel and rhododendron grew. The ground flora in other areas of the woodland included greater periwinkle (*Vinca major*), water dock (*Rumex hydrolapathum*), nettle (*Urtica dioica*), both native bluebell (*Hyacinthoides non-scripta*) and invasive Spanish bluebell (*Hyacinthoides hispanica*), hogweed (*Heracleum sphondylium),* soft shield-fern (*Polystichum setiferum*), male fern (*Dryopteris filix-mas*), ivy (*Hedera helix*), lesser celandine (*Ficaria verna (Ranunculus ficaria),* honeysuckle (*Lonicera periclymenum*), Dames rocket *(Hesperis matronalis)* and ground elder (*Aegopodium podagraria*). An active fox (*Vulpes vulpes*) den was recorded in the south of the woodland. Camera trap footage revealed fox cubs using the den.



Plate 5 Woodland habitat.

WS1- Scrub

A lane on the east of the site was lined by two early mature treelines and contained thickets of brambles (*Rubus fruticosus agg*) scrub. Very little species diversity was recorded in this area, owing to the density of the scrub. However, mammal trails and rabbit warrens were noted in this area.



Plate 6 Scrub thicket.

BL3 – Built land

There are a series of old, single story farm buildings onsite. Buildings are mainly comprised of stone and galvanised sheds. Trees had been noted growing within and on the buildings. Most of the buildings were overgrown with ivy (*Hedera helix*). Some ferns including soft shield-fern (*Polystichum setiferum*) and male fern (*Dryopteris filix-mas*) were noted within the buildings.

BL1 – Old stone walls

There are old stone walls marking boundaries within the site.

BL2 – Earthen bank

0.5m high earthen banks were noted on the west boundary and upper north boundaries of the site. These linear habitats hosted many rabbit warrens and a disused fox den.

Discussion of habitats

The subject site is located in the suburbs of the urban environment of Gorey town. The site is comprised largely of open fields with treeline, hedgerow and earthen bank boundaries. To the east of the site is a small area of mixed woodland which contained a series of old stone buildings. A lane extended along the eastern boundary, characterized by dense thickets of brambles (*Rubus fruticosus agg*).

Plant species

The plant species encountered at the various locations on site are detailed above. No rare or plant species of conservation value were noted during the field assessment. Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened plant species were recorded within the proposed development site.

Invasive species

A number of invasive species were noted onsite. Two first schedule species Rhododendron (*Rhododendron ponticum*) and Spanish bluebell (*Hyacinthoides hispanica*) were recorded within the woodland habitat onsite. Another invasive species noted included cherry laurel (*Laurocerasus officinalis*) which is not a first schedule invasive but has a substantial negative effect on Irish woodland habitats. Species listed in the First Schedule, along with other invasive species, need to be handled with care. Cutting and removal should be done in a controlled manner to avoid spreading them further.

Mammals

A mammal survey was carried out on the 13th of March 2025. Weather conditions were favourable, and all areas of the site were accessible. Rabbit (*Oryctolagus cuniculus*) warrens were noted throughout the site boundaries, with the highest concentrations located on the western boundaries of the site. Three Fox (*Vulpes vulpes*) dens were recorded on site. A disused den on the south-west boundary, a disused den on the west side of the bramble thicket lane way, and an active den in the southern portion of the woodland. A motion-activated mammal trap camera was deployed on the 13th of March 2025 and revealed a fox cub entering and leaving the den. Multiple sightings of an adult fox were recorded onsite, particularly in the woodland and the small agricultural field to the most east of the site. No Badger (*Meles meles*) setts were noted onsite; however, snuffle holes were noted in the scrub and woodland habitats onsite. There are suitable habitats onsite for Badgers and a pre-construction mammal survey must be conducted before commencement of any works onsite. It is likely that small mammals such as West European Hedgehog (*Erinaceus europaeus*), pygmy shrew (*Sorex minutus*), wood mouse (*Apodemus sylvaticus*) and Hare (*Lepus timidus hibernicus*) use the site as the bramble scrub and hedgerow habitats provide suitable food and shelter.

Previous mammal surveys

A Badger Survey Report prepared by Brian Keeley of Wildlife Services Ireland in relation to a badger survey carried out on the 3rd March 2021 outlined, '*There are no badger setts within the site. Most mammal evidence was of rabbit warrens. There was also widespread evidence of fox activity (paw prints, scats, scent). Rat prints were also noted. In all, there were only two clear badger law prints within the site. One of these was leading from the track (possible right of way) to the remnants of a good hedgerow in the central field and north of here on the same field edge leading towards a farm gate onto the northern road.*

There were no signs of badger digging and no badger latrines within the site. The badger paw prints were very recent and undisturbed. Given that local dogs were seen within the field, it is probable that the prints were less than two to three days old, or they would have been partially obscured by dog paw prints or rain.'

Bats

Bat surveys, including an assessment of buildings on site, were carried out by Altemar on the 29th of April and the 14th of May 2025. One soprano pipistrelle roost was recorded in a mature oak tree located in the north of the woodland. Minor foraging of common bat species was recorded along onsite woodland and treeline/scrub habitats. A static bat detector was deployed from the 14th of May to the 18th of June 2025. Six of the nine known Irish species were recorded: Daubenton's Bat (*Myotis daubentonii*), Whiskered Bat (*Myotis mystacinus*), Lesser Noctule (*Nyctalus leisleri*), Nathusius' pipistrelle (*Pipistrellus nathusii*), Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Common Pipistrelle (*Pipistrellus pipistrellus sensu lato*).

Previous bat surveys

Previous bat surveys on site found similar results to the Altemar 2025 surveys. Dusk, dawn and walking transect bat surveys were carried out by Brian Keeley (Wildlife Surveys Ireland) on the 31st July & 1st August 2018, 27th & 28th September 2020. The survey involved four bat activity surveys and a winter visual inspection of the site for bat evidence.

A static detector survey was also carried out on the 27th-28th September 2020. As outlined in the bat assessment report (Appendix 11.1), '*No bats were noted to roost within the site during this assessment either in 2018 or in 2020 or in 2022 and no bats or bat signs were noted in March 2021 in any of the buildings examined. There are no known bat roosts within the site. There is roost potential provided by buildings and trees but no clear evidence that these are occupied by bats. There is an indication that a brown long-eared bat may roost in the ruins, but no bat was seen in the building or emerging from or returning to the building. This is despite several examinations of the building for bats, bat droppings or other evidence in 2018, 2020, 2021 and 2022.*

There are also highly suitable buildings neighbouring the site including stables and residences. There were bats noted to fly towards a neighbouring house prior to sunrise in 2020 but this house will not be affected by the proposal. Species of bat present within and around the site Soprano pipistrelle Pipistrellus pygmaeus Common pipistrelle Pipistrellus pipistrellus Leisler's bat Nyctalus leisleri Brown long-eared bat Plecotus auritus Myotis bat Myotis sp. Potentially whiskered bat (in September 2020 only and a single Myotis signal on 30th March 2022) The most commonly encountered species in and around the site was common pipistrelle. This species was present in all survey periods and throughout the more sheltered areas of the site (i.e., the western and southwestern areas are very exposed and less suited to foraging behaviour. There is poor to nil hedgerow cover in this section.).'

Amphibians and reptiles

There were no common frog (*Rana temporaria*) or viviparous lizard (*Zootoca vivipara*) noted during the surveys, however, due to the wet nature of the field to the east of the site, it is possible there are long standing seasonal ponds and wet areas onsite that Frogs could utilise.

Breeding Birds

Three breeding bird surveys were carried out by Altemar on the 29th of April, the 7th and the 21st of May 2025. As outlined in Appendix 11.2*, 'A total of 32 species were recorded within the overall survey area across three surveys. 15 species were recorded breeding or displaying behaviour indicative of breeding within the survey area. Eleven green-listed bird species of conservation concern were recorded breeding within the survey area; Blackbird, Blackcap, Chiffchaff, Dunnock, Goldfinch, Jackdaw, Magpie, Rook, Song thrush, Stonechat and Wren. Five amber-listed bird species of conservation concern were recorded breeding within the survey area: Goldcrest, Greenfinch, House sparrow, linnet and starling. One red-listed bird species of conservation concern was recorded breeding within the survey area; yellowhammer.'*

Wintering Birds

A single wintering bird survey was carried out on the 13th of March 2025. The survey carried out over a 3-hour period. Local temperature was 7°C and winds varied from 1 -2 on the Beaufort scale. Weather conditions and visibility was suitable and all areas of the site were accessible. During the survey fourteen species were noted, two of which are red-listed species BoCCI (Birds of conservation concern, Ireland): Redwing (*Turdus iliacus*) and Yellowhammer (*Emberiza citrinella*). A single individual redwing was noted towards the south of the laneway within the site. Two yellowhammers were noted in the hedgerow in the northwest corner of the site. Amber- listed Linnets (*Linaria cannabina*) were recorded foraging in the westernmost field and west central hedgerow. Three buzzards (*Buteo buteo*) were noted in large flight (60-80m) over the whole site, particularly in the westernmost field. No bird species protected as a Special Conservation Interest of any proximate SPA was recorded utilising the site.

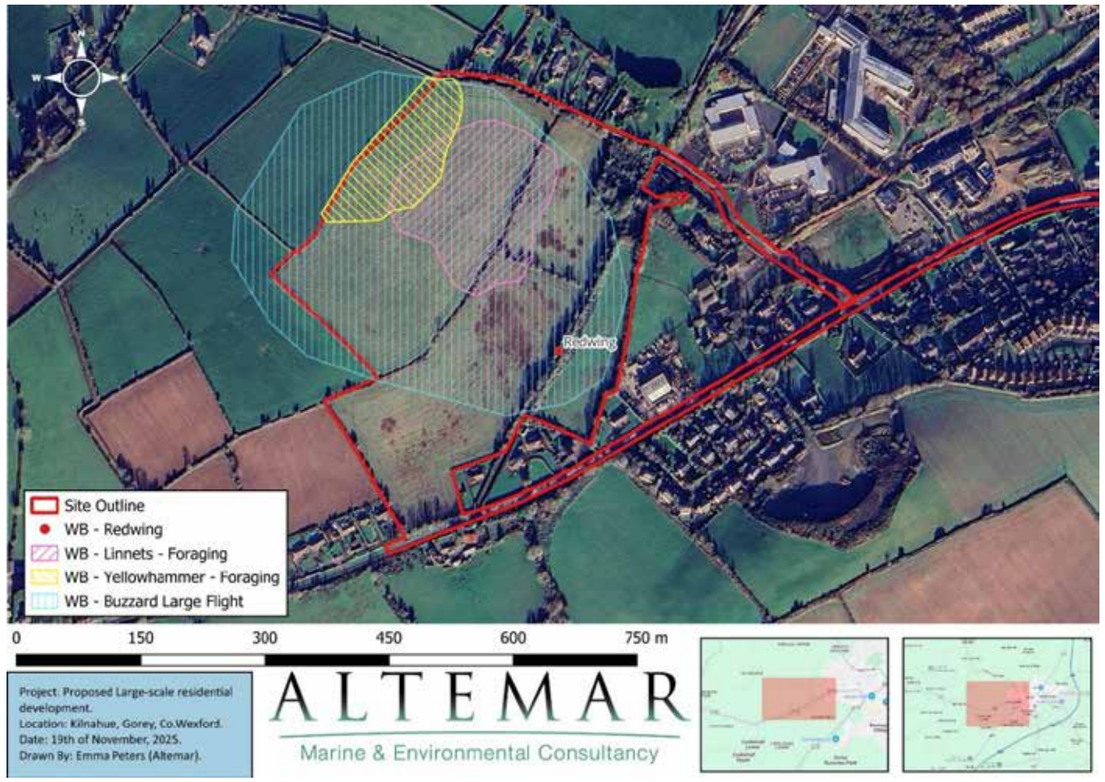

Figure 11.9 Red-listed, amber-listted and bird of prey behaviours noted during Wintering bird survey.

Table 11-5 Table of bird species noted onsite during flora, mammal, breeding bird and wintering bird assessments with their common name, scientific name and BoCCI status.

Common Name	Scientific name	Conservation status
Blackbird	*Turdus merula*	Green
Blackcap	*Sylvia atricapilla*	Green
Blue Tit	*Cyanistes caeruleus*	Green
Bullfinch	*Pyrrhula pyrrhula*	Green
Buzzard	*Buteo buteo*	Green
Coal Tit	*Periparus ater*	Green
Collared Dove	*Streptopelia decaocto*	Green
Chaffinch	*Fringilla coelebs*	Green
Chiffchaff	*Phylloscopus collybita*	Green
Dunnock	*Prunella modularis*	Green
Goldcrest	*Regulus regulus*	Amber
Goldfinch	*Carduelis carduelis*	Green
Great Tit	*Parus major*	Green
Greenfinch	*Chloris chloris*	Amber
Hooded Crow	*Corvus cornix*	Green
House Sparrow	*Passer domesticus*	Amber
Jackdaw	*Corvus monedula*	Green
Linnet	*Carduelis cannabina*	Amber
Magpie	*Pica pica*	Green
Meadow Pipit	*Anthus pratensis*	Red
Mute Swan	*Cygnus olor*	Amber
Pheasant	*Phasianus colchicus*	Green
Redwing	*Turdus iliacus*	Red
Robin	*Erithacus rubecula*	Green
Rook	*Corvus frugilegus*	Green
Song Thrush	*Turdus philomelos*	Green
Starling	*Sturnus vulgaris*	Amber
Stonechat	*Saxicola rubicola*	Green
Swallow	*Hirundo rustica*	Amber
Willow Warbler	*Phylloscopus trochilus*	Amber
Woodpigeon	*Columba palumbus*	Green
Wren	*Troglodytes troglodytes*	Green
Yellowhammer	*Emberiza citrinella*	Red

11.8 The 'Do Nothing' Scenario

Due to the zoning of the subject site, it would be expected that in the absence of this subject proposal a development of similar scale and nature would be progressed. Under this scenario, in the absence of specific development details, it is likely that the effect would be similar to this proposal as outlined below. However, in the absence of any development on the site it would be expected that the hedgerow, scrub and treeline habitats would continue to be utilised by local bird, mammal and bat populations.

11.9 Potential Significant Effects

This section of the EIAR examines the potential causes of impact that could result in positive or negative effects arising on the species and habitats that occur within the ZOI of the proposed development. The following assessment of potential impacts is based on the EPA EIAR Guidelines 2022 (the EIAR Guidelines). These impacts could arise during either the construction or operational phases of the project. The following terms are derived from the EPA EIAR Guidelines and are used to describe the likely significant effects on the ecological receptors arising from the construction and operation of the proposed development.

Table 11-6 Magnitude of effect and typical descriptions

Magnitude of effect (change)		Typical description
High	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Medium	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Low	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial effect on attribute or a reduced risk of negative effect occurring
Negligible	Adverse	Very minor loss or alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.

Table 11-7 Criteria for Establishing Receptor Sensitivity/Importance

Importance	Ecological Valuation
International	Sites, habitats or species protected under international legislation e.g. Habitats and Species Directive. These include, amongst others: SACs, SPAs, Ramsar sites, Biosphere Reserves, including sites proposed for designation, plus undesignated sites that support populations of internationally important species.
National	Sites, habitats or species protected under national legislation e.g. Wildlife Act 1976 and amendments. Sites include designated and proposed NHAs, Statutory Nature Reserves, National Parks, plus areas supporting resident or regularly occurring populations of species of national importance (e.g. 1% national population) protected under the Wildlife Acts, and rare (Red Data List) species.
Regional	Sites, habitats or species which may have regional importance, but which are not protected under legislation (although Local Plans may specifically identify them) e.g. viable areas or populations of Regional Biodiversity Action Plan habitats or species.
Local/County	Areas supporting resident or regularly occurring populations of protected and red data listed-species of county importance (e.g. 1% of county population), Areas containing Annex I habitats not of international/national importance, County important populations of species or habitats identified in county plans, Areas of special amenity or subject to tree protection constraints.
Local	Areas supporting resident or regularly occurring populations of protected and red data listed-species of local importance (e.g. 1% of local population), Undesignated sites or features which enhance or enrich the local area, sites containing viable area or populations of local Biodiversity Plan habitats or species, local Red Data List species etc.
Site	Very low importance and rarity. Ecological feature of no significant value beyond the site boundary

Table 11-8 Quality of Effects

Quality of Effects	Effect Description
Negative/Adverse Effect	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).
Neutral Effect	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Positive Effect	A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).

Table 11-9 Significance of Effects

Significance of Effect	Description of Potential 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 Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An effect which obliterates sensitive characteristics.

Table 11-10 Duration and Frequency of Effects

Duration and Frequency of Effect	Description
Momentary	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting less than a year
Short-term	Effects lasting one to seven years.
Medium-term	Effects lasting seven to fifteen years.
Long-term	Effects lasting fifteen to sixty years.
Permanent	Effects lasting over sixty years
Reversible	Effects that can be undone, for example through remediation or restoration

Table 11-11 Describing the Probability of Effects

Describing the Probability of Effects	Description
Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

11.9.1 Construction Phase

In the absence of mitigation, the overall development of the site is likely to have direct negative impacts upon the existing habitats, fauna and flora. Direct negative effects will be manifested in terms of the removal of the site's internal habitats. The removal of these habitats will result in a loss of species of low biodiversity importance. However, the scrub and hedgerows do provide a substantial nesting foraging resource for birds and foraging area for bats. These construction effects however would include effects that may arise during the site clearance, re-profiling of the site and the building phases of the Proposed Development. Potential impacts are assessed below for each of the ecological components:

11.9.1.1 Designated Conservation Sites

The nearest designated conservation site is the Slaney River Valley SAC (1.2km). There is no hydrological or biodiversity connection to this SAC. After attenuation, it is proposed to construct a gravity stormwater drainage system that discharges to the nearby Ballyowen Stream, which is located approximately 140m north-east of the main development site area. This stream discharges to the Banogue River, a tributary of the Owenvarrogh River, prior to its outfall to the marine environment at Owenavorragh Estuary. Out of an abundance of caution, there is a weak indirect hydrological pathway to the Courtown Dues and Glen pNHA (4.1 km), Kilpatrick Sandhills SAC (10.2km), Cahore Polders and Dunes SAC (14.7km), and Cahore Marshes SPA (14.0km) via the proposed surface water drainage. However, given the minimum distance from the proposed development site to these designated conservation sites along an extensive drainage network (including an attenuation pond and significant fluvial distance between the site and the marine environment), in addition to the extensive marine environment which the rivers ultimately discharge to, any pollutants, dust or silt laden run off that may enter this network will be dispersed, diluted, and ultimately settle to negligible levels within the surface water drainage network, River Banoge & Owenavorragh, and the marine environment at Owenavorragh Estuary. In the absence of mitigation measures, no likely significant effects on downstream conservation sites are foreseen via surface water drainage during construction.

Potential Impacts in the absence of mitigation: Negligible / International / Neutral Impact / Not significant / short term.

11.9.1.2 Flora

No flora or habitats of conservation importance were noted onsite. Site clearance will remove flora species within the site boundaries. This includes hedgerows and woodland habitats; however, as a form of mitigation by design, the majority of perimeter treelines & hedgerows will be retained onsite and a parkland habitat will be established to the west of the development.

Two first schedule invasive species were noted onsite: Rhododendron (*Rhododendron ponticum*) and Spanish bluebell (*Hyacinthoides hispanica*). In the absence of mitigation, there is the potential for construction works to spread these invasive flora species.

Potential Impaw ts in the absence of mitigation: Low adverse / site / Negative Impact / Not Significant / Short term. Mitigation is needed in the form of an invasive species management plan

11.9.1.3 Avian Ecology

During the site visits, no bird species of conservation importance as listed on Annex I of the EU Birds Directive were recorded utilising the site. Localised disturbance due to noise on site is foreseen. Site clearance will result in a reduction in the vegetation cover including dense scrub and hedgerows, and removal of the mature and immature trees which would result in a nesting and foraging resource loss for the bird species noted on site. Clearance works on site during bird nesting season could impact on bird populations within the proposed development site. Dust from reprofiling works could potentially impact on vegetation and nesting birds on site.

Potential Impacts in the absence of mitigation: Minor adverse / Site / Negative / Not significant / Short term. *Mitigation is required in the form of light-spill, noise, and site clearance control during construction.*

11.9.1.4 Terrestrial Mammals

No terrestrial mammals of conservation concern, such as badger *(Meles meles)* and otter (*Lutra lutra*), were noted on site. No badger (*Meles meles*) setts were noted onsite however, snuffle holes were noted in the scrub and woodland habitats onsite. No confirmed resting or breeding places of terrestrial mammals of conservation concern was recorded onsite. The construction phase of the proposed development will reduce suitable foraging habitat for terrestrial mammalian species in the locality.

Potential Impacts in the absence of mitigation: Low adverse / site / Negative Impact / Not significant / short term. *Mitigation is needed in the form of a pre-construction inspection for terrestrial mammals of conservation importance.*

11.9.1.5 Bat Fauna

A bat roost containing 1 individual soprano pipistrelle (*Pipistrellus pygmaeus*) bat was recorded within a mature oak tree within the woodland habitat onsite. The proposed development will result in the removal of a confirmed bat roost. Survey results indicate that the confirmed roost is most likely a summer day roost used by a single individual and is unlikely to be suitable for larger roosting colonies or during winter (see Appendix 11.1 for further details). This is also true for other trees onsite. As such, the loss of roosting habitat on site is not considered significant within the wider landscape, as abundant similar roosting opportunities exist in surrounding treelines, hedgerows, and mature trees that provide comparable features suitable for local bat species. The felling of trees and destruction of derelict structures onsite will remove suitable bat roosting habitats. A derogation license and mitigation measures are required prior to the commencement of works.

Bat foraging activity of three relatively common species (common pipistrelle, Leisler's Bat, and soprano pipistrelle) was recorded along woodland and treeline habitats onsite. A static bat detector recorded 6 bat species onsite (Daubenton's Bat, Whiskered Bat, Lesser Noctule, Nathusius' Pipistrelle, Soprano Pipistrelle, and Common Pipistrelle) over a month-long period (see Appendix 11.1 for details). The removal of linear vegetative features onsite (hedgerows & treelines) will reduce available foraging habitats for bats onsite. Construction lighting onsite could reduce bat foraging and transiting activity within, and proximate to, the site. Mitigation measures are required.

Potential Impacts in the absence of mitigation: Minor Adverse / International / Negative Impact / Not Significant / Permanent. *Mitigation measures are required.*

11.9.1.6 Aquatic Ecology

The contamination of watercourses and surfaces water networks could potentially impact negatively on aquatic biodiversity within the watercourse network. There is the potential for dust, silt, and construction contaminants to enter the Ballyowen Stream and Banogue River and cause downstream impacts on freshwater aquatic biodiversity in the absence of mitigation. Mitigation measures are required out of an abundance of caution to ensure compliance with Water Pollutions Acts. However, the implementation of standard measures to comply with Water Pollutions Acts are not necessary for the protection of designated conservation sites.

Further, whilst no evidence of common frog (*Rana temporaria*) was observed within the site, wet grassland could provide suitable water features for this species during periods of high rainfall. A preconstruction assessment for frogs is required.

Potential Impacts in the absence of mitigation: Low adverse / local/ Negative Impact / Slight Effects / short term. *Mitigation is needed in the form of control of silt, surface water and petrochemical and dust during construction to prevent impacts on local aquatic biodiversity. A preconstruction inspection for common frog (Rana temporaria) is required.*

11.9.2 Operational Phase

Once constructed all onsite drainage will be connected to separate foul and surface water systems. Surface water runoff will comply with SUDS. The biodiversity value of the site would be expected to improve as the landscaping matures.

11.9.2.1 Designated Conservation Sites

The proposed development includes a sustainable drainage strategy. The proposed Project must comply with County Council drainage requirements and the Water Pollution Acts. Standard compliance measures will be in place to prevent downstream impacts. No significant impacts on designated sites are likely during operation. No mitigation measures are required to protect designated sites during operation.

Potential Impacts in the absence of mitigation: Negligible / International & National / Neutral Impact / Not significant / Long-term.

11.9.2.2 Flora

No protected flora was noted on site. The majority of perimeter hedgerows & treelines will be retained onsite. Landscaping will remove First Schedule invasive species from the site and will also create areas for native flora, particularly within the parkland area west of the site.

Potential Impacts in the absence of mitigation: Negligible beneficial / site / Neutral Effect / Not significant / long-term

11.9.2.3 Avian Ecology

During the operational phase of development, increased lighting, noise, and anthropogenic presence onsite will cause disturbance impacts on local bird species. Light spill on site will increase from the current baseline, which would have a negative effect on avian biodiversity. As the landscaping elements improve with maturity, it would be expected that the biodiversity value of the site to birds would also increase. The majority of perimeter treelines and hedgerows will be retained onsite, thereby maintaining potential nesting and foraging habitats for breeding birds. Grassland habitats within public open space areas will provide foraging habitats, particularly within the parkland area west of the site. Landscaping will provide nesting and foraging habitats for local passerine bird species.

Potential Impacts in the absence of mitigation: Minor adverse / site / Negative Impact / Not significant / Long term. *Mitigation to ensure compliance with a sensitive lighting strategy is required.*

11.9.2.4 Terrestrial Mammals

No protected terrestrial mammals (such as badger) were noted on site. Evidence of badger foraging activity (snuffle holes) was noted within grassland habitats onsite. Lighting, artificial structures, and increased human presence/ disturbance will reduce foraging and transiting habitats for local terrestrial mammalian species. The retention of the majority of perimeter treelines & hedgerows, and the proposed establishment of a vegetated parkland habitat to the west of the development, will provide suitable foraging and commuting habitats for local terrestrial mammalian species.

Potential Impacts in the absence of mitigation: Minor adverse / site / Negative Impact / Not significant / Long term. *Mitigation to ensure compliance with a sensitive lighting strategy is required.*

11.9.2.5 Bat Fauna

The proposed development will result in the removal of trees, including a confirmed Soprano Pipistrelle bat roost (containing 1 no. individual) and several trees of moderate bat roosting potential. Survey results indicate that the confirmed roost is most likely a summer day roost used by a single individual and is unlikely to be suitable for larger roosting colonies or during winter this is also true for the rest of the trees of moderate roosting potential. As such, the loss of roosting habitat on site is not considered significant within the wider landscape, as abundant similar roosting opportunities exist in surrounding treelines, hedgerows, and mature trees that provide comparable features suitable for local bat species.

Bat foraging activity was recorded on site. The removal of trees and the introduction of site lighting would reduce suitable foraging habitat locally and disrupt commuting corridors. The landscape design, however, incorporates retention of key hedgerows, native tree and shrub planting, and a biodiverse wildflower meadow, which will maintain habitat connectivity and facilitate continued foraging across the site once landscaping matures. The establishment of the western parkland area will provide suitable foraging habitats for local bat populations. Additionally, bat-friendly lighting measures will be incorporated into the proposed lighting design.

Given the presence of a confirmed bat roost, a NPWS derogation licence is required. Mitigation measures, including the installation of bat boxes and incorporation of a bat-friendly lighting design, are proposed to minimise impacts and maintain favourable conservation status of local bat populations.

Potential Impacts in the absence of mitigation: Minor adverse / International / Negative Impact / Not Significant / Long-term. *Mitigation is required, including consultation with the project ecologist and a post-construction lighting inspection by the ecologist. A derogation licence is required from NPWS.*

11.9.2.6 Aquatic Ecology

The proposed Project will comply with County Council drainage requirements and the Water Pollution Acts. Standard compliance mitigation measures will be in place to prevent downstream impacts.

Potential Impacts in the absence of mitigation: Low Adverse / Local / Neutral Impact / Not significant / Long-term. *Mitigation measures are required in relation to ecological inspection of drainage networks.*

11.9.3 Cumulative Effects

There are several proposed developments located in the area immediately surrounding the subject site. The following is a list of planning applications in close proximity to the subject site as identified on the Department of Housing, Local Government and Heritage's 'National Planning Application Database' portal[1]:

1 https://housinggovie.maps.arcgis.com/apps/webappviewer/index.html?id=9cf2a09799d74d8e9316a3d3a4d3a8de

Table 11-12 Developments identified for Cumulative Impacts

Reference	Development Description	Decision
20200467E	Permission is sought for 83 no. residential dwellings, 300 sq.m. single storey community football club clubhouse and all-weather sports pitch and all associated site works. The residential dwellings consist of 10 no. 3-bed 2 storey 121 sq.m. semi-detached house, 4 no. 3 bed 2 storey 126.4 sq.m. and 4 no. 3 bed 2 storey 140.6 sq.m. semi-detached house, 8 no. 3 bed 109.9 sq.m. 2 storey end of terrace house, 11 no. 3 bed 105.7 sq.m. 2 storey mid terrace house, 46 no. 3 storey dwellings consisting of 23 no. 2 bed 80.7 sq.m. ground floor apartments and 23 no. 3 bed 114.8 sq.m. duplex apartments above including first storey terraces and street access off of Carnew road to units 45-72. Permission is sought for total of 97 no. dwellings of which 83 no. dwellings, all-weather sports field and community clubhouse are subject to this application and 14 no. units previously granted permission (planning ref. 20180080)	Granted 3rd October 2025
20241225	Permission for the development at Gorey Hill School, Gaelscoil Mosholog Campus. The development will consist of; (i) the creation of two no. sensory gardens with resin-bound gravel paving, astroturf /grass soft landscaping and associated loose benches and planter boxes, one such space to be 117.02 sq. m. in area, the other to be 69.45 sq. m. in area; (ii) the creation of three no. new soft play areas with associated coloured bonded rubber crumb soft play surfaces and fixed play equipment, the new senior soft play area to be 311.36 sq. m. in area, the new junior soft play area to be 323.69 sq.m. in area and the new soft play area for the existing creche to be 50 sq. m. in area; (iii) the provision of new 2.4 m. high metal mesh anti-climb fences and gates to secure the site of the new special school, Gorey Hill School, and to secure the new senior and junior soft play areas and the provision of a new 1.2m high timber picket fence and gate to secure the new soft play area to the existing creche. (iv) the provision of a new extension to the existing car park to provide an additional 10 no. new end-on type parking bays (305.5 sq. m.) and 3 no. new parallel type bays (47.32 sq. m.) to bring the total number of car-parking spaces on the campus to 42, and the amendment of some existing car-parking spaces to form 3 no. fully compliant accessible parking spaces with new kerbs, footpaths and pedestrian crossings as required; (v) the provision of 3 no. new flagpoles at the site entrance, 2 no. to be 6m tall and 1 no. to be 7m tall; (vi) the provision of a new non-illuminated sign (school logo) to the west facing gable end elevation of the existing building; with all required siteworks and services	Granted 20th November 2024- subject to conditions
20240210	Permission for retention of the following: A) The construction of and the continuation of use of a single storey detached structure accommodating a community room and ancillary offices. B) The construction of a single storey detached maintenance shed and a prefabricated storage container. C) Ancillary hard and soft landscaping. Also permission for the following : D) Connection to public services. E) The relocation of the existing site entrance to accommodate new vehicular and pedestrian access, including internal access road. F) Car parking. G) Ancillary site works to facilitate the development	Granted 9th August 2024- subject to conditions
20250456	Permission for development consisting of: (i) the construction of a new two storey modular school building (accommodating 3 mainstream classrooms, and 3 SET rooms with a passenger lift, WC's and associated plant space) together with (ii) the provision of two soft play areas, one such space to be 48.46sq.m in area and the other to be 124.70sq.m, (iii) revision of 4 existing car park spaces (to provide 3 car park spaces, and 1 additional accessible parking bay with an EV charging point) and all associated site development works.	Granted 4th June 2025- subject to conditions
20250983	Permission for development to construct a mixed-use scheme (comprising a multi-purpose events space, a hotel, a bar, a restaurant, a cafe and associated works as detailed below) at a site of c. 0.78 hectares. Protected structure (RPS Ref. WCC0210).	Request for Further Information 3rd October 2025
20221189	89 apartments, creche, ESB substation, connection to public services and all associated site works	Granted 12th April 2023- subject to conditions

As part of the assessment of the impact of the proposed development, account has also been taken of cumulative projects, i.e. developments that are currently permitted or under construction within the surrounding area, but whose environmental impact are not yet fully realised within the existing environmental baseline. Following a review of projects located in proximity to the proposed development it was determined that no significant projects are proposed or currently under construction that could potentially cause in combination effects on designated conservation sites.

Given this, it is considered that cumulative impacts with other existing and proposed developments in proximity to the application area would be unlikely, neutral, not significant and localised. It is concluded that no significant effects on designated conservation sites will be seen as a result of the proposed development alone or in combination with other projects.

An AA screening/NIS was also carried out for this development. It concluded that '*No projects in the vicinity of the proposed development would be seen to have a significant in combination effect on Natura 2000 sites*.'

No significant effects are likely from cumulative impacts.

11.9.4 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

Table 11-13 Summary of Construction Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Pollution of watercourses and from sediment runoff	Negative	Not Significant	Local/county	Likely	Short-term	Indirect
Construction dust impact	Negative	Not Significant	Site	Likely	Short-term	Direct
Habitat loss and Fragmentation	Negative	Not Significant	Site	Likely	Long-term	Direct
Disruption to bat commuting routes	Negative	Not Significant	Local	Likely	Long-term	Direct
Construction lighting Impacts	Negative	Not Significant	Local	Likely	Short-term	Direct
Disturbance from construction noise and vibration	Negative	Not Significant	Site	Likely	Short-term	Direct

The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 11-14 Summary of Operational Phase Likely Significant Effects in the absence of mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Lighting impacts	Negative	Not Significant	Local	Likely	Long-term	Direct
Habitat loss and Fragmentation	Negative	Not Significant	Site	Likely	Long-term	Direct
Disturbance from increased human presence and traffic noise	Negative	Not Significant	Site	Likely	Long-term	Direct
Disruption to bat commuting routes	Negative	Not significant	Local	Likely	Long-term	Direct
Pollution of watercourses from petrochemical runoff	Neutral	Not Significant	Local / County	Unlikely	Long-term	Indirect

11.10 Mitigation Measures

Mitigation measures will be incorporated into the proposed development project to minimise the potential negative impacts on biodiversity within the ZOI. Mitigation measures are outlined within the Land & Soils (Chapter 9), Water & Hydrology (Chapter 10), Noise & Vibration (Chapter 12) and Air Quality (Chapter 13) of the EIAR. In addition to these mitigation measures mentioned elsewhere in the EIAR specific mitigation in relation to biodiversity need to be implemented having taken into account the measures outlined elsewhere in the EIAR.

11.10.1 Mitigation by Design

- Retention of 1270 linear metres of native hedgerows within and along the site boundary.
- Approximately 1734 trees, including species such as oak, ash, and beech, will be planted across the site. These will be arranged in structured treelines, with additional woodland planting areas integrated into the overall landscape design strategy. This planting scheme is intended to support and enhance biodiversity on site.

11.10.2 Construction Phase Mitigation

In addition to mitigation measures outlined elsewhere in the EIAR, the following measures will be implemented to protect biodiversity:

- A pre-construction survey for bats, amphibians, and terrestrial mammals will be carried out. This will include an inspection for resting and breeding places for both terrestrial mammals and bats. The ecologist will oversee site clearance and will be on site during the removal of scrub and hedgerows. Should resting or breeding places be found, a derogation licence will be acquired from NPWS and conditions followed prior to works commencing in the vicinity of the resting or breeding place.
- An Ecological Clerk of Works (ECoW) will be appointed to oversee the construction phase and to oversee the implementation of all mitigation including compliance with Wildlife Acts and Water Pollution Acts and ensure that biodiversity in neighbouring areas including birds, bats and badgers will not be significantly impacted.
- Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) in relation to the removal of trees and timing of nesting birds will be followed e.g. do not remove trees or shrubs during the nesting season (1st March to 31st August). If removal is required during this season the removal of woody material will be carried out under the supervision of an ecologist. If nesting birds are present, NPWS will be contacted and removal will be subject to conditions outlined by NPWS.
- Should any mature broadleaved tree be scheduled for removal, it will first be surveyed for roosting potential and bat presence. If bats are found, an application for a derogation licence will be made to the National Parks and Wildlife Service. Such trees will be felled in the period late August to late October, or early November, in order to avoid disturbance of any roosting bats as per National Roads Authority guidelines (NRA 2006a and 2006b) and also to avoid the bird breeding seasons. Any tree felling will be completed by mid-November at the latest as bats roosting in trees are very vulnerable to disturbance during their hibernation period (November – April). Trees may be removed at other times but the likelihood of encountering bats during works will be higher. Trees with ivy-cover, once felled, will be left intact onsite for 24 hours prior to disposal to allow any bats beneath foliage to escape overnight.
- Where possible, treelines and mature trees that are located immediately adjacent to planned construction areas, or are not directly impacted, will be avoided and retained intact. Retained trees will be protected from root damage by machinery by an exclusion zone of at least 5 metres or equivalent to canopy height.

Such protected trees will be fenced off by adequate temporary fencing prior to other works commencing.

- Lighting during construction will be carried out in consultation with the project ecologist and treelines, boundary hedgerows or wooded areas will not be directly lit.
- In general, artificial light creates a barrier to bats so lighting will be avoided where possible. Where lighting is required, directional lighting (i.e. lighting which only shines on work areas and not nearby countryside) will be used to prevent overspill during construction. This can be achieved by bat-friendly luminaire design and the implementation of accessories such as hoods, cowls, louvers and shields to direct the light to the intended area only.
- The bat roost on site will be removed, subject to licence approval, using the methodology outlined below:
  - » Felling of the bat roost tree will take place from November to February when bats are in hibernation.
  - » A pre felling inspection of the trees will be carried out by a bat specialist. If no bats are present during the inspection the tree will be felled in sections and lowered to the ground, where the sections will remain for 24 hours. If a bat is, or bats are, found a specialist, licenced in manual handling of bats. will oversee the removal of the bat from the tree and the safe relocation of the bat to a suitable site within the site outline. This may include the placing or the bat in a cardboard box for release at night or placing the bat in a safe suitable temporary roosting location, depending on weather conditions.
- Any tree felling will be undertaken at an appropriate time of year, as deemed by the project ecologist.
- Pre-Construction inspection for bats in all buildings to be demolished and emergent survey will be carried out by a suitably qualified ecologists/bat worker, prior to the demolition of buildings.
- All trees with bat roosting potential that are scheduled for felling will undergo a pre-felling inspection by a suitably qualified ecologist or bat worker, using appropriate survey techniques such as endoscope inspection, thermal imaging, and, where suitable, emergence surveys.
- Lighting during construction should only be used during working hours with no floodlighting of the site.
- A post construction bat survey and light spill assessment will be carried out to ensure compliance with the lighting plan.

In addition, the following mitigation will be implemented to protect the local environment and downstream aquatic biodiversity:

- Construction methods used by the contractor will be tailored to reduce, where possible, sediment runoff and leaks or spills to ground and to minimise effects on the local environment.
- Designated roadways and internal access/construction routes will be clearly designated and fenced off in-order to prevent uncontrolled tracking of construction vehicles across the site. This will help reduce the surface area of disturbed ground which will limit the potential for soil compaction, sediment runoff or dust generation. Similarly, existing hedgerows and site features which are to be maintained will be fenced off. Silt fencing to be used as necessary.
- Trucks leaving the site with excavated material will be covered so as to avoid dust emissions along the haulage routes.
- Speed limits on site (15km/h) to reduce dust generation and mobilisation.
- Any spoil or waste material generated from the construction process will be temporarily stored on more level ground at an approved location on site, and segregated from surface water runoff, before being either re-used on site or removed off-site to a suitably licenced waste management facility. Silt fencing to be used as necessary.
- All fill and aggregate for the project will be sourced from reputable suppliers.
- Designation of bunded refuelling areas on the site (as required) as well as the provision of spill kits across the site will reduce the potential for fuel or oil spills occurring or their extent.
- Fuel, oil and chemical storage will be sited within a bunded area. The bund must be able to take the volume of the largest container plus 10% and be located at least 10m away from drains, ditches, excavations and other locations where it may cause pollution. Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination.
- All bowsers to carry a spill kit and operatives must have spill response training; and portable generators or similar fuel containing equipment will be placed on suitable drip trays and/or absorbent fuel ‘nappies’. In the case of drummed fuel or other potentially polluting substances (i.e. cement) which may be used during construction the following measures will be adopted:
- The use of a dedicated concrete truck washout areas and secure storage areas for the storage of concrete materials. All containers that contain potential polluting substances to be stored in dedicated internally bunded chemical storage cabinet units or inside concrete bunded areas. Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.
- All new infrastructure is to be installed and constructed to the relevant codes of practice and guidelines.
- Potable water supply networks and wastewater infrastructure are to be pressure tested by an approved method during the construction phase and prior to connection to the public networks, all in accordance with the requirements of Uisce Eireann.
- Connections to the service providers are to be carried out to the approval and / or under the supervision of the Local Authority or relevant utility service provider, prior to commissioning.
- All new sewers are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase.
- Best practice environmental guidance will be incorporated into the projects Construction Environmental Management Plan (CEMP) for the development.
- Noise monitoring will be undertaken to identify if noise levels are in excess of permitted levels
- Construction equipment will be maintained in good condition and priority is given to the selection of equipment that does not emit high noise levels
- Noise surveys will be carried out by appropriate personnel at the relevant stages throughout the project.

11.10.2 Operation Phase Mitigation

The biodiversity value of the site would be expected to improve as the landscaping matures. The proposed development has a sustainable drainage strategy and detailed landscape strategy and mitigation during operation will be carried out as outlined elsewhere in the EIAR. The following operation mitigation measures will be carried out:

- Post construction an inspection of drainage connections to the watercourse network will be carried out by the project ecologist.
- 20 bird boxes to be placed on site in consultation with project ecologist.
- A post construction bat survey will be carried out.
- A post construction light spill assessment will be carried out to ensure compliance with the lighting plan.
- A number of bat boxes will be placed in dark vegetated areas to mitigate the loss of the bat roost. The installation and number put in place will be determined by the project ecologist as deemed appropriate.
- Landscaping has been designed to include bat friendly plants including trees and native hedgerows to attract insects.
- Lighting will comply with Bat Lighting Guidelines and is set to 3000K.

11.11 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented.

11.11.1 Construction Phase

Based on the successful implementation of the construction phase controls and the works to be carried out in accordance with this EIAR, it is likely that there will be no significant ecological impact arising from construction works proposed for the proposed project. Designated conservation sites will not be impacted by the proposed development during construction.

A robust series of standard construction phase control measures, in addition to design measures, have been outlined to ensure that the proposed project does not impact on species / habitats of conservation importance or watercourses during construction. It is essential that these measures are complied with to ensure that the proposed works do not have downstream environmental impacts. These measures are to protect the Ballyowen Stream, River Banogue and Owenavorragh River, which are potentially the primary vector of impacts from the site.

No significant environmental impacts are likely in relation to the construction of the proposed development. Effects: Negative effect / Site / Not significant / Short term / Likely. Standard mitigation will be in place on site.

11.11.2 Operational Phase

Based on the successful implementation of the operational phase controls and the works to be carried out in accordance with this EIAR, it is likely that there will be no significant ecological impact arising from operation of the proposed project. Designated conservation sites will not be impacted by the proposed development.

Standard operational phase control measures have been outlined to ensure that the proposed project does not impact on species / habitats of conservation importance or watercourses. It is essential that these measures are complied with, to ensure that the proposed works do not have downstream environmental impacts. These measures are to protect the Ballyowen Stream, Banogue River and Owenvorragh River, which are potentially the primary vector of impacts from the site, is not impacted during operational phases of the proposed development.

No significant environmental impacts are likely in relation to the operation of the proposed development.

11.11.3 Summary of Post-mitigation Effects

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 11-15 Summary of Construction Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Pollution of watercourses from sediment runoff	Neutral	Not Significant	Local/county	Unlikely	Short term	Indirect
Construction dust impact	Negative	Not significant	Site	Likely	Short-term	Direct
Habitat loss and Fragmentation	Negative	Not significant	Site	Likely	Long-term	Direct
Disruption to bat commuting routes	Negative	Not significant	Local	Likely	Long-term	Direct
Construction lighting Impacts	Negative	Not significant	Local	Likely	Short-term	Direct
Disturbance from construction noise and vibration	Negative	Not significant	Site	Likely	Short-term	Direct

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

Table 11-16 Summary of Operational Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Lighting impacts	Negative	Not significant	Local	Likely	Long-term	Direct
Habitat loss and fragmentation	Negative	Not significant	Site	Likely	Long-term	Direct
Disturbance from increased human presence and traffic noise	Negative	Not significant	Site	Likely	Long-term	Direct
Disruption to bat commuting routes	Neutral	Not significant	Local	Likely	Long-term	Direct
Pollution of watercourses from petrochemical runoff	Neutral	Not significant	Local / County	Unlikely	Long-term	Indirect

11.12 Risk of Major Accidents or Disasters

The nature, scale, and location of the proposed project do not give rise to a significant risk of major accidents or disasters that would result in significant adverse effects on the environment.

11.13 Worst Case Scenario

Significant pollution event during construction (e.g. fuel or concrete spill) entering the adjacent Ballyowen Stream and potential adverse effects on downstream watercourses and aquatic biodiversity.

11.14 Interactions

The biodiversity elements of this EIAR have involved consultation with a wide section of the Project Team, particularly in relation to the Construction Management, design, drainage, lighting and landscape elements of the proposed Project. There are numerous inter-related environmental topics described in detail throughout this EIAR document which are of relevance to the biodiversity chapter. The biodiversity chapter of the EIAR involves interactions with the Land & Soils, Water & Hydrology, Air Quality, Noise & Vibration, and Traffic & Transport. Following the implementation of mitigation measures outlined in the EIAR the following interactions are noted.

11.14.1 Lands & Soils

During the construction phase, excavated soil, stone, clay and made ground will be generated from the excavations required to facilitate site levelling and construction of the new foundations. It is estimated that 119,497m^3 of topsoil will be stripped, and the calculations indicate that, after a 95,983m^3 re-use in backfilling and landscaping, there will be an excess of 23,514m^3 of subsoil and/or rock from the development area. It is anticipated that all topsoil material will be re-used on the site. Where material has to be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort. As such, there is the potential for impacts on local biodiversity via the proposed excavation and re-profiling works. There will be a loss of some vegetation on site, but this is not expected to impact significantly on surrounding areas Following the implementation of mitigation measures outlined in Chapter 9 and Chapter 11, the predicted effects on biodiversity are ***short to long term, imperceptible,*** and ***neutral.*** The biodiversity of the subject site is likely to improve following the completion of landscaping works.

11.14.2 Water & Hydrology

During the construction and operational phases of development, there is the potential for downstream impacts on the proximate watercourses via contaminated surface water runoff. Following the implementation of mitigation measures outlined in Chapter 10 and Chapter 11, the predicted effects on biodiversity are ***short term, imperceptible,*** and ***neutral.***

11.14.3 Air Quality

During the construction phase of development, given the nature and scale of the proposed works, there is the potential for dust and materials to enter the proximate watercourse during site clearance and re-profiling works with the potential for downstream impacts on biodiversity. Following the implementation of mitigation measures outlined in Chapter 11 and Chapter 13 the predicted effects on biodiversity are ***short term, imperceptible,*** and ***neutral.***

11.14.4 Noise and Vibration

During the construction and operational phases of the development, there will be an increase in disturbance including noise and vibration that could potentially impact on birds on site and mammals proximate to the site. Following the implementation of mitigation measures outlined in Chapter 11 and Chapter 12, the predicted effects are ***short term and minor adverse.***

11.14.5 Traffic and Transport

During the construction phase of development, heightened traffic within and immediately surrounding the subject site (resulting from the transport of construction materials and the commuting of workers to the site) has the potential to impact on local biodiversity through increased disturbance. Following the implementation of mitigation measures outlined in Chapter 6 and Chapter 11, the predicted effects on biodiversity are ***short and long term, imperceptible,*** and ***neutral.***

11.15 Monitoring

11.15.1 Construction Phase

A project ecologist will be appointed to oversee construction works on site. Pre-construction surveys will be carried out for terrestrial mammals and bats.

11.15.2 Operation Phase

A project ecologist will be appointed to inspect drainage networks onsite and ensure compliance with a sensitive lighting strategy.

11.16 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 11-17 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Disturbance or destruction of resting / breeding place of protected terrestrial mammalian species	Pre-construction survey for resting / breeding places of protected terrestrial mammalian species. Ecological supervision of site clearance.	Project Ecologist will be assigned to the site to monitor effectiveness of mitigation measures.
Disturbance or destruction of bat roost Disturbance to bat foraging & commuting activity	Pre-construction survey for bats and inspection of trees and buildings of bat roosting potential proposed for felling. Consultation with NPWS prior to commencement of works. Acquisition of a Derogation Licence from NPWS prior to commencement of works. Control of light spill during construction.	Project Ecologist will be assigned to the site to monitor effectiveness of mitigation measures.
Spread of Invasive Species	Invasive Species Management Plan	Project Ecologist will be assigned to the site to monitor effectiveness of mitigation measures
Destruction / disturbance to bird nesting	Pre-construction inspection for nesting birds. Site clearance outside bird nesting season / under supervision of Ecologist	Project Ecologist will be assigned to the site to monitor effectiveness of mitigation measures
Downstream impacts on aquatic ecology	Pre-construction inspection for amphibians onsite. Control of dust, silt, surface water, and petrochemicals during construction.	Project Ecologist will be assigned to the site to monitor effectiveness of mitigation measures.

The following Table summarises the Operational Phase mitigation and monitoring measures.

Table 11-18 Summary of Operational Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Reduction in bat foraging on site	Inspection of bat boxes within one year of erection <1lux along boundaries of development site Post construction inspection of lighting by project ecologist. Retention of key hedgerows. Compensatory woodland, treeline, and hedgerow planting.	Project Ecologist will be assigned to the site to monitor effectiveness of mitigation measures
Lighting impacts on avian ecology & terrestrial mammalian species	Post construction inspection of lighting by project ecologist.	Project Ecologist will be assigned to the site to monitor effectiveness of mitigation measures.
Downstream impacts on aquatic ecology	Post-construction inspection of drainage networks.	Project Ecologist will be assigned to the site to monitor effectiveness of mitigation measures.

11.17 Conclusion

The Biodiversity Chapter of the EIAR involved extensive surveys and interactions within the project team being carried out over several years. The flora, fauna and habitats within the proposed development area are outlined in detail and the potential impacts on biodiversity and designated sites were assessed. Detailed mitigation measures have been outlined and will be carried out during the construction and operational phases of the development including measures to ensure the protection of bats on site. Standard best practice controls during construction and operation will be implemented. In conclusion, the proposed development has satisfactorily addressed the potential impacts on biodiversity on site and within the potential zone of influence. It is considered that the overall impact on the biodiversity of the proposed development is a long term / low adverse / not significant / residual impact on the existing biodiversity. However, the implementation of the proposed landscaping will provide on-site biodiversity enhancement features and provide long term positive benefits to the biodiversity on site.

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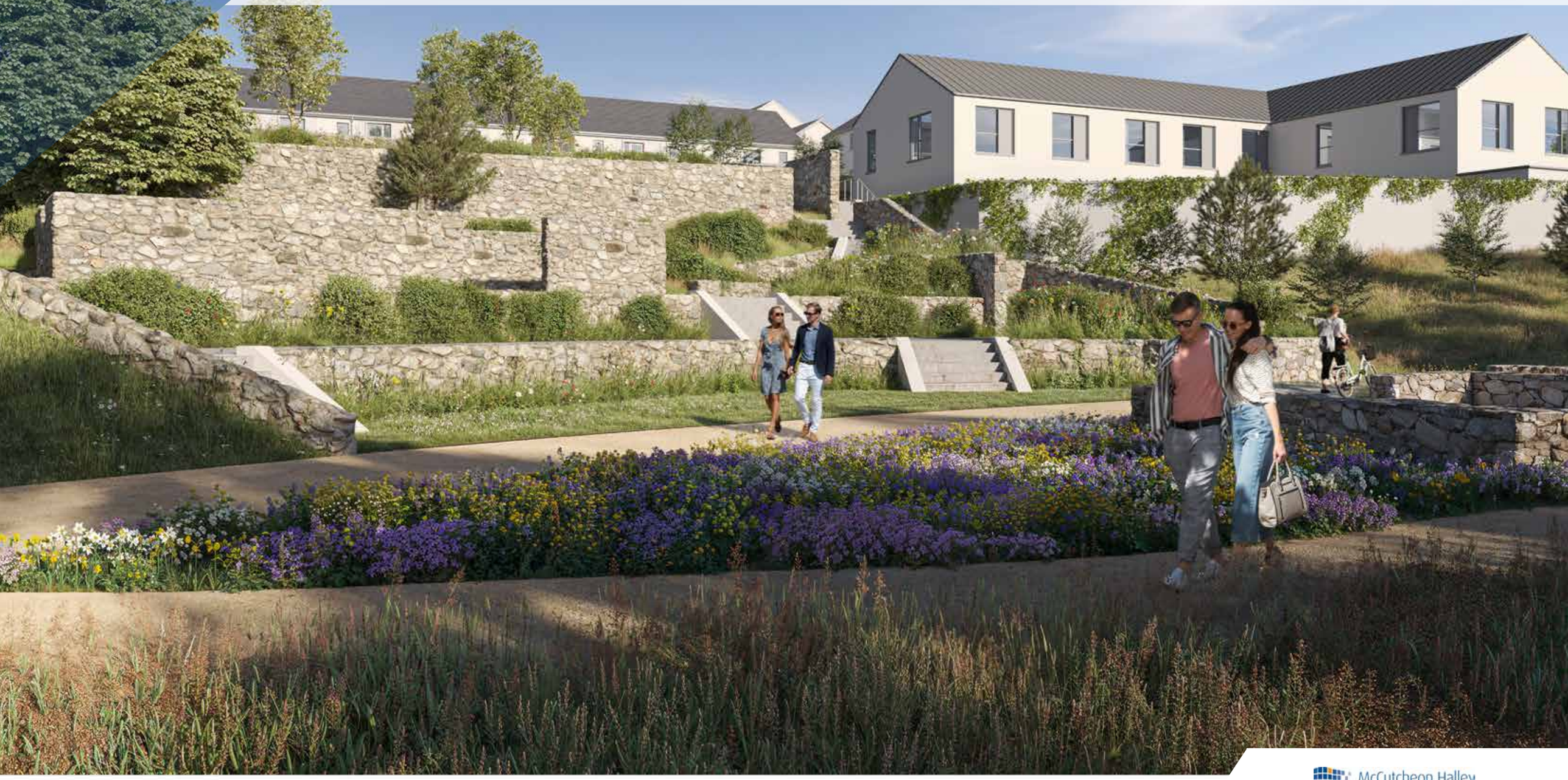
CHAPTER TWELVE

NOISE & VIBRATION



McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

CHAPTER 12

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CHAPTER 12 | NOISE & VIBRATION

12.1 Introduction

AWN Consulting, a Trinity Consultants Team, has prepared this Noise and Vibration (N&V) EIAR on behalf of McCutcheon Halley for a Proposed Large Residential Development in Kilnahue, Gorey, Co. Wexford. A full description of the development is available in Chapter 2. The assessment for noise and vibration is based on the most up to date applicable guidance and assessment documents available both nationally and internationally.

It should be read in conjunction with the design drawings and reports which accompany this planning application.

12.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Robert Holohan of AWN (Acoustic Consultant). He has a BA (Hons) in Geography and Business Marketing from Maynooth University as well as an environmental science background from his MSc in Coastal and Marine Environments from the University of Galway. He has completed noise monitoring campaigns across numerous sites and holds a certificate from the Institute of Acoustics in environmental noise monitoring. He has also contributed to various residential, industrial and infrastructure projects across Ireland through surveying, noise modelling and impact assessment.

This chapter was co-authored by Alistair Maclaurin (Senior Acoustic Consultant), who holds a BSc in Creative Music and Sound Technology and a Diploma in Acoustics and Noise Control. He is a member of the Institute of Acoustics. Alistair has worked in the field of acoustics since 2012. He has been the lead noise consultant across various sites on major infrastructure projects such as Crossrail and Thames Tideway Tunnel, specialising in construction noise assessment and control. Additionally, he has undertaken various other environmental noise assessments for infrastructure developments and planning reports.

12.3 Proposed Development

The proposed Large Scale Residential Development (LRD) will comprise the construction of 413 no. residential units and a crèche at Kilnahue & Gorey Hill, Carnew Road & Kilnahue Lane, Gorey, Co. Wexford.

The proposed development principally comprises the construction of a residential development ranging in height from 2 No. to 3 No. storeys that includes: 413 No. residential dwellings of which 349 No. are houses and 64 No. are maisonettes/apartments/duplexes; and a crèche.

The development also comprises: a new dedicated pedestrian/cycle route that extends from the Carnew Road to the south to Kilnahue Lane to the north; 652 No. car parking space; 586 No. cycle parking spaces; hard and soft landscaping including public open space, communal amenity space and private amenity space (as gardens, balconies and terraces facing all directions); boundary treatments; 4 No. sub-stations; bin stores; public lighting; PV arrays atop all dwellings; and all associated works above and below ground.

Please refer to the statutory notices and Chapter 2 of the EIAR for a detailed description.

Figure 12 1 Subject Site and Surroundings



12.3.1 Aspects Relevant to this Assessment

The aspects of the proposed development that will be considered as part of this chapter include the existing noise and vibration environment at and around the site, as well as the potential noise and vibration impacts arising during the construction and operational phases of the proposed development.

The assessment will take into account the baseline noise and vibration conditions, the nature and scale of construction activities, and the operation of building services, plant, and nearby transport sources once the development is complete.

This section should be read in conjunction with the accompanying design drawings, construction management plans, and relevant technical reports submitted as part of this planning application.

12.4 Methodology

The assessment has been undertaken using the following methodology:

- A review of the most applicable standards and guidelines has been conducted in order to set a range of acceptable noise and vibration criteria for the construction and operational phases of the proposed development;

- An environmental noise survey has been undertaken in the vicinity of the subject site in order to characterise the existing baseline noise environment;
- Predictive calculations have been performed to estimate the likely noise emissions during the construction phase of the proposed development at the nearest NSLs to the site;
- Predictive calculations have been performed to assess the potential impacts associated with the operation of the development at NSLs surrounding the development site;
- An assessment has been completed of potential cumulative impacts that may arise as a result of the proposed development and other existing or proposed plans and projects;
- A schedule of mitigation measures has been proposed, where relevant, to control the noise and vibration emissions associated with both the construction and operational phases of the proposed development; and
- The inward effect of noise from the surrounding environment into the proposed residential buildings has also been assessed to determine the requirements, for additional noise mitigation, where required, to ensure a suitable internal noise environment for residential amenity.
- A detailed construction programme defining concurrent works across phases was not available at the time of assessment. Accordingly, construction noise and vibration have been assessed on a phase-by-phase basis, assuming sequential phasing. Should significant overlap between phases occur during detailed design or pre-construction planning, a further assessment will be required to quantify any cumulative effects.

12.4.1 Relevant Legislation & Guidance

The assessment of impacts has been undertaken with reference to the most appropriate guidance documents relating to environmental noise and vibration which are set out within the relevant sections of this chapter. In addition to specific guidance documents for the assessment of noise and vibration impacts which are discussed further in the relevant sections, the EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (May 2022) (EPA EIAR Guidelines) were considered and consulted for the purposes of this chapter.

12.4.2 Construction Phase Methodology

12.4.2.1 Criteria for Assessing Construction Noise Impacts

There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phases of a project. Local authorities normally control construction activities by imposing limits on the hours of operation and consider noise limits at their discretion.

In the absence of specific noise limits, appropriate criteria relating to permissible construction noise levels for a development of this scale may be found in the British Standard BS 5228 – 1: 2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Noise.

The approach adopted here calls for the designation of a NSL into a specific category (A, B or C) based on existing ambient noise levels in the absence of construction noise. This then sets a Construction Noise Threshold (CNT) that, if exceeded, indicates a potential significant noise impact is associated with the construction activities, depending on context.

The table below sets out the values which, when exceeded, signify a potential significant effect at the façades of residential receptors, as recommended by BS 5228-1:2009+A1:2014.

Table 12 1 Example thresholds of potential significant effect at dwelling

Assessment category and threshold value period (L_{Aeq})	Construction Noise Threshold (CNT), in decibels (dB)		
	Category A 1[1]	Category B 2[2]	Category C 3[3]
Night-time (23:00 to 07:00hrs)	45	50	55
Evenings and weekends	55	60	65
Daytime (07:00 - 19:00) & Saturdays (07:00 – 13:00hrs)	65	70	75

[1] Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

[2] Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.

[3] Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.

It should be noted that this assessment method is only valid for residential properties, and if applied to commercial premises without consideration of other factors, may result in an excessively onerous thresholds being set.

Proposed Threshold Levels for Noise

Taking into account the proposed document outlined above and making reference to the baseline noise environment monitored around the Proposed Development site (referred to in Section 12.6), CNTs are set using Category A for the closest NSLs to the proposed development.

Interpretation of the Construction Noise Levels (CNL)

In order to assist with interpretation of the significance of a CNL, includes guidance as to the likely magnitude of impact associated with construction activities, relative to the CNT. This guidance is taken from the UK document Design Manual for Roads and Bridges (2020) LA 111 Sustainability & Environmental Appraisal. Noise and Vibration Rev 2 (DMRB: Noise and Vibration - UKHE 2020) and adapted to include the EPA 2022 EIAR Guidelines.

Table 12 2 Interpretation of CNL at dwelling

Impact Guidelines for Noise Impact Assessment Significance (Adapted from DMRB)	CNL per Period	EPA EIAR Guidelines	Determination
Negligible	Below or equal to baseline noise level	Not Significant	Depending on range of CNL, baseline noise level and duration
Minor	Above baseline and below or equal to CNT	Slight to Moderate	
Moderate	Above baseline and below or equal to CNT +5 dB	Moderate to Significant	
Major	Above CNT +5 dB	Significant to Very Significant	

The adapted DMRB guidance outlined will be used to assess the predicted construction noise levels at NSLs and comment on the likely impacts during the construction stages.

Construction Vehicle Traffic

In order to assist with interpretation of construction traffic noise, Table 12 3 includes guidance as to the likely magnitude of impact associated with changes in traffic noise levels along an existing road. This guidance is taken from the DMRB: Noise and Vibration (UKHE 2020). For construction traffic, due to the short-term period over which this impact occurs, the magnitude of impacts is assessed against the 'short-term' period in accordance with the DMRB document.

Table 12 3 Likely effect associated with change in traffic noise level – construction noise (DMRB 2020).

Increase in Traffic Noise Level (dB)	DMRB Magnitude of Impact (Short Term Period)	EPA Significance of Effect
<1.0	Negligible	Imperceptible
1.0 – 2.9	Minor	Not Significant to Slight
3 – 4.9	Moderate	Moderate
≥5.0	Major	Significant

The DMRB guidance outlined will be used to assess the predicted increases in traffic levels on public roads associated with the proposed development and comment on the likely impacts during the construction stage.

For both construction noise and construction traffic, a significant effect is deemed to occur where a moderate or major impact is likely to occur for a period of greater that 10 days/nights over 15 consecutive day/nights, or greater than 40 days over 6 consecutive months.

12.4.2.2 Criteria for Assessing Construction Vibration Impacts

Vibration standards come in two varieties: those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. For the purpose of the proposed development, the range of relevant criteria used for surface construction works for both building protection and human comfort are expressed in terms of Peak Particle Velocity (PPV) in mm/s.

Peak Particle Velocity (PPV)

PPV is commonly used to assess the structural response of buildings to vibration. Reference to the following documents has been made for the purposes of this assessment in order to discuss appropriate PPV limit values:

- British Standard BS 7385: 1993: Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration (BS 7385-2), and;
- British Standard BS 5228: 2009 +A1 2014: Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration (BS 5228-2).

BS 7385-2 and BS 5228-2 advise that, for soundly constructed residential properties and similar structures that are generally in good repair, a threshold for minor or cosmetic (i.e. non-structural) damage should be taken as a peak component particle velocity (in frequency range of predominant pulse) of 15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz and 50 mm/s at 40 Hz and above for transient vibration. Where the dynamic loading caused by continuous vibration is such as to give rise to dynamic magnification due to resonance, especially at the lower frequencies where lower guide values apply, then the guide values in Table B.2 of BS5228-2:2009+A1:2014 might need to be reduced by up to 50%. On a cautious basis, therefore, continuous vibration limits are set as 50% of those for transient vibration across all frequency ranges. For buildings or structures that are structurally unsound, lower vibration magnitudes will apply, typically 50% of those for structurally sound buildings. Protected or historic buildings are not automatically assumed to be more vulnerable to vibration unless they have existing structural defects.

The documents note that minor structural damage can occur at vibration magnitudes that are greater than twice those presented in . Major damage to a building structure is possible at vibration magnitudes greater than four times the values set out in the Table. It should be noted that these values refer to the vibration at base of the building.

Table 12 4 sets out the limits as they apply to vibration frequencies below 4 Hz, where the most conservative limits are required.

Table 12 4 Recommended construction vibration thresholds for buildings.

Structure Type	Allowable vibration (in terms of PPV) at closest part of sensitive property to source of vibration, at frequency of ≤4 Hz	
	Transient vibration	Continuous vibration
Reinforced or framed structures. Industrial and heavy commercial buildings	50 mm/s	25 mm/s
Unreinforced or light framed structures. Residential or light commercial-type buildings	15 mm/s	7.5 mm/s

Human Perception

Humans are sensitive to vibration stimuli, and perception of vibration at high magnitudes may cause concern to building occupants. BS 5228-2:2009+A1:2014 notes that vibration typically becomes perceptible at around 0.15 to 0.3 mm/s and may become disturbing or annoying at higher magnitudes. Higher levels of vibration are typically tolerated for single events or events of short-term duration, particularly during construction projects and when the origin of vibration is known.

Table 12 5 presents the significance table relating to potential impacts to building occupants during construction based on guidance from BS5228-2:2009+A1:2014 and the DMRB Noise and Vibration (UKHE 2020) document and the associated EPA significant ratings.

Table 12 5 Guidance on effects of human response to PPV magnitudes.

Criteria	DMRB Impact Magnitude	EPA Significance Rating
≥10 mm/s PPV	Very High	Very Significant
≥1 mm/s PPV	High	Moderate to Significant
≥0.3 mm/s PPV	Medium	Slight to Moderate
≥0.14 mm/s PPV	Low	Not significant to Slight
<0.14 mm/s PPV	Very Low	Imperceptible to Not significant

12.4.3 Operational Phase Methodology

12.4.3.1 BS 4142 Guidance

BS 4142:2014: Methods for rating and assessing industrial and commercial sound is the industry standard method for analysing fixed plant sound emissions to residential receptors. BS 4142 describes methods for rating and assessing sound of an industrial and/or commercial nature. The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident. It should also be noted that the EPA NG4 document indicates that the BS 4142 assessment methodology should be used in the assessment of complaints associated with a site's operations.

For an appropriate BS 4142 assessment it is necessary to compare the measured external background sound level (i.e. the LA90,T level measured in the absence of plant items) to the rating level (LAr,T) of the various plant items, when operational. Where sound emissions are found to be tonal, impulsive, intermittent or to have other sound characteristics that are readily distinctive against the residual acoustic environment, BS 4142 advises that penalties be applied to the specific level to arrive at the rating level.

The subjective method for applying a penalty for tonal sound characteristics outlined in BS 4142 recommends the application of a 2dB penalty for a tone which is just perceptible at the receptor, 4dB where it is clearly perceptible, and 6dB where it is highly perceptible. In relation to intermittency, BS 4142 recommends that if the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied. The following definitions as discussed in BS 4142 are summarised below:

Ambient sound level, $L_{Aeq,T}$: equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at any given time, usually from many sources near and far, at the assessment location over a given time interval, T.

Residual sound level, $L_{Aeq,T}$: equivalent continuous A-weighted sound pressure level of the residual sound (i.e. ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound) at the assessment location over a given time interval, T.

Specific sound level, $L_{Aeq,T}$: equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, Tr.

Rating level, $L_{Ar,T}$: specific sound level plus any adjustment for the characteristic features of the sound.

Background sound level, $L_{A90,T}$: A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels.

In order to establish an initial estimate of impact, BS 4142 states the following:

"Obtain an initial estimate of the impact of the specific sound by subtracting the measured background sound level from the rating level, and consider the following.

a. *Typically, the greater this difference, the greater the magnitude of the impact.*
b. *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
c. *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
d. *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."*

Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.

12.4.3.2 Criteria for Assessing Operational Outward Noise Impacts

The main potential source of outward noise from the proposed development will be limited to traffic flows to and from the development site onto the public roads. There will also be an element of mechanical and electrical plant required to service apartment and commercial buildings. The relevant guidance documents used to assess potential operational noise and vibration impacts on the surrounding environment are summarised in the following sections.

Change in Traffic Noise Levels

In the absence of any Irish guidelines or standards describing the effects associated with changes in road traffic noise levels, reference has been made to the DMRB Noise and Vibration (UKHE 2020) document. This document provides magnitude rating tables relating to changes in road traffic noise. For the operational phase of the development, changes in traffic noise are assessed against the long-term magnitude criteria for traffic flows along the surrounding road network. In summary, the assessment looks at the impact with and without development at the nearest noise sensitive locations.

Table 12 6 Likely impact associated with long-term change in traffic noise level (DMRB 2020)

Change in Noise Level (dB LA10)	DMRB Long-Term Term Magnitude	EPA Classification Magnitude of Impact
<0.1	Negligible	Imperceptible
0.1 – 2.9		Not significant
3 – 4.9	Minor	Slight to Moderate
5 – 9.9	Moderate	Moderate to Significant
10+	Major	Significant to Very Significant

The criteria above reflect the key benchmarks that relate to human perception of sound. A change of 3 dB(A) is generally considered to be the smallest change in environmental noise that is perceptible to the human ear. A 10 dB(A) change in noise represents a doubling or halving of the noise level. The difference between the minimum perceptible change and the doubling or halving of the noise level is split to provide greater definition to the assessment of changes in noise level.

Mechanical and Electrical Plant

The proposed development is largely residential in nature comprising a mixture of houses, duplex and apartments. There is one crèche located at ground floor level in Phase 1. There will be minimal mechanical and/ or electrical plant items required to service the development that will generate noise levels outside of the site boundary or at the developments buildings themselves. Plant contained within plant rooms has the least potential for impact, once consideration is given to appropriate design of the space.

The closest NSLs to any operational plant items are the residential dwellings within the proposed development. To ensure there is no adverse impact on the future inhabitants of the proposed development itself, it is appropriate to refer to internal noise targets derived from BS 8233: 2014: Guidance on Sound Insulation and Noise Reduction for Buildings. The recommended indoor ambient noise levels and derived external noise levels are set out in Table 12 7 and are based on annual average data.

The derived external levels are based on the approximate attenuation provided by a partially open window of 15 dB, as advised in BS 8233 (BSI 2014c), and represent the appropriate noise level at the external façade of the building. For mechanically ventilated buildings, higher external noise levels will achieve the same internal noise levels with closed windows.

Table 12 7 Internal noise design range for residential buildings (BS 8233:2014)

Activity	Location	Internal Noise Design Range dB $L_{Aeq, T}$	Derived External Levels dB $L_{Aeq, T}$
Residential Day	Living room	35	50
	Dining room/area	40	55
	Bedroom	35	50
Residential Night	Living room	35	50
	Dining room/area	40	55
	Bedroom	30	45

12.4.3.3 Criteria for Assessing Inward Noise Impacts

Wexford Environmental Noise Action Plan

The Wexford Environmental Noise Action Plan (NAP) 2024–2028, published in 2024 in accordance with the Environmental Noise Regulations (S.I. No. 140 of 2006). The NAP states that assessments of new residential development should follow national and international best practice, including reference to ProPG: Planning & Noise – Professional Practice Guidance on Planning & Noise and BS 8233:2014 – Guidance on Sound Insulation and Noise Reduction for Buildings.

The NAP emphasises the role of good acoustic design in ensuring appropriate living conditions within noise-sensitive development. Recommended principles include:

- Maximising acoustic privacy through site and building layout to achieve separation from external noise sources;
- Orientating buildings so that less noise-sensitive rooms screen more sensitive spaces such as bedrooms and living rooms;
- Avoiding placing circulation areas (e.g., stairwells, lifts, plant rooms) adjacent to noise-sensitive spaces;
- Providing quieter external amenity areas where practicable, through layout, orientation, and screening;
- Requiring a site-specific noise impact assessment and mitigation plan where developments are located close to significant environmental noise sources.

Professional Practice Guidance on Planning & Noise (ProPG 2017)

The Professional Practice Guidance on Planning & Noise (ProPG 2017) has been generally considered best practice guidance adopted in Ireland the absence of equivalent Irish guidance for inward noise impact assessments.

The ProPG outlines a systematic risk based 2-stage approach for evaluating noise exposure on prospective sites for residential development. The two primary stages of the approach can be summarised as follows: -

- Stage 1: Comprises a high-level initial noise risk assessment of the proposed site considering either measured and or predicted noise levels.
- Stage 2: Involves a full detailed appraisal of the Proposed Development covering four “key elements” that include: -

1. Element 1 – Good Acoustic Design Process

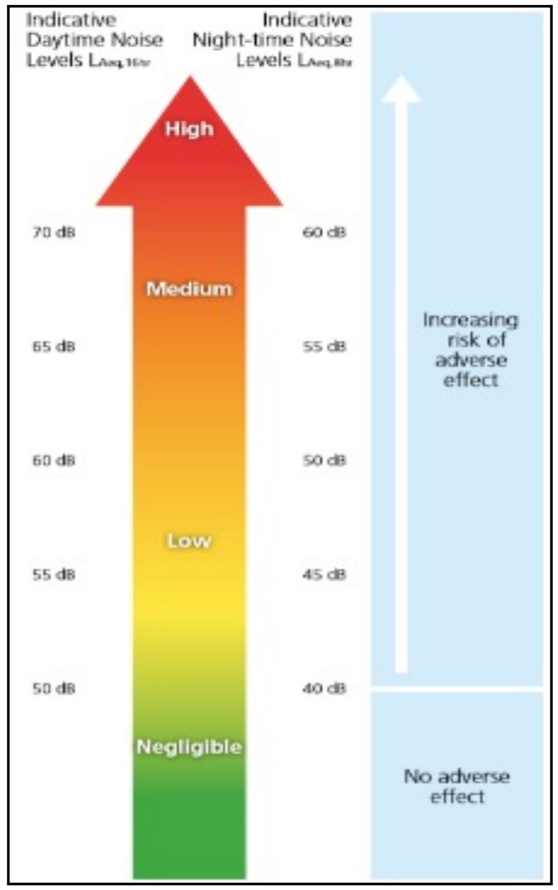
2. Element 2 – Noise Level Guidelines

3. Element 3 – External Amenity Area Noise Assessment

4. Element 4 – Other Relevant Issues

The initial noise risk assessment is intended to provide an early indication of any acoustic issues that may be encountered. It calls for the categorisation of the site as a negligible, low, medium or high risk, based on the pre-existing noise environment. Figure 12 2 presents the basis of the initial noise risk assessment; it provides appropriate risk categories for a range of continuous noise levels either measured and / or predicted on site.

Figure 12 2 ProPG Stage 1 - Initial noise risk assessment



It should be noted that a site should not be considered a negligible risk if more than 10 no. LAFMax events exceed 60 dB during the night period, and the site should be considered a high risk if the LAFMax events exceed 80 dB more than 20 times a night.

Element 2 of the ProPG document sets out recommended internal noise targets derived from BS 8233: 2014. The recommended indoor ambient noise levels are set out in Table 12 7 previously and are based on annual average data.

In addition to these absolute internal noise levels, ProPG provides guidance on flexibility of these internal noise level targets. For instance, in cases where the development is considered necessary or desirable, and noise levels exceed the external noise guidelines, then a relaxation of the internal LAeq values by up to 5 dB can still provide reasonable internal conditions.

ProPG provides the following advice with regards to external noise levels for amenity areas in the development: -

“The acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB LAeq,16hr.”

Appendix 12.1 presents the ProPG assessment for the Proposed Development. Mitigation measures identified from the ProPG assessment are presented in Section 12.9 of this EIAR chapter.

12.5 Difficulties Encountered

There were no particular difficulties encountered during this assessment.

12.6 Baseline Environment

Baseline noise monitoring was undertaken across the development site from 30th June to 04th July 2025 to determine the range of noise levels at varying locations across the development site and to establish the existing noise climate the nearest noise sensitive locations.

The survey was conducted in general accordance with ISO 1996: 2017: Acoustics – Description, measurement and assessment of environmental noise.

12.6.1 Baseline Survey

12.6.1.1 Measurement Parameters

The noise survey results are presented in terms of the following parameters:

L_{Aeq} is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period.

L_{AFmax} is the instantaneous maximum sound level measured during the sample period using the ‘F’ time weighting.

L_{A90} is the sound level that is exceeded for 90% of the sample period. It is typically used as a descriptor for background noise.

The "A" suffix denotes the fact that the sound levels have been "A-weighted" in order to account for the non-linear nature of human hearing. All sound levels in this report are expressed in terms of decibels (dB) relative to 2x10-5 Pa.

12.6.1.2 Survey Equipment

The unattended and attended surveys were undertaken using a RION NL-52 sound level meter and a Brüel & Kjær Type 4231 sound level calibrator. The equipment was check calibrated before and after the survey period.

Table 12 8 Noise Survey Equipment

Equipment	Serial Number	Calibration Date
Rion NL-52	1076330	28/11/2024
Brüel & Kjær Type 4231 Sound Level Calibrator	2376736	10/09/2024

For unattended noise surveys, a Rion WS-15 Outdoor Microphone Protection System was used with microphone extension cable and outdoor peli-case.

12.6.1.3 Weather Conditions

Weather conditions during the unattended and attended surveys were calm and dry and did not adversely affect noise measurements.

12.6.1.4 Measurement Locations

One unattended noise monitoring location and two attended noise monitoring locations were surveyed around the development site. The locations were selected to be representative of the existing noise environment at the closest noise-sensitive locations and the noise climate within the development site itself. The locations are described below and illustrated in Figure 12 3.

UN1 Noise monitoring was undertaken along the southern boundary of the development site to characterise the noise levels incident on the closest receptors to the proposed development along with road traffic from R725.

AT1 Attended noise monitoring was undertaken along Kilnahue Road, L10112. Proximate to residential houses along the road to characterise noise levels in that vicinity.

AT2 Attended noise monitoring was undertaken alongside residential houses nearby to the R725 to characterise noise levels in that vicinity.

Figure 12 3 Noise Monitoring Locations



12.6.1.5 Attended Measurement Results

The results of the noise monitoring completed at the two attended monitoring locations are presented in the following sections.

Table 12 9 Noise Survey Results at Location AT1

Date	Time	Measured Noise Levels, dB		
		$L_{Aeq,T}$	L_{Amax}	$L_{A90,T}$
30/07/2025	12:28	45	55	41
	13:09	46	57	42
	13:49	46	56	42

The noise environment at AT1 consisted primarily of local road traffic noise from the Kilnahue Road, L10112 and birdsong. Additional noise included children playing at a distant schoolyard, pedestrians and other typical environmental noise.

Ambient noise levels were measured in the range of 45 to 46 dB L_{Aeq}. Background noise levels were in the range 41 to 42 dB L_{A90}.

Table 12 10 Noise Survey Results at Location AT2

Date	Time	Measured Noise Levels, dB		
		$L_{Aeq,T}$	L_{Amax}	$L_{A90,T}$
30/07/2025	12:48	50	61	43
	13:29	52	63	44
	14:10	51	62	42

The noise environment at AT2 consisted of road traffic noise from the R725 and vehicles entering and exiting a service station 100m from the noise meter. Additional noise came from birdsong, dog barking briefly and vehicles occasionally idling at the service station.

Ambient noise levels were measured in the range of 50 to 52 dB L_{Aeq}. Background noise levels were in the range 42 to 44 dB L_{A90}.

12.6.1.6 Unattended Measurement Results

The results of the noise monitoring completed at the unattended monitoring location is presented in the following section.

Table 12 11 Noise Survey Results at Location UN1

Date	Period	Measured Noise Levels, dB	
		$L_{Aeq,T}$	$L_{A90,T}$
30/06/2025	Day (07:00 – 19:00)	56	44
	Eve (19:00 – 23:00)	53	37
	Night (23:00 – 07:00)	47	25
01/07/2025	Day (07:00 – 19:00)	54	41
	Eve (19:00 – 23:00)	53	34
	Night (23:00 – 07:00)	47	26
02/07/2025	Day (07:00 – 19:00)	53	41
	Eve (19:00 – 23:00)	52	34
	Night (23:00 – 07:00)	47	25
03/07/2025	Day (07:00 – 19:00)	54	43
	Eve (19:00 – 23:00)	53	37
	Night (23:00 – 07:00)	48	26
04/07/2025	Day (07:00 – 19:00)	55	45
	Eve (19:00 – 23:00)	-	-
	Night (23:00 – 07:00)	-	-
Average	L_{Aeq} 16hr (07:00-23:00)	54	40
	L_{night} (23:00 – 07:00)	47	26

12.7 The ‘Do Nothing’ Scenario

In the event of a ‘Do Nothing’ scenario the noise environment is not expected to change.

12.8 Potential Significant Effects

12.8.1 Noise Sensitive Locations

A number of noise sensitive locations have been considered in relation to the Proposed Development, as described in Table 12 12 and illustrated in

Figure 12 4. These locations have been selected as the closest sensitive residential receptors to the development, hence, they are the most at risk of being impacted by any noise or vibration.

Table 12 12 Descriptions of the Noise Sensitive Locations

Ref	Distance to site boundary	Description
NSL1	10m	Residential properties along the R725, to the south west of the proposed site.
NSL2	30m	Residential properties along the R725, to the south of the proposed site.
NSL3	20m	Residential and commercial properties along the R725, to the south east of the proposed site.
NSL4	75m	Residential properties along the R725, to the south east of the proposed site.
NSL5	10m	Residential properties along the L10112 Kilnahue Lane, to the east of the proposed site.
NSL6	75m	Educational establishments along the L10112 Kilnahue Lane, to the north east of the proposed site.
NSL7	35m	Residential properties along the L10112 Kilnahue Lane, to the north east of the proposed site.

Figure 12 4 Noise Sensitive Locations



12.8.2 Proposed Threshold Levels for Noise

By reference to the noise baseline survey results (Section 12.6) and guidance contained in BS 5228 Part 1 for construction noise levels discussed in Table 12 1, the following threshold for significance from construction activities are set as follows:

- For the residential NSLs it is considered appropriate to adopt the 65 dB(A) threshold level, given the baseline monitoring carried out, it would indicate that Category A values are appropriate according to the ABC method.
- For commercial NSLs it is considered appropriate to adopt the 75 dB(A) threshold level, given the urban environment in which the closest commercial properties reside, in line with BS 5228-1:2009+A1:2014.

12.8.3 Construction Phase

12.8.3.1 Noise

The greatest noise and vibration impact of the proposed development are expected during the construction phase due to the operation of various plant machinery and HGV movement to, from and around the site. However, the construction phase can be classed as a short-term phase.

BS 5228-1 provides noise level data for various construction machinery. Noise levels associated with site clearance, ground excavation and loading lorries (dozers, tracked excavators and wheeled loaders) reach a maximum of 81 dB L_{Aeq},T at a distance of 10 m. For this assessment, a worst-case scenario is assumed of 3 no. such items with a sound pressure level (SPL) of 81 dB at 10 m operating simultaneously along the closest works boundary. This would result in a total noise level of 85 dB at 10m and an equivalent combined sound power level of 114 dB LWA. This conservative scenario is the typical assumption made for developments of this size, on the basis that it is unlikely that more than 3 no. items of such plant/equipment would be operating simultaneously in such close proximity to each other.

Guidance on the approximate attenuation achieved by barriers surrounding the site is also provided in BS 5228-1. It states that when the top of the plant is just visible to the receiver over the noise barrier, an approximate attenuation of 5 dB can be assumed, while a 10 dB attenuation can be assumed when the noise screen completely hides the sources from the receiver.

For this scenario it is assumed that construction will be partially screened from the local receptors by way of typical 2.4m site hoarding. Table 12 13 shows the potential noise levels calculated at various distances based on the assumed sound power level, a percentage on time of 66% and 5 dB attenuation provided by the barrier.

Table 12 13 Predicted Construction Noise Levels

Description of Noise Source	Sound Power Level (dB Lw(A))	Calculated noise levels at varying distances (dB $L_{Aeq,T}$)				
		10m	20m	35m	50m	80m
3 no. items each with SPL of 81 dB at 10 m operating simultaneously.	114	77	71	65	62	57

Phase 1

During Phase 1, works will take place along the eastern portion of the site in proximity to NSL5, located approximately 10m from the site boundary along the L10112 Kilnahue Lane. Construction activities during this phase are expected to temporarily elevate noise levels at NSL5. A **negative, significant to very significant, and short-term** impact is therefore predicted at this location.

The next closest receptor, NSL7, is situated approximately 35m from the construction area, where impacts are expected to be **negative, slight to moderate, and short-term**. The remaining receptors are located 70m or more from the Phase 1 works and are predicted to remain within the recommended BS 5228 criteria, resulting in negative, not significant, and short-term impacts at these locations.

Phase 2

During Phase 2, works will take place along the northeastern portion of the site in proximity to NSL 7, located approximately 35m from the site boundary along the L10112 Kilnahue Lane. Construction activities during this phase are expected to temporarily elevate noise levels at NSL 7. A **negative, slight to moderate, and short-term** impact is therefore predicted at this location.

The remaining receptors are located 145m or more from the Phase 2 works and are predicted to remain within the recommended BS 5228 criteria, resulting in negative, not significant, and short-term impacts at these locations.

Phase 3

During Phase 3, works will take place along the southern portion of the site in proximity to NSL 3, located approximately 20m from the site boundary along the R725. Construction activities during this phase are expected to temporarily elevate noise levels at NSL 3. A negative, moderate to significant, and **short-term impact** is therefore predicted at this location.

The remaining receptors are located approximately 75m or more from the Phase 3 works and are predicted to remain within the recommended BS 5228 criteria, resulting in **negative, not significant, and short-term impacts** at these locations.

Phase 4

During Phase 4, works will take place along the southern portion of the site in proximity to NSL1, NSL2, and NSL3, located approximately 10m, 30m, and 20m respectively from the site boundary along the R725.

At NSL1 and NSL3 a negative, significant to very significant, and short-term impact is predicted. At NSL2 a **negative, moderate to significant, and short-term impact** is predicted.

The remaining receptors are located 200m or more from the Phase 4 works and are predicted to remain within the recommended BS 5228 criteria, resulting in n**egative, not significant, and short-term impacts** at these locations.

12.8.3.2 Vibration

Potential vibration impacts during the construction phase are expected to be limited, as no rock breaking or piling activities will take place on site. The primary source of vibration will be excavation works using standard plant such as excavators and tracked machinery.

Published empirical data for excavation-related vibration indicate typical peak particle velocity (PPV) levels of approximately 0.2 mm/s at a distance of 10 m from typical excavation equipment (BS 5228-2:2009). Given the distances from excavation activities to the NSLs, vibration levels at receptor locations are expected to be substantially attenuated.

Vibration levels at the closest buildings are anticipated to be well below the thresholds for cosmetic damage as outlined in Table 12 4, and also below the typical perceptibility threshold for building occupants (approximately 0.3 mm/s PPV).

Consequently, vibration effects at residential NSLs are predicted to be **temporary, imperceptible and not-significant** in nature, with no significant disturbance expected.

Similarly, vibration levels at commercial NSLs are expected to be negligible or slight during the closest works, with impacts considered **temporary, imperceptible and not-significant.**

12.8.4 Operational Phase

12.8.4.1 Additional Traffic on Public Roads

A traffic impact assessment relating to the proposed development has been prepared as part of this planning assessment. Information from this report has been used to determine the predicted change in noise levels in the vicinity of a number of roads in the area surrounding the proposed development, for the opening and design years.

For the purposes of assessing potential noise impact, it is appropriate to consider the relative increase in noise level associated with traffic movements on existing roads and junctions with and without the development. The results are presented in Table 12 14.

The results indicate that the effect due to noise from a change in traffic volumes will range from **imperceptible to not significant and will be long-term.**

Table 12 14 Change in Traffic Noise Levels

Ref	Name	Increase in Noise Level (dB)			Effect
		2025	2028	2043	
1	R725 (West of Access)	0.0	0.0	0.0	Imperceptible
2	R725 (East of Access)	0.0	0.9	0.9	Not Significant
3	R725 (East of L10112)	0.0	1.4	1.3	Not Significant
4	R725 (East of Woodbury)	0.0	1.1	1.1	Not Significant
5	L10112	0.0	2.1	2.0	Not Significant
6	R772 (Main Street)	0.0	1.3	1.3	Not Significant
7	R772 (West of L1038)	0.0	0.0	0.0	Imperceptible
8	L1038	0.0	0.3	0.3	Not Significant

The predicted increase in traffic flows associated with the proposed development in 2028 and 2043 will result in an increase in noise levels of more than 1 dB along 4 roads receiving traffic from the proposed development. With reference to Table 12 14, the likely effect is therefore negative, imperceptible to not significant and long-term.

12.8.4.2 Building Services Plant

Once operational, there will be building services plant items required to serve the residential and crèche aspect of the development. These will typically be limited to heating and cooling plant and extract units, depending on the building design and user requirements. Given the use of these buildings, the majority of plant items are likely to be required during daytime hours only; however, there may be requirement for night-time operational plant, depending on specific requirements.

The location or type of building services plant has not yet been established, therefore it is not possible to calculate noise levels to the surrounding environment at this stage. In this instance, it is best practice to set appropriate noise limits that will inform the detailed design during the selection and layout of building services for the development,

These items will be selected at a later stage, however, they will be designed and located so that there is no negative impact on sensitive receivers within the development itself. The cumulative operational noise level from building services plant at the nearest noise-sensitive location within the development (e.g. apartments, etc.) will be designed/attenuated to meet the relevant BS 4142 noise criteria for day and night-time periods as set out in this assessment.

Based on the baseline noise data collected, representative background levels have been derived for the daytime/ evening and night-time periods. As the measured night-time background of 26 dB L_{A90},15min represents an exceptionally quiet environment and is below practical design thresholds for small-scale plant, a minimum night-time design criterion of 30 dB L_{A90},15min has been adopted in accordance with good acoustic practice. The adopted background levels and corresponding BS 4142 Rating Level criteria ($L_{Ar,Tr}$) are summarised in Table 12-15 below.

Table 12 15 Background Levels and BS 4142 Design Criteria

Period	Measured Background Level (L_{A90},15min)	Adopted Background Level for Assessment (L_{A90},15min)	BS 4142 Rating Level Criterion ($L_{Ar,Tr}$)	Notes
Daytime / Evening (07:00–23:00)	40 dB	40 dB	≤ 40 dB LAr,Tr	Rating Level set equal to background (no penalties applied at design stage).
Night-time (23:00–07:00)	26 dB	30 dB (minimum adopted threshold)	≤ 30 dB $L_{Ar,Tr}$	26 dB is exceptionally quiet; 30 dB adopted as a practical lower design criterion in accordance with good practice.

Compliance with these limits will ensure that operational noise emissions remain low and that the overall effect will be negative, not significant, and long-term.

12.8.4.3 Crèche Playground

Measurement of noise levels generated by children playing outdoors at several crèches and kindergartens, indicates typical noise levels in the order of 56 dB L_{Aeq},1hr at a distance of 5 metres. The nearest existing off-site noise sensitive locations to the west are approximately 45 m from the Crèche play area.

Considering the distance and screening from existing boundary treatments, activities from the crèche are calculated to be below 40 dB L_{Aeq},1hr and hence are well below the range of baseline noise levels recorded to the north of the site at Location UN1, representative of properties set back from road traffic. The resultant noise impact is therefore neutral, not significant and long-term.

12.8.5 Cumulative Effects

12.8.5.1 Construction Phase

At the time of assessment, detailed information regarding the phasing schedule and potential overlap between construction phases was not available. For the purposes of this assessment, it has been assumed that construction activities will occur sequentially, with only one major phase active at any given time.

Should limited overlap between adjacent phases occur, the separation distances between working areas and the majority of NSLs are such that cumulative noise effects are not expected to result in any material increase in predicted noise levels.

Accordingly, there will be no additional significant cumulative construction noise impacts.

12.8.5.2 Operational Phase

No cumulative operational noise assessment was undertaken, as there are no other confirmed future developments or known noise-generating schemes in the immediate vicinity that would be expected to contribute materially to the overall noise climate at the assessed receptors.

Operational noise emissions from the proposed development itself will be controlled through appropriate design and mitigation (as outlined in Section 12.9), ensuring compliance with relevant criteria.

On this basis, no significant cumulative operational noise effects are predicted.

12.9 Mitigation Measures

12.9.1 Construction Phase Mitigation

With regard to construction activities, best practice operational and control measures for noise and vibration from construction sites are found within BS 5228 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2.

BS 5228 includes guidance on several aspects of construction site practices, including, but not limited to: -

- Selection of quiet plant.
- Control of noise sources.
- Screening (boundary, and or localised plant screening).
- Hours of work.
- Liaison with the public.
- Monitoring.

Detailed comment is offered on these items in the following paragraphs. Noise control measures that will be considered include the selection of quiet plant, enclosures and screens around noise sources, limiting the hours of work and noise monitoring.

12.9.1.1 Selection of Quiet Plant

This practice is recommended in relation to sites with static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures where possible. The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item should be selected wherever possible.

12.9.1.2 Noise Control at Source

If replacing a noisy item of plant is not a viable or practical option, consideration should be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials between the surfaces in contact.

BS 5228 states that "as far as reasonably practicable sources of significant noise should be enclosed". In applying this guidance, constraints such as mobility, ventilation, access and safety must be taken into account. Items suitable for enclosure include pumps and generators.

BS 5228 makes a number of recommendations in relation to "use and siting of equipment". These are all directly relevant and hence are reproduced below. These recommendations will be adopted on site.

"Plant should always be used in accordance with manufacturers' instructions. Care should be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading should also be carried out away from such areas.

Machines such as cranes that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. Machines should not be left running unnecessarily, as this can be noisy and waste energy.

Plant known to emit noise strongly in one direction should, when possible, be orientated so that the noise is directed away from noise-sensitive areas. Attendant operators of the plant can also benefit from this acoustical phenomenon by sheltering, when possible, in the area with reduced noise levels.

Acoustic covers to engines should be kept closed when the engines are in use and idling. The use of compressors that have effective acoustic enclosures and are designed to operate when their access panels are closed is recommended.*

Materials should be lowered whenever practicable and should not be dropped. The surfaces on to which the materials are being moved could be covered by resilient material."

Other forms of noise control at source relevant to the development works are set out below: -

- For mobile plant items such as cranes, dump trucks, excavators and loaders, the installation of an acoustic exhaust and or maintaining enclosure panels closed during operation can reduce noise levels by up to 10 dB. Mobile plant should be switched off when not in use and not left idling.
- For percussive tools such as pneumatic concrete breakers and tools a number of noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensure any leaks in the air lines are sealed. Erect localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries.
- For concrete mixers, control measures should be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum.
- For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.
- Demountable enclosures can also be used to screen operatives using hand tools/ breakers and will be moved around site as necessary.
- All items of plant should 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.

12.9.1.3 Screening

Screening is typically an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to all other forms of noise control. The effectiveness of a noise screen will depend on the height and length of the screen and its position relative to both the source and receiver.

Screening may be a useful form of noise control when works are taking place at basement and ground level to screen noise levels at ground floor adjacent buildings.

In addition, careful planning of the site layout should also be considered. The placement of site buildings such as offices and stores and in some instances materials such as aggregate can provide a degree of noise screening if placed between the source and the receiver. The use of localised mobile hoarding screens and / or acoustic quilts to items of plant with the potential to generate high levels of noise are an effective noise control measure. These options should be considered when percussive works are taking place in close proximity to the nearest sensitive perimeter buildings.

12.9.1.4 Liaison with the Public

A designated Noise Liaison Office should be appointed for the duration of the construction works. All noise complaints should be logged and followed up in a prompt fashion by the liaison officer. In addition, prior to particularly noisy construction activity, e.g. excavation, the liaison officer should inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

12.9.1.5 Hours of Work

Construction works will be undertaken within the times below, taken from the Section 5.7 of the Draft Construction Management Plan: -

- Monday to Friday: 08:00 to 19:00hrs
- Saturday: 08:00 to 14:00hrs
- Sunday and Public Holidays: No noisy work shall take place on site.

12.9.2 Operational Phase Mitigation

No operational mitigation is required.

12.10 Residual Impact Assessment

This section assesses potential significant environmental impacts that may remain after mitigation measures are implemented.

12.10.1 Construction Phase

The predicted construction noise levels presented in Section 12.8.3.1 include an assumed 5 dB attenuation provided by standard 2.4 m high site hoarding. Therefore, the noise impacts described represent residual noise levels following the implementation of this physical mitigation measure.

At receptors NSL1, NSL3, and NSL5, the residual noise impacts are predicted to be negative, moderate to very significant, and short-term in duration due to their proximity to construction activities. For other receptors located further from the works, residual impacts are expected to be negative, slight to moderate, and short-term.

Additional mitigation measures are recommended to further reduce potential noise impacts at the closest sensitive receptors. These measures include:

- Restricting noisy activities to daytime hours where practicable.
- Optimising plant selection and operation to minimise noise emissions.
- Implementing good site management practices to avoid the simultaneous operation of multiple high-noise plant items.

With the implementation of these enhanced mitigation measures, residual noise impacts at NSL1, NSL3, and NSL5 have the potential to reduce to negative, moderate to significant, and short-term in duration. In the absence of these further controls, residual impacts at these locations may remain negative, moderate to very significant and short-term for the duration of the construction phase.

Overall, the construction noise impacts are short-term in duration and will cease upon completion of the works.

12.10.2 Operational Phase

The predicted operational noise levels assessed in Section 12.8.4 take into account all relevant sources including additional traffic on local roads, building services plant, and crèche playground activities.

Residual effects arising from changes in traffic volumes are predicted to be negative, imperceptible to not significant and long-term.

Noise emissions associated with building services plant are expected to be within the adopted day and night-time noise limits at the nearest noise-sensitive properties taking into account the site layout, the nature and type of units proposed and distances to nearest residences. Provided that operational noise levels do not exceed the adopted design criteria, the resultant residual noise impact from this source will be of negative, not significant and long-term.

Noise levels from the crèche playground are predicted to remain below existing baseline noise levels at the nearest off-site receptors, resulting in a neutral, not significant and long-term impact.

Overall, with the application of standard mitigation measures and adherence to recommended noise limits, residual operational noise impacts associated with the proposed development are expected to be negative, not significant, and long-term in nature.

12.10.3 Cumulative Impact

Given that the proposed development is expected to be constructed in four sequential phases rather than concurrently and considering the distances between the site and any other known or potential construction projects in the surrounding area, no significant cumulative construction noise impacts are anticipated.

No other major permitted or proposed developments have been identified in the immediate vicinity that would contribute materially to cumulative noise effects during the construction period.

During the operational phase, the cumulative effect of the proposed development, in combination with general traffic growth on the surrounding road network, is predicted to be negative, imperceptible to not significant, and long-term.

12.11 Risk of Major Accidents or Disasters

There are no likely risks of major accidents or disasters in relation to noise or vibration associated with the proposed development or the cumulative development.

12.12 Worst Case Scenario

In terms of construction phase impacts, worst-case assumptions regarding excavation volumes and construction traffic movements have been applied to determine the highest level of mitigation required in relation to potential noise impacts (see Section 12.8.3). The proposed development is the worst-case scenario in terms of noise emissions, with emissions from each individual phase expected to be lower than those of the cumulative proposed development.

Worst-case traffic data was used in the assessment of both construction and operational phase impacts. In addition, conservative baseline noise levels were used to ensure a robust assessment. Accordingly, the predicted results of the construction and operational assessment are worst-case outcomes and the significance of effects is most likely overestimated.

12.13 Interactions

The potential interaction between noise and vibration and other specialist chapters within the EIAR is primarily limited to Chapter 4 (Population & Human Health), Chapter 11 (Biodiversity) and Chapter 6 (Material Assets - Traffic & Transportation).

This chapter has been prepared in consideration of and in conjunction with the relevant elements of these chapters. For example, noise and vibration impacts associated with the Proposed Development have been fully considered within this Chapter of the EIA Report. Commentary on the impact assessment and related noise levels are also summarised specifically with respect to potential human health impacts in Chapter 4.

The traffic flow projections associated with the development provided by the traffic consultants in Chapter 6 (Material Assets - Traffic & Transportation) has been utilised in the construction and operational noise calculations in this Chapter of the EIAR report.

12.14 Monitoring

The following monitoring measures are required to be implemented at the site for the project to ensure that construction activities do not cause excessive nuisance to receptors in the vicinity of the site.

12.14.1 Noise Monitoring

During the construction phase, the appointed contractor will monitor noise at representative NSLs to evaluate and inform the requirement and / or implementation of noise management measures. Noise will be monitored in accordance with ISO 1996–1 (ISO 2016) and ISO 1996–2 (ISO 2017).

The selection of monitoring locations will be based on the closest NSLs to the proposed works which have the potential to exceed the CNT, i.e., at NSL1, NSL3 and NSL5 to the southern and eastern site boundaries.

Any Noise Monitoring Terminal (NMT) (number and locations to be agreed post-consent with Local Authority), to be installed will have the following specifications (or similar approved):

- Logging of two concurrent periods, e.g., 15-minute & hourly.
- Daily automated Charge Injection Calibration (CIC). E-mail alert on threshold exceedance.
- E-mail alert on low battery and low memory.
- Remote access to measured data.
- Live display of noise levels.

In addition, it is recommended that spot-check noise measurements are conducted on a monthly basis. These spot checks can be organised to coincide with works that have the potential to generate high levels of noise on site in order to confirm the potential extent of effects.

A monthly noise-monitoring report should be prepared by the contractor. Reports should identify any exceedances above nominal limit values and attempts to clarify the causes. Where remedial measures are required and identifiable, these should also be clearly stated and implemented promptly.

12.14.2 Vibration Monitoring

Where the excavation works take place within 50m of vibration-sensitive locations (VSLs) e.g. NSL1, NSL2, NSL3 and NSL5 vibration monitoring shall be installed, with the number and locations to be agreed with Local Authority.

Vibration monitoring stations should continually log vibration levels using the Peak Particle Velocity parameter (PPV, mm/s) in the X, Y and Z directions, in accordance with ISO 4866: 2010: Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures.

The mounting of the transducer to the vibrating structure will need to comply with BS ISO 5348: 2021: Mechanical vibration and shock – Mechanical mounting of accelerometers.

In summary, the following ideal mounting and monitoring conditions apply:

- The transducer and its mountings should be as rigid as possible;
- The mounting surfaces should be as clean and flat as possible;
- Simple symmetric mountings are best;
- The mass of the mounting should be small in comparison to that of the structure under test;
- The monitoring equipment should be set to monitor vibration in 5-minute periods;

- E-mail alert on threshold exceedance;
- E-mail alert on low battery and low memory;
- Remote access to measured data;
- Live display of vibration levels.

In addition, it is recommended that spot-check vibration measurements are conducted on a monthly basis. These spot checks can be organised to coincide with works that have potential to generate high levels of vibration on site in order to confirm the potential extent of effects.

A monthly vibration monitoring report should be prepared by the contractor. Reports should identify any exceedances above nominal limit values and attempts to clarify the causes. Where remedial measures are required and identifiable, these should also be clearly stated.

No monitoring is required for the operational phase.

12.15 Summary

There are no significant residual effects during the construction or operational phases of the development. The following Table summarises the construction phase mitigation and monitoring measures.

Table 12.16: Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Construction Phase	Selection of quiet plant; control of noise sources; screening, controlling; hours of work; liaison with the public.	NSL1, NSL3 and NSL 5
Vibration	Liaison with the public; appropriate vibration isolation shall be applied to plant; monitoring will be undertaken at southern site boundary in close proximity to NSL1 and eastern site boundary in close proximity to NSL2 and NSL3.	NSL1, NSL2, NSL3 and 5

The following Table summarises the operational phase mitigation and monitoring measures.

Table 12 17: Summary of Operational Phase Mitigation and Monitoring

Likely Significant Effect	Mitigation	Monitoring
Building services plant noise	Selection of quiet plant at detailed design stage to ensure adherence to criteria outlined in section 12.8.4.2.	Not applicable

12.16 Conclusion

An assessment of the potential noise and vibration impacts associated with the proposed development has been undertaken. The assessment considered all relevant phases of the project, including construction and operational activities.

During the construction phase, temporary noise impacts are predicted at the nearest sensitive receptors, with the most notable effects occurring at NSL1, NSL3, and NSL5 due to their proximity to the works. These impacts are predicted to be short-term in duration and will reduce with the implementation of standard good practice mitigation measures, including the use of site hoarding, control of working hours, and appropriate selection and operation of plant and equipment. No significant vibration impacts are anticipated, provided typical modern construction practices are adopted.

During the operational phase, noise emissions from building services plant, crèche activities, and additional traffic associated with the development have been assessed. All predicted operational noise levels are within relevant guideline limits, and impacts are predicted to be negative, not significant, and long-term.

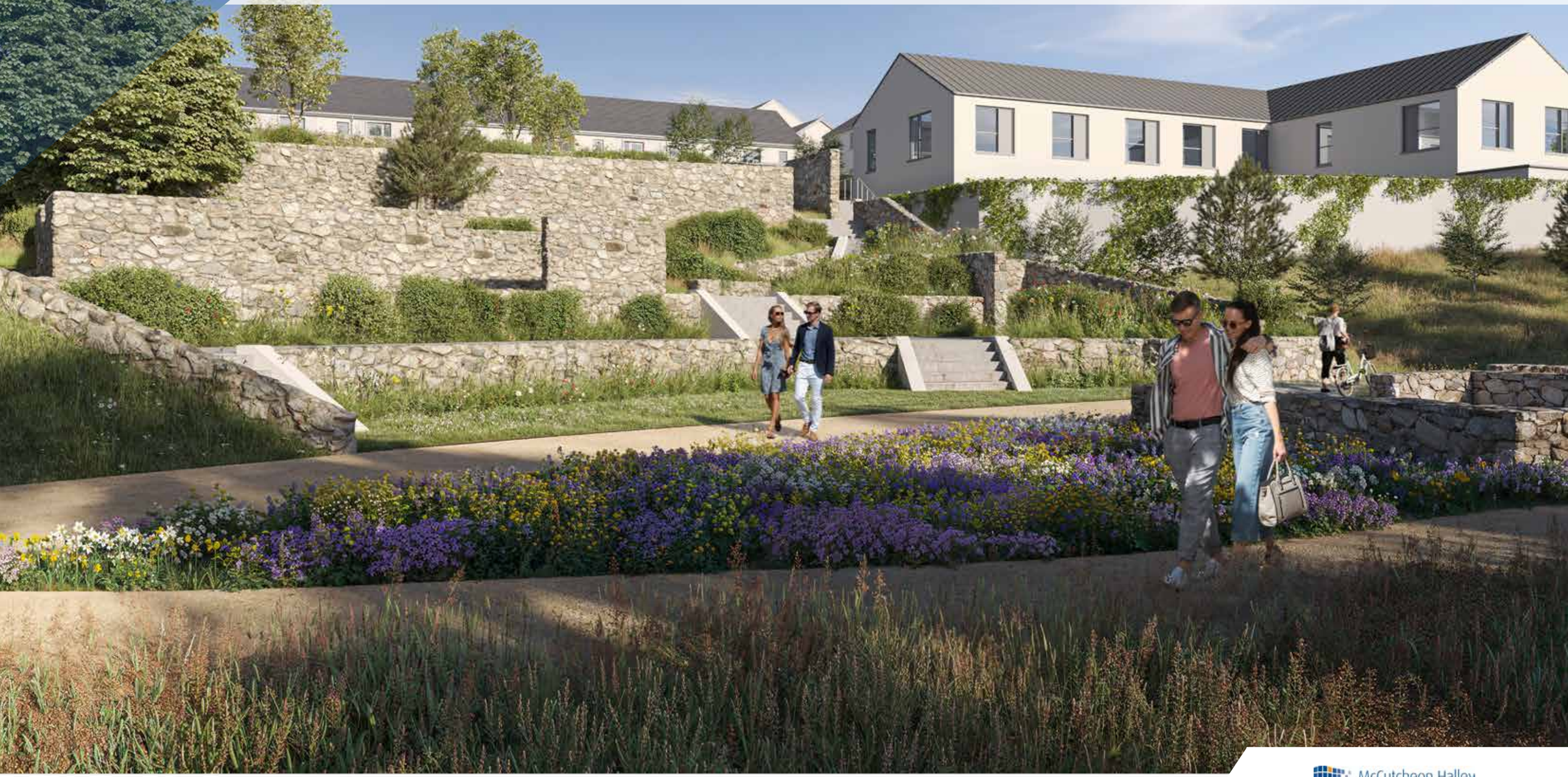
No significant cumulative noise or vibration impacts are anticipated during either the construction or operational phases of the development.

12.17 References and Sources

- ANC, IOA & CIEH (2017). ProPG: Planning & Noise – Professional Practice Guidance on Planning & Noise – New Residential Development.
- Wexford County Council Noise Action Plan 2024-2028
- British Standard BS 8233: 2014: Guidance on sound insulation and noise reduction for buildings.
- British Standard BS 5228: 2009 +A1:2014: Code of Practice for Control of Noise and Vibration on Construction and Open Sites Part 1: Noise & Part 2: Vibration.
- British Standard BS 7385: 1993: Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration.
- Department of Transport Welsh Office, HMSO (1988). Calculation of Road Traffic Noise.
- EPA (2022). Guidelines on the Information to be contained in Environmental Impact Assessment Reports.
- ISO 1996: 2017: Acoustics – Description, measurement and assessment of environmental noise.
- ISO 9613-2: 2024: Acoustics – Attenuation of sound during propagation outdoors, Part 2: General method of calculation.

CHAPTER THIRTEEN

AIR QUALITY



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CHAPTER 13

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CHAPTER 13 | AIR QUALITY

13.1 Introduction

This chapter assesses the likely air quality impacts associated with the proposed largescale residential development situated in Gorey, Co. Wexford. This report assesses the baseline air quality conditions at the site and evaluates the potential effects of the proposed development's construction and operation. Where required, appropriate mitigation measures to limit any identified likely significant adverse impacts to air quality are recommended.

A full description of the development is available in Chapter 2. This Chapter should be read in conjunction with Chapter 12 Material Assets - Traffic and Transport and the Traffic and Transportation Assessment submitted with the planning application.

13.1.1 Expertise & Qualifications

This chapter was prepared by Ciara O'Connor. Ciara is an Environmental Consultant in the Air Quality and Climate section of AWN Consulting, a Trinity Consultants Company. She holds a BSc in Environmental Science from University College Cork.

This chapter was reviewed by Carl Ramskill. Carl is a principal consultant in the Air Quality section of AWN Consulting. He holds a BSc in Chemistry from University of Birmingham (UoB) and has also completed an MSc in Air Pollution Management and Control at UoB. He is a Member of the Institute of Air Quality Management (MIAQM) and the Institution of Environmental Sciences (MIEnvSc). He has over 8 years of experience in undertaking air quality and assessments. He has prepared air quality impact assessments as part of EIARs for residential developments, commercial and industrial developments. Carl also specialises in conducting air dispersion modelling assessments of emissions from data centres and energy centres to support EPA Industrial Emissions Licence applications. He has undertaken air quality impact assessments for transportation schemes, primarily regional and national road schemes, from constraints, through to route selection and EIAR stage.

13.1.2 Aspects Relevant to this Assessment

During the construction phase construction dust emissions have the potential to impact air quality. Dust emissions will primarily occur as a result of site preparation works, earthworks and the movement of trucks on site and exiting the site. There is also the potential for engine emissions from site vehicles and machinery to impact air quality. Construction phase impacts will be short-term in duration.

Engine emissions from vehicles accessing the site have the potential to impact air quality during the operational phase of the development through the release of nitrogen dioxide (NO2) and particulate matter (as PM10 and PM2.5). Operational phase impacts will be long-term in duration.

13.2 Methodology

13.2.1 Relevant Legislation & Guidance

The principal guidance and best practice documents used to inform the assessment of potential impacts on air quality are summarised below.

- Guidance on the Assessment of Dust from Demolition and Construction v2.2 (Institute of Air Quality Management [IAQM] (hereafter referred to as the IAQM Guidelines) (IAQM, 2024);
- A Guide To The Assessment Of Air Quality Impacts On Designated Nature Conservation Sites (Version 1.1) (IAQM, 2020); and
- PE-ENV-01106: Air Quality Assessment of Specified Infrastructure Projects (Transport Infrastructure Ireland [TII], 2022).
- In addition to specific air quality guidance documents, the following guidelines were considered and consulted in the preparation of this chapter:
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the Environmental Protection Agency (EPA) Guidelines) (EPA, 2022);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018); and
- Environmental Impact Assessment (EIA) Directive Guidance on the Preparation of the Environmental Impact Assessment Report (European Commission, 2017).

13.2.2 Criteria for Rating of Impacts

13.2.2.1 Ambient Air Quality Standards

To reduce the risk to health from poor air quality, national and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values or 'Air Quality Standards' are health or environmental-based levels for which additional factors may be considered. For example, natural background levels, environmental conditions and socio-economic factors may all play a part in the limit value which is set.

Air quality significance criteria are assessed on the basis of compliance with the appropriate standards or limit values. The applicable standards in Ireland are set out in Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe (recast). This directive supersedes EU Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (CAFE Directive). Directive (EU) 2024/2881 sets out air quality standards for pollutants to be reached by 2026 and by 2030 which are more closely aligned with the World Health Organisation (WHO) air quality guidelines.

The ambient air quality limit values for pollutants are set out in Annex I of Directive (EU) 2024/2881. Table 1 of Annex I in Directive (EU) 2024/2881 sets out the updated air quality limit values for pollutants to be achieved by 1 January 2030, which are more closely aligned with the WHO air quality guidelines. Table 2 of Annex I in Directive (EU) 2024/2881 sets out the limit values for air pollutants which are to be achieved by 11 December 2026 and are also applicable up to 2030. The limit values in Table 2 of Annex I are the same as the limits set under Directive 2008/50/EC and the Air Quality Standards Regulations 2022.

The Ambient Air Quality Standards Regulations 2022 (S.I. 739 of 2022) (the Air Quality Standards Regulations 2022) further transposed the CAFE Directive and revoked the Air Quality Standards Regulations 2011, as amended. With the adoption of Directive (EU) 2024/2881, Ireland must transpose this directive into national law, i.e. update the Air Quality Standards Regulations, before December 2026.

In relation to the proposed development, the applicable limit values are for nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$). Table 13 1 outlines the limit values pre-2030 and post-2030 for the specified pollutants.

Table 13 1 Ambient Air Quality Limit Values

Pollutant	Directive (EU) 2024/2881 Annex I Table 2		Directive (EU) 2024/2881 Annex I Table 1	
	Limit Type	Limit Value (to be attained by 2026 and applicable until 2030)	Limit Type	Limit Value (to be attained by 2030)
Nitrogen Dioxide (NO_2)	Hourly limit for protection of human health - not to be exceeded more than 18 times/year	200 µg/m³	Hourly limit for protection of human health - not to be exceeded more than 3 times/year	200 µg/m³
	N/A	N/A	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	50 µg/m³
	Annual limit for protection of human health	40 µg/m³	Annual limit for protection of human health	20 µg/m³
Particulate Matter (as PM_{10})	24-hour limit for protection of human health - not to be exceeded more than 35 times/year	50 µg/m³	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	45 µg/m³
	Annual limit for protection of human health	40 µg/m³	Annual limit for protection of human health	20 µg/m³
Particulate Matter (as $PM_{2.5}$)	N/A	N/A	24-hour limit for protection of human health - not to be exceeded more than 18 times/year	25 µg/m³
	Annual limit for protection of human health	25 µg/m³	Annual limit for protection of human health	10 µg/m³

13.2.2.2 WHO Air Quality Guidelines & Clean Air Strategy

In April 2023, the Government of Ireland published the *Clean Air Strategy for Ireland* (Government of Ireland, 2023), which provides a high-level strategic policy framework needed to reduce air pollution. The strategy commits Ireland to achieving the 2021 WHO Air Quality Guidelines Interim Target 3 (IT3) by 2026 (Table 13 2), the IT4 targets by 2030 and the final targets by 2040 (Table 13 2). The strategy notes that a significant number of EPA monitoring stations observed air pollution levels in 2021 above the WHO targets; 80% of these stations would fail to meet the final PM2.5 target of 5 µg/m³. The strategy also acknowledges that *"meeting the WHO targets will be challenging and will require legislative and societal change, especially with regard to both $PM_{2.5}$ and NO_2".*

Annex II of Directive (EU) 2024/2881 gives assessment thresholds which align with the clean air strategy final 2040 WHO targets. Directive (EU) 2024/2881 states that *"Member States shall endeavour to achieve and preserve the best ambient air quality and a high level of protection of human health and the environment, with the aim of achieving a zero-pollution objective as referred to in Article 1(1), in line with WHO recommendations, and below the assessment thresholds laid down in Annex II."*

These assessment thresholds relate to monitoring of ambient air quality by Member States, where *"exceedances of the assessment thresholds specified in Annex II shall be determined on the basis of concentrations during the previous 5 years where sufficient data are available. An assessment threshold shall be deemed to have been exceeded if it has been exceeded during at least 3 separate years out of those previous 5 years."*

Table 13 2 WHO Air Quality Guidelines 2021

Pollutant	Limit Type	IT3 (2026)	IT4 (2030)	Final Target (2040)
NO_2	24-hour limit for protection of human health	-	-	25 µg/m³
	Annual limit for protection of human health	20 µg/m³	-	10 µg/m³
PM (as PM_{10})	24-hour limit for protection of human health	75 µg/m³	50 µg/m³	45 µg/m³
	Annual limit for protection of human health	30 µg/m³	20 µg/m³	15 µg/m³
PM (as $PM_{2.5}$)	24-hour limit for protection of human health	37.5 µg/m³	25 µg/m³	15 µg/m³
	Annual limit for protection of human health	15 µg/m³	10 µg/m³	5 µg/m³

The applicable air quality limit values for the purposes of this assessment are those set out in Table 13 1The pre-2030 limit values in Table 2 of Annex I of Directive (EU) 2024/2881 are applicable for the construction phase and Opening Year 2028 for the proposed development. The limit values stipulated in Table 1 of Annex I of Directive (EU) 2024/2881 are applicable for the Design Year 2043 for the proposed development.

13.2.2.3 Dust Deposition Guidelines

The concern from a health perspective is focused on particles of dust that are less than 10 microns (PM_{10}) and less than 2.5 microns ($PM_{2.5}$). The EU ambient air quality standards outlined in Table 13 1 have set ambient air quality limit values for PM_{10} and $PM_{2.5}$.

With regards to larger dust particles that can give rise to nuisance dust, there are no statutory guidelines regarding the maximum dust deposition levels that may be generated during the construction phase of a development in Ireland. Furthermore, no specific criteria have been stipulated for nuisance dust in respect of this development.

With regard to dust deposition, the German TA-Luft standard for dust deposition (non-hazardous dust) (German VDI, 2002) sets a maximum permissible emission level for dust deposition of 350 mg/m_2/day averaged over a one-year period at any receptors outside the site boundary. The TA-Luft standard has been applied for the purpose of this assessment based on recommendations from the EPA in Ireland in the document titled *Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals)* (EPA, 2006). The document recommends that the TA-Luft limit of 350 mg/m_2/day be applied to the site boundary of quarries. This limit value can be implemented with regard to dust impacts from construction of the proposed development.

13.2.2.4 Air Quality & Traffic Significance Criteria

The Transport Infrastructure Ireland (TII) guidance document *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2022) details a methodology for determining air quality impact significance criteria for road schemes which can be applied to any project that causes a change in traffic. The degree of impact is determined based on the percentage change in pollutant concentrations relative to the Do Nothing scenario. The TII significance criteria are outlined in Table 4.9 of *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2022) and reproduced in Table 13 3 below. These criteria have been adopted for the proposed development to predict the impact of NO_2, PM_{10} and $PM_{2.5}$ emissions as a result of the proposed development.

Table 13 3 Air Quality & Traffic Significance Criteria

Long-term average concentration at receptor in assessment year	% Change in concentration relative to Air Quality Limit Value (AQLV)			
	1%	2-5%	6-10%	>10%
75% or less of AQLV	Neutral	Neutral	Slight	Moderate
76 – 94% of AQLV	Neutral	Slight	Moderate	Moderate
95 – 102% of AQLV	Slight	Moderate	Moderate	Substantial
103 – 109% of AQLV	Moderate	Moderate	Substantial	Substantial
110% or more of AQLV	Moderate	Substantial	Substantial	Substantial

Source: Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106 (TII, 2022)

As per Table 13 3 a neutral effect is one where a change in concentration at a receptor is:

- 5% or less where the Opening Year, without the proposed development, annual mean concentration is 75% or less of the standard; or
- 1% or less where the Opening Year, without the proposed development, annual mean concentration is 94% or less of the standard.

Where an effect does not meet the criteria for neutral, as described above, the effect can either be positive or negative. The TII guidance (TII, 2022) states that *"the evaluation of significance of effects for the operational phase should be undertaken for the Opening Year only as the Design Year is likely to show lower total pollutant concentrations and changes in concentration"* (TII, 2022).

Non-significant effects (i.e. of local importance only) are '*neutral*' or '*slight*' changes in concentrations while significant effects can be changes in pollutant concentrations that are either '*moderate*' or '*substantial*'. However, the TII guidance (TI, 2022) states that these must be considered in the context of the project and '*moderate*' or '*substantial*' increases are not necessarily always significant effects.

The impact descriptors in Table 13 3 are used to describe the impact at each modelled receptor location, and the significance of the impacts is then determined, aligning with the terminology in the EPA guidelines (EPA, 2022). Whilst it may be determined that there are '*slight*', '*moderate*' or '*substantial*' impacts at one or more receptors, an overall judgement should be made of whether the proposed development is '*significant*' or '*not significant*' in terms of air quality. Factors to consider when determining the overall significance of a proposed development are provided in Table 4.10 of the TII guidance (TII, 2022).

13.2.3 Construction Phase

13.2.3.1 Construction Dust Assessment

The Institute of Air Quality Management in the UK (IAQM) guidance document *'Guidance on the Assessment of Dust from Demolition and Construction*' (IAQM, 2024) outlines an assessment method for predicting the impact of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust impacts. The IAQM methodology has been applied to the construction phase of this development to predict the likely risk of dust impacts in the absence of mitigation measures and to determine the level of site-specific mitigation required. The use of UK guidance is recommended by Transport Infrastructure Ireland in their guidance document *Air Quality Assessment of Specified Infrastructure Projects* – PE-ENV-01106 (TII, 2022).

The major dust generating activities are divided into four types within the IAQM guidance (IAQM, 2024) to reflect their different potential impacts. These are:

- Demolition;
- Earthworks;
- Construction; and
- Trackout (transport of dust and dirt from the construction site onto the public road network).

The magnitude of each of the four categories is divided into large, medium or small scale depending on the nature of the activities involved. The criteria for determining the category for the works involved are outlined in Table 13 4, these are based on the IAQM guidance (IAQM, 2024). The magnitude of each activity is combined with the overall sensitivity of the area to determine the risk of dust impacts from site activities. This allows the level of site-specific mitigation to be determined.

Table 13 4 IAQM Criteria to Determine Dust Emissions Magnitude

Dust Emission Magnitude		
Small	**Medium**	**Large**
Demolition		
• Total building volume <12,000 m³	• Total building volume 12,000 - 75,000 m³	• Total building volume >75,000 m3
• Construction material with low potential for dust release (e.g. metal cladding or timber)	• Potentially dusty construction material	• Potentially dusty construction material (e.g. concrete)
• Demolition activities <6 m above ground	• Demolition activities 6 – 12 m above ground level	• On-site crushing and screening
• Demolition during wetter months		• Demolition activities >12 m above ground level Earthworks
Earthworks		
• Total site area <18,000 m²	• Total site area 18,000 m² - 110,000 m²	• Total site area >110,000 m²
• Soil type with large grain size (e.g. sand)	• Moderately dusty soil type (e.g. silt)	• Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size)
• <5 heavy earth moving vehicles active at any one time	• 5 – 10 heavy earth moving vehicles active at any one time	• >10 heavy earth moving vehicles active at any one time
• Formation of bunds <3 m in height	• Formation of bunds 3 – 6 m in height	• Formation of bunds >6 m in height
• Earthworks during wetter months		
Construction		
• Total building volume <12,000 m³	• Total building volume 12,000 - 75,000 m³	• Total building volume >75,000 m³
• Construction material with low potential for dust release (e.g. metal cladding or timber)	• Potentially dusty construction material (e.g. concrete)	• On-site concrete batching
	• On-site concrete batching	• Sandblasting
Trackout (Truck Movements)		
• <20 HDV (>3.5 t) outward movements in any one day	• 20 – 50 HDV (>3.5 t) outward movements in any one day	• >50 HDV (>3.5 t) outward movements in any one day
• Surface material with low potential for dust release	• Moderately dusty surface material (e.g. high clay content)	• Potentially dusty surface material (e.g. high clay content)
• Unpaved road length <50	• Unpaved road length 50 – 100 m	• Unpaved road length >100 m

The sensitivity of the area must then be assessed as outlined below. Both receptor sensitivity and proximity to proposed works areas are taken into consideration. For the purposes of this assessment, high sensitivity receptors are regarded as residential properties where people are likely to spend the majority of their time. Commercial properties and places of work are regarded as medium sensitivity while low sensitivity receptors are places where people are present for short periods or do not expect a high level of amenity. Table 13 5 outlines the criteria for determining the sensitivity of the area to dust soiling , dust-related human health effects and ecological impacts as per the IAQM guidance (IAQM, 2024).

Table 13 5 Criteria for Determining the Sensitivity of the Area

Sensitivity of the Area to Dust Soiling Effects on People and Property					
Receptor Sensitivity	**Number of Receptors**	**Distance from Source (m)**			
		<20	**<50**	**<100**	**<250**
High	>100	High	High	Medium	Low
	10 - 100	High	Medium	Low	Low
	1 - 10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Sensitivity of the Area to Human Health Impacts						
Receptor Sensitivity	**Annual Mean PM10 Concentration**	**Number of Receptors**	**Distance from Source (m)**			
			<20	**<50**	**<100**	**<250**
High	< 24 µg/m³	>100	Medium	Low	Low	Low
		10 - 100	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Medium	< 24 µg/m³	>10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Low	< 24 µg/m³	>1	Low	Low	Low	Low

Sensitivity of the Area to Ecological Impacts			
Receptor Sensitivity	**Receptor Sensitivity Description**	**Distance**	
		<20m	**<50m**
High	International or national designation, with particularly dust sensitive species present. Examples include Special Area of Conservation (SAC) or Special Protection Area (SPA).	High	Medium
Medium	National designation where the features may be affected by dust deposition. Examples include Site of Special Scientific Interest (SSSI).	Medium	Low
Low	Local designation where the features may be affected by dust deposition. Examples include local wildlife sites or county wildlife sites.	Low	Low

Once the dust emission magnitude and sensitivity of the area have been determined the next step, according to the IAQM guidance (IAQM, 2024), is to establish the level of risk by combining the magnitude with the overall sensitivity of the area to dust soiling, human health and ecological effects. The level of risk associated with each activity is determined using the criteria in Table 13 6.

Table 13 6 IAQM Criteria to Determine Risk of Dust Impacts

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
Demolition			
High	High risk	Medium risk	Medium risk
Medium	High risk	Medium risk	Low risk
Low	Medium risk	Low risk	Negligible
Earthworks			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible
Construction			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible
Trackout			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible

13.2.3.2 Construction Phase Traffic Assessment

Construction phase traffic also has the potential to impact air quality. The TII guidance A*ir Quality Assessment of Specified Infrastructure Projects* – PE-ENV-01106 (TII, 2022), states that road links meeting one or more of the following criteria can be defined as being '*affected*' by a proposed development and should be included in the local air quality assessment. While the guidance is specific to infrastructure projects, the approach can be applied to any development that causes a change in traffic.

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy duty vehicle (HDV) AADT changes by 200 or more;
- Daily average speed change by 10 kph or more;
- Peak hour speed change by 20 kph or more;
- A change in road alignment by 5m or greater.

NRB Consulting Engineers have prepared a Traffic and Transport Impact Assessment for the proposed development enclosed separately and have prepared Chapter 12 Material Assets – Traffic and Transport of this EIAR. As per Chapter 12, it has been determined that the construction stage traffic will not increase by 1,000 AADT, or 200 HDV AADT, or that the development will not result in speed changes or changes in road alignment. Therefore, the traffic does not meet the above scoping criteria. A detailed air quality assessment of construction stage traffic emissions has been scoped out from any further assessment as there is no potential for significant impacts to air quality with respect with human or ecological receptors.

13.2.4 Operational Phase

Operational phase traffic has the potential to impact local air quality as a result of increased vehicle movements associated with the proposed development. The TII scoping criteria detailed in Section 13.2.3.2 were used to determine if any road links are affected by the proposed development and require inclusion in a detailed air dispersion modelling assessment. NRB have prepared a Traffic and Transport Impact Assessment for the proposed development, enclosed separately, and have prepared Chapter 12 Material Assets – Traffic and Transport. There is predicted to be a greater than 1,000 AADT increase on a small number of road links. As a result, an assessment of traffic related emissions was conducted. Additionally, traffic associated with other cumulative developments in the vicinity of the proposed development was included in the figures supplied to ensure a full cumulative assessment was conducted. See Traffic and Transport Assessment and Chapter 12 Material Assets – Traffic and Transport for further details.

The impact of traffic emissions on air quality is assessed for both human and ecological receptors within 200 m of impacted roads as per the TII PE-ENV-01106 guidance (TII, 2022). The following sections describe the methodology for each assessment.

The impact to air quality as a result of changes in traffic is assessed at sensitive human receptors in the vicinity of affected roads. These are discussed in further detail within Section 13.6.2 and shown graphically in .

The TII guidance (2022) states that modelling should be conducted for NO^2, PM_{10} and $PM_{2.5}$ for the Base, Opening and Design Years for both the Do Nothing (the proposed development is not in place) and Do Something (with the proposed development in place) scenarios. Modelling of operational NO^2, PM_{10} and $PM_{2.5}$ concentrations has been conducted for the Do Nothing and Do Something scenarios using the TII Road Emissions Model (REM) online calculator tool (TII, 2025).

The following inputs are required for the REM tool: receptor locations, light duty vehicle (LDV) annual average daily traffic movements (AADT), annual average daily heavy-duty vehicles (HDV AADT), annual average traffic speeds, road link lengths, road type, project county location and pollutant background concentrations. The *Default* fleet mix option was selected along with the Intermediate Case fleet data base selection for cars, the ICE Sales Ban 2035 fleet data base for LGVs and the EU Target for the HGV fleet data base, as per TII Guidance (TII, 2025). The *Intermediate Case* assumes a linear interpolation between the Business-as-Usual case – where current trends in vehicle ownership continue and the Climate Action Plan (CAP) case – where adoption of low emission light duty vehicles occurs. The *ICE Sales Ban* 2035 represents a sales ban on new combustion engine vehicles to be implemented by 2035, and the *EU Target* for HGV represents interim targets for emissions from sales of new HGVs.

Using this input data the model predicts the road traffic contribution to ambient ground level concentrations at the identified sensitive receptors using generic meteorological data. The TII REM uses county-based Irish fleet composition for different road types, for different European emission standards from pre-Euro to Euro 6/VI with

scaling factors to reflect improvements in fuel quality, retrofitting, and technology conversions. The TII REM also includes emission factors for PM_{10} emissions associated with brake and tyre wear (TII, 2024). The predicted road contributions are then added to the existing background concentrations to give the predicted ambient concentrations. The ambient concentrations are then compared with the relevant ambient air quality standards to assess the compliance of the proposed development with these ambient air quality standards.

The TII guidance (2022) also states that impacts to sensitive ecology due to traffic emissions should be considered. Consideration should be given to designated sites within 2km of the proposed development. However, a detailed assessment is only required at a local level, where there is a designated site within 200m of impacted road links. The TII guidance (TII, 2022) notes that only sites that are sensitive to nitrogen and acid deposition need to be included in the assessment. It is not necessary to include sites for example that have been designated as a geological feature or water course. There are no designated ecological sites within 200m of the site or impacted road links and therefore no assessment was required.

13.2.4.1 Traffic Data used in Modelling Assessment

Traffic flow information is detailed in Table 13 7 as obtained from NRB for the purposes of this assessment. Data for the Do Nothing and Do Something scenarios for the Opening Year 2028 and Design Year 2043 were provided. The traffic data included traffic associated with the development site and other cumulative sites as relevant (see Chapter 12 Material Assets (Transportation) for further details).

The modelling assessment has been undertaken for 5 road links that were within 200 m of receptors. Background concentrations have been included as per Section 13.4.2 of this chapter based on available EPA background monitoring data (EPA, 2025).

Table 13 7 Traffic Data used in Operational Phase Air Quality Assessment

Road Name	Speed (kph)	Opening Year		Design Year	
		Do Nothing LDV AADT (HDV AADT)	Do Something LDV AADT (HDV AADT)	Do Nothing LDV AADT (HDV AADT)	Do Something LDV AADT (HDV AADT)
Link 1 R725 (East Access)	60	6118 (189)	7585 (234)	6351 (196)	7810 (242)
Link 2 R725 (East of L10112)	60	7746 (240)	10666 (330)	8040 (249)	10961 (339)
Link 3 R725 (East of Woodbury)	60	10231 (316)	13151 (407)	10620 (328)	13540 (419)
Link 4 L10112	30	2391 (74)	3851 (119)	2481 (77)	3942 (122)
Link 5 R772 (Main Street)	30	7286 (225)	9884 (306)	7563 (234)	10161 (314)

13.3 Difficulties Encountered

There were no difficulties encountered when compiling this assessment.

13.4 Baseline Environment

13.4.1 Meteorological Data

A key factor in assessing temporal and spatial variations in air quality is the prevailing meteorological conditions. Depending on wind speed and direction, individual receptors may experience very significant variations in pollutant levels under the same source strength (i.e. traffic levels) (WHO, 2006). Wind is of key importance in dispersing air pollutants and for ground level sources, such as traffic emissions, pollutant concentrations are generally inversely related to wind speed. Thus, concentrations of pollutants derived from traffic sources will generally be greatest under very calm conditions and low wind speeds when the movement of air is restricted. In relation to PM_{10}, the situation is more complex due to the range of sources of this pollutant. Smaller particles (less than $PM_{2.5}$) from traffic sources will be dispersed more rapidly at higher wind speeds. However, fugitive emissions of coarse particles ($PM_{2.5}$ - PM_{10}) will actually increase at higher wind speeds. Thus, measured levels of PM10 will be a non-linear function of wind speed.

The nearest representative weather station collating detailed weather records is Johnstown Castle meteorological station, which is located approximately 57 km south-west of the site. Johnstown Castle meteorological data has been examined to identify the prevailing wind direction and average wind speeds over a five-year period (Figure 13 1). For data collated during five representative years (2020 – 2024), the predominant wind direction is westerly to south-westerly with generally moderate wind speeds (Met Éireann, 2025).



Figure 13 1 Wind Roses for Johnstown Castle Meteorological Station

13.4.2 Baseline Air Quality

Air quality monitoring programs have been undertaken in recent years by the EPA. The most recent annual report on air quality in Ireland is *'Air Quality In Ireland 2024*' (EPA, 2025). The EPA website details the range and scope of monitoring undertaken throughout Ireland and provides both monitoring data and the results of previous air quality assessments.

As part of the implementation of the Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022), as amended, four air quality zones have been defined in Ireland for air quality management and assessment purposes (EPA, 2025). Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000, is defined as Zone D.

In terms of air monitoring and assessment, the proposed development site is within Zone D (EPA, 2025). The long-term monitoring data has been used to determine background concentrations for the key pollutants in the region of the proposed development. The background concentration accounts for all non-traffic derived emissions (e.g. natural sources, industry, home heating etc.). Representative EPA monitoring stations have been used to determine an estimate of the background air quality in the region of the proposed development.

13.4.2.1 NO_2

Long-term NO_2 monitoring was carried out at the representative Zone D suburban background location of Castlebar and Edenderry for the period 2020 – 2024 (Table 13 8) (EPA, 2025). Long-term average concentrations are significantly below the annual average limit of 40 µg/m3. Average results range from 6 – 10 µg/m³. The overall annual average concentration for this 5-year period is 8 µg/m³. Additionally, there were no exceedances of the hourly limit value of 200 µg/m³. Based on the above information a conservative estimate of the current background NO_2 concentration for the region of the proposed development is 8 µg/m³.

Table 13 8 Trends In Zone D Air Quality - Nitrogen Dioxide (NO_2)

Station	Averaging Period	Year				
		2020	2021	2022	2023	2024
Castlebar	Annual Mean NO2 (µg/m³)	6	6	8	7	7
	1-hr Mean > 200 µg/m³ (days)	0	0	0	0	0
Edenderry	Annual Mean NO2 (µg/m³)	-	9	7	9	10
	1-hr Mean > 200 µg/m³ (days)	-	0	0	0	0

13.4.2.2 PM_{10}

Continuous PM10 monitoring was carried out at the representative Zone D suburban background locations of Castlebar, Cobh Carrignafoy, Enniscorthy, Macroom, Roscommon Town, Tipperary Town, Cavan and Edenderry over the period 2020 – 2024 (EPA, 2025).

Long-term PM_{10} concentrations are in compliance with the annual average limit value of 40 µg/m₃. Levels range from 9 - 18 µg/m₃ over the five-year period at the Zone D sites, with no exceedances of the 24-hour limit value of 50 µg/m³ (35 exceedances are permitted per year) (EPA, 2025). The 5-year average PM_{10} concentration at the sites suggests an average concentration of no more than 13 µg/m³ (Table 13 9). Based on the EPA data, a conservative estimate of the current background PM_{10} concentration in the region of the proposed development is 13 µg/m³.

Table 13 9 Trends In Zone D Air Quality - PM_{10}

Station	Averaging Period	Year				
		2020	2021	2022	2023	2024
Castlebar	Annual Mean PM10 (µg/m³)	14	10	11	10	10
	24-hr Mean > 50 µg/m³ (days)	2	1	0	-	0
Cobh Carrignafoy	Annual Mean PM10 (µg/m³)	13	12	13	12	12
	24-hr Mean > 50 µg/m³ (days)	0	1	0	-	0
Enniscorthy	Annual Mean PM10 (µg/m³)	15	14	15	13	14
	24-hr Mean > 50 µg/m³ (days)	5	1	5	-	3
Macroom	Annual Mean PM_{10} (µg/m³)	15	15	16	11	12
	24-hr Mean > 50 µg/m³ (days)	6	2	7	-	0
Roscommon Town	Annual Mean PM_{10} (µg/m³)	10	10	11	10	10
	24-hr Mean > 50 µg/m³ (days)	0	0	0	-	1
Tipperary Town	Annual Mean PM_{10} (µg/m³)	12	13	14	11	11
	24-hr Mean > 50 µg/m³ (days)	1	3	3	-	0
Cavan	Annual Mean PM_{10} (µg/m³)	9	11	11	10	11
	24-hr Mean > 50 µg/m³ (days)	0	0	2	-	0
Edenderry	Annual Mean PM_{10} (µg/m³)	-	18	18	16	16
	24-hr Mean > 50 µg/m³ (days)	-	4	10	-	5

13.4.2.3 $PM_{2.5}$

Continuous $PM_{2.5}$ monitoring was carried out at the representative Zone D suburban background locations of Cavan, Cobh Carrignafoy, Edenderry, Enniscorthy, Macroom, Mallow, Roscommon Town and Tipperary Town over the period 2020 – 2024 (EPA, 2025).

PM2.5 concentrations range from 6 - 18 µg/m³ over the five-year period at the Zone D sites (EPA, 2025). The 5-year average $PM_{2.5}$ concentration at the sites suggests an average concentration of no more than 9 µg/m³ (Table 13 10). Based on the EPA data, a conservative estimate of the current background $PM_{2.5}$ concentration in the region of the proposed development is 9 µg/m³.

Table 13 10 Trends In Zone D Air Quality - $PM_{2.5}$

Station	Averaging Period	Year				
		2020	2021	2022	2023	2024
Cavan	Annual Mean $PM_{2.5}$ (µg/m³)	6	7	7	6	7
Cobh Carrignafoy	Annual Mean $PM_{2.5}$ (µg/m³)	8	7	8	7	7
Edenderry	Annual Mean $PM_{2.5}$ (µg/m³)	-	18	13	12	12
Enniscorthy	Annual Mean $PM_{2.5}$ (µg/m³)	12	10	10	9	9
Macroom	Annual Mean $PM_{2.5}$ (µg/m³)	11	10	11	7	8
Mallow	Annual Mean $PM_{2.5}$ (µg/m³)	10	8	7	6	6
Roscommon Town	Annual Mean $PM_{2.5}$ (µg/m³)	7	7	8	6	7
Tipperary Town	Annual Mean $PM_{2.5}$ (µg/m³)	8	9	9	7	7

13.4.2.4 Summary

Based on the above information the air quality in the suburban Gorey area is generally good, with concentrations of the key pollutants generally well below the current relevant limit values set out in Table 2 of Annex I of Directive (EU) 2024/2881. The current pollutant concentrations at these monitoring sites are also in compliance with the 2030 limit values set out in Directive (EU) 2024/2881 and the clean air strategy, except for Edenderry where $PM_{2.5}$ concentrations are exceeding the annual mean limit value in 2024. Further measures will be needed at a national scale to reduce air pollution in future years. The EPA have indicated that road transport emissions are contributing to increased levels of NO_2 with the potential for breaches in the annual NO_2 limit value in future years at locations within urban centres and roadside locations. In addition, burning of solid fuels for home heating is contributing to increased levels of particulate matter (PM_{10} and $PM_{2.5}$). The EPA predict that exceedances in the particulate matter limit values are likely in future years if burning of solid fuels for residential heating continues (EPA, 2024).

13.4.3 Sensitivity of the Receiving Environment

13.4.3.1 Construction Phase

In line with the UK Institute of Air Quality Management (IAQM) guidance document *'Guidance on the Assessment of Dust from Demolition and Construction'* (IAQM, 2024) prior to assessing the impact of dust from a proposed development, the sensitivity of the area must first be assessed as outlined below. Both receptor sensitivity and proximity to proposed works areas are taken into consideration. For the purposes of this assessment, high sensitivity receptors are regarded as residential properties where people are likely to spend the majority of their time. Commercial properties and places of work are regarded as medium sensitivity while low sensitivity receptors are places where people are present for short periods or do not expect a high level of amenity. Table 13 5 outlines the criteria for determining the sensitivity of the area to dust soiling and dust-related human health effects as per the IAQM guidance (IAQM, 2024).

In terms of receptor sensitivity to dust soiling, there are a number of highly sensitive residential properties within 250 m of the proposed development boundary (Figure 13 2). There are 1-10 high sensitivity residential receptors within 20m of the site boundary, there are a further 10-100 high sensitivity receptors within 50m and 1-10 properties within 100m of the site boundary. There are 10-100 high sensitivity receptors within 250m of the site boundary. Based on these receptor numbers and using the IAQM criteria in Table 13 5, the sensitivity of the area to dust soiling impacts from the proposed development is medium.

In addition to sensitivity to dust soiling, the IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to human health impacts. The criteria take into consideration the current annual mean PM_{10} concentration, receptor sensitivity based on type (residential receptors are classified as high sensitivity) and the number of receptors affected within various distance bands from the construction works. A conservative estimate of the current annual mean PM_{10} concentration in the vicinity of the proposed development is 13 µg/m$_3$. There are 1-10 high sensitivity residential receptors within 20 m of the proposed development boundary (Figure 13 2). Based on the IAQM criteria outlined in Table 13 5 the worst-case sensitivity of the area to dust-related human health effects is low.

The IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to dust-related ecological impacts. Dust emissions can coat vegetation leading to a reduction in the photosynthesising ability of the plant, as well as other effects. The guidance states that dust impacts to vegetation can occur up to 50 m from the site, and 50 m from site access roads, up to 250 m for the site entrance. The sensitivity of the area is determined based on the distance to the source, the designation of the site, (European, National or local designation) and the potential dust sensitivity of the ecologically important species present. There are no sensitive ecological receptors that meet these criteria within the study area and there is no potential for impacts to sensitive ecology from construction dust emissions. Therefore, no further assessment is required.

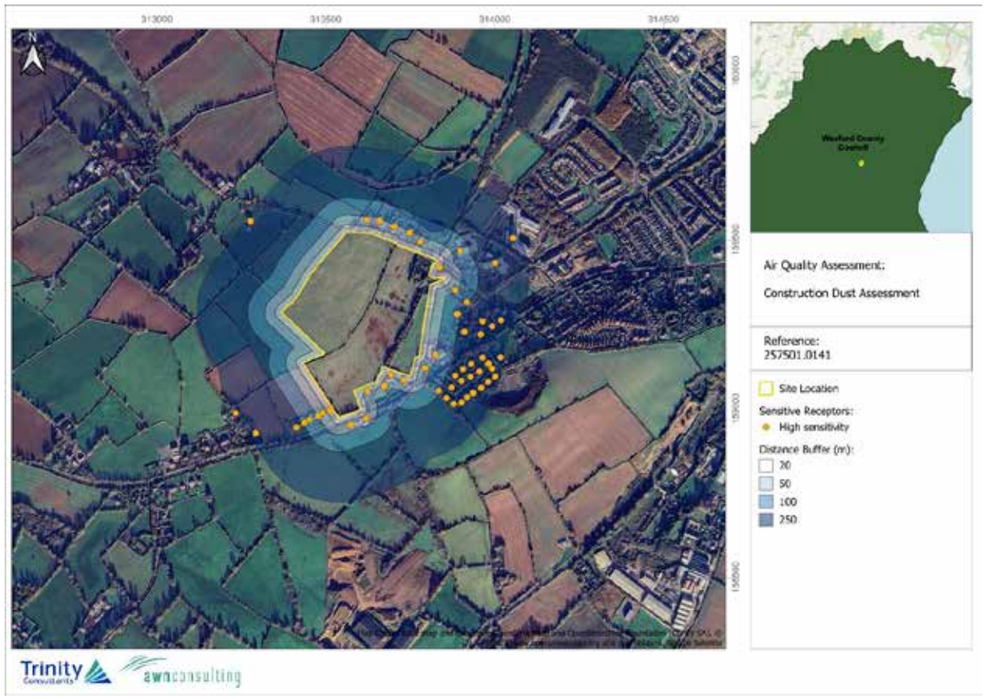

Figure 13 2 Sensitive Receptors within 250m of Site

13.4.3.2 Operational Phase

The impact to air quality due to changes in traffic is assessed at sensitive receptors in the vicinity of affected roads. The TII guidance (2022) states that a proportionate number of representative receptors, which are located in areas which will experience the highest concentrations or greatest improvements because of the proposed development, are to be included in the modelling. The TII criteria state that receptors within 200 m of impacted road links should be assessed; roads which are greater than 200 m from receptors will not impact pollutant concentrations at that receptor (TII, 2022). The TII guidance (2022) defines sensitive receptor locations for the purposes of modelling annual mean pollutant concentrations as: residential housing, schools, hospitals, care homes and short term-accommodation such as hotels, i.e. locations where members of the public are likely to be regularly present for 24 hours. A total of 9 no. high sensitivity residential receptors (R1, R2, R3, R4, R5, R6, R7, R8 and R9) were included in the modelling assessment associated with the impacted road links (Link 1, Link 2, Link 3, Link 4, Link 5) (see Figure 13 3). Receptors R1-R9 represent existing residential properties within 200m of impacted road links.

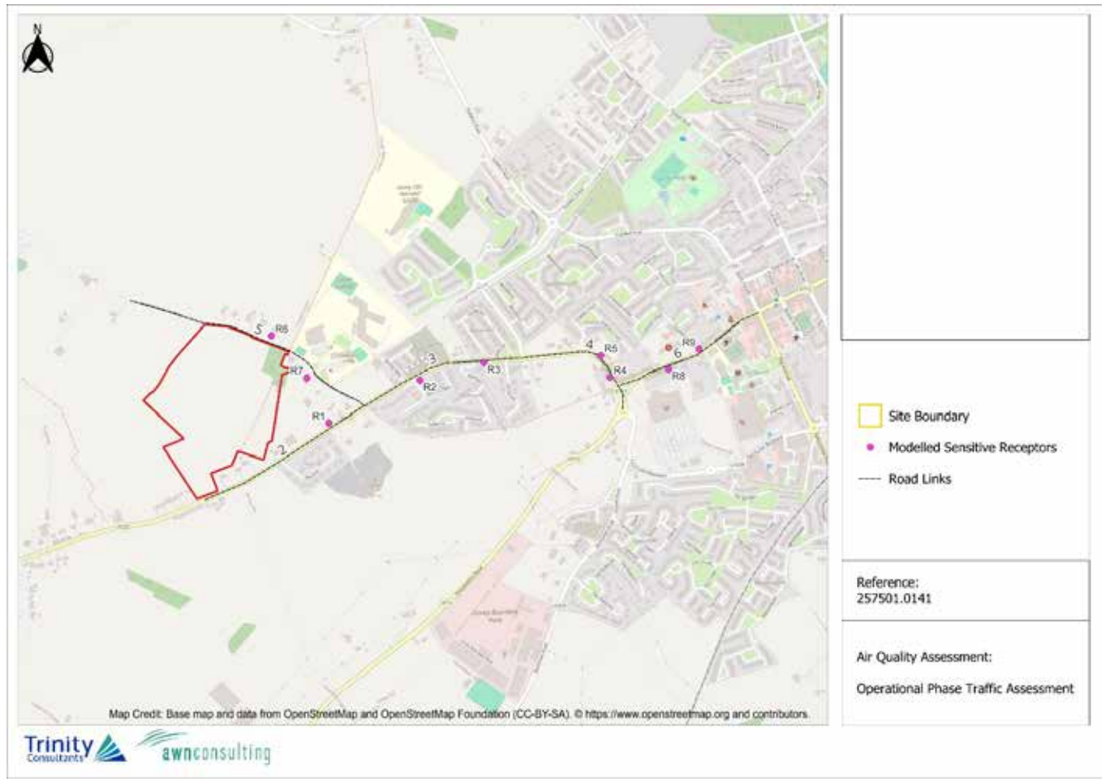

Figure 13 3 Location of Sensitive Receptors used in Operational Phase Air Quality Assessment

13.5 The 'Do Nothing' Scenario

In the Do-Nothing scenario, ambient air quality at the site will remain as per the baseline and will change in accordance with trends within the wider area (including influences from potential new developments in the surrounding area, changes in road traffic, etc).

The Do Nothing scenario associated with the operational phase of the development is assessed within Section 13.7.2 and it was found to be direct, long-term and negative which is overall not significant.

13.6 Potential Significant Effects

13.6.1 Construction Phase

13.6.1.1 Construction Dust Assessment

The greatest potential impact on air quality during the construction phase of the proposed development is from construction dust emissions and the potential for nuisance dust. While construction dust tends to be deposited within 250 m of a construction site, the majority of the deposition occurs within the first 50 m (IAQM, 2024). The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction. A review of Johnstown Castle meteorological data indicates that the prevailing wind direction is westerly to south-westerly and wind speeds are generally moderate in nature (Section 13.4.1).

To determine the level of dust mitigation required during the proposed works, the potential dust emission magnitude for each dust generating activity needs to be taken into account, in conjunction with the previously established sensitivity of the area (Section 13.4.3.1). The major dust generating activities are divided into four types within the IAQM (IAQM, 2024) guidance to reflect their different potential impacts. These are: demolition, earthworks, construction and trackout (movement of heavy vehicles).

13.6.1.1.1 Determining the Potential Dust Emission Magnitude

The magnitude of the works under each category can be classified as either small, medium or large depending on the scale of the works involved. The magnitude of each activity has been determined below for the proposed development using the criteria in Table 13 4.

- Demolition: The dust emission magnitude for the demolition activities is not applicable as there is no demolition required as part of the proposed development.
- Earthworks: The dust emission magnitude for the proposed earthwork activities can be classified large as the total site area is greater than 110,000 m_2.
- Construction: The dust emission magnitude for the proposed construction activities can be classified as large as the total volume of buildings to be constructed will be greater than 75,000 m3.
- Trackout: The dust emission magnitude for the proposed trackout can be classified as large, as there will be greater than 50 outward HGV movements per day during the construction phase of the proposed development.

13.6.1.1.2 Determining the Risk of Dust Impacts

Once the dust emission magnitude has been determined the next step, according to the IAQM guidance (IAQM, 2024), is to establish the level of risk by combining the magnitude with the overall sensitivity of the area to dust soiling and dust-related human health effects (Section 13.4.3.1). The level of risk associated with each activity is determined using the criteria in Table 13 5. The overall risk of dust impacts from the construction works is shown in Table 13 11 for each category.

- Demolition: There is no demolition required as part of the proposed development.
- Earthworks: As the overall sensitivity of the area to dust soiling is medium, when combined with a medium dust emission magnitude, this produces an overall medium risk of dust soiling impacts (as per the criteria in Table 13 5). As the overall sensitivity of the area to dust-related human health effects is low, this results in a low risk of dust-related human health effects (as per the criteria in Table 13 5).
- Construction: Combining the medium dust emissions magnitude for the construction activities with the medium sensitivity to dust soiling results in a medium risk of dust soiling impacts using the criteria in Table 13 5. There is an overall medium risk of dust-related human health impacts as a result of the proposed construction activities.
- Trackout: Combining the low dust emission magnitude for the trackout activities with the low sensitivity to dust soiling results in a low risk of dust soiling impacts using the criteria in Table 13 5. There is an overall low risk of dust-related human health impacts as a result of the proposed trackout activities.

There is at most a medium risk of dust soiling impacts and a low risk of dust-related human health impacts associated with the proposed works. As a result, best practice dust mitigation measures associated with medium-risk works will be implemented to ensure there are no significant impacts at nearby sensitive receptors. In the absence of mitigation, dust impacts are predicted to be ***direct, short-term, negative and slight***

Table 13 11 Risk of Dust Impacts used to Define Site-Specific Mitigation.

Receptor	Receptor Sensitivity	Dust Emission Magnitude	Risk of Dust-Related Impacts
Demolition			
Dust Soiling	n/a	n/a	n/a
Human Health	n/a		n/a
Earthworks			
Dust Soiling	Medium	Medium	Medium Risk
Human Health	Low		Low Risk
Construction			
Dust Soiling	Medium	Medium	Medium Risk
Human Health	Low		Low Risk
Trackout			
Dust Soiling	Low	Low	Low Risk
Human Health	Low		Low Risk

13.6.1.2 Construction Phase Traffic Assessment

There is also the potential for traffic emissions to impact air quality with respect to human health in the short-term over the construction phase, particularly, due to the increase in HGVs accessing the site. The construction stage traffic has been reviewed, and a detailed air quality assessment has been scoped out as none of the road links impacted by the proposed development satisfy the TII assessment criteria in Section 13.2.3.2.

Therefore, it can be determined that the construction stage traffic will have an ***imperceptible, neutral, short-term*** and ***not significant*** impact on air quality.

13.6.2 Operational Phase

There is the potential for vehicles accessing the site to result in emissions of NO_2, PM_{10} and $PM_{2.5}$.

13.6.2.1 Operational Phase Traffic Assessment

The potential impact of the proposed development has been assessed by modelling emissions from the traffic generated due to the development. The traffic data has included specific cumulative developments within the area to provide for a worst-case assessment and to assess potential cumulative impacts (see Chapter 12 Material Assets: Traffic & Transport, both prepared by NRB for further details).

The traffic data includes the Do Nothing (DN) scenario and Do Something (DS) scenario. The impact of NO_2, PM_{10} and $PM_{2.5}$ emissions for the Opening and Design Years was predicted at the nearest sensitive receptors to the impacted road links. This assessment allows the significance of the development, with respect to both relative and absolute impacts, to be determined.

The TII guidance PE-ENV-01106 (TII, 2022) details a methodology for determining air quality impact significance criteria for TII road schemes and infrastructure projects. However, this significance criteria can be applied to any development that causes a change in traffic. The degree of impact is determined based on both the absolute and relative impact of the proposed development. Results are compared against the DN scenario, which assumes that the proposed development is not in place in future years, to determine the degree of impact.

Traffic related air emissions have the potential to impact air quality which can affect human health. The following details the results of the air dispersion modelling assessment of traffic emissions to determine the impact to human health. The predicted pollutant concentrations have been compared against the ambient air quality limit values set out in Table 13 1. The current limit values set out in Table 2 of Annex I of Directive (EU) 2024/2881 are applicable to the Opening Year 2028 and the limit values set out in Table 1 of Annex I of Directive (EU) 2024/2881 are applicable to the Design Year 2043 as the assessment year is post-2030.

13.6.2.1.1 NO_2

The results of the NO_2 modelling are shown in Table 13 12. In the Opening Year 2028, predicted annual mean concentrations of NO_2 are in compliance with the annual mean limit value of 40 µg/m³ reaching at most 26% of the limit. In addition, the TII guidance (2022) states that the hourly limit value for NO2 of 200 µg/ m³ is unlikely to be exceeded at roadside locations unless the annual mean is above 60 µg/m³. As predicted NO_2 concentrations are significantly below 60 µg/m³ (Table 13 12), it can be concluded that the short-term NO2 limit value will be

complied with at all receptor locations. Some increases in NO_2 concentrations are predicted at the worst-case receptors assessed in the Opening Year when compared with the Do-Nothing scenario (see Table 13 12). The receptors in the area will experience increases <2% of the AQLV, which are all considered 'neutral' as per the TII criteria in Table 13 3.

In the Design Year 2043, predicted annual mean NO_2 concentrations are in compliance of the limit value of 20 µg/m³ at the worst-case receptors assessed, reaching at most 41% of the limit. The proposed development will result in a 'neutral' increase in NO_2 concentrations according to the TII significance criteria in Table 13 3, with concentrations increasing by at most 0.07 µg/m³ as a result of the proposed development (at receptor R1, see Table 13 12), which is an increase of 0.35% when compared with the applicable annual mean limit value for NO_2. Therefore, the impact of the proposed development on NO_2 concentrations is neutral.

Table 13 12 Predicted Annual Mean NO_2 Concentrations (µg/ m³)

Receptor	Impact Opening Year						
	DN	% of AQLV	DS	% of AQLV	DS-DN	% Change of AQLV	Description
R1	9.1	23%	9.4	24%	0.27	0.67%	Neutral
R2	9.4	24%	9.9	25%	0.53	1.33%	Neutral
R3	9.8	25%	10.5	26%	0.68	1.70%	Neutral
R4	10.4	26%	11.1	28%	0.68	1.70%	Neutral
R5	10.4	26%	11.1	28%	0.67	1.68%	Neutral
R6	8.5	21%	8.8	22%	0.29	0.72%	Neutral
R7	8.4	21%	8.7	22%	0.26	0.65%	Neutral
R8	10.2	25%	10.9	27%	0.76	1.90%	Neutral
R9	10.2	25%	11.0	27%	0.77	1.93%	Neutral
Receptor	**Impact Design Year**						
	DN	% of AQLV	DS	% of AQLV	DS-DN	% Change of AQLV	Description
R1	8.1	40%	8.1	41%	0.02	0.10%	Neutral
R2	8.1	41%	8.2	41%	0.04	0.20%	Neutral
R3	8.2	41%	8.2	41%	0.05	0.25%	Neutral
R4	8.2	41%	8.3	41%	0.06	0.30%	Neutral
R5	8.2	41%	8.2	41%	0.05	0.25%	Neutral
R6	8.0	40%	8.1	40%	0.03	0.15%	Neutral
R7	8.0	40%	8.1	40%	0.02	0.10%	Neutral
R8	8.2	41%	8.3	41%	0.07	0.35%	Neutral
R9	8.2	41%	8.3	41%	0.07	0.35%	Neutral

13.6.2.1.2 PM_{10}

The results of the PM_{10} modelling can be seen in Table 13 13 for the Opening Year 2028 and Design Year 2043.

In the Opening Year 2028, annual mean PM10 concentrations are in compliance with the annual mean limit value of 40 µg/m³ reaching at most 39% of the limit. In the Design Year 2043 annual mean PM10 concentrations are also in compliance with the annual mean limit value of 20 µg/m³ reaching at most 77% of the limit. In addition, the proposed development will not result in any days of exceedance of the daily PM_{10} limit value (Table 13 2) in both the opening and design years.

The changes in PM_{10} concentrations as a result of the proposed development can be assessed relative to the DN levels. In the Opening Year 2028 annual PM_{10} concentrations will increase by at most 0.75 µg/m³ at receptor R8 & R9, which is a 1.88% increase when compared with the annual mean limit value of 20 µg/m³. This is considered a 'neutral' impact as per the TII criteria in Table 13 3. All predicted increases at the modelled receptors are considered 'neutral' as per the TII criteria in Table 13 3.

In the Design Year 2043 the proposed development will result in a maximum increase of 0.67 µg/m3 at receptor R9, which is a 3.35% increase when compared with the annual mean limit of 20 µg/m³. The changes in concentrations in the Design Year are considered 'neutral' and 'slight adverse' based on the TII criteria in Table 13 3.

Table 13 13 Predicted Annual Mean PM_{10} Concentrations (µg/ m³)

Receptor	Impact Opening Year						
	DN	% of AQLV	DS	% of AQLV	DS-DN	% Change of AQLV	Description
R1	14.2	35%	14.5	36%	0.28	0.70%	Neutral
R2	14.5	36%	15.0	37%	0.54	1.35%	Neutral
R3	14.9	37%	15.6	39%	0.71	1.78%	Neutral
R4	15.5	39%	16.2	40%	0.70	1.75%	Neutral
R5	15.5	39%	16.2	40%	0.70	1.75%	Neutral
R6	13.5	34%	13.8	34%	0.29	0.72%	Neutral
R7	13.4	34%	13.7	34%	0.26	0.65%	Neutral
R8	15.1	38%	15.8	40%	0.75	1.88%	Neutral
R9	15.1	38%	15.9	40%	0.75	1.88%	Neutral
Receptor	**Impact Design Year**						
	DN	% of AQLV	DS	% of AQLV	DS-DN	% Change of AQLV	Description
R1	14.1	70%	14.3	72%	0.25	1.25%	Neutral
R2	14.3	72%	14.8	74%	0.49	2.45%	Neutral
R3	14.8	74%	15.4	77%	0.63	3.15%	Slight Adverse

Receptor	Impact Design Year						
	DN	% of AQLV	DS	% of AQLV	DS-DN	% Change of AQLV	Description
R4	15.3	77%	16.0	80%	0.64	3.20%	Slight Adverse
R5	15.3	76%	15.9	80%	0.63	3.15%	Slight Adverse
R6	13.4	67%	13.7	68%	0.25	1.25%	Neutral
R7	13.4	67%	13.6	68%	0.22	1.10%	Neutral
R8	14.9	75%	15.6	78%	0.66	3.30%	Slight Adverse
R9	14.9	75%	15.6	78%	0.67	3.35%	Slight Adverse

13.6.2.1.3 PM2.5

In relation to changes in $PM_{2.5}$ concentrations as a result of the proposed development, the results of the assessment can be seen in Table 13 14 for the modelled Opening Year 2028 and Design Year 2043.

In the Opening Year 2028, predicted annual mean concentrations of $PM_{2.5}$ are in compliance with the annual mean limit value of 25 µg/m³ reaching at most 40% of the limit. There is predicted to be an increase in $PMPM_{2.5}$ concentrations at the worst-case receptors assessed in the Opening Year when compared with the Do-Nothing scenario (see Table 13 14). Concentrations are predicted to increase by at most 0.39 µg/m³ at receptors R8 & R9. When comparing the change in concentration with the air quality limit value, it results in a maximum change of 1.56% at receptors R8 & R9. This is considered a 'neutral' impact as per the TII criteria in Table 13 3. The other receptor in the area will experience similar or lesser impacts and all increases at other modelled receptors are considered 'neutral' as per the TII criteria in Table 13 3.

In the Design Year 2043, predicted annual mean $PM_{2.5}$ concentrations are in compliance with the limit value of 10 µg/m³ at all receptors assessed. Concentrations reach at most 80% of the annual mean limit value. The proposed development will result in a 'neutral', 'slight adverse' and 'moderate adverse' increase in $PM_{2.5}$ concentrations according to the TII significance criteria Table 13 3, with concentrations increasing by at most 0.35 µg/m³ as a result of the proposed development (at receptor R3, see Table 13 14), which is an increase of 3.50% when compared with the annual mean limit value of 10 µg/m³ for $PM_{2.5}$.

Table 13 14 Predicted Annual Mean $PM_{2.5}$ Concentrations (µg/m³)

Receptor	Impact Opening Year						
	DN	% of AQLV	DS	% of AQLV	DS-DN	% Change of AQLV	Description
R1	9.6	39%	9.8	39%	0.15	0.60%	Neutral
R2	9.8	39%	10.1	40%	0.29	1.16%	Neutral
R3	10.0	40%	10.4	42%	0.38	1.52%	Neutral
R4	10.3	41%	10.7	43%	0.38	1.52%	Neutral
R5	10.3	41%	10.7	43%	0.38	1.52%	Neutral
R6	9.2	37%	9.4	38%	0.15	0.60%	Neutral
R7	9.2	37%	9.4	37%	0.13	0.52%	Neutral
R8	10.1	40%	10.5	42%	0.39	1.56%	Neutral
R9	10.1	40%	10.5	42%	0.39	1.56%	Neutral
Receptor	**Impact Design Year**						
	DN	**% of AQLV**	**DS**	**% of AQLV**	**DS-DN**	**% Change of AQLV**	**Description**
R1	9.6	96%	9.7	97%	0.13	1.30%	Slight Adverse
R2	9.7	97%	10.0	100%	0.26	2.60%	Moderate Adverse
R3	9.9	99%	10.3	103%	0.35	3.50%	Moderate Adverse
R4	10.3	103%	10.6	106%	0.34	3.40%	Moderate Adverse
R5	10.2	102%	10.6	106%	0.33	3.30%	Moderate Adverse
R6	9.2	92%	9.4	94%	0.13	1.30%	Neutral
R7	9.2	92%	9.3	93%	0.12	1.20%	Neutral
R8	10.0	100%	10.4	104%	0.35	3.50%	Moderate Adverse
R9	10.0	100%	10.4	104%	0.35	3.50%	Moderate Adverse

13.6.2.1.4 Significance of Predicted Changes in NO_2, PM_{10} and $PM_{2.5}$ Concentrations

As outlined in Section 13.2.2.4 , the TII guidance (2022) states that the significance of effects should be assessed based on the opening year only. Non-significant effects are 'neutral' or 'slight' changes in concentrations while significant effects can be changes in pollutant concentrations that are either 'moderate' or 'substantial'. However, the TII guidance (2022) states that these must be considered in the context of the project and 'moderate' or 'substantial' increases are not necessarily always significant effects.

In relation to NO_2, PM_{10} and $PM_{2.5}$ the predicted changes in concentrations are 'neutral' at the worst-case receptors assessed. Therefore, according to the TII criteria as outlined in Section 13.2.2.4, the impact is not significant.

In relation to the future inhabitants of the proposed development, predicted pollutant concentrations at the representative receptors (R5 and R6) are in compliance with the relevant limit values indicating that traffic emissions for the existing road network will not significantly impact the local air quality at the proposed development site.

For the purposes of this assessment, it has been assumed that the current estimated background pollutant concentrations are applicable for both the opening and design years, with no decreases in future background concentrations allowed for. There will be some decreases in background concentrations in future years. However, at present there is no guidance-based methodology available for estimating future year background concentrations and therefore, as a conservative approach, the current estimated background concentrations have been applied to future years.

Due to the large uncertainty in future improvements in fleet composition and emissions, such as projected changes to vehicle registration and electric vehicle uptake, the future year emission rates utilised by the TII REM tool do not account for the full implementation of these measures. Predicted design year concentrations are therefore currently overly conservative as future emissions improvements are not fully taken into account, as well as no improvement in background concentrations being assumed.

As a result, the opening year predicted concentrations are the most appropriate for determining the significance of effects as per Section 13.2.2.4.

It can be concluded that the impact of traffic emissions on air quality and human health during the operational phase is long-term, direct, localised, negative and not significant in EIA terms.

The measures set out in the Clean Air Strategy for Ireland (Government of Ireland 2023) aim to work towards solutions to ensure that air pollution concentrations are reduced in order to comply with the future changes in limit values. Ireland will need to continue to implement and develop measures to ensure continuing improvements in air quality in future years in order to meet the objectives of the Clean Air Strategy for Ireland (Government of Ireland, 2023) and to ensure the ambient air quality limit values set out in Directive (EU) 2024/2881 are achieved. The estimated background concentrations used in the assessment are the largest contribution to predicted pollutant concentrations, rather than pollutant contributions associated with the proposed development. Strategies to improve air quality at a national level in future years will contribute to reducing background concentrations and therefore it is envisioned that air quality will improve in the future.

13.6.3 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

Table 13 15 Summary of Construction Phase Likely Significant Effects in the Absence of Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Construction Dust Impact	Negative	Not significant	Localised	Likely	Short-term	Direct
Construction Traffic Impacts	Neutral	Not significant	Localised	Likely	Short-term	Direct

Table 13 16 summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 13 16 Summary of Operational Phase Likely Significant Effects in the Absence of Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Operational Traffic Impacts	Negative	Not significant	Localised	Likely	Long-term	Direct

13.6.4 Cumulative Effects

13.6.4.1 Construction Phase

Cumulative construction dust impacts may occur if other large-scale developments within 500 m of the site are under construction simultaneously.

A review of the planned and permitted projects within the last ten years in vicinity of the site was undertaken to identify developments with the potential for cumulative construction phase impacts. There is the potential for the construction phase of the proposed development to coincide with that of the following permitted developments:

Table 13 17 Summary of Committed Developments with Potential for Cumulative Effects

Reference	Development
20241284	The construction of 91 no. residential units on lands to the south of Clonattin Village in the townland of Goreybridge, Gorey, Co. Wexford.
20241267	The construction of 46 no. residential units including 6 no. 3 bed houses and 40 no. 2 bed apartments.
20221189	The construction of 89 no. residential units and a creche.
LAC2110	The construction of 30 no. residential units on the site of the former St. Joseph's Primary School
ABP 303813	Strategic Housing Development comprising 297 no. residential units and a creche.
20200467	The construction of 83 no. residential dwellings, 300 Sq.M. single storey community football club clubhouse and all-weather sports pitch and all associated site works.

If these sites were to commence construction at the same time, the cumulative effects will be temporary and slight. Otherwise, no significant cumulative impacts have been identified.

The dust mitigation measures outlined in Section 13.7.1 will be applied during the construction phase which will avoid significant cumulative impacts on air quality. With appropriate mitigation measures in place, the predicted cumulative impacts on air quality associated with the construction phase of the proposed development is short-term, direct, negative and not significant.

13.6.4.2 Operational Phase

Cumulative developments were included in the traffic figures supplied for the operational phase assessment and therefore the cumulative effect is included within the operational stage effect for the proposed development outlined in Section 13.6.2. The effect is predicted to be long-term, direct, localised, negative and not significant with regards to air quality.

13.7 Mitigation Measures

13.7.1 Construction Phase Mitigation

The proposed development has been assessed as having a medium risk of dust soiling impacts and a low risk of dust related human health impacts during the construction phase as a result of earthworks, construction and trackout activities (see Section 13.6.1). Therefore, the following dust mitigation measures shall be implemented during the construction phase of the proposed development. These measures are appropriate for sites with a medium risk of dust impacts and aim to ensure that no significant nuisance occurs at nearby sensitive receptors. The mitigation measures draw on best practice guidance from Ireland (DCC (2018), DLRCC (2022)), the UK (IAQM (2024), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). These measures will be incorporated into the Construction Environmental Management Plan (CEMP) prepared for the site. The measures are divided into different categories for different activities (see Table 13 18).

Table 13 18 Site Specific Mitigation Measures

Mitigation Measure
Communications
Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
Display the head or regional office contact information
Develop and implement a Dust Management Plan (DMP), which will include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and will include as a minimum the highly recommended measures in the IAQM Guidance. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real-time PM10 continuous monitoring and/or visual inspections.
Site Management
Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
Make the complaints log available to the local authority when asked.
Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
Monitoring
Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This will include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.
Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked
Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.
Preparing and Maintaining the Site
Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period
Avoid site runoff of water or mud.
Keep site fencing, barriers and scaffolding clean using wet methods.
Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
Cover, seed or fence stockpiles to prevent wind whipping.
Operating vehicle/machinery and sustainable travel
Ensure all vehicles switch off engines when stationary – no idling vehicles.
Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate)
Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)

Operations
Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems
Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate
Use enclosed chutes and conveyors and covered skips.
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste management
Bonfires and burning of waste materials are legally prohibited.
Measures Specific to Earthworks
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable
Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as is practicable.
Only remove the cover in small areas during work and not all at once.
Measures Specific to Construction
Avoid scabbling (roughening of concrete surfaces) if possible.
Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.
Measures Specific to Trackout
Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
Avoid dry sweeping of large areas.
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
Record all inspections of haul routes and any subsequent action in a site log book.
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

13.7.2 Operational Phase Mitigation

No site-specific mitigation measures are proposed for the operational phase as impacts are predicted to be not significant.

13.8 Residual Impact Assessment

13.8.1 Construction Phase

To minimise dust emissions during construction, a series of mitigation measures have been prepared as outlined in Section 13.7. Provided the dust minimisation measures are adhered to, the predicted residual air quality impacts during the construction phase are short-term, direct, negative, localised and not significant.

Best practice mitigation measures are proposed for the construction phase of the proposed development, which will focus on the proactive control of dust and other air pollutants, to minimise generation of emissions at source. The mitigation measures that will be put in place during construction will ensure that the impact complies with all EU ambient air quality legislative limit values, which are based on the protection of human health (Table 13 1). Therefore, the predicted residual, dust-related, human health impact of the construction phase of the proposed development is short-term, direct, negative, localised and not significant.

13.8.2 Operational Phase

The air quality assessment of traffic emissions has looked at specific impacts at receptors external to the site as well as internal proposed residential dwellings and amenity areas within the proposed development site, this was to address the specific request of Cork City Council. The air modelling assessment of operational traffic emissions has shown that predicted concentrations of NO_2, PM_{10} and $PM_{2.5}$ with the proposed development in place are in compliance with the relevant ambient air quality limit values which are set for the protection of human health. Therefore, the operational phase effect on air quality and human health as a result of increased traffic is long-term, direct, localised and negative which is overall not significant in EIA terms.

13.8.3 Summary of Post-Mitigation Effects

The following table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 13 19 Summary of Construction Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Impact of construction dust from earthworks, construction and trackout in terms of dust soiling, and human health	Negative	Not significant	Areas within 250m of site as per Section 13.4.3.	Likely	Short-term	Direct
Impact of construction phase traffic on air quality	Neutral	Imperceptible	Rectors within 200m of impacted roads as per Section 13.2.3.	Likely	Short-term	Direct

The following table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

Table 13 20 Summary of Operational Phase Effects Post Mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Impact of operational phase traffic on air quality	Negative	Not significant	Worst-case receptors within 200m of impacted road links	Likely	Long-term	Direct

13.8.4 Cumulative Residual Effects

The primary potential cumulative residual effect relates to construction dust emissions. According to the IAQM guidance (IAQM, 2024), if the construction phase of the proposed development coincides with the construction phase of any other large scale permitted projects within 500m of the site, there is a possibility of cumulative residual dust effects occurring at any nearby sensitive receptors. Should simultaneous construction phases occur, it would lead to cumulative residual dust soiling and dust-related effects on human health, specifically localised to the works area associated with the proposed works.

However, should the construction phases of the development and any localised permitted developments coincide, it is predicted that once the mitigation measures outlined in Section 13.7.1 are put in place impacts will not be significant. Impacts will be short-term, direct, localised, negative and not significant. No significant cumulative adverse impacts to air quality are predicted for the construction or operational phases.

13.9 Risk of Major Accidents or Disasters

There are no likely risks of major accidents and disasters in relation to air quality associated with the proposed development due to the nature and scale of the development. The proposed development is residential in nature and will not require large scale quantities of hazardous materials or fuels.

13.10 Worst Case Scenario

Reasonable worst-case estimates have been used as part of this assessment. As a result, Section 13.6 details the worst-case residual effect of the proposed development.

13.11 Interactions

13.11.1 Air Quality and Population & Human Health

13.11.1.1 Construction Phase

An adverse air quality impact during the construction phase can cause health and dust nuisance issues. There is a low risk of dust-related human health impacts during the construction phase of the proposed development. Best practice mitigation measures will be implemented during the construction phase to ensure that the impact of the proposed development complies with all ambient air quality legislative limits. Therefore, the predicted impact is direct, short-term, negative, localised and not significant with respect to Population and Human Health during the construction phase.

13.11.1.2 Operational Phase

Vehicles accessing the site will emit pollutants which may impact Air Quality and Human Health. However, the increased number of vehicles associated with the proposed development will not cause a significant change in air pollutant emissions in the locality. It has been assessed that emissions will be in compliance with the ambient air quality standards which are set for the protection of human health. Impacts will be long-term, localised, direct, negative and not significant.

13.11.2 Air Quality and Climate

Air Quality and Climate have interactions as the emissions from the burning of fossil fuels during the construction and operational phases generate both air quality and climate impacts. There is no impact on climate due to air quality. However, the sources of impacts on air quality and climate are strongly linked.

13.11.3 Air Quality and Land & Soils

13.11.3.1 Construction Phase

Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between Air Quality and Land & Soils in the form of dust emissions. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and land and soils during the construction phase.

13.11.3.2 Operational Phase

There are no potentially significant interactions identified between Air Quality, and Land & Soils during the operational phase.

13.11.4 Air Quality and Biodiversity

13.11.4.1 Construction Phase

Dust generation can occur during extended dry weather periods due to construction traffic along haul routes and construction activities such as excavations and infilling works. Dust emissions can coat vegetation leading to a reduction in the photosynthesising ability as well as other effects. There are no designated ecological sites within 250 m of the proposed development site area. Significant dust impacts are not predicted beyond this distance. Dust mitigation measures will be implemented on site as set out in Section 13.7.1. With the implementation of these mitigation measures dust emissions will be minimised and impacts will be direct, short-term, negative, localised and not significant with respect to biodiversity.

13.11.4.2 Operational Phase

There are no potentially significant interactions identified between Air Quality, and Biodiversity during the operational phase.

13.11.5 Air Quality and Material Assets – Traffic & Transport

13.11.5.1 Construction Phase

Interactions between Air Quality and Traffic can be significant. With increased traffic movements and reduced engine efficiency, i.e. due to congestion, the emissions of vehicles increase. The impacts of the proposed development on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the impact of the interactions between Traffic and Air Quality are linked but there is no potential for significant impacts from traffic on air quality. The effects are considered to be direct, short-term, neutral, localised and not significant during the construction phase.

13.11.5.2 Operational Phase

The impact of the interactions between Traffic and Air Quality are considered to be long-term, direct, negative and not significant during the operational phase.

13.12 Monitoring

13.12.1 Construction Phase

The following monitoring measures are proposed to ensure the dust mitigation measures are working satisfactorily:

- Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results in the site inspection log. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Monitoring of construction dust deposition along the site boundary to nearby sensitive receptors during the construction phase of the proposed development is recommended to ensure mitigation measures are working satisfactorily. This can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. deveThe Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/m2/ day during the monitoring period of 30 days (+/- 2 days). Monitoring shall ensure that the dust mitigation measures are working satisfactorily as construction works progress.

13.12.2 Operational Phase

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

13.13 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

Table 13 21 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Quality	Significance
Impact of construction dust from demolition, earthworks, construction and trackout in terms of dust soiling and human health	Dust control measures as per IAQM Guidance (IAQM, 2024) and Section 13.7.1.	Monitoring of construction dust deposition as per Section 13.12.1.

The following table summarises the Operational Phase mitigation and monitoring measures.

Table 13 22 Summary of Operational Phase Mitigation and Monitoring

Likely Significant Effect	Quality	Significance
No mitigation or monitoring required for the operational phase of the development as impacts to air quality are predicted to be not significant.		

13.14 Conclusion

This chapter has reviewed and analysed the potential and the predicted impacts of the proposed development with regards to air quality. These impacts have been considered for both the construction and operational phases of the proposed development. The cumulative impact of the proposed development and surrounding developments have also been considered.

Provided the mitigation measures as set out in this chapter are implemented, the overall predicted air quality effect of the proposed development is not significant.

13.15 References and Sources

BRE (2003) Controlling Particles, Vapours & Noise Pollution from Construction Sites

Department of the Environment Heritage and Local Government (DEHLG) (2004) Quarries and Ancillary Activities, Guidelines for Planning Authorities

Environmental Protection Agency (2006) Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals)

Environmental Protection Agency (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports

Environmental Protection Agency (2024) Air Quality in Ireland 2023 (& previous annual reports)

German VDI (2002) Technical Guidelines on Air Quality Control – TA Luft

Government of Ireland (2023) Clean Air Strategy for Ireland

Institute of Air Quality Management (IAQM) (2020) A Guide To The Assessment Of Air Quality Impacts On Designated Nature Conservation Sites (Version 1.1)

Institute of Air Quality Management (IAQM) (2024) Guidance on the Assessment of Dust from Demolition and Construction (Version 2.2)

Met Éireann (2025) Met Éireann website: https://www.met.ie/

The Scottish Office (1996) Planning Advice Note PAN50 Annex B: Controlling The Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings

Transport Infrastructure Ireland (2022) Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106

Transport Infrastructure Ireland (2025) TII Road Emissions Model (REM): Model Development Report – GE-ENV-01107

UK Office of Deputy Prime Minister (2002) Controlling the Environmental Effects of Recycled and Secondary Aggregates Production Good Practice Guidance

USEPA (1997) Fugitive Dust Technical Information Document for the Best Available Control Measures

World Health Organisation (2021) Air Quality Guidelines (and previous Air Quality Guideline Reports 1999 & 2000 & 2006)

CHAPTER FOURTEEN

CLIMATE



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CHAPTER 14

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CHAPTER 14 | CLIMATE

14.1 Introduction

This chapter assesses the likely climate impacts associated with the proposed development works at Kilnahue & Gorey Hill, Gorey, Co. Wexford. A full description of the development is available in Chapter 2.

The climate assessment is divided into two distinct sections – a greenhouse gas assessment (GHGA) and a climate change risk assessment (CCRA).

- Greenhouse Gas Emissions Assessment (GHGA) – Quantifies the GHG emissions from a project over its lifetime. The assessment compares these emissions to relevant carbon budgets, targets and policy to contextualise magnitude.
- Climate Change Risk Assessment (CCRA) – Identifies the impact of a changing climate on a project and receiving environment. The assessment considers a projects vulnerability to climate change and identifies adaptation measures to increase project resilience.

14.2 Expertise & Qualifications

This chapter was prepared by Sarah Berry, a Principal Climate Consultant in the Air Quality & Climate section of AWN Consulting. She holds a BSc in Physical Geography from the University of Leeds. She has 9 years' experience in the climate change and sustainability sectors, with expertise in greenhouse gas accounting, verification and permitting. She has prepared climate impact assessments as part of EIARs for residential developments, wind farms, wastewater, industry and infrastructure developments across Ireland.

This chapter was prepared by Caolán Leneghan, Senior Climate Change Consultant at AWN Consulting. Caolán holds degrees in Geography and International Development (Maynooth University) and Disaster Risk Management & Climate Change Adaptation (Lund University, Sweden). With over five years' experience, he specialises in climate risk assessment, adaptation strategy, and advisory services across sectors including infrastructure (including residential), transport, energy, urban planning, and water. Caolán has prepared climate risk assessment as part of EIARs across residential, water, wastewater, renewable energy and industrial in Ireland, as well as delivering climate change risk assessment reports for large scale residential and energy sector projects in Ireland.

This chapter was reviewed by Ciara Nolan. Ciara is a principal environmental consultant in the Air Quality & Climate section of AWN Consulting. She holds a BSc in Energy Systems Engineering from University College Dublin and has also completed an MSc in Applied Environmental Science at UCD. She is a Member of the Institute of Air Quality Management (MIAQM) and the Institution of Environmental Sciences (MIEnvSc). She has over 8 years of experience in undertaking air quality and climate assessments. She has prepared air quality and climate impact assessments as part of EIARs for residential developments including Woodbrook, Shankill (Planning Application Ref. ABP30584419), Ballygossan Park, Skerries (Planning Application Ref. LRD0010/S3), SHD Ratoath (Planning Application Ref. SH305196), SHD Rathmullen, Drogheda (Planning Application Ref. SH305552), commercial and industrial developments by Dublin Airport Authority, Abbvie, Mountpark, Pfizer, Takeda, as well as renewable energy developments such as Crockahenny Windfarm, Upperchurch Windfarm, Knocknamona Windfarm and Keerglen Windfarm. She also specialises in conducting air dispersion modelling assessments of emissions from data centres, energy centres and the chemical industry as part of EPA Industrial Emissions Licences for Echelon DC, AWS, Takeda, MSD and Regeneron. She has undertaken air quality and climate impact assessments for transportation schemes, primarily regional and national road schemes, from constraints, through to route selection and EIAR stage.

14.2.1 Aspects Relevant to this Assessment

Construction, operational and end of life greenhouse gas (GHG) emissions have been assessed with respect to this project. During the construction phase, embodied carbon associated with construction materials, transport of materials, clearance, demolition and excavation of existing land, construction waste and disposal routes will be calculated, as these activities have the potential to impact climate through the release of CO2 and to a lesser extent, other greenhouse gases (GHGs). Impacts to climate are assessed against Ireland's obligations under the EU 2030 GHG targets and sectoral emissions ceilings.

During the operational phase, maintenance activities and vehicle use both contribute GHG emissions and will be calculated as part of this assessment. Energy use by occupants varies significantly, therefore, this element has not been quantified and sits outside the scope of this assessment. Measures to reduce operational phase energy usage have been reviewed as part of this assessment.

In addition, the vulnerability of the proposed development in relation to future climate change must be considered during the operational phase. The proposed development has been designed to minimise the impact on climate where possible in line with the most recent development guidelines (Part L of the Building Regulations 2022) and in reference to measures within the Climate Action Plan 2025 (Government of Ireland, 2025).

14.3 Methodology

14.3.1 Relevant Guidance, Legislation & Policy

14.3.1.1 Guidance

The principal guidance and best practice documents used to inform the assessment of potential impacts on climate are summarised below. In addition to specific climate guidance documents, the following guidelines were considered and consulted in the preparation of this chapter:

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the Environmental Protection Agency (EPA) Guidelines) (EPA, 2022); and
- Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017).

The assessment has referred to national guidelines where available, in addition to international standards and guidelines relating to the assessment of climate impacts. These are summarised below:

- Carbon Management in Infrastructure and Built Environment - PAS 2080 (BSI, 2023);
- Environmental Protection Agency (2024a) National Climate Change Risk Assessment (NCCRA), Technical Guidance on Sectoral Assessment
- International Organization for Standardization (ISO) (2021) ISO 14091:2021. Adaptation to climate change Guidelines on vulnerability, impacts and risk assessment;
- Institute of Sustainability and Environmental Professionals (ISEP) (formerly known as Institute of Environmental Management & Assessment (IEMA)) Environmental Impact Assessment Guide to: Assessing GHG Emissions and Evaluating their Significance (hereafter referred to as the ISEP 2022 GHG Guidance) (ISEP, 2022);
- ISEP Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (hereafter referred to as the ISEP 2020 EIA Guide) (ISEP, 2020a);
- ISEP GHG Management Hierarchy (hereafter referred to as the ISEP 2020 GHG Management Hierarchy) (ISEP, 2020b);

- ISEP Principles Series: Climate Change Mitigation & EIA (ISEP, 2010);
- Technical Guidance on the Climate Proofing of Infrastructure in the Period 2021-2027 (European Commission, 2021a).
- Transport Infrastructure Ireland (TII) PE-ENV-01104: Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document (TII, 2022a);
- Transport Infrastructure Ireland (TII) PE-ENV-01106: Air Quality Assessment of Specified Infrastructure Projects (TII, 2022b); and
- Transport Infrastructure Ireland (TII) GE-ENV-01106: TII Carbon Assessment Tool for Road and Light Rail Projects and User Guidance Document (TII, 2025).

14.3.1.2 Legislation

In 2015, the Climate Action and Low Carbon Development Act 2015 (No. 46 of 2015) (as amended) (Government of Ireland, 2015) was enacted (the 2015 Act). The purpose of the 2015 Act was to enable Ireland "to pursue, and achieve, the transition to a low carbon, climate resilient and environmentally sustainable economy by the end of the year 2050" (3.(1) of No. 46 of 2015). This is referred to in the 2015 Act as the 'National Transition Objective'. The 2015 Act made provision for a national mitigation plan, and a national adaptation framework. In addition, the 2015 Act provided for the establishment of the Climate Change Advisory Council with the function to advise and make recommendations on the preparation of the national mitigation and adaptation plans and compliance with existing climate obligations.

The first Climate Action Plan (CAP) was published by the Irish Government in June 2019 (Government of Ireland, 2019). The Climate Action Plan 2019 outlined the current status across key sectors including Electricity, Transport, Built Environment, Industry and Agriculture and outlined the various broadscale measures required for each sector to achieve ambitious decarbonisation targets. The 2019 CAP also detailed the required governance arrangements for implementation including carbon-proofing of policies, establishment of carbon budgets, a strengthened Climate Change Advisory Council and greater accountability to the Oireachtas. The fifth and most recent climate action plan, CAP25, was published in April 2025 (Government of Ireland, 2025).

Following on from Ireland declaring a climate and biodiversity emergency in May 2019, and the European Parliament approving a resolution declaring a climate and environment emergency in Europe in November 2019, the Government approved the publication of the General Scheme in December 2019, followed by the publication of the Climate Action and Low Carbon Development (Amendment) Act 2021 (hereafter referred to as the 2021 Climate Act) in March 2021. The Climate Act was signed into Law on the 23rd of July 2021, giving statutory effect to the core objectives stated within the CAP.

The purpose of the 2021 Climate Act (Government of Ireland, 2021) is to provide for the approval of plans "for the purpose of pursuing the transition to a climate resilient, biodiversity rich and climate neutral economy by no later than the end of the year 2050". The 2021 Climate Act also provides for "carbon budgets and a decarbonisation target range for certain sectors of the economy". The 2021 Climate Act defines the carbon budget as "the total amount of greenhouse gas emissions that are permitted during the budget period".

In relation to carbon budgets, the 2015 Act (as amended) states "a carbon budget, consistent with furthering the achievement of the national climate objective, shall be proposed by the Climate Change Advisory Council, finalised by the Minister and approved by the Government for the period of 5 years commencing on the 1 January 2021 and ending on 31 December 2025 and for each subsequent period of 5 years (in this Act referred to as a 'Budget Period')". The carbon budget is defined as the total amount of greenhouse gas emissions that are permitted during the budget period. The carbon budget is to be produced for 3 sequential budget periods (Table 14 1). The carbon budget can be revised where new obligations are imposed under the law of the European Union or international agreements or where there are significant developments in scientific knowledge in relation to climate change. In relation to the sectoral emissions ceiling, the Minister for the Environment, Climate and Communications (the Minister for the Environment) shall prepare and submit to government the maximum amount of GHG emissions that are permitted in different sectors of the economy during a budget period, and different ceilings may apply to different sectors. The sectorial emission ceilings for 2030 were published in the Climate Action Plan 2025 (CAP25) (Government of Ireland, 2025) (Table 14 2).

Table 14.1: 5-Year Carbon Budgets

Budget Period	Carbon Budget	Reduction Required
2021-2025	295 Mt CO^2e	Reduction in emissions of 4.8% per annum for the first budget period.
2026-2030	200 Mt CO^2e	Reduction in emissions of 8.3% per annum for the second budget period.
2031-2035	151 Mt CO^2e	Reduction in emissions of 3.5% per annum for the third provisional budget.

Table 14.2 Sectoral Emission Ceilings 2030

Sector	Baseline ($MtCO^2e$)	Carbon Budgets ($MtCO^2e$)		2030 Emissions (MtCO2e)	Description Indicative Emissions % Reduction in Final Year of 2025 – 2030 Period (Compared to 2018)
	2018	2021-2025	2026-2030		
Electricity	10	40	20	3	75
Transport	12	54	37	6	50
Built Environment – Residential	7	29	23	4	40
Built Environment – Commercial	2	7	5	1	45
Industry	7	30	24	4	35
Agriculture	23	106	96	17.25	25
Other (F-gases, waste, petroleum refining)	2	9	8	1	50
Land Use, Land-use Change and Forestry (LULUCF)	5	Reflecting the continued volatility for LULUCF baseline emissions to 2030 and beyond, CAP24 puts in place ambitious activity targets for the sector reflecting an EU-type approach.			
Total	68				
Unallocated Savings	-	-	26	-5.25	-
Legally Binding Carbon Budgets and 2030 Emission Reduction Targets	-	295	200	-	51

14.3.1.3 Policy

14.3.1.3.1 Greenhouse Gas Assessment Policy

In 2024, the Government published its Long-Term Strategy on Greenhouse Gas Emissions Reductions (Government of Ireland, 2024a). This strategy provides a long-term plan on how Ireland will transition towards net carbon zero by 2050, achieving the interim targets set out in the CAP.

In December 2023, CAP24 was published, establishing key actions to deliver a 51% reduction in GHG emissions by 2030 (compared to 2018 levels) and achieve climate neutrality by 2050 (Government of Ireland, 2023). The updated and current CAP25, published in April 2025, builds on the progress of the previous four iterations of the CAP, with CAP23 first publishing carbon budgets and sectoral emission ceilings, and reaffirms Ireland's climate ambition, with a focus on delivery, implementation and measurable outcomes, particularly ahead of the second carbon budget period (2026–2030). 2025 is the last year in the first 5-year carbon budget period. During the initial 5-year budget period the average annual reduction required was 4.8%, this increases to 8.3% in the second budget period (2026-2030). CAP25 retains the high-impact sectors where the biggest savings can be achieved, while emphasising public sector leadership and green procurement. These sectors include renewable energy, energy efficiency of buildings, transport, sustainable farming, sustainable business and land-use change.

CAP25 also includes targeted actions to decarbonise industrial heat and support the transition to carbon-neutral manufacturing processes. Public sector leadership is strengthened through a new Buying Greener: Green Public Procurement Strategy and Action Plan (2024–2027), the development of mandatory Climate Action Roadmaps, and enhanced emissions monitoring and reporting across government operations. To support innovation and ensure future economic resilience, IDA Ireland continues to attract and support businesses investing in climate technologies and low-carbon solutions.

CAP25 highlights a significant 17% reduction in electricity emissions in early 2024, with wind power supplying nearly 40% of Ireland's total electricity demand and over 100,000 rooftop microgenerators connected to the grid. Investments are ongoing in grid reinforcement, offshore wind development, and interconnectors with France and the UK to enhance renewable generation capacity. EirGrid, Enterprise Ireland and IDA Ireland have recently signed an MoU to collectively support offshore wind development in Ireland.

CAP25 also reinforces targets first outlined in CAP24 to reduce the embodied carbon of construction materials, with a 10% reduction by 2025 and 30% reduction by 2030 for materials produced and used in Ireland. Cement and high embodied carbon construction materials can be reduced through product substitution, reduced clinker content in cement and uptake of low-carbon construction methods, including those outlined in the Construction Industry Federation 2021 report Modern Methods of Construction (Construction Industry Federation, 2021). There also remains scope for the construction industry to use more timber in construction. In 2022, 24% of new construction in Ireland was built using timber frames to satisfy the demand for housing. Public bodies are now required under the Public Sector Mandate to use best practice project design to reduce embodied carbon; procure concretes with clinker replacements (lower carbon); and require that large construction projects produce a whole life cycle GHG emissions assessment.

Furthermore, CAP25 advances sector-specific measures in green procurement, electrification of transport and heat, and just transition (with the introduction of a Just Transition Commission) to support vulnerable communities. Transport emissions increased by 0.3%. Electric vehicles and the use of biofuels are stated as the best means of transport emission reductions in the medium term.

14.3.1.3.2 Local Policy

The Wexford Climate Action Plan 2024 – 2029 was published in 2024 (WCC, 2024). The plan sets out how Wexford County Council will be responsible for enhancing climate resilience, increasing energy efficiency, and reducing greenhouse gas emissions, across its own assets, services, and infrastructure, to which it is fully accountable for, whilst also demonstrating a broader role of inspiring, leading and facilitating, other sectors, to meet their own climate targets and ambitions.

The following measures apply to all WCC's climate actions:

"Promote climate action projects that support and maximize environmental co-benefits, such as biodiversity protection and enhancement; improved air, water or soil quality; or enhanced recreation, amenity and cultural heritage value, to ensure win-win benefits are gained".

"Ensure all development underpinned or supported by climate action is planned and implemented in a manner that appropriately considers the potential for environmental co-benefits, potential environmental impacts and environmental protection requirements. No climate action related development project that is likely to have a significant negative effect on the receiving environment shall be supported".

A Climate Change Risk Assessment (CCRA) was carried out by Wexford County Council (WCC, 2023) as part of the development of the Wexford Climate Action Plan 2024 – 2029 (WCC, 2024), which identified the key risk for the region and concerns for future resilience.

The CCRA identified rising temperatures, more frequent heatwaves, and occasional severe cold, alongside increased rainfall and coastal flooding risks as elevated hazards to consider for future of the council and development. These changes pose challenges for housing, such as overheating, moisture ingress, and structural stress during extreme weather events.

14.3.1.3.3 Climate Change Vulnerability Policy

The Second National Adaptation Framework (NAF) (Government of Ireland, 2024b), published in June 2024 under the Climate Action and Low Carbon Development Act 2015, outlines a comprehensive, whole-of-government and whole-of-society approach to climate adaptation. Its core objective is to enhance Ireland's resilience to a wide range of climate risks, including extreme weather events, flooding, drought, biodiversity loss, sea level rise, and rising temperatures.

Building on the principles of a "Just Transition", the NAF introduces the concept of "Just Resilience'', envisioning a climate-resilient Ireland that ensures fairness, equity, and inclusivity in adaptation planning and implementation. It promotes reduced reliance on fossil fuels, the expansion of electrified and accessible public transport, and the integration of sustainability and climate resilience across all sectors. These include energy, water, wastewater, agriculture, transport, health, built environment, and biodiversity, with a strong emphasis on mainstreaming adaptation practices into policy, planning, and operations.

With respect to the housing and infrastructure sectors, the second NAF highlights several potential climate impacts and risks and adaptation measures:

- Increased frequency and intensity of rainfall may damage homes and surrounding infrastructure, requiring integration of flood risk management into spatial planning, use of sustainable drainage systems, and elevation or relocation of housing in highly vulnerable areas.

- Temperature increases in homes call for passive cooling design, improved ventilation, and retrofitting measures to maintain thermal comfort and protect health during heatwaves.
- Power outages during extreme weather events can disrupt heating and cooling systems, highlighting the need for backup power solutions and emergency response protocols for residential areas.

The National Climate Change Risk Assessment Main Report (NCCRA) was published in June 2025 (EPA, 2025b). The NCCRA was required to be developed under Action 457 from the 2021 CAP (Government of Ireland, 2021). Action 457 seeks to "Further develop Ireland's national climate change risk assessment capacity to identify the priority physical risks of climate change to Ireland'. The NCCRA uses definitions of the risk determinants from the Intergovernmental Panel on Climate Change (IPCC) Risk Framework (IPCC, 2023):

- **Hazard -** the potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources.
- **Exposure -** the presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected.
- **Sensitivity -** refers to the degree to which a system or asset is affected by climate hazards. It reflects how vulnerable something is to changes such as temperature extremes, flooding, or drought, based on its physical, functional, or ecological characteristics.
- **Vulnerability -** the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts including sensitivity
- **Risk -** the potential for adverse consequences for human or ecological systems.

When considering risk, the NCCRA assess exposure and vulnerability for two future climate change scenarios or Representative Concentration Pathways (RCPs):

- **RCP4.5** was selected as it represents a scenario aligned with the global temperature trajectory
- **RCP8.5** was selected as it represents a high-emissions scenario and achieves the highest level of modelled temperature increases by the end of the century. Consequently, this scenario will result in the highest level of physical risk for Ireland, and therefore the greatest requirement for adaptation.

These scenarios align with a conservative approach to assess risks to Ireland and assumes global emission reduction targets are not met. This aligns with the principle of precaution as stated in the NAF (Government of Ireland, 2024f). In addition to the future climate scenarios, the NCCRA assesses the risk from the future climate during the following timeframes:

- Present (~2030)
- Medium term (2040-2070) (~ 2050)
- Long term (2070-2100) (~2100)

It is recommended that the Environmental Impact Assessment (EIA) for climate risk and vulnerability evaluates risks across the lifecycle of the proposed development—construction and operational phases. For this project, future climate risk has been assessed using the 2050s timeframe.

14.3.2 Greenhouse Gas Assessment

As per the EU guidance document Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (European Commission, 2013) the climate baseline is first established with reference to EPA data on annual GHG emissions (see Section 14.5).

14.3.2.1 Construction Phase

The GHG assessment accounts for various components relating to the project during different life stages to determine the total impact of the development on climate. The reference study period, i.e. the assumed building life expectancy, for the purposes of the assessment is 50 years. Embodied carbon refers to the sum of the carbon needed to produce a good or service. It incorporates the energy needed in the mining or processing of raw materials, the manufacturing of products and the delivery of these products to site. The purpose of the embodied carbon assessment is to engage the design team in the consideration of embodied carbon at an early stage in the development and mitigate embodied carbon. This engagement aims to ensure carbon savings are made and to assist in aligning the project to Ireland's CAP goal of Net Carbon Zero by 2050.

A detailed lifecycle assessment (LCA) was undertaken by the project developer (Glenveagh Properties) on their most commonly used house types and apartments. The project developer uses consistent designs across their various developments. This level of repeatability allowed for a detailed LCA to be undertaken across the most commonly used typologies, the results of which have been used to generate a typical embodied carbon figure suitable for use across all Glenveagh units.

A specific kgCO2e/m2 figure has been calculated which can be factored based on the specific gross internal area (m2) of the unit to be assessed. Summing the embodied carbon for all of the units within the proposed development then provides an estimate of the embodied carbon associated with the specific project.

The lifecycle assessment followed the lifecycle stage terminology consistent with widely used industry standards (based on BS EN 15978:2011, BS EN 15804:2012):

- **Stage A1 – A3: Product Carbon** The carbon emissions generated at this stage arise from extracting the raw materials from the ground, their transport to a point of manufacture and then the primary energy used (and the associated carbon impacts that arise) from transforming the raw materials into construction products.
- **Stage A4 – A5: Construction Carbon** These carbon impacts arise from transporting the construction products to site, and their subsequent processing and assembly into the building.
- **Stage B1 – B5: In Use Carbon** – use of the building (B1), maintenance (B2), repair (B3), replacement (B4) and refurbishment (B5).
- **Stage B6, B7, B8: In Use Phase** operational use energy (B6), water (B7) and user activities carbon (B8). These categories have been excluded from the assessment due to the significant variability in user emissions.
- **Stage C1 – C4: End of Life Carbon** The eventual deconstruction and disposal of the existing building at the end of its life takes account of the on-site activities of the demolition contractors. No 'credit' is taken for any future carbon benefit associated with the reuse or recycling of a material into new products.
- **Biogenic Carbon:** Carbon sequestered during the growth cycle of a tree that is temporarily stored in the timber product until the end of its useful life. This element must be reported separately to the A – C carbon.

The house types assessed were of timber framed construction with a rendered blockwork façade and concrete tile roof. The apartments are concrete and steel framed with concrete tiled roof. These typologies were considered 'typical' for Glenveagh projects. The LCA study examined the carbon across the lifecycle of the typical unit, and this information can then be used to mitigate impacts from Glenveagh projects and target key areas for improvement.

The LCA was assessed in line with EN15978 and European Level(s) methodologies. The assessment has also followed RICS Whole Life Carbon Assessment for the Built Environment Guidance V1, which is comparable with the European Level(s) methodology but it has been adapted to accommodate a 50-year service life for the building to coordinate with European Level(s) methodologies.

OneClick LCA, in addition to Glenveagh specific calculations, was used to calculate embodied carbon emissions in line with detailed RICS guidance. The Inventory of Carbon and Energy (ICE) database as well as Environmental Product Declaration (EPDs) were used to find the relevant carbon factors for the specified materials.

The building element groups included in the embodied carbon assessment were substructure; frame; floors; external walls; internal walls and partitions; windows and doors; roofs; services; MEP (mechanical, electrical and plumbing); some permanent furnishings; and some external works.

An uncertainty factor was included in the LCA calculations. Due to the early design stage, precise material quantities and types are not yet known. To ensure emissions are not under-reported a conservative uncertainty factor of 22% was added to all the embodied carbon emissions based on the RICS V2 guidance, which is more conservative than the RICS V1 guidance.

The Glenveagh LCAs concluded that a figure of:

- 500 kgCO2e/m2 for total carbon (A – C stages, total lifecycle) can be used in EIAR assessments for typical house types.
- 1150 kgCO2e/m2 for total carbon (A – C stages, total lifecycle) can be used in EIAR assessments for typical apartment types.

The Glenveagh house types utilise a timber framed construction. Timber usage has a positive climate impact through carbon sequestration. Carbon sequestration is the process of capturing and storing atmospheric carbon. Trees and plants absorb CO2 from the atmosphere during photosynthesis in exchange for oxygen that they give out in return.

Biogenic carbon is the term used for carbon absorbed, stored and emitted by organic matter like soil, trees, plants and grasses.

The LCA found that a reduction of 21% and 3% of total embodied carbon emissions (A – C stages) can be utilised for the biogenic carbon associated with the Glenveagh house types and apartments respectively. This will be a carbon saving or negative carbon figure, within the climate impact assessment.

This biogenic carbon must be reported separately to the embodied carbon results and is not included within the figures for the embodied carbon associated with the house and apartment units referenced above.

There is 1 no. creche, with a community room, proposed as part of the development. This multi-use building is not covered by Glenveagh's LCAs. To calculate the embodied carbon resulting from this part of the development, the OneClick LCA tool was utilised. OneClick LCA is certified to EN 15978, EN 15978, ISO 21931 – 1 & ISO 21929, and data requirements of ISO 14040 & EN 15804, and is LEED, BREEAM and PAS 2080 aligned. It allows users to assess the carbon impact of buildings at various stages of design. The tool includes a detailed product and material list based on Irish materials as well as materials from the UK and Europe. Data was obtained from the project design team in terms of estimated material types and quantities. Where an exact material type or quantity was not known, as it will not be chosen until detailed design, an estimate value or alternative material was used within the tool to complete the GHG assessment. The tool allows for optioneering and optimisation of the carbon impact, it highlights the key areas within the building with the highest carbon impact and provides options for lower carbon intensive materials.

In addition to the embodied carbon associated with the buildings in the proposed development, other elements of the proposed development such as site activities, land clearance works, construction worker travel to site, etc. also result in a carbon impact. PE-ENV-01104 (TII, 2022a) recommends the calculation of the construction stage embodied carbon using the TII Online Carbon Tool (TII, 2025). It should be noted that some of the GHG emissions within the TII carbon tool results will have been accounted for within the building LCA therefore the results are conservative estimates and based on a worst- case scenario. A list of assumptions can be found in Table 14 6

The TII Online Carbon Tool (TII, 2025) has been commissioned by TII to assess GHG emissions associated with road or rail projects in Ireland. The TII Carbon Tool (TII, 2025) uses emission factors from recognised sources including the Civil Engineering Standard Method of Measurement (CESMM) Carbon and Price Book database (CESMM, 2013), which can be applied to a variety of developments, not just road or rail. The tool aligns with PAS 2080. The TII Carbon Tool was utilised to calculate the embodied carbon associated with the non-building elements of the development including construction wastes; site clearance works; worker travel to site; and construction materials.

The results of the Glenveagh LCAs, One Click and the TII Carbon Tool were summed to provide a total carbon impact of the proposed development.

14.3.2.2 Operational Phase

14.3.2.2.1 Traffic Emissions

Emissions from road traffic associated with the proposed development have the potential to emit carbon dioxide (CO2) which will impact climate.

The TII guidance Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106 (TII, 2022b), states that road links meeting one or more of the following criteria can be defined as being 'affected' by a proposed development and should be included in the local air quality assessment, and also the climate assessment. While the guidance is specific to infrastructure projects the approach can be applied to any development that causes a change in traffic.

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy duty vehicle (HDV) AADT changes by 200 or more;
- Daily average speed change by 10 kph or more;
- Peak hour speed change by 20 kph or more;
- A change in road alignment by 5 m or greater.

While the guidance is specific to infrastructure projects the approach can be applied to any development that causes a change in traffic.

There are a number of road links that will experience a change of over 1,000 in the AADT during the operational phase due to the proposed development. As a result, a detailed assessment of traffic related carbon dioxide (CO2) emissions was conducted.

PE-ENV-01104 (TII, 2022a) states that road traffic related emissions information should be calculated using the TII Road Emissions Model (REM) online calculator tool (TII, 2025). The TII guidance (TII, 2022b) states that modelling should be conducted for the Base, Opening and Design Years for both the Do Nothing and Do Something scenarios. The output is provided in terms of CO2e.

The following inputs are required for the REM tool: receptor locations, light duty vehicle (LDV) annual average daily traffic movements (AADT), annual average daily heavy-duty vehicles (HDV AADT), annual average traffic speeds, road link lengths, road type, project county location and pollutant background concentrations. The Default fleet mix option was selected along with the Intermediate Case fleet data base selection for cars, the ICE Sales Ban 2035 fleet data base for LGVs and the EU Target for the HGV fleet data base, as per TII Guidance (TII, 2025). The Intermediate Case assumes a linear interpolation between the Business-as-Usual case – where current trends in vehicle ownership continue and the Climate Action Plan (CAP) case – where adoption of low emission light duty vehicles occurs. The ICE Sales Ban 2035 represents a sales ban on new combustion engine vehicles to be implemented by 2035, and the EU Target for HGV represents interim targets for emissions from sales of new HGVs.

Traffic flow information was obtained from NRB Consulting Engineers, the traffic engineers, for the purposes of this assessment. Data was provided for the Base Year 2024, Opening Year 2030 and Design Year 2045 (see Traffic and Transport Assessment for further details). Both the Do Nothing and Do Something scenarios are quantified to determine the degree of change in emissions due to the proposed development. A total of 2 no. scenarios were assessed, these include:

- The Do Nothing scenario – this scenario assumes the proposed development is not in place in future years but includes traffic associated with cumulative developments in the wider area.
- The Proposed scenario – this is the "Do Something" scenario and includes traffic from the Do Nothing scenario and traffic associated with the proposed development as well as traffic associated with cumulative developments in the wider area.

Further detail on the modelling scenarios can be found in the Traffic and Transport Assessment prepared by NRB Consulting Engineers and submitted with this planning application. The traffic data is detailed in Table 14 3. Only road links that met the TII scoping criteria were included in the modelling assessment. Inputs include light duty vehicle (LDV) annual average daily traffic movements (AADT), annual average daily heavy-duty vehicles (HDV AADT), annual average traffic speeds, road link lengths, road type and project county location.

Table 14 3 Traffic Data used in Operational Phase Climate Assessment

Road Name	Speed (kph	Base Year	Opening Year		Design Year	
			Do Nothing	Do Something	Do Nothing	Do Something
		LDV AADT (HDV AADT)	LDV AADT (HDV AADT)	LDV AADT (HDV AADT)	LDV AADT (HDV AADT)	LDV AADT (HDV AADT)
R725 (East of Access)	60	5995 (48)	6118 (189)	7585 (234)	6351 (196)	7810 (242)
R725 (East of L10112)	60	7590 (235)	7746 (240)	10666 (330)	8040 (249)	10961 (339)
R725 (East of Woodbury)	60	10025 (310)	10231 (316)	13151 (407)	10620 (328)	13540 (419)
L10112	30	2343 (72)	2391 (74)	3851 (119)	2481 (77)	3942 (122)
R772 (Main Street)	30	7139 (221)	7286 (225)	9884 (306)	7563 (234)	10161 (314)

14.3.2.2.2 Operational Phase Energy Use

The EU guidance (European Commission, 2013) also states indirect GHG emissions because of a development must be considered, which includes emissions associated with energy usage. The quantification of operational energy usage is out of scope of this assessment due to user variability, however information on the proposed energy strategy for the development was obtained from the Climate Action Statement prepared by Kerrigan Consulting (2025). Several measures in relation to sustainable energy usage have been incorporated into the overall design of the development which will have the benefit of reducing the impact to climate where possible during operation.

14.3.2.3 Significance Criteria for GHGA

The Transport Infrastructure Ireland (TII) guidance document entitled PE-ENV-01104 Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document (TII, 2022a) outlines a recommended approach for determining the significance of both the construction and operational phases of a development.

The significance of GHG effects set out in PE-ENV-01104 (TII, 2022a) is based on ISEP guidance (ISEP, 2022) which is consistent with the terminology contained within Figure 3.4 of the EPA's 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (EPA, 2022).

The 2022 ISEP Guidance (ISEP, 2022) sets out the following principles for significance:

- When evaluating significance, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. Therefore, the significance of a project's emissions should be based on its net impact over its lifetime, which may be positive, negative or negligible;
- Where GHG emissions cannot be avoided, the goal of the EIA process should be to reduce the project's residual emissions at all stages; and

- Where GHG emissions remain significant, but cannot be further reduced, approaches to compensate the project's remaining emissions should be considered.

The criteria for determining the significance of effects are a two-stage process that involves defining the magnitude of the impacts and the sensitivity of the receptors (i.e. Ireland's National GHG targets). In relation to climate, there is no project specific assessment criteria, but the project will be assessed against the recommended TII significance determination. This takes account of any embedded or committed mitigation measures that form part of the design which should be considered.

TII (TII, 2022a) states that professional judgement must be considered when contextualising and assessing the significance of a project's GHG impact. TII reference the ISEP guidance (ISEP, 2022) which states that the crux of assessing significance is "not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050".

Significance is determined using the criteria outlined in Table 14 4 (derived from Table 6.7 of PE-ENV-01104 (TII 2022a)) along with consideration of the following two factors:

- The extent to which the trajectory of GHG emissions from the project aligns with Ireland's GHG trajectory to net zero by 2050; and
- The level of mitigation taking place.

Table 14 4: Significance Criteria for GHGA

Road Name	Speed (kph	Description
Significant Adverse	Major Adverse	• The project's GHG impacts are not mitigated. • The project has not complied with do-minimum standards set through regulation, nor provided reductions required by local or national policies; and • No meaningful absolute contribution to Ireland's trajectory towards net zero.
	Moderate Adverse	• The project's GHG impacts are partially mitigated. • The project has partially complied with do-minimum standards set through regulation, and have not fully complied with local or national policies; and • Falls short of full contribution to Ireland's trajectory towards net zero.
Not Significant	Minor Adverse	• The project's GHG impacts are mitigated through 'good practice' measures. • The project has complied with existing and emerging policy requirements; and • Fully in line to achieve Ireland's trajectory towards net zero.
	Negligible	• The project's GHG impacts are mitigated beyond design standards. • The project has gone well beyond existing and emerging policy requirements; and • Well 'ahead of the curve' for Ireland's trajectory towards net zero.
Beneficial	Beneficial	• The project's net GHG impacts are below zero and it causes a reduction in atmosphere GHG concentration. • The project has gone well beyond existing and emerging policy requirements; andWell 'ahead of the curve' for Ireland's trajectory towards net zero, provides a positive climate impact.

Ireland's carbon budgets can also be used to contextualise the magnitude of GHG emissions from the proposed development (TII, 2022a). The approach is based on comparing the net proposed development GHG emissions to the relevant carbon budgets (Government of Ireland, 2023a). With the publication of the Climate Action Act in 2021 and the Climate Action Plan 2025, sectoral carbon budgets have been published for comparison with the net GHG emissions from the proposed development over its lifespan. The aim of the carbon budgets is to ensure we are on a trajectory to meet the National Climate Objective of Net Zero by 2050.

14.3.3 Climate Change Risk Assessment

As per the TII PE-ENV-01104 guidance (2022a), an initial screening of risk during the operational phase is conducted. This is carried out by determining the sensitivity of proposed development assets (i.e. receptors) and their exposure to climate change hazards.

The proposed development asset categories must be assigned a level of sensitivity to climate hazards. PE-ENV-01104 (TII, 2022a) provides the list of asset categories and climate hazards to be considered. The asset categories will vary for development type and need to be determined on a development-by-development basis.

- **Asset Categories:** Pavements; drainage; structures; utilities; landscaping; signs, light posts, buildings, and fences.
- **Climate Hazards:** Flooding (coastal, pluvial, fluvial); extreme heat; extreme cold; wildfire; drought; extreme wind; lightning and hail; landslides; fog.

First an initial screening of physical hazards is carried out based on the proposed site location. This is a qualitative screening which intends to only proceed with relevant hazards (e.g., sea level rise is not an applicable hazard to inland areas or wildfire is not considered a hazard in an urban location). Following this all-relevant hazards are assessed on their exposure under future climate change.

The sensitivity is based on a High, Medium or Low rating with a score of 1 to 3 assigned as per the criteria below.

- **High Sensitivity -** The climate hazard will or is likely to have a major impact on the asset category. This is a sensitivity score of 3.
- **Medium Sensitivity -** It is possible or likely the climate hazard will have a moderate impact on the asset category. This is a sensitivity score of 2.
- **Low Sensitivity -** It is possible the climate hazard will have a low or negligible impact on the asset category. This is a sensitivity score of 1.

Once the sensitivities have been identified the exposure analysis is undertaken. The exposure analysis involves determining the level of exposure of each climate hazard at the project location irrespective of the project type. For example, flooding could be a risk if the project location is next to a river in a floodplain. Exposure is assigned a level of High, Medium or Low as per the below criteria.

- **High Exposure:** It is almost certain or likely this climate hazard will occur at the project location, i.e. might arise once to several times per year. This is an exposure score of 3.
- **Medium Exposure:** It is possible this climate hazard will occur at the project location, i.e. might arise a number of times in a decade. This is an exposure score of 2.
- **Low Exposure:** It is unlikely or rare this climate hazard will occur at the project location, i.e. might arise a number of times in a generation or in a lifetime. This is an exposure score of 1.

Once the sensitivity and exposure are categorised, a vulnerability analysis is conducted by multiplying the sensitivity and exposure to calculate the vulnerability.

14.3.3.1 Significance Criteria for CCRA

The CCRA involves an initial screening assessment to determine the vulnerability of the proposed development to various climate hazards. The vulnerability is determined by combining the sensitivity and the exposure of the proposed development to various climate hazards.

Vulnerability = Sensitivity x Exposure

The vulnerability assessment takes any proposed mitigation into account. Table 14 5 details the vulnerability matrix; vulnerabilities are scored on a high, medium and low scale.

TII guidance (TII, 2022a) and the EU technical guidance (European Commission, 2021a) note that if all vulnerabilities are ranked as low in a justified manner, no detailed climate risk assessment may be needed. Therefore, the impact from climate change on the proposed development can be considered as not significant.

However, where residual medium or high vulnerabilities exist the assessment may need to be progressed to a detailed climate change risk assessment and further mitigation implemented to reduce risks. An assessment of construction phase CCRA impacts is only required according to the TII guidance (TII, 2022a) if a detailed CCRA is required.

		Exposure		
		High (3)	Medium (2)	Low (1)
Sensitivity	High (3)	9 - High	6 – High	3 - Medium
	Medium (2)	6 - High	4 - Medium	2 - Low
	Low (1)	3 - Medium	2 – Low	1 - Low

Table 14 5: Vulnerability Matrix

The screening and Climate Change Vulnerability Assessment detailed in Section 14.7.2.2.1 did not identify any residual medium or high risks to the proposed development as a result of climate change. Therefore, a detailed CCRA for the construction and operational phase were scoped out.

While a CCRA for the construction phase was not required, best practice mitigation against climate hazards is still recommended in as outlined in Section 14.8.2.

14.3.4 Site Surveys/Investigations

No surveys were required as part of the climate assessment.

14.4 Difficulties Encountered

The proposed development is still in the design stage and therefore materials used, construction and operational activities are subject to change. Data assumptions for the GHG assessment are set out in Table 14 6. All assumptions follow a conservative approach.

GHG Assessment Category	Elements Considered
Buildings	Houses, apartments, duplex, creche, community centre
Materials	Non- building materials for pavements, roads, carparks etc.
Material transport	No data provided
Land use change and vegetation loss	Site preparation and clearance
Excavation	General excavation with some reused on site (see avoided emissions)
Construction energy	No assumptions made
Construction worker travel to site	No data provided
Construction waste disposal	Majority of construction waste is recycled/ reused- emissions associated with recycling materials should be attributed with the new material that is made (GHG Protocol). Emissions are from disposed materials- assumed landfill.
Construction water	Assumed HGV load of 20t and 50km round trip distance to waste facility
Operational energy	No Data
Operational transport	Significant variability in data, no quantification of emissions undertaken
Operational waste disposal	See traffic Section 14.7.1.2.2
Operational waste transport	Significant variability in data, no quantification of emissions undertaken
Maintenance	Included in 'Buildings' category – material maintenance and replacement assumed over the typical 50-year building lifespan
Landscaping and vegetation	No data
Operational water	Significant variability in data, no quantification of emissions undertaken
Biogenic carbon	Based on the use of timber within construction (See section 14.3.2.1 for explanation on biogenic carbon)
Avoided emissions	Excavated material reused on site would otherwise end up in landfill (50km roundtrip via 20t capacity HGV)

Table 14 6: GHG Assessment Assumptions

14.5 Baseline Environment

PE-ENV-01104 (TII, 2022a) states that a baseline climate scenario should identify, consistent with the study area for the project, GHG emissions without the project for both the current and future baseline. Climate impacts are assessed at a national level and in relation to national targets and sectoral emission ceilings. The study area for climate is the Republic of Ireland, and the baseline is determined in relation to this study area.

Ireland declared a climate and biodiversity emergency in May 2019 and in November 2019 there was European Parliament approval of a resolution declaring a climate and environment emergency in Europe. This, in addition to Ireland's current failure to meet its EU binding targets under Regulation 2018/842 (European Union, 2018) results in changes in GHG emissions either beneficial or adverse being of more significance than previously considered prior to these declarations.

14.5.1 Current GHG Baseline

Data published in July 2025 (EPA, 2025a), indicates that Ireland exceeded, without the use of flexibilities, its 2024 annual limit set under EU's Effort Sharing Decision (ESD) (EU 2018/842) by 1.03 MtCO2e. However, the 2024 emissions represent the second consecutive year in which Ireland's emission were below (-4.2%) 1990 levels. ETS (Emissions Trading Scheme) emissions decreased (-7.4%) and ESR (Effort Sharing Regulation) emissions decreased (-0.5%). Ireland's target is an emission reduction of 626 kt of CO2e by 2030 on an average baseline of 2016 to 2018.

The EPA estimate that 2024 total national GHG emissions, excluding LULUCF, have decreased by 2.0% on 2023 levels to 53.75 Mt CO2e, with a 0.7 Mt CO2e (-8.9%) reduction in electricity industries alone. This was driven by a 39.6% share of energy from renewables in 2024 and the complete phase-out of peat for electricity generation. Manufacturing combustion and industrial processes decreased by 4.6% to 6.0 Mt CO2e in 2024 due to declines in fossil fuel usage. The sector with the highest emissions in 2024 was agriculture at 38% of the total, followed by transport at 21.7%. For 2024, total national emissions (including LULUCF) were 57.64 Mt CO2e (EPA, 2025a) (Table 8.6).

The current estimates of National greenhouse gas emissions (including LULUCF) in 2024 are 12.0% below 2018, well off the National Climate ambition of a 51% reduction by 2030. The data indicate that from 2021- 2024 Ireland has used 82.8% of the 295 Mt CO2e Carbon Budget for the five-year period 2021-2025. This leaves 17.5% of the budget available for 2025, requiring a substantial 10.3% annual emissions reduction for 2025 to stay within budget.

Sector [Note 1]	2021	2022	2023	2024	Total Budget (Mt CO2e) (2021-2025)	% Budget 2021-2025 Used	Annual Change 2023 to 2024
Electricity	9.89	9.69	7.57	6.95	40	85.25%	-8.19%
Transport	11.09	11.76	11.80	11.65	54	85.74%	-1.27%
Buildings (Residential)	6.87	5.75	5.35	5.61	29	81.31%	4.86%
Buildings (Commercial and Public)	1.44	1.45	1.39	1.49	7	82.43%	7.19%
Industry	7.09	6.62	6.31	6.01	30	86.77%	-4.75%
Agriculture	21.94	21.78	20.72	20.41	106	80.05%	-1.50%
Other Note 2	1.86	1.93	1.81	1.63	9	80.33%	-9.94%
LULUCF	4.63	3.98	3.89	3.89	–	–	0
Total including LULUCF	**64.82**	**62.99**	**58.83**	**57.64**	**295**	**82.81%**	**-2.04%**

Note 1 Reproduced from latest emissions data on the EPA website July 2025 (EPA, 2025).

Note 2 Other includes Petroleum refining, F-Gases and Waste (emissions from solid waste disposal on land, solid waste treatment (composting and anaerobic digestion), wastewater treatment, waste incineration and open burning of waste).

Table 14.7 Trends in Total National GHG Emissions 2021 – 2024

14.5.2 Future GHG Baseline

The future baseline with respect to the GHGA can be considered in relation to the future climate targets which the assessment results will be compared against. In line with TII (TII, 2022a) and ISEP Guidance (ISEP, 2022) the future baseline is a trajectory towards net zero by 2050, "whether it [the project] contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050".

The future baseline will be determined by Ireland meeting its targets set out in the CAP25, and future CAPs, alongside binding 2030 EU targets. The European Union (EU) enacted 'Regulation (EU) 2018/842 on binding annual GHG emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No. 525/2013' (hereafter referred to as the Regulation) (European Union, 2018) to meet the commitments under the Paris Agreement. The Regulation aims to deliver, collectively by the EU in the most cost-effective manner possible, reductions in GHG emissions from the Emission Trading Scheme (ETS) and non-ETS sectors amounting to 43% and 30%, respectively, by 2030 compared to 2005. The Regulation was amended in April 2023, and Ireland must now limit its ETS and non-ETS greenhouse gas emissions by at least 42% by 2030. The ETS is an EU-wide scheme which regulates the GHG emissions of larger industrial emitters including electricity generation, cement manufacturing and heavy industry. The non-ETS sector includes all domestic GHG emitters which do not fall under the ETS scheme and includes GHG emissions from transport, residential and commercial buildings and agriculture.

In May 2025, the EPA released the report Ireland's Greenhouse Gas Emissions Projections 2024-2055 (EPA, 2025b), which includes total projected emissions and a breakdown of projected emissions per sector under the 'With Existing Measures' and 'With Additional Measures' scenarios. The EPA projections indicate that currently implemented measures (With Existing Measures) will achieve a reduction of 10% on 2005 levels by 2030, significantly short of the 42% reduction target. If measures in the higher ambition (With Additional Measures) scenario are implemented, EPA projections show that Ireland can achieve a reduction of 22% by 2030, still short of the 42% reduction target.

14.5.3 Current CCRA Baseline

The region of the proposed development has a temperate, oceanic climate, resulting in mild winters and relatively cooler summers when compared with continental Europe. This baseline data is derived from the European Centre for Medium-Range Weather Forecasts (ECMWF) ERA5 data reanalysis (ECMWF, 2023) which includes observed data from individual meteorological weather stations across Ireland from 1950-2023 such as those across Wexford. This data is reanalysed to model a complete picture of Ireland's historical climate. This method has been chosen to ensure data can be analysed at the daily level and harmoniously compared with future scenarios. The baseline time-period referred to in this assessment was from 1991-2020 and is specific to county Wexford and the location of the development in question.

Figure 14 1 below shows the climatology for the 30-year baseline period from 1991 to 2020 indicating the wettest months are from October through to January, with November being the wettest month (104mm) with average monthly precipitation ≥87mm across the winter period. The driest month on average was March (66mm), with February through to May also experiencing lower than average rainfall (~67mm). Ireland and Gorey's precipitation patterns are strongly influenced by its oceanic climate, with the wettest months typically coinciding with periods of frequent low-pressure Atlantic storm systems. In the cases of June to September however, rainfall increases into the 70mm – 78mm in August. This may be a factor of convection and frontal rainfall; whereby warm continental summer air is pressed against colder air moving across the Atlantic.

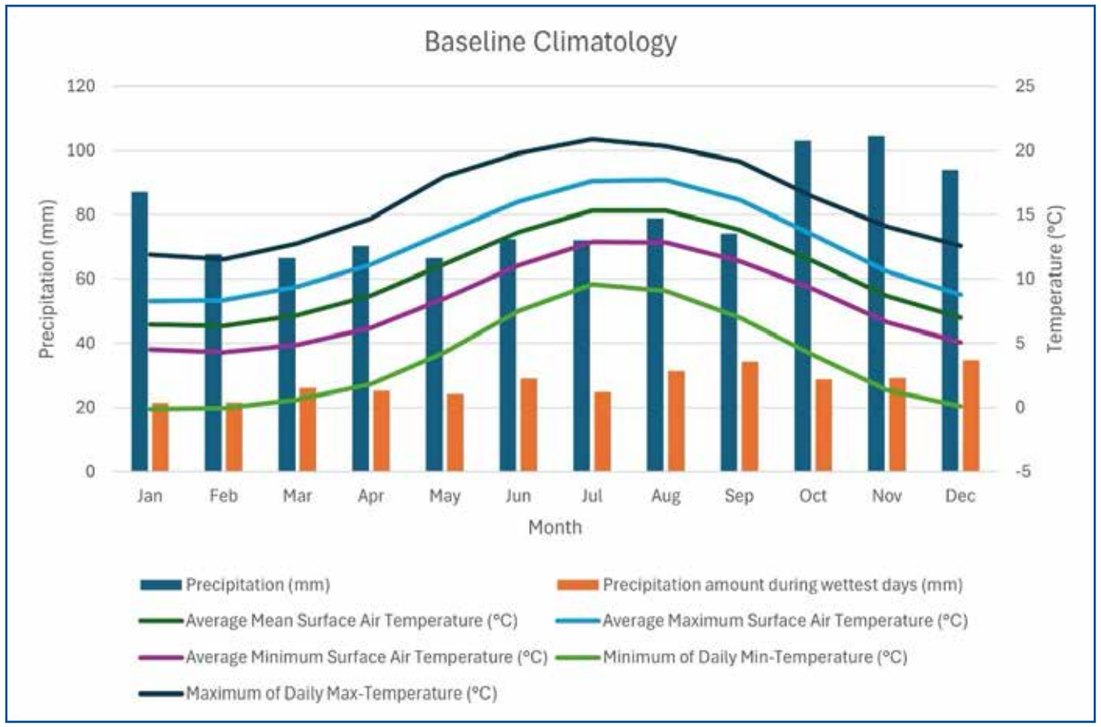

Figure 14 1: Baseline Climatology (Wexford County) 1991-2020

July and August are the warmest months with marginal differences in mean temperature (15.3°C) with average mean surface temperatures across the summer months (June – August) >13.6°C. July and August are also the warmest months for maximum daily temperatures (20°C) which showcases the higher value ranges recorded during a particular month. Across May – September average maximum daily temperatures exceed 18°C.

January and February are the coldest months with average mean surface air temperatures of 6.4°C and average minimum temperatures of 4.5-4.3°C. For daily minimum temperatures which reference the lowest range values (10th percentile range) of the data, January (-1.9°C) and February (-1.0°C) also remain the coldest with marginal difference. Several other winter and early spring months (December - March) also experience daily minimums of ≤0°C.

Historical records show Wexford has experienced several severe storms, with wind speeds exceeding 100 km/h, and records in Ireland set in the last decade including a record set during Storm Éowyn in January 2025, which reached 142 km/h in Galway. Storm activity is concentrated in winter (December–February), with an average of eight named storms annually (Met Éireann, 2025). Historical data was taken from Johnstown Castle (2009-2020) approximately 50km from the proposed development site and indicates a mean 10m wind speed of 13 knots (24 km/hr) and maximum gusts ≥60 knots (111 km/h) (Met Éireann, 2025).

Overall, the baseline climatology for the proposed development site and region shows evidence of high rainfall across the year high. Mild winters with average minimums >3°C and relatively mild summers with average maximums of 18°C however, this maximum is not significant for extreme heat or prolonged drought impacts.

14.5.4 Future CCRA Baseline

Climate Change Impacts and Projections for Ireland

Ireland is already experiencing increased annual rainfall in the north and west, with more variable patterns in the south and east including the area of the proposed development (EPA, 2021). Key risks identified by the EPA relevant to the proposed project include:

- Increased likelihood of more frequent and intense North Atlantic low-pressure systems bringing high rainfall and high winds.
- More intense rainfall periods which may lead to pluvial flooding and elevated fluvial levels.
- Longer dry spells and increased temperatures.

Climate Modelling and Planning

International best practice and national policy such as the NCCRA (2024), and Transport Infrastructure Ireland (TII, 2022a) recommends using two emission scenarios to project future climate change. This includes a moderate and high emission scenarios (RCP4.5 and RCP8.5) for future planning. These Representative Concentration Pathways (RCPs) reflect varying levels of global climate mitigation and are explained below.

- RCP 4.5 (a 'moderate' scenario) represents an approximate 2.4°C increase in global average temperatures (1.7-3.2°C). It assumes moderate mitigation efforts leading to stabilisation of emissions by mid-century and is generally aligned with current policies for emission reduction.
- RCP 8.5 (a 'worst case' / high emissions scenario) represents an approximate 4.3°C increase in global average temperatures (3.2-5.4°C) and assumes continued high emissions with minimal mitigation. This high-end scenario is useful for understanding potential impacts of current emission trends continue. Consequently, this scenario will result in the highest level of physical risk for Ireland, and therefore the greatest requirement for adaptation.

This climate change assessment uses the latest climate change projections standardised and bias corrected for Ireland available through the EPA and the TRANSLATE project (EPA, 2025b).

14.5.4.1 Key Findings from Future Climate Change Projections

Projected changes include:

- Summer temperatures rising by over 2°C and overall mean temperatures increasing 0.5°C and 0.8°C by mid-century under RCP4.5 and RCP8.5 respectively.
- Summer rainfall is decreasing while winter rainfall increases sharply, attributing to an overall increase in rainfall annually for the proposed development location.
- Fewer cold winter nights and more frequent short heatwaves (≥5 days >25°C).
- Increased likelihood of extended dry spells and possible drought which may elevate the risk of wildfire.
- Increased likelihood of more storms which may increase the risk of flooding due to deluge of rainfall which may be a factor in increased Max 1 day projections (+10mm).

Sector [Note 1]	2021	2022	2023	2024
Temperature	Mean temp (°C)	10.4	10.9	11.2
	Mean Max temp (°C)	12.6	14.2	14.7
	Mean Min temp (°C)	6.2	7.3	7.8
	Average of Daily Max temp (°C)	21 (July)	26.7	27.4
Precipitation and Flooding	Annual precipitation (mm)	1058	1093 (+35)	1115 (+57)
	Max 1-day (mm)	43	53	54
Storms and high winds	Number of Storms Qualitative (Description)	On Average 8 named storms annually with speeds exceeding 100km/hr (N.1)	Winter storm frequency is projected to increase, with a possible extension of the storm season. While the intensity of individual storms cannot be accurately projected, wind speeds are likely to remain above 100 km/hr.	
	Average Max Gust (Knots)	63		
Drought	Absolute Drought (≥15 days with less than 1mm)	Rare	Marginal increase	Increased Likelihood
Wildfire	Qualitative (Descriptive)	Several wildfires have occurred in Wexford and across Ireland	Rising temperatures and prolonged dry spells are increasing key wildfire risk factors, elevating overall vulnerability.	
Lightning	Qualitative (Descriptive)	Occurring during summer periods	This hazard may modestly increase in the future due to more favourable conditions, such as rising temperatures and extended warm periods beyond the traditional summer season	
Note-1: Data from combined Met Éireann, UK Met Office and Dutch Meteorological services.				

Table 14.8: Site Specific - Future Climate Change Summary of Projections under both RCP scenarios for 2050 period (2040-2070) taken from the EPA Climate Ireland Translate Projections.

14.6 The 'Do Nothing' Scenario

In the Do-Nothing scenario, the site will remain as per the baseline and will change in accordance with trends within the wider area (including influences from potential new developments in the surrounding area, changes in road traffic, etc).

As the site is zoned for development, it is likely that in the absence of the proposed development a development of a similar nature would occur in the future. Therefore, the predicted greenhouse gas emissions associated with the construction and operation phases are likely to occur regardless of the specific proposed development. Climate change is being driven by broader, long-term global trends in greenhouse gas concentrations, which will continue irrespective of any localised development. This assessment focuses on the contribution of the proposed development to the overall emissions and considers mitigation measures to minimise its climate impact.

14.7 Potential Significant Effects

14.7.1 Greenhouse Gas Assessment

14.7.1.1 Construction Phase

The most significant proportion of GHG emissions tend to occur during the construction phase due to embodied carbon in construction materials and emissions from construction activities. Therefore, the assessment has been included in the construction phase assessment for the purposes of the EIAR.

Glenveagh's calculated $kgCO^2e/m^2$ for the building units in conjunction with the schedule of areas supplied by the project architects, allowed a site-specific carbon figure for the building elements of the project to be calculated. The carbon figure associated with the creche, and community building was calculated using One Click LCA. Additionally, the TII Carbon Tool was utilised to calculate GHG emissions associated with the non-building elements including materials for infrastructure works, site preparation works, landscaping and waste materials. The results are presented in Table 14 9.

It is estimated that the proposed development will result in total embodied carbon emissions of 25,907 tCO2e (Table 14 9). Table 14 9 should be read in conjunction with Table 14 6 in Section 14.4 as due to methods of calculation, some activities (construction and operation) are already accounted for within other categories. Others, such as those within operational emissions have been excluded from the assessment due to significant variability in user emissions

GHG Assessment Category	Predicted GHG Emissions (tCO2e)	Predicted GHG Emissions as % of Project Total	Relevant Sector for Carbon Budget Comparison
Buildings	22,763	88%	Industry
Materials	2,961	11%	Industry
Material transport	0	0.00%	Transport
Clearance and demolition	7	0.03%	Industry
Land Use Change and Vegetation Loss	0	0.00%	LULUCF
Excavation	125	0.48%	Industry
Construction Energy	3	0.01%	Industry
Construction worker travel to site	0	0.00%	Transport
Construction Waste Disposal	47	0.18%	Waste
Construction Waste Transport	1	0.01%	Transport
Construction Water	0	0.00%	Industry
Total Construction GHG emissions	25,907		
Total Project Biogenic Carbon	-3660		
Total Avoid Emissions	-671		

Table 14.9: GHG Assessment Results

The GHG emissions associated with the buildings make up the majority (88%) of the total GHG emissions for the proposed development (Table 14 9). As per the LCA completed on the typical house types the majority (75%) of the carbon emissions are linked to the sub and superstructures. The product stage (A1 – A3) contribute the most to the overall carbon result followed by in use emissions (B1 – B5), primarily B4 replacement.

Seven key materials were identified in the assessment of the house units that together make up 87% of Stage A – C emissions: concrete; MEP (mechanical, electrical and plumbing); plastic; windows; boards; timber; and insulation.

Efforts to reduce the quantity of these materials used or swap them for lower carbon alternatives will impact on the carbon footprint of the units. It is important to highlight that although the timber framework forms a significant part of the structural skeleton of the house units; it is not as carbon intensive as other materials. Both the Climate Change Advisory Council (CCAC) and National Climate Action Plan advise for the use of timber framed buildings as a construction method. Timber frames have the additional benefit of having absorbed carbon from the atmosphere during their growth and providing a long-term carbon sink during their lifetime in the building.

The LCA found that a reduction of 21% of total embodied carbon emissions (A – C stages) can be utilised for the biogenic carbon associated with the proposed development house types and a figure of 3% can be used for apartment blocks. This represents carbon savings of 3,660 tCO2e for the proposed housing units and apartment blocks.

Reusing excavated material on site avoids the GHG emissions associated with transporting and disposing of it at landfill. This has resulted in a saving of 672 tCO2e.

The predicted emissions for the proposed development are annualised over the assumed 50-year lifespan and then compared to the relevant sector 2030 carbon budgets. Annualising the full carbon emissions over the lifetime of the development allows for appropriate comparison with annual GHG targets. In Table 14 10, GHG emissions have been compared against Ireland's total GHG emissions in 2024 (the existing baseline) and against Ireland's EU 2030 target of a 30% reduction in non-ETS sector emissions based on 2005 levels (27.7 Mt CO2e) (set out in Regulation EU 2018/842 of the European Parliament and of the Council).

The estimated total GHG emissions, when annualised over the 50-year proposed development lifespan, are equivalent to 0.04% of Ireland's total GHG emissions in 2024 and 0.09% of Ireland's non-ETS 2030 emissions target.

Table 14.10 Estimated GHG Emissions Relative to Targets and GHG Baseline

Predicted Development GHG Emissions (tCO2e)		Annualised Development GHG Emissions (tCO2e)	Target/Sectoral Budget (tCO2e)		Annualised Emissions as % of Relevant Target
25,907	Total Project Stage A - C GHG Emissions	518	Ireland's 2024 Total GHG Emissions (existing baseline)	57,640,000	0.0009%
			Non-ETS 2030 Target	27,722,000	0.0019%

The results of the lifecycle assessment for the building units can be compared with a number of industry benchmarks to demonstrate the carbon impact of the development (Table 14 11).

The Royal Institute of the Architects of Ireland (RIAI) 2030 Climate Challenge embodied carbon benchmarks for small scale residential developments were used for comparison with the predicted lifecycle carbon for the proposed development units. The proposed development house types will achieve the RIAI 2025 target of <800 kgCO2e/m2 and the 2030 target of <625 kgCO2e/m2 based on the predicted figure of 500 kgCO2e/m2 for the house types.

RIAI have a 2030 higher target of <450 kgCO2e/m2. Based on the current assessment the predicted figure of 500 kgCO2e/m2 for the housing units is not currently meeting this higher target. However, it is close to this target and given the ongoing commitment to sustainable development that the project developer (Glenveagh Properties) has it is likely that in the future this higher target can be achieved.

The London Energy Transformation Initiative (LETI) Climate Emergency Design banding system for residential properties was also used for comparison with the house units.

The LCA carbon intensity of 500 kgCO2e/m2 (stage A – C) and upfront carbon (A1 – A5) of 356 kgCO2e/m2 indicates that the house units are within the LETI B band. According to the LETI carbon alignment document, banding B is considered a robust target performance.

Table 14.11 Comparison Against Industry Embodied Carbon Benchmarks

Metric	Glenveagh Embodied Carbon (kgCO2e/m2)	Target	Target Achieved
RIAI 2025 Target (Embodied Carbon (A – C) kgCO2e/m2)	500	<800	Y
RIAI 2030 Target (Embodied Carbon (A – C) kgCO2e/m2)	500	<625	Y
RIAI 2030 Higher Target (Embodied Carbon (A – C) kgCO2e/m2)	500	<450	N
LETI Embodied Carbon Band B – Upfront Carbon	356	400	Y
LETI Embodied Carbon Band B – Lifecycle Embodied Carbon	500	625	Y

14.7.1.2 Operational Phase

14.7.1.2.1 Operational Energy Usage

The proposed development has been designed to reduce the impact to climate where possible. Several measures have been incorporated into the design to ensure the operational phase emissions are minimised. The primary elements with respect to reducing climate impacts and optimising energy usage are summarised in Section 14.8.1 and are based on information provided in the Climate Action Statement prepared by Kerrigan Consulting in relation to the proposed development.

14.7.1.2.2 Operational Traffic Emissions

There is the potential for increased traffic volumes to impact climate during the operational phase. To provide for a worst-case assessment and to assess potential cumulative impacts, the traffic data has included specific cumulative developments within the area (see Transportation Assessment prepared by NRB for further details).

The predicted concentrations of CO2e for the future years of 2030 and 2045 are detailed in Table 14 12. These are significantly less than Ireland's national 2030 targets set out under EU legislation (targets beyond 2030 are not available) and the 2030 sectoral emissions ceilings. It is predicted that in 2030 the proposed development will increase GHG emissions by 28 tonnes CO2e. This equates to 0.0001% of the 2030 national emission ceiling or 0.0005% of the 2030 Transport sector emissions ceiling (see Table 14 12). Similarly low increases in GHG emissions are predicted to occur in 2042 with emissions increasing by 21 tonnes CO2e. This equates to 0.00008% of the 2030 national emission ceiling or 0.0003% of the 2030 Transport sector emissions ceiling (Table 14 12).

In addition, bicycle parking and electric vehicle parking and charging infrastructure will be provided as part of the parking requirements at the proposed development which will promote the use of more sustainable methods of transport.

Table 14.12 Traffic Emissions GHG Impact Assessment

Year	Scenario	CO2e (tonnes/annum)
2030	Do Nothing	49
	Do Something	77.49
2045	Do Nothing	38
	Do Something	59.01
Increment Change in 2030		28.07
National Emission Ceiling 2030 (Tonnes) Note 1		**27,722,000**
Impact in 2030 (as % of national emissions ceiling)		0.00010%
Transport Sector 2030 Emission Ceiling		**6,000,000**
Impact in 2030 (as % of transport sector emissions ceiling)		0.0005%
Increment Change in 2045		20.86
Impact in 2045 (as % of national emissions ceiling)		0.00008%

Note 1 Target under Commission Implementing Decision (EU) 2020/2126 of 16 December 2020 on setting out the annual emission allocations of the Member States for the period from 2021 to 2030 pursuant to Regulation (EU) 2018/842 of the European Parliament and of the Council.

14.7.1.3 GHGA Significance of Effects

The TII guidance states that the following two factors should be considered when determining significance:

- The extent to which the trajectory of GHG emissions from the project aligns with Ireland's GHG trajectory to net zero by 2050; and
- The level of mitigation taking place.

The level of mitigation described in Section 14.8 has been considered when determining the significance of the proposed development's GHG emissions. According to the TII significance criteria described in Section 14.3.2.3 and Table 14 4, the significance of the GHG emissions during the construction and operational phase is minor adverse. The proposed development aligns with the following GHG significance criteria as per Table 14 4:

- The project's GHG impacts are mitigated through 'good practice' measures.
- The project has complied with existing and emerging policy requirements; and
- Fully in line to achieve Ireland's trajectory towards net zero.

In accordance with the EPA guidelines (EPA, 2022), the above significance equates to a significance of effect of GHG emissions during the construction and operational phase, which is direct, long-term, negative and slight, which is overall not significant.

14.7.2 Climate Change Risk Assessment

14.7.2.1 Construction Phase

A detailed CCRA of the construction phase has been scoped out. However, consideration has been given to the proposed development's vulnerability to the following climate change hazards with best practice mitigation measures proposed in Section 14.8.2.

- Flood Risk due to increased precipitation, and intense periods of rainfall. This includes fluvial and pluvial flooding.
- Increased temperatures potentially causing water scarcity and prolonged periods of hot weather
- Reduced temperatures resulting in ice or snow and [possible hazard to working conditions].
- Major Storm Damage, including wind damage and coastal flooding from storm surge.
- Wildfire resulting from dry spells and elevated temperatures

14.7.2.2 Operational Phase

To determine the vulnerability of the proposed development to climate change the sensitivity and exposure of the development to various climate hazards must first be determined. Table 14 13 presents the initial qualitative climate hazards screening relevant to the proposed development. A number of climate hazards have been screened out of the assessment due to the proposed development location.

Table 14.13: Climate Hazard Screening

Climate-related Hazard	Hazard Screening Rationale	Screening
Extreme Heat temperatures	High temperatures are a key consideration for both construction and long-term operation of the proposed project. Historical data shows rising temperatures in Ireland. Heat and thermal expansion can damage buildings, materials, and road surfaces, and affect the lifecycle of assets.	Screen in
Extreme Cold Temperature	Snow and ice events pose significant risks to health, safety, and site operations. Road access may be disrupted, and low temperatures can affect assets such as fuel tankers, workers, and infrastructure. Freeze-thaw cycles may cause cracking in concrete and road surfaces, requiring snow clearance and ice management.	Screen in
High precipitation and pluvial flooding	Surface water remains a key vulnerability for any proposed development during both construction, and operational phases due to the sensitivity of construction materials, site access, and site assets to water exposure.	Screen in
Fluvial flooding	The development site is not deemed at risk from a fluvial watercourse, and this is not considered a hazard for the site.	Screen out
Drought	Droughts have occurred across Ireland, previously impacting water supply. Future reductions in water availability would directly impact the development and its operation.	Screen in
Wildfire	The area surrounding the site is largely urban however, wildfire was raised as a risk within the Wexford County Council climate risk assessment and action plan (2023,2024).	Screen in
High winds and storms	While the site itself isn't significantly elevated, existing and proposed assets and design components may be exposed to high winds. Historically, Ireland has experienced several notable storm events including Storm Éowyn and Storm Darragh (2024), which caused widespread damage across Ireland. These storms often bring heavy rainfall and flood warnings, increasing overall risk.	Screen in

Climate-related Hazard	Hazard Screening Rationale	Screening
Fog	Fog is not considered a significant hazard for this development, as it does not involve transport, aviation, or activities requiring high visibility.	Screen out
Lightning	The proposed design is not elevated, and no extra risk is considered above what already exists under the existing design codes of the site and buildings	Screen out
Landslides and Subsidence	The Geological Society of Ireland (GSI) landslide susceptibility mapping database (GSI, 2025) was reviewed to determine the low risk from landslides at the proposed development location. Consideration has been given to subsidence and adequate engineering measures are in place to ensure stability.	Screen out
Sea level rise and coastal flooding	The location of the development is a considerable distance from the coast and not exposed.	Screen out

14.7.2.2.1 Climate Change Vulnerability Assessment

The sensitivity and exposure of the development to the screened in climate hazards must first be determined to then determine the vulnerability of the proposed development to climate change. Flooding (pluvial), extreme heat, extreme cold, wildfire, and extreme wind, have been considered as climate hazards in the context of the proposed development.

The sensitivity of the proposed development to the climate hazards is assessed irrespective of the project location. Table 14 14 details the sensitivity of the proposed development on a scale of high (3), medium (2) and low (1). Once the sensitivity has been determined, the exposure of the proposed development to each of the climate hazards is determined, this reflects on the possible likelihood of the climate hazard occurring at the project location and is also scored on a scale of high (3), medium (2) and low (1). The product of the sensitivity and exposure is then used to determine the overall vulnerability of the proposed development to each of the climate hazards. The results of the vulnerability assessment are detailed in Table 14 14.

Table 14.14: Climate Change Vulnerability Assessment

Climate Hazard	Sensitivity	Exposure	Vulnerability
Flooding (Pluvial)	1 (Low)	2 (Medium)	2 (Low)
Extreme Heat	1 (Low)	2 (Medium)	2 (Low)
Extreme Cold	1 (Low)	1 (Low)	1 (Low)
Drought	1 (Low)	1 (Low)	1 (Low)
Wildfire	1 (Low)	1 (Low)	1 (Low)
Extreme Wind	1 (Low)	2 (Medium)	2 (Low)

The sensitivity and exposure of the area was determined with reference to several online tools and with input from the various discipline specialists on the project team. It was concluded that the proposed development does not have any significant vulnerabilities to the identified climate hazards as described in the below sections. All vulnerabilities are classified as low.

Flooding

Future increases in rainfall due to climate change may elevate the risk of surface water (pluvial) flooding; however, fluvial flooding is not considered a risk as the proposed development is located a significant distance from any fluvial watercourse. A Site-Specific Flood Risk Assessment (FRA) undertaken by AKM Design Group (AKM, 2025) concluded that the site is not at risk of flooding and is appropriate for residential development under the Planning System and Flood Risk Management Guidelines (November 2009).

The nearest river is approximately 2.1 km east of the site and does not present a flood risk. In addition, the site's runoff profile indicates a low risk of pluvial flooding. Nevertheless, mitigation measures have been incorporated into the design to prevent runoff-related issues. Future climate projections for increased rainfall have also been considered, with a range of Sustainable Drainage Systems (SuDS) integrated to manage runoff and enhance flood resilience

The proposed development integrates extensive nature-based solutions and Sustainable Urban Drainage Systems (SuDS) to manage surface water effectively and enhance climate resilience. These include permeable paving, rainwater butts, swales, rain gardens, and attenuation ponds within public realm areas. Collectively, these measures provide robust mitigation against pluvial flooding while supporting biodiversity and sustainable water management across the site

Extreme Temperatures (Heat & Cold)

In relation to extreme temperatures, both extreme heat and extreme cold, these have the potential to impact the building materials and some related infrastructure. However, building materials will be selected which meet the relevant design standards and which accommodate high and low extreme temperatures. The likelihood of extreme cold events in the future is projected to decrease reducing their overall exposure and risk. Extreme heat (+30°C) is equally unlikely and building design has incorporated these considerations with thresholds for materials accommodating these extremes. Therefore, both extreme temperatures (cold and heat) are not considered a significant risk.

High Winds and Storms

In relation to extreme winds, the buildings shall be designed to the appropriate standards to account for the relevant wind loading events for RCP4.5 and RCP8.5.

Wind exposure to landscaping and vegetation has been considered in the design. A good variety of tree species has been selected to enhance overall resilience and reduce the risk of uniform wind damage. The chosen species are known for their strong structure, good wind resistance, and reliable performance in local conditions. Planting layouts, spacing, and maintenance practices will further support tree stability and long-term landscape health.

Drought

This development requires water for its operation. Future projections do show an increased likelihood of water scarcity however, when matched with mitigation measures adopted by designers the overall impact of water scarcity events is considered low. The planting strategy focuses on native and well-adapted species selected for their proven tolerance to local soil and climatic conditions, including seasonal dry periods and increasing temperature variability associated with climate change. Species are chosen based on ecological suitability, root structure, and adaptive capacity to variable moisture regimes, ensuring resilient, low-maintenance planting with reduced irrigation requirements.

Wildfire

The risk of wildfire has been determined to be low in this assessment however, WCC (2023) do recognise this as a developing risk due to climate change. The risk as been considered across the design and across landscaping and vegetation. Planting zones have been planned to avoid continuous fuel loads allowing for the rapid spread and intensification of any fire, with strategic breaks between tree groups and open grass or hard landscape areas.

Summary

Overall, the proposed development has at most low vulnerabilities to the identified climate hazards. Therefore, no detailed risk assessment is required.

14.7.2.3 CCRA Significance of Effects

With design mitigation in place, there are no significant risks to the proposed development due to climate change. In accordance with the EPA Guidelines (EPA, 2022), the significance of effect of the impacts to the proposed development due to climate change during the operational phase are direct, long-term, negative and not significant.

14.7.3 Cumulative Effects

With respect to the requirement for a cumulative assessment the ISEP (ISEP, 2022) and TII (TII, 2022a) guidance on which the assessment is based states that “the identified receptor for the GHG Assessment is the global climate and impacts on the receptor from a project are not geographically constrained, the normal approach for cumulative assessment in EIA is not considered applicable. By presenting the GHG impact of a project in the context of its alignment to Ireland’s trajectory of net zero and any sectoral carbon budgets, this assessment will demonstrate the potential for the project to affect Ireland’s ability to meet its national carbon reduction target. This assessment approach is considered to be inherently cumulative”.

The traffic data used for the operational phase assessment included cumulative traffic from existing and permitted developments in the surrounding area. Therefore, this impact assessment is cumulative.

As per the above, the cumulative impact of the proposed development in relation to GHG emissions is considered direct, long-term, negative and slight, which is overall not significant in EIA terms.

14.7.4 Summary

The following table summarises the identified likely significant effects on climate due to the proposed development before mitigation measures are applied.

Table 14.15 Summary of Likely Significant Effects in the absence of mitigation

Likely Significant Effect in accordance with EPA Terminology	Quality	Significance	Extent	Probability	Duration	Type
GHG emissions from construction materials & activities and operational energy usage	Negative	Significant (moderate adverse as per Table 14.4)	National	Likely	Long-term	Direct
Climate change and related vulnerability of the proposed development	Negative	Not significant - slight	Local	Likely	Long-term	Direct

14.8 Mitigation Measures

14.8.1 Incorporated Design Mitigation

Several measures have been incorporated into the design of the development to mitigate against the impacts of future climate change. Sustainable Urban Drainage Systems (SuDs) and adequate stormwater drainage combine to form a robust precipitation and flood mitigation strategy. Permeable pavements, attenuation and drainage ponds haven been incorporated into the design of the development to avoid potential flooding impacts as a result of increased rainfall events in future years. These measures have been considered when assessing the vulnerability of the proposed development to climate change (Section 14.7.2).

In relation to operational energy usage, information from the Climate Action Statement prepared by Kerrigan Consulting, has been used to inform this assessment. With the exception of the creche and community building, the units within the proposed development will be compliant with Technical Guidance (TGD) Part L – Conservation of Fuel and Energy- Dwellings 2022. As per the Climate Action Statement the following key elements will be included in the design parameters.

- The proposed design follows a “fabric first” approach, which will reduce the energy demand in the dwellings through energy efficient building envelopes and low air permeability, which will reduce the energy demand of the heating systems.
- High efficiency lighting, heating and ventilation systems shall be carefully selected to reduce running costs and energy use.
- Specifying building fabric insulation U-values better than the Part L 2022 Regulations.
- Targeting the air permeability to be ≤ 3m3/m2/hr @ 50Pa
- The proposed development will incorporate renewable technologies to improve on the RER (renewable energy ratio) of 20% specified in the Part L Building regulations such as air to water heat pumps (houses) and exhaust air heat pumps (apartments). Solar panels may also be installed if the installation of a heat pump is not sufficient to achieve a renewable energy ratio of 0.2.
- Zoned heating controls.

These measures are aligned with the objectives of the CAP25 and will contribute to reducing the operational carbon footprint of the development, ensuring long-term energy efficiency and environmental sustainability. These identified measures will aid in reducing the impact to climate during the operational phase of the proposed development in line with the goals of the CAP25.

14.8.2 Construction Phase Mitigation

Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. The following measures to reduce the embodied carbon of the construction works are:

- Appointing a suitably competent contractor who will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled.
- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
- Ensure all plant and machinery are well maintained and inspected regularly.
- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site.
- Sourcing materials locally where possible to reduce transport related GHG emissions.
- Material choices and quantities will be reviewed during detailed design, to identify and implement any lower embodied carbon options, where feasible. For example a 30% minimum clinker replacement in cement may be utilised in line with the requirements for public bodies.

The project developer, Glenveagh Properties, has committed to achieving Net Zero by 2050 across its whole business. Therefore, the proposed development will be built with carbon reduction and sustainability in mind and will include reductions of embodied emissions during the construction phase. Glenveagh Properties have published a Net Zero Transition Plan and Annual Reports which detail a commitment to achieving Net Zero by 2050.

The above listed measures are supported by Glenveagh Properties PLC’s Net Zero Transition Plan 2023, published in March 2023, which identifies the sources of Glenveagh Properties PLC’s emissions and proposed measures to reduce these. A commitment to achieve a 55% reduction in Scope 3 (construction methods) emissions intensity (tCO2e per 100 m2 of complete floor area) by 2031 (using 2021 as the baseline year) will involve supplier engagement to make informed procurement decisions, engaging with subcontractors to support their transition to less carbon intensive fuels (diesel and gas oil is currently the norm) and investing in innovation of designing and building homes to reduce their associated embodied carbon. A reduction target of 46.2% by 2031 is also set in the plan for Scope 1 and 2 emissions (company operations). All targets have been validated by the Science Based Targets initiative (SBTi).

The Science Based Targets initiative (SBTi) is a corporate climate action organisation, incorporated as a charity, which develops standards, tools and guidance enabling companies to set GHG emissions reductions targets in line with net-zero by 2050 at the latest. Science-based targets show companies and financial institutions how much and how quickly they need to reduce their GHG emissions to prevent the worst effects of climate change (SBTi, 2024a). Glenveagh Properties PLC is one of the over 4,000 companies and financial institutions who have had their emission reduction targets validated by the SBTi (Glenveagh’s targets can be searched in the SBTi’s target dashboard (SBTi, 2024b)).

Glenveagh Properties PLC’s Full Year 2024 Results, published in March 2025, identified that Scope 3 emissions are 7% below the 2021 baseline, measured on an intensity basis (tCO2e per 100m2). This is primarily due to the focus on the energy efficiency of the residential units. Scope 1 and 2 emissions decreased by 47% compared to 2021 baseline, which can be attributed to the first full year HVO (hydrotreated vegetable oil) was used across all sites as a replacement to diesel.

In terms of impact on the proposed development due to climate change, during construction the Contractor will be required to mitigate against the effects of extreme rainfall/flooding through site risk assessments and method statements. The Contractor will also be required to mitigate against the effects of extreme wind/storms, temperature extremes through site risk assessments and method statements. All materials used during construction will be accompanied by certified datasheets which will set out the limiting operating temperatures. Temperatures can affect the performance of some materials, and this will require consideration during construction. During construction, the Contractor will be required to mitigate against the effects of fog, lighting and hail through site risk assessments and method statements.

Throughout detailed design and construction phase, guidance documents to inform with design detail decisions shall be reviewed, e.g. the EU Commission Technical Guidance on Adapting Buildings to Climate Change (European Commission, 2021a), LETI emergency design guide (LETI, 2020), and the latest IPCC report.

14.8.3 Operational Phase Mitigation

The proposed development has been designed to reduce the impact on climate as a result of energy usage during operation. These measures are outlined in Section 14.8.1 above as incorporated design mitigation. No further operational phase mitigation is proposed.

14.9 Residual Impact Assessment

The impact to climate due to a proposed development must be assessed as a whole for all phases. The proposed development will result in some impacts to climate through the release of GHGs. TII reference the IESP guidance which states that the crux of assessing significance is *“not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050”.* The proposed development has proposed best practice mitigation measures (as outlined in Section 14.8) and is committing to reducing climate impacts where feasible. As per the assessment criteria in Table 14 4 the residual impact of the proposed development in relation

to GHG emissions is considered minor adverse, this equates to a direct, long-term, negative and slight, impact which is overall not significant in EIA terms.

In relation to climate change vulnerability, it has been assessed that there are no significant risks to the proposed development due to climate change. The residual effect of climate change on the proposed development is considered ***direct, long-term, negative*** and ***imperceptible,*** which is overall not significant in EIA terms.

14.9.1 Summary of Post-mitigation Effects

The following table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

Table 14.16 Summary of Effects Post Mitigation

Likely Significant Effect in accordance with EPA Terminology	Quality	Significance	Extent	Probability	Duration	Type
GHG emissions from construction materials & activities and operational energy usage	Negative	Not Significant - Slight (minor adverse as per Table 14.4)	National	Likely	Long-term	Direct
Climate change and related vulnerability of the proposed development	Negative	Not significant - Imperceptible	Local	Likely	Long-term	Direct

14.9.2 Cumulative Residual Effects

With respect to the requirement for a cumulative assessment the ISEP (ISEP, 2022) and TII (TII, 2022a) guidance on which the assessment is based states that *"the identified receptor for the GHG Assessment is the global climate and impacts on the receptor from a project are not geographically constrained, the normal approach for cumulative assessment in EIA is not considered applicable. By presenting the GHG impact of a project in the context of its alignment to Ireland's trajectory of net zero and any sectoral carbon budgets, this assessment will demonstrate the potential for the project to affect Ireland's ability to meet its national carbon reduction target. This assessment approach is considered inherently cumulative".*

The traffic data used for the operational phase assessment included cumulative traffic from existing and permitted developments in the surrounding area. Therefore, this impact assessment is cumulative.

As per the above, the cumulative impact of the proposed development in relation to GHG emissions is considered ***direct, long-term, negativ***e and ***slight***, which is overall ***not significant*** in EIA terms.

14.10 Risk of Major Accidents or Disasters

As detailed in Section 14.7.2, climate change has the potential to alter weather patterns and increase the frequency of rainfall in future years. However, the potential for flooding on site has been reviewed and adequate attenuation and drainage have been provided for to account for increased rainfall in future years. All climate change related risks were categorised as 'low' as per Section 14.7.2.

14.11 Worst Case Scenario

Conservative assumptions have been used as part of this assessment. As a result, Section 14.9details the worst-case residual impact for the proposed development.

14.12 Interactions

Climate has the potential to interact with a number of other environmental attributes.

14.12.1 Land, Soils, Geology and Hydrology

The impact of flood risk has been assessed, and the surface water drainage network will be designed to cater for increased rainfall in future years as a result of climate change. The effect of the interactions between climate and land, soils, geology and hydrology are direct, short-term, negative and imperceptible during the construction phase and direct, long-term, negative and imperceptible during the operational phase, which is overall not significant in EIA terms.

14.12.2 Air Quality

Air quality and climate have interactions due to the emissions from the burning of fossil fuels during the construction and operational phases generating both air quality and climate impacts. Air quality modelling outputs are utilised within the Climate Chapter. There is no impact on climate due to air quality. However, the sources of impacts on air quality and climate are strongly linked.

14.12.3 Traffic and Transportation

During the construction and operational phase, there is the potential for interactions between climate and traffic. Vehicles accessing the site will result in emissions of CO2, a greenhouse gas. The effects of the proposed development on climate are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the effects of the interactions between traffic and climate are considered to be direct, short-term, negative and not significant during the construction phase and direct, long-term, negative and not significant during the operational phase.

14.12.4 Waste

Waste management measures will be put in place to minimise the amount of waste entering landfill, which has higher associated embodied carbon emissions than other waste management such as recycling. The effect of the interactions between waste and climate are considered to be direct, short-term, negative and not significant during the construction phase and direct, long-term, negative and not significant during the operational phase, which is overall not significant in EIA terms.

14.13 Monitoring

Monitoring and reporting of the embodied carbon in the construction phase will be conducted. The aim of monitoring will be to seek further ways to minimise climate impacts. Monitoring will include contractual obligations, in line with the most recent Climate Action Plan and sectoral targets, for the successful tenderer to ensure that the proposed development stays in line with updated aims. Commitments to monitor GHG emissions during the construction phase will also be secured through the final Construction Environmental Management Plan (CEMP). Monitoring will include embodied carbon of construction materials, water usage, power and fuel usage, and waste generation (including reuse and recycling rates). Where monitoring shows that the proposed development is not meeting its targets, further mitigation will be put in place.

Monitoring should also include reviewing potential for extreme weather events which may cause damage during construction. Contractors' Environmental Management System (EMS) will include measures to address risks during such events i.e. flooding.

14.14 Summary of Mitigation and Monitoring

The following table summarises the Construction Phase mitigation and monitoring measures.

Table 14.17 Summary of Construction Phase Mitigation and Monitoring

Likely Significant Effect	Proposed Mitigation	Proposed Monitoring
Impact of proposed development greenhouse gas emissions on climate.	Construction Phase: • Appointing a suitably competen contractor who will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled. • Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods. • Ensure all plant and machinery are well maintained and inspected regularly. • Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. • Sourcing materials locally where possible to reduce transport related CO2 emissions. • Target embodied carbon rates for detailed design (LETI, 2020).	Monitoring and reporting of embodied carbon of construction materials, water usage, power and fuel usage, and waste generation (including reuse and recycling rates).
Vulnerability of proposed development to future climate change.	• Contractor will be required to mitigate against the effects of extreme rainfall/flooding, extreme winds/storms, temperature extremes, fog, lightning and hail through site risk assessments and method statements. • All materials used during construction will be accompanied by certified datasheets which will set out the limiting operating temperatures.	Monitoring to include reviewing potential for extreme weather events which may cause damage during construction. Contractors' Environmental Management System (EMS) will include measures to address risks during such events i.e. flooding.

The following table summarises the Operational Phase mitigation and monitoring measures.

Table 14.18 Summary of Operational Phase Mitigation and Monitoring

Likely Significant Effect	Proposed Mitigation	Proposed Monitoring
Impact of proposed development greenhouse gas emissions on climate.	Incorporated design mitigation relating to operational energy usage. See Section 14.7.1 for further details.	No monitoring proposed.
Vulnerability of proposed development to future climate change.	Incorporated design mitigation regarding drainage design, landscaping requirements, building design. See Section 14.7.2 for further details.	No monitoring proposed

14.15 Conclusion

This chapter has reviewed and analysed the potential and the predicted impacts of the proposed development with regards to climate. These impacts have been considered for both the construction and operational phases of the proposed development. The cumulative impact of the proposed development and surrounding developments have also been considered.

Provided all mitigation measures as set out in this chapter, the overall predicted effect of the proposed development is not significant in relation to GHG emissions and climate change risk.

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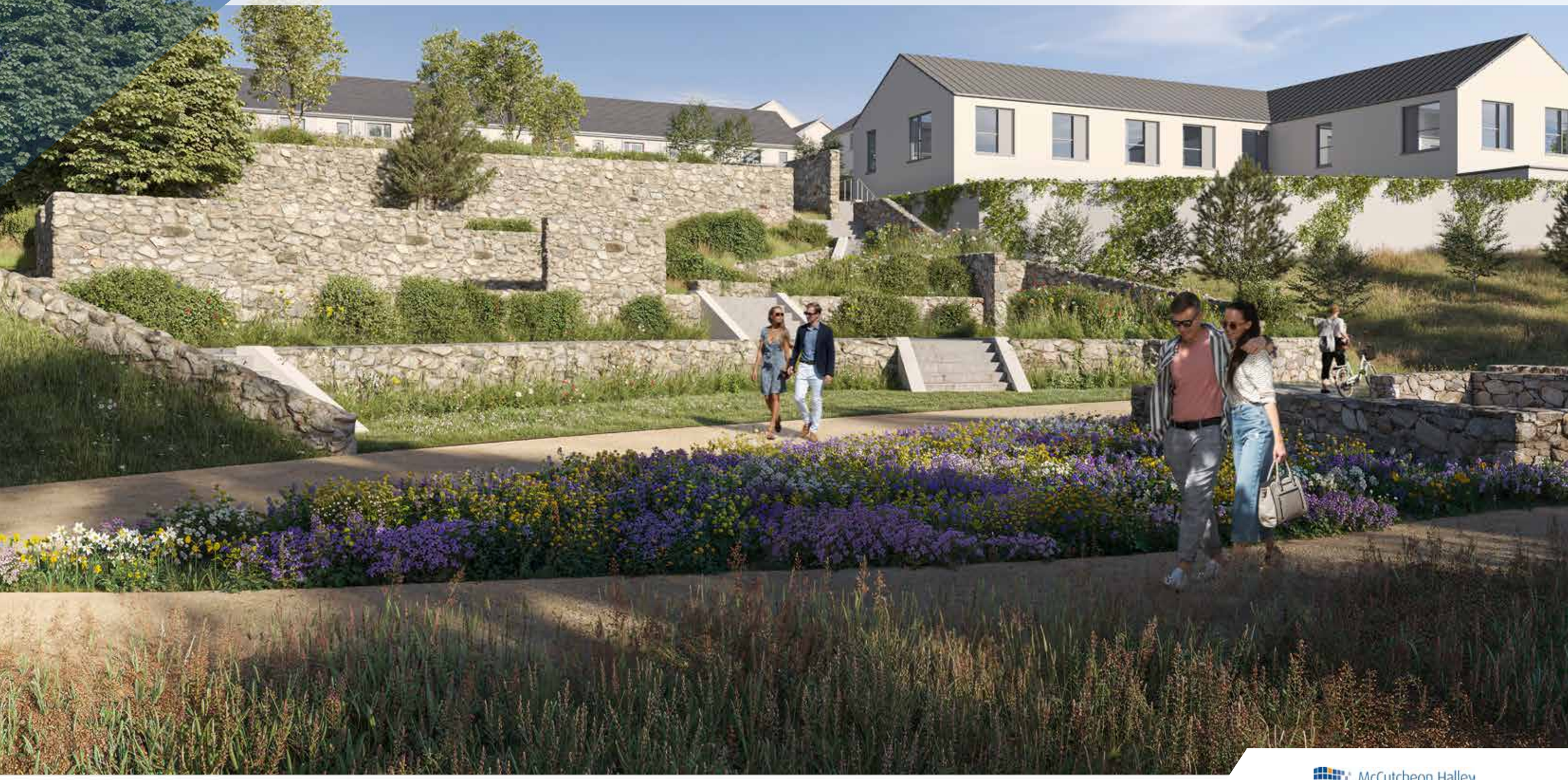
CHAPTER FIFTEEN

CULTURAL HERITAGE



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CHAPTER 15

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CHAPTER 15 | CULTURAL HERITAGE

15.1 Introduction

This chapter assesses the potential impacts of the proposed development, as described in Chapter 2, on the known and potential cultural heritage resource concerning the integrity, continuity and context of same for future generations. UNESCO define the term 'Cultural Heritage' as encompassing several aspects of tangible assets (immovable: archaeological sites and monuments, architectural heritage structures; movable: artefacts; and underwater: shipwrecks, submerged features) and intangible assets (such as historical associations, folklore, oral tradition and language).

15.1.1 Author Information and Competency

This chapter was prepared by Camilla Brännström and Peter Looney of John Cronin and Associates. Ms. Brännström holds a postgraduate qualification in Archaeology (M.A/Filosofie Magister, Umeå University, Sweden (2000-2004)) and is a licence-eligible archaeologist. Mr. Looney holds primary and postgraduate degrees in Archaeology (B.A. and MPhil, UCC 2007/2011) and is also a licence-eligible archaeologist. These individuals each have extensive experience in the compilation of archaeological, architectural, and cultural heritage impact assessments.

15.1.2 Reference to Guidelines Relevant to Discipline

The guidelines relevant to the assessment include the Framework and Principles for the Protection of Archaeological Heritage (Department of Arts, Heritage, Gaeltacht and the Islands 1999) and Architectural Heritage Protection: Guidelines for Planning Authorities (Department of Arts, Heritage and Gaeltacht 2011). The assessment methodology compiles with guidelines presented in the Environmental Protection Agency's (EPA 2022) Guidelines for Information to be Contained in EIAR and the International Council on Monuments and Sites (ICOMOS 2011) Guidance on Heritage Impact Assessments for Cultural World Heritage Properties.

15.1.3 Methodology

The assessment was based on a programme of desktop research combined with a field survey of the lands within the proposed development. The assessment also includes the results of previous archaeological investigations (geophysical survey and targeted archaeological testing) of the main greenfield portion of the proposed development lands which were conducted in 2018 in relation to an earlier planning application within the proposed development site. The assessment was carried out in order to identify any features of archaeological, architectural or cultural heritage significance likely to be impacted by the proposed development. A study area encompassing all lands within the main portion of the proposed development and 1km from its boundary and 20m from the route of the proposed drainage upgrade was applied. The recorded and potential cultural heritage resource within the study area was reviewed in order to compile a comprehensive cultural heritage context for the location of the proposed development and surrounding lands.

The following sections present an overview of the methodology applied to determine the baseline cultural heritage environment within the study area and the assessment of potential effects on the cultural heritage resource.

15.1.3.1 Desktop Research

Documentary research on the recorded and potential cultural heritage resource within the study area was carried out in order to identify any recorded archaeological or cultural heritage sites and features. This information has provided an insight into the development of the study area over time and also assisted in an evaluation of the potential presence of hitherto unrecorded cultural heritage sites or features within the proposed development site.

The principal sources reviewed for the assessment of the recorded archaeological resource were the Sites and Monuments Record (SMR) and the Record of Monuments and Places (RMP) maintained by the National Monuments Service of the Department of Housing, Local Government and Heritage

Other sources consulted as part of the assessment included the following:

- Wexford County Development Plan 2022-2028 – This publication outlines the Council's policies for the protection of the archaeological and cultural heritage resource within the county.
- Gorey Town and Environs Local Area Plan 2017 – 2023 (extended further for a period up to three years)
- UNESCO designated World Heritage Sites and Tentative List: A review was undertaken of the locations of the two world heritage sites in Ireland and other significant sites included in a Tentative List (2023) nominated by Ireland for inclusion.
- The Database of Irish Excavation Reports: This database contains summary accounts of licensed archaeological excavations carried out in Ireland (North and South) from 1970 to present. Current data was accessed via www.excavations.ie in November 2025.
- Archaeological Inventory of County Wexford – This publication dates to 1996 and presents summary descriptions of the known archaeological sites within the county at that time. A review of current SMR datasets published on the Historic Environment Viewer was carried out in November 2025 to ascertain if any archaeological sites have been identified within the study area identified since the publication of the inventory.
- Heritage Council's Heritage Map Viewer: This online mapping source (www.heritagemaps.ie) collates various cultural heritage datasets sourced from, among others, the National Monuments Service, National Museum of Ireland, local authorities and the Office of Public Works.
- Literary Sources: Published literary sources consulted to assess the archaeological, historical, architectural heritage and folklore record of the study area are listed in Section 15.6 of this chapter.
- Cartographic sources: Available cartographic depictions of the study area dating from the 17th century onward were reviewed and relevant extracts are presented in Section 15.2.3.2 of this chapter.
- Aerial/Satellite/LiDAR imagery: A review of publicly accessible imagery from Tailte Éireann, Google Earth, and Bing Maps was carried out to appraise whether they revealed evidence for any unrecorded archaeological sites within the proposed development site or its environs. LiDAR datasets published on the Geological Survey Ireland's Open Topographic Viewer website were also consulted. Relevant image extracts are presented in Section 15.2.3.3 of this chapter.
- Placenames Database of Ireland: This online database (www.logainm.ie) provides a comprehensive management system for data, archival records and place names research conducted by the State.
- Irish National Folklore Collection: Transcribed material from the National Folklore Collection archive which has been digitised and published online at www.duchas.ie.
- Environmental Impact Assessment Report: An EIAR submitted in relation to a previous planning application within the proposed development site, Kilnahue SHD (2022), was consulted in order to assess previous archaeological investigations and recommendations in relation to this development.

15.1.3.2 Field Inspection

The main, greenfield, portion of the site was inspected in June 2025, and the proposed route of the drainage upgrade was inspected in October 2025. One access constraint was encountered; the northeast corner of the main site was inaccessible due to dense vegetation growth at the time of the survey. This inaccessible location contains a group of undesignated historic buildings which could not be accessed; however, these were comprehensively inspected during compilation of the 2022 EIAR. The lands were assessed in terms of existing land use, any remnants of historic structures or landscaped features, vegetation cover and the potential for the presence of previously unrecorded archaeological and cultural heritage sites/features. The inspection results are described within the chapter (**Section 15.2.4**) and extracts from the photographic record compiled during the field surveys are presented in **Appendix 15.1.**

15.1.3.3 Consultation

The Wexford County Council's LRD opinion on the proposed development was reviewed as part of this assessment and this it does not contain any specific items in relation to archaeology or cultural heritage.

15.1.3.4 Impact Assessment

The methodology used for the assessment of potential impacts has been informed by the Environmental Protection Agency (EPA) *Guidelines for Information to be Contained in EIAR* (2022), in accordance EIA requirements of codified EU Directive 2011/92/EU as amended by EU Directive 2014/52/EU, per current Planning Legislation, concerning EIA assessment: Planning and Development Act, 2000 (as amended) (Part X) and in Part 10 of the Planning and Development Regulations, 2001 (as amended). The following summation of the criteria used to assess impacts is provided to concisely outline the methodology specifically applied to the cultural heritage resource. Assessment is achieved by a consideration of the duration, quality, type, value and magnitude of effect(s) on the cultural heritage resource:

Duration of Effect is assessed based on the following criteria:

- Momentary (seconds to minutes)
- Brief < 1 day
- Temporary <1 year
- Short-term 1-7 years
- Medium Term 7-15 years
- Long Term 15-60 years
- Permanent > 60 years
- Reversible: Effects that can be undone, for example through remediation or restoration

Quality of Effect on the cultural heritage resource can be positive, neutral or negative.

- Positive: a change which improves the quality of the cultural heritage environment (e.g. increasing amenity value of a site in terms of managed access, signage, presentation etc. or high-quality conservation and re-use of an otherwise vulnerable derelict structure).
- Neutral: no change or effects that are imperceptible, within the normal bounds of variation for the cultural heritage environment.
- Negative: a change which reduces the quality of the cultural heritage resource (e.g. visual intrusion on the setting of an asset, physical intrusion on features/setting of a site)

Type of Effect on the cultural heritage resource can be described as follows.

- Direct Effect – where a cultural heritage site is physically located within the footprint of the Project, which will result in its complete or partial removal;
- Indirect Effect – Effects on the cultural heritage environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway;
- Cumulative Effect -The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects;
- 'Do-nothing Effects' - The cultural heritage environment as it would be in the future should the Project not be carried out;
- 'Worst-case' Effects - The effects arising from a Project in the case where mitigation measures substantially fail;
- Indeterminable Effects - When the full consequences of a change in the environment cannot be described;
- Irreversible Effects - When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost; or
- Residual Effects - The degree of environmental change that will occur after the proposed mitigation measures have taken effect.

The *Magnitude of Effect* is based on the degree of change, incorporating any mitigation measures, and is based on a consideration of the character, duration, probability and consequences (**Table 15.1**). The magnitude can be negative or positive and is ranked without regard to the value of the asset according to the following scale: High; Medium; Low and Negligible. The descriptions of magnitudes presented in Table 15.1 are based on guidance published in *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties* (ICOMOS 2011, 16-7).

Table 15.1: Magnitudes of Effect on Cultural Heritage Assets

Magnitude	Description
High	Most or all key archaeological or architectural materials affected such that the resource is totally altered Comprehensive changes to setting Changes to most or all key historic landscape elements, parcels or components; extreme visual effects; fundamental changes to use or access; resulting in total change to historic landscape character Major changes to area that affect Intangible Cultural Heritage activities or associations or visual links and cultural appreciation

Magnitude	Description
Medium	Changes to many key archaeological or historic building materials/elements such that the resource is clearly/significantly modified. Considerable changes to setting that affect the character of the archaeological asset. Changes to the setting of a historic building, such that it is significantly modified. Change to many key historic landscape elements, parcels or components, visual change to many key aspects of the historic landscape, considerable changes to use or access, resulting in moderate changes to historic landscape character. Considerable changes to area that affect the Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.
Low	Changes to key archaeological materials/historic building elements, such that the resource is slightly altered/slightly different. Slight changes to setting of an archaeological monument. Change to setting of a historic building, such that it is noticeably changed. Change to few key historic landscape elements, parcels or components; slight visual changes to few key aspects of historic landscape; slight changes to use or access; resulting in limited change to historic landscape character Changes to area that affect the Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.
Negligible	Very minor changes to key archaeological materials or setting. Slight changes to historic building elements or setting that hardly affect it. Very minor changes to key historic landscape elements, parcels or components; virtually unchanged visual effects; very slight changes to use or access; Very minor changes to area that affect the Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.

Value/Sensitivity Criteria: While various national and local authority legal designations exist for elements of the Irish cultural heritage resource (see **Section 15.2.2**), there is no formal criteria for grading the value of individual constraints. The evaluations used in this assessment have been informed by guidelines presented in the *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties* (ICOMOS 2011). The evaluation of the values of cultural heritage assets is, therefore, not intended as definitive but rather as an indicator which contributes to a wider judgment based on the individual circumstances of each asset. The application of values included a consideration of their legal designations (e.g., National Monuments in State Care), condition/preservation; documentary/historical significance, group value, rarity, visibility in the landscape, vulnerability and amenity value on a case-by-case basis. Archaeological sites which possess little, or no surface expressions may retain low-medium sensitivity to effects on their wider setting while levelled archaeological sites that retain no visible surface traces are typically not sensitive to any setting effects. It is noted that archaeological monuments, whether extant or levelled, have the potential to possess sub-surface attributes, including artefacts and other archaeological remains, which may possess values that cannot be discerned without recourse to archaeological excavation but are unlikely to be affected in the absence of direct negative effects. The values of known or potential cultural heritage assets are ranked according to the following scale as defined by ICOMOS: Very High; High; Medium; Low, Negligible and Unknown (**Table 15.2**). The values assigned to the identified constraints within the study area were determined following the completion of desktop research and site inspections and are outlined in **Section 15.2** of this chapter.

Table 15.2: Guidance Criteria Used For Assessing Values of Cultural Heritage Assets

Indicative Value	Examples of Asset Types
Very High	World Heritage Sites (including Tentative List properties) (International Significance) Sites, buildings or landscapes of acknowledged international importance Intangible associations with individuals or innovations of global significance
High (National Significance)	Nationally designated sites, buildings and landscapes of significant quality, rarity, preservation and importance Undesignated assets of the quality and importance to be designated Assets that can contribute significantly to acknowledged national research objectives Archaeological Landscapes with significant group value Intangible associations with individuals or innovations of national significance
Medium (Regional Significance)	Designated or undesignated assets that can contribute significantly to regional research objectives, including buildings that can be shown to have exceptional qualities in their fabric or historical associations Conservation Areas and historic townscapes containing buildings that contribute significantly to its historic character Intangible associations with individuals or innovations of regional significance
Low (Local Significance)	Assets compromised by poor preservation and/or poor survival of contextual associations Assets of limited value, but with potential to contribute to local research objectives Historic Townscape or built-up areas of limited historic integrity in their buildings and settings Intangible associations with individuals or innovations of local significance
Negligible	Assets with very little or no surviving archaeological interest Landscapes little or no significant historical interest Buildings or urban areas of no architectural or historical note; buildings of an intrusive character
Unknown Potential	Assets whose importance has not been ascertained Buildings with some hidden (i.e., inaccessible) potential for historic significance

The *Significance of Effects* is assessed based on a consideration of the Magnitude of the Impact (graded from High to Negligible, based on a consideration of character, duration, probability and consequences) combined with the Value (graded from High to Negligible, based on a consideration of significance/sensitivity) of the cultural heritage asset. The significance can be described as Profound, Very Significant, Significant, Moderate, Slight, Not Significant or Imperceptible (**Table 15.3** and **Table 15.4**).

Table 15.3: Description of Significance of Effects (per EPA EIAR Guidelines 2022)

Significance	Description
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	An effect which causes noticeable changes in the character of the environment but without affecting its sensitivities
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
Profound	An effect which obliterates sensitive characteristics

Table 15.4: Significance of Effects Matrix (based on EPA EIAR Guidelines 2022)

Magnitude of Impact	High	Not Significant/ Slight	Moderate/ Significant	Significant/ Very Significant	Very Significant/ Profound
	Medium	Not Significant	Slight	Moderate/ Significant	Significant/ Very significant
	Low	Not Significant/ Imperceptible	Slight/ Not Significant	Slight	Moderate
	Negligible	Imperceptible	Not Significant/ Imperceptible	Not Significant/ Slight	Slight
		Negligible	Low	Medium	High
		Value/Sensitivity of Asset			

15.1.4 Difficulties Encountered in Compiling Information

One access constraint was encountered; the northeast corner of the main site was inaccessible due to dense vegetation growth at the time of the survey in June 2025. Apart from this, there were no difficulties encountered during the compilation of this assessment.

15.2Description of Existing Environment

15.2.1 Introduction

The main portion of the proposed development site is located within the townland of Kilnahue, approximately 1.5km west of Gorey town centre, County Wexford. The site consists of four irregular-shaped fields of open, undulating farmland, there is a total area of 19.4ha and the developable area of the site is 11.5ha. The site is bounded to the south by Carnew Road (R725) and some residential dwellings, to the north and northeast by Kilnahue Lane (L10112), to the east and west by agricultural fields and residential dwellings. The proposed development will also include an upgrade of existing water and wastewater pipes. The proposed upgrade extends for c.3km from the site along the road network via Kilnahue Lane (L10112) and Carnew Road (R725), Grattan Row (R725), McCurtain Street (R772), Charlotte Row (R772), Main Street and Esmonde Street (R742), terminating at the junction with Courtown Road. The main development site is contained by the townland boundaries of Kilnahue and four other neighbouring townlands, namely Creagh Upper and Creagh Demesne to the north, Goreyhill to the east and Coolishal Lower to the south. The route of the proposed wastewater upgrade extends through the townlands of Goreyhill, Gorey Corporation Lands and Mill Lands.

The individual fields within the site are bounded by mature hedgerows. The remains of a historic farmyard, comprising three ruined vernacular buildings within an overgrown c.1 acre plot, are located within the northeastern corner of the site. An overgrown historic laneway extends northeast/southwest across the site, connecting the farmyard with Carnew Road to the southwest.

Details on the existing environment within the proposed development site are provided in Section 15.2. The following sections present a summary of the legal and planning frameworks relevant to the cultural heritage resource followed by a chronological overview of known settlement patterns and other human activity within the study area from prehistory to the present day which incorporates published information on recorded cultural heritage assets.

15.2.2 Legal and Planning Context

15.2.2.1 Introduction

The management and protection of cultural heritage in Ireland is achieved through a framework of national laws and policies which are in accordance with the provisions of the Valetta Treaty (1995) (formally the European Convention on the Protection of the Archaeological Heritage, 1992) ratified by Ireland in 1997; the European Convention on the Protection of Architectural Heritage (Granada Convention, 1985), ratified by Ireland in 1997; and the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage, 2003, ratified by Ireland in 2015.

The EIA Directives (from 1985 to 2014) set out the requirement for an EIA in European law. This assessment has been prepared in accordance with EIA requirements of codified Council Directive 2011/92/EU as amended by EIA Council Directive 2014/52/EU, per current Planning Legislation, concerning EIA assessment: Planning and Development Act, 2000 (as amended) (Part X) and in Part 10 of the Planning and Development Regulations, 2001 (as amended).

Ireland has transposed EU Directive 2014/52/EU by way of the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 which came into operation on 1 September 2018. The Regulations provide for the transposition of the 2014 EIA Directive and give further effect to the 2011 EIA Directive by way of extensive amendments to existing planning law.

The national legal statutes and guidelines relevant to this assessment include:

- Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023

- National Monuments Act 1930 (as amended);
- Heritage Act 1995 (as amended);
- National Cultural Institutions Act (1997);
- Planning and Development Act 2000 (as amended);
- Department of Arts, Heritage and Gaeltacht (2011) Architectural Heritage Protection: Guidelines for Planning Authorities;
- Department of Arts, Heritage, Gaeltacht and the Islands (1999) Framework and Principles for the Protection of Archaeological Heritage;
- Office of the Public Regulator (2022) A Guide to Architectural Heritage; and
- Office of the Public Regulator (2021) Archaeology in the Planning Process.

15.2.2.2 Summary of Legal and Planning Context

The following section presents a summary of the legal and policy frameworks designed to protect the Irish cultural heritage resource and further information is available in the *Framework and Principles for the Protection of the Archaeological Heritage (Department of Arts, Heritage, Gaeltacht and the Islands (1999) and the Architectural Heritage Protection Guidelines for Local Authorities (Department Arts, Heritage and the Gaeltacht 2011).*

The administration of national policy in relation to archaeological and architectural heritage management is the responsibility of the National Monuments Service (NMS) and the National Built Heritage Service (NBHS) which are currently based in the Department of Housing, Local Government and Heritage.

The Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 was signed into law in October 2023. The DHLGH has published online advisory notes in relation to this Act in November 2023, October 2024, May 2025 and October 20251 which provides an overview of its current status, and these are summarised hereafter. While the Act is now law most of its provisions will not enter into force until the Minister has made one or more "Commencement Orders". Section 7 of the Act (which provides for the repeal of the National Monuments Acts 1930 (as amended) and related legislation) has currently not entered into force. Accordingly, the National Monuments Acts 1930 (as amended) remain fully in force. The Act also contains transitional provisions which will, if necessary, enable certain aspects of the existing National Monuments Act 1930 (as amended) to continue in operation notwithstanding their repeal post-commencement of the Act while successor provisions are being brought fully into operation. This includes provisions enabling the Record of Monuments and Places to continue to have effect pending the establishment of a new Register of Monuments. A commencement order made on 31st May 2024, insofar as it relates to the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999 (other than section 5), has come into operation. On 12th December 2024, further provisions of the Act came into operation, and these relate to historic wrecks and underwater archaeological objects, and also for Irish citizens (and a range of specified other persons), and vessels operating in international waters if they intend to engage in activities directed at underwater cultural heritage.

The National Monuments Act of 1930 (as amended), therefore, remains the primary means of ensuring the protection of the archaeological resource and includes a number of provisions that are applied to secure the protection of archaeological monuments. These include the designations of nationally significant sites as National Monuments as well as listing sites in the Register of Historic Monuments, the Record of Monuments and Places, the Sites and Monuments Record as well as the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

Section 2 of the National Monuments Act, 1930 defines a National Monument as 'a monument or the remains of a monument, the preservation of which is a matter of national importance'. The State may acquire or assume guardianship of National Monuments through agreement with landowners or under compulsory orders. The prior written consent of the Minister is required for any works at, or in proximity to, a National Monument in the ownership or guardianship of the State, the Minister or a local authority, or those which are subject to a Preservation Order. There are no National Monuments or archaeological sites subject to Preservation Orders located within the study area. Kilnahue graveyard, c.550m northwest of the proposed development site, is a historic burial ground vested in Wexford County Council.

The locations of World Heritage Sites (Ireland) and the Tentative List of World Heritage Sites submitted by the Irish State to UNESCO in 2023 were also reviewed and none are located within the vicinity of the study area.

The National Monuments (Amendment) Act, 1994 made provision for the establishment of the Record of Monuments and Places (RMP) which comprises the known archaeological sites within the State. The RMP, which is based on the earlier Register of Historic Monuments (RHM) and Sites and Monuments Record (SMR), provides county-based lists of all recorded archaeological sites with accompanying maps. All RMP sites receive statutory protection under the National Monuments Act 1994 and the NMS must be given two months' notice in advance of any works proposed at their locations.

The Archaeological Survey of Ireland (ASI) lists 12 recorded archaeological sites within the study area (see F**igure 15.1 15.2 and Table 15.5** below). Details on these recorded archaeological sites are presented in **Section 15.2.3.1** and their published ASI inventory descriptions are provided in **Appendix 15.2.**

The Wexford County Development Plan 2022-2028 is the relevant development plan for the study area and includes the following objectives in relation to the protection of the archaeological resources in the county:

> ***Objective AH01:*** *To conserve and protect archaeological sites, monuments (including their settings), underwater archaeology and objects including those listed or scheduled for inclusion on the Record of Monuments and Places and/or the Register of Historic Monuments or newly discovered sub-surface archaeological remains9.*
>
> ***Objective AH02:*** *To recognise the importance of monuments and sites and protect the character and integrity of these monuments and sites where appropriate. The Council will consult the National Monuments Service where a development is proposed that may impact on an archaeological monument and/or site.*
>
> ***Objective AH03:*** *To protect the heritage of groups of important archaeological sites and monuments, inclusive of their contextual setting and interpretation, in the operation of development management.*
>
> ***Objective AH04:*** *To fully consider the protection of archaeological heritage when undertaking, approving or authorising development. In considering such protection the Council will have regard to the advice and recommendations of the National Monuments Service and the principles set out in Framework and Principles for the Protection of the Archaeological Heritage (Department of Arts, Heritage, Gaeltacht and the Islands, 1999).*

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https://www.archaeology.ie/collections-and-publications/publications/

Objective AH05: *To require an archaeological assessment and/or investigation by qualified persons for development that may, due to its size, location or nature, have a significant effect upon archaeological heritage and to take appropriate measures to safeguard this archaeological heritage. In all such cases the Planning Authority shall consult with the National Monuments Service in the Department of Culture, Heritage and the Gaeltacht.*

Objective AH06: *To promote a presumption in favour of preservation in-situ of archaeological remains and settings when dealing with proposals for development that would impact upon archaeological sites and/or features. Where preservation in-situ is not possible the Council will consider preservation by record in appropriate circumstances.*

Objective AH07: *To protect historic and archaeological landscapes, including battlefields, and promote access to such sites provided that this does not threaten the feature.*

Objective AH08: *To include archaeological landscapes, battlefields and historic landscapes as part of the updated Landscape Character Assessment of the County to be prepared following the publication of a National Landscape Character Assessment.*

Objective AH09: *To protect historic urban defences (both upstanding and buried) and associated features and safeguard them from inappropriate development in accordance with National Policy on Town Defences (Department of Environment, Heritage and Local Government, 2008).*

Objective AH10: *To identify appropriate archaeological sites in the county to which public access could be provided, and work to secure public access and the provision of signage and interpretation panels, where appropriate, in consultation with the landowner and the National Monument Service, subject to normal planning and environmental criteria and the development management standards contained in Volume 2.*

Objective AH11: *To retain existing street layouts, historic building lines and traditional plot widths which derive from medieval or earlier origin.*

Objective AH12: *To protect historical burial grounds within County Wexford and encourage their maintenance in accordance with best practice conservation principles.*

Objective AH13: *To have regard to the Historic Battlefield sites as listed in Table 13.6 (and those which are not listed thereon but that are, or become, known) and when assessing planning applications in the vicinity of a Historic Battlefield ensure there is no harm to the physical character or setting of these sites. Where development is proposed within the identified battlefields, archaeological assessment and recording may be required.*

The Development Plan also includes the following objectives in relation to the protection of the architectural or built heritage resources:

Objective BH01: *To protect the architectural heritage of County Wexford and to include structures considered to be of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest in the Record of Protected Structures.*

Objective BH02: *To support targeted investment in the built heritage of our region including the Built Heritage Investment Scheme and Historic Structures Fund to assist owners to maintain our built heritage assets.*

Objective BH03: *To promote the development of heritage-led regeneration and engage in and promote initiatives to revitalise the historic cores of our towns and villages together with local communities, heritage property owners and other stakeholders.*

Objective BH04: *To consider, in the preparation of future local area plans, a Town first approach to the revitalisation of historic urban centres, which focuses on the repair and upgrade of existing historic buildings and their adaptation to new uses with regard to their architectural character and significance.*

Objective BH05: *To protect our Architectural Heritage in the form of the Record of Protected Structures (RPS) and identify important groups of buildings/localities suitable for designation as Architectural Conservation Areas (ACAs). Wexford County Council will also endeavour to undertake monitoring and review of the RPS and ACAs which may result in recommendations for additions or deletions and enlist measures to prevent dereliction and to support re-use of built heritage.*

Objective BH06: *To protect the curtilage of Protected Structures or proposed Protected Structures from any works which would cause loss of, or damage to, the special character of the structure and loss of or damage to, any structures of heritage value within the curtilage or attendant grounds of the structure.*

Objective BH07: *To ensure development within the curtilage of a Protected Structure is compatible with its character. This does not preclude putting forward innovative contemporary designs that respect the context of the Protected Structure.*

Objective BH08: *To promote the retention of any original or early building fabric including for example timber sash windows, stonework, brickwork, joinery, ironmongery, traditional mortars, render and decorative or weather finishes and slate and vernacular architectural details (whether relating to a Protected Structure or not). Likewise, the Council will encourage the re-instatement of historically correct traditional features and retention of original ridge heights as appropriate.*

Objective BH09*: To protect, maintain and enhance the established character and setting of vernacular buildings which are worthy of protection or have architectural heritage value, farmyards and settlements where they make a positive contribution to the built heritage and encourage the re-use and sensitive refurbishment of vernacular buildings using appropriate design and materials and having regard to best practice conservation guidelines.*

Objective BH10: *To ensure that applications in relation to Protected Structures include an Architectural Heritage Impact Assessment report where it is considered the proposed development entails extensive or complex works with a potential to have an impact on the architectural heritage. This report should assess the implications of the development on the character of the structure and the area in which it is located. This should be prepared by a suitably qualified person competent to make a qualitative assessment of the potential impact of works on the character and special interest of the Protected Structure and in accordance with the Architectural Heritage Protection- Guidelines for Planning Authorities (DAHG, 2011) and any subsequent guidelines.*

Objective BH11: *To ensure that all applications for Protected Structures are assessed by taking into consideration the advice contained in the Architectural Heritage Protection Guidelines for Planning Authorities (DAHG, 2011) and any subsequent guidelines.*

Objective BH12: *To encourage the repair and retention of traditional timber, rendered and/or tiled shop fronts and pub fronts, including those which may not be Protected Structures. There will be a general presumption against the replacement of original shopfronts with emphasis on retention and reinstatement of traditional proportions and details.*

Objective BH13: *To facilitate the retention of older buildings, the Planning Authority will give consideration to the relaxation of car parking and other development management requirements in appropriate circumstances.*

Objective BH14: *To ensure that elements of the architectural heritage of the county, such as historic gardens and historic designed landscapes, stone or brick walls, ditches and street furniture that make a positive contribution to the built heritage, are retained.*

Objective BH15: *To encourage improvements to energy efficiency in traditional buildings while maintaining the architectural character and significance in line with the Heritage Protection Guidelines for Planning Authorities (Department of Arts, Heritage and the Gaeltacht, 2011) and the Advice Series Guide on Energy Efficiency in Traditional Buildings (Department of Environment, Heritage and Local Government) and any future guidelines and advice.*

Objective BH16: *To protect and manage trees in the curtilage of a Protected Structure or in close vicinity that contribute to its special character and setting.*

Objective BH17: *To support economic development of large country houses in their role as tourist attractions and other commercial uses to ensure their continued survival.*

Objective BH18: *In the event of catastrophic accidental fire damage the rebuilding of a Protected Structure will not be required. Support and advice will be provided in assisting the repair of damaged Protected Structures to achieve a balance between new works and the remaining original features.*

The proposed development site is located within the area covered by the Gorey town and Environs Local Area Plan 2017 – 2023 (extended further for a period up to three years) which contains the following objectives in relation to the protection of archaeological and built heritage:

Objective ARH01: *To have regard to the Record of Monuments and Places (RMP) and the newly identified sites […] when dealing with the planning applications for development or threats to recorded items. Development shall be controlled in the vicinity of a recorded feature where it detracts from the setting of the feature or where it is injurios to its integrity, cultural or educational value. The Council shall consult with the National Monuments Service in the Department of Arts, Heritage and Gaeltacht, where appropriate.*

Objective ARH02: *To have regard to the Zone of Archaeological Potential within Gorey town when dealing with planning applications for all development including local authority own development. Where permission for such proposals is granted, the applicant will have due regard to the recommendations of the National Monuments Service and the Heritage and Planning Division in the Department of Arts, Heritage and the Gaeltacht. This may involve the employment of a licensed archaeologist to record any archaeological remains uncovered and to supervise all excavation works.*

Architectural Heritage Objectives Objective AH01: *To protect the architectural heritage of Gorey Town through the prevention of any works to protected structures which would cause loss of, or damage to, the character and special interest of the structure and loss of, or damage to structures of heritage value within the curtilage or any specified features in the attendant grounds of the structure.*

Objective AH02: *To promote the maintenance and appropriate reuse of protected structures and older buildings of architectural merit which make a positive contribution to the character and streetscape of Gorey Town.*

Objective AH03: *To retain and reinforce the existing street layouts, historic building lines and traditional plot widths which derive from the town's historical development (except in circumstances where there is a reason of justifiable public interest).*

Objective AH04: *To protected and enhance the form of groups of terrace buildings on the approach roads to the town centre, especially as regards roofscapes, chimneys, shape of opes and finishes.*

Objective AH05: *To have regard to the National Inventory of Architectural Heritage (NIAH) when considering development proposals relating to buildings included on the inventory.*

Architectural Conservation Area Objectives Objective ACA01: *To carry out a review of the architectural heritage of Gorey Town during the preparation of the Wexford County Development Plan 2019-2025 with a view to designating Architectural Conservation Area(s).*

Objective ACA02: *To preserve the character of designated Architectural Conservation Area(s) by ensuring that all proposed development within these areas are carried out to the highest architectural and urban design standards.*

Objective ACA03: *To engage in a targeted awareness campaign on the character and special interest of each Architectural Conservation Area during the process of designation and provide assistance and guidance in preserving these area.*

Architectural Conservation Area (ACA)

The portion of the site that follows the existing road network eastwards is partially within the Gorey Architectural Conservation Area, as defined in the Wexford County Development Plan 2022-2028, is located within the study area. The ACA includes Main Street at the centre of the town from Charlotte Row in the west to Esmonde Street in the east.

15.2.3 Desktop Study

15.2.3.1 Archaeological and Historical Context

The following section presents a description of the archaeological and historical context of the study area and identifies the recorded archaeological sites and designated architectural structures located within the area.

Datasets have been interrogated and retrieved largely from State organisations and are considered accurate and current per publicly available information. The dating framework used for archaeological periods is based on the *Guidelines for Authors of Reports on Archaeological Excavations published by the National Monuments Service (2006).*

There are no recorded archaeological sites within the main, greenfield portion of the proposed development site. There is one holy well (WX006-062----) known as *Toberchriost*, located approximately 20m outside east of the eastern boundary of the proposed development and its surrounding Zone of Notification (ZoN) shown on the HEV extends within the proposed development site. A previous EIAR (Downey 2022) for an earlier application within the proposed development site stated that the holy well is depicted on the 1998 RMP maps as de-listed and that upon consultation with the Archaeological Survey of Ireland (ASI) of the National Monuments Service (NMS) *'it has been advised that the zone of archaeological potential shown on the Historic Environment Viewer should be 40m in diameter, and not the 120m illustrated (Michael Moore, NMS Archaeologist, pers. comm, 11th May 2018)'.* The ZoN has not yet been changed on the online HEV to reflect this, however the NMS comment indicates that the corrected ZoN does not extend into the application area (**Table 15.5** and Figure 15.1 and 2). The route of the proposed wastewater pipe upgrade extends within the Zone of Archaeological Potential associated with the historic town of Gorey (WX007-033----). The green field area of the proposed development is located c.1.5km outside the west end of the Gorey Zone of Archaeological Potential (**Figure 15.1**).

The RMP/SMR list an additional 11 recorded archaeological sites, of which seven have extant above ground remains, within the surrounding study area and these include two examples which were identified and excavated in advance of the construction of housing developments. There are no National Monuments in State Care within the study area, the closest such monument is St Peter's Church at Ferns (NM no. 133), located c.14.5km to the southwest of the subject site. Kilnahue historic graveyard (WX006-061002), c. 570m northwest of the proposed development site, is vested in Wexford County Council and accordingly may comprises a National Monument in local authority ownership.

The archaeological sites within the study area that have been subject to full archaeological excavation no longer remain in situ and are deemed to be of negligible value. The levelled examples within the study area that have not been subject to archaeological excavation likely retain sub-surface remains of potential high value but are not sensitive to effects on their setting. The Archaeological Survey of Ireland inventory descriptions for each of the archaeological sites within the study area are presented in **Appendix 15.2**, and these includes information sourced from reports on the excavated examples.

Table 15.5: Recorded Archaeological Sites in Study Area

Monument no.	Class	Townland	Condition*	Period* (if known)	Approx. distance from development
WX006-060----	Enclosure	Kilnahue	Extant	Post-medieval	700m NW
WX006-061001	Church	Kilnahue	Extant	Early medieval	590m NW
WX006-061002	Graveyard	Kilnahue	Extant	Early medieval	570m NW
WX006-061003	Cross	Kilnahue	Extant	Early medieval	580m NW
WX006-061004	Souterrain	Kilnahue	Extant	Early medieval	620m NW
WX006-062----	Ritual site - holy well	Kilnahue	Extant	Unknown, in use into Post-medieval	20m NE
WX006-090----	Designed landscape feature	Creagh Upper	Extant	Post-medieval	130m N
WX006-093----	Burnt mound	Goreyhill	Excavated	Bronze Age	230m E
WX006-098----	Enclosure	Goreyhill	Levelled	Unknown	480m E
WX006-099-----	Enclosure	Goreyhill	Levelled	Unknown	580m E
WX007-033-----	Historic town	Gorey Corporation Lands	Extant	Post-medieval	Within (pipe upgrade route)
WX011-082----	Kiln	Ramstown Lower	Excavated	Early medieval?	1km E

*Condition and potential periods are based on Historical Environment Viewer descriptions



Figure 15.1: Locations of Recorded Archaeological Sites (Yellow), Zones of Notification (Purple) Within Study Area (Cyan) Around the Site



Figure 15.2: Location of Holy Well WX006-062---- (Yellow), Zone of Notification (Purple) in relation to the Site is shown as 120m in diameter as per Historic Environment Viewer, but should be 40m in diameter, see Section 15.2.3.1

Early Prehistoric Periods

Traditionally, the earliest recorded evidence for human settlement in Ireland dated to the Mesolithic period (7000–4000 BC) when groups of hunter-gatherers arrived on the island. However, recent evidence in the form of a butchered bear patella found in Alice and Gwendoline Cave near Ennis in County Clare now suggests that humans were present in Ireland during the Palaeolithic period between 12,800 to 12,600 cal. BC (Dowd and Carden 2016, 161). The Mesolithic settlers did not construct any settlements or monuments that leave any above ground traces although their presence in an area can often be identified by scatters of worked flints in ploughed fields. Mesolithic activity in the form of flint tools and a hearth were identified in the townland of Coolveagh next to the Banoge River c.2.5km southeast of the subject site during archaeological excavations in advance of the construction of the N11 Gorey-Arklow Link Road. The Neolithic period (4000-2400 BC) began with the arrival and establishment of agriculture as the principal form of economic subsistence, which resulted in more permanent settlement patterns. As a consequence of the more settled nature of agrarian life, new site-types, such as more substantial rectangular timber houses and various types of megalithic tombs, begin to appear in the archaeological record during this period. There are no recorded archaeological sites dating to either period located within the study area. The identification and excavation of a Neolithic house located c. 5km north of the proposed development site during archaeological investigations for the N11 Gorey-Arklow Link Road attests to the presence of human settlement activity within the wider landscape during that period.

Late Prehistoric Periods

The Irish Bronze Age (2400–500 BC) commenced with the arrival of metal-working techniques to the island and this technological advance resulted in the introduction of a new artefactual assemblage into the Irish archaeological record. This period was also associated with the construction of new monument types such as standing stones, stone rows, stone circles, barrows and fulachta fiadh or burnt mounds. The development of new burial practices meant that the construction of funerary monuments such as cairns, barrows, boulder burials and tumuli or cists also became common during this period. There is one recorded site (WX006-093) dating to this period within the study area and this comprises an excavated burnt mound (also known as a fulacht fia) (see Appendix 15.2). The arrival of iron-working technology in Ireland saw the advent of the Iron Age (600 BC – 400 AD). This period has been traditionally associated with a Celtic 'invasion', but this view is no longer widely accepted as recent archaeological evidence points instead to a gradual acculturation of the Irish Bronze Age communities following centuries of contacts with Celtic-type cultures in Europe. Relatively little has been traditionally known about Iron Age settlement and ritual practices until recent decades when the corpus of evidence has been greatly increased by the discovery of Iron Age sites during bog-cutting and road construction projects. There are no confirmed Iron Age sites within the study area.

Early medieval period

The early medieval period began with the introduction of Christianity and continued up to the arrival of the Anglo-Normans in the late 12th century (c. 400–1169 AD). While this period saw the emergence of the first phases of urbanisation around the larger monasteries and the Hiberno-Norse ports, the dominant settlement pattern was still rural-based and founded on a small-scale agricultural economy centred around enclosed farmsteads known as ringforts. These comprise circular enclosures delimited by concentric banks and ditches and are the most widespread archaeological field monuments in the Irish landscape. They were formerly known by the names rath/lios, which still form some of the most common Irish place name elements. The parish church of Kilnahue (WX006-61001-) and its graveyard (WX006-61002-) contains a stone cross base (WX006-61003-) and souterrain (WX006-61004-) which are site types of likely early medieval date. It is also possible that a kiln (WX011-082----) excavated in the townland of Ramstown Lower may date to this period. The potential also exists that two of the enclosures (WX006-098---- and WX006-099----) within the study area may comprise unclassified early medieval ringforts (see Figure 15.1 and Appendix 15.2). The holy well (WX006-062----) located c.20m outside the east end of the proposed development site comprises a natural spring which was venerated until the early 19th century and the veneration of many of these wells may have early medieval origins. The holy well consists of a waterlogged hollow located within a private residential garden, with views restricted in all directions.

High and Late medieval periods (AD 1169 – 1550)

The arrival and conquest of large parts of Ireland by the Anglo-Normans in the late 12th century broadly marks the advent of the high medieval period which continued to c. AD 1400, which was followed by the late medieval period which extended to c.AD 1550. These periods saw the continuing expansion of Irish urbanisation as many of the port cities developed into international trading centres and numerous villages and towns began to develop as local or regional market centres. While earlier masonry castles were already in existence, the descendants of the Anglo-Norman gentry began the widespread construction of tower-houses as fortified residences within their landholdings at the start of the 15th century and this trend was subsequently adopted by wealthy Irish families within areas under Gaelic control. There are no recorded sites dating to this period located within the study area.

Post-medieval and early modern periods

The centuries following AD 1550 are referred to as the post-medieval period, which is generally considered to continue until the development of the Industrial Revolution in the 18th century. This period saw the development of both high and low status rural housing stocks and dispersed agricultural settlements consisting of single-storey thatched cottages with associated farm buildings, which began to be replaced by two-storey farmhouses during the late 19th century.

A large, designed landscaped feature known as the 'Sweep Walk' (WX006-090----) survives as a series of curved field boundaries surrounding the base of Creagh Hill. According to local tradition, the Sweep Walk is believed to have originated as a racecourse in the 18th or 19th century. An enclosure site (WX006-60----) located a short distance to the west of Kilnahue parish church may form a post-medieval landscape feature (see **Figure 15.1. 15.2** and **Appendix 15.2**).

There is little written historical documentation relating to the townland and parish of Kilnahue. The historic town of Gorey (WX007-033----) was developed as a planned town during the early 17th century plantation of north County Wexford which was laid out on a grid pattern covering c. 14 acres (c. 5.5 ha). The Archaeological Survey of Ireland inventory description of the historic settlement notes that it may never have been defended with a wall, although there are passing references to ramparts in the early 18th century (**Appendix 15.2**). The route of the proposed drainage upgrade enters the Zone of Archaeological Potential associated with the historic town which was laid out on a grid pattern covering c. 14 acres (c. 5.5 ha). A reference to 'the communityh of the town (ville) of Gorey' in 1296 seem to suggest that here was an earlier settlement at this place but no archaeological evidence for this has been found. Initially called Newtown or Newborough, the town received its first charter in 1619 and became the seat of Bishop Ram, the Protestant bishop of Ferns, who received lands in the area. The town was captured by rebels in 1641 (Bradley and King 1990, 88-91; Hore 1900-11, vol. 6, 609-34). The parish of Kilnahue is described by Samuel Lewis in his Topographical Dictionary of Ireland (1837) as follows:

KILNEHUE, or LAMOGUE, a parish, in the barony of GOREY, county of WEXFORD, and province of LEINSTER, 2 miles (S.) from Gorey, on the high road to Carnew; containing 3363 inhabitants. This parish comprises 14,872 statute

acres, as applotted under the tithe act, of which nearly the whole is under tillage. The soil is in general light, with the exception of some heavy clay near Gorey; the system of agriculture has of late been much improved; but the want of lime, which is not to be obtained nearer than the county of Carlow, is a great obstacle to the progress of its improvement. Marl pits occur in various parts of the parish; and at Slievebawn, near Moneyseed chapel, are some quarries of good slate. A constabulary police force is stationed at Moneyseed.

The living is a rectory and perpetual curacy, in the diocese of Ferns; the rectory forming part of the union of Gorey and of the corps of the deanery of Ferns; the perpetual curacy, which was erected in 1828, and of which the stipend is £120, is in the patronage of the Dean. The tithes amount to £465. 16. 9., with the exception of the townland of Buckstone, of which the tithes have from time immemorial been paid to the rector of Carnew. The curacy extends over 30 townlands, comprising the greater part of this parish, and also over two townlands in the parish of Kilkevan. A glebe of 61/2 acres has been allotted to the curate, in exchange for the original glebe of 41/2 acres. A neat church, towards the erection of which the late Board of First Fruits gave £800, was built in 1813, at Holyforth; the Ecclesiastical Commissioners have recently granted £141 for its repair. In the R. C. divisions the parish is partly in the union of Gorey, but chiefly in that of Camolin; there is a chapel at Moneyseed. The parochial school is supported by a grant of £7 per annum from the Association for Discountenancing Vice, and also by a contribution from the curate.

Further details on the character of the proposed development site during the post-medieval and early modern periods are presented in the review of cartographic sources provided below (**Section 15.2.3.2**).

15.2.3.1.1 Database of Irish Excavation Reports

This database contains summary accounts of licensed archaeological excavations carried out in Ireland from 1970 to present. The review of the Database revealed that five licensed archaeological excavations have taken place within the 1km study area, including one programme of pre-development testing within the proposed development lands and a further 2 no. within 1 km of the site which have been included in the SMR (see **Figure 15.1** and **Table 15.5**). In addition, a fourth excavation (licence no. 21E0025) undertaken at Ramstown Lower identified a kiln which was also included in the SMR (WX011-082----); however no information has been uploaded to the Database for this site.

The Database of Irish Excavation entries for the archaeological site investigations within the study area are provided in **Appendix 15.3.** The Archaeological Survey of Ireland inventory descriptions of the excavated archaeological sites are presented in **Appendix 15.2**, and these include content sourced from their excavation reports. None of the identified sites contained above ground remains and their discoveries highlight the potential for the presence of sub-surface archaeological remains within green field locations in the study area.

The Database also contains entries for one programme of archaeological test trenching, targeting geophysical anomalies, in advance of a proposed development within the subject site which revealed features of archaeological significance (Hickey 2018), as discussed below.

15.2.3.1.2 Previous archaeological investigations within the boundary of the proposed development site

Geophysical survey

A geophysical survey (Detection licence ref: 18R0031) of the proposed development lands was carried out by Target Archaeological Geophysics in May 2018. A high resolution magnetic gradiometer survey was implemented across a total 13.2ha of greenfield land divided between four fields (M1-M4). The following summary of the findings of the geophysical survey is an extract from the 2022 Kilnahue SHD EIAR:

Field M1

No responses of definite archaeological character are indicated by the results from survey in M1. A linear response extending NW-SE across the north-eastern extremity of the field is expected to represent a possible former land division or plough share. The locations of two former land divisions are also indicated. Small-scale positive responses are also visible in the results, whilst having a potential archaeological origin, the results suggest they most likely represent a combination of soil/geological variation, effects from recent landuse and/or modern ferrous.

Field M2

No responses of definite archaeological character are indicated by the results from survey in M2. The results from this location are dominated by patterns of former cultivation on NW-SE and NE-SW alignments, with further zones of natural soil/geological variation to the S and SE and former land divisions. Isolated responses of limited archaeological potential and likely derive from a combination of natural/soil geological variation, effects from recent landuse and/or modern ferrous. The potential significance of weak linear trend west of survey centre should not be dismissed.

Field M3

No responses of definite archaeological character are indicated by the results from survey in M3. The results highlight patterns of former cultivation continuing across much of M3, with levelled land divisions and natural soil/ geological variations also recorded. Small-scale positive responses and weak trends, similar to those noted in M1-M2, have been recorded. Whilst an archaeological interpretation for these anomalies should not be dismissed, the absence of any clear archaeological patterns in the data suggests a natural/soil geological, recent landuse and/or modern ferrous origin more likely.

Field M4

The results from survey in M4 display responses which are similar in form to those recorded from survey in M1-M3, and highlight remains of former cultivation on NW-SE and NE-SW alignments, remnants of past land divisions, with further small-scale positive anomalies at survey centre, and to the south.

The report concluded that the results from the survey represent anomalies associated with former cultivation, disused land divisions, and natural soil / geological variation. No definite archaeological activity or features were indicated from the survey. It was considered that 'these poorly defined small scale responses are expected to be of limited significance, and a natural soil/geological, recent landuse or modern ferrous origin is expected for the majority'.

Archaeological test excavation

A programme of archaeological test excavation was carried out within the proposed development boundary in 2018 by Mr Stephen Hickey of Courtney Deery Heritage Consultancy Ltd (Licence No. 18E0522). A total of 23 archaeological test trenches were excavated within the subject lands (**Figure 15.3**). The programme of testing was undertaken in order to inform a previous EIAR assessment of the proposed development site. The test trenching aimed to investigate anomalies identified in the geophysical survey, and to assess the archaeological potential of the development lands, particularly areas where no potential archaeological features had been indicated.



Figure 15.3: Showing geophysical survey interpretation (Detection device ref. 18R0031) and location of test trenches (Licence no. 18E0522) (Source: Downey Planning 2022)

The testing uncovered a total of ten archaeological features of which five were concentrated in a single trench (T15) located at the centre of the proposed development site. The features uncovered in T15 were interpreted as possible kiln activity. The remaining five features were located in trenches T2, T17, T18, and T20 as follows:

- Trench 2 contained an oval pit (C6: dimensions 3m (NNE-SSW) x 1m (NW-SE) x 0.12m depth) with inclusions of charcoal and burnt clay; this feature extends into the baulk;
- Trench 17 contained pit (C14: dimensions 2m (N-S) x 0.4m (E-W) x 0.15m max depth) containing small flecks of charcoal; this feature extends into the baulk;
- Trench 18 uncovered an arc of nine stakeholes (C17: diameter 6-10cm) and a larger stakehole (C18) 5m to the north. The arc of stakeholes (C17) extends into the baulk and there is a likelihood of further features.
- Trench 20 contained a NE-SW oriented linear feature (C20: dimensions 0.6m width, 1.4m length); this feature extends into the baulk and corresponds with a 7m E-W oriented linear feature identified on the geophysical survey.

Approximately 50% of these features were concentrated at the northern end of the southeastern portion of the site. The remaining potential features were distributed across the northern, eastern and southern portions of the proposed development site, suggesting widespread archaeological activity. The excavator concluded that there is a potential for further archaeological features to be present within the site, except for the southeastern field which had been subject to modern disturbance.

The excavator recommended preservation by record (archaeological excavation) of the features uncovered within trenches T2, T15, T17, T18 and T20. It was proposed that one area measuring 20m x 20m at the location of T18 and four areas measuring 10m x 10m each at T2, T15, T17 and T20) to be stripped of topsoil and archaeologically excavated under licence in advance of the construction phase. Additionally, as there remains potential to find previously unknown archaeological deposits within the remainder of the proposed development site, it was recommended that construction phase ground works should also be archaeologically monitored by a suitably qualified archaeologist.

The results of these investigations informed the Cultural Heritage chapter compiled by Courtney Deery Heritage Consultancy Ltd for an Environmental Impact Assessment Report (Downey Planning) submitted with the Kilnahue SHD application in 2022.

Archaeological investigations within the wider study area

A programme of archaeological monitoring (Licence no. 07E0766) was undertaken by Mr D. Shine during ground investigations in advance of the Gorey main drainage scheme in 2007. The scheme extended across thirteen townlands including Kilnahue, Creagh Demesne, Creagh Upper, Gorey Corporation Lands and Goreyhill. The works consisted of the excavation of 25 slit-trenches, 25 trial pits and 3 boreholes investigating the ground conditions and identifying the location of underground services within the route. The exact locations of these works in relation to the proposed development boundary have not been established. No archaeological remains were encountered during the works.

A programme of archaeological test excavation undertaken by Mr R. O'Hara (Licence no. 08E0415) in 2008 at the site of a development at Gorey Hill, c. 65m to the northeast of the boundary of the proposed development identified two small spreads of burnt mound material. Both archaeological features were fully excavated and subsequently recorded as SMR WX006-093----.

15.2.3.1.3 National Museum of Ireland Topographical Files

An inspection of the Topographical File Archive held in the National Museum's premises in Kildare Street, Dublin was carried out as part of the assessment. This revealed that the archive contains no files describing the discovery of archaeological objects within Kilnahue townland or any of the townlands within the study area its vicinity. The archive does contain two files relate to artefacts found in Gorey. One of these was a record of fragments of a Middle Bronze Age food vessel with a herringbone design, found in 1887 (NMI ref: 1909:32). The other is a stone lamp with a concave base and an 'urn like' shape (NMI ref:2268:W29).

15.2.3.2 Review of Cartographic Sources

The detail on historic cartographic sources demonstrates the nature of past settlements and land use patterns in recent centuries and can also highlight the impacts of modern developments and agricultural practices. This information can aid in the identification of the location and extent of unrecorded or partially levelled features of archaeological or architectural heritage interest. The cartographic sources examined for the study areas include the mid-17th century Down Survey map, the 1:10,560 first edition six-inch Ordnance Survey (OS) map (1839) and the 1:2500 25-inch OS map (1897).

The location of Kilnahue parish is indicated on the Down Survey mapping which shows no large structures or other features of potential cultural heritage interest within its boundary (**Figure 15.4**).

The first-edition six-inch Ordnance Survey (OS) map (1839) shows the greenfield portion of the proposed development site as vacant farmland divided between ten small fields. A small plot containing three buildings set around a farmyard is depicted in the northeastern corner of the proposed development site. A lane is depicted leading from the farmyard southwest to the Carnew Road (**Figure 15.5)**. The holy well site (WX006-062) labelled Toberchriost, is depicted immediately to the east of the farmyard in an area outside the boundary of the proposed development (**Figure 15.6**). The detail on the 25-inch OS map (1897) shows little variation of the layout of the lands within the proposed development map (**Figure 15.7**) and all field divisions within the proposed development site appear to remain unaltered. The farm buildings and holy well are depicted with the latter labelled as Toberchriost (**Figure 15.8**). The review of historic mapping did not identify any potential unrecorded archaeological features within the subject site.

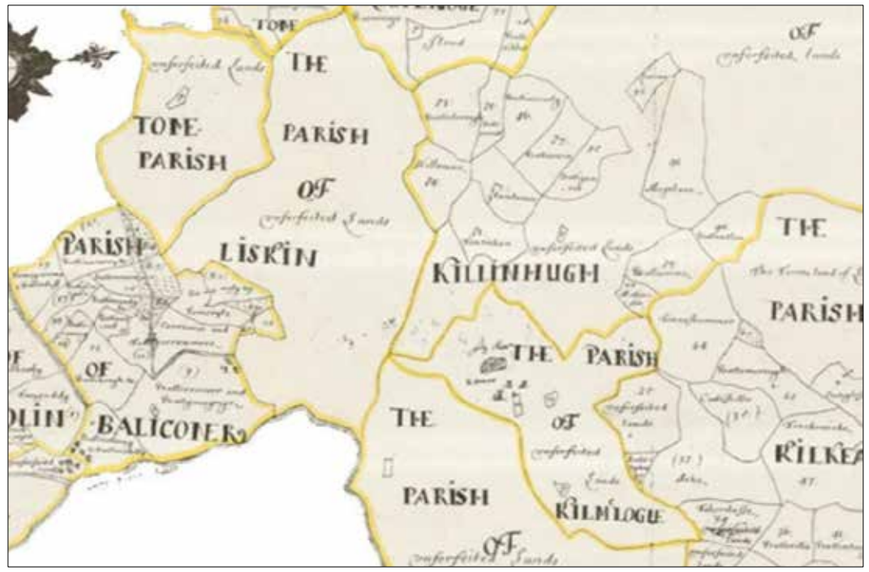

Figure 15.4: Down Survey Map showing the Parish of Kilnahue

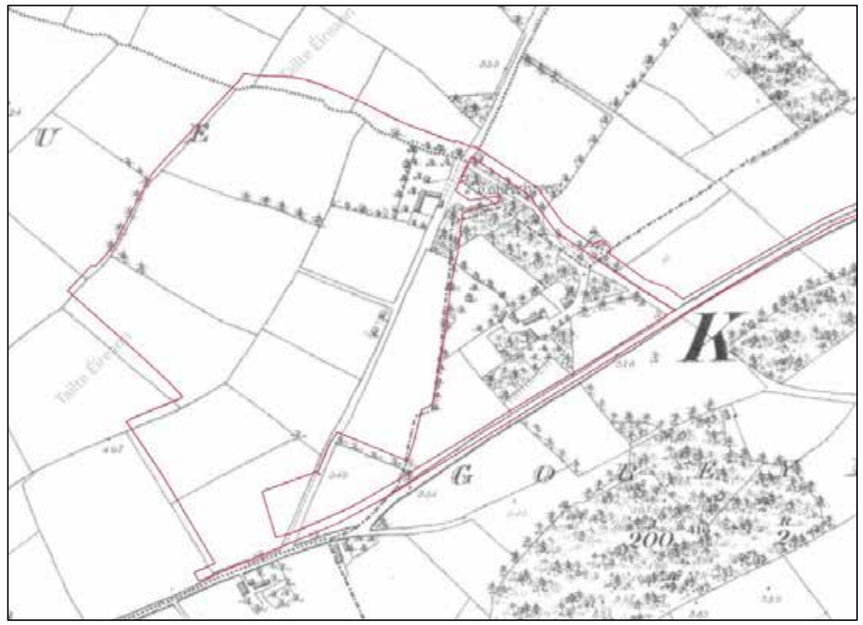

Figure 15.5: 1st edition 6-inch OS Map (1839) Showing Main Portion of Proposed Development

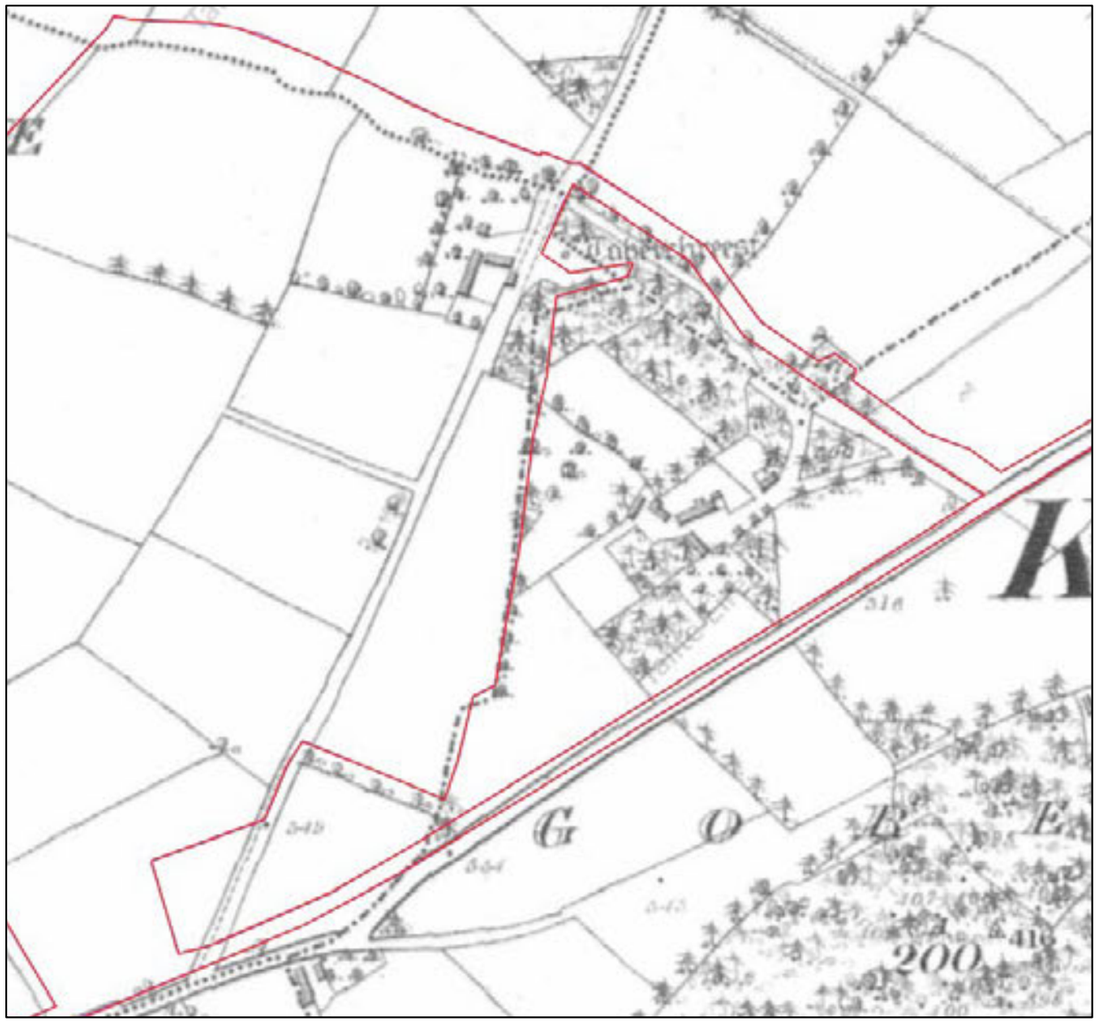

Figure 15.6: 1st edition 6-inch OS Map (1839) Showing Historic Buildings, Lane and Holy Well

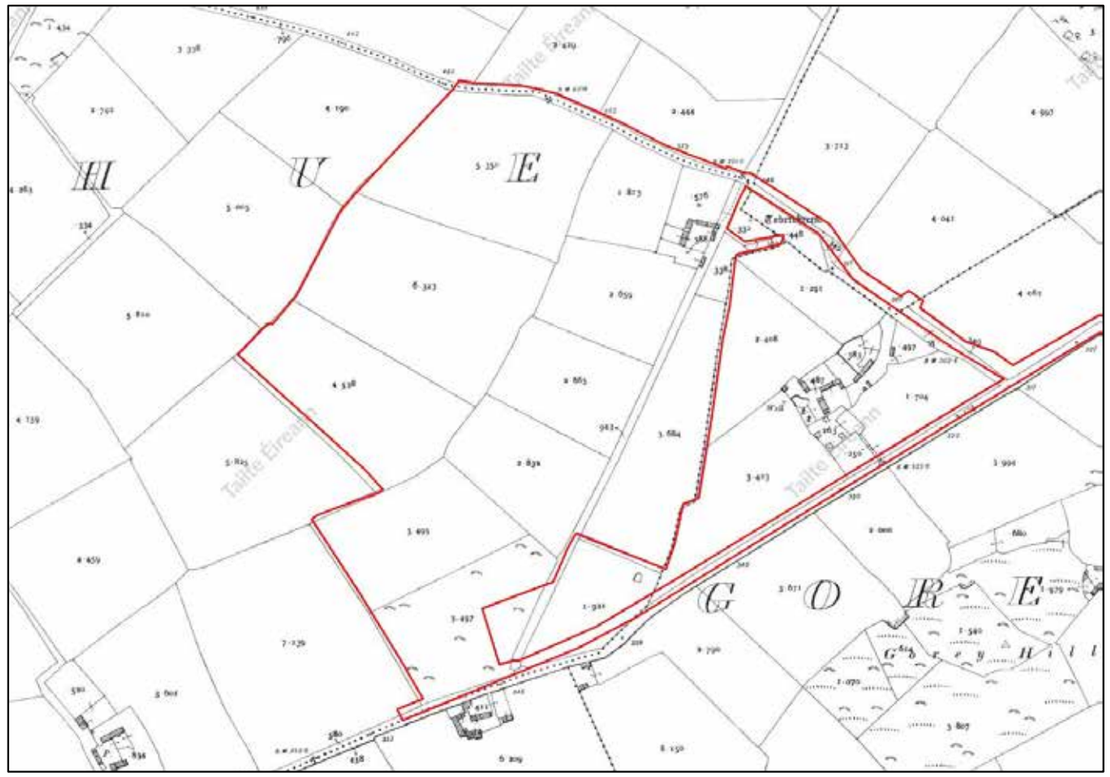

Figure 15.7: 25-inch OS Map (1897) Showing Proposed Development

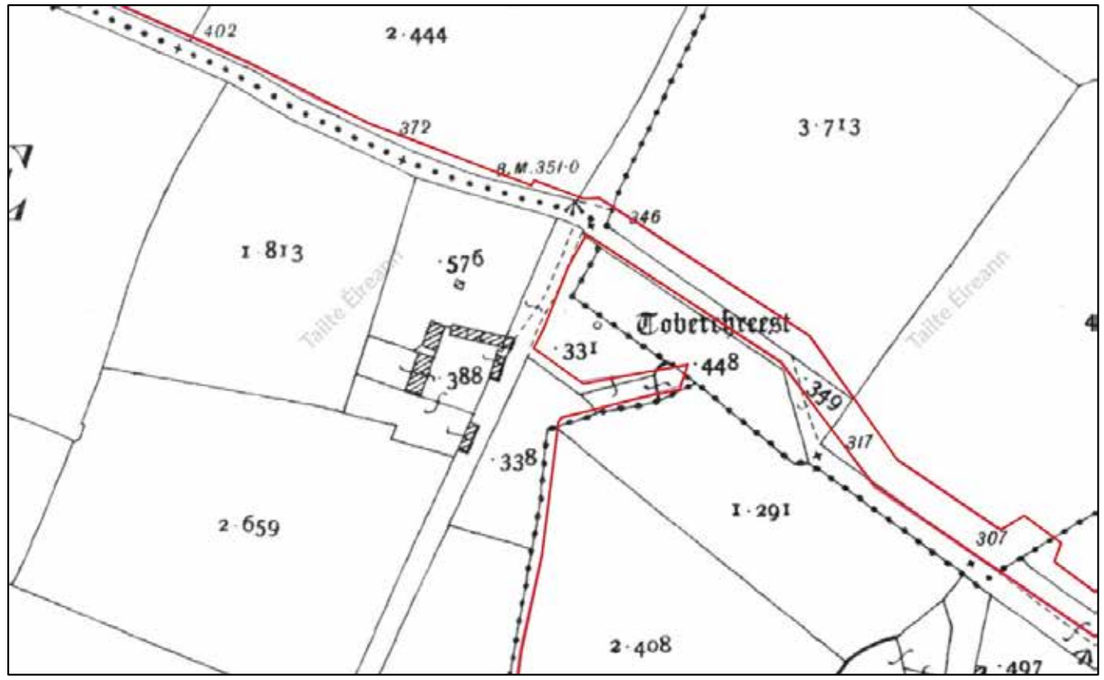

Figure 15.8: 25-inch OS Map (1897) Showing Historic Buildings and Holy Well



Figure 15.9: Satellite Image of Proposed Development from 2019 showing backfilled archaeological test trenches excavated under licence no. 18E0552 (source: Google Earth)

15.2.3.3 Aerial, Satellite and LiDAR Imagery

A review of modern aerial and satellite images published online by Tailte Éireann, Google and Bing revealed no potential unrecorded archaeological sites within the proposed development site and indicated that the lands within the proposed development have remained agricultural greenfield with several internal field boundaries removed since the publication of the 25-inch OS map in 1897 to make three large plots (**Figure 15.9**). A review of LiDAR datasets published online by the Geological Survey of Ireland[2] (GSI) was also carried out. No surface traces of potential unrecorded archaeological sites were noted during the review of the LiDAR imagery of the proposed development site (**Figure 15.10**).

[2] *https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=b7c4b0e763964070ad69bf8c1572c9f5*



Figure 15.10: LiDAR Image of greenfield portion of Proposed Development (source GSI)

15.2.3.4 Built Heritage

There are three undesignated derelict vernacular buildings within the main portion of the proposed development site at Kilnahue, these are discussed further in Section 15.2.3.4.1. The existing built environment within its immediate surrounds to the north and east is modern in date with green field lands located in other directions. The proposed wastewater pipe upgrade extends within the town centre of Gorey and its Architectural Conservation Area (ACA) as recorded in the Wexford County Development Plan 2022-2028). The Wexford Development Plan 2022-2028 does not list any Protected Structures within the main, greenfield portion of the proposed development site or its immediate vicinity, which is also located outside the Gorey ACA. In addition, the National Inventory of Architectural Heritage (NIAH) does not list any structures or historic gardens/landscapes within the main greenfield portion of the proposed development site.

The Record of Protected Structures for County Wexford lists 37 protected structures within the vicinity of the proposed wastewater pipe upgrade route. A review of the NIAH building and garden surveys revealed that there are 50 recorded architectural heritage structures within the vicinity of the proposed route. Several of the protected structures are also included in the NIAH survey. There is one Protected Structure located within 500m of the main portion of the site, 'Snowdrop Cottage' (RPS no. WCC0261) while the remainder of the architectural heritage sites are located in the vicinity of the proposed drainage upgrade development within Gorey town centre. The proposed route along Esmond Street enters under a railway bridge which is listed in the NIAH (ref. 15601095) (Table 15.6, Figure 15.11-16). The NIAH does not list any structures within 500m of the main greenfield portion of the site.

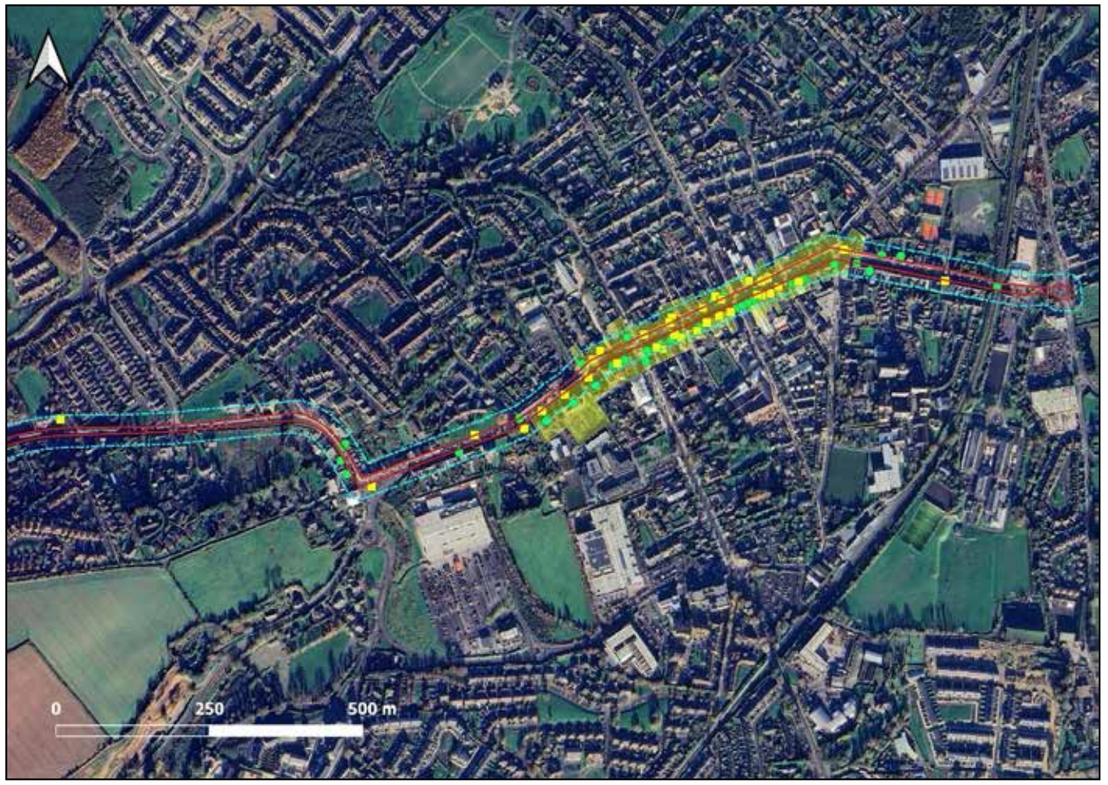

Figure 15.11: Built Heritage Structures within c.20m of development boundary (red). RPS sites (yellow) NIAH (green) Gorey ACA (shaded yellow) and study area (cyan)



Figure 15.12: Built Heritage Structures within c.20m of development boundary on Carnew Road and Grattan Row



Figure 15.13: Built Heritage Structures within c.20m of development boundary McCurtain Street and Charlotte Row



Figure 15.14: Built Heritage Structures within c.20m of development boundary at Main Street (west)



Figure 15.15: Built Heritage Structures within c.20m of development boundary at Main Street (east)



Figure 15.16: Built Heritage Structures within c.20m of development boundary at Esmonde Street

Table 15.6: Architectural Heritage Structures within c.20m of development boundary

RPS no.	NIAH no.	Name/Type	Townland/Street
n/a	15601119	cobbles/flags/paving/kerbing	Esmonde Street
n/a	15601009	water pump	McCurtain Street
n/a	15601005	water pump	Grattan Street
WCC0225	15601006	monument	McCurtain Street
n/a	15601012	post box	Main Street/Charlotte Row
WCC0227	15601013	gate lodge	McCurtain Street
n/a	15601022	cobbles/flags/paving/kerbing	North Parade
WCC0207	15601015	school	Main Street/Charlotte Row
WCC0201	15601016	church/chapel	Main Street/Charlotte Row
WCC0209	15601017	court house	Main Street
n/a	15601042	water pump	Esmonde Street
WCC0214 WCC0254	15601064	market house	Main Street
WCC0255	15601065	house	Main Street
n/a	15601095	bridge	Esmonde Street
n/a	15601121	cobbles/flags/paving/kerbing	McDermott Street
n/a	15601132	cobbles/flags/paving/kerbing	Saint Michael's Road
n/a	15601106	post box	Main Street
n/a	15601113	house	Main Street
n/a	15601125	cobbles/flags/paving/kerbing	The Avenue
n/a	15601002	house	Grattan Row
n/a	15601003	house	Grattan Row
n/a	15601004	house	Grattan Row
WCC0248	15601018	garda station/constabulary barracks	No.52 Main Street
WCC1403	15601019	bank/financial institution	Main Street
n/a	15601029	house	Main Street
n/a	15601030	house	Main Street
WCC1406	15601033	house	Main Street
n/a	15601040	house	Esmonde Street
n/a	15601041	house	Esmonde Street
WCC0223	15601042	house	Esmonde Street
n/a	15601043	house	Esmonde Street
n/a	15601045	house	Main Street
WCC0216	15601046	house	Main Street
n/a	15601048	house	Main Street

RPS no.	NIAH no.	Name/Type	Townland/Street
n/a	15601047	house	Main Street
n/a	15601054	house	Main Street
WCC0215	15601053	house	Main Street
WCC0257	15601055	house	Main Street
n/a	15601056	house	Main Street
n/a	15601057	house	Main Street
n/a	15601058	house	Main Street
n/a	15601059	house	Main Street
WCC0256	15601062	house	No. 82 Main Street
WCC0214	15601063	house	Main Street
n/a	15601067	hotel	Main Street
n/a	15601068	house	Main Street
n/a	15601069	house	Main Street
n/a	15601115	house	Main Street
n/a	15601117	house	Main Street
n/a	15601123	house	Main Street
n/a	15601124	house	Main Street
WCC1402	15601010	hospital/infirmary	McCurtain Street
WCC0228	n/a	public house	Main Street
WCC0230	n/a	shop/retail outlet	No. 17 Main Street
WCC0231	n/a	restaurant	No. 18-19 Main Street
WCC0232	n/a	restaurant	No. 18-19 Main Street
WCC0235	n/a	public house	No.26 Main Street
WCC0239	n/a	shop/retail outlet	No.31 Main Street
WCC0241	n/a	shop/retail outlet	No.36 Main Street
WCC0242	n/a	shop/retail outlet	No.37 Main Street
WCC0244	n/a	shop/retail outlet	No.42 Main Street
WCC0246	1561019	restaurant	No.50 Main Street
WCC0261	n/a	house (‘Snowdrop Cottage’)	Gorey Hill
WCC0252	n/a	shop/retail outlet	No. 71 Main Street
WCC0258	n/a	public house	No. 90 Main Street

15.2.3.4.1 Undesignated Built Heritage Assets

While encompassing the designated built heritage resources, architectural heritage also includes various undesignated assets such as vernacular structures. A group of vernacular buildings located are depicted on the first edition 6-inch OS map of 1839 within the northeast portion of the main development site. Three dilapidated buildings were noted at this location during a field survey for a previous SHD application at this site (Kilnahue SHD, ABP case ref. 313226). The structures were inspected and assessed by a conservation architect as part of the 2022 Kilnahue SHD EIAR. The assessment included a full photographic record and measured digital survey of the buildings. The structures were deemed to not possess ‘sufficient architectural or historical merit to recommend their retention’, and no further mitigation measures were recommended in relation to these structures (Downey Planning 2022). There are no formal demesne features, such as avenues, woods or gardens, within the boundary of the proposed development site.

15.2.3.5 Undesignated Cultural Heritage Assets

While encompassing the designated archaeological and architectural heritage resources, cultural heritage also includes various undesignated assets such as settlements, demesne landscapes, vernacular structures, folklore, cultural traditions and place names. A review of the National Folklore Collection UCD Digitisation Project (www.duchas.ie) revealed several references to the parish and townland of Kilnahue as well as the townlands in the wider study area but none from within the greenfield portion of the proposed site. The database contains the following story of ‘Hunter Gowan’s ghost’ which refers to Kilnahue Lane, a portion of which is included in the proposed development boundary:

“There used to be many stories told about Hunter Gowan's ghost, and with the passing of years they are fading out of local tradition. It is said that Father Francis Redmond curate at Camolin in 1798, prevailed on the Insurgents, when they entered Lord Mountmorris's mansion at Camolin Park to restore some of the property they had taken for the purpose of their campaign. A tradition accuses Hunter Gowan of conspiring at the priest's death, and that on a fabricated charge, Father Redmond was arrested, conveyed to Gorey, and there hanged, and buried with an Insurgent named Patrick Carroll. For years a square mound, on the side of Gorey Hill, and facing Kilnahue Lane, was out as the site of the grave. There is a strange story of an apparition, which was said to cause of the death of an extensive farmer named John Mulligan of Kilnahue. On one dark night he was riding on horseback to Gorey, and, on arriving at the part of the road opposite Father Redmond's grave a cavalryman, in uniform, suddenly appeared and commenced to attack Mr. Mulligan. Each time as the cavalryman closed in on him, a priest in full vestments, appeared and beat the assailant until Mulligan made his escape. He however never recovered the shock of his experience, and died a few days afterwards, while the horse was ever after addicted to shivering. The apparitions are said to have represented Hunter Gowan and Father Redmond.” (The Schools’ Collection, Volume 0896, Page 103-4).

The greenfield portion of the proposed development site is contained by the townland boundaries between Kilnahue and four other neighbouring townlands, namely Creagh Upper and Creagh Demesne to the north, Goreyhill to the east and Coolishal Lower to the south. A short section of the boundary between Kilnahue and Goreyhill extends within the northeast corner of the proposed development site. The boundary with Goreyhill also coincides with the boundary between the parishes of Kilnahue and Kilmakilloge. All townland boundaries are extant and defined by lines of hedges and mature trees. The proposed upgraded drainage route extends eastwards from Goreyhill through Gorey Corporation Lands and Mill Lands.

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The Placenames Database of Ireland (available at www.logainm.ie) which provides translations of the Irish origins of townland names was also consulted. Townlands are the smallest unit of land division in the Irish landscape, and many may preserve early Gaelic territorial boundaries that pre-date the Anglo-Norman conquest. The boundaries and names of Irish townlands were recorded and standardised by the Ordnance Survey in the 19th century. The Irish roots of townland names often refer to natural topographical features, but some name elements may also give an indication of the presence of past human activity within the townland, e.g., lios, rath or dun may indicate the presence of a ringfort while temple, saggart, termon or kill indicate associations with church sites.

The main portion of the proposed development site is contained within the townland of Kilnahue which formed part of agricultural lands within the western hinterland of the town of Gorey. The proposed drainage route extends eastwards from Goreyhill through Gorey Corporation Lands and Mill Lands. The wider study area (1km from the main portion of the site) includes the townlands of Creagh Upper, Creagh Demesne, Goreyhill, Gorey Corporation Lands, Ramstown Lower, Ramstown Upper, Coolishal Lower, Coolishal Upper, Carrigbeg and Glandoran Upper. The name of Kilnahue (Cill na hUagha) suggests the presence of an early church (cill) in the area. Its exact origin has not been established but John O'Donovan suggested in the Ordnance Survey Letters (1840) that the name derives from an early church devoted to a local Irish saint, the Church of St. Hugh or Cill Naoimh Aodha.

The placename of Creagh is first recorded in 1570 in the Calendar to Fiants of reign of Henry VIII to Queen Elizabeth 1558-1603, however, parts of the townlands which bear that name were also known until the 17th century as Ballyloghnan, which could indicate a small historic settlement. Coolishal is an anglicized form of An Chúil Íseal Íochtarach which translates as 'The Bottom Corner', likely a topographical reference. It has been suggested that the placename of Gorey may be derived from Gabhair meaning 'goat', however its exact origins remain unclear. The townland name of Ramstown has not been validated, but O'Donovan suggests that it is 'Called after the great Ram of Gorey, the descendants of the Great Bishopp'. Thomas Ram was born in Windsor, Berkshire, and accompanied the Earl of Essex to Wexford in 1599. He was later made Bishop of Ferns and held considerable amounts of land, granted in the Plantation of Wexford, which included a large estate at Gorey (Dictionary of Irish Biography, RIA). Carrigbeg is an anglicised form of An Charraig Bheag meaning 'little stone'. Glandoran is an anglicised form of Gleann Deóráin which John O'Donovan translated as 'Doran's glen or valley' in 1840.

15.2.4 Field Inspection

The proposed development site was inspected in June and October 2025 during clear weather conditions that afforded good landscape visibility and extracts from the photographic record of the site inspections are presented in Appendix 15.1. The main, greenfield portion of the proposed development site contains four pasture and tillage fields set on a slight east facing slope. The field boundaries consist of ditches bordered by tall hedges which include mature trees. A small wooden plot in the northeast corner of the site containing the vernacular historic buildings could not be accessed at the time of the survey due to dense vegetation. The parcel is accessed from Kilnahue Lane to the north. An overgrown laneway, depicted on the early nineteenth century first edition OS map, extends southwest from the site towards Carnew Road. The eastern portion of the proposed development contains the proposed route for the upgraded drainage which extends along the existing public road carriageways through Gorey town before ending at the Courtown Road roundabout.

The location of the vernacular buildings noted on the first edition OS map (1839) was heavily overgrown and could not be accessed at the time of the inspection. As noted above, these buildings were accessible during a previous assessment of a planning application within the proposed development site and full photographic record and measured digital survey record was compiled by a conservation architect.

No visible above ground remains of any unrecorded potential archaeological sites were noted during the walkover survey.

15.3 Predicted Impacts

15.3.1 Do Nothing Scenario

A 'Do Nothing Scenario' will see the continued preservation of recorded and potential cultural heritage features within the study area, this includes the archaeological features that were identified during archaeological testing in 2018. The historic derelict buildings within the site boundary will continue to deteriorate in this scenario.

15.3.2 Construction Phase

15.3.2.1.1 Archaeology

The proposed development will include wastewater pipe upgrade works within existing streets that extend within the Zone of Archaeological Potential associated with the historic town of Gorey (WX007-033----) and the construction phase of the proposed development could, therefore, have a potential direct effect on potential sub-surface archaeological remains that may exist within the footprint of these works. It is noted that the installation of existing pipe works along the route have previously disturbed sub-surface levels and any sub-surface archaeological remains with the existing footprint of underground services.

A holy well (WX006-062----) is located within a private garden located c.20m outside the east end of the boundary of the greenfield area of the proposed development. The 120m wide Zone of Notification surrounding the holy well shown on the HEV extends within the proposed development boundary, although as detailed in Section 13.2.3.1, the NMS noted during an earlier application within the proposed development site that this Zone should measure 40m wide. The construction phase of the proposed development will not result in any direct effects on this holy well site, and indirect effects on its setting will be slight in significance. The RMP/SMR list four other extant archaeological sites that retain above ground expression located within 1km of the boundary of the proposed development. As detailed in Table 15.5, none of these are located within 130m of the proposed development and the construction phase will result in a neutral effect on these archaeological sites.

As detailed in Section 15.2.3.1.2, a geophysical survey followed by a programme of targeted archaeological testing was carried out within the greenfield area of the proposed development as part of a previous planning application. The testing identified the sub-surface remains of ten previously unrecorded sites/features of archaeological potential (see Section 15.2.3.1.2) which remain in-situ within the development boundary. The groundworks required for the construction phase within the boundary of the proposed development will result in a permanent, high magnitude, direct, moderate to significant, negative effect on these sites/features and this will require mitigation. The potential also exists for negative effects on any previously unidentified, subsurface archaeological remains within the section of the wastewater pipe upgrade extending into the Zone of Archaeological Potential associated with the historic town of Gorey and this will also require mitigation.

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15.3.2.1.2 Architectural Heritage

There are no protected structures or NIAH buildings within the boundary of the greenfield area of the proposed development or its close environs. The construction phase of the proposed development within the greenfield area will, therefore, have a neutral effect on the recorded architectural heritage resource which does not require mitigation.

The proposed wastewater pipe upgrade works extend within the Gorey Architectural Conservation Area; however the construction works within this portion of the development will be limited to the replacement of existing sub-surface pipes located within the public road network and there will be no predicted direct effects on the designated architectural resource. Five sections of paving and kerbing within the environs of the route have been included in the NIAH survey. These are located at Esmonde Street (NIAH ref. 15601119), North Parade (NIAH ref. 15601022), McDermott Street (NIAH ref. 15601121), Saint Michael's Road (NIAH ref. 15601132) and The Avenue (NIAH ref. 15601125). While there will be no predicted direct on any of these features, there will be a temporary, low magnitude indirect effect their settings during the construction phase.

There are three undesignated dilapidated vernacular structures within the northeast corner of the development site. The buildings were inspected by a conservation architect (Michael Connolly Architects) as part of the 2022 SHD EIAR who made the following observations:

- The buildings are of a type commonly in existence in the general area of North Wexford. There are many existing examples in good condition which better represent this particular type of vernacular construction;
- After clearance, much of the fabric remains partially overgrown and vegetation has become bound into the fabric of the buildings. Some of the elements may become structurally unstable once vegetation is removed;
- The existing roofs are missing, and only partial remnants exist at the site; The dilapidated domestic features within the building are not unique and there is no particular cultural heritage benefit in conserving or restoring them;
- The ruined buildings are not of sufficient architectural or historical merit to recommend their retention

The structures were fully recorded by a photographic and digital measured survey and were to be removed as part of the previous planning application. These vernacular structures will be retained as part of this proposed development, and this will result in a slight positive effect on the vernacular heritage of the area.

The proposed development site is contained by the townland boundaries between Kilnahue and four other neighbouring townlands, namely Creagh Upper and Creagh Demesne to the north, Goreyhill to the east and Coolishal Lower to the south. There will be no predicted direct effects on these townland boundaries.

One intangible attribute, a folklore association linked to the environs of the subject site, in the form of a ghost story recorded in the School's Collection was noted during the assessment and the proposed development will have a neutral effect on this intangible cultural heritage association.

15.3.3 Operational Phase

The operation phase of the proposed development will result in a permanent, low magnitude, negative, indirect, slight effect on the wider setting of a holy well (WX007-033----) located in a private garden c. 20m outside the east of the proposed development. There is no or very limited intervisibility between the greenfield area of the proposed development and the other archaeological sites listed in the RMP/SMR within the surrounding 1km study area and the operational phase will result in a negligible magnitude, permanent, imperceptible-neutral effect on these archaeological sites. The wastewater upgrade element of the proposed development enters the Zone of Archaeological Potential around the historic town of Gorey. The drainage upgrade, once completed, will be entirely located below ground. Following the successful implementation of archaeological mitigation measures presented in Section 15.4.1, it is predicted that no effects will arise in relation to the potential archaeological resource within the proposed development site during the operational phase.

The proposed wastewater upgrade works will extend into the Gorey Architectural Conservation Area (ACA) as defined in the Wexford County Development Plan 2022-2028; however, this element of the development consists of the replacement of existing pipes buried within the road carriageway. No effects will, therefore, arise in relation to the designated architectural heritage resource within the proposed development site during the operational phase. The proposed development will therefore have a neutral effect on the built heritage resource during the operational phase, and no mitigation measures will be required. The development design includes proposed measures which will integrate the upstanding walls of the undesignated currently derelict vernacular buildings within the northeast portion of the main site. This will have a moderate positive effect on this resource and allow for their continued preservation within the development.

15.3.4 Risks to Human Health

There are no predicted risks to human health associated with potential effects on the cultural heritage resource.

15.3.5 Cumulative Impacts

A review of the Wexford County Council planning enquiry system was carried out in relation to developments in the vicinity of this site. Details of relevant developments in the area are outlined below.

Wexford Co. Council Ref. 20241284

Vormir Limited applied for permission in October 2024 for the removal of a single storey structure and the construction of 91 no. residential units on lands to the south of Clonattin Village in the townland of Goreybridge, Gorey, Co. Wexford. Wexford County Council required further information on the 6th December 2024. A Further Information Response was submitted by the applicant on the 13th February 2025 and Wexford County Council issued a notification to grant permission on the 14th March 2025.

This development represents 'Phase 2' of a masterplan in Clonattin. Phase 1A comprising a 3 storey nursing home, and Phase 1B, comprising 64 no. residential units, were permitted to the north of this Phase 2 site and are currently under construction (Wexford County Council Refs 20211415, 20221169, and 20211573). There are two further phases (Phases 3 and 4) that will be subject to future planning applications.

The entire masterplan will provide the following once complete:

- A nursing home with 96 no. bedrooms and 8 no. independent living units
- c. 324 no. residential units (including 64 no. permitted in Phase 1 and 91 no. proposed in Phase 2)
- Open spaces and new road connections.

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A condition (no.11) in the grant of planning related to archaeology, this included the requirement for archaeological testing to take place in advance of any site preparation and/or construction works. There is currently no entry for this site on the Database of Irish Excavation Reports (as of November 2025) and it unclear whether this archaeological testing has yet taken place.

Wexford Co. Council Ref. 20241267

Nonlah Developments Limited submitted a planning application in October 2024 for the construction of 46 no. residential units including 6 no. 3 bed houses and 40 no. 2 bed apartments. The Council granted permission on the 25th June 2025. There were no conditions related to archaeology applied to this grant of planning.

Wexford Co. Council Ref. 20221189

Shane Houlihan applied for permission in September 2022 for the construction of 89 no. residential units and a creche. Wexford County Council granted planning permission in April 2023. There were no conditions related to archaeology applied to this grant of planning.

Wexford Co. Council Ref. LAC2110

Wexford County Council submitted a Part VIII application in December 2021 for the construction of 30 no. residential units on the site of the former St. Joseph's Primary School. This application was granted on the 28th March 2022. There are no entries on the Database of Irish Excavation Reports associated with this development (as of November 2025).

An Bord Pleanála Ref. ABP 303813

AMIL Properties Limited submitted a Strategic Housing Development application to An Bord Pleanála in February 2019 comprising 297 no. residential units and a creche. An Bord Pleanála granted planning permission in May 2019, and the development is currently under construction. One condition related to archaeology was attached to the grant of planning and this related in particular to monitoring of all site investigations and other excavation works There are currently no entries on the Database of Irish Excavation Reports associated with this development (as of November 2025).

Wexford Co. Council Ref. 20200467

Trinity Homes Ltd. applied for permission in April 2020 for 83 no. residential dwellings, 300 Sq.M. single storey community football club clubhouse and allweather sports pitch and all associated site works. The residential dwellings consist of 3-bed 2 storey semi-detached and terraced houses, and 3 storey dwellings consisting of bed ground floor apartments and 3 bed duplex apartments above. Permission is sought for a total of 97 no. dwellings of which 83 no. dwellings, all-weather sports field and community clubhouse are subject to this application and 14 no. units previously granted permission (planning ref. 20180080). Wexford County Council granted permission, subject to 30 conditions, in August 2020. None of these conditions related to archaeology.

Conclusion

Given the baseline cultural heritage conditions within the study area described in Section 15.2 and the absence of any likely significant effects on the cultural heritage resource arising from the proposed development, in combination with the distances of the above projects from the proposed development, it is concluded that the proposed development will not result in any likely significant cumulative effects on the cultural heritage resource.

15.4 Mitigation Measures

15.4.1 Construction Phase Mitigation

The ground excavation works required to facilitate the upgrade of existing wastewater pipes within the Zone of Archaeological Potential around the historic town of Gorey (WX007-033----) will be monitored by a suitably qualified archaeologist, under a licence issued by the National Monuments Service. This will allow for any previously unrecorded archaeological features or sites to be identified and, following consultation with NMS, mitigated measures implemented.

A programme of geophysical survey followed by targeted archaeological test trenching within the development lands was carried out for a previous planning application within the proposed development site. This identified the presence of sub-surface remains of ten isolated potential archaeological features in five of the excavated trenches (see Figure 15.3 and Appendix 15.2 – Excavation Licence no. 18E0522). Following a grant of planning, and in advance of the construction phase, a suitably qualified archaeologist will be appointed to prepare and submit a licence application to the National Monuments to preserve by record (through full archaeological excavation) the full extent of the archaeological sites/features located within the boundary of the proposed development.

Additionally, as the potential exists for the presence of previously unknown archaeological features within the remainder of the proposed development site, all ground works/clearance of topsoil should be archaeologically monitored by a suitably qualified archaeologist.

All archaeological excavation works to preserve by record identified archaeological remains will be carried out under licence issued by the National Monuments Service and in advance of construction works at their locations. All required archaeological excavation works, including post-excavation analyses and reporting, will be carried out in accordance with the archaeological method statement submitted to the National Monuments Service and the National Museum of Ireland as part of the licence application. An archive containing stratigraphic records (including all associated digital and hard copy records and reports) will be submitted to the National Monuments Service upon completion of archaeological works. Any archaeological objects and relevant environmental material retrieved during archaeological excavation works, as well as all relevant reports, including post-excavation analysis reporting, will be provided to the National Museum of Ireland upon completion of all archaeological works. The results of all excavation works will also be published in the Database of Irish Excavation Reports and dependent on the nature of the results, the potential for additional publication in appropriate periodicals/journals will also be appraised.

The vernacular structures within the northeast corner of the development site are to be retained within the development. An updated record of these buildings will be compiled in advance of any to be carried out to them.

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15.4.2 Operational Phase Mitigation

All of the mitigation measures identified in Section 15.4.1 will be enacted and completed prior to and during the construction phase and, therefore, no mitigation measures during the operational phase of the proposed development are predicted.

15.4.3 Monitoring

There are a number of obligatory processes to be undertaken as part of applications to the National Monuments Service for licences to carry out archaeological excavation works which will allow for monitoring of the successful implementation of the mitigation measures detailed in Section 15.4.1. A detailed method statement stating the proposed strategy for the archaeological excavation works will accompany the submitted licence application which will clearly detail the extent of the archaeological works and the onsite and post-excavation processes that will be enacted in order to preserve identified archaeological remains by record. Following the completion of all archaeological excavation works, preliminary and final reports will be submitted to the National Monuments Service, the National Museum of Ireland and the Planning Authority which will clearly describe the results of all onsite archaeological works and post-excavation analyses in written, illustrative and photographic formats.

15.5 Residual Impacts

The greenfield, portion of the proposed development site does not contain any archaeological sites listed in the SMR/RMP. One holy well (WX007-033----) is located in a private garden c. 20m east of the proposed development boundary and its Zone of Notification of extends within the proposed development lands. A slight negative residual effect on the setting of this receptor has been identified. No other residual effects on examples within the surrounding study area are predicted.

Programmes of geophysical survey and targeted archaeological test trenching have identified a number of previously unrecorded sub-surface archaeological features located within the boundary of the proposed development. The full extent of these features within the boundary of the proposed development will be preserved by record through full archaeological excavations. Preservation by record shall allow for a high magnitude of effect, albeit ameliorated by the creation of a full and detailed archaeological record, the results of which shall be publicly disseminated. This shall result in a potential slight/moderate range of significance of effect in the context of residual effect on the potential unrecorded archaeological resource (**Table 15.**7).

Table 15.7: Construction Effects, Mitigation and Residual Effects on Archaeological Features identified during geophysical and test trenching investigations

Location (Figure 15.3)	Description	Construction Phase Effect	Mitigation	Residual Effect Significance
T15	Kiln activity	Permanent, high magnitude, direct, moderate to significant, negative effect	Archaeological excavation	Slight to Moderate
T2	Pit	Permanent, high magnitude, direct, moderate to significant, negative effect	Archaeological excavation	Slight to Moderate
T17	Pit	Permanent, high magnitude, direct, moderate to significant, negative effect	Archaeological excavation	Slight to Moderate
T18	Arc of stakeholes	Permanent, high magnitude, direct, moderate to significant, negative effect	Archaeological excavation	Slight to Moderate
T20	Linear feature	Permanent, high magnitude, direct, moderate to significant, negative effect	Archaeological excavation	Slight to Moderate

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www.duchas.ie (Folklore)

www.excavations.ie (Archaeological investigations)

www.logainm.ie (Placenames)

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CHAPTER SIXTEEN

SCREENING FOR RISK OF MAJOR ACCIDENTS AND DISASTERS



McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

CHAPTER 16

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CHAPTER 16 | SCREENING FOR RISK OF MAJOR ACCIDENTS AND DISASTERS

16.1 Introduction

This chapter of the EIAR assesses the impacts of a proposed . This chapter of the EIAR should be read in conjunction with the architectural and engineering drawings submitted as part of this planning application.

The Proposed development consists of residential zoned lands at Kilnahue, Gorey Hill townlands, Gorey, Co. Wexford. The site is located c. 1.64 km to the west of Gorey Town Centre, within the settlement boundary of Gorey. The site is currently a greenfield site bounded by L10112 (Kilnahue Lane) to the northeast and the R725 (Carnew Road) to the south. The site slopes gently from west to east, towards the town and from north to south. The surrounding landscape is mainly characterised by agricultural land along the western, northern and southern boundary. Residential development in the immediate vicinity generally consists of detached dwellings with small housing developments located to the east towards the town centre

This assessment is a review of major accident hazards and disasters based on the engineering design, drawings and documentation.

16.2 Expertise & Qualifications

This chapter of the Environmental Impact Assessment Report has been prepared by Matthew Michie a Senior Environmental Consultant at AWN Consulting Limited. Matthew holds an MChem and a MSc (Physical Chemistry). Matthew has 6 years' experience in environmental consulting and process safety, and has been involved in numerous EIARs for a range of projects including commercial, residential, industrial, pharmaceutical and data centre developments.

16.2.1 Scope of Assessment

In brief, Major Accidents are events that threaten serious environmental effects to human health, welfare and / or the environment and require the use of resources beyond those of the operator to manage, and disasters are external hazards, either natural or anthropogenic, with the potential to cause a Major Accident.

This assessment will provide an overview of the regulatory requirements to identify and assess MA&Ds. It will take into consideration the materials, operations and location of the Proposed Development. MA&Ds Risk Events relevant to the Proposed Development will be identified and evaluated.

16.3 Methodology

The analysis of the predicted impacts of the proposed development on human health and the environment during construction and operation are presented in this Chapter. The risk assessment identifies and quantifies risks focusing on potentially significant adverse effects of the development on the environment, deriving from its vulnerability to risks of relevant major accidents and/or disasters. The approach to identifying and quantifying risks associated with the proposed development by means of a sites specific risk assessment is derived from the EPA *Guidelines on the Preparation of an EIAR* (EPA, 2022) and all other documents outlined above.

Assessment methods quantify and predict the magnitude and significance of impacts.

The methods employed for assessment and evaluation of the environmental topics for this Chapter have been:

1. Schedule 6 of the Planning and Development Regulations, 2001, as amended:

   "a description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment Directive are met.

   Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for, and proposed response to, emergencies arising from such events".

2. Geospatial Analysis (cumulative impacts only – used to identify planning permissions/applications and Seveso Establishments within a 5 km radius).

3. Flood Risk Assessment following The Planning System and Flood Risk Management Guidelines for Planning Authorities published by the OPW in 2009 (OPW Guidelines).

The risk assessment identifies and quantifies risks focusing on potentially significant adverse effects of the development on the environment, deriving from its vulnerability to risks of relevant major accidents and/or disasters. The approach to identifying and quantifying risks associated with the proposed development by means of a sites specific risk assessment is derived from the EPA Guidelines on information to be contained in EIAR (EPA, 2022).

The criterion for categorising impact is derived from the EPAs Guidance on Assessing and Costing Environmental Liabilities (2014). In this guidance, the risk assessment methodology commences with the establishment of risk classification criteria followed by risk analysis based on these criteria. Risk classification tables are required in order to evaluate and rank the risks compared with each other. They form the basis for rating the likelihood of an event occurring and the consequence of impact if the event occurs. The approach used in this assessment is summarised as follows and has been derived from relevant guidance as described above:

- Identification of hazardous substances which could be present over the lifecycle of the Proposed Development, including flammable substances, materials harmful to the environment and materials harmful to human health.
- Consideration of the quantities and storage arrangements associated with these substances and the prospective operations at the Proposed Development involving these materials.
- Identification of potential MA&D Risk Events associated with these materials and operations. Assessment of the vulnerability of the Proposed Development to disasters as a result of, for example, location, infrastructure, climatic conditions and geological events.

- Where credible MA&Ds Risk Events and Disasters are identified, the reasonable worst-case consequence of a of each Risk Event is assessed in qualitative terms, based on factors including receptors which could be affected, and mitigation measures already in place (see Table 161)
- The likelihood and consequence ratings are combined to form a risk score for risk evaluation (see Table 162)

Table 16.1 Risk Classification – Likelihood

Rating	Category	Description
1	Very low	Very low chance of hazard occurring
2	Low	Low chance of hazard occurring
3	Medium	Medium chance of hazard occurring
4	High	High chance of hazard occurring
5	Very high	Very high chance of hazard occurring

Table 16.2 Risk Classification - Consequence

Rating	Category	Description
1	Trivial	Small number of people affected, no fatalities No contamination to environment
2	Minor	Single fatality: limited number of people affected; a few serious injuries Localised contamination effects of short duration
3	Moderate	Significant number of people in affected area impacted with multiple fatalities Contamination effects widespread or of extended duration
4	Major	5 to 50 fatalities, up to 100 serious injuries Heavy contamination, localised effects, or extended duration
5	Massive	Large numbers of people impacted with a significant number of fatalities (>50), injuries in the hundreds Very heavy contamination, widespread effects of extended duration

The risks are then ranked according to their own risk score (1-5) in a colour coded matrix able which allows risks to be easily displayed and prioritised. The colour codes are as follows and indicated in Table 163 below:

- Red – high level risks requiring priority action (overall risk scores of 15-25);
- Yellow – medium-level risks requiring action, but not as critical as red-coded risks (overall risk scores of 8-12); and
- Green (light and dark) – low-level risks requiring continuing awareness and monitoring on a regular basis (overall risk scores of 1-6).

Table 16. 3 Example Risk Matrix

		Consequence				
		Trivial	Minor	Moderate	Major	Massive
Likelihood	Very High	Low	Medium	High	High	High
	High	Low	Medium	Medium	High	High
	Medium	Low	Low	Medium	Medium	High
	Low	Low	Low	Low	Medium	Medium

16.3.1 Legislative Context and/or Source of Guidance

Alongside the legislation, policy, and guidance outlined in Chapter 1, the following relevant legislation, policy, and guidance has informed the preparation of this chapter:

- EPA 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (2022),
- EIAR Directive 2014/52/EU, which requires consideration of "the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or natural disasters relevant to the project consented."
- EPA 'Advice Notes on Current Practice in the Preparation of Environmental Impact Statements' (2018),
- Health and Safety Authority Guidance on Technical Land-Use Planning Advice, for planning authorities and COMAH establishment operators (2023)
- Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015
- HSA Guide to the COMAH Regulations 2015 (S.I. No. 209 of 2015)
- Building Regulations (Part A Amendment) Regulations 2012 (as amended) (SI No. 138 of 2012)
- Safety, Health and Welfare at Work (Construction) Regulations 2013 (as amended) (hereafter referred to as the Safety, Health and Welfare (Construction) Regulations) (S.I. No. 291 of 2013)
- A Framework for Major Emergency Management. Guidance Document 10 (DECLG 2015)

The EPA Guidelines, 2022, state that:

> *"To address unforeseen or unplanned effects the Directive further requires that the EIAR takes account of the vulnerability of the project to risk of major accidents and /or disasters relevant to the project concerned and that the EIAR therefore explicitly addresses this issue. The extent to which the effects of major accidents and / or disasters are examined in the EIAR should be guided by an assessment of the likelihood of their occurrence (risk). This may be supported by general risk assessment methods or by systematic risk assessments required under other legislation e.g. a COMAH (Control of Major Accident Hazards involving Dangerous Substances) assessment.*
>
> *The potential for a project to cause risks to human health, cultural heritage or the environment due to its vulnerability to external accidents or disasters is considered where such risks are significant, e.g. the potential effects of floods on sites with sensitive facilities. Where such risks are significant then the specific assessment of those risks in the form of a Seveso Assessment (where relevant) or Flood Risk Assessment may be required."*

16.3.2 Major Accidents

For the purpose of this assessment, the definition of a 'Major Accident' is taken from the guidelines on Major Accidents and Disasters within EIA published by Institute of Environmental Management and Assessment (IEMA, 2020).

> *"A major accident is an event (for instance, train derailment or major road traffic accident) that threatens immediate or delayed serious environmental effects to human health, welfare and / or the environment and requires the use of resources beyond those of the client or its appointed representatives (i.e., contractors) to manage". Major accidents can be caused by disasters resulting from both man-made and natural hazards. A disaster is a man-made / external hazard (such as an act of terrorism) or a natural hazard (such as an earthquake) with the potential to cause an event or situation that meets the definition of a major accident. In general, major accidents and / or disasters should be considered as part of an assessment where the development has the potential to cause the loss of life, permanent injury and/or temporary or permanent destruction of an environmental receptor which cannot be restored through minor clean-up and restoration".*

For the purposes of this assessment, the definition of 'Vulnerability' is as follows (IEMA, 2020):

> *"Vulnerability – describes the potential for harm as a result of an event, for example due to sensitivity or value of receptors. In the context of the EIA Directive, the term refers to 'exposure and resilience' of the proposed development to the risk of a major accident and / or disaster. Vulnerability is influenced by sensitivity, adaptive capacity, and magnitude of impact; and Significant environmental effect (in relation to a major accident and / or disaster assessment) – includes the loss of life, permanent injury and temporary or permanent destruction of an environmental receptor which cannot be restored through minor clean-up and restoration."*

16.3.3 Background to Control of Major Accident Hazards Involving Dangerous Substances (COMAH) Regulations

The Seveso III Directive (2012/18/EU) requires Member States to apply land-use or other relevant policies to ensure that appropriate distances are maintained between residential areas, areas of substantial public use and the environment, including areas of particular natural interest and sensitivity and hazardous establishments. For existing establishments, Member States are required to implement, if necessary, additional technical measures so that the risk to persons or the environment is maintained at an acceptable level.

The purpose of the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations (S.I. 209 of 2015) (COMAH Regulations)is to transpose the Seveso Directive into Irish law and lay down rules for the prevention of major accidents involving dangerous substances, and to seek to limit as far as possible the consequences for human health and the environment of such accidents, with the overall objective of providing a high level of protection in a consistent and effective manner.

The HSA is the Competent Authority in Ireland as defined by Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015, (COMAH Regulations 2015) which implement the Seveso III Directive in Ireland. The HSA is responsible for ensuring that the impacts of facilities which fall within the remit of this legislation are considered with respect to land use planning. This is achieved through the provision of technical advice to planning authorities.

The COMAH Regulations do not apply to the Proposed Development as the Proposed Development will not store significant quantities of hazardous materials which are in excess of the defined COMAH thresholds set out in Schedule 1 of the COMAH Regulations.

16.3.4 Natural Disasters

For the purpose of this assessment, the definition of a 'Disaster' is as follows (IEMA, 2020):

> *"a natural hazard (e.g. earthquake) or a man-made external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident."*

16.4 Difficulties Encountered

There were no difficulties encountered when compiling this assessment.

16.5 Characteristics of the Proposed Development

The purpose of this section is to provide an overview of the key relevant details of the construction phase and operational phase of the Proposed Development. The information presented in this section is informed by the project design, but it is not a complete description of the Proposed Development. Therefore, it should be read in conjunction with the full development description in Chapter 2 of this EIAR.

The Proposed Development is a non-COMAH site and the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations, 2015 (COMAH Regulations 2015) does not apply.

16.5.1 Hazardous Materials

16.5.1.1 Construction Phase

Flammable Gas Cylinders

Construction and maintenance activities may require welding which can be carried out using compressed gases such as acetylene. There is the potential for a release of flammable gas, including an explosive depressurisation event, for example due to accidental damage to a gas cylinder, pressure regulator, or associated pipework. The released gas could be ignited, resulting in a fire or explosion. The potential impacts of which could include harm to persons due to thermal radiation and damage to property.

Concrete

There is the potential for an accidental release of concrete into the soil, or surface water during the construction Proposed Development. Concrete is not classified hazardous in accordance with the Chemical, Label and Packaging (CLP) Regulations (EC No. 1272/2008); however, concrete paste is alkaline (pH 10-14); therefore the potential impacts if concrete enters the environment via a release to water, include:

- Raising the pH causing harm to aquatic ecosystems
- Cause sedimentation on aquatic beds, which could harm flora and fauna.

Containment systems to intercept any material released will be developed within a Construction Phase Environmental Management Plan (CEMP). Therefore, it is not considered credible that a release of concrete could lead to a consequence that meets the criteria of a Major Accident and will not be considered further in this assessment.

Fuel Storage

Small quantities of diesel will be present on-site for use in construction vehicles. Diesel has flammable and environmental hazards.

Diesel is classified as an ignition category 3 substance, following the criteria in the Guidance on Technical Land Use Planning (HSA, 2023); therefore, it has an ignition probability of 0. Therefore, flammable hazards associated with diesel are not credible and will not be considered further in this assessment.

Due to the small quantities of diesel involved, it is not considered credible that a spill of diesel would meet the criteria for a Major Accident and it will not be considered further in this assessment.

Natural Gas

The proposed project will not require any gas connections. Neither is there any existing gas infrastructure within the vicinity of the proposed development.

16.5.1.2 Operational Phase

The proposed project will not require any gas connections. Neither is there any existing gas infrastructure within the vicinity of the proposed development.

The Proposed Development is a residential scheme; therefore, there will be no hazardous material stored at the Proposed Development during the operational phase.

16.6 Baseline Environment

16.6.1 Seveso Establishments

Seveso establishments have a “consultation distance” which is defined as “a distance or area relating to an establishment, within which there are potentially significant consequences for human health or the environment from a major accident at the establishment” (COMAH Regulations).

There are no Seveso establishments within 5km of the Proposed Development; therefore, there are no constraints to the Proposed Development at this location from nearby Seveso establishments.

16.6.2 Flood Risk

The site-specific Flood Risk Assessment (FRA) completed by Waterman Moylan Consulting Engineers Ltd. concluded that the residual risk of flooding from Tidal, Fluvial, Pluvial and Groundwater is low. Therefore, the likelihood of a flood impacting the Proposed Development is unlikely and not significant.

16.6.3 Seismic Activity

In Ireland, seismic activity is recorded by the Irish National Seismic Network. The Geophysics Section of the School of Cosmic Physics, Dublin Institute for Advanced Studies, has been recording seismic events in Ireland since 1978 (www.dias.ie). This network consists of several seismometers that are located throughout Ireland. Figure 161 illustrates historical and recorded seismic events since 1980.

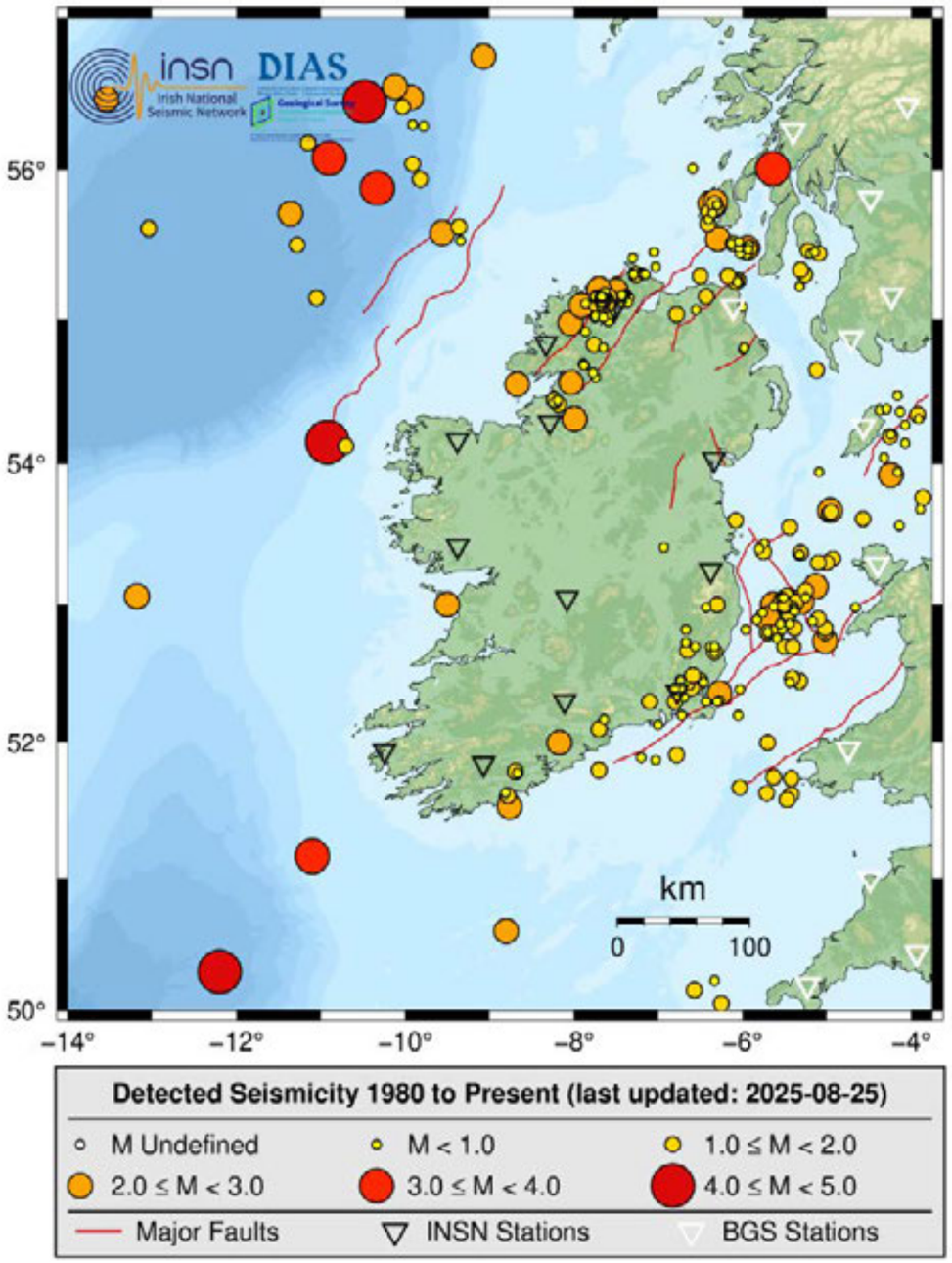


Figure 16.1 *Ireland Seismic Activity Map*

Seismic activity and earthquake risk in Ireland are generally considered to be low. This is because Ireland is located on the western edge of the Eurasian Plate, which is a tectonic plate that is not known for its seismic activity. However, earthquakes can still occur in Ireland, although they are typically small and have little impact.

It can be seen in Figure 161 that there is has been some small seismic activity recorded in the vicinity of the Proposed Development. The maximum magnitude of an earthquake in the vicinity of the Proposed Development was 1.9 and occurred in 1981. Earthquakes <2.5 in magnitude are not usually felt, but are recorded by seismographs.

It is concluded that the likelihood of seismic activity impacting the Proposed Development is unlikely and not significant.

16.6.4 Landslides

Much of the Earth's surface is covered by unconsolidated sediments which can be especially prone to instability. Water often plays a key role in lubricating the slope failure. Instability is often significantly increased by man's activities in building houses, roads, drainage and agricultural changes. Landslides, mud flows, bog bursts (in Ireland) and debris flows are a are a natural hazard that can occur. These can cause damage to property, infrastructure, and the natural environment, and can also pose a risk to human life.

In general, risk of landslides in Ireland is generally considered to be low, as the country is not located in a region with high seismic activity or large mountain ranges. Landslides are more common in unconsolidated material than in bedrock, and where the sea constantly erodes the material at the base of a cliff landslides and falls lead to recession of the cliffs. Landslides have occurred in Ireland in recent years in upland peat areas due to disturbance of peat associated with construction activities.

The landslide susceptibility map identifies areas which are subject to landslides and is measured from low to high. The landslide susceptibility map considers the location of landslides and what causes them (slope, soil type and the impact of the flow of water). illustrates the landslide susceptibility map in the vicinity of the Proposed Development.

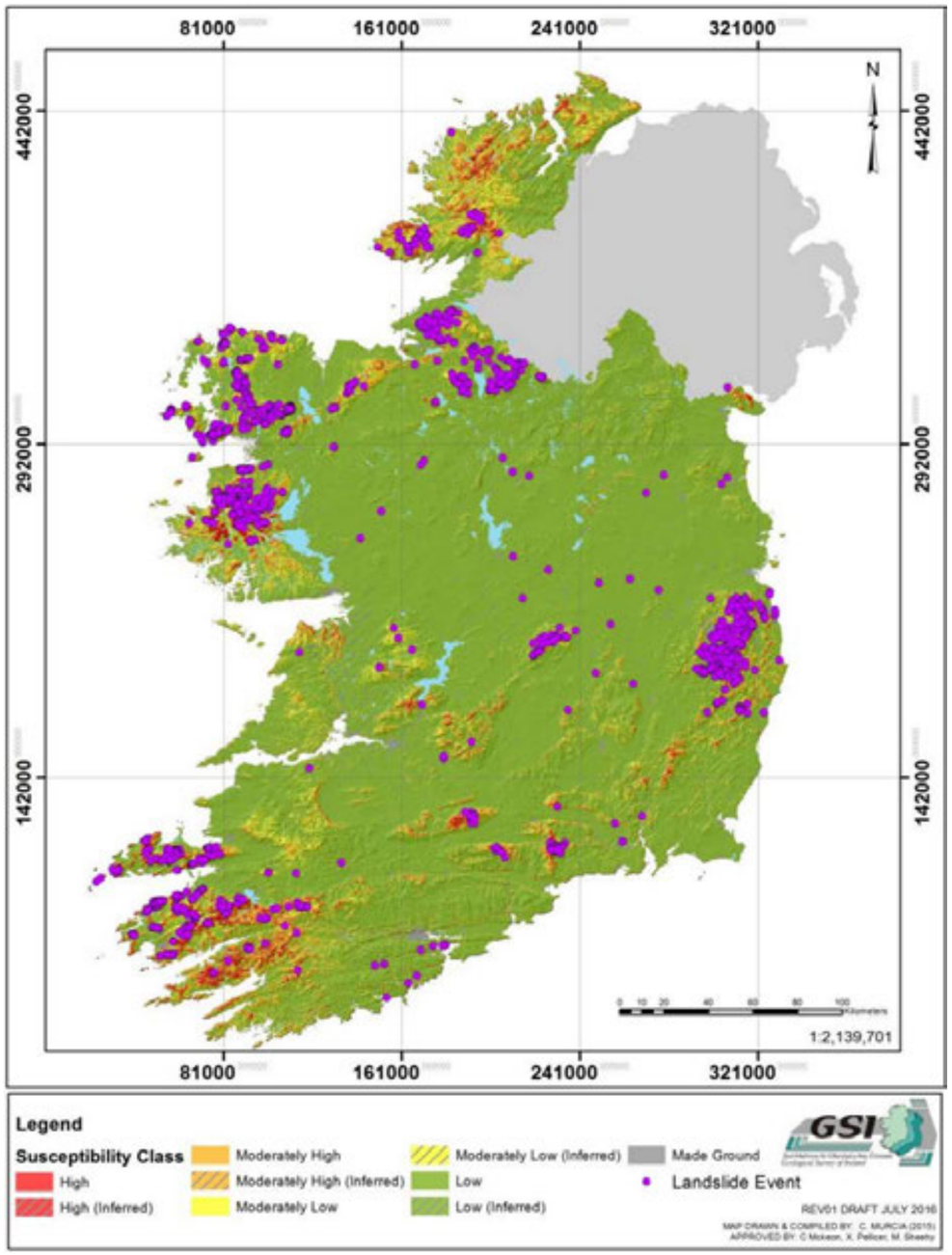


Figure 16.2 Landslide Susceptibility Map (GSI Ireland)

It can be seen in Figure 162, that the Proposed Development and the surrounding area have a low susceptibility of landslides. Therefore, the likelihood of a landslide impacting the Proposed Development is unlikely and not significant.

16.7 Predicted Impacts

The potential impacts of the construction and operational phases of the Proposed Development are outlined below.

16.7.1 Do Nothing Scenario

The EIA Directive requires the following to be described relating to the future receiving environment (the 'Do Nothing' scenario):

> *"an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge".*

Under a 'do-nothing' scenario there is no known or anticipated change to the Major Accidents and Disasters risk at the Proposed Development site.

16.7.2 Construction Phase

General construction activities will include ground preparation, excavation, construction of structures. These activities will require the use of vehicles and tools. The hazards associated with activities include the potential for vehicle impact, particularly during reversing and vehicle overturning. The controls around this work will be managed by appropriate risk assessments to control the risks to people, the environment and also to the existing operational areas.

A site-specific Construction Environmental Management Plan (CEMP) and a Health and Safety Plan will be produced by the Construction Contractor, covering the construction and commissioning of the Proposed Development. The CEMP will be prepared to ensure compliance with relevant health and safety legislation including the Safety, Health and Welfare at Work Act.

The following scenarios have been identified that could impact the construction phase of the project:

- Extreme heat or cold weather resulting in result structural damage and/or pollution to soils, groundwater, or surface waters.
- Compressed Gas Cylinder release
- Storm events resulting in structural damage and/or pollution to groundwater and surface waters.
- Flooding

The impact and likelihood of these scenarios is assessed in Table 164. There are no likely impacts to the Proposed Development or to off-site receptors during the construction phase in relation to major accidents and disasters.

Table 16.4 Assessment of Major Accidents and Disasters for Construction Phase

Risk ID	Major Accident Scenario	Impact	Consequence Rating	Basis of Consequence	Likelihood Rating	Basis of Likelihood	Risk Score
C1	Extreme heat or cold weather resulting in result structural damage and/or pollution to soils, groundwater or surface waters	Human health, biodiversity, soils and geology, hydrology and hydrogeology	2	The Proposed Development will be constructed, and operated in accordance with all relevant planning, building and environmental licencing codes (Building Regulations, 2012). The engineering design of the facilities will take operation at future climatic conditions into account.	1	All construction activities will be suspended during extreme weather events.	2
C2	Storm events (including lightning) resulting in structural damage and/or pollution to groundwater and surface waters	Human health, biodiversity, soils and geology, hydrology and hydrogeology	2	The engineering design of the Proposed Development will incorporate lightning mitigation. This will be assessed in accordance with recognised industry standards such as EN/IEC 62305.	1	All construction activities will be suspended during extreme weather events.	2
C3	Flooding	Human health, biodiversity, soils and geology, hydrology and hydrogeology	2	A Flood Risk Assessment was prepared in accordance with 'The Planning System and Flood Risk Management -Guidelines for Planning Authorities' issued by the Department of Environment, Heritage and Local Government in November 2009. The flood risk assessment concluded that the residual risk of a flood at the proposed development is low.	2	The flood risk assessment concluded that the residual risk of a flood at the proposed development is low.	2
C4	Flash fire, Explosion or Jet fire following compressed gas cylinder release (e.g. acetylene for welding)	Human Health	3	There is potential for harm to persons on-site in the vicinity of the hazardous gas release. Detailed method statements, plans and assessments will be produced to carry out compressed gas activities safely. A Site Emergency Response Plan will be developed prior to the commencement of operations and will include detailed procedures in the event of a major accident.	1	European Industrial Gases Association standard procedures will be used for the storage and use of gas cylinders. When not in use, cylinders will be stored in external, well-ventilated areas and when in use, appropriately certified equipment will reduce the potential for ignition if a flammable gas is accidentally released.	3

16.7.3 Operational Phase

In the scoping phase for this EIAR the potential for impacts to human health and impacts to the environment were assessed.

The following scenarios have been identified that could impact the operational phase of the project:

- Extreme heat or cold weather resulting in result structural damage and/or pollution to soils, groundwater, or surface waters.
- Compressed Gas Cylinder release
- Storm events resulting in structural damage and/or pollution to groundwater and surface waters.
- Flooding

The impact and likelihood of these scenarios is assessed in Table 16.5. There are no likely impacts on the project or to off-site receptors during the construction phase in relation to major accidents and disasters.

Table 16.5 Assessment of Major Accidents and Disasters for Operational Phase

Risk ID	Major Accident Scenario	Impact	Consequence Rating	Basis of Consequence	Likelihood Rating	Basis of Likelihood	Risk Score
O1	Flooding	Human health, biodiversity, soils and geology, hydrology and hydrogeology	2	A Flood Risk Assessment was prepared in accordance with 'The Planning System and Flood Risk Management -Guidelines for Planning Authorities' issued by the Department of Environment, Heritage and Local Government in November 2009. The flood risk assessment concluded that the residual risk of a flood at the proposed development is low.	1	The flood risk assessment concluded that the residual risk of a flood at the proposed development is low.	2
O2	Extreme Weather (e.g. heat, cold, wind and storms, resulting in result structural damage)	Human health, biodiversity, soils and geology, hydrology and hydrogeology	2	Increases in extreme weather could potentially result in the operational instability of equipment such as and electrical apparatus, which is sensitive to temperature and humidity. Failure of these systems due to extreme temperatures could result in operational interruptions at the Proposed Development but would be unlikely to cause an incident which has the potential to result in a major accident or disaster. Increasing atmospheric wind speeds could cause structures to become unstable. In a worst-case event, these structures could fall and/or collapse resulting in harm to people in the vicinity. The structural engineering design of the facilities will calculate wind loading and other requirements based on industry standard guidance and methods.	1	The Proposed Development will be constructed, and operated in accordance with all relevant planning, building and environmental licencing codes (Building Regulations, 2012). The engineering design of the facilities will take operation at future climatic conditions into account.	2

16.7.4 Demolition

There will be no demolition as part of the proposed development.

16.7.5 Cumulative Effects

Cumulative effects relate to the potential effects of the proposed development in combination of the potential effects of other developments (referred to as 'cumulative developments') within the surrounding area.

During the construction phase, since there are no likely impacts on the project or to off-site receptors, the cumulative impacts, of major accidents and disasters, are considered imperceptible and neutral to the proposed development and to cumulative developments in the surrounding area.

During the operational phase, since there are no likely impacts to off-site receptors, the cumulative impacts, of major accidents and disasters, are considered imperceptible and neutral to the proposed development and to cumulative developments in the surrounding area.

There are no expected impacts from developments in the vicinity of the Proposed Development, from a major accidents and disasters perspective, as such, there are no significant cumulative effects with the Proposed Development from a major accidents and disasters perspective.

16.8 Mitigation Measures

The Proposed Development has been designed in line with good industry practice, and, as such, mitigation against the risk of major accidents and/or disasters is embedded through the design and in accordance with planning and legislative requirements. As no likely significant effects were identified, no additional mitigation measures are proposed.

16.9 Residual Impacts

The residual effects are the final predicted or intended effects which occur after the proposed mitigation measures have been implemented. As no likely significant effects were identified, no additional mitigation measures are proposed. Therefore, residual effects are not relevant for this assessment.

16.10 References

Institute for Environmental Management and Assessment (IEMA) Major Accidents and Disasters in EIA – A Primer (IEMA, 2020)

Guidelines on the Information to be contained in Environmental Impact Assessment Reports, Environmental Protection Agency (2022)

S.I. No. 209/2015 - Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015.

A Framework for Major Emergency Management. Guidance Document 10 (DECLG, 2015)

Building Regulations (Part A Amendment) Regulations 2012 (as amended) S.I. No. 138/2012

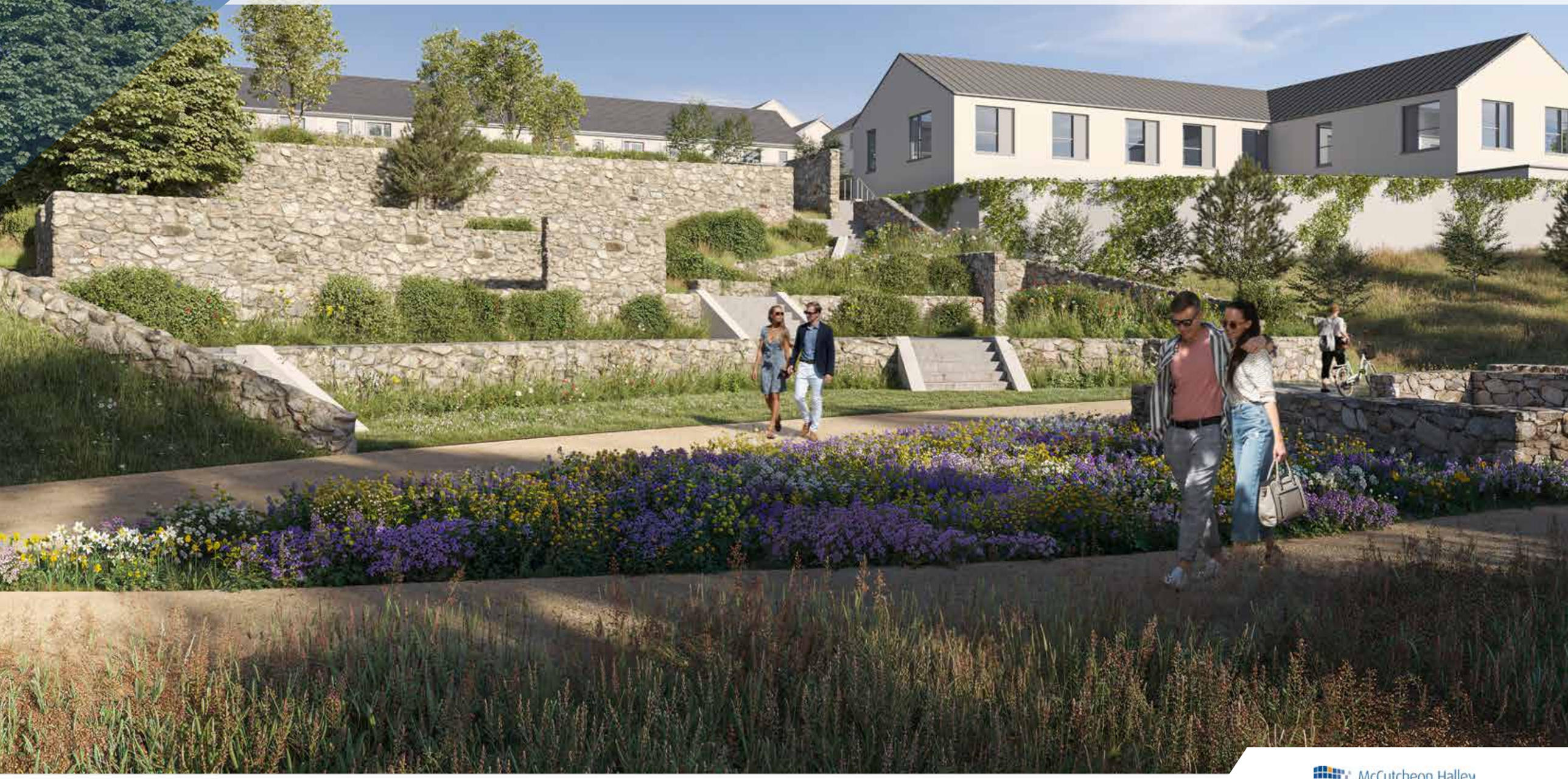
Safety, Health and Welfare at Work (Construction) Regulations 2013 (as amended) S.I. No. 291 of 2013

Guidance on Assessing and Costing Environmental Liabilities, Environmental Protection Agency (2014)

Flood Risk Assessment, Strategic Housing Development in Kilnahue, Gorey, Co. Wexford, Waterman Moylan Consulting Engineers Ltd. (2022)

CHAPTER SEVENTEEN

SIGNIFICANT INTERACTION OF IMPACTS



McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

CHAPTER 17

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CHAPTER 17 | SIGNIFICANT INTERACTION OF IMPACTS

17.1 Introduction

The construction, operational and cumulative impacts of the proposed development have been assessed within each chapter of the EIAR. This chapter considers the significant interactions of impacts between each of the separate disciplines.

In practice many impacts have slight or subtle interactions with other disciplines. This chapter highlights in **Table 17.1** (located at the end of this section) those interactions which are considered to potentially be of a significant nature. Discussions of the nature and effect of the impact is primarily undertaken within each of the relevant chapters, while this chapter identifies the most important potential interactions.

This chapter was prepared by Lucy O'Donnell of McCutcheon Halley Chartered Planning Consultants with input from the lead author of each assessment.

17.2 Population and Human Health

During the construction and operational phases, the following aspects have potential to interact with population and human health:

- Air Quality: Interactions between Air Quality and Population and Human Health have been considered as both the Construction and Operational Phases have the potential to cause health issues as a result of impacts on air quality from dust nuisances and potential traffic derived pollutants. The mitigation measures employed at the proposed development will ensure that all impacts are compliant with ambient air quality standards and human health will not be affected. Furthermore, traffic related pollutants have been assessed and determined as not significant, therefore, air quality impact from the proposed development are not expected to have a significant impact on population and human health
- Landscape and Visual:
  - During the Construction Phase there will be visual changes combined with noise and dust emissions from the construction site to negatively impact the residential amenity of residential receptors near the site. The receptors most likely to experience such impacts are the neighbouring houses along the R725 Carnew Road and the houses along Kilnahue Lane.
  - During the Operational Phase there will be permanent visual changes to the landscape character of Creagh and the town's western edge transitioning the site from an agricultural field to a residential development. A full impact assessment has been carried out in Chapter 5 Landscape and Visual Impact to quantify this impact.
- Material Assets: Traffic and Transport: There can be a significant interaction between population and human health and traffic. This is due to traffic-related pollutants that may arise. During construction, increased HGV and construction traffic has the potential to temporarily affect Population and Human Health through short-term changes in accessibility, road safety and travel times. During the operational phase, the development's upgraded access arrangements, pedestrian links and shared cycle infrastructure positively interact with Population and Human Health by improving safety, connectivity and active mobility options.
- Material Assets: Services: Extended power or telecommunications outages, or disruption to water supply or sewerage systems for existing properties in the area could negatively impact on the surrounding human population and their overall health.
- Material Assets: Waste: The potential impacts on human beings are in relation to incorrect management of waste during construction and / or operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity.
- Noise and Vibration: Construction activities have the potential to result in increased levels of noise and vibration during the construction phase, which could negatively impact the local population. This will be mitigated through measures in the Construction Environmental Management Plan.

17.3 Landscape and Visual

During the construction and operational phases, the following aspects have potential to interact with landscape and visual:

- Population and Human Health:
  - During the construction stage, there is potential for negative landscape and visual effects of construction to combine with noise and dust emissions from the construction site to negatively impact the residential amenity of residential receptors near the site. The receptors most likely to experience such impacts are the neighbouring houses along the R725 Carnew Road and the houses along Kilnahue Lane.
  - The proposed development would deliver a high quality new residential neighbourhood within walking distance of Gorey town centre, with access to schools, retail, employment, open space and other land uses and amenities provided by the town. The related change to the landscape character (of Creagh and the town's western edge) would have significant positive population and human health benefits (by providing homes offering a high level of residential amenities and encouraging Active Travel).
- Biodiversity: The proposed development would result in the loss of some of the site's hedgerows and trees (most notably along the Kilnahue Lane boundary). As well as being of landscape and visual amenity value, these are important habitat features, and their loss would have negative biodiversity impacts. A large volume of compensation planting is proposed, along Kilnahue Lane and elsewhere in the site, including in the new woodland park. This park would be a significant gain in landscape and visual amenity, as well as contributing to a net biodiversity gain.

17.4 Material Assets: Traffic and Transport

During the construction phase, the following aspects have potential to interact with traffic and transport:

- Population and Human Health: During construction, increased HGV and construction traffic has the potential to temporarily affect Population and Human Health through short-term changes in accessibility, road safety and travel times.
- Air and Climate: Construction traffic may also indirectly influence Air (Noise and Vibration) and Climate (Air Quality) through short-term emissions and noise associated with vehicle movements, although these impacts are limited and well controlled through the Construction Traffic Management Plan (CTMP).
- Biodiversity, Land, Soil and Geology, and Water: There is limited potential for interaction with Biodiversity, Land, Soil and Geology, and Water, primarily where temporary changes in surface conditions, sediment transport or accidental spillages could occur, though these are minimised through standard best-practice construction management measures. Road works may generate small quantities of construction waste, linking to Material Assets (Waste), while temporary service diversions may interact with Material Assets (Utilities).

During the operational phase, the following aspects have potential to interact with traffic and transport:

- Population and Human Health: During the operational phase, the development's upgraded access arrangements, pedestrian links and shared cycle infrastructure positively interact with Population and Human Health by improving safety, connectivity and active mobility options.
- Air and Climate: Traffic generated by the scheme could influence Air (Noise and Vibration) and Climate (Air Quality) through vehicle noise and emissions, though the predicted volumes are modest and significantly offset by the substantial active travel measures and Mobility Management Plan.
- Climate: Interactions with Climate (Climate Change) arise through long-term modal shift, reduced car dependency and increased provision for sustainable travel, contributing positively to emissions reduction objectives.
- Landscape and Cultural Heritage: Road layout, visibility, and street hierarchy interact with Landscape and Visual Impact, particularly regarding streetscape character and legibility, while the enhanced mobility network may also interact positively with Cultural Heritage by facilitating safe access without generating significant traffic-related impacts.

17.5 Material Assets: Built Services

During the construction phase, the following aspects have potential to interact with built services:

- Population and Human Health: there may be interruptions to existing services, including water, electricity, communications, as connections are provided between the proposed development and existing services.
- Water: works to provide connections to utilities and services, such as foul and surface water, sewer may have negative impacts on groundwater if spills or fuels or other contaminants occur. Stockpiling of materials or works may lead to temporary localized flooding if the drains become blocked
- Where roads are opened for the installation of cables or pipelines, interaction will occur between material assets (namely the local road network and utility providers), traffic and population.
- During the operational phase, the potential interactions are:
- Water: There will also be an increased demand on potable water on the municipal drainage infrastructure.
- Biodiversity: Disturbance to bats arising from artificial light spillage into the environment form the associated lighting scheme

17.6 Material Assets: Waste

During both the construction and operational phases, the following aspects have potential to interact with built services:

- Land and Soils: During the construction phase, excavated soil and stone (c. 120,000 m3) will be generated from the excavations required to facilitate site levelling, construction of new foundations and installations of site services. It is currently anticipated that c. 85,000 m3 will be reused on site and c. 35,000 m3 will need to be removed off site by a licensed contractor and will be taken for appropriate reuse, recycling or disposal. In the event that any excavated soil is found to be contaminated it will need to be removed off-site.

If material has to be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort.

- Traffic and Transport: Local traffic and transport will be impacted by the additional vehicle movements generated by removal of waste from the site during the construction and operational phases of the proposed Development. The increase in vehicle movements as a result of waste generated during the construction phase will be temporary in duration. There will be an increase in vehicle movements in the area as a result of waste collections during the operational phase but these movements will be imperceptible in the context of the overall traffic and transportation increase.
- Population and Human Health: The potential impacts on human beings are in relation to incorrect management of waste during construction and / or operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity.
- Biodiversity: The potential impacts on biodiversity in relation to the generation of waste during the construction or operational phases are that the incorrect management of waste could result in littering, pollution issues or vermin in areas affected.

17.7 Land and Soils

During the construction phase, the following aspects have potential to interact with land and soils:

- Traffic and Transport and Material Assets: Waste: Both traffic and waste will be impacted as unsuitable subsoil and bedrock is removed from site and required aggregate material is brought to site.
- Air Quality: The potential to impact air quality in relation to dust generation.
- Water Quality: The potential to impact water quality in relation to sediment runoff.

17.8 Water & Hydrology

During the construction phase, the following aspects have potential to interact with water & hydrology:

- Land & Soils (Geology): The main interaction of the water attribute is with Land and Soils due to the cut & fill earth work activities that could produce sediment runoff.
- Biodiversity: The SuDS mitigations will provide an opportunity to improve the habitat and potential biodiversity of the locality.

17.9 Biodiversity

During both the construction and operational phases, the following aspects have potential to interact with biodiversity:

- Land & Soils: During the construction phase, excavated soil, stone, clay and made ground will be generated from the excavations required to facilitate site levelling and construction of the new foundations. It is estimated that 119,497m3 of topsoil will be stripped, and the calculations indicate that, after a 95,983m3 re-use in backfilling and landscaping, there will be an excess of 23,514m3 of subsoil and/or rock from the development area. It is anticipated that all topsoil material will be re-used on the site. As such, there is the potential for impacts on local biodiversity via the proposed excavation and re-profiling works. There will be a loss of some vegetation on site, but this is not expected to impact significantly on surrounding areas.
- Water & Hydrology: During the construction and operational phases of development, there is the potential for downstream impacts on the proximate watercourses via contaminated surface water runoff.

- Air Quality: During the construction phase of development, given the nature and scale of the proposed works, there is the potential for dust and materials to enter the proximate watercourse during site clearance and re-profiling works with the potential for downstream impacts on biodiversity.
- Noise and Vibration: During the construction and operational phases of the development, there will be an increase in disturbance including noise and vibration that could potentially impact on birds on site and mammals proximate to the site.
- Traffic and Transport: During the construction phase of development, heightened traffic within and immediately surrounding the subject site (resulting from the transport of construction materials and the commuting of workers to the site) has the potential to impact on local biodiversity through increased disturbance.

17.10 Noise and Vibration

During the construction and operational phases, the following aspects have potential to interact with noise and vibration:

- Population & Human Health: The construction phase has the potential to impact population and human health through the generation of construction noise and vibration, such as increased HGV traffic, rock breaking, as well as plant equipment noise and heavy machinery in operation.
- Biodiversity
- Material Assets - Traffic & Transportation – Increased traffic during the construction and operational phases may generate additional traffic noise.

17.11 Air Quality

During the construction phase, the following aspects have potential to interact with air quality:

- Population & Human Health: An adverse air quality impact during the construction phase can cause health and dust nuisance issues. There is a low risk of dust-related human health impacts during the construction phase of the proposed development. Best practice mitigation measures will be implemented during the construction phase to ensure that the impact of the proposed development complies with all ambient air quality legislative limits. Therefore, the predicted impact is ***direct, short-term, negative***, ***localised*** and ***not significant*** with respect to Population and Human Health during the construction phase.
- Climate: Air Quality and Climate have interactions as the emissions from the burning of fossil fuels during the construction phase generate both air quality and climate impacts. There is no impact on climate due to air quality. However, the sources of impacts on air quality and climate are strongly linked.
- Land and Soils: Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between Air Quality and Land & Soils in the form of dust emissions. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and land and soils during the construction phase.
- Biodiversity: Dust generation can occur during extended dry weather periods due to construction traffic along haul routes and construction activities such as excavations and infilling works. Dust emissions can coat vegetation leading to a reduction in the photosynthesising ability as well as other effects. There are no designated ecological sites within 250 m of the proposed development site area. Significant dust impacts are not predicted beyond this distance. Dust mitigation measures will be implemented on site as set out in Section 13.7.1. With the implementation of these mitigation measures dust emissions will be minimised and impacts will be direct, short-term, negative, localised and not significant with respect to biodiversity.
- Material Assets – Traffic & Transport: Interactions between Air Quality and Traffic can be significant. With increased traffic movements and reduced engine efficiency, i.e. due to congestion, the emissions of vehicles increase. The impacts of the proposed development on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the impact of the interactions between Traffic and Air Quality are linked but there is no potential for significant impacts from traffic on air quality. The effects are considered to be direct, short-term, neutral, localised and not significant during the construction phase.

During the operational phase, the potential interactions are:

- Population & Human Health: Vehicles accessing the site will emit pollutants which may impact Air Quality and Human Health. However, the increased number of vehicles associated with the proposed development will not cause a significant change in air pollutant emissions in the locality. It has been assessed that emissions will be in compliance with the ambient air quality standards which are set for the protection of human health. Impacts will be ***long-term, localised, direct, negative and not significant.***
- Climate: Air Quality and Climate have interactions as the emissions from the burning of fossil fuels during the Operational phase generate both air quality and climate impacts. There is no impact on climate due to air quality. However, the sources of impacts on air quality and climate are strongly linked.
- Land and Soils: There are no potentially significant interactions identified between Air Quality, and Land & Soils during the operational phase.
- Biodiversity: There are no potentially significant interactions identified between Air Quality, and Biodiversity during the operational phase.
- Material Assets – Traffic & Transport: The impact of the interactions between Traffic and Air Quality are considered to be long-term, direct, negative and not significant during the operational phase.

17.12 Climate

During the construction and operational phases, the following aspects have potential to interact with Climate:

- Land, Soils, Geology and Hydrology: The impact of flood risk has been assessed, and the surface water drainage network will be designed to cater for increased rainfall in future years as a result of climate change. The effect of the interactions between climate and land, soils, geology and hydrology are direct, short-term, negative and imperceptible during the construction phase and direct, long-term, negative and imperceptible during the operational phase, which is overall not significant in EIA terms.
- Air Quality: Air quality and climate have interactions due to the emissions from the burning of fossil fuels during the construction and operational phases generating both air quality and climate impacts. Air quality modelling outputs are utilised within the Climate Chapter. There is no impact on climate due to air quality. However, the sources of impacts on air quality and climate are strongly linked.
- Traffic and Transportation: During the construction and operational phase, there is the potential for interactions between climate and traffic. Vehicles accessing the site will result in emissions of CO2, a greenhouse gas. The effects of the proposed development on climate are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the effects of the interactions between traffic and climate are considered to be direct, short-term, negative and not significant during the construction phase and direct, long-term, negative and not significant during the operational phase.
- Waste: Waste management measures will be put in place to minimise the amount of waste entering landfill, which has higher associated embodied carbon emissions than other waste management such as recycling. The effect of the interactions between waste and climate are considered to be direct, short-term, negative and not significant during the construction phase and direct, long-term, negative and not significant during the operational phase, which is overall not significant in EIA terms

17.13 Cultural Heritage

No adverse effects on the cultural heritage resource are predicted to occur during the construction or operation phases as a result of interactions with other environmental aspects assessed in this EIAR.

17.14 Conclusion

This EIAR has taken the above interactions into account throughout the assessments of the proposed development and mitigation measures have been outlined where relevant to minimize the impact of any identified potential impacts.

Table 17-1 Interactions with Potential for Significant Impacts Before the Implementation of Mitigation Measures

Interaction	Population & Human Health		Landscape		Material Assets- Traffic		Material Assets- Built Services		Material Assets- Waste		Land & Soils		Water		Biodiversity		Noise & Vibration		Air Quality		Climate		Cultural Heritage	
	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op
Population & Human Health			X	X	X	X	X		X	X											X	X		
Landscape and Visual	X	X													X	X								
Material Assets- Traffic	X	X									X		X		X				X	X	X	X		
Material Assets- Built Services	X				X								X	X		X								
Material Assets- Waste	X	X			X	X					X				X	X								
Land & Soils					X								X						X	X				
Water											X					X								
Biodiversity					X						X		X	X			X	X	X					
Noise & Vibration	X				X	X									X									
Air Quality	X	X			X	X					X	X			X	X					X	X		
Climate					X	X			X	X	X	X	X	X					X	X				
Cultural Heritage																								

Con. - Construction Phase | Op. - Operational Phase | ✔ - Potential Significant Interaction | ✘ - No Significant Interaction

CHAPTER EIGHTEEN

SUMMARY OF PROPOSED MITIGATION MEASURES



McCutcheon Halley
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CHAPTER 1

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CHAPTER 18 | SUMMARY OF PROPOSED MITIGATION MEASURES

18.1 Introduction

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 chapter of the EIAR summarises the proposed mitigation measures set out in Chapters 4 to 16.

All the mitigation measures proposed within the individual specialists' assessments will be incorporated into the Construction and Environmental Management Plan (CEMP) prior to works commencing on-site.

18.1.1 Table 18 1 Incorporated Design Mitigation Measures

Aspect	Incorporated Design Mitigation
Population & Human Health	The proposed development has been designed to avoid negative impacts in relation to local amenities and recreational facilities by: • Incorporating the provision of a creche within the design proposal. • Incorporating amenity facilities within the layout, including a primary parkland north of the site, pocket park areas, provision for walking and cycling throughout the development. • Incorporating a bike repair station and community recreational space and a community room within the design proposal.
Landscape & Visual	The 'OS' (Open Space and Amenity) zoned hilltop portion of the site would be developed as a woodland park. The avoidance of built development in this more elevated/exposed part of the site would ensure that the development would not be unduly visually intrusive. In its layout, architecture and landscape design the proposed development responds to and reflects the site's hillside topography. A proportion of the internal field boundary hedgerows and trees, including the hedgerows enclosing the old lane crossing the site, would be retained and incorporated into the open space/green infrastructure network. The alignment of the hedgerows informed the proposed layout/block structure. The proposal would require the removal of some 280m of hedgerow along the Kilnahue Lane boundary. This includes several fine oak trees in the hedgerow. This constitutes a loss of existing landscape/visual assets. To compensate for the loss, a new row of trees (and a double row in places) is proposed in a wide green verge behind a hedge alongside the road. This would maintain a leafy/green character along Kilnahue Lane (refer to Figure 5-4 above). The proposed houses along Kilnahue Lane are set well back from the road to allow for the compensation planting. This would also reduce the houses visibility/prominence from the existing houses across the road.
Landscape & Visual	While some loss of existing vegetation is unavoidable in the conversion of the lands from agricultural to residential use, it is intended that the development will result in net biodiversity gain - through the retention of a substantial proportion of the existing hedgerow and trees, the generous overall provision of open space (including the hilltop woodland park) and new vegetation (1,734 no. new trees are proposed), and selection of plant species mixes to support native pollinators. The ruined vernacular stone buildings on the site would be incorporated in a park functioning as a community hub, co-located with the creche, and positioned alongside the pedestrian and cycle route spine (the repurposed old lane crossing the site).
Material Assets: Traffic & Transport	The proposed development incorporates a range of embedded design measures that inherently avoid or minimise potential traffic and transport impacts. These design features have been integrated from the outset in accordance with DMURS, TII Traffic & Transport Assessment Guidelines and Wexford County Development Plan requirements. Key embedded mitigation includes: **Provision of a new ghost-island priority junction on the R725**, with a dedicated right-turn lane to ensure safe access while protecting through-traffic movement. **Two DMURS-compliant priority junctions on Kilnahue Lane**, with associated local road widening to 5.5 m to improve safety and capacity. **A 4.0 m shared pedestrian/cycle facility along Kilnahue Lane**, directly connecting residents to the existing school campus and wider active travel network. **Extension of the existing R725 footpath** to the site boundary, ensuring a continuous pedestrian route to Gorey town. **Provision of a raised zebra crossing on Kilnahue Lane**, improving pedestrian safety and enabling safe school access. **Internal road network designed to DMURS**, with low design speeds, raised junction tables, permeability for walking/cycling, and street layouts prioritising vulnerable road users. **Car parking provided at Development Plan-level standards**, avoiding oversupply and reducing car dependency. **EV charging infrastructure** with 20% of spaces active and the remainder ducted to futureproof the scheme. **Secure and accessible bicycle parking**, supporting modal shift and active travel. **Site layout designed to minimise vehicular dominance**, ensuring clear pedestrian priority and maximising sustainable travel convenience. These incorporated measures significantly reduce the need for additional mitigation at operational stage and ensure that long-term effects on the surrounding road network remain minor or imperceptible.

Aspect	Incorporated Design Mitigation
Material Assets: Built Services	**Surface Water** The proposed surface water drainage network will be designed in accordance with the requirements and recommendations of Wexford County Council Taking-in-Charge policy, the Greater Dublin Strategic Drainage Study & Regional Code of Practice and CIRIA SuDS Guide. The measures incorporated into the design will: • limit the discharge rate of stormwater runoff; • provide attenuation volume for excess runoff and; • provide treatment prior to discharge to the public network. **Wastewater** The proposed public wastewater network has been designed in accordance with the Uisce Eireann Code of Practice and all private drainage will be in accordance with the Building Regulations Technical Guidance Document Part H. Any required upgrades to the public drainage network are to be fully agreed with UE at connection application stage. This will ensure capacity in the internal & receiving networks and adequate performance of the network by preventing contamination and ensuring adequate flow velocities. **Water Supply** The water supply network has been designed in accordance with the Uisce Eireann Code of Practice and any upgrades to the existing network to provide capacity for the proposed development will be fully agreed with UE at connection application stage **Electricity Supply** All proposed power cables within the development will be buried underground or internal within buildings and will be installed according to the relevant ESB Networks specifications. **Gas Supply** It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site. **Telecommunications** The proposed telecommunications infrastructure within the development will be buried underground or internal within buildings.

Aspect	Incorporated Design Mitigation
Material Assets: Waste	This section outlines the measures that will be employed in order to reduce the amount of waste produced, manage the wastes generated responsibly and handle the waste in such a manner as to minimise the effects on the environment. The concept of the 'Waste Hierarchy' and 'Circular Economy' is employed when considering all mitigation measures. The waste hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling / recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal. The circular economy principle aims to keep materials, components, and products in-use in the economy for as long as possible. In circularity, the key objective is to design consumption and production systems to create and retain value. Both principles have been applied and will further be applied during the detailed design, construction and operational phases.
Land & Soils	The planning, timing and scheduling of the earth works across the site is important in limiting, as far as possible, the extent of ground being worked, as reducing the surface area of exposed soil will reduce the potential for the generation of dust and or sediment runoff. The design seeks to mitigate potential negative effects with all new-build infrastructure to be designed in accordance with the Technical Guidance Documents of the Building Regulations and associated codes of practice, which require due cognisance of the receiving environment. Design depths of proposed infrastructure are to be optimised so that excessive excavations are avoided where possible, and by association a reduction in resultant waste and machinery operation time. Any deep excavations will be designed in such a way as to be supported both during the construction and operational phases of the site development. The site layout design has kept the extent and depth of retaining walls and supporting structures to a minimum.

Aspect	Incorporated Design Mitigation
Water & Hydrology	All new-build service infrastructure is to be designed in accordance with the relevant service provider and asset owner's code of practice, which require due cognisance of the receiving environment. In particular design, choice and standard of materials for buried waste water pipe work shall be adequate for operating successfully without effecting the local environment for the long term. The design seeks to mitigate potential negative effects with all new-build infrastructure to be designed in accordance with the Technical Guidance Documents of the Building Regulations and associated codes of practice, which require due cognisance of the receiving environment. Design depths of proposed infrastructure are to be optimised so that excessive excavations are avoided and by association a reduction in potential waste material, machinery operation time and associated risks. The proposed development will be provided with a surface water management system that is designed in accordance with the principles of Sustainable Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS). The proposed surface water network for the development is arranged into an interconnected system of water runoff controls that match the natural greenfield runoff from the site. The proposed surface water networks includes a train of SuDS features which collectively provide for interception, treatment and conveyance of surface water, including nature-based features, which will aid the reduction of runoff volumes by slowing surface water flows, both providing the opportunity for evapotranspiration and rainwater storage. Interception storage requirements of GDSDS will be sufficiently met through the provision of SuDS features. Discharges to existing drainage systems is controlled as necessary to ensure adequate flood protection. SuDS features suitable for the site layout and site constraints have been identified and incorporated into the proposed surface water drainage scheme. Surface water drainage has been designed to, where necessary, mimic the site run-off characteristics with storm water run-off passing through the necessary treatment systems to prevent pollution. The operational design of the residential heating systems shall exclude the use of potentially polluting kerosene or fuel oils which will eliminate the risk of pollution for the operational stage.
Biodiversity	• Retention of 1270 linear metres of native hedgerows within and along the site boundary. • Approximately 1734 trees, including species such as oak, ash, and beech, will be planted across the site. These will be arranged in structured treelines, with additional woodland planting areas integrated into the overall landscape design strategy. This planting scheme is intended to support and enhance biodiversity on site.
Noise & Vibration	N/A
Air Quality	N/A

Aspect	Incorporated Design Mitigation
Climate	Several measures have been incorporated into the design of the development to mitigate against the impacts of future climate change. Sustainable Urban Drainage Systems (SuDs) and adequate stormwater drainage combine to form a robust precipitation and flood mitigation strategy. Permeable pavements, attenuation and drainage ponds haven been incorporated into the design of the development to avoid potential flooding impacts as a result of increased rainfall events in future years. These measures have been considered when assessing the vulnerability of the proposed development to climate change (Section 14.7.2). In relation to operational energy usage, information from the Climate Action Statement prepared by Kerrigan Consulting, has been used to inform this assessment. With the exception of the creche and community building, the units within the proposed development will be compliant with Technical Guidance (TGD) Part L – Conservation of Fuel and Energy- Dwellings 2022. As per the Climate Action Statement the following key elements will be included in the design parameters. • The proposed design follows a "fabric first" approach, which will reduce the energy demand in the dwellings through energy efficient building envelopes and low air permeability, which will reduce the energy demand of the heating systems. • High efficiency lighting, heating and ventilation systems shall be carefully selected to reduce running costs and energy use. • Specifying building fabric insulation U-values better than the Part L 2022 Regulations. • Targeting the air permeability to be ≤ $3m^3/m^2/hr$ @ 50Pa • The proposed development will incorporate renewable technologies to improve on the RER (renewable energy ratio) of 20% specified in the Part L Building regulations such as air to water heat pumps (houses) and exhaust air heat pumps (apartments). Solar panels may also be installed if the installation of a heat pump is not sufficient to achieve a renewable energy ratio of 0.2. • Zoned heating controls. These measures are aligned with the objectives of the CAP25 and will contribute to reducing the operational carbon footprint of the development, ensuring long-term energy efficiency and environmental sustainability. These identified measures will aid in reducing the impact to climate during the operational phase of the proposed development in line with the goals of the CAP25.
Cultural Heritage	N/A

19.1.2

Table 18-2 Construction Mitigation

Aspect	Construction Mitigation
Population & Human Health	It is anticipated that that the construction phase will have a short term slight positive economic impact on the area due to the influx of construction workers to the town. Health and safety risks will be managed in accordance with the Safety, Health, and Welfare at Work (Construction) Regulations, 2013. Measures are also set out in the CEMP, and include; • Securing of site boundary and erecting of fencing or hoarding as required • Minimising disruption of services through adequate engagement with utility and service providers; • Restriction of construction working hours and traffic access; • Personnel, pedestrian and vehicle segregation; • Preparation of a site-specific Safety Statement; • Preparation of an Emergency and Evacuation Plan. The design of the proposed development will be subject to safety design reviews to ensure that all requirements of the project are safe. A Project Supervisor for the Design Process (PSDP) will be appointed as part of this process. Where issues are identified, corrective actions will be implemented to amend design issues prior to the issuance of final design for construction. A contractor safety management programme will be implemented identifying potential hazards associated with the proposed works. Temporary contractor facilities and areas under construction will be fenced off from the public with adequate warning signs of the risks associated with entry to these facilities. Entry to these areas will be restricted and they will be kept secure when construction is not taking place. Measures to ensure public safety, with respect to construction traffic will be included in the final Construction Traffic Management Plan, to be agreed with the Planning Authority prior to commencement of development.
Landscape & Visual	The most effective mitigation for the negative landscape and visual effects of construction is site hoarding. This is only effective for ground level activity. When buildings under construction rise above ground level they are exposed and unsightly, as are the materials stockpiles, vehicles, etc. typical of a construction site. Some negative effects are therefore unavoidable in the construction phase. Nonetheless, to minimise the effects, it is recommended that site hoarding be erected around the site – where this is compatible with the protection of the boundary vegetation. Good practice in site management can reduce unnecessary visual impacts. These may include (a) considered layout of the construction site with regard to the most sensitive visual receptors, (b) dust control (e.g. water sprays to avoid dust plumes; spraying of vehicles before site departure to avoid dirtying roads), (c) waste control (e.g. netting/ covering of storage bins/areas; regular site inspection for litter), and (d) considered positioning of security lighting. A Construction Environmental Management Plan (CEMP) has been prepared and submitted with the LRD application. The CEMP includes measures – or a framework for the agreement of measures - such as those identified above. A Tree Protection Plan and Tree Appraisal and Arboricultural Assessment has been prepared by Charles McCorkell B.Sc. (Hons), MICFor, MArborA Chartered Arboriculturist. This includes measures for the protection of the site hedgerows and trees during construction.

Aspect	Construction Mitigation
Material Assets: Traffic & Transport	Mitigation during the construction phase focuses on controlling temporary traffic impacts, ensuring safe movement for vehicles and vulnerable road users, and preventing disruption to the adjacent school zone. All measures will be implemented through a detailed **Construction Traffic Management Plan (CTMP)** prepared by the Contractor and agreed with Wexford County Council prior to commencement. Key mitigation measures include: • **Preparation and implementation of an operational CTMP,** outlining haul routes, delivery schedules, signage, access arrangements, and traffic control measures. • **Designation of construction access points** to avoid conflict with school peak periods on Kilnahue Lane (particularly 08:00–09:00 and 15:00–16:00). • **Time-restricting HGV and delivery movements** outside of school drop-off/pick-up times to minimise risk and local congestion. • **Use of banksmen/marshals** at site entrances during busy periods to ensure safe interaction between construction vehicles, pedestrians, and cyclists. • **Temporary traffic management signage**, including advance warning signs, speed controls and localised barriers as required. • **Clear separation between construction areas and public pedestrian/cycle routes**, with fencing, hoarding and controlled crossing points as required. • **Wheel-wash and sediment control facilities** at exits to prevent mud and debris on the public road. • **Monitoring of road condition on the R725 and Kilnahue Lane**, with repair works undertaken by the Contractor if damage arises. • **Provision of safe temporary footpaths/cycleways** where existing public routes are affected by works, ensuring continuous safe access to nearby schools. • **Construction worker mobility planning**, including car-pooling, shuttle services or designated off-site parking to avoid overspill onto local roads. These measures ensure that construction impacts remain short-term, manageable and not significant, while maintaining the safe operation of the road network throughout the works.

Aspect	Construction Mitigation
Material Assets: Built Services	**Surface Water** The proposed surface water drainage network will be designed in accordance with the requirements and recommendations of Wexford County Council Taking-in-Charge policy, the Greater Dublin Strategic Drainage Study & Regional Code of Practice and CIRIA SuDS Guide. The measures incorporated into the design will: limit the discharge rate of stormwater runoff; provide attenuation volume for excess runoff and; provide treatment prior to discharge to the public network. **Wastewater** The proposed public wastewater network has been designed in accordance with the Uisce Eireann Code of Practice and all private drainage will be in accordance with the Building Regulations Technical Guidance Document Part H. Any required upgrades to the public drainage network are to be fully agreed with UE at connection application stage. This will ensure capacity in the internal & receiving networks and adequate performance of the network by preventing contamination and ensuring adequate flow velocities. **Water Supply** The water supply network has been designed in accordance with the Uisce Eireann Code of Practice and any upgrades to the existing network to provide capacity for the proposed development will be fully agreed with UE at connection application stage. **Electricity Supply** All proposed power cables within the development will be buried underground or internal within buildings and will be installed according to the relevant ESB Networks specifications. **Gas Supply** It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site. **Telecommunications** The proposed telecommunications infrastructure within the development will be buried underground or internal within buildings.

Aspect	Construction Mitigation
Material Assets: Waste	The following mitigation measures will be implemented during the excavation and construction phase of the proposed development: As previously stated, a project specific RWMP has been prepared in line with the requirements of the *EPA Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects'* (2021) and is included as Appendix 8.1. The mitigation measures outlined in the RWMP will be implemented in full and form part of mitigation strategy for the site. The mitigation measures presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction phases of the proposed development. • Prior to commencement, the appointed Contractor(s) will be required to refine / update the RWMP (Appendix 8.1) in agreement with WCC and in compliance with any planning conditions, or submit an addendum to the RWMP to WCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream. • The Contractor will implement the RWMP throughout the duration of the proposed excavation and construction phases and should treat the document as outlined in the guidance as a live document. A quantity of topsoil and sub soil will need to be excavated to facilitate the proposed development. The project design team have anticipated that c. 85,000 m^3 will be reused on site and c. 35,000 m^3 will need to be removed off site by a licensed contractor and will be taken for appropriate reuse, recycling or disposal. In the event that any excavated soil is found to be contaminated it will need to be removed off-site. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site. In addition, the following mitigation measures will be implemented: • Building materials will be chosen to 'design out waste'; • On-site segregation of waste materials will be carried out where possible to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated: · Concrete rubble (including ceramics, tiles and bricks); · Plasterboard; · Metals, and · Timber. • Left over materials (e.g. timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible; • All waste materials will be stored in skips or other suitable receptacles in designated areas of the site; Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);

Aspect	Construction Mitigation
	• A Resource Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works; • All construction staff will be provided with training regarding the waste management procedures; • All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal; • All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities; and All waste leaving the site will be recorded and copies of relevant documentation maintained.
Material Assets: Waste	Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Regulation 27 of the EC (Waste Directive) Regulations (2011-2020). EPA approval will be obtained prior to moving material as a by-product. These mitigation measures will ensure that the waste arising from the construction phase of the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997, the NWMPCE (2024). It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.
Land & Soils	• Control of Soil Excavation and Export from Site using the reduce, reuse and recycle approach with any excavation arisings to be reused on site where possible with the implementation of an appropriate earthworks handling protocol to be used. • The areas where the excavation of unconsolidated soil and subsoils is required within each building phase will be kept to a minimum and only extended as already stripped ground has been built over. Keeping the surface area of exposed soils in the construction areas to a minimum is the most effective way of preventing the release of dust in dry weather and suspended sediments in wet conditions. Potential effects are therefore avoided. • Limiting activities to designated work areas, thereby not allowing machinery or construction activity in proposed future green, open space and/or undeveloped areas will ensure that there is no dust or sediment runoff generated and no soil compaction will occur in those areas. • Designated roadways and internal access/construction routes will be clearly designated and fenced off in order to prevent uncontrolled tracking of construction vehicles across the site. This will help reduce the surface area of disturbed ground which will limit the potential for soil compaction, sediment runoff or dust generation. • Dust can be reduced by damping down of the works areas and especially along roads and access tracks where vehicle activity increases the generation of dust and fine particulates. Vehicle wheel washes, road sweeping and general housekeeping will ensure that the surrounding environment are free of nuisance dust and dirt on roads.

Aspect	Construction Mitigation
Land & Soils	• A designated contractor compounds, located in an area of level ground, will be established for the site. This compound will enable the safe storage of building materials, car parking, waste skips and will include a designated refueling station and wash down area. • Designated stockpile areas for the temporary storage of topsoil, subsoils and rock material required for site use will be established in areas where the ground level is relatively flat and well away (>10m) from steeper slopes and surface water drainage features. • Sand and gravel stockpiles will be kept to a minimum, stored on leave ground, away (>10m) from drainage features and will be covered as necessary. • Shallow berms, silt fences and/or cut-off trenches can be established around compound, work and stockpile areas which will prevent clean surface water runoff from flowing across these areas and will also help contain any impacted runoff flowing away from these parts of the site. • Any sediment laden runoff will be channeled through silt traps and ponds to allow, as far as possible, the settlement of suspended solids. The discharge of silty water over grass field areas will be considered if necessary. • Runoff from machine service and/or concrete mixing areas will not be allowed to discharge to ground or enter watercourses. Dedicated service and concrete wash down bunded areas will be established. • Any finished construction, landscaped and green areas will be finished and re-grassed as soon as possible to limit the potential for dust and surface water generation from those areas. • Activity of plant equipment and machinery operating in the construction area could result in small scale fuel spills to ground - mitigating against accidental leaks and spillages during the development will involve implementing good practices including regular plant maintenance, use of drip trays, adequate bunding for storage containers, refuelling in designated areas etc. • All fuel storage areas on the site are sufficiently bunded and any mobile bowsers used on site will be double skinned. Bunds sufficiently large to fully contain accidental spills will be provided around all tanks/storage areas containing harmful substances. • Spill kit materials will be maintained on site and site staff trained in the response to accidental spills and the use of clean up materials. • Good housekeeping (site clean-ups, use of disposal bins, etc.) around the site and proper use of storage and disposal facilities for lubricants fuels and oils will be used. • The construction contractor and design team will prepare a Construction Environmental Management Plan (CEMP) for the development works and this will be reviewed during the construction phase and be augmented with additional controls as and if required.

Aspect	Construction Mitigation
Water & Hydrology	• The phased and controlled nature of the sites development will reduce the foot print of open ground and active earth work areas as the site is being prepared for construction works. The areas where the excavation of unconsolidated soil and subsoils is required within each building area will be kept to a minimum and, as far as practicable, only extended as already stripped ground has been built over. Keeping the surface area of exposed soils in the construction areas to a minimum is the most effective way of preventing the release of dust in dry weather and suspended sediments during or after wet conditions. Potential dust and suspended solids runoff impacts are therefore reduced or avoided. • Limiting excavation works and machinery activity during and immediately after periods of heavy rainfall will also be incorporated into the earth works management to help limit sediment generation. • Control of Soil Excavation and Export from site using the Reduce, Reuse and Recycle approach with all excavation arisings to be reused on site where possible. The implementation of an appropriate earthworks handling protocol with adequate runoff control and dust suppression measures (e.g. damping down during dry periods), vehicle wheel washes, road sweeping and general housekeeping will ensure that the surrounding environment are not significantly impacted by the of nuisance dirt on roads which will reduce sediment runoff and dust generation. • There will be a requirement for a Construction Environmental Management Plan to oversee the development and earthwork operations will be carried out such that surfaces, shall be designed with adequate drainage, falls and profile to control run-off and prevent ponding and suspended sediments from going off site. Construction Phase Mitigations will include; • Construction methods used by the contractor are to be tailored to reduce, where possible, sediment runoff and leaks or spills to ground and to minimise effects on the local environment. • Designated roadways and internal access/construction routes will be clearly designated and fenced off in-order to prevent uncontrolled tracking of construction vehicles across the site. This will help reduce the surface area of disturbed ground which will limit the potential for soil compaction, sediment runoff or dust generation. Similarly existing hedge rows and site features which are to be maintained will be fenced off. Silt fencing to be used as necessary. • Any spoil or waste material generated from the construction process is to be temporarily stored on more level ground at an approved location on site, and segregated from surface water runoff, before being either re-used on site or removed off-site to a suitably licenced waste management facility. Silt fencing to be used as necessary. • All fill and aggregate for the project will be sourced from reputable suppliers. • Designation of bunded refuelling areas on the site (as required) as well as the provision of spill kits across the site will reduce the potential for fuel or oil spills occurring or their extent.

Aspect	Construction Mitigation
Water & Hydrology	• Fuel, oil and chemical storage should be sited within a bunded area. The bund must be able to take the volume of the largest container plus 10% and be located at least 10m away from drains, ditches, excavations and other locations where it may cause pollution. Bunds should be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. • All bowsers to carry a spill kit and operatives must have spill response training; and portable generators or similar fuel containing equipment will be placed on suitable drip trays and/or absorbent fuel 'nappies'. In the case of drummed fuel or other potentially polluting substances (i.e. cement) which may be used during construction the following measures will be adopted: • The use of a dedicated concrete truck washout areas and secure storage areas for the storage of concrete materials. All containers that contain potential polluting substances to be stored in dedicated internally bunded chemical storage cabinet units or inside concrete bunded areas. Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage. • All new infrastructure is to be installed and constructed to the relevant codes of practice and guidelines. • Potable water supply networks and waste water infrastructure are to be pressure tested by an approved method during the construction phase and prior to connection to the public networks, all in accordance with the requirements of Uisce Eireann. • Connections to the service providers are to be carried out to the approval and / or under the supervision of the Local Authority or relevant utility service provider, prior to commissioning. • All new sewers are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase. • All construction works will be completed in line with the recommendations of · the Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site 4th Ed (C741 - 2015) & Control of Water Pollution from Construction Site (C532 - 2001). · The SuDs Manual (C752) Construction Industry Research and Information Association (CIRIA), 2015. · UK Environmental Agency Guidance Series for Pollution Prevention (GPP), including GPP5: Works and maintenance in or near water (NRW, NIEA, SEPA), January 2017 and GPP22: Dealing with Spills, (NRW, NIEA, SEPA), October 2018 • Best practice environmental guidance will be incorporated into the projects Construction Environmental Management Plan (CEMP) for the development.

Aspect	Construction Mitigation
Biodiversity	In addition to mitigation measures outlined elsewhere in the EIAR, the following measures will be implemented to protect biodiversity: • A pre-construction survey for bats, amphibians, and terrestrial mammals will be carried out. This will include an inspection for resting and breeding places for both terrestrial mammals and bats. The ecologist will oversee site clearance and will be on site during the removal of scrub and hedgerows. Should resting or breeding places be found, a derogation licence will be acquired from NPWS and conditions followed prior to works commencing in the vicinity of the resting or breeding place. • An Ecological Clerk of Works (ECoW) will be appointed to oversee the construction phase and to oversee the implementation of all mitigation including compliance with Wildlife Acts and Water Pollution Acts and ensure that biodiversity in neighbouring areas including birds, bats and badgers will not be significantly impacted. • Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) in relation to the removal of trees and timing of nesting birds will be followed e.g. do not remove trees or shrubs during the nesting season (1st March to 31st August). If removal is required during this season the removal of woody material will be carried out under the supervision of an ecologist. If nesting birds are present, NPWS will be contacted and removal will be subject to conditions outlined by NPWS. • Should any mature broadleaved tree be scheduled for removal, it will first be surveyed for roosting potential and bat presence. If bats are found, an application for a derogation licence will be made to the National Parks and Wildlife Service. Such trees will be felled in the period late August to late October, or early November, in order to avoid disturbance of any roosting bats as per National Roads Authority guidelines (NRA 2006a and 2006b) and also to avoid the bird breeding seasons. Any tree felling will be completed by mid-November at the latest as bats roosting in trees are very vulnerable to disturbance during their hibernation period (November – April). Trees may be removed at other times but the likelihood of encountering bats during works will be higher. Trees with ivy-cover, once felled, will be left intact onsite for 24 hours prior to disposal to allow any bats beneath foliage to escape overnight. • Where possible, treelines and mature trees that are located immediately adjacent to planned construction areas, or are not directly impacted, will be avoided and retained intact. Retained trees will be protected from root damage by machinery by an exclusion zone of at least 5 metres or equivalent to canopy height. Such protected trees will be fenced off by adequate temporary fencing prior to other works commencing. • Lighting during construction will be carried out in consultation with the project ecologist and treelines, boundary hedgerows or wooded areas will not be directly lit.

Aspect	Construction Mitigation
Biodiversity	• In general, artificial light creates a barrier to bats so lighting will be avoided where possible. Where lighting is required, directional lighting (i.e. lighting which only shines on work areas and not nearby countryside) will be used to prevent overspill during construction. This can be achieved by bat-friendly luminaire design and the implementation of accessories such as hoods, cowls, louvers and shields to direct the light to the intended area only. • The bat roost on site will be removed, subject to licence approval, using the methodology outlined below: · Felling of the bat roost tree will take place from November to February when bats are in hibernation. · A pre felling inspection of the trees will be carried out by a bat specialist. If no bats are present during the inspection the tree will be felled in sections and lowered to the ground, where the sections will remain for 24 hours. If a bat is, or bats are, found a specialist, licenced in manual handling of bats. will oversee the removal of the bat from the tree and the safe relocation of the bat to a suitable site within the site outline. This may include the placing or the bat in a cardboard box for release at night or placing the bat in a safe suitable temporary roosting location, depending on weather conditions. • Any tree felling will be undertaken at an appropriate time of year, as deemed by the project ecologist. • Pre-Construction inspection for bats in all buildings to be demolished and emergent survey will be carried out by a suitably qualified ecologists/bat worker, prior to the demolition of buildings. • All trees with bat roosting potential that are scheduled for felling will undergo a pre-felling inspection by a suitably qualified ecologist or bat worker, using appropriate survey techniques such as endoscope inspection, thermal imaging, and, where suitable, emergence surveys. • Lighting during construction should only be used during working hours with no floodlighting of the site. • A post construction bat survey and light spill assessment will be carried out to ensure compliance with the lighting plan. In addition, the following mitigation will be implemented to protect the local environment and downstream aquatic biodiversity: • Construction methods used by the contractor will be tailored to reduce, where possible, sediment runoff and leaks or spills to ground and to minimise effects on the local environment. • Designated roadways and internal access/construction routes will be clearly designated and fenced off in-order to prevent uncontrolled tracking of construction vehicles across the site. This will help reduce the surface area of disturbed ground which will limit the potential for soil compaction, sediment runoff or dust generation. Similarly, existing hedgerows and site features which are to be maintained will be fenced off. Silt fencing to be used as necessary.

Aspect	Construction Mitigation
Biodiversity	• Trucks leaving the site with excavated material will be covered so as to avoid dust emissions along the haulage routes. • Speed limits on site (15km/h) to reduce dust generation and mobilisation. • Any spoil or waste material generated from the construction process will be temporarily stored on more level ground at an approved location on site, and segregated from surface water runoff, before being either re-used on site or removed off-site to a suitably licenced waste management facility. Silt fencing to be used as necessary. All fill and aggregate for the project will be sourced from reputable suppliers. • Designation of bunded refuelling areas on the site (as required) as well as the provision of spill kits across the site will reduce the potential for fuel or oil spills occurring or their extent. • Fuel, oil and chemical storage will be sited within a bunded area. The bund must be able to take the volume of the largest container plus 10% and be located at least 10m away from drains, ditches, excavations and other locations where it may cause pollution. Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. • All bowsers to carry a spill kit and operatives must have spill response training; and portable generators or similar fuel containing equipment will be placed on suitable drip trays and/or absorbent fuel 'nappies'. In the case of drummed fuel or other potentially polluting substances (i.e. cement) which may be used during construction the following measures will be adopted: • The use of a dedicated concrete truck washout areas and secure storage areas for the storage of concrete materials. All containers that contain potential polluting substances to be stored in dedicated internally bunded chemical storage cabinet units or inside concrete bunded areas. Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage. • All new infrastructure is to be installed and constructed to the relevant codes of practice and guidelines. • Potable water supply networks and wastewater infrastructure are to be pressure tested by an approved method during the construction phase and prior to connection to the public networks, all in accordance with the requirements of Uisce Eireann. • Connections to the service providers are to be carried out to the approval and / or under the supervision of the Local Authority or relevant utility service provider, prior to commissioning. • All new sewers are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase. • Best practice environmental guidance will be incorporated into the projects Construction Environmental Management Plan (CEMP) for the development. • Noise monitoring will be undertaken to identify if noise levels are in excess of permitted levels • Construction equipment will be maintained in good condition and priority is given to the selection of equipment that does not emit high noise levels • Noise surveys will be carried out by appropriate personnel at the relevant stages throughout the project.

Aspect	Construction Mitigation
Noise & Vibration	With regard to construction activities, best practice operational and control measures for noise and vibration from construction sites are found within BS 5228 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2. BS 5228 includes guidance on several aspects of construction site practices, including, but not limited to: - • Selection of quiet plant. • Control of noise sources. • Screening (boundary, and or localised plant screening). • Hours of work. • Liaison with the public. • Monitoring. Detailed comment is offered on these items in the following paragraphs. Noise control measures that will be considered include the selection of quiet plant, enclosures and screens around noise sources, limiting the hours of work and noise monitoring. **Selection of Quiet Plant** This practice is recommended in relation to sites with static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures where possible. The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item should be selected wherever possible. **Noise Control at Source** If replacing a noisy item of plant is not a viable or practical option, consideration should be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials between the surfaces in contact. BS 5228 states that "as far as reasonably practicable sources of significant noise should be enclosed". In applying this guidance, constraints such as mobility, ventilation, access and safety must be taken into account. Items suitable for enclosure include pumps and generators. BS 5228 makes a number of recommendations in relation to "use and siting of equipment". These are all directly relevant and hence are reproduced below. These recommendations will be adopted on site. "Plant should always be used in accordance with manufacturers' instructions. Care should be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading should also be carried out away from such areas.

Aspect	Construction Mitigation
Noise & Vibration	Machines such as cranes that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. Machines should not be left running unnecessarily, as this can be noisy and waste energy. Plant known to emit noise strongly in one direction should, when possible, be orientated so that the noise is directed away from noise-sensitive areas. Attendant operators of the plant can also benefit from this acoustical phenomenon by sheltering, when possible, in the area with reduced noise levels. Acoustic covers to engines should be kept closed when the engines are in use and idling. The use of compressors that have effective acoustic enclosures and are designed to operate when their access panels are closed is recommended.* Materials should be lowered whenever practicable and should not be dropped. The surfaces on to which the materials are being moved could be covered by resilient material." Other forms of noise control at source relevant to the development works are set out below: - For mobile plant items such as cranes, dump trucks, excavators and loaders, the installation of an acoustic exhaust and or maintaining enclosure panels closed during operation can reduce noise levels by up to 10 dB. Mobile plant should be switched off when not in use and not left idling. For percussive tools such as pneumatic concrete breakers and tools a number of noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensure any leaks in the air lines are sealed. Erect localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries. For concrete mixers, control measures should be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum. For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials. Demountable enclosures can also be used to screen operatives using hand tools/ breakers and will be moved around site as necessary. All items of plant should 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. Screening Screening is typically an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to all other forms of noise control. The effectiveness of a noise screen will depend on the height and length of the screen and its position relative to both the source and receiver. Screening may be a useful form of noise control when works are taking place at basement and ground level to screen noise levels at ground floor adjacent buildings.

Aspect	Construction Mitigation
Noise & Vibration	In addition, careful planning of the site layout should also be considered. The placement of site buildings such as offices and stores and in some instances materials such as aggregate can provide a degree of noise screening if placed between the source and the receiver. The use of localised mobile hoarding screens and / or acoustic quilts to items of plant with the potential to generate high levels of noise are an effective noise control measure. These options should be considered when percussive works are taking place in close proximity to the nearest sensitive perimeter buildings. Liaison with the Public A designated Noise Liaison Office should be appointed for the duration of the construction works. All noise complaints should be logged and followed up in a prompt fashion by the liaison officer. In addition, prior to particularly noisy construction activity, e.g. excavation, the liaison officer should inform the nearest noise sensitive locations of the time and expected duration of the noisy works. Hours of Work Construction works will be undertaken within the times below, taken from the Section 5.7 of the Draft Construction Management Plan: - Monday to Friday: 08:00 to 19:00hrs Saturday: 08:00 to 14:00hrs Sunday and Public Holidays: No noisy work shall take place on site.

Aspect	Construction Mitigation
Air Quality	The proposed development has been assessed as having a medium risk of dust soiling impacts and a low risk of dust related human health impacts during the construction phase as a result of earthworks, construction and trackout activities (see Section 13.6.1). Therefore, the following dust mitigation measures shall be implemented during the construction phase of the proposed development. These measures are appropriate for sites with a medium risk of dust impacts and aim to ensure that no significant nuisance occurs at nearby sensitive receptors. The mitigation measures draw on best practice guidance from Ireland (DCC (2018), DLRCC (2022)), the UK (IAQM (2024), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). These measures will be incorporated into the Construction Environmental Management Plan (CEMP) prepared for the site. The measures are divided into different categories for different activities (see Table 13-18). Table 13-**18 Site Specific Mitigation Measures** Mitigation Measure Communications Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager. Display the head or regional office contact information Develop and implement a Dust Management Plan (DMP), which will include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and will include as a minimum the highly recommended measures in the IAQM Guidance. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real-time PM_{10} continuous monitoring and/or visual inspections. Site Management Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. Make the complaints log available to the local authority when asked. Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book. Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

Aspect	Construction Mitigation
Air Quality	**Monitoring** Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This will include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary. Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction. **Preparing and Maintaining the Site** Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period Avoid site runoff of water or mud. Keep site fencing, barriers and scaffolding clean using wet methods. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below. Cover, seed or fence stockpiles to prevent wind whipping. Operating vehicle/machinery and sustainable travel Ensure all vehicles switch off engines when stationary – no idling vehicles. Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable. Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate) Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)

Aspect	Construction Mitigation
Air Quality	**Operations** Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems Ensure an adequate water supply on the site for effective dust/particulate matter suppression/ mitigation, using non-potable water where possible and appropriate Use enclosed chutes and conveyors and covered skips. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. **Waste management** Bonfires and burning of waste materials are legally prohibited. **Measures Specific to Earthworks** Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as is practicable. Only remove the cover in small areas during work and not all at once. **Measures Specific to Construction** Avoid scabbling (roughening of concrete surfaces) if possible. Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust. **Measures Specific to Trackout** Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use. Avoid dry sweeping of large areas. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. Record all inspections of haul routes and any subsequent action in a site log book. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

Aspect	Construction Mitigation
Climate	Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. The following measures to reduce the embodied carbon of the construction works are: Appointing a suitably competent contractor who will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled. Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods. Ensure all plant and machinery are well maintained and inspected regularly. Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. Sourcing materials locally where possible to reduce transport related GHG emissions. Material choices and quantities will be reviewed during detailed design, to identify and implement any lower embodied carbon options, where feasible. For example a 30% minimum clinker replacement in cement may be utilised in line with the requirements for public bodies. The project developer, Glenveagh Properties, has committed to achieving Net Zero by 2050 across its whole business. Therefore, the proposed development will be built with carbon reduction and sustainability in mind and will include reductions of embodied emissions during the construction phase. Glenveagh Properties have published a Net Zero Transition Plan and Annual Reports which detail a commitment to achieving Net Zero by 2050. The above listed measures are supported by Glenveagh Properties PLC's Net Zero Transition Plan 2023, published in March 2023, which identifies the sources of Glenveagh Properties PLC's emissions and proposed measures to reduce these. A commitment to achieve a 55% reduction in Scope 3 (construction methods) emissions intensity (tCO_2e per 100 m^2 of complete floor area) by 2031 (using 2021 as the baseline year) will involve supplier engagement to make informed procurement decisions, engaging with subcontractors to support their transition to less carbon intensive fuels (diesel and gas oil is currently the norm) and investing in innovation of designing and building homes to reduce their associated embodied carbon. A reduction target of 46.2% by 2031 is also set in the plan for Scope 1 and 2 emissions (company operations). All targets have been validated by the Science Based Targets initiative (SBTi). The Science Based Targets initiative (SBTi) is a corporate climate action organisation, incorporated as a charity, which develops standards, tools and guidance enabling companies to set GHG emissions reductions targets in line with net-zero by 2050 at the latest. Science-based targets show companies and financial institutions how much and how quickly they need to reduce their GHG emissions to prevent the worst effects of climate change (SBTi, 2024a). Glenveagh Properties PLC is one of the over 4,000 companies and financial institutions who have had their emission reduction targets validated by the SBTi (Glenveagh's targets can be searched in the SBTi's target dashboard (SBTi, 2024b)).

Aspect	Construction Mitigation
Climate	Glenveagh Properties PLC's Full Year 2024 Results, published in March 2025, identified that Scope 3 emissions are 7% below the 2021 baseline, measured on an intensity basis (tCO_2e per 100m^2). This is primarily due to the focus on the energy efficiency of the residential units. Scope 1 and 2 emissions decreased by 47% compared to 2021 baseline, which can be attributed to the first full year HVO (hydrotreated vegetable oil) was used across all sites as a replacement to diesel. In terms of impact on the proposed development due to climate change, during construction the Contractor will be required to mitigate against the effects of extreme rainfall/flooding through site risk assessments and method statements. The Contractor will also be required to mitigate against the effects of extreme wind/storms, temperature extremes through site risk assessments and method statements. All materials used during construction will be accompanied by certified datasheets which will set out the limiting operating temperatures. Temperatures can affect the performance of some materials, and this will require consideration during construction. During construction, the Contractor will be required to mitigate against the effects of fog, lighting and hail through site risk assessments and method statements. Throughout detailed design and construction phase, guidance documents to inform with design detail decisions shall be reviewed, e.g. the EU Commission Technical Guidance on Adapting Buildings to Climate Change (European Commission, 2021a), LETI emergency design guide (LETI, 2020), and the latest IPCC report.

Aspect	Construction Mitigation
Cultural Heritage	The ground excavation works required to facilitate the upgrade of existing wastewater pipes within the Zone of Archaeological Potential around the historic town of Gorey (WX007-033----) will be monitored by a suitably qualified archaeologist, under a licence issued by the National Monuments Service. This will allow for any previously unrecorded archaeological features or sites to be identified and, following consultation with NMS, mitigated measures implemented. A programme of geophysical survey followed by targeted archaeological test trenching within the development lands was carried out for a previous planning application within the proposed development site. This identified the presence of sub-surface remains of ten isolated potential archaeological features in five of the excavated trenches (see **Figure 15.3** and **Appendix 15.2** – Excavation Licence no. 18E0522). Following a grant of planning, and in advance of the construction phase, a suitably qualified archaeologist will be appointed to prepare and submit a licence application to the National Monuments to preserve by record (through full archaeological excavation) the full extent of the archaeological sites/features located within the boundary of the proposed development. Additionally, as the potential exists for the presence of previously unknown archaeological features within the remainder of the proposed development site, all ground works/clearance of topsoil should be archaeologically monitored by a suitably qualified archaeologist. All archaeological excavation works to preserve by record identified archaeological remains will be carried out under licence issued by the National Monuments Service and in advance of construction works at their locations. All required archaeological excavation works, including post-excavation analyses and reporting, will be carried out in accordance with the archaeological method statement submitted to the National Monuments Service and the National Museum of Ireland as part of the licence application. An archive containing stratigraphic records (including all associated digital and hard copy records and reports) will be submitted to the National Monuments Service upon completion of archaeological works. Any archaeological objects and relevant environmental material retrieved during archaeological excavation works, as well as all relevant reports, including post-excavation analysis reporting, will be provided to the National Museum of Ireland upon completion of all archaeological works. The results of all excavation works will also be published in the Database of Irish Excavation Reports and dependent on the nature of the results, the potential for additional publication in appropriate periodicals/journals will also be appraised. The vernacular structures within the northeast corner of the development site are to be retained within the development. An updated record of these buildings will be compiled in advance of any to be carried out to them.

Table 18-3 Operational Mitigation

Aspect	Operational Mitigation
Population & Human Health	Measures to avoid potential negative impacts on population and human health have been fully considered in the design of the project and are integrated into the final layout and design. Compliance with the layout and design will be a condition of the permitted development. As such no mitigation measures are required.
Landscape & Visual	The design of the proposed development incorporates all necessary mitigation measures for operational phase impacts. No further operational phase mitigation measures are required.

Material Assets: Traffic & Transport	Operational phase mitigation focuses on minimising private car dependency, promoting active and sustainable travel, and ensuring the safe and efficient operation of the surrounding network. The development incorporates a balanced car parking strategy consistent with national and local policy, providing sufficient parking while discouraging unnecessary car ownership. High-quality pedestrian and cycle facilities—including a 4.0 m shared pedestrian/cycle route along Kilnahue Lane, extension of the R725 footpath, and a raised zebra crossing linking directly to the adjacent schools—will support safe, direct and attractive active travel. Car-share facilities, extensive EV charging infrastructure and secure cycle storage will further reduce reliance on private vehicles. These combined measures ensure the operational phase of the development will generate minimal transport impacts while maximising sustainable mobility outcomes.
	
	Key Operational Mitigation Measures:
	• Balanced / reduced car-parking provision consistent with Development Plan standards to discourage car dependency. Insert Project Name EIAR – MMM YYYY | 6-16
	• Extensive secure cycle parking (provision aligned with or exceeding Development Plan and DMURS expectations).
	• High-quality pedestrian and cycle connections, including:
	  ◦ 4.0 m shared pedestrian/cycle route on Kilnahue Lane,
	  ◦ Extension of the R725 northern footpath to the site,
	  ◦ New controlled pedestrian crossing on Kilnahue Lane providing direct access to nearby schools.
	• Integrated car-share and electric vehicle charging spaces (20% active, remainder ducted).

Aspect	Operational Mitigation
Material Assets: Built Services	**Surface Water** The proposed surface water drainage network will be designed in accordance with the requirements and recommendations of Wexford County Council Taking-in-Charge policy, the Greater Dublin Strategic Drainage Study & Regional Code of Practice and CIRIA SuDS Guide. The measures incorporated into the design will: • limit the discharge rate of stormwater runoff; • provide attenuation volume for excess runoff and; • provide treatment prior to discharge to the public network thereby minimising impact. **Wastewater** The proposed public wastewater network has been designed in accordance with the Uisce Eireann Code of Practice and all private drainage will be in accordance with the Building Regulations Technical Guidance Document Part H. This, combined with a regular maintenance regime by UE, will ensure the network continues to operate as designed. **Water Supply** All water pipework will be designed and constructed in accordance with the Uisce Eireann Code of Practice and Standard Details. This, combined with a regular maintenance regime by UE, will ensure the network continues to operate as designed. **Electricity Supply** The proposed electricity supply system shall be commissioned and subject to a regular operational inspection and maintenance regime, in accordance with the Utility providers procedures, to ensure the system keeps operating within the design specifications. **Gas Supply** It is not proposed to supply gas within the proposed development and there is no gas in the vicinity of the site. **Telecommunications** The proposed telecommunications system shall be commissioned and subject to a regular operational inspection and maintenance regime, in accordance with the Utility providers procedures, to ensure the system keeps operating within the design specifications. The following mitigation measures will be implemented during the operational phase of the proposed development: All waste materials will be segregated into appropriate categories and will be temporarily stored in appropriate bins, skips or other suitable receptacles in a designated, easily accessible areas of the site.

Aspect	Operational Mitigation
Material Assets: Waste	The Staff / Facilities Management, creche tenants and residents of the Site during the operational phase will be responsible for ensuring – allocating personnel and resources, as needed – for the authoring and implementation of an Operational Waste Management Strategy, ensuring a high level of recycling, reuse and recovery at the site of the proposed development. The households with individual waste stores will be required to manage their own waste. • The Staff/ Facilities Management will regularly audit the onsite waste storage facilities and infrastructure and maintain a full paper trail of waste documentation for all waste movements from the site. The following mitigation measures will be implemented: • The Residents/ Staff / Facilities Management will ensure on-Site segregation of all waste materials into appropriate categories, including (but not limited to): · Organic waste; · Dry Mixed Recyclables; · Mixed Non-Recyclable Waste; · Glass; · Cardboard; · Plastic; · Waste electrical and electronic equipment (WEEE) including computers, printers and other ICT equipment; · Waste Electrical and Electronic Equipment · Cooking oil; · Cleaning chemicals (paints, adhesives, resins, detergents, etc.); · Furniture (and from time-to-time other bulky waste); and · Abandoned bicycles • The Staff / Facilities Management will ensure that all waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials; The Staff / Facilities Management will ensure that all waste collected from the site of the proposed development will be reused, recycled or recovered, where possible, with the exception of those waste streams where appropriate facilities are currently not available; and

Aspect	Operational Mitigation
Material Assets: Waste	The Staff / Facilities Management will ensure that all waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities. These mitigation measures will ensure the waste arising from the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations, the Litter Pollution Act 1997, the NWMPCE (2024) and the WCC waste bye-laws. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.
Land & Soils	Apart from the monitoring and maintenance of the retaining wall structures there are no operational phase mitigation measures recommended for land and soil/geology elements as there will be no operational phase activities once the site area is fully developed.
Water & Hydrology	Mitigation measures proposed during the operation phase include routine maintenance of the site services; regular maintenance of the development's road and retaining wall infrastructure, regular maintenance of landscaped areas, bio-retention, percolation and attenuation areas
Biodiversity	The biodiversity value of the site would be expected to improve as the landscaping matures. The proposed development has a sustainable drainage strategy and detailed landscape strategy and mitigation during operation will be carried out as outlined elsewhere in the EIAR. The following operation mitigation measures will be carried out: • Post construction an inspection of drainage connections to the watercourse network will be carried out by the project ecologist. • 20 bird boxes to be placed on site in consultation with project ecologist. • A post construction bat survey will be carried out. • A post construction light spill assessment will be carried out to ensure compliance with the lighting plan. • A number of bat boxes will be placed in dark vegetated areas to mitigate the loss of the bat roost. The installation and number put in place will be determined by the project ecologist as deemed appropriate. • Landscaping has been designed to include bat friendly plants including trees and native hedgerows to attract insects. • Lighting will comply with Bat Lighting Guidelines and is set to 3000K.
Noise & Vibration	No operational mitigation is required.
Air Quality	No site-specific mitigation measures are proposed for the operational phase as impacts are predicted to be not significant.
Climate	The proposed development has been designed to reduce the impact on climate as a result of energy usage during operation. These measures are outlined in Section 14.8.1 above as incorporated design mitigation. No further operational phase mitigation is proposed.
Cultural Heritage	All of the mitigation measures identified in **Section 15.4.1** will be enacted and completed prior to and during the construction phase and, therefore, no mitigation measures during the operational phase of the proposed development are predicted.