ENVIRONMENTAL IMPACT ASSESSMENT REPORT

VOLUME I NON-TECHNICAL SUMMARY

PROPOSED RESIDENTIAL DEVELOPMENT

AT

Newcastle South Phase 2B LRD, Newcastle, Co. Dublin

Prepared by

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LIST OF ABBREVIATIONS

AA Appropriate Assessment

ABP An Bord Pleanála

CDP County Development Plan

CEMP Construction Environmental Management Plan

CA Competent Authority (South Dublin County Council/An Bord Pleanála)

CSO Central Statistics Office

DAHG Department of Arts, Heritage and the Gealtacht

DCENR Department of Communications, Energy and Natural Resources

DEHLG Department of Housing, Planning and Local Government

EIA Environmental Impact Assessment

EIAR Environmental Impact Assessment Report

EMP Environmental Management Plan

EPA Environmental Protection Agency

ESRI Economic and Social Research Institute

GDP Gross Domestic Product

GSI Geology Survey Ireland

IAA Irish Aviation Association

IEEM Institute of Ecology and Environmental Management

IFI Inland Fisheries Ireland

LAP Local Area Plan

LRD Large Scale Residential Development

NHA/pNHA Natural Heritage Area / proposed Natural Heritage Area

NIAH National Archive of Architectural Heritage

NIS Natura Impact Statement

NPWS National Parks and Wildlife Service

NRA National Roads Authority

NPF National Planning Framework

OPW Office of Public Works

RMP Record of Monuments and Places

RPS Record of Protected Structures

SAC Special Area of Conservation

SDZ Strategic Development Zone

SMR Sites and Monuments Record

SDCC South Dublin County Council

SPA Special Protection Area

SUDS Sustainable Drainage System

TMP Traffic Management Plan

WFD Water Framework Directive

GLOSSARY OF TERMS[1]

Alternatives *A description of other options that may have been considered during the conception of a project; these include alternative locations, alternative designs and alternative processes.*

Baseline Scenario *The current state of environmental characteristics – including any evident trends in its status.*

Competent Authority (CA) *The term 'competent authority' means the Minister or public authority to which an EIAR is required to be submitted, i.e. the authority charged with examining an EIAR with a view to issuing a consent to develop or operate.*

Development *A project involving new works [including alteration and/or demolition] or altered patterns of activity.*

'Do-nothing' Scenario *The situation or environment which would exist if a proposed, development, project or process were not carried out. This scenario needs to take account of the continuation or change of current management regimes, as well as the continuation or change of trends currently evident in the environment.*

Effect / Impact *A change resulting from the implementation of a project.*

Environmental Impact Assessment – EIA *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, and the subsequent decision as to whether the project should be permitted to proceed, encompassing public response to that decision.*

Environmental Impact Assessment Report *– EIAR A report or statement of the effects, if any, that the proposed project, if carried out, would have on the environment. EPA The Environmental Protection Agency.*

Impact / Effect *A change resulting from the implementation of a project*

Impact Avoidance *The modification of project decisions (about site location or design, for example) having regard to predictions about potentially significant environmental effects.*

Infrastructure *The basic structure, framework or system which supports the operation of a project, for example roads and sewers, which are necessary to support development projects.*

Land Use *The human activities which take place within a given area of space.*

Likely Effects (or Likely Impacts) *The effects that are specifically predicted to take place – based on an understanding of the interaction of the proposed project and the receiving environment. (See also Potential Effects and Residual Effects.)*

Methodology *The specific approach or techniques used to analyse impacts or describe environments.*

Mitigation Measures *Measures designed to avoid, prevent or reduce impacts. These measures can mitigate impacts: \ by Avoidance When no impact is caused (often through consideration of alternatives). \ by Prevention When a potential impact is prevented by a measure to avoid the possibility of the impact occurring. \ by Reduction When an impact is lessened.*

Monitoring *The observation, measurement and evaluation of environmental data to follow changes over a period of time, to assess the efficiency of control measures and to record any unforseen effects in order to be able to undertake appropriate remedial action. This is typically a repetitive and continued process carried out during construction, operation or decommissioning of a project.*

Pathway *The route by which an effect is conveyed between a source and a receptor.*

[1] Selected – From Guidelines on the information to be contained in Environmental Impact Assessment Reports – EPA, May 2022

Planning Application Report *Documentation that accompanies the planning application which describes the conformity of the proposal with relevant legislation and planning matters – such as the County, City or Local Area Plans – and sectoral policies, as well as social and economic activity.*

Pollution *Any release to the environment which has a subsequent adverse effect on the environment or man.*

Potential Effect/ Impact *The effect / impact that would occur without mitigation.*

Processes *The activities which take place within a project.*

Project *For the purposes of the Guidelines, the term project is used to encompass all of the various forms of development, works and activity which are subject to EIA requirements, as set out in the relevant legislation and as understood by the Directive.*

Sensitivity *The potential of a receptor to be significantly affected. Significance (of impact) The importance of the outcome of the impact (or the consequence of change) for the receiving environment. Source The activity or place from which an effect originates.*

1.0 INTRODUCTION AND METHODOLOGY

John Spain Associates, Planning & Development Consultants, have been commissioned by Cairn Homes Properties Ltd., to prepare an Environmental Impact Assessment Report (EIAR) for the construction of 131 no. dwellings and associated ancillary infrastructure on lands of c. 10.70 hectares. This chapter of the EIAR was prepared by Rory Kunz, BA (MOD), MScERM, MAT&CP, Dip EIA Mgmt., Executive Director with John Spain Associates.

This Volume of the EIAR was prepared by Rory Kunz, BA (MOD), MScERM, MAT&CP, Dip EIA Mgmt., Executive Director with John Spain Associates. Rory Kunz has a Masters in Environmental Resource Management and a Diploma in EIA Management (both from UCD) as well as a Masters in Town and Country Planning. In addition, Rory is a corporate member of the of the Irish Planning Institute and has over 20 years of experience of Environmental Impact Assessment and urban development.

Rory has acted as lead planning consultant on a range of high-quality complex planning applications across the country over an extended period. Rory has wide-ranging experience in the management and review of Environmental Impact Assessment Reports (EIAR) for major residential and mixed use development and redevelopment projects.

This '*Non-Technical Summary'* (NTS) relates to Volume I an EIAR prepared in connection with a Large Scale Residential Development (LRD) comprising the construction of 131 no. dwellings comprising 119 no. houses and 12 no. duplex apartments along with open space, new signalised junction and upgrades on the Athgoe Road (including surface water pipe) and all ancillary works.

The subject site is located to the west of Graydon, a residential development under construction by Cairn, and to the west by the Athgoe Road, to the north by St. Finian's Way and to the south by undeveloped and agricultural lands and along Athgoe Road and Hazelhatch Road (R405) [to Ground Investigations Ireland premises] to facilitate road upgrade and surface water upgrade works], on an overall site of c. 10.70 hectares. The proposal comprises the second phase (phase 2B) of a 2-phase development (first phase [phase 2A] under planning reg. ref. SD23A/0136 will comprise 48 no. duplex dwellings and phase 2 of Taohbh Chnoic public park of c. 1.74 hectares of open space, along with car parking and ancillary infrastructure) to result in an overall Phase 2 development of 179 no. dwellings (consisting of 119 no. 2 storey houses and 60 no. apartments/duplex apartments in 5 no. 3 storey duplex buildings, and ancillary infrastructure).

The central purpose of the Environmental Impact Assessment Report (EIAR) is to undertake an appraisal of the likely and significant impacts on the environment of the proposed development in parallel with the project design process, and to document this process in the EIAR. This is then submitted to the competent/ consent authority to enable it assess the likely significant effects of the project on the environment.

A full description of the proposed development lands together with a description of the proposed development is provided in Chapter 2 of this EIAR document and a summary is provided below in Section 2.

1.1 DEFINITION OF EIA AND EIAR

The EIAR is prepared by the developer and is submitted to a Competent Authority (CA) – in this case, South Dublin County Council (SDCC) as part of the LRD consent process.

The CA uses the information provided to assess the environmental effects of the project and, in the context of other considerations, to inform its decision as to whether consent should be granted. The information in the EIAR is also used by other parties to evaluate the acceptability of the project and its effects and to inform their submissions to the CA.

The EIAR provides a systematic analysis and evaluation of the potentially significant effects of a proposed project on the receiving environment. The amended EIA Directive prescribes a range of environmental

factors which are used to organise descriptions of the environment and these factors must be addressed in the EIAR.

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

Where significant and likely environmental effects are identified that are unacceptable, the EIA process aims to quantify and minimise the impact specified development projects have on the environment through appropriate mitigation measures. The preparation of an EIAR requires site-specific considerations and the preparation of baseline assessment against which the likely impacts of a proposed development can be assessed by way of a concise, standardised and systematic methodology.

1.2 EIA PROCESS OVERVIEW

The main purpose of the EIA process is to identify the likely significant impacts on the human environment, the natural environment and on cultural heritage associated with the proposed development, and to determine how to eliminate or minimise these impacts. The EIAR summarises the environmental information collected during the impact assessment of the proposed development.
Several interacting steps typify the early stages of the EIA process and include:

- Screening;
- Scoping;
- Assessing Alternatives; and
- Assessing and Evaluating.

Screening: Screening is the term used to describe the process for determining whether a proposed development requires an EIA.

Scoping: This stage firstly identifies the extent of the proposed development and associated site, which will be assessed as part of the EIA process, and secondly, it identifies the environmental issues likely to be important during the course of completing the EIA process through consultation with statutory and non-statutory stakeholders. Scoping request letters were issued to a range of stakeholders at the commencement of this EIA process and the responses received have been considered as part of the compilation of the EIAR.

Assessing Alternatives: This stage outlines the possible alternative approaches to the proposed development. Consideration of alternative sites and layouts within the final chosen site are set out in Chapter 2 of this EIAR.

Assessing and Evaluating: The central steps of the EIA process include baseline assessment (desk study and field surveys) to determine the status of the existing environment, impact prediction and evaluation, and determining appropriate mitigation measures where necessary. This stage of the EIAR is presented in Chapters 3 to 15 of Volume II of the EIAR and summarised below in section 3 of this NTS.

1.3 SCREENING – REQUIREMENT FOR EIA

Screening is the term used to describe the process for determining whether a proposed development requires an EIA by reference to mandatory legislative threshold requirements or by reference to the type and scale of the proposed development and the significance or the environmental sensitivity of the receiving baseline environment.

Projects needing environmental impact assessment are listed in Schedule 5 of the Planning and Development Regulations 2001 (as amended). Schedule 5 (Part 2) of the Planning & Development Regulations 2001 (as amended) set mandatory thresholds for each project class.

Paragraph 10((b)(i) refers to Infrastructure projects comprising the construction of more than 500 dwelling units. The proposed development which comprises 131 no. dwellings is below the threshold.

Paragraph 10(b)(iv) refers to '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.' The site is c. 10.70 hectares which includes surface water upgrades along the Hazelhatch Road and is therefore considered to require an EIA.

The EIAR provides information on the receiving environment and assesses the likely significant effects of the project and proposes mitigation measures to avoid or reduce these effects. The function of the EIAR is to provide information to allow the competent authority to conduct the Environmental Impact Assessment (EIA) of the proposed development.

1.4 SCOPING

The Environmental Protection Agency (EPA) EIA Guidelines May 2022 state that '*scoping*' is a process of deciding what information should be contained in an EIAR and what methods should be used to gather and assess that information.

The design of the proposed development has taken into account the relevant commentary contained in the South Dublin County Council Water Services report and the Road Department Reports as well as SDCCs Opinion, which are contained in Appendix B2 Volume III of the EIAR. In addition, the EIAR team has extensive professional experience on undertaking similar EIAR projects on similar sites (e.g. Graydon to the east by Cairn).

The following topics/issues have been reviewed and addressed in the context of the proposed development:

- Introduction and Methodology,
- Project Description and Alternatives Examined,
- Population and Human Health,
- Biodiversity,
- Land and Soils,
- Water,
- Air Quality and Climate,
- Noise and Vibration,
- Landscape and Visual Impact,
- Material Assets - Traffic,
- Material Assets - Waste
- Material Assets - Utilities,
- Cultural Heritage - Archaeology, ,
- Cultural Heritage Architectural Heritage,
- Risk Management for Major Accidents and or Disasters,
- Interactions of the Foregoing and Cumulative Impacts,
- Summary of EIA Mitigation and Monitoring Measures,
- Non-Technical Summary.

In addition to the above a series of standalone reports have been prepared to accompany the application and which have helped inform the above chapters of the EIAR where relevant. Chapter 2 of Volume II of the EIAR provides details of the envisaged phased delivery of development on the lands.

A series of meetings have taken place with the technical staff of South Dublin County Council.

1.5 INFORMATION TO BE CONTAINED IN AN EIAR

The content of this Environmental Impact Assessment Report has been prepared in accordance with the provisions of Article 5(1) and Annex IV of Directive 2014/52/EU.

Article 94 and Schedule 6 of the Planning and Development Regulations 2001, as amended, transpose into Irish law the EIA Directive requirements in relation to information to be contained in an EIAR.

The likely significant effects in this EIAR are, unless otherwise indicated in a particular Chapter, described using the terminology in Table 3.4 in the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, EPA, May 2022 (the EPA Guidelines 2022), which are presented in the Table below. The use of these terms for the classification of impacts ensures that the EIA employs a systematic approach, which can be replicated across most disciplines covered in the EIAR. The consistent application of terminology throughout the EIAR facilitates the assessment of the proposed development on the receiving environment.

Table 1.1: Description of Effects

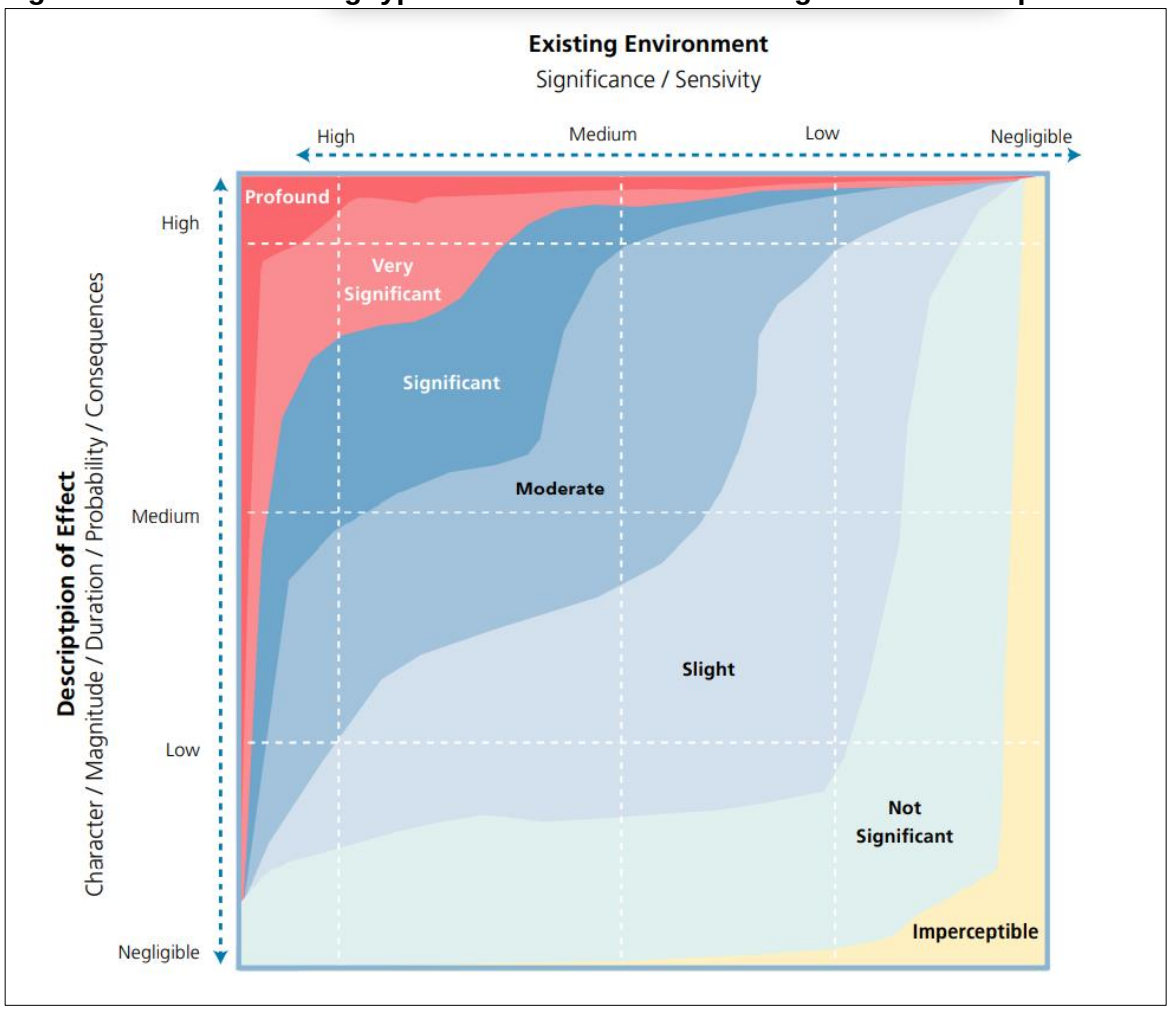
Quality of Effects	**Definition**
Negative /Adverse Effects	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).
Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Positive	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).
Significance of Effects on the Receiving Environment	**Description of Potential Effects**
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.
Profound	An effect which obliterates sensitive characteristics.
Extent and Context of Effects	**Describing the 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	**Describing the Probability of Effects**
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.
Duration of Impact	**Definition**

Momentary	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting one year or less
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 of Effects	Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).
Types of Effect	**Describing the Types of Effects**
Indirect Effects (a.k.a. Secondary Effects)	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 Effects	The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects
'Do-Nothing Effects'	The environment as it would be in the future should the subject 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.
Residual Effects	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
Synergistic Effects	Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of SOx and NOx to produce smog).

Source: Table 3.4 EPA Guidelines 2022

The diagram below shows how comparison of the character of the predicted impact to the sensitivity of the receiving environment can determine the significance of the impact.

Figure 1.1: Chart showing typical classifications of the significance of impacts



Source: Figure 3.4 of EPA Guidelines 2022

1.6 PURPOSE OF THIS EIAR

The EPA Guidelines 2022 state that the main purpose of an EIAR '*is to identify, describe and present an assessment of the likely significant effects of a project on the environment'*. This informs the competent authority's assessment process, its decision on whether to grant consent for a project and, if granting consent, what conditions to attach.

It is intended that this EIAR will assist South Dublin County Council, statutory consultees and the public in assessing all aspects of the application proposals.

1.7 INFORMATION TO BE CONTAINED IN A NON-TECHNICAL SUMMARY

This Non-Technical Summary (NTS) has been prepared in accordance with *inter alia* the requirements of the EU 2014 EIA Directive, Planning and Development Acts 2000 (as amended) as well as the Planning and Development Regulations, 2001, as amended (in particular by the European Union (Planning & Development) (Environmental Impact Assessment) Regulations 2018.

1.8 FORMAT AND STRUCTURE OF THIS EIAR

The structure of the EIAR is laid out in the preface of each volume for clarity. It consists of three volumes as follows:

- **Volume I: Non-Technical Summary**

This is a non-technical summary of the information contained within Volume II.

- **Volume II: Environmental Impact Assessment Report.**

This is the main volume of the EIAR. It provides information on the location and scale of the proposed development, details on design and impacts on the environment (both positive and negative) as a result of the proposed development.

Each of the environmental aspects as listed below are examined in terms of the existing or baseline environment, identification of potential construction and operational stage impacts and where necessary proposed mitigation measures are identified. The interaction of the environmental aspects with each other is also examined. Each chapter below includes an assessment of potential cumulative impacts with other existing and planned developments, where relevant. Environmental aspects considered include:

Chapter 3 Population and Human Health;
Chapter 4 Biodiversity;
Chapter 5 Land and Soils;
Chapter 6 Water;
Chapter 7 Air Quality and Climate;
Chapter 8 Noise and Vibration;
Chapter 9 Landscape & Visual;
Chapter 10 Material Assets – Traffic;
Chapter 11 Material Assets - Waste Management;
Chapter 12 Material Assets – Utilities;
Chapter 13 Cultural Heritage – Local History, Archaeology;
Chapter 14 Cultural Heritage – Architectural Heritage;
Chapter 15 Risk Management for Major Accidents and or Disasters;
Chapter 16 Interactions of the Foregoing and Cumulative Impacts;
Chapter 17 Summary of EIA Mitigation and Monitoring Measures;

- **Volume III: Technical Appendices**

Volume III contains specialists' technical data and other related reports.

1.8.1 EIAR Volume II Structure

The preparation of an EIAR document requires the assimilation, co-ordination, and presentation of a wide range of relevant information in order to allow for the overall assessment of a proposed development. For clarity and to allow for ease of presentation and consistency when considering the various elements of the proposed development, a systematic structure is used for the main body of this EIAR document.

The structure used in this EIAR document is a Grouped Format structure. This structure examines each environmental topic[2] in a separate chapter of this EIAR document. The structure of the EIAR document is set out below.

[2] In some instances similar environmental topics are grouped.

Table 1.2 – Structure of this EIAR

Chapter	Title	Content
1	Introduction and Methodology	Sets out the purpose, methodology and scope of the document.
2	Project Description and Alternatives Examined	Sets out the description of the site, design and scale of development, considers all relevant phases from construction through to existence and operation together with a description and evaluation of the reasonable alternatives studied by the developer including alternative locations, designs and processes considered; and a justification for the option chosen taking into account the effects of the project on the environment.
3	Population and Human Health	Describes the demographic and socio-economic profile of the receiving environment and potential impact of the proposed development on population, i.e. human beings, and human health.
4	Biodiversity	Describes the existing ecology on site and in the surrounding catchment and assesses the potential impact of the proposed development and mitigation measures incorporated into the design of the scheme and includes mitigation measures.
5	Land and Soils	Provides an overview of the baseline position, the potential impact of the proposed development on the site's soil and geology and impacts in relation to land take and includes mitigation measures.
6	Water	Provides an overview of the baseline position, the potential impact of the proposed development on water quality and quantity and includes mitigation measures.
7	Air Quality and Climate	Provides an overview of the baseline air quality and climatic environment, the potential impact of the proposed development, the vulnerability of the project to climate change, and includes mitigation measures.
8	Noise and Vibration	Provides an overview of the baseline noise environment, the potential impact of the proposed development and includes mitigation measures.
9	Landscape & Visual Impact	Provides an overview of the baseline position, the potential impact of the proposed development on the landscape appearance and character and visual environment, and includes mitigation measures.
10-12	Material Assets	Describes the existing traffic, waste management and services and infrastructural requirements of the proposed development and the likely impact of the proposed development on material assets and includes mitigation measures.
13-14	Archaeology and Architectural and Cultural Heritage	Provides an assessment of the site, and considers the potential impact of the proposed development on the local archaeology, architectural and cultural heritage; and includes mitigation measures.
15	Risk Management	Provides a review of the potential vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned
16	Interactions of the Foregoing and Cumulative Impacts	Describes the potential interactions and interrelationships between the various environmental factors. A description of the potential cumulative impacts is included in each of the relevant chapters and is referenced in this Chapter.
17	Summary of Mitigation and Monitoring Measures	Sets out the key mitigation and monitoring measures included in the EIAR Document for ease of reference.

1.9 EIAR PROJECT TEAM

1.9.1 EIAR Project Management

The preparation of this EIAR was project managed, co-ordinated and produced by John Spain Associates. John Spain Associates role was to liaise between the design team and various environmental specialist consultants. John Spain Associates were also responsible for editing the EIAR document to ensure that it is cohesive and not a disjointed collection of disparate reports by various environmental specialists. John Spain Associates does not accept responsibility for the input of the competent specialist consultants or the design team.

1.9.2 EIAR Competent Experts/Environmental Specialists

Environmental specialist consultants were also commissioned for the various technical chapters of the EIAR. The amended EIA Directive (Directive 2014/52/EU) states the following in relation to the persons responsible for preparing the environmental impact assessment reports:

'Experts involved in the preparation of environmental impact assessment reports 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'.

The relevant specialist consultants who contributed to the EIAR and their inputs are set out below.

Table 1.3: EIAR List of Competent Experts

Organisation	EIAR Specialist Topics / Inputs
John Spain Associates, Planning & Development Consultants, 39 Fitzwilliam Place, Dublin 2, D02 ND61 T: 01 662 5803 Rory Kunz, BA (MOD), MScERM, MAT&CP, Dip EIA Mgmt	Introduction and Methodology Project Description and Alternatives Examined Population and Human Health Interactions of the Foregoing Principal Mitigation and Monitoring Measures Non-Technical Summary
Altemar Bryan Deegan – MCIEEM, M.Sc. Environmental Science, BSc (Hons.) in Applied Marine Biology; National Diploma in Applied Aquatic Science CMK Tree Survey and Report Charles McCorkell – BSc. (Hons) Agriculture, MICF, LANTRA	Biodiversity
Altemar Bryan Deegan – MCIEEM, M.Sc. Environmental Science, BSc (Hons.) in Applied Marine Biology; National Diploma in Applied Aquatic Science	Biodiversity (Bats)
Mr. Noel Gorman DBFL Consulting Engineers BEng, CEng, MIEI Chartered Civil Engineer	Land and Soils/ Population and Human Health
Mr. Noel Gorman DBFL Consulting Engineers BEng, CEng, MIEI Chartered Civil Engineer	Water and Hydrogeology
Mr. Mark McKenna DBFL Consulting Engineers, BEng (Hons), MSc, MIEI	Material Assets-Traffic
David Doran MSc in Environmental and Energy Management. Chonaill Bradley of AWN Consulting BSc in Environmental Science. Associate Member of the Institute of Waste Management (CIWM)	Material Assets (Waste Management)

Organisation	EIAR Specialist Topics / Inputs
Noel Gorman of DBFL Consulting Engineers. Chartered Civil Engineer & Kevin Farrell, Chartered Engineer Waterman Moylan Consulting Engineers.	Material Assets (Utilities)
Aisling Cashell, an Environmental Consultant. BA and an MAI in Civil, Structural and Environmental Engineering from Trinity College Dublin. Dr. Jovanna Arndt, a Senior Environmental Consultant (PhD in Atmospheric Chemistry at University College Cork in 2016)	Air Quality and Climate (Population and Human Health)
AWN Leo Williams BAI MAI PgDip AMIOA, Senior Acoustic Consultant	Noise and Vibration (Population and Human Health)
Mark Boyle (MLArch, MILI), Director and Senior Landscape Architect.	Landscape and Visual Impacts
Mr. Noel Gorman DBFL Consulting Engineers BEng, CEng, MIEI Chartered Civil Engineer	Risk Management
Faith Bailey MA, BA (Hons), MCIfA Associate Director. Rob Goodbody (BA (MOD), DIP ENV P, DIPABRC, MUBC, MA)	Archaeology, Architectural and Cultural Heritage
John Spain, BBS, MRUP, MRTPI, MIPI, Managing Director, John Spain Associates	Review of EIAR

1.10 AVAILABILITY OF EIAR DOC

A copy of this EIAR document and Non-Technical Summary of the EIAR document is available for purchase at the offices of South Dublin County Council (Planning Authority) at a fee not exceeding the reasonable cost of reproducing the document. It can also be viewed on the LRD website: www.newcastlesouthlrd2b.com set up by the applicant.

1.11 IMPARTIALITY

This EIAR document has been prepared with reference to a standardised methodology which is universally accepted and acknowledged. Recognised and experienced environmental specialists have been used throughout the EIA process to ensure the EIAR document produced is robust, impartial and objective.

1.12 STATEMENT OF DIFFICULTIES ENCOUNTERED

No particular difficulties, such as technical deficiencies or lack of knowledge, were encountered in compiling any of the specified information contained in this statement, such that that the prediction of impacts has not been possible. Where any specific difficulties were encountered these are outlined in the relevant chapter of the EIAR.

1.13 ERRORS

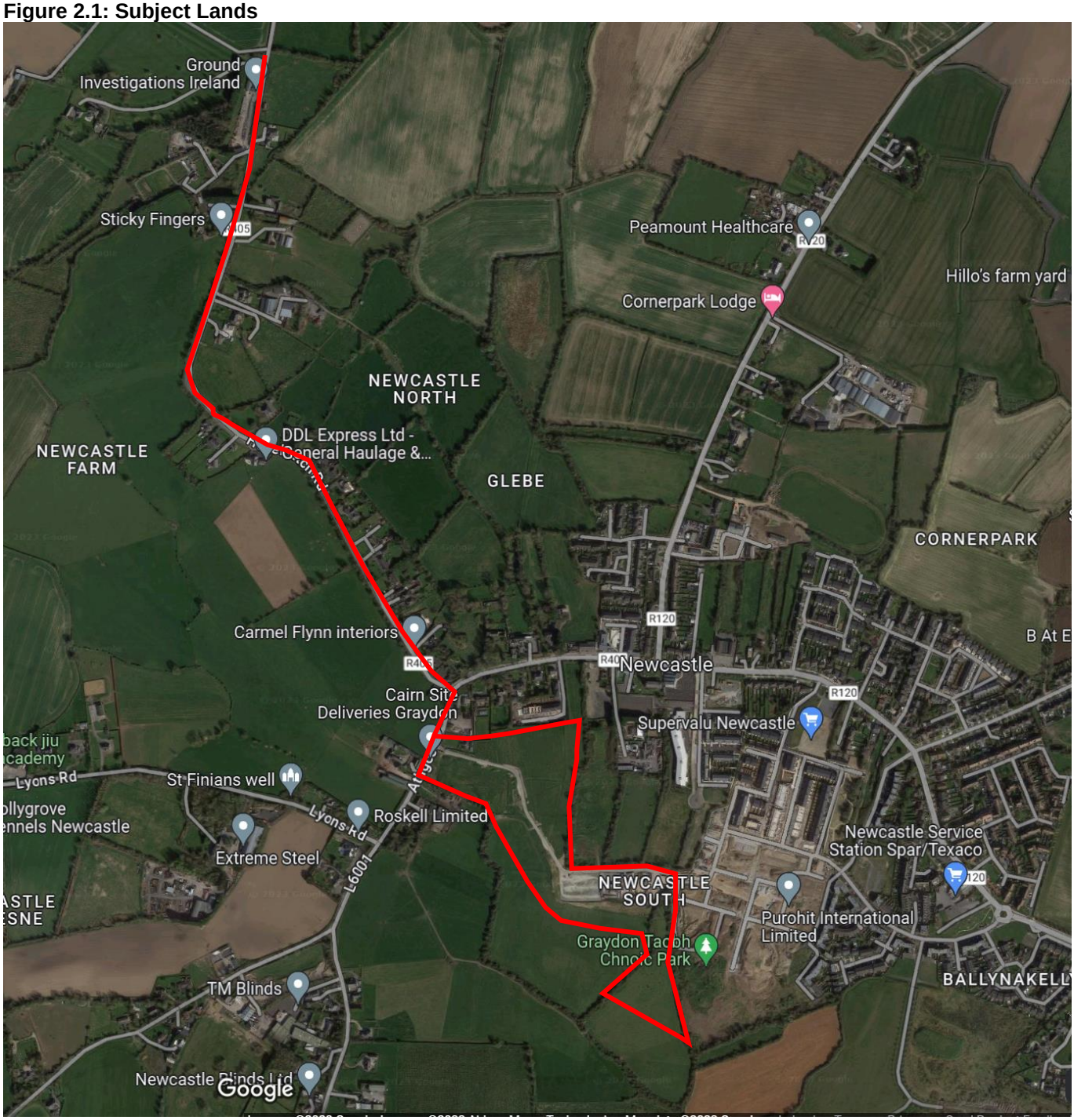
While every effort has been made to ensure that the content of this EIAR document is error free and consistent there may be instances in this document where typographical errors and/or minor inconsistencies do occur. These typographical errors and/or minor inconsistencies are unlikely to have any material impact on the overall findings and assessment contained in this EIAR.

2.0 DESCRIPTION OF THE PROJECT AND ALTERNATIVES EXAMINED

2.1 DESCRIPTION OF THE LOCATION OF THE PROJECT

The proposed development site is located in the administrative area of South Dublin County Council. The lands are situated within the development boundary of Newcastle as defined by the 2022-2028 South Dublin County Council Development Plan. The proposed development site is situated in the townland of Newcastle South.

Figure 2.1: Subject Lands

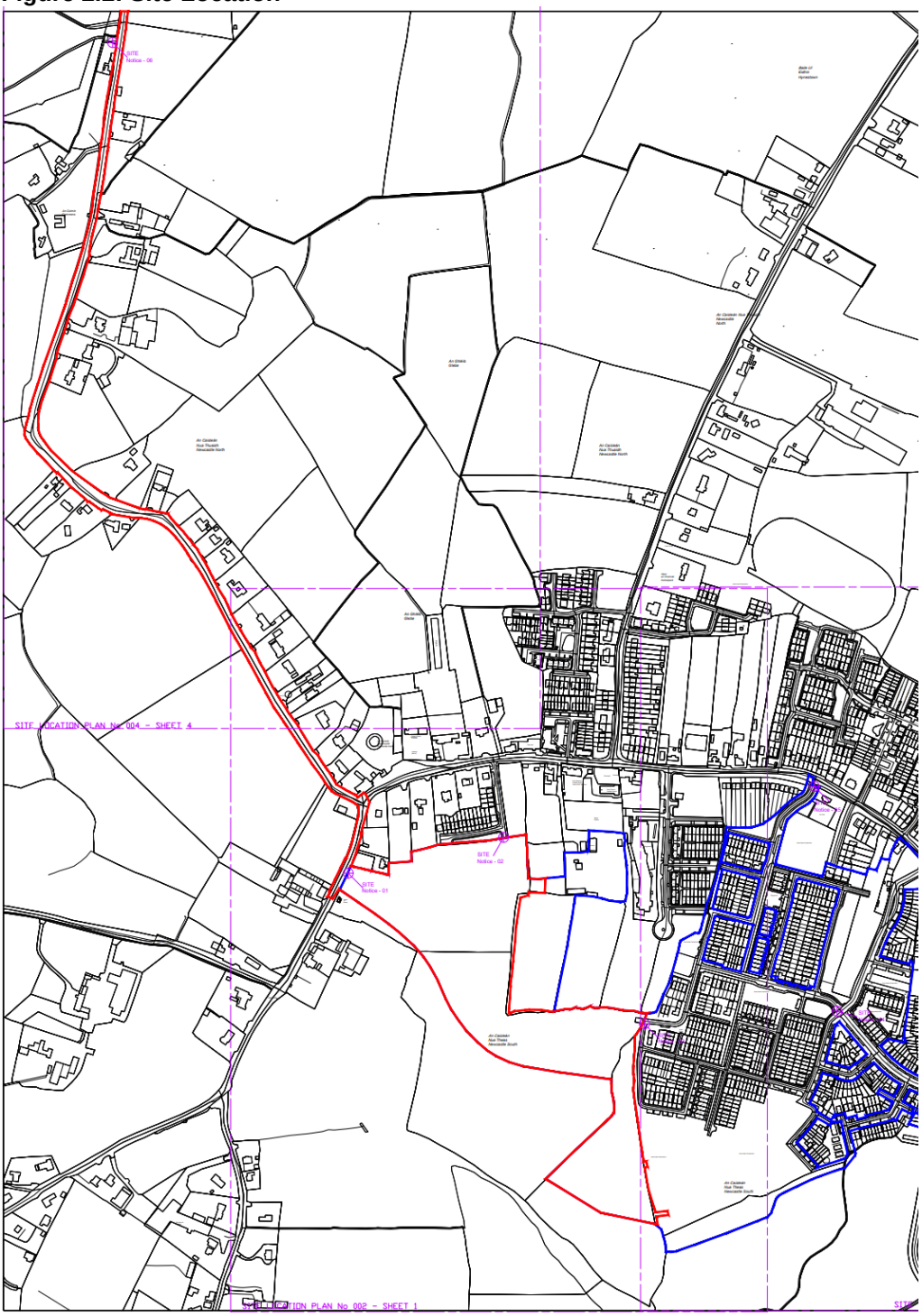


Source: Google Maps – Note Red line approximate – refer to MOLA Site Location Map.

The proposed development site is situated to the south of Main Street, Newcastle. Main Street is formed by the R120 which links the M4 Motorway at Lucan with the N7 National Primary Route at Rathcoole

Interchange. The R405 joins the R120 on the Main Street. The R405 links the M4 Motorway via Celbridge and Hazelhatch Rail Station to the N7 at Rathcoole.

Figure 2.2: Site Location



Source: Mola Architects

2.2 DESCRIPTION OF THE PHYSICAL CHARACTERISTICS OF THE WHOLE PROPOSED DEVELOPMENT

2.2.1 Demolition

There is no demolition of habitable or any other structures relating to the proposed development.

2.2.2 Main Characteristics of the Operational phase of the project

The phase 2b development will consist of the construction of 131 no. dwellings and open space as follows:

A) 119 no. 2 storey houses (10 no. 2 bedroom houses, 95 no. 3 bedroom houses, 13 no. 4 bedroom houses and 1 no. 5 bedroom house;
B) 12 no. apartments/duplex apartments in 1 no. 3 storey building – (6 no. 2 bedroom apartments and 6 no. 3 bedroom duplex apartments) all with terrace;
C) Open space (c. 1.34 ha. in a series of open space areas), hard and soft landscaping (including public lighting & boundary treatment), communal open space for duplex apartments and apartments; along with single storey bicycle/bin stores and ESB substations;
D) Vehicular access from the Athgoe Road from a new signalised junction along with upgrades to footpath and pedestrian crossing (on the Athgoe Road) as well as provision of vehicular/pedestrian/cycle link to permitted 'Graydon' (TA06S.305343) 'Newcastle Boulevard' to the east, as well as 237 no. car parking spaces and 94 no. bicycle spaces (4 no. motorcycle space) and all internal roads, cycleways, green routes and paths;
E) Provision of surface water attenuation SuDs measures connection to water supply, and provision of foul drainage infrastructure as well as an underground local pumping station (in northern part of site) to Irish Water specifications and all ancillary site development/construction/landscaping works.
F) The proposal also includes upgrades (to provide surface water pipe upgrades) to the surface water network along Athgoe Road and Hazelhatch Road (for c. 1.2 km).

The proposal comprises the second phase (phase 2B) of a 2-phase development (first phase [phase 2A] under planning reg. ref. SD23A/0136 will comprise 48 no. duplex dwellings and phase 2 of Taohbh Chnoic public park of c. 1.74 hectares of open space, along with car parking and ancillary infrastructure) to result in an overall Phase 2 development of 179 no. dwellings (consisting of 119 no. 2 storey houses and 60 no. apartments/duplex apartments in 5 no. 3 storey duplex buildings, and ancillary infrastructure).

In summary, the 2 phase development comprises 179 no. residential units consisting of 119 no. houses (10 no. 2-bed, 95 no. 3-bed, 13 no. 4-bed, 1 no. 5-bed) and 60 no. duplexes/duplex apartments (30 no. 2-bed, 30 no. 3-bed), all associated site work, access, infrastructure, car parking, open space and boundary treatments.

2.3 RESIDENTIAL DEVELOPMENT

2.4 DEMOLITION

There is no demolition of habitable or any other structures relating to the proposed development.

2.5 RESIDENTIAL DEVELOPMENT

The proposed development will provide for 131 no. houses and duplex/apartment units. The overall mix of units within the scheme is noted as follows:

Table 2.1: Overall Mix of Units Phase 2A & 2B LRD

	2-bed	3-bed	4-bed	5-bed	Overall
Houses	10	95	13	1	119
Duplex Apartments	6	6			12
Total Phase 2B LRD	***16***	***101***	***13***	***1***	***131***
Mix Phase 2B LRD (%)	12.2%	77.1%	9.9%	0.7%	
Phase 2A (SD23A/0136)	***24***	***24***			***48***
Mix Phase 2A	50%	50%			
Overall Phase 2	**40**	**125**	**13**	**1**	**179**
Mix Overall Phase 2 %	**22.3%**	**69.8%**	**7.3%**	**0.6%**	

Source: Mola Architects

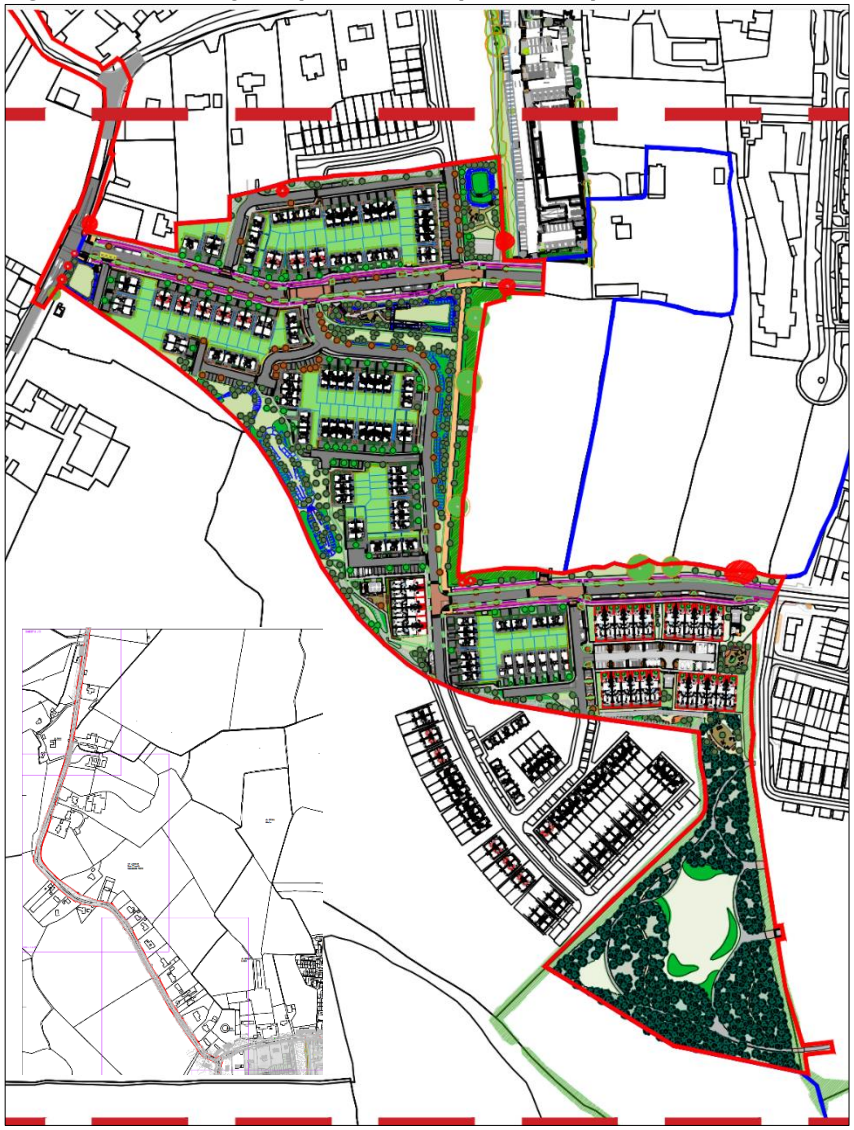
The proposal will include significant areas of open space and landscaping in accordance with the objectives of the South Dublin County Development Plan 2022-2028. These will include a combination of pocket parks, neighbourhood park and interlinked shared surfaces which will enhance pedestrian movement and permeability. The primary point of access is proposed from the Athgoe Road, which connects the R405 and L6001, at the site's western perimeter. A secondary access is also proposed to connect with the permitted development to the adjoining lands of Graydon to the east and south-east boundaries.

Table 2.2: Parks and Open Space Provision Phase 2 A and Phase 2B

Green Space Area	Sq. m
POS (A) – Towerhouse Park	461
POS (B) - Sean Feirm Park	2,000
POS (C) – North South Green Link	5,129
POS (C) - Northern Space	1,577
POS (D) – Liner Park to eastern boundary	4,278
Phase 2B LRD (This application)	13,445
POS (E) – Taobh Chnoic Phase 2A (SD23A/0136)	17,486
Total Phase 2A (SD23A/0136) and Phase 2B LRD	***30,931***

Note: 0.39 ha. on RU zoned lands

Figure 2.3: Site Layout (main development site)



Source: Murray Associates (Note: surface water upgrade works – shown in inset)

2.6 HOUSES

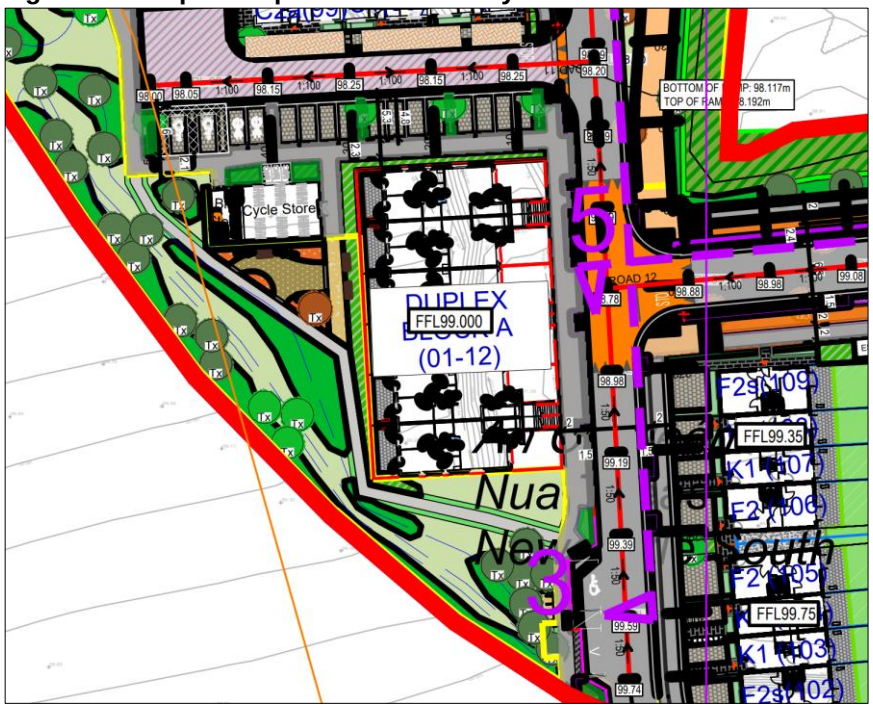
The 119 no. houses are designed as two-storey family dwellings, in a wide mix of units comprising 10 no. 2-bedroom houses, 95 no. 3-bedroom houses, 13 no. 4-bedroom houses and 1 no. 5-bedroom unit in terraced, semi-detached and detached configurations. Individual plot layouts provide good separation to ensure privacy and minimise overlooking. The end-row and end terrace house types have been used to turn corners, with front doors and windows giving activity and passive supervision to the sides and avoiding large blank gables. All houses are 2 no. storeys with private amenity space in the form of a rear garden. Individual plot layouts provide good separation to ensure privacy and minimise overlooking both within the proposed development and to the north at St. Finian's Way.

Figure 2.4: Houses

2.7 DUPLEX / APARTMENT UNITS

It is proposed to provide 12 no. duplex units (6 no. 2-bedroom, ground-floor apartments and 6 no. 3-bedroom, upper floor duplex units) contained in 1 no. 3-storey duplex buildings located within the southern section of the proposed scheme. Communal Open Space with a southerly aspect of c.107 sq. m is provided.

Figure 2.5: Duplex / Apartment Units Layout

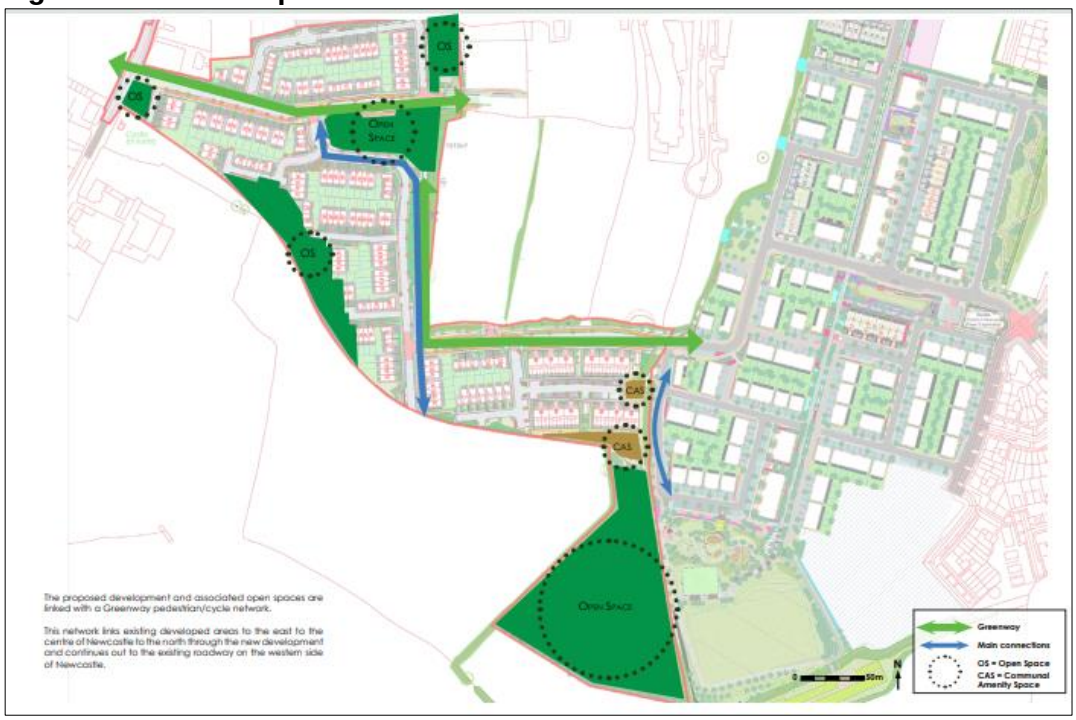


Source: Mola Architects

2.8 LANDSCAPING STRATEGY

The design allows for the creation of a series of local parks within easy walking distance of future residents, along with a larger village park area (Taobh Chnoic Park phase 1 and 2) within the southern portion of the overall phase 2 lands.

Figure 2.6: Landscape - Circulation Routes/Green Infrastructure



Source: Murray Associates

Figure 2.7 – Sean Feirm Park

Figure 2.8: Sean Feirm Park

Figure 2.9: Taobh Chnoic Phase 2 Park (as part of SD23A/0136)

Figure 2.10: Western Linear Open Space

2.8.1 Natural Play

Natural play elements are proposed throughout the development. Natural play incorporates a number of elements that enable play spaces to blend in with their natural surroundings and encourages interaction with the natural landscape. These components represent the larger wild environment in a way that feels safe and manageable to young visitors. A few man-made components might also be carefully integrated to support creative play, encourage confident exploration and help children develop a lasting affinity for the natural world.

2.9 ACCESS

The proposed development will be accessed from the Athgoe Road (L6001) located to the west of the subject site. The access point from the Athgoe Road is proposed to be a signal-controlled junction with crossing facilities for pedestrians. The proposed signalised junction aims to improve pedestrian accessibility to the existing footpath on the Athgoe Road and improve connectivity to the Main Street in Newcastle.

There will also be a link provided from the Graydon Development as approved by An Bord Pleanála Reg. Ref. 305343-19 to the south-west of the site. A local street to the north of the site allows access to the Main Street through an adjoining development under reference SDCC Reg. Ref. SD18A/0363.

2.10 PARKING

2.10.1 Car Parking

The proposed development layout design provides a total of 237 no. car parking spaces. Of these 237 no. spaces, 208 no. will be designated as resident parking for the houses and 12 no. will be designated as resident parking for the duplexes. The provision of 237 no. residential car parking spaces is below the Development Plan standards which allow for a maximum provision of 249 no. spaces.

2.10.2 Cycle Parking

Cycle Parking A total of 94 no. residential bicycle parking spaces are proposed as part of the development scheme comprising 30 no. long stay secured / sheltered spaces for the duplex units and 64 no. short stay parking spaces spread across the subject site. The overall proposed 94 no. residential cycle parking provision exceeds both the Development Plan and DHLGH minimum requirement of 36 no. spaces.

SDCC Development Plan Minimum Requirement	DHLGH Minimum Requirement	Proposed Provision
36	36	94

Source: DBFL Consulting Engineers

2.11 SURFACE WATER DRAINAGE

The surface water drainage system will collect storm-water run-off generated from the proposed residential development using traditional pipe-work and manholes laid along the main access roads collecting run-off from impermeable road surfaces via gullies and adjoining areas. Swales will be utilised as a SuDs measure where possible to drain adjacent roads and green links. Swales and other SuDs measures such as tree pits, and permeable paving have been incorporated into the drainage design to reduce the run-off volume and improve run-off water quality.

Source: DBFL IDR

2.12 FOUL SEWER

The proposed foul drainage system for the subject site will connect to the existing 225mm diameter foul sewer in the Graydon development provided under planning reference ABP 305343-19. A Wastewater Pumping Station is proposed to serve the majority of the subject site and forms part of this planning application. Foul drainage from the proposed development will drain to a proposed pumping station at the north of the site by gravity before being pumped back to a stand-off manhole at the south of the site and discharging to Graydon development infrastructure. The capacity of the foul infrastructure in the Graydon development was reviewed and found to have to have sufficient capacity to accommodate the subject site.

2.13 WATER SUPPLY AND DISTRIBUTION

It is proposed to connect to the existing 250mm watermain provided in the Graydon development at Newcastle boulevard to the south east of the site through the link street of the proposed site. A closed valve connection is also proposed to the existing watermain in Athgoe road. The proposed 250mm trunk watermain will serve a number of 150mm diameter watermain loops throughout the development. A number of 100mm watermain loops will be fed from the 150mm watermains along the Local Streets.

2.14 DESCRIPTION OF THE MAIN CHARACTERISTICS OF THE CONSTRUCTION PHASE

2.14.1 Introduction

The development of the lands will occur for up to 7 years having regard to the nature of the project and the need for flexibility to respond to market demand. A Construction Environmental Management Plan has been prepared by DBFL and is included with the LRD application (see appendix D of Volume III of the EIAR and as a standalone document). The CEMP will be developed and submitted to South Dublin County Council prior to commencement of development and will include the mitigation measures set out in this EIAR including the Construction Traffic Management Plan (CTMP) contained in the CEMP.

This EIAR presents proposed mitigation measures to ensure that the planned development of the lands does not generate significant adverse impacts for residential and working communities in the vicinity of the site. The proposed development, as described, is detailed on the planning application drawings and particulars which accompany the application.

2.14.2 Liaison with Neighbouring Properties

A monitoring regime will be put in place to protect neighbours & neighbouring properties with a full and detailed vibration, noise, dust and groundwater monitoring regime put in place for the duration of the works.

The Contractor will appoint a competent person to be referred to as the Surveying, Instrumentation and Monitoring Subcontractor (MSC) who will implement the monitoring measures during the construction phase described in this EIAR.

The MSC will be responsible for preparing or organising the preparation of condition surveys of surrounding buildings, walls, hardstanding area etc. prior to the carrying out of any works on site. Extent of surveys to be agreed. The condition surveys will be carried out to a level of detail, suitable to the nature and extent of conditions encountered in order to obtain an understanding of the general structural condition of the property/structure and/or external environments.

It is proposed that vibration monitoring will be conducted at properties adjacent to or within 50m of the site as required using calibrated vibration monitors and geophones capable of transmitting live text and email alerts to ensure that if vibration levels approach or exceed specified warning and limit values.

2.14.3 Construction Traffic Management Plan

2.14.3.1 Traffic Management & Construction Access

The works associated with the new development will result in additional traffic on the road network with the vehicles for the importation of earthworks fill material and the delivery of new materials for construction – concrete, concrete blocks, pipes, timber, roof tiles, glazing, road surfacing materials etc. Construction traffic access to the site will be via the Lyreen Avenue. It is proposed that unloading bays should be provided for deliveries to the site within the hoarding perimeter. Appropriately demarcated storage zones will be used to separate and segregate materials. All deliveries to site will be scheduled to ensure their timely arrival and avoid the need for storing large quantities of materials on site. The storage area is to be located at least 50m from the site access to allow for the possibility of traffic queueing inside the site without any interference with the public road.

A Construction Traffic Management Plan (CTMP) will be developed by the main contractor and agreed with the Planning Authority and An Garda Siochana prior to commencement of development in the event of a grant of permission. The CTMP will implement the mitigation measures contained in this EIAR (including CEMP).

The mitigation will include the following matters:

- The contractor shall be responsible for and make good any damage to existing roads or footpaths caused by his own contractor's or suppliers transport to and from the site.
- The contractor shall at all times keep all public and private roads, footpaths entirely free of excavated materials, debris, rubbish, provide vehicle wheel wash and thoroughly clean all wheels and arches of all vehicles as they leave the site.
- The contractor shall confine his activities to the area of the site occupied by the works and the builders' compound, as far as practicably possible, during any particular phase of the development.
- Properly designed and designated entrance and egress points to the construction site for construction traffic will be used to minimize impact on external traffic.
- Flagmen shall be used to control the exit of construction vehicles from the site onto the public road, if required.
- Existing fire hydrants are to remain accessible as required.

2.14.4 Reinstatement / Road Cleaning

Prior to the works commencing, detailed photographic surveys (condition schedules) of adjoining walls, roads, footpaths, fences etc. is to be prepared. Copies of the relevant parts are to be made available to adjoining owners and SDCC. This record will form the basis of assessing repairs to adjoining areas in the future should a dispute arise as to their cause. Roadways are to be kept clean of muck and other debris. A road sweeping truck is to be provided as necessary, to ensure that this is so.

2.14.5 Construction Phasing

As set out in the public notices and having regard to the scale of the proposed development, the proposed phasing, the fact that the application is subject to an EIAR, a seven-year permission is sought for this development having regard to the provisions of Section 41 of the Planning and Development Act 2000, as amended.

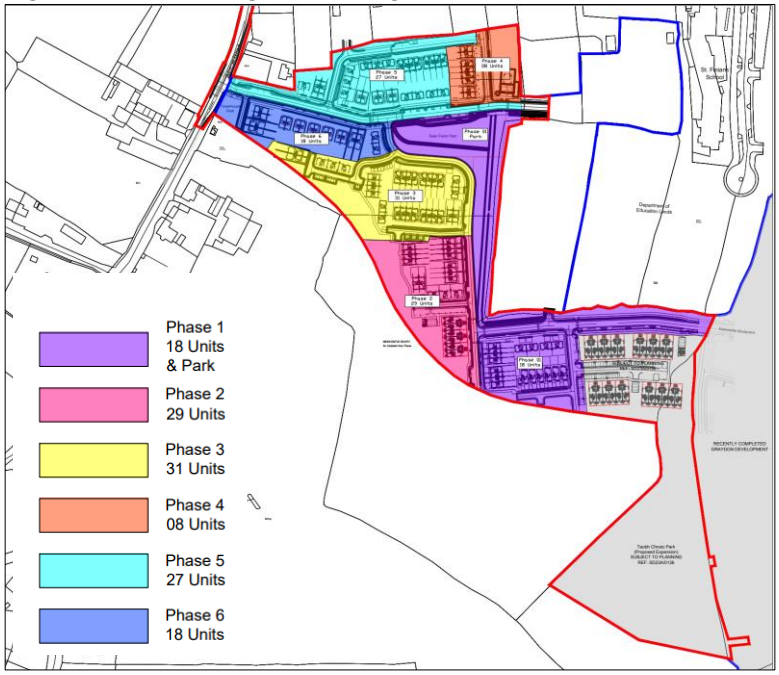
It is envisaged that the development will be constructed in 6 phases as follows.

- Phase 1 will provide 18 no. units and Sean Feirm Park,
- Phase 2 will provide 29 no. units and c. 50% of the Western Linear Park
- Phase 3 will provide 31 no. units and c. 50% of the remainder of the Western Linear Park
- Phase 4 will provide 8 no. units and the northern open space
- Phase 5 will provide 27 no. units
- Phase 6 will provide 18 no. units and the Towerpark element as it relates to Cairn lands.

The delivery of Phase 2A (SD23A/0136) is dependent on a separate final grant of permission and will be delivered in tandem depending on timing of receipt of final grant of permission.

It is noted the timing and sequency of the phases may be subject to change, but it is not considered that there would be any material impact on the assessment contained in the EIAR.

Figure 2.11: Envisaged Phasing



2.15 EMISSIONS AND WASTE

2.15.1 Effluents

Effluent arising from foul drainage from the proposed development will be discharged through piped systems to the local authority sewers. Operation of the development will involve the discharge of uncontaminated surface water from the impermeable areas to a proposed network all linking into the established public system in the environs. Details of the impacts and mitigation measures for surface water and foul drainage are recorded at Chapter 6 of this Environmental Impact Assessment Report. Mitigation measures include measures designed to avoid, reduce, remedy or offset impacts.

2.16 DIRECT AND INDIRECT EFFECTS RESULTING FROM USE OF NATURAL RESOURCES

Details of significant direct and indirect effects arising from the proposed development are outlined in Chapters 3-15 which deal with *'Aspects of the Environment Considered'*. No significant adverse impact is predicted to arise from the use of natural resources.

2.17 DIRECT AND INDIRECT EFFECTS RESULTING FROM EMISSION OF POLLUTANTS, CREATION OF NUISANCES AND ELIMINATION OF WASTE

Details of emissions arising from the development together with any direct and indirect effects resulting from same have been comprehensively assessed and are outlined in Chapters 3-15 which deal with '*Aspects of the Environment Considered'*. There will be no significant direct or indirect effects arising from these sources.

2.18 FORECASTING METHODS USED FOR ENVIRONMENTAL EFFECTS

The methods employed to forecast and the evidence used to identify the significant effects on the various aspects of the environment are standard techniques used by each of the particular individual disciplines. The general format followed was to identify the receiving environment, to add to that a projection of the *"loading"* placed on the various aspects of the environment by the development, to put forward amelioration measures, to lessen or remove an impact and thereby arrive at net predicted impact.

Where specific methodologies are employed for various sections they are referred to in the Receiving Environment (Baseline Scenario) sections in the EIAR. Some of the more detailed/specialised information sources and methodologies for a number of the environmental assessments are outlined hereunder.

2.19 TRANSBOUNDARY IMPACTS

Large-scale transboundary projects[3] are defined as projects which are implemented in at least two Member States or having at least two Parties of Origin, and which are likely to cause significant effects on the environment or significant adverse transboundary impact.

2.20 ALTERNATIVES EXAMINED

The EIA Directive (2014/52/EU) requires that Environmental Impact Assessment Reports include:

"A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."

Chapter 2 of the EIAR (Volume II of the EIAR) also includes a summary of alternatives which were considered for the proposed development of the subject lands. These options were considered as the scheme progressed and the key considerations and amendments to the design having regard to the key environmental issues pertaining to the lands are summarised in this section of the EIAR.

Alternatives may be described at three levels:

- Alternative Locations.
- Alternative Designs.
- Alternative Processes.

2.20.1 Alternative Locations

The application site is zoned for residential development under the South Dublin County Development Plan 2022-2028 within the ownership of Cairn Homes Properties Ltd., and the proposed uses are permitted in principle with the land use zoning objectives pertaining to the project site.

There are further residentially zoned lands located to the south, which are not under the control of Cairn. In terms of an alternative location, those lands would not be sequentially well located to existing development on the main street.

A *"do-nothing*" scenario was considered to represent an inappropriate, unsustainable and inefficient use of these residential zoned lands; particularly having regard to the opportunity to provide much needed housing for both South Dublin and the wider Greater Dublin Area (GDA). The suitability of the lands for development, within an established development area of the County and the application site's location adjacent to existing amenities, primary school, public transport and good road infrastructure were also key considerations.

2.20.2 Alternative Uses

The subject site is zoned for residential and supporting uses as referenced above. The subject site is well served by existing social and community infrastructure with a wide mix and variety of uses in the surrounding area. In addition to residential use, there are other land uses which are permitted in principle on these lands such as garden centre, industry-light, shop local, shop neighbourhood. Furthermore, it is noted there is a supermarket (SuperValu) to the east as well as a substantial business park located at

[3] The definition is based on Articles 2(1) and 4 of the EIA Directive and Article 2(3) and (5) of the Espoo Convention, respectively. http://ec.europa.eu/environment/eia/pdf/Transboundry%20EIA%20Guide.pdf

Greenouge. Including a supermarket on the subject lands would not be in compliance with the sequential test contained in the Retail Planning Guidelines 2012, as there are available, viable sites closer located to the town centre.

2.20.3 Description of Alternative Processes

The relevance of alternative processes and technologies is limited in the case of this EIAR having regard to the nature of the proposed development, which is primarily for a residential development. The Energy Statement and Climate Action Plan prepared by Waterman Moylan Consulting Engineers identifies the energy standards with which the proposed development will have to comply and also sets out the overall strategy that will be adopted to achieve these energy efficiency targets. The dwellings will be required to minimise overall energy use and to incorporate an adequate proportion of renewable energy in accordance with Building Regulations Part L 2022, Conservation of Energy & Fuel.

The building fabric has been selected to meet the requirements of Part L building Regulations. The incorporation of these elements and technologies into the scheme will ensure higher performance and improved building sustainability when compared to alternative out-dated, less energy efficient materials and technologies.

2.20.4 Alternative Designs and Layouts

The proposed residential development has been prepared in accordance with the requirements of the National Planning Framework, the Regional Spatial and Economic Strategy for the Mid-East area as well as the relevant Section 28 Guidelines including those relating to Urban Development and Building Height Guidelines (2018), Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities December 2023 and the Sustainable Residential Development in Urban Areas (2009) as well as, where relevant, the South Dublin County Development Plan 2022-2026 and has been the subject of a pre-application meeting with the Planning Authority, prior to lodgement of the LRD application with SDCC.

2.20.5 Proposed Preferred Alternative - Main reasons for the option chosen, including a comparison of the environmental effects

2.20.5.1 Summary

With reference to the final layout, the iterative process outlined above, which included alternative site layouts were considered with the objective of producing a new high quality residential development, which has undergone a robust consideration of relevant alternatives having regard to the comparison of environmental effects and meets the requirements of the EIA Directive, based on the multidisciplinary review across all environmental topics.

The proposed development provides for new residential development on lands zoned for residential use under the South Dublin County Development Plan 2022-2028 which was subject to the SEA process. As such, consideration of alternative sites for the construction of houses and apartments proposed in this residential development was not considered necessary.

Based on a comparison of the environmental effects, as described for each Iteration above, together with the regulatory requirements of the Development Plan, it is considered the proposed development has been selected for the following reasons:

- The proposed development maximises the opportunity to protect, and where possible, existing and replace lost, burgage plots and associated hedgerows resulting in significant benefits in terms of biodiversity; cultural heritage and visual impact.
- Includes additional SUDs features within the scheme which is positive from a water perspective compared to previous iterations.

- Includes a footpath for pedestrians along the Athgoe Road, which is positive from a Human Heath and a Material Assets - Traffic and Transportation perspective.
- The relocation of the access point further to the north and the inclusion of an additional pocket pack adjacent to the Tower, reduces Cultural Heritage and Visual Impacts.
- The proposed development results in a high degree of permeability, resulting in a highly connected neighbourhood with strong connections with existing development to the north, emerging development in Graydon to the east, and future development lands, to the south, which will have positive impacts on population and human health.
- Avoids significant environmental impacts on the receiving environment.

In summary, the overall design of the proposed development takes into account all environmental effects and provides for a sustainable development that has been optimised to emphasise positive environmental effects whilst reducing negative environmental impacts wherever possible. The preferred alternative is not considered to give rise to any significant adverse environmental impacts following the mitigation measures to be implemented at the construction and operational phases. The final proposed scheme also responds to the characteristics and constraints of the subject site vis a vis the previous iterations of the scheme and the alternative layouts considered.

2.21 DESCRIPTION OF THE OPERATION STAGE OF THE PROJECT

Pursuant to the EIA Directive an EIAR document is required to set out a description of the project processes, activities, materials and natural resources utilised; and the activities, materials and natural resources and the effects, residues and emissions anticipated by the operation of the project.

The proposed development is a residential development including associated infrastructural works, creche areas of open space. The primary direct significant environmental effects will arise during the construction stage. As a result, post-construction, the operation of the proposed development is therefore relatively benign and not likely to give rise to any significant additional impacts in terms of activities, materials or natural resources used or effects, residues or emissions which are likely to have a significant impact on population and human health, biodiversity, soils, water, air, climate, or landscape.

2.21.1 Risks of Major Accidents and/or Disasters

The surrounding context consists of a mix of residential, agricultural, employment, educational and open space public amenity lands. It does not include any man-made industrial processes (including SEVESO II Directive sites (96/82/EC & 2003/105/EC) which would be likely to result in a risk to human health and safety.

2.22 RELATED DEVELOPMENT AND CUMULATIVE IMPACTS

The proposed development also has the potential for cumulative, secondary and indirect impacts particularly with respect to such topics as traffic which in many instances are often difficult to quantify due to complex inter-relationships. However, all cumulative, secondary and indirect impacts are unlikely to be significant and, where appropriate, have been addressed in the content of this EIAR document.

Each Chapter of the EIAR includes a cumulative impact assessment of the proposed development with other permitted projects in the immediate area. Chapter 1 of Volume II of the EIAR provides a list of relevant applications. The potential cumulative impacts primarily relate to traffic, dust, noise and other nuisances from the construction of the development, with other planned which are in the course of construction, and each of the following EIAR chapters has regard to these in the assessment and mitigation measures proposes.

3.0 NON-TECHNICAL SUMMARY OF EIAR CHAPTERS

3.1 POPULATION AND HUMAN HEALTH

It should be noted that there are numerous inter-related environmental topics described throughout this EIAR document which are also of relevance to Population and Human Health. Issues such as the potential likely and significant impacts of the proposed development on landscape and visual impact, biodiversity, archaeology, architectural and cultural heritage, air quality and climate, noise and vibration, water, land and soils, material assets including traffic and transport impacts, residential amenity etc. are of intrinsic direct and indirect consequence to human health. The specific chapters of the EIAR (4-15) assess the environmental topics outlined in the EIA Directive.

The application site is bound to the north by a number of private residential dwellings and commercial premises along Main Street, Newcastle. To the east, the application site shares a contiguous boundary with the Graydon residential estate that is currently under construction in part. Greenfield, agricultural lands are found to the south of the application site. The site is accessed from the existing entrance from the 'L6001 - Athgoe Road' in the west, which is currently being used as an access road for the construction of the Graydon development in the east.

This entrance provides access onto the Main Street of Newcastle which is formed by the R120 and R405. The R120 links the M4 Motorway at Lucan with the N7 National Primary Route at Rathcoole Interchange. The R405 links the M4 Motorway via Celbridge and Hazelhatch Rail Station to the N7 at Rathcoole. Additionally, the site is c. 550m from the closest bus stop in Newcastle, which is served by the 68 Dublin bus route, which operates an hourly service, and the 68X, which serves an express service at peak times only. The site is also c. 500m walk from Newcastle village centre which supports a range of commercial and social facilities including a church; a national school; a range of local village shops; a pharmacy, and a medical centre along the Main Street. Located opposite Newcastle Manor is a Texaco Service Station which accommodates a post office and convenience store. The Greenogue Industrial Estate and Aerodrome Business Park are located just beyond the village to the east also.

There are numerous inter-related environmental topics described throughout this EIAR document which are also of relevance to Population and Human Health. For detailed reference to the residual impacts of particular environmental topics please refer to the relevant corresponding chapter of the EIAR (land and soils, water and hydrology, air quality and climate, noise and vibration, traffic, and risk management).

The construction phase of the proposed development will primarily consist of site clearance, excavation and construction works, which will be largely confined to the proposed development site (including haul routes). Notwithstanding the implementation of remedial and mitigation measures there will be some minor temporary residual impacts on population (human beings) and human health most likely with respect to nuisance caused by construction activities, predominantly related to noise and traffic as detailed in chapters, 8 and 10.

It is anticipated that subject to the careful implementation of the remedial and mitigation measures proposed throughout this EIAR document, and as controlled through the Construction Environmental Management Plan, any adverse likely and significant environmental impacts will be avoided. The overall predicted likely impact of the construction phase will be short-term not significant, and neutral. A CEMP (with the mitigation contained in this EIAR and CEMP) will be prepared by the contractor and submitted to the Local Authority.

Imperceptible, positive short-term impacts are likely to arise due to an increase in employment and economic activity associated with the construction of the proposed development.

3.1.1 Operational Phase

The project will comprise the development of an undeveloped site in terms of the provision of residential units to serve the growing residential population of the area. The proposed development will result in a

positive alteration to the existing underutilised site in terms of the provision of residential units and community facilities to serve the growing population of the area in accordance with national and regional planning policy.

The provision of creche on site enhances the quality of the development and helps to create sustainable communities.

It is noted the proposed development provides for a higher density and height compared to what is set out in the Newcastle LAP. The potential additional loading on the receiving environment has been considered in the relevant Chapters of the EIAR and supporting documentation submitted with the LRD.

Notwithstanding the increase in height and density set out in the Newcastle LAP, the implementation of the range of remedial and mitigation measures included throughout this EIAR document is likely to have the impact of limiting any adverse significant and likely environmental impacts of the operational phase of the proposed development on population and human health (as set out in relevant chapters land and soils, water and hydrology, air quality and climate, noise and vibration, landscape and visual, cultural heritage, traffic, and risk management).

The cumulative impact of the proposed development, along with other permitted, existing and proposed developments in the vicinity, will be a further increase in the population of the wider area. This will have a moderate impact on the population (human beings) in the area. This impact is likely to be long term and positive, having regard to the zoning objective for the subject lands, and their strategic location in close proximity to public transport, and the high level of demand for new housing in the area.

3.2 BIODIVERSITY

The following habitats were found in the surveys undertaken.

ED3 Recolonising Bare Ground
As can be seen from below a substantial portion of the proposed development site consists of an area of Recolonising Bare Ground. This area appears to have been as a result of previous site clearance works for the adjacent development, including the preparation of a haul road and site compound which are within the site outline and classed as Spoil and Bare Ground (ED2). Based upon an examination of historic satellite imagery (Google Historic Imagery) significant works and site clearance and spoil storage was observed in the area from 2019. Since the initial site clearance for the haul road and site compound, the activity appears to have ceased while vegetation is recolonising the area. Of note is recent site clearance in an adjacent field surrounded by hedgerows. This now is an area of bare ground.

WL1- Hedgerows
Unmaintained hedgerows are present in the centre and eastern section of the site. Species included ash, holly, elder, blackthorn, hawthorn, dog-rose, bramble, sycamore, ivy, hedge bindweed, honeysuckle, cleavers, gorse, devils poker and bramble. Within the central hedgerow is a drainage ditch. A pond has recently formed in hedgerow drainage ditch. The outer edge of the hedgerow was suffering from bramble encroachment.

GA1-Improved Agricultural Grassland
The grassland areas appeared to be regularly managed. Species noted within the Improved agricultural grassland included creeping buttercup, dandelion, docks, plantains, meadowsweet, nettle, cat's-ear and Common Vetch.

BL3- Built land

This area was mainly composed of the roadway taking the southern portion of the site. Two small areas of built land were on the top and bottom corner of the east boundary.

Figure 3.1 – Fossitt Habitat map for the proposed development site

3.2.1 Flora

The plant species encountered at the various locations on site are detailed above. No plant species that are rare or are 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 in the vicinity of the proposed site. No invasive plant species that could hinder removal of soil from the site during groundworks, such as Japanese knotweed, giant rhubarb, Himalayan balsam or giant hogweed were noted on site.

3.2.2 Fauna

The common frog was not observed on site. Drainage ditches are present on site and the presence of frogs on site cannot be ruled out. The common lizard or smooth newt were not recorded on site.

Badgers have been noted within the 1km^2 grid (NBDC). No terrestrial fauna of conservation importance were noted on the proposed development site. Camera traps were placed at several large burrows on site. A family of foxes were observed.

The proposed development site is primarily the Fossitt (2000) habitat Recolonising Bare Ground (ED3) and Spoil and Bare ground (ED2), Improved Agricultural Grassland (GA1) and Hedgerows (WL1). Hedgerows would be considered to be of local biodiversity importance due to the nesting and foraging resource for birds and providing foraging corridors for bats. No other habitats of conservation significance were noted within the site outline.

A bat survey was carried out (Appendix G, Volume III of EIAR). Foraging activity on site was relatively low on site with a single soprano pipistrelle (Pipistrellus pygmaeus) and a single common pipistrelle (Pipistrellus pipistrellus) foraging along hedgerows.' 'There is no evidence of a current bat roost on site, therefore no negative impacts on roosts these animals are expected to result from the proposed development.

3.2.3 Overall Evaluation of the Context, Character, Significance and Sensitivity of the Proposed Development Site

The proposed development site is primarily the Fossitt (2000) habitat Built Land (BL3), Recolonising Bare Ground (ED3) and Spoil and Bare ground (ED2), Improved Agricultural Grassland (GA1) and Hedgerows (WL1). Sections of the site consist of elements of a construction site including a compound, storage areas and access roads. The site also consists of hedgerows which would be considered to be of local biodiversity importance due to the nesting and foraging resource for birds and providing foraging corridors for bats. No other habitats of conservation significance were noted within the site outline.

The construction and operational mitigation proposed for the development satisfactorily addresses the potential adverse effects on the sensitive receptors. The overall effect on the ecology of the proposed development will result in a low adverse not significant impact on the ecology of the area and locality. This is primarily as a result of the loss of terrestrial habitats od low importance on site, the retention of existing hedgerows where possible, supported by the creation of additional biodiversity features and complexity, standard construction and operational controls and a sensitive landscaping strategy.

In relation to downstream impacts it is essential that the measures outlined in the report are complied with, to ensure that the proposed development does not have "downstream" environmental impacts on biodiversity. These measures are to protect the groundwater/surface water, which are potentially the primary vectors of impacts from the site.

Based on a review of the planning application viewer there are no committed developments in proximity to the subject site which are likely to give rise to cumulative impacts with it. In addition, the development of the combined site, which consist primarily of agricultural fields, would not be seen to have a significant cumulative impact on biodiversity. Given this, it is considered that in combination effects with other existing and proposed developments in proximity to the application area would be unlikely, neutral, not significant and localised. No significant cumulative effects are foreseen on biodiversity from cumulative impacts.

3.3 LAND AND SOILS

The results of site investigation works for the site indicate existing soil conditions as generally comprising of topsoil layer to a maximum depth of 400mm over sandy gravelly clays with occasional cobbles and boulders over gravel deposits. No bedrock was discovered in the boreholes undertaken on the subject site.

The GSI bedrock mapping for the area identifies the bedrock geology underlying the north section of the site and immediate vicinity as the Lucan Formation and described as "*Dark limestone & shale*". The GSI bedrock mapping for the area identifies the bedrock geology underlying the south section of the site and immediate vicinity as the Waulsortian Limestones and described as "*Massive unbedded lime-mudstone.*

GSI interactive mapping classifies the site's groundwater vulnerability as "*low"* to the south of the site, as moderate to the middle are of the site and as "*high*" to the north of the site near Newcastle main street.

Land use change from an agricultural / scrub area to a residential development during operational phase with associated public open space and landscaped areas will be permanent change to the existing topsoil condition. Impact will be permanent and negligible.

Land use change from agricultural to landscaped open space within the floodplain during operational phase will be a permanent change. Impact is negligible to the topsoil condition.

Topsoil
There is a quantity of topsoil material removed off-site to facilitate the development. Effects will be permanent and not significant as the land changes from a greenfield to a residential development with excess material disposed of at a licensed facility.

Following implementation of mitigation measures included in section 5.6 and the CEMP (contained in Appendix D2 Volume III of the EIAR), the risk of deterioration or erosion during construction will be temporary and slight.

Land use change from an agricultural area to a residential development during operational phase with associated public open space and landscaped areas will be permanent change to the existing topsoil condition. Effects will be permanent and negligible.

Land use change from agricultural to landscaped open space operational phase will be a permanent change. Effects negligible to the topsoil condition.

Sub-soil
The impact on land, soil, geology and hydrogeology from accidental spillages of fuel and lubricants used during the construction phase of the development is predicted to be minimal when stored and used in a responsible manner. After implementation of the mitigation measures outlined in Section 5.6 and the CEMP (Appendix D1 Volume III of this EIAR) for the construction phase, the proposed development will not give rise to any significant long-term adverse effects. Slight negative effects during the construction phase will be short term only in duration.

Implementation of the measures outlined in Section 5.6 and the CEMP will ensure that the potential effects of the development on soils and the geological environment are minimised during the construction phase and that any residual effects will be short term and imperceptible.

Residual effects from earthworks haulage and the risk of contamination of groundwater are deemed to be of minor risk. The residual impacts for a residential development, and open space are deemed to be imperceptible post construction (during the operational phase).

Landscaping for the development will reduce the initial impact from the construction phase and will protect the soils again from weathering and erosion. The effects on the underlying bedrock geology arising from the construction phase will be imperceptible. The greatest effect will relate to the soils from the construction activity as soil levels will be altered throughout. However final landscaping should reduce and address these effects. It is anticipated that the effects on soils arising from the construction phase will be short term and not significant.

The effects on the underlying bedrock geology arising from the construction phase will be imperceptible.

Effects on the soil resulting from the proposed operational phase of the development is anticipated to be imperceptible; once the development is completed, risks to the land and soils will be from pollutants deriving from the use of the residential developments and/or from contaminated surface water run-off.

3.4 WATER HYDROGEOLOGY AND HYDROLOGY

The existing site is predominantly greenfield, and the topography of the site generally falls to the north towards the R405 road. A network of existing drainage ditches currently drains the site. Drainage infrastructure has been constructed as part of Graydon residential development to the east of the subject site in accordance with the Greater Dublin Strategic Drainage Study.

An existing "*pond*" is identified on the (now expired) Newcastle LAP, 2012 in the south western area of the subject site. DBFL have reviewed this area on site and no pond was present, but it appears there is a depression in this area of the site based on the topography. Some evidence of an overland flow route is present on historic aerial mapping.

The Strategic Flood Risk Assessment for South Dublin County Council Development Plan 2022-2028 indicates that the subject site is located outside the extents of Flood Zone A and Flood Zone B and is therefore in Flood Zone C, which is appropriate for a residential development.

The proposed development is designed to follow the existing ground profile where possible. The proposed dwellings finished floor levels are designed with existing levels in mind and relationships with boundaries existing boundaries. Finished floor levels to properties are set over and above minimum freeboard requirements.

The integration of SUDs features with traditional drainage methods, is a strategy of both the LAP and the County Development Plan. SUDs features encourage groundwater recharge where possible and replicate natural drainage systems. SUDs features proposed for the subject site include swales, tree pits, permeable paving, above ground attenuation areas as well as green roofs.

The predicted residual effects of the construction and operation activities following implementation of the mitigation measures above is provided below.

- As surface water drainage design has been carried out in accordance with the GDSDS, and SUDS methodologies are being implemented as part of a water quality treatment train approach (run-off from the development's impermeable areas is designed to be collected via a new stormwater network which incorporates on-line attenuation storage systems and SuDS features such as permeable paving, bio-retention areas, swales and tree pits to improve water quality in accordance with the principles of SuDS design. Which are all designed to improve water quality), with imperceptible effects on the water and hydrogeological environment arising from the operational phase.

- Implementation of the measures outlined in Section 6.6 will ensure that the potential effects of the development on soils and the geological environment are minimised during the construction phase and that any residual effects will be short term and imperceptible.

- Residual effects from earthworks haulage and the risk of contamination of groundwater are deemed to be of minor risk following implementation of the measures outlined in Section 6.6. The residual effects for a residential development, and open space are deemed to be imperceptible post construction (during the operational phase).

3.4.1 Impact on Climate

The surface water drainage network, attenuation storage and site levels are designed to accommodate a 100-year storm event (provision for 20% climate change included). Floor levels of houses are set above the 100-year flood levels by a minimum of 0.5m. For storms in excess of 100 years, the development has been designed to provide overland flood routes along the various development roads towards the surface water drainage outfalls and existing roads. This overland flood route also reduces the development's vulnerability to climate change.

3.4.2 Impact on Human Health

Risks to human health include the accidental spills/ leaks of hydrocarbons/ oils entering the groundwater/surface water or potable water system. This impact following mitigation measures outlined in section 6.6 will result in an imperceptible impact to human health.

3.5 AIR QUALITY AND CLIMATE

The nearest representative weather station collating detailed weather records is Casement Aerodrome meteorological station, which is located approximately 2.5 km east of the site. Casement Aerodrome met data has been examined to identify the prevailing wind direction and average wind speeds over a five-year period.

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 2022*" (EPA, 2023a). 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 (EPA, 2023b).

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 350m of a construction site, the majority of the deposition occurs within the first 50m. 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.

Impacts as a result of climate change will evolve with a changing future baseline, changes have the potential to include increases in global temperatures and increases in the number of rainfall days per year. Therefore, it is expected that the baseline climate will evolve over time and consideration is needed with respect to this within the design of the proposed development.

Cumulative impacts have been incorporated into the traffic data supplied for the operational stage air and climate modelling assessments where such information was available. The results of the modelling assessment show that there is a long-term, neutral and imperceptible impact to air quality and climate during the operational stage.

<u>Construction Phase</u>
Once the dust minimisation measures are implemented, the impact of the proposed development in terms of dust soiling will be short-term, negative, localised and imperceptible at nearby receptors.

According to the IAQM guidance (2023) site traffic, plant and machinery are unlikely to have a significant impact on climate. Therefore the predicted impact is short-term, neutral and imperceptible.

Best practice mitigation measures are proposed for the construction phase of the proposed development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of construction of the proposed development is likely to be negative, short-term and imperceptible with respect to human health.

Operational Phase

Air dispersion modelling of operational traffic emissions associated with the proposed development was carried out using the UK DMRB model. The modelling assessment determined that the change in emissions of NO_2 at nearby sensitive receptors as a result of the proposed development will be imperceptible. Therefore, the operational phase impact to air quality is long-term, localised, neutral and imperceptible.

Modelling of operational phase CO_2 emissions as a result of the traffic associated with the proposed development was carried out to determine the impact to climate. It was found that emissions of CO_2 will increase by an imperceptible amount as a result of the proposed development and are significantly below the EU 2024 and 2030 GHG targets. The operational phase impact to climate is long-term, negative and imperceptible. In addition, the proposed development has been designed to reduce the impact to climate where possible during operation.

As the air dispersion modelling has shown that emissions of air pollutants are significantly below the ambient air quality standards which are based on the protection of human health, impacts to human health are long-term, neutral and imperceptible.

3.6 NOISE AND VIBRATION

Baseline noise monitoring has been undertaken across the development site to determine the range of noise levels at varying locations across the site.

Figure 3.2: Noise Monitoring Locations

The primary noise contributors at location AN1 (survey location) were road traffic noise. The dominating noise sources were vehicles slowing to pass over speed control measures close to the measurement position. Other noise sources included birdsong and occasional air traffic movements.

The noise contributors at location AN2 (survey location) were distant site works from the field adjacent to the measurement position and the occasional movement of aircraft overhead. Other contributing factors included birdsong and distant road traffic noise from the R405.

The noise contributors at AN3 (survey location) were construction works including power tools, vehicle movements and vehicle reversing alarms. Both birdsong and distant road traffic were also noted contributors to the noise environment at this measurement location.

The construction phase will involve excavation over the development site, construction of foundations and buildings, landscaping, and vehicle movements to site using the local road network. This phase will generate the highest potential noise impact due to the works involved, however the time frame is short term in nature.

The primary sources of outward noise in the operational context are link to the operation of the proposed development and therefore are permanent in duration and will comprise traffic movements to the development site using the existing road network and plant noise emissions from the completed buildings.

Construction noise levels are predicted to be above the Construction Noise Threshold to varying degrees at the limited number of residential noise sensitive receivers located at distances less than 35m from construction works. Construction noise levels are predicted to be below the Construction Noise Threshold at the offsite residential noise sensitive receivers located at distances greater than 35m from construction works, which represents the majority of nearby NSLs. Good practice noise control measures have been presented to reduce the impact of construction works. The impact of construction works at distances of 20-30m is predicted to be negative, moderate to significant and short-term. At distances of 35m and greater, the impact is predicted to be negative, slight to moderate and short-term.

The impact of works associated with surface water upgrades at distances of 10-20m is predicted to be negative, significant and brief.

Noise levels associated with construction traffic have been predicted to represent an increase of less than 1 dB and therefore predicted to be of negative, not significant and short-term impact.

The above effects should be considered in the context that the effect is variable, and that this assessment considers the locations of the greatest potential impact.

Due to the distances between construction works and the nearest offsite receptors it is predicted that for the receptors (including the protected structures) the impact of construction vibration will be neutral, imperceptible and short-term.

Vibrations associated with surface water upgrade works are expected to have the potential to be perceptible due to the relatively short distances between areas of works and sensitive receptors. Vibration monitoring will be utilised to monitor the works and to inform necessity for mitigation so that vibration associated with the works falls within the criteria set out Section 8.2.1.2. The impact of vibration will be negative, slight and brief.

Plant items will be located and selected so that cumulative plant noise emissions from the development achieve the appropriate noise criteria, the noise impact is predicted to be neutral, imperceptible and long-term.

Based on the traffic flows associated with the operation of the proposed development the impacts are predicted to range from positive to negative, imperceptible and permanent.

There are no appreciable sources of vibration associated with the operation of the proposed development. The vibration impact is predicted to be neutral, imperceptible and long-term.

3.7 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

Newcastle itself sits in the Newcastle Lowlands Landscape Character Area, as defined by the 2021 Landscape Character Assessment of South Dublin County Development Plan (South Dublin County Development Plan 2022-28).

The LCA continues further, and calls Newcastle a *'Historic Urban'* character area - towns and villages that have developed historically, surrounded by primarily 20th Century residential development, and with significant recent development in the past two decades. The bulk of Newcastle is designated as an area of Archaeological Potential due to the large range of recorded archaeological sites within the environs of the village.

There are no protected views or prospects and no Tree Preservation Orders within the site. Furthermore, the site is zoned for development within the current Development Plan 2022-2028.

There are no Natura 2000 Protected Areas within the site.

Adjacent to the eastern boundary there is a protected structure (ref DU020-003006), a Tower House. This is within the lands zoned as residential within the Development Plan.

Further structures are situated to the north of Main Street, though these have been scoped out of this assessment due to the distance from the site and interceding development that has already restricted the views.

The northern portion of the site is within the Newcastle Architectural Conservation Area. In this site's context, this would refer to the burgage hedgerow system present.

The application lands generally comprise of greenfield backlands, mainly disused fallow agricultural fields, located to the south of Main Street, west of the Graydon residential development residential. The application lands comprise of approximately 10.7 Hectares and are zoned RES-N (*'To provide for new residential communities in accordance with approved area plans'.*).

Within the Newcastle Local Area Plan of 2012 (as amended) a substantial part is devoted to the implementation of Green Infrastructure within Newcastle. Of particular note are the Planning Objectives for the retention, incorporation and reinstatement of the burgage plot field system. (Objectives GI7, GI8, GI9, GI10 and GI11).

Despite the presence of the burgage hedgerows, the landscape sensitivity of the site can still be seen as low due to the existing residential zoning of the lands and the proposed setback and retention of the existing hedgerows. Visual sensitivity is generally low but steps to medium on viewpoints adjacent to the northern boundary of the site due to the closer proximity of receptors.

Figure 3.3 – Viewpoint Locations

3.7.1 Summary of Effects on the Landscape

The landscape impacts due to the proposed development would overall be not significant and negative, particularly considering the general low sensitivity of the landscape and the fact that the most significant hedgerows will be retained and where hedgerows are removed, they will be reinstated or marked in the landscape design.

Landscape works are proposed to reduce and offset any impacts generated due to the proposed development, where possible. The planting of substantial numbers of new native trees and other planting will enhance the overall appearance of the new development.

The impact is primarily mitigated by the potential quality of the proposed public realm including new parks and greenways, the cohesive land use and pattern that would result, and the new spaces, landscape

features and distinctiveness introduced by the proposed development and its associated landscape spaces and planting interventions. The proposed planting will substantially increase the tree resource and tree quality in the area overall.

Moderate positive landscape amenity impacts due to the provision of new parks and greenways occur as a result of the proposed development.

In the longer term, the assessment concludes that there will be some continuing moderately negative visual impacts to receptors immediately adjacent to the north and northeast, with not significant negative visual impacts to receptors to the west and south of the site and some imperceptibly negative/neutral visual impacts to the residential receptors further away to the south-east, west and east. As above, it is important to note that the proposed development is reflective of the existing and emerging development trends in the area in terms of massing and scale, located in 'Graydon' to the east.

The residual impact on views is somewhat mitigated by the inclusion of additional tree planting, hedgerow planting, woodland planting, resulting in a slight improvement in screening measures to the south, though not significantly enough to change the assessment.

Table 3.1 – Predicted Visual Effects – Summary Table

View	Quality	Significance	Magnitude	Sensitivity	Probability	Duration
V1	Negative	Moderate	Medium	Medium	Likely	Long-Term
V2	Negative	Moderate	Medium	Medium	Likely	Long-Term
V3	Negative	Not Significant	Low	Low	Likely	Long-Term
V4	Negative	Not Significant	Low	Low	Likely	Long-Term
V5	Negative	Not Significant	Low	Low	Likely	Long-Term
V6	Negative	Not Significant	Low	Low	Likely	Long-Term
V7	Negative	Imperceptible	Low	Low	Likely	Long-Term
V8*	Negative	Not Significant	Low	Low	Likely	Long-Term
V8*	Positive	Moderate	Medium	Low	Likely	Long-Term
V9	Negative	Not Significant	Not appreciable	Low	Likely	Long-Term
V10	Negative	Not Significant	Low	Low	Likely	Long-Term
V11	Negative	Slight	Low	Low	Likely	Long-Term
V12	Negative	Imperceptible	Low	Low	Likely	Long-Term
V13	Negative	Not Significant	Low	Low	Likely	Long-Term
V14	Negative	Slight	Low	Low	Likely	Long-Term
V15	Neutral	Imperceptible	Not appreciable	Low	Likely	Long-Term
V16	Negative	Slight	Low	Medium	Likely	Long-Term

3.7.2 Summary

During construction there will be a change to the landscape and there will be short-term negative visual effects for residents and visitors to the areas adjacent to the site associated with construction activity.

Landscape works are proposed to reduce and partly offset any effects generated due to the proposed development, where possible. The mitigating effect planting substantial numbers of new native trees and other shrub and hedge planting, allied with the high-quality accessible public realm will enhance the overall appearance of the new development and partly compensate for the removal of existing hedgerows where needed for the construction works.

In the long term, the landscape effects due to the completed development would overall be not-significantly negative, considering the existing residential zoning designation within the South Dublin County Development Plan 2022-2028, against the change in character of the site and the removal of existing

vegetation. The high-quality landscape treatments within the development and the additional ameliorative native planting to the existing hedgerow goes some way towards mitigating the negative effect.

The following conclusions are considered relevant in accordance with the EPA Guidelines 2022

- Public access: New access to lands currently and historically in private ownership is included in the proposed development in the form of three new public parks and new greenways. This is considered a moderate positive effect of the development.
- Public amenities: The new parks and greenways will improve the public amenities of Newcastle significantly for all of the population, not just residents of this proposed development.
- Recreation: The recreational opportunities afforded by the above-mentioned parks will be primarily passive recreation, as well as walking, exercise and kickabout space.
- Tourism: The proposed development is unlikely to benefit tourism, nor detract from tourism potential.

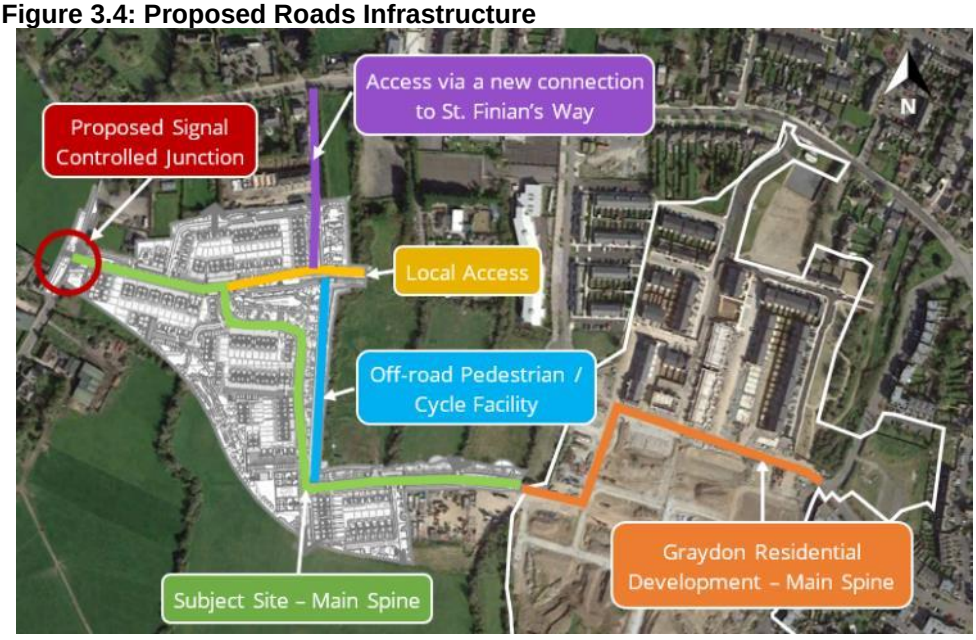
In the longer term, the assessment concludes that there will be some moderately negative visual effects to receptors immediately adjacent to the north-east of the site, with slight or not significant negative and imperceptible visual effects to the remaining residential receptors to the east, south and west.

3.8 TRAFFIC AND TRANSPORTATION

The subject lands are bounded to the north by Newcastle Main Street (R120) and existing / emerging residential dwellings. Travelling west and north along the R120 leads to Lucan (8km) and the N4 corridor (J4). Continuing west along Newcastle Main Street leads to the R405 corridor which provides access to Celbridge (6km), Maynooth (12km) and the strategic M4 Motorway.

The N7 national road corridor is located approximately 3.5km to the south east and is accessed along the R210 via the Rathcoole Interchange. Travelling northbound on the N7 leads to the M50 motorway and Dublin City Centre. The strategic M7 motorway is accessible by travelling southbound on the N7.

Figure 3.4: Proposed Roads Infrastructure



A series of 'green' links are proposed as part of the subject scheme comprising:

- 2m wide footpaths and cycle tracks on both sides of the main spine road for the initial 220m from the Graydon development section;

- 4m wide off-road shared pedestrian / cycle facility in a north / south direction through the subject development lands; and
- 2m wide footpath and cycle track on both sides of the east-west section of the main spine road extending back from Athgoe Road and continuing to the eastern boundary.

The proposed development site is proposed to be accessible from 3 no. vehicular access points. The first will be located to the east where the subject lands connecting with the emerging Graydon development lands. The second is via a proposed new signal controlled junction located on Athgoe Road. The third vehicular access is proposed to the north to the R120 Main Street corridor via (to the boundary with) St. Finian's Way .

All construction activities will be governed by a Construction Traffic Management Plan (CTMP) which will implement the mitigation measures identified in this Section 10.7 of this EIAR Chapter and as summarised within the Construction and Environmental Management Plan (CEMP) (and section 4 of which includes details on CTMP measures) which accompanies this planning application (contained in Appendix D, Volume III of this EIAR).

The subject assessment of the local transport network reveals that, whilst the proposed dwelling densities on the subject development lands and adjoining Graydon development lands are higher than that envisioned in the Newcastle LAP 2012, the local internal and external transport network will experience only an imperceptible impact as a result of the subject proposed development.

Table 3.2: Summary of Potential Impact

Node Ref.	Quality of Impact	Impact Significance	Duration
Traffic	Negative	Not Significant	Long Term
Pedestrian Network	Positive	Significant	Long Term
Cycling Network	Positive	Significant	Long Term
Public Transport	Negative	Not Significant	Long Term

A package of integrated mitigation measures has been identified and will be implemented to off-set the additional local demand that the proposed development on the subject zoned lands could potentially generate as a result of the forecast increase in vehicle movements by residents of the scheme. A preliminary Mobility Management Plan (MMP) is included with the application as part of the Traffic & Transport Assessment Report. The MMP ultimately seeks to encourage sustainable travel practices for all journeys by residents and visitors traveling to and from the proposed development. It involves the incorporation of a wide range of possible "hard" and "soft" tools from which to choose from with the objective of influencing travel choices.

Each of the committed developments (5 no.) has the potential to generate additional vehicle movements across the local road network and as such have been considered in all aspects of the traffic assessment in order to provide a robust appraisal of the operational performance of key local junctions. As presented in section 10.7.2, (of volume II of the EIA) it is predicted that the impact of the proposed development in addition to the committed developments will not cause a material deterioration of the operational performance of the surrounding road network.

3.9 MATERIAL ASSETS – WASTE MANAGEMENT

In terms of waste management, the receiving environment is largely defined by SDCC as the local authority responsible for setting and administering waste management activities in the area. This is governed by the requirements set out in the EMR Waste Management Plan 2015-2021 and the draft NWMPCE (2023) which will supersede the three current regional waste management plans in Ireland.

The waste management plans set out the following targets for waste management in the region:

- A 1% reduction per annum in the quantity of household waste generated per capita over the period of the plan;
- Achieve a recycling rate of 50% of managed municipal waste by 2020; 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 National Waste Statistics update published by the EPA in December 2022 identifies that Ireland's current against "Preparing for reuse and recycling of 50% by weight of household derived paper, metal, plastic & glass (includes metal and plastic estimates from household WEEE)" was met for 2020 at 51% however they are currently not in line with the 2025 target (55%).

The SDCC Development Plan 2022 – 2028 also set policies and objectives for the SDCC area which reflect those set out in the regional waste management plan.

The implementation of the mitigation measures outlined in Section 11.7 of volume II of the EIAR, 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. 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.

A carefully planned approach to waste management as set out in Section 11.7.1 of volume II of the EIAR and adherence to the RWMP (which includes mitigation measures) during the construction phase will ensure that the predicted effect on the environment will be ***short-term*****,** ***imperceptible*** and ***neutral*****.**

During the operational phase, a structured approach to waste management as set out in Section 11.7.2 of volume II of the EIAR and adherence to the OWMP (which includes mitigation) will promote resource efficiency and waste minimisation. Provided the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the operational phase on the environment will be ***long-term, imperceptible*** and ***neutral.***

3.10 MATERIAL ASSETS - UTILITIES

The existing site is predominantly greenfield with a construction access traversing the site from the Athgoe Road to the Phase 1 Graydon to the east. A temporary construction compound is also located on the subject site. Drainage infrastructure has been constructed as part of Graydon residential development (under planning reference ABP 305343-19) to the east of the subject site in accordance with the Greater Dublin Strategic Drainage Study (GDSDS). There are existing 225mm surface water sewers located in Athgoe road to the west of the subject site.

An existing "pond" is identified on the (now expired) Newcastle LAP, 2012 in the south western area of the subject site. DBFL have reviewed this area on site and no pond was present but there is a depression in this area of the site based on the topography. Some evidence of an overland flow route is present on historic aerial mapping.

The existing surface water sewers are shown on drawing 210026-DBFL-CS-SP-DR-C-1251 &1252.

The existing site is predominantly greenfield. There is an existing 225mm diameter foul sewer on Main Street (R120) to the north of the site. According to local authority records, this foul sewer connects to a 525mm foul sewer on Aylmer Road which ultimately outfalls to Newcastle Pump Station which pumps foul water to a gravity sewer at the Rathcoole Interchange which ultimately discharges to Ringsend Waste Water Treatment Plant (WWTP) where it is treated and ultimately discharges into WWTP and pumping station operating under an EPA license D0034-01. Foul infrastructure has been constructed as part of Graydon residential development to the east of the subject site in accordance with the Irish water code of

practice (Document IW-CDS-5030-03 Revision 2). A 225mm foul sewer is located in the Athgoe Road to the west of the site.

The existing foul sewers are shown on drawing 210026-DBFL-CS-SP-DR-C-1251 & 1252.

The existing site is predominantly greenfield. Water supply infrastructure has been constructed as part of Graydon residential development to the east of the subject site (under planning reference ABP 305343-19) in accordance with the Irish water code of practice. There is a 100mm and 150mm watermain along the L6001 to the west of the subject site.

The existing watermains are shown on drawing 210026-DBFL-WM-SP-DR-C-1351.

ESB Networks have been contacted and an existing ESB network map for the area surrounding the proposed development has been obtained, refer to Appendix F Volume III of this EIAR. There are existing ESB Networks (ESBN) infrastructure within the site in the form of Medium Voltage overhead power lines which traverse south east corner of the site.

There two main telecommunication providers (Eir and Virgin Media) in the area. Both have been contacted and the existing network maps for the area surrounding the proposed development have been obtained, refer to Appendix F Volume III of this EIAR. Both providers will be brought to the new development to give homeowners more flexibility to choose providers that suit their needs.

Gas Networks Ireland (GNI) have been contacted and an existing gas network map for the area surrounding the proposed development has been obtained, refer to Appendix F Volume III of this EIAR No Gas will be brought to the new development.

Implementation of the measures outlined in Section 12.6, volume II of the EIAR, will ensure that the potential effects of the proposed development on the site's material assets do not occur during the construction phase and that any residual effects will be short term.

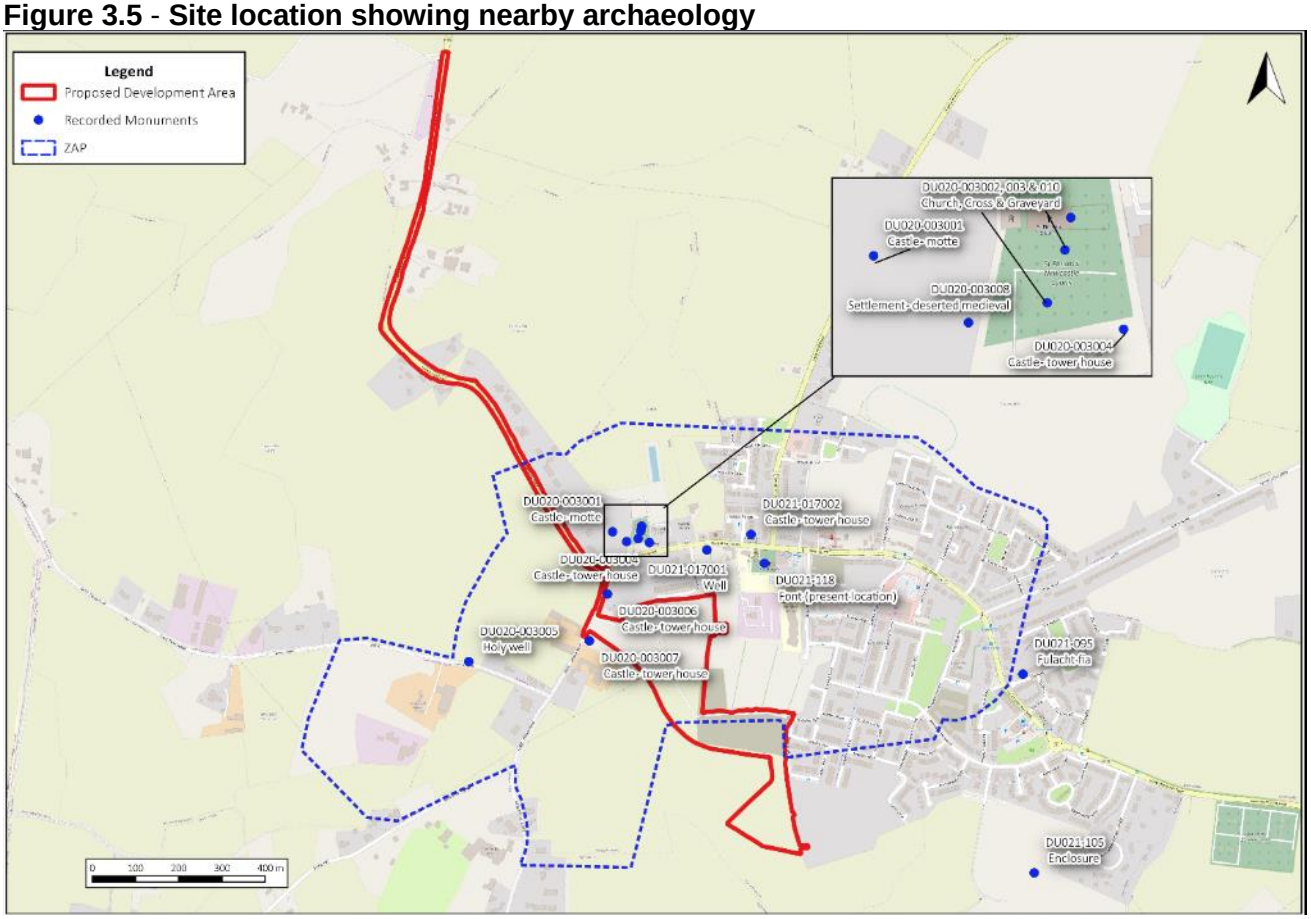
The volume of potable water for treatment and use will increase due to the development of the lands. Please refer to Infrastructure Design Report prepared by DBFL Consulting Engineers for details.

The demand on power supply, gas supply and telecommunications supply will all increase due to the development of the lands.

3.11 CULTURAL HERITAGE – ARCHAOLOGY

The proposed development area is located at Newcastle, within the townland of Newcastle South, barony of Newcastle, and parish of Newcastle, County Dublin. The northern two-thirds of the development area are located within the zone of archaeological potential associated with the medieval settlement of Newcastle (RMP DU020-003008). A further 10 archaeological sites are located within 500m, with the nearest of these consisting of a castle tower-house (DU020-003007), located c. 22m to the southwest of the development area (Figure 3.5).

Figure 3.5 - Site location showing nearby archaeology



A programme of archaeological testing based on the results of the geophysical survey was carried out within the proposed development in November 2021. This was undertaken by David Bayley of IAC under licence 20E0024ext (Bayley 2022).

Construction Phase

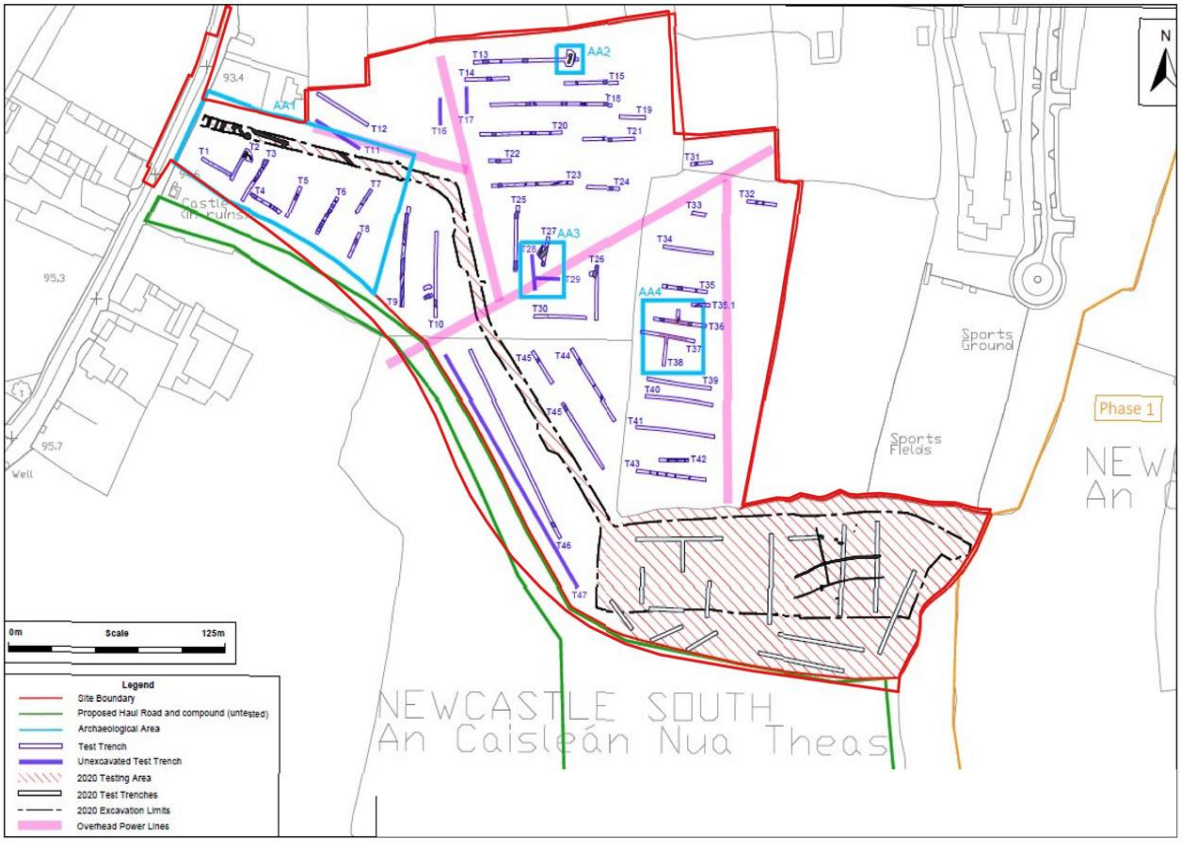
Three Archaeological Areas have been identified within the proposed development area. AA1 (medieval and post medieval remains adjacent to tower house DU020-003007), AA2 (Kiln) and AA3 (undated linear feature). These sites will be subject to direct, negative, significant effects due to ground disturbances associated with the construction of housing and the insertion of an attenuation area adjacent to the recorded tower house (Towerhouse Park) and attenuation at Sean Feirm Park.

The recorded tower house is located c. 25m west of proposed houses and 22m from the excavation required for an attenuation area. It is possible that ground disturbances associated with the development may have a direct negative impact on the ruined structures due to associated vibration affects. Any such affects, prior to mitigation, have the potential to be very significant (negative).

Whilst the majority of the proposed development area has been subject to a detailed programme of archaeological testing, it is possible that small or isolated archaeological features may survive beneath the current ground level, outside of the footprint of the excavated test trenches. Groundworks associated with the development may have a direct negative impact on these remains. Impacts may range from moderate to significant, depending on the nature, extent and significance of the archaeological remains that may be present.

The south-eastern portion of the development area and current haulage road have been subject to archaeological assessment and a programme of archaeological excavation and monitoring. As such these areas have been fully investigated with regards to the archaeological resource and no negative impacts are predicted as a result of the construction of the development."

Figure 3.6 - Excavation within the proposed development area, carried out in 2021



Conclusions

This assessment has been undertaken in order to assess the potential for the survival of archaeological and cultural heritage features in advance of the development of a proposed residential development in Newcastle, County Dublin, and to assess the effects of the proposed development during the construction and operational phases on archaeological and cultural heritage features. The central part of the development area is located within the zone of archaeological potential associated with the medieval settlement of Newcastle (RMP DU020-003008). A section of proposed pipeline along the R405 also runs through this zone. A further 11 archaeological sites are located within 500m of the site with the nearest of these consisting of a castle tower-house (DU020-003007), located c. 22m to the southwest of the development area.

A review of the Excavations Bulletin (1970–2023) has revealed that a number of investigations have been carried out within the proposed development area itself and the surrounding environs. In 2018 the greenfield areas of the site were subject to geophysical survey. This was followed by phase 1 of archaeological testing, archaeological excavation and archaeological monitoring associated with the construction of a haul road and compound within the site (to service permitted residential development to the immediate east). Multi-period activity was identified as part of these works, including features adjacent to RMP DU020-003008 containing pottery, a metalled surface, wall footing and a number of features associated within drainage. Within the southern section of the site probable industrial activity was recorded in the form of two kilns and metalworking activities. Phase 2 revealed a number of features of probable archaeological origin, including an industrial kiln, walls, ditches, metalled surfaces and a pit collectively referred to as Archaeological Area 1 (AA1). Most of the features identified, date from the medieval period

and are associated with the recorded tower house complex. In the northern area of the site, the most prominent feature identified was a cereal drying kiln (AA2). The linear field boundary ditches and cultivation furrows identified indicate the presence of a field system in this area. While some features produced some medieval pottery sherds the field system is thought to be post-medieval in date as pottery of that date and ceramic pipes were also identified. While some of these ditches have been manipulated in the recent past, with the insertion of ceramic drainage pipes, others may still maintain their original fabric. A pit of probable archaeological significance was identified in the centre of the site with a possible associated linear ditch of unknown date (AA3).

Analysis of cartographic sources has revealed that the proposed development area itself has remained relatively unchanged from the post-medieval to modern periods. Historically the site is placed within undeveloped greenfield in proximity to burgage plots. The castle tower-house (DU020-003007) is labelled and depicted at the site's western extent, while burgage plots are situated to the north and south of the main road. By the time of the later OS mapping the burgage plots seen on the first edition map have increased in number to the east, confirming that not all of these features are medieval in date.

Analysis of aerial photographic record available for the area failed to identify any previously unknown archaeological features. Analysis revealed that the proposed development area has been within open greenfield from 1995 to 2019. From the 2019 to the present-day, coverage shows the construction of the haul road and compound development. The northern extent of site is also noted to have experienced development in the form of hardstanding and structures from 1995 to the present day. Hazelhatch Road has remained extant from the post-medieval period. No other areas within site's footprint have been subject to disturbance and no previously unrecorded sites of archaeological potential were noted.

A field inspection has been carried out as part of the assessment, but failed to identify any further archaeological remains.

Following implementation of mitigation measures, no significant negative impacts are predicted upon the archaeological resource. There will be a residual indirect moderate negative impact on the recorded tower house, due to the affects the development will have on the setting of the structure.

No residual impacts are predicted upon any specific cultural heritage sites.

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

3.12 CULTURAL HERITAGE – ARCHITECTURAL HERITAGE

There are nine protected structures in the village centre and in the vicinity of the site of the proposed development on Athgoe Road. Eight of these are also included in the National Inventory of Architectural Heritage (NIAH) and there are a further three structures listed in the NIAH that could be said to be in the curtilage of a protected structure that is included separately in the NIAH. Another structure listed in the NIAH is not a protected structure, though it is included in the Sites and Monuments Record. There are six upstanding structures within that area that are included in the Sites and Monuments Record, two of which are also protected structures.

Each of the structures that is included in the record of protected structures, the NIAH or the SMR that are within the village or in the vicinity of the site are listed below with an assessment of the potential effects on each. The sequence runs clockwise, commencing on Athgoe Road to the south of the site entrance. In each case the structure is allocated a reference number commencing BH-, for Built Heritage and a photograph is provided. Reference numbers are given for the record of protected structures (RPS), National Inventory of Architectural Heritage (NIAH) and Sites and Monuments Record (SMR). Where structures were clearly part of the same property, as at Newcastle Lodge and its outbuildings, they are included together, notwithstanding more than one entry in the NIAH.

The northern part of the application site lies within the Newcastle Architectural Conservation Area.

The dwellings in the vicinity of the tower house and Newcastle Farm are two-storey houses. The design of the proposed development includes an additional set back (park area) to that contained in the Newcastle LAP from the tower house. It is further noted that the alignment of the road (and entrance) has also been moved further to the north compared to the LAP layout.

Table 3.3: Direct effects at construction phase (prior to mitigation)

BH- number	Site	Assessment of effects prior to mitigation
BH-01	Newcastle Lodge	None
BH-02	Newcastle Farm	None
BH-03	Tower house	None
BH-04	St Finian's RC church	None
BH-05	Hynestown House	None
BH-06	Colganstown House	None

There will be indirect effects on the settings of some structures in the vicinity of the site as indicated in the site survey above, as indicated by the BH- numbers cited, and these are set down in the table below:

Table 3.4: Indirect effects at construction phase (prior to mitigation)

BH- number	Site	Assessment of effects prior to mitigation
BH-01	Newcastle Lodge	None
BH-02	Newcastle Farm	Moderate effect on the setting of the farm and outbuildings due to the works to the road and boundary.
BH-03	Tower house	Significant effect on the setting of the tower house due to the construction of houses and other works such as the provision of roads and landscaping during the construction of the development.
BH-04	St Finian's RC church	None
BH-05	Hynestown House	None
BH-06	Colganstown House	None

Other developments have taken place in the vicinity of the application site and a development on land to the east is currently under construction with three-bedroom dwelling houses; construction of proposed access road and footpaths; provision of car parking facilities to serve the proposed development.

These developments are not adjacent to any of the structures of architectural heritage significance that would be affected by the present proposal and no cumulative effect on architectural heritage is predicted. Similarly, while a number of planning permissions have been granted in the Newcastle area and not yet implemented, none of these would lie between the application site and the four buildings of architectural heritage significance that have been identified in this chapter as being in the vicinity of the application site. None of the extant, but not implemented, planning permissions would add a cumulative effect to that of the present proposal.

There will be a moderate residual indirect negative effect on the setting of BH-02, Newcastle Farm,

There will be a significant residual indirect negative effect on the setting of BH-03, the tower house.

3.13 RISK MANAGEMENT

The existing site is predominantly greenfield, and a construction compound has been constructed on the eastern area adjacent to Graydon residential development as well as a construction access across the site from the Athgoe Road to the Graydon residential development lands. Existing boundaries within the site are predominantly hedgerows and fencing with some drainage ditches. The overall topography of the site falls from south to north toward Newcastle Village.

The surrounding context consists of a mix of residential and agricultural lands. It does not include any man-made industrial processes (including SEVESO II Directive sites (96/82/EC & 2003/105/EC) which might result in a risk to human health and safety. From a review of the South Dublin County Council Development Plan maps there are no SEVESO Site as defined by the Health and Safety Authority, in the immediate vicinity of the proposed development. Seveso sites in the wider locality comprise Benntag Chemicals located to the north west Unit 405, Greenouge Industrial Estate, Rathcoole, Dublin 24 and Johnston Logistics, Blackchurch Business Park, Naas Rd, Rathcoole, Co. Dublin.

Through the implementation of mitigation measures, there are no identified incidents or examples of major accidents and or natural disasters that present a sufficient combination of risk and consequence that would be likely to lead to significant residual impacts or environmental effects.

The cumulative interactions with Population and Human Health, Land, Soils, Geology and Hydrogeology, Surface Water, Noise, Climate and Air, Material Assets, Traffic and Transport, Landscape and Visual, and Cultural Heritage. However, subject to implementation of mitigation measures, good working practices and codes, the interactions between these areas have been sufficiently considered in relation to risk management.

4.0 CUMULATIVE IMPACTS

The EIAR where relevant the EIAR also takes account of other development within the area. These impacts have been addressed in the relevant chapters of the EIAR.

To determine traffic impacts in Chapter 10 the traffic generated by the proposed development is combined with the baseline traffic generated by the traffic on the road network in the area. The potential traffic impacts from other developments were also considered in the assessment.

It is noted while the proposed development can be catered for by an underground pumping station (as part of the proposed development), in the event there is an upgrade undertaken to the Newcastle Pumping Station (at Grant's View) to the east of Newcastle by Irish Water the potential cumulative effects to Material Assets is deemed to be slight positive and long term. As indicated by Irish Water, in the Confirmation of Feasibility, this LRD is not reliant on the Irish Water Newcastle pumping station project by reason of the installation of the on-site pumping station proposed. Potential impacts where relevant are set out.

For the noise impact assessment in Chapter 8 the potential noise emissions arising from the proposed development during construction and operation are combined (using cumulative AADT figures from Traffic chapter) with background noise levels (predominantly road traffic) were assessed.

Each of the relevant specialists has considered the potential for cumulative impact in preparing their assessments. While there is the potential for negative impacts to occur during the construction stage of the scheme, with the implementation of the appropriate mitigation outlined in the EIAR, the residual cumulative impact is not considered to be significant.

There will be some short-term impacts during the construction phase as the pipes are laid, particularly in respect of traffic management with regards to sensitive receptors. This may cause local short-term inconvenience and disturbance to residents and business in the vicinity of the works. However the works

would normally be undertaken in sections on a phased/rolling programme so that the number of persons experiencing local inconveniences at any one time is kept to a minimum.

5.0 INTERACTIONS BETWEEN ENVIRONMENTAL FACTORS

Chapter 15 of the EIAR (Volume II) provides detail on the interaction and interdependencies in the existing environment. John Spain Associates in preparing and co-ordinating this EIAR ensured that each of the specialist consultants liaised with each other and dealt with the likely interactions between effects predicted as a result of the proposed development during the preparation of the proposals for the subject site and this ensures that mitigation measures are incorporated into the design process. This approach is considered to meet with the requirements of Part X of the Planning and Development Act 2000, as amended, and Part 10, and schedules 5, 6 and 7 of the Planning and Development Regulations 2001-2018. The detail in relation to interactions between environmental factors is covered in each chapter of the EIAR.

In addition to the individual assessments of impacts on human beings, fauna and flora, soil, water, air, climate factors, the landscape and material assets, including architectural, archaeological and cultural heritage, the inter-relationships between these factors was also taken into account as part of the EIAR scoping and impact assessment. Where the potential exists for interaction between two or more environmental topics, the relevant specialists have taken these potential interactions into account when making their assessment and, where possible, complementary mitigation measures have been proposed. These are set out in Chapter 15 of the EIAR (Volume II).

The relevant consultants liaised with each other and the project architects, engineers and landscape architects where necessary to review the proposed scheme and incorporate suitable mitigation measures where necessary. As demonstrated throughout this EIAR, most inter-relationships are neutral in impact when the mitigation measures proposed are incorporated into the design, construction or operation of the proposed development.

Table 5.1 – Matrix of Summary of interactions between the environmental factors

Interaction	Population & Human Health	Biodiversity	Land and Soils	Water	Air Quality/Climate	Noise/Vibration	Landscape and Visual	MA-Traffic	MA-Waste/Utilities	Cultural Heritage	Risk Mgmt
Population & Human Health		✗	✗	✗	✓	✓	✓	✗	✓	✗	✗
Biodiversity	✗		✓	✓	✓	✓	✗	✓	✓	✗	✗
Land and Soils	✗	✓		✓	✓	✗	✗	✗	✓	✓	✗
Water	✓	✗	✓		✗	✗	✗	✗	✓	✗	✗
Air Quality/Climate	✓	✗	✗	✓		✗	✗	✓	✗	✗	✗
Noise/Vibration	✓	✗	✗	✗	✗		✗	✗	✗	✗	✗
Landscape and Visual	✓	✓	✗	✗	✗	✗		✗	✗	✗	✗
MA-Traffic	✓	✗	✗	✗	✓	✓	✗		✗	✗	✓
MA-Waste/Utilities	✗	✗	✓	✓	✗	✗	✗	✗		✗	✗
Cultural Heritage	✗	✗	✗	✗	✗	✗	✓	✗	✗		✗
Risk Mgmt	✓	✗	✓	✓	✓	✓	✗	✓	✗	✗	

✓ Interaction ✗ No Interaction

Section Break (Next Page)

6.0 SUMMARY OF EIA MITIGATION AND MONITORING MEASURES

Chapter 17 of the EIAR (Volume II) provides a summary of all the mitigation and monitoring measures proposed throughout the EIAR document for ease of reference for South Dublin County Council and all other interested parties.