

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

VOLUME I NON-TECHNICAL SUMMARY



PROPOSED RESIDENTIAL DEVELOPMENT

AT

Cookstown Enniskerry, Co. Wicklow

Prepared by



In Conjunction with

**BMCE Consulting Engineers/Openfield/Byrne Environmental/KFLA Landscape Architects/AIT
Urbanism/IAC Archaeology**

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LIST OF ABBREVIATIONS

AA	Appropriate Assessment	GSI	Geology Survey Ireland
ABP	An Bord Pleanála	IAA	Irish Aviation Association
CDP	County Development Plan	IEEM	Institute of Ecology and Environmental Management
CMP	Construction Management Plan	IFI	Inland Fisheries Ireland
CA	Competent Authority (An Bord Pleanála)	LAP	Local Area Plan
CSO	Central Statistics Office	NHA/pNHA	Natural Heritage Area / proposed Natural Heritage Area
DAHG	Department of Arts, Heritage and the Gaeltacht	NIAH	National Archive of Architectural Heritage
DCENR	Department of Communications, Energy and Natural Resources	NPWS	National Parks and Wildlife Service
DEHLG	Department of Housing, Planning and Local Government	NRA	National Roads Authority
EIA	Environmental Impact Assessment	NPF	National Planning Framework
EIAR	Environmental Impact Assessment Report	OPW	Office of Public Works
EMP	Environmental Management Plan	PBSA	Purpose-Built Student Accommodation
EPA	Environmental Protection Agency	RMP	Record of Monuments and Places
ESRI	Economic and Social Research Institute	RPG	Regional Planning Guidelines
GDP	Gross Domestic Product	RPS	Record of Protected Structures

SAC Special Area of Conservation
 SMR Sites and Monuments Record
 SPA Special Protection Area
 SHD Strategic Housing Development
 SUDS Sustainable Drainage System

TMP Traffic Management Plan
 WFD Water Framework Directive
 WCC Wicklow County Council

DOCUMENT CONTROL SHEET

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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 a proposed development on a site of c. 6.57 hectares. This '*Non-Technical Summary*' (NTS) was prepared by Rory Kunz, BA (MOD), MScERM, MAT&CP, Dip EIA Mgmt., Executive Director with John Spain Associates.

This '*Non-Technical Summary*' (NTS) relates to the development comprising the construction of 165 no. dwellings and associated ancillary infrastructure as follows:

- A) 105 no. 2 storey houses (49 no. 3 bedroom houses [House Types B, B1, & B2], 56 no. 4 bedroom houses [House Types A, D, E & E1];
- B) 56 no. apartments/duplex apartments in 6 no. 3 storey buildings – (28 no. 2 bedroom apartments and 28 no. 3 bedroom duplex apartments) all with terrace;
- C) 4 no. 1 bedroom Maisonette dwellings in a 2 storey building;
- D) Part 2-storey and single storey creche (c. 510 sq. m - including storage);
- E) Open space along southern boundary of c. 0.93 hectares [with pedestrian connections to boundary to 'Lover's Leap Lane' to the south and to boundary to the east and west], hard and soft landscaping (including public lighting) and open space (including boundary treatment), communal open space for duplex apartments; regrading/re-profiling of site where required [including import/export of soil as required] along with single storey bicycle/bin stores and ESB substation;
- F) Vehicular access (including construction access) from the Cookstown Road from a new junction as well as 313 no. car parking spaces and 150 no. cycle spaces;
- G) Surface water attenuation measures and underground attenuation systems as well as connection to water supply, and provision of foul drainage infrastructure (along the Cookstown Road to existing connection at junction with R760) and provision of underground local pumping station to Irish Water specifications;
- H) 3 no. temporary (for 3 years) marketing signage structures [2 no. at the proposed entrance and 1 no. at the junction of the R760 and the Cookstown Road] and a single storey marketing suite (c. 81 sq.m) within site;
- I) All ancillary site development/construction/landscaping works, along with provision of footpath/public lighting to Powerscourt National School pedestrian entrance and lighting from Powerscourt National School entrance to the junction of the R760 along southern side of Cookstown Road and pedestrian crossing across Cookstown Road.

The subject lands are located on the south eastern side of Enniskerry, c.1km from the village centre. The lands are situated to southern side of the L1020 (Cookstown Road) and to the east of the R760. The main development site under the ownership of Cairn comprises 6.27 hectares with additional areas for footpath and public lighting upgrade (including services upgrade along the Cookstown Road) of c. 0.3 ha, resulting an overall area of 6.57 hectares. The relevant letters of consent are included in the particulars with the SHD application.

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.

The Strategic Housing Development (SHD) proposal comprises the development of 165 no. dwellings as well as a creche and open space and additional footpath and lighting along the southern side of the Cookstown Road.

1.1 PURPOSE OF THIS EIAR

The objective of this EIAR is to identify and predict the likely significant environmental impacts of the proposed development; to describe the means and extent by which they can be reduced or ameliorated; to interpret and communicate information about the likely impacts; and to provide an input into the decision making and planning process.

The EIAR is the primary element of the Environmental Impact Assessment (EIA) process and is recognised as a key mechanism in promoting sustainable development, identifying environmental issues, and in ensuring that such issues are properly addressed within the capacity of the planning system.

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 6 to 17.

1.3 SCREENING – REQUIREMENT FOR EIA

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

The proposed development falls within categories 10(b)(i) and 10(b)(iv) of Part 2 of Schedule 5 of the Planning and Development Regulations 2001-2015. Category 10(b)(i) refers to 'Construction of more than 500 dwellings'. Category 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.*'

For both categories, the proposed development is below the mandatory threshold for EIA at 165 no. dwellings and 6.57 hectares in area, respectively. Notwithstanding this, an EIAR has been prepared to accompany the subject application, having regard to the specific characteristics and features of this site, its size, and the quantum of development proposed.

1.4 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 2000-2018 as well as the Planning and Development Regulations, 2001, as amended (in particular by the European Union (Planning & Development) (Environmental Impact Assessment) Regulations 2018).

1.5 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.**

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. Environmental aspects considered include:

Chapter 3	Population and Human Health;
Chapter 4	Biodiversity;
Chapter 5	Land and Soils;
Chapter 6	Water;
Chapter 7	Climate (Air Quality);
Chapter 8	Air (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 & Architectural Heritage);
Chapter 14	Risk Management;
Chapter 15	Interactions;
Chapter 16	Summary of Mitigation Measures;
Chapter 17	References.

• Volume III: Technical Appendices

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

1.6 EIAR PROJECT TEAM

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.

1.6.1 EIAR Competent Experts/Environmental Specialists

The relevant specialist consultants who contributed to the EIAR and their inputs are set out in Table 1.2 below.

Table 1.1 – 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
Openfield, Padraic Fogarty, MSc, MIEMA MSc from Sligo Institute of Technology for research into Ecological Impact Assessment (EclA) in Ireland. OPENFIELD is a full member of the Institute of Environmental Management and Assessment (IEMA) Dr. Tina Aughney Bat Eco Services Licenced Bat Specialist - Honours degree in Environmental Science from NUI Galway and Ph.D.	Biodiversity Biodiversity (Bats)
Mr John Considine, Director of Barrett Mahony Consulting Engineers (Civil & Structural), BE, CEng, MIEI, MIStructE, FConsEI Chartered Engineer	Land and Soils/ Population and Human Health

Organisation	EIAR Specialist Topics / Inputs
Mr Paul Stephenson, Senior Geotechnical Engineer BE(Hons), MIEI, CEng, Chartered Engineer	
Mr John Considine, Director of Barrett Mahony Consulting Engineers (Civil & Structural), BE, CEng, MIEI, MStructE, FConsEI Chartered Engineer Mr Paul Stephenson, Senior Geotechnical Engineer BE(Hons), MIEI, CEng, Chartered Engineer	Water and Hydrogeology
Mr John Considine, Director of Barrett Mahony Consulting Engineers (Civil & Structural), BE, CEng, MIEI, MStructE, FConsEI Chartered Engineer	Material Assets-Traffic
Byrne Environmental Ian Byrne Managing Director, MSc, MIOA, Diploma in Environmental & Planning Law	Material Assets (Waste Management)
Mr John Considine, Director of Barrett Mahony Consulting Engineers (Civil & Structural), BE, CEng, MIEI, MStructE, FConsEI Chartered Engineer Margaret Dolan, Associate, Waterman Moylan, BSc (Hons) in Electrical Services and Energy Management – Chartered Engineer.	Material Assets (Utilities)
Byrne Environmental Ian Byrne Managing Director, MSc, MIOA, Diploma in Environmental & Planning Law	Air Quality and Climate (Population and Human Health)
Byrne Environmental Ian Byrne Managing Director, MSc, MIOA, Diploma in Environmental & Planning Law	Noise and Vibration (Population and Human Health)
Áit Urbanism + Landscape Margaret Egan Director Landscape Architect MILI Diploma in Environmental Impact Assessment Management , University College Dublin Bachelor of Agricultural Science (Landscape Horticulture/Landscape Architecture), University College Dublin Bachelor of Science in Environmental Resources Management, Dublin Institute of Technology Cynthia Jayne Dunwoody Landscape Architect MILI MLA Landscape Architecture, University of Edinburgh, Scotland BSc Mathematics with Geography, University of St. Andrews, Scotland	Landscape and Visual Impacts
Mr John Considine, Director of Barrett Mahony Consulting Engineers (Civil & Structural), BE, CEng, MIEI, MStructE, FConsEI Chartered Engineer	Risk Management
Faith Bailey MA, BA (Hons), MCIfA Associate Director	Archaeology, Architectural and Cultural Heritage

Organisation	EIAR Specialist Topics / Inputs
Rob Goodbody BA (mod) TCD – Historical Geography; Post-grad Diploma in Environmental Planning; MA in Local History (NUI Maynooth); Masters in Urban and Building Conservation (UCD); Post-grad Diploma in Applied Building Repair and Conservation (TCD); Member of Irish Planning Institute	
John Spain, BBS, MRUP, MRTPI, MIPI, Managing Director, John Spain Associates	Review of EIAR

1.7 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 An Bord Pleanála and Wicklow County Council (Planning Authority) at a fee not exceeding the reasonable cost of reproducing the document. It can also be viewed on the SHD website: www.CookstownroadSHDplanning.com set up by the applicant.

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT AND ALTERNATIVES EXAMINED

2.1 DESCRIPTION OF THE LOCATION OF THE PROPOSED DEVELOPMENT

The development will consist of the construction of 165 no. dwellings, open space, a creche and associated ancillary infrastructure.

The subject lands are located on the south eastern side of Enniskerry, c.1km from the village centre. The lands are situated to southern side of the L1020 (Cookstown Road) and to the east of the R760. The main development site under the ownership of Cairn comprises 6.27 hectares with additional areas for footpath and public lighting upgrade (including services upgrade along the Cookstown Road) of c. 0.3 ha, resulting an overall area of 6.57 hectares. The relevant letters of consent are included in the particulars with the SHD application.

The lands are currently in agricultural use and are bounded to the north by existing residential development in Enniskerry Demesne, with the Summerhill House Hotel located further to the north. The Powerscourt National School is located immediately adjacent, adjoining the site to the west. A small number of standalone houses are also located in the vicinity, to the east and south. There is zoned residential lands to the west (recently granted permission for a residential development). The Powerscourt Estate and Hotel are located further to the west.

Figure 2.1 – Site Layout Housing



The Site Layout Plan (figure 2.1) prepared by Mola Architects shows the overall layout in context.

2.1.1 Demolition

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

2.1.2 Residential Development

The proposed 165 no. dwellings are as follows:

- 49 no. 3 bedroom houses and 56 no. 4 bedroom houses;
- 56 no. apartments/duplex apartments in 6 no. 3 storey blocks – (28 no. 2 bedroom apartments at ground floor and 28 no. 3 bedroom duplexes above) all units to have terrace;
- 4 no. 1 bedroom Maisonette dwellings in a 2 storey building

Figure 2.2 – View from Northern Boundary



Source CGI no. 1 – 3D Design Bureau

The overall mix is as follows:

Table 2.1 – Overall Dwelling Mix

	1 bedroom	2 bedroom	3 bedroom	4 bedroom	Overall
Houses			49	56	105
Duplex Apartments/Apartments		28	28		56
Maisonette Dwellings	4				4
Overall Mix	4	28	77	56	165
	2.4%	17.0%	46.7%	33.9%	100%

Source: MOLA Architects Schedule of Areas

A wide variety of dwelling typologies are included in the proposal, including 2 storey houses, duplex apartments and apartments, along with Maisonette Dwellings.

Figure 2.3 – View from Linear Open Space

Source: CGI no. 3 – 3D Design Bureau

2.1.3 Duplex Apartment Buildings

Figure 2.4 – Duplex Elevation

Source: Mola Architects

It is proposed to provide 56 no. apartments/duplex apartments in 6 no. 3 storey buildings (28 no. 2 bedroom apartments and 28 no. 3 bedroom duplex apartments) all with terrace. The duplex apartments are located in the north western portion of the subject site, with 2 no. buildings fronting onto the Cookstown Road (and 2 no. further blocks located to the south). In addition it is proposed to provide 2 no. further duplex blocks along the eastern boundary.

2.1.4 Maisonette Dwellings

It is proposed to provide 4 no. 1 bedroom Maisonette dwellings in a 2 storey building located in the western portion of the subject site.

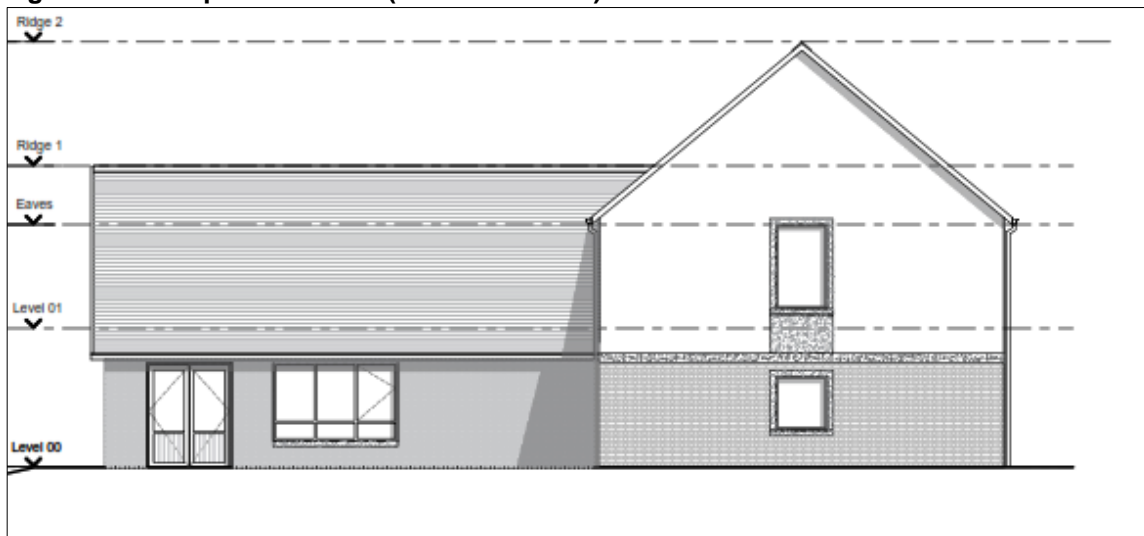
Figure 2.5 – Maisonette Elevation (front)



2.2 CRECHE PROVISION

It is proposed to provide a two storey creche of c. 510 sq. m (including storage) along with an external play area. The creche is located to the north of the site, positioned beside Powerscourt National School. The creche will provide c. 100 childcare spaces based on a gross floor space of 5 sq. m for each child. The creche is located on the Community CE zoned lands which is considered appropriate for this use.

Figure 2.6 – Proposed Creche (North Elevation)



Source: MOLA

2.2.1 Refuse Storage

Waste storage is provided for the individual blocks by the provision of a separate bin store. The refuse stores provide adequate storage space to satisfy the three-bin system for the collection of mixed dry recyclables, organic waste and residual waste.

2.2.2 Temporary Marketing Suite and Signage

It is proposed to provide a single storey temporary marketing suite (c. 84 sq. m) within the southern portion of the subject site along with signage (at 3 no. locations) for a period of 3 years.

2.3 INTERNAL ROAD LAYOUT

The internal road layout (as set out in the DMURS Statement of Compliance, prepared by BMCE) has been designed in accordance with the key design principles of the Design Manual for Urban Roads and Streets (DMURS).

2.4 ACCESS AND PARKING

The site's main access will be from the LP1020 (Cookstown Road), with permeability provided to the boundary to the lands to the west, along with pedestrian connection through the open space along the southern boundary to the 'Lover's Leap Lane', which connects to the R760 (and pedestrian path), which links to the village centre.

2.4.1 Car Parking and Bicycle Parking

It is proposed to provide 313 no. car parking spaces 2 per house – 210 spaces as well as 103 no. car parking spaces for the duplex/apartment units.

In addition it is proposed to provide 150 no. bicycle spaces as follows:

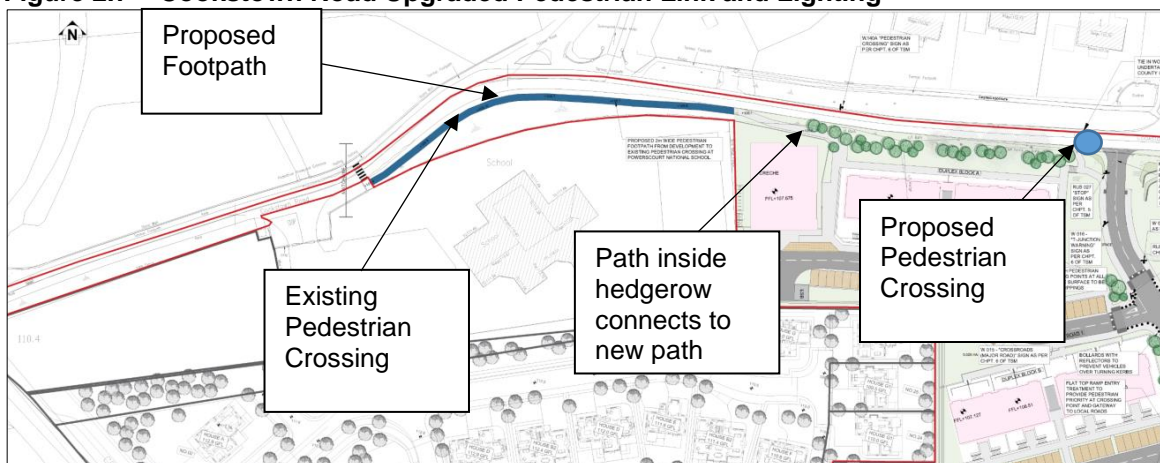
- 88 no. for the duplex/apartment in secure bike storage;
- 12 no. for the creche;
- 40 no. visitor spaces;
- 10 no. visitor spaces – Linear Park;

The development includes provision for secure cycle storage. The apartment/duplex blocks will have access to bike stores (88 no. in total). In addition, external Sheffield stands will be located throughout the scheme, providing spaces for use by visitors (50 no. no. spaces). Houses and duplex units with rear garden areas will be able to store bicycles independently.

2.5 FOOTPATH UPGRADES

The proposal includes a footpath upgrade (including lighting) along the southern side of the Cookstown Road to the Primary School where there is a crossing connecting to the norther side of the Cookstown Road, and which connects to the town centre of Enniskerry to the north. In addition it is proposed to provide public lighting between the Primary School and the junction of R760 to the west. The relevant letters of consent are included with the application. Additional lighting is proposed between the school and the R760 to the west. The footpath joins up with the internal footpaths in the scheme (so as to maintain as much as possible the trees along the Cookstown Road).

Figure 2.7 – Cookstown Road Upgraded Pedestrian Link and Lighting



Source: BMCE 18243-BMD-00-ZZ-DR-C-1010

In addition, (with the agreement of Wicklow County Council) a pedestrian crossing could be provided to tie into the existing footpath located on the northern side of the Cookstown Road.

2.6 LANDSCAPING

The Landscape Design Statement prepared by Kevin Fitzpatrick – Landscape Architecture (KFLA) sets out the Landscaping Strategy for the subject lands. Proposed pedestrian routes provide for connection to the adjoining lands to fully integrate the landscape scheme with the surrounding landscape. The layout of the paths and planting allows smaller areas of lawn suitable for passive uses by smaller children and other alternative uses to the kickabout space.

The proposed development includes a substantial linear park open space area (primarily on zoned OS1) along the southern boundary of the subject site of c. 0.93 hectares.

Figure 2.8 – Linear Parkland



Source KFLA

As set out in the KFLA report, this large linear open space of c. 0.93 hectares has been designed as an ecological park with the aim of strengthening local biodiversity while offering a range of uses to residents of the local area. This approach creates new habitats for local flora and fauna and encourages easier movement of smaller mammals through the site. Breaks in the tree and shrub planting have been created to establish a visual connection between the proposed park area and the streetscape, encouraging residents and passers-by to utilise the park and to allow a high level of passive supervision. New connections are also provided to the boundary of amenity walks to the south to 'Lovers Leap Lane' and surrounds.

Figure 2.9 – Northern Open Space – 'The Lawn'



Source KFLA

The design of the Northern Open space is centred around a central lawn space for active and passive recreation. A series of formal hedges are used to create an edge to the space and control active activities from spilling out on to

the street. The entrance to the scheme from the public road is to be marked by a series of stone walls, drawing on some of the traditional materials and landscape elements found in the local landscape. The walls will be designed in an aesthetic, sculptural arrangement to highlight the entrance area.

This series of spaces has been designed using the linear drainage systems as the focal element of the landscape. The arrangement of these spaces aims to accentuate the vista to the Sugarloaf Mountain.

Figure 2.10 – Central Spaces ‘The Vista’



Source KFLA

Figure 2.11 – View towards Great Sugar Loaf



Source: CGI no. 3 – 3D Design Bureau

2.7 SERVICES

The Civil Engineering Infrastructure Report and Flood Risk Report and drawings prepared by BMCE Consulting Engineers, submitted with the SHD application provides the overall strategy and detail for the services to serve the subject lands. It is proposed for the gravity foul drainage network on site to drain to the northeast corner of the site, which is the lowest point of the development. From here it is to be pumped to the existing 225mm foul sewer at the R760 sewer junction. Wicklow County Council stated that the proposed development should accommodate future connections from neighbouring sites.

The proposed development has received both a Confirmation of Feasibility, and a Statement of Design Acceptance from Irish Water.

2.8 CONSTRUCTION MANAGEMENT STRATEGY

An outline Construction and Environmental Management Plan has been prepared by BMCE and is included with the SHD application. The Outline CEMP will be developed and agreed between the contractor and Wicklow County Council prior to commencement of development.

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.

2.8.1 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) and together with them will prepare and maintain the vibration, noise, dust and groundwater monitoring plan, for the agreement/approval of the Client, Employers Representative and the Technical Advisors.

2.8.1.1 Hours of Working

Unless required otherwise by Wicklow County Council, it is proposed that standard construction working hours should apply, i.e.:

- 7am to 6pm Monday to Friday
- 8am to 2pm on Saturdays.

Any works proposed outside of these periods shall be strictly by agreement with the Local Authority in advance. Deliveries of material to site will be planned to avoid high volume periods. There may be occasions where it is necessary to make certain deliveries outside these times, for example, where large loads are limited to road usage outside peak times. There may be occasions where it is necessary to have deliveries within these times. The Contractor will develop, agree and submit a detailed Traffic Management Plan, to WCC, for the project prior to commencement.

2.8.2 Noise and Dust Management

The main contractor will be required to be accredited with ISO14001 Environmental Management Systems. The main contractor will be required to mitigate the impact of the construction works.

2.8.3 Construction Traffic Management Plan

2.8.3.1 Traffic Management & Construction Access

A Construction Traffic Management Plan (CTMP) will be developed by the main contractor and agreed with the Planning Authority and An Garda Síochána prior to commencement of development in the event of a grant of permission, to mitigate the potential impacts of construction related traffic on the surrounding road network.

Construction vehicle movements will be minimised through:

- Consolidation of delivery loads to/from the site and scheduling of large deliveries to site to occur outside of peak periods;
- Use of precast/prefabricated materials where possible;
- ‘Cut’ material generated by the construction works will be re-used on site where possible, through various accommodation works.
- Adequate storage space on site will be provided;
- Construction staff vehicle movements will also be minimised by promoting the use of public transport.
- Car sharing among the construction staff following Covid-19 safety guidelines may be used to reduce traffic numbers. Public Transport: An information leaflet to all staff as part of their induction on site highlighting the location of the public transport services in the vicinity of the construction site.

2.8.4 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 WCC. 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 if necessary, to ensure that this is so.

Reinstatement at completion of the works will involve:

- Testing and cleaning of all watermain in the development to the requirements of the IW / WCC prior to connection to the public watermain. This will reduce the risk of contamination to the public water supply when the new network is connected to the system.
- Repair of any damage to any adjacent public roadways, kerbs, grass verges etc. in accordance with WCC requirements.
- Reinstatement of all excavations to the requirements of WCC.
- Leaving the area in a neat and clean condition, removing all deleterious materials that may have been deposited during construction works.

2.8.5 Construction Phasing

At present it is envisaged that the development will be constructed in 1 phase. However, the project may be constructed in a number of phases for commercial reasons. The exact number of phases and the make-up of each will be subject to market conditions and commercial considerations at the time.

2.9 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.

2.10 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 the relevant 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.

2.11 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.

2.12 TRANSBOUNDARY IMPACTS

Large-scale transboundary projects¹ 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.

Having regard to the nature and extent of the proposed development, which comprises a residential development, located in Enniskerry, within the administrative area of County Wicklow, transboundary impacts on the environment are not considered relevant, in this regard.

2.13 ALTERNATIVES CONSIDERED

Chapter 2 of the EIAR (volume II) 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.

2.13.1 Alternative Locations

The site is zoned for residential and open space development under the Bray Municipal District Local Area Plan 2018-2024 within the ownership of Cairn Homes Properties Ltd., and as such, consideration of alternative sites is not necessary. In effect, an alternative location in this instance i.e., a '*do-nothing*' alternative for the subject site, would mean that these residential zoned lands would not be utilised for the purposes of meeting the need for new residential accommodation within Enniskerry. If development does not occur sequentially from the existing development footprint, it is likely that pressures for the development of land which is either un-zoned or un-serviced and not as close to the town centre would be greater. This would lead to a dispersed and unsustainable form of development.

A "*do-nothing*" scenario was considered to represent an inappropriate unsustainable and inefficient use of these serviced residential zoned lands within the envelope of the town of Enniskerry.

2.13.2 Alternative Uses

In addition to residential use, there are other land uses which are permitted in principle on these lands. The proposal includes for Open Space, Community and Educational. It is not considered that an alternative comprising one of the alternative uses would result in the best use of these lands, particularly having regard to the general acknowledged need for housing. The environs of the subject site are largely residential in nature interspersed with some commercial uses. In this context, the proposal now the subject of this application comprises appropriate land uses in accordance with the proper planning and sustainable development of the area.

2.13.3 Description of Alternative Processes

This is not considered relevant to this EIAR having regard to the nature of the proposed (residential) development. It is noted the proposed construction works comprise relatively standard building construction processes. As such there are no specific alternative construction processes identified. With reference to the operational phase, no new, unusual or technically challenging operational techniques are required, as such no alternative operational processes have been considered.

¹ 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>

2.13.4 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 Urban Heights 2018, the Apartment Guidelines 2018 and the Sustainable Residential Development in Urban Areas (2009) as well as where relevant the Wicklow County Development Plan 2016-2022 and the Bray Municipal District Local Area Plan 2018-2024 and has been the subject of a number of a pre-application meeting with the Planning Authority and An Bord Pleanála, prior to lodgement of the SHD application with An Bord Pleanála. The key structuring principles of the LAP in respect of the agreed AA3, within which the proposed development is located was also taken into account.

The pre-planning meeting notes are set out in Appendix 2 of the Consistency Report prepared by John Spain Associates which accompanies this SHD application. The proposal has also been the subject of a pre-application SHD consultation with the Board, with a number of design alterations arising following the opinion from An Bord Pleanála.

The key environmental and practical considerations which have influenced the design of the proposed development and the alternative layouts on the subject lands have been influenced by the following:

- The need to achieve an appropriate density in the context of the Sustainable Residential Guidelines for Planning Authorities having regard to the location of the site within an established small town.
- The need to ensure any residential development provides a good mix of housing typologies which meet current market demand and which are deliverable in the short to medium term.
- The need to provide a sustainable level of housing provision on the residential zoned lands.
- The need to deliver good quality open space in appropriate locations with a clear hierarchy
- To have regard to the site's topography and to ensure the design the residential development and associated infrastructure respects the existing features and limits the impacts on the land.
- Protection of existing trees and hedgerows where possible,
- The provision of 10% social housing on site.

Responses to each of these items have been provided as part of this final application pack, and the scheme has been updated and improved where necessary as a result. The design intent has been to address the issues identified by the Local Authority reports by the various Departments of Wicklow County Council, where possible.

The proposal as now submitted to the Board is considered to be the optimal design solution for the subject site, having regard to the site's constraints and to the objective of making efficient use of the serviced residential lands, while also addressing the potential impacts on the environmental sensitivities relating to the subject lands, in respect of visual and biodiversity impacts (including bats).

2.13.5 Proposed Preferred Alternative

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 design consideration for the subject lands were subject to a pre-application meeting with Wicklow County Council as well as a formal SHD meeting with An Bord Pleanála. The environmental issues which most informed the design process related to ecology, archaeology, water, noise, and permeability. These considerations have informed the consideration of alternative layouts, open space, the issue of road/footpath and access arrangements up to the submission of the current scheme as a Strategic Housing Development application to An Bord Pleanála.

To summarise it is considered that the final layout:

- Takes into account the Opinion of An Bord Pleanála to improve the design and reduce impacts as well as reviewing and addressing the technical reports of Wicklow County Council
- Provides a sustainable density on the subject lands in accordance with national strategic Government guidance.
- Provides improved permeability through the site, linking to the existing Lover's Leap Lane to the south.
- Includes enhanced pedestrian connections and lighting along the southern portion of the Cookstown Road.
- Avoids significant environmental impacts on the receiving environment.

To conclude, the overall design of the proposed development takes into account all environmental effects raised with respect to the Pre-application design submitted to An Bord Pleanála, and within the Board's Opinion, 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.

2.13.6 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.

Article 3 of the Environmental Impact Assessment (EIA) Directive 2014/52/EU, requires the assessment of expected effects of major accidents and/or disasters within an EIA. Article 3(2) of the Directive states that *"The effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned"*.

2.14 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 planned projects in the immediate area. The potential cumulative impacts primarily relate to traffic, dust, noise and other nuisances from the construction of the development, with other planned or existing projects, and each of the following EIAR chapters has regard to these in the assessment and mitigation measures proposes.

With regard to permitted and future developments, the adjoining site to the west (located in the AA3 lands) has an extant permission for 27 no. dwellings (Planning Reg. Ref. 19/871). To the north east is an extant permission for 6 no. dwellings (Planning Reg. Ref. 16976). Further to the north west of the town centre, there is a proposal on lands at Kilgarron Hill (on the AA2 lands), which received a reasonable basis opinion from An Bord Pleanála (on the 21st January 2021 – ABP Ref. 308676-20) for 219 no. dwellings. It is noted the SLO10 lands, permission was granted for 12 no. detached dwellings on the 18/4/2020 by An Bord Pleanála (PL27.248914 WCC Ref. 17/15). The Powerscourt Demesne landbank has an extant permission for 47 no. dwellings. In addition, it is noted the Bray MD LAP includes the development of the Fassaroe lands which is located c. 750m to the north east of the proposed development site, which is identified as an area for future development of c. 4,000 dwellings along with supporting retail, commercial and areas of open space. The relevant applications have been taken into account in the chapters. Existing developments have also been considered in the relevant chapters.

The foul and water pipe works will entail works to the public road and would be subject to a road opening licence under Section 254 of the Planning and Development Acts 2000 (as amended) from Wicklow County Council. As part of the road opening licence, it is anticipated that a Construction Traffic Management Plan would be agreed with Wicklow County Council, by the contractor. The objective of which is to minimise the short-term disruption to local residents and reduce the potential for accidents. This may cause local short-term inconvenience and disturbance to residents and business in the vicinity of the works, and in particular the adjacent Primary School. 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. As such, with the necessary mitigation for each environmental aspect, it is anticipated that the potential cumulative impact of the proposed development in conjunction with the other planned developments will be minimal.

3.0 NON-TECHNICAL SUMMARY OF EIAR CHAPTERS

3.1 POPULATION AND HUMAN HEALTH

The subject lands are located on the south eastern side of Enniskerry, c.1km from the village centre. The lands are situated to southern side of the L1020 (Cookstown Road) and to the east of the R760. The main development site under the ownership of Cairn Homes Properties Ltd comprises 6.27 hectares with additional areas for footpath and public lighting upgrade (including services upgrade along the Cookstown Road) of c. 0.3 ha, resulting an overall area of 6.57 hectares. The relevant letters of consent are included in the particulars with the SHD application.

The lands are currently in agricultural use and are bounded to the north by existing residential development in Enniskerry Demesne, with the Summerhill House Hotel located further to the north. The Powerscourt National School is located immediately adjacent, adjoining the site to the west. A small number of standalone houses are also located in the vicinity, to the east and south. There is zoned residential lands to the west (recently granted permission for a residential development). The Powerscourt Estate and Hotel are located further to the west.

Enniskerry village has an attractive centre and historic streetscape. It provides a range of retail shops and services as well as a number of coffee shops/restaurants and public houses.

The proposed development will provide for a high quality, predominantly residential development which increases the density of the subject site at a highly suitable location, which is served by a broad range of facilities and infrastructure and is to include a host of amenities which will serve to benefit the surrounding residential populace.

The construction phase of the proposed development is likely to result in a positive net improvement in economic activity in the area of the proposed development site, particularly in the construction sector and in associated and secondary building services industries. The sector has grown strongly in recent years and this development will help to further enhance growth and reduce the increasing pressure on the housing market. The construction sector (including associated services) was documented as one of the most adversely impacted sectors of the Irish economy following the previous economic downturn in 2008. Given the economic impact of COVID-19, this development will help to sustain and promote employment.

The construction of the development and all associated infrastructure will precipitate a positive impact on construction-related employment for the duration of the construction phase. The phased construction of the proposed residential units, open space, and a childcare facility, alongside associated physical infrastructure will result in a construction period over an approximate 24-36 month timeline and will consequently enhance economic activity during this period. A considerable amount of the work will be undertaken by sub-contractors who will also work elsewhere on a phased basis over the construction phase.

The construction phase will also have secondary and indirect '*spin-off*' impacts on ancillary support services in the wider area of the site, such as retail services, together with wider benefits in the aggregate extraction (quarry) sector, building supply services, professional and technical professions etc. These beneficial impacts on economic activity will be largely temporary but will contribute to the overall future viability of the construction sector and related services and professions over the phased construction period.

In the absence of mitigation, the proposed development could have a slight negative, short-term impact on the surrounding area during construction phase due to traffic and associated nuisance, dust and noise. These issues and appropriate mitigation measures are addressed in Chapters 7 & 8 of the EIAR, in the Traffic and Transportation Assessment, Construction Management Plan and the Waste Management Plan which accompany the application. The Traffic and Transportation Assessment recommends that a Construction Traffic Management Plan be implemented for the site which will minimise disruption to the surrounding road network.

The operational phase of the proposed development will result in the provision of 165 residential units and a creche. This will provide accommodation for approximately 454 persons, based upon the existing average occupancy rate of 2.74 per household (based on CSO 2016 Census figures for the State). This increase in occupancy in the area will enhance local spending power and will assist with the delivery of a critical mass of population which will support a wide range of additional local businesses, services, transport infrastructure and employment opportunities. Provide much needed residential accommodation within the town of Enniskerry and accords with National Policy on delivering Sustainable Residential Communities.

The proposal includes an element of Part V provision in accordance with the requirements of the Planning Authority, which will provide for an enhanced mix of tenures, and add to the existing social housing stock. The overall benefit to the economic activity of the surrounding area resulting from the development can be considered moderate, long term, and positive.

The construction phase of the proposed development is unlikely to have any significant impact on social patterns within the surrounding area. Some additional temporary additional local populations may arise out of construction activity. However these impacts are imperceptible, temporary in nature and therefore not considered significant.

The addition of new residents and an additional element employment to the area will improve the vibrancy and vitality of the area and will help to support existing community and social infrastructure, in addition to further supporting nearby neighbourhood centre and commercial businesses. As set out within the Social and Community Infrastructure Audit submitted as a standalone report with the application, there is a considerable range of existing community and social infrastructure within Enniskerry and the environs of the subject site, which the proposed development will be able to avail of.

The Social and Community Infrastructure Audit also demonstrates that the extra demand created by the proposal for primary and post primary educational facilities will not be significant in relation to current levels of local provision, while increased levels of demand from the scheme is unlikely to result in significant impact on existing services.

The proposed development includes the provision of a childcare facility with a GFA of 510 sq.m. As set out within the Community and Social Infrastructure Audit report, this childcare facility will accommodate the likely demand arising from the proposed development.

Once operational, the proposed development will give rise to much needed additional residential accommodation. Residents will spend a portion of their income locally which would not happen without the proposed development. The creche will provide some employment opportunities in the operational phase of the development.

The current planning application is accompanied by a Social and Community Infrastructure Audit report prepared by John Spain Associates, which confirms that the area within which the proposed development is situated has the necessary community and social infrastructure to support the proposal.

Having regard to the fact that the area within which the development is situated benefits from a good level of social and community infrastructure, and noting the elements of the proposed development which will improve and strengthen this infrastructure, it is concluded that the proposed development will precipitate a moderate, positive, long term impact on social patterns in the operational phase.

The potential cumulative impacts of the proposed development on population and human health have been considered in conjunction with the ongoing changes in the surrounding area. Visits to the subject site and surrounding area and desk-based review of online planning files have been undertaken to identify the existing pattern of development, nearby uses, and any permitted / ongoing developments of relevance to the current proposals in the context of population and human health. The surrounding area is defined by a broad and varied mix of uses, including residential, commercial, recreational and civic uses.

The overall cumulative impact of the proposed development will therefore be long term and positive with regard to human health, as residents will benefit from a high quality, visually attractive living environment, with strong links and pedestrian permeability. Having regard to the assessment of cumulative impacts, it is not considered that any additional mitigation measures are required further to those which are outlined above.

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 and Environmental Management Plan, any adverse likely and significant environmental impacts will be avoided. Positive impacts are likely to arise due to an increase in employment and economic activity associated with the construction of the proposed development.

The proposed development is not likely to result in any significant adverse effects on population and human health, and will result in several positive impacts. These include inter alia a significant positive economic impact during both the construction and operational phases of the proposed development, along with positive impacts on the land use and settlement patterns, housing, employment, and social patterns. The implementation of the range of remedial and mitigation measures included throughout this EIAR document will have the impact of limiting any likely adverse

environmental impacts of the construction and operational phase of the proposed development on population and human health.

3.2 BIODIVERSITY

The assessment was carried out by suitably qualified ecologists and with reference to relevant guidance documents. Site visits were carried out on the 30th of July 2019, March 5th 2020, May 27th 2020 and December 2nd 2020 in fair weather.

The development lands consist of a field of **improved agricultural grassland – GA1** which is grazed by cattle. This grassland is dominated by grasses such as Yorkshire Fog *Holcus lanatus* and Creeping Bent *Agrostis stolonifera* along with Ragwort *Senecio jacobaea*, Clovers *Trifolium sp.*, Knotgrass *Polygonum aviculare* and Common Mouse-ear *Cerastium fontanum*. This is a habitat of low biodiversity value.

Boundary features are composed of either **hedgerows – WL1** or **treelines – WL2**. Hedgerows are of native origin with Hazel *Corylus avellana*, Hawthorn *Crataegus monogyna*, Elder *Sambucus nigra*, Holly *Ilex aquilinum*, Ash *Fraxinus excelsior*, Blackthorn *Prunus spinosa* and Spindle *Euonymus europaeus*. Using methodology from the Heritage Council these hedges are of 'higher significance' due to their age, structure and species diversity (Foulke et al., 2013). Along the roadside there is a tall treeline with large Oak *Quercus sp.*, Beech *Fagus sylvatica*, Ash, Holly and Sycamore *Acer pseudoplatanus*. A treeline along the eastern boundary is different in character with mostly coniferous trees. The non-native Leyland Cypress *Cuprocyparis leylandii* and Sitka Spruce *Picea stichensis* are frequent while Sycamore and the native Scot's Pine *Pinus sylvestris* is also found. The roadside boundary is assessed as 'higher significance' while the conifer treeline is 'lower significance'.

Sections of land within the redline boundary are located in front of the school and to the west of the school as far as the junction with the R760. This is a combination of mown **amenity grassland – GA2** and unmown **dry meadow – GS2** with Creeping Bent *Agrostis stolonifera*, Dandelions *Taraxacum sp.*, Ragwort *Senecio jacobaea* and scattered, mid-aged Grey Willow *Salix cinerea*.

There are no plant species growing on the lands which are listed as alien invasive under Schedule 3 of S.I. 477 of 2011. There are no habitats which are examples of those listed in Annex I of the Habitats Directive while there is no evidence that species listed in Annex II of that Directive are present.

The site survey included incidental sightings or proxy signs (prints, scats etc.) of faunal activity, while the presence of certain species can be concluded where there is suitable habitat within the known range of that species.

Suitable habitat is not present for Pine Marten or Red Squirrel on the site itself although there are records of both species from nearby woodlands. Irish Stoat, Hedgehog, Pygmy Shrew and Irish Hare are considered widespread (Lysaght & Marnell, 2016). There was no evidence that deer are using the site although Sika Deer are known to be widespread in this area.

No signs of Badger activity were noted during either survey and there are no setts on the lands. Badgers are active in the area however and the habitats on this land are suitable for them.

A series of dedicated bat survey was carried out in September 2017, August 2019, May 2020, during the optimal flight period by Dr Tina Aughney. This found that "While there are no buildings or structures within the proposed development area, there is an important roost located adjacent to the proposed development area. Saint Patrick's Church of Ireland is located adjacent to the northern boundary of the proposed development site. This is a known brown long-eared bat maternity roost (Bat Conservation Ireland Site Code 2125) and is monitored annually by local volunteer team for Bat Conservation Ireland as part of the Irish Bat Monitoring Programme. This structure has been surveyed since 2013 with a total of 24 surveys completed (3 surveys per year). The number of bats recorded in this structure has ranged from 9 individuals to 43 individuals. [...]"

In summary, it has been seen that the development lands are in agricultural use with linear woodland boundaries. Native hedgerows and the broad-leaved treeline are of high local value to biodiversity however other habitats are of low value. There are no examples of habitats listed on Annex I of the Habitats Directive or records of rare or protected plants. There are no species listed as alien invasive as per SI 477 of 2011.

There are no water courses on the development site and so there are no direct hydrological links to the River Dargle. Indirect hydrological pathways lead to the River Dargle and the Irish Sea via wastewater and surface water. There are no Natura 2000 sites in these areas of the River Dargle or at its mouth at the Irish Sea.

The River Dargle and Glencullen fall within the hydrological catchment of the development site and these rivers are of fisheries significance while a section of the River Dargle downstream of the development site lies within the River Dargle Valley pNHA.

Significance criteria are available from guidance published by the National Roads Authority (NRA, 2009). These are reproduced below.

Table 3.1 – Evaluation of the importance of habitats and species on the Enniskerry site

Habitat	Significance
Improved agricultural grassland – GA1 Conifer Treeline – WL2 Dry meadow – GS2	Low local ecological value
Hedgerow – WL1 Broad-leaved treeline – WL2	High local ecological value
Amenity grassland – GA2	Negligible ecological value

A number of the identified impacts can also act cumulatively with other impacts from similar developments in the north Wicklow/greater Dublin area.

These primarily arise through the urbanisation of the city's hinterland as provided for by land use zoning and include: loss of habitats, particularly hedgerows and treelines; spread of alien invasive species, pollution from surface water run-off and pollution from wastewater generation.

It is noted the adjoining site to the west (located in the AA3 lands) has an extant permission for 27 no. dwellings (Planning Reg. Ref. 19/871). To the north east is an extant permission for 6 no. dwellings (Planning Reg. Ref. 16976). Further to the north west of the town centre, there is a proposal on lands at Kilgarron Hill (on the AA2 lands), which received a reasonable basis for an application for 219 no. dwellings. It is noted the SLO10 lands, permission was granted for 12 no. detached dwellings on the 18/4/2020 by An Bord Pleanála (PL27.248914 WCC Ref. 17/15). The Powerscourt Demesne landbank has an extant permission for 47 no. dwellings. Further to the north, the development permitted by 19/676 relates to the importation of greenfield soil and stone for the improvement of lands for agriculture, to the east of the SAC was also considered. In addition, it is noted the Bray MD LAP includes the development of the Fassaroe lands which is located c. 750m to the north east of the proposed development site, which is identified as an area for development of c. 4,000 dwellings along with supporting retail, commercial and areas of open space.

There will be some temporary residual impacts to biodiversity arising from this project and cumulatively with adjoining lands.

- The removal of hedgerow and treeline habitats will result in some mortality to species and habitat loss. These temporary effects are predicted to be not significant. Mortality to protected species is not likely.
- As landscaping matures it is likely that negative effects from habitat loss will be offset.

- No residual effect will arise to water quality.

With mitigation, there are expected to be no residual negative effects to biodiversity which can be considered to be significant.

No residual, negative effects are predicted during the operational phase.

Table 3.2 – Significance level of likely impacts after mitigation

Impact		Significance
Construction phase		
1	Loss of habitat	negative, moderate, likely and permanent
2	Mortality to animals during construction	negative, not significant, likely and permanent
3	Pollution of water during construction phase	negative, likely, imperceptible and short-term
4	Impacts to trees to be retained	negative, likely, imperceptible and permanent
Operational phase		
5	Wastewater pollution	neutral, unlikely, imperceptible and permanent
6	Surface water pollution	neutral, unlikely, imperceptible and permanent
7	Artificial lighting	negative, moderate, likely and permanent
8	Impacts to protected areas: Little Dargle pNHA Natura 2000 sites	negative, likely, imperceptible and short-term neutral, unlikely, imperceptible, short-term,

3.3 LAND AND SOILS

The site is currently primarily used for livestock grazing. A detailed topographical survey of the existing site has been prepared. There is considerable variation in ground levels across the site. In broad terms the site slopes down from south to north from +110 m O.D maximum approx. at the south boundary to +101 m O.D. approx. at the north east corner adjacent to the Cookstown Road, 325m metres approximately. There is a lesser slope down from west to east across the site of 4 metres approx. shows typical spot levels across the site.

The southern site boundary is 125m approx. from the Dargle River. The river is in a valley and is approximately 30 metres below the site level on this boundary and is therefore not considered to be a flood risk. The northern site boundary is 350m approx. from the Glencullen River. This river is in a valley and is approximately 60m below the site level on this boundary and is therefore not considered to be a flood risk.

The natural overburden deposits vary slightly across the site. Two site investigations were carried out in 2014 and 2019 respectively, consisting of numerous trial pits, 3no. boreholes and soakaway tests on both occasions. Typically, the ground conditions consisted of topsoil overlying slightly sand and gravel at 300mm below ground level. No groundwater was observed during the trial pits, which is referenced in the Site Investigations Report.

The site area is classified by the GSI as a Locally Important Aquifer. Rainwater falling on the site will be drained into the groundwater system via soakaways on site.

The GSI has classified the aquifer vulnerability underlying the site into “H” (high) which infers groundwater or bedrock is present within 3 to 10m of the surface below moderately permeable till.

The drainage proposals for the site aim to replicate the natural aquifer recharge by discharging all surface water collected into a soakaway, and ultimately to ground. The depth of soil through which the water will flow before

reaching the aquifer, will provide adequate natural filtration in accordance with the best practice guidelines of Sustainable Drainage Systems (SuDS), to ensure no suspended solids reach the aquifer below. Therefore, the aquifer will not be affected by the proposed new site in terms of water quality or water quantity. It is acknowledged that a slightly concentrated recharge flow will occur; however this will not have an impact on the groundwater table due to the permeable overburden and surrounding topography.

The likelihood of contaminated land being present at the site is low as it has been in agricultural use for the last 100 years of public records.

An Outline Construction and Environmental Management Plan (OCEMP) (prepared by BMCE) is included in the SHD application material. This outline report will be developed into a CEMP by the Contractor, and will be submitted to the local authority prior to commencement on site.

In order to reduce the impacts on the soils, geology and hydrogeological environment a number of mitigation measures will be adopted as part of the construction works on site, as set out in the OCEMP.

The proposed development will alter the current land use from agricultural to a residential development, creche and public open space and landscape areas. 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 recommended above for the construction phase, the proposed development will not give rise to any significant long term adverse impact. Moderate negative impacts during the construction phase will be short term only in duration.

Implementation of the measures will ensure that the potential impacts of the development on soils and the geological environment are minimised during the construction phase and that any residual impacts will be short term.

Residual Impacts from earthworks haulage and the risk of contamination of groundwater are deemed to be of minor risk. The proposal for a residential housing development, creche and open space would not be seen as a potential high-risk development post construction.

3.4 WATER AND HYDROLOGY

The existing site is greenfield site, used for agricultural purposes. There are no existing surface water systems in place on the site, any rainfall on the site is naturally attenuated by the soil and then infiltrates into the ground and then makes its way to either the River Dargle or the Glencullen River, as such there is no existing surface water network within the site area, with rainfall discharging directly to the ground. There are no watercourses in the vicinity of the site that can be reached by gravity, due to the site topography with the site sloping c. 6m downwards towards the north, down to the Cookstown Road (L1020) site.

There are no existing surface water systems in place on the site, any rainfall on the site is naturally attenuated by the soil and then infiltrates into the ground and then makes its way to either the River Dargle or the Glencullen River. This site slopes away from the River Dargle and some groundwater from the site may flow towards it following the rock line underneath.

There is an existing 225mm diameter foul drain that runs from Powerscourt National School to the foul sewer on the Enniskerry Road (R760) at its junction with the Cookstown Road. The existing Enniskerry Demesne housing estate opposite the development is served by a foul pumping station, which fronts onto Cookstown Road. This station pumps up to the foul sewer on the R760 at its junction with the Cookstown Road.

There is an existing 180mm HDPE running beneath the northern side of the Cookstown Road, and a 100mm uPVC watermain beneath the south side. Both mains are relatively new, having been installed in 2005 and 2004 respectively.

The site area is classified by the GSI as a Locally Important Aquifer. Rainwater falling on the site will be drained into the groundwater system via soakaways on site. Ground water on the site naturally drains towards the Glencullen River, approx. 350m north of the site. Groundwater flows follow the topographical relief of the area and generally flow towards nearby rivers, the River Dargle to the south of the site and the Glencullen River to the north of the site. The site is situated on the regional division between the Dargle River and the Glencullen River.

There is no risk to flooding affecting the site from coastal or fluvial sources. Local knowledge suggests pluvial flooding may impact the lowest points of the site along the northern boundary with the Cookstown Road. To alleviate any surface water which may build-up at local low points of the Cookstown Road it has been proposed to provide drainage to the section bordering the site, and to bring that into the developments surface water network.

There is no appreciable risk in the site from flooding from adjoining lands, and similarly the site does not pose a risk to adjoining sites except the Cookstown Road as noted above, which will be addressed by the mitigation measures proposed in the EIAR.

Therefore, the development is deemed acceptable from a flood risk assessment perspective.

Residual impacts such as loss of agricultural land, earthworks haulage & the risk of contamination of surface water are deemed to be of minor risk, as the proposal for an apartment & housing type residential accommodation would not be deemed as a potential high risk development post construction.

As surface water drainage design has been carried out in accordance with the GDSDS, and SUDS methodologies are being implemented as part of a treatment train approach, there are no predicted impacts on the water and hydrogeological environment arising from the construction and operational phase. Implementation of the measures outlined in Section 6.6 of Volume II will ensure that the potential impacts of the proposed development on water and the hydrogeological environment do not occur during the operational phase and that any residual impacts will be short term and imperceptible.

3.5 AIR QUALITY AND CLIMATE

The development area is located within a zone which includes sources of existing transportation related air emissions principally from local road infrastructure and sources of domestic, retail and commercial building heating. It is noted that there are no other major sources of industrial air emissions within 5km of the site.

A site-specific short-term monitoring study was conducted over a two-week period in December 2020.

The construction phase of the development has the potential to generate short term dust emissions during ground preparation and enabling works and from general site construction activities, however, these emissions will be controlled by appropriate mitigation techniques and through the implementation of a construction phase air quality management and monitoring plan throughout the duration of the construction phase to ensure that existing adjacent residential properties and lands will not be adversely impacted by a deterioration in air quality associated with the construction phase.

The operational phase of the development will see the operation of modern, well insulated thermally efficient buildings in which energy efficiency shall be achieved by implementing sustainable features into the building design.

National air quality standards shall not be adversely affected as a result of the short-term construction phase or the operational phase, thus ensuring that the potential for adverse impacts on human health is negligible.

In order to ensure that adverse air quality impacts are minimised during the construction phase and that the potential for soiling of property and amenity and local public roads is minimised, a number of mitigation measures will be implemented during the course of all construction activities.

The Operational Phase of the Cookstown development site will not generate air emissions that would have an adverse impact on local ambient air quality or local human health and as such there are no mitigation measures specified for the Operational Phase.

Various elements associated with the construction phase of the proposed development have the potential to impact local ambient air quality, human health and climate. However, the potential construction phase impacts shall be mitigated as detailed above to ensure there is no significant adverse impact on ambient air quality for the duration of all construction phase works. The generation of fugitive dust emissions will be the principal impact on local air quality during the construction phase and this impact will be mitigated to a negligible impact through the implementation of mitigation measures.

The sustainable features that are incorporated into the design of all residential units will ensure that the operational phase of the development at Cookstown will not have an adverse impact on human health, local air quality or on local

or global climate patterns. The residential units will be designed to ensure that they can withstand the potential changes in climate which may generate more extreme and prolonged meteorological events in the future.

It is predicted that the operational phase of the development will not generate air emissions that would have an adverse impact on local ambient air quality or local human health or local livestock welfare.

It is predicted that there will be a negligible impact on local air quality generated by increased traffic movements associated with the development.

3.6 NOISE AND VIBRATION

The baseline noise environment in the vicinity of the proposed development site has been defined by field surveys conducted during December 2020 at the closest noise sensitive receptors to the site boundaries. Sound level measurements were conducted in favourable weather conditions.

The general area surrounding the subject site is currently comprised of existing residential developments and undeveloped agricultural lands. Local road traffic movements and agricultural activities are the most dominant noise sources at the current site.

Local road traffic noise associated with the Cookstown Road which runs adjacent to the northern site boundary has been determined to be the principal source of noise that may impact the proposed development. The subject site is not adversely impacted by N11 road traffic noise.

Various elements of both the construction and operational phases of the proposed development have the potential to impact on the receiving local noise environment, on adjacent residential properties and on human health.

The potential and predicted impacts of the operational phases of the proposed development have been individually assessed.

Other lands adjoining the eastern site boundary have may be developed for residential housing in accordance with (Planning Reg Ref 19/871) in the future. A further permission (16/976) comprising 6 no. detached dwellings on a site to the north east may also be developed. Other developments in the area are located to the west of the town centre and not considered to contribute to the noise environment of the subject lands. The noise impacts associated with future adjacent residential developments will be similar to the noise generated by the subject residential component, in that the construction phases will generate short term slight to moderate impacts and the operational phase will be comprised of residential and neighbourhood noise which will not have an adverse operational phase noise impact on the receiving environment either on their own or combined as a cumulative impact.

Once the subject development is completed and if the lands to the east are developed there will be no residual adverse noise impact on the receiving environment associated with their operation.

A number of noise management measures shall be implemented at the site from the outset of site activities to control and manage noise levels during the construction phase of the proposed development.

During the construction phase there is the potential for minor impacts on nearby noise sensitive receptors due to noise generated by construction site activities. The implementation of the construction phase noise and vibration mitigation measures and a routine noise monitoring programme as detailed in Section 8.9 above and Section 8.11 below, will minimise the potential noise and vibration impact on the receiving environment including existing residential receptors.

The noise impact generated by additional traffic movements associated with the development is predicted to be of a slight impact on existing ambient noise levels at receptors along the local road network.

Construction phase noise and vibration emissions will be temporary and transient and will be managed so as to minimise impact to population and human health by complying with all relevant guidance, as such the impact will be short-term and have a slight impact overall.

Operational phase noise will also be managed to achieve relevant noise limit values and is predicted to meet all such requirements. No operational phase vibration impacts are predicted. Therefore, the operational phase noise impacts will be neutral for the life of the development. It has been predicted that the exposure of humans to the cumulative

noise associated with increased traffic levels from all developments will be low and the impact will be long-term and not significant with and will not result in an adverse noise impact on the existing or the future population in the local area.

3.7 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

The Landscape and Visual Impact Assessment describes the existing receiving environment and contiguous landscape and the methodology utilised to assess the impacts. It assesses the visual extent of the proposed development and the proposal's visual effects on key views throughout the study area. It describes the landscape character of the subject site and hinterland, together with the visibility of the site from significant viewpoints in the locality. The assessment summarises the impact of the proposed development on the visual and landscape amenity of the subject site and contiguous area.

Enniskerry town and rural hinterland is renowned for its natural beauty, located in a valley area surrounded by higher ground. The Dargle River runs south of Enniskerry whilst the Glencullen River flows to the north of the town settlement. The landscape surrounding the town and subject site is categorised under the Glencree/Glencullen Area of Outstanding Natural Beauty (AONB) within the Wicklow County Development Plan 2016-2022. There are also several landscape designations in the locality of the site including Proposed Natural Heritage Areas (pNHAs), SAC's and Nature Reserves. Powerscourt Woodland pNHA is situated to the west whilst the Dargle River Valley pNHA is situated to the south-east.

The subject site is classified within landscape category type 'Urban Area' within *Chapter 10: Heritage, Wicklow County Development Plan 2016-2022*. The town centre of Enniskerry is designated as an *Architectural Conservation Area (ACA)*. The Wicklow County Development Plan 2016-2022 identifies a number of protected structures in close proximity to the site.

Views of Special Amenity Value or Special Interest listed in the *Wicklow County Development Plan 2016-2022* that are relevant to the development site relates to view no. 7 (from Cookstown Road towards the Great Sugarloaf Mountain).

The site is currently used for the purposes of pastoral grazing and is enclosed on all boundaries by a mixture of native hedgerows and trees. Access can be gained via a metal agricultural gate opening on its northern perimeter on Cookstown Road. A large field is situated immediately to the west of the site which has current planning permission for a residential development (Planning Register Ref: 19/871). Powerscourt National School, Summerhill House Hotel and St. Patricks Church are all situated within short-walking distance of the site.

The site slopes gently upwards from the northern site boundary towards the southern site boundary. The lowest point on site is situated in the north-east corner and lies at a level of approximately 101.50 OD. The highest point on site is situated in the south-east site corner at a level of 110.71 OD. A plateaued area is located centrally in the southern portion of the site where the level lies at approximately 107.30 OD.

Views from within the site are open as a result of the undeveloped nature of the land and the agricultural landscape. Views of the Great Sugarloaf Mountain are captured looking south from the site. Woodland vegetation, hedgerows and tree planting along the site boundaries partially screen views to the surrounding landscape. From Cookstown Road, partial views into the site are captured through gaps in perimeter hedgerow planting and through the agricultural entrance gate. A tree line of tall mature tree planting along the eastern site boundary substantially restricts views into the neighbouring properties to the east of the site. Views into the site from the west on the R760 are largely restricted as a result of the topography of the land and intervening hedgerow planting.

Overall, the site has a high aesthetic quality which can be attributed to its rural and semi-woodland setting. The surrounding landscape has a high cultural and natural heritage value; land immediately surrounding the site to the south, east and west is categorised under the Glencree/Glencullen Area of Outstanding Natural Beauty (AONB) within the Wicklow County Development Plan 2016-2022. Mature hedgerows, woodland and trees lining the site and in the contiguous lands give the site a high biodiversity and aesthetic value.

The proposed development, as discussed in the Landscape chapter, consists of the construction of 165no. dwellings and associated ancillary infrastructure. The development includes 105no. 2 storey houses, 56no. apartments/duplex apartments arranged across 6no. 3 storey buildings, 4no. Maisonette dwellings in a 2-storey building and a creche facility. A combination of hard and soft landscape interventions to open spaces including a linear roadside space with

stream feature and public open spaces in the north and south of the site with pedestrian connections provided to 'Lover's Leap Lane', will offer high-quality amenity spaces for users of the development and the wider community. Vehicular access from the Cookstown Road from a new junction as well as 313 no. car parking spaces and 150 bicycle spaces will be provided. A new footpath will be provided along the northern site boundary leading to the existing pedestrian crossing at Powerscourt National School. Street lighting columns along the southern side of the Cookstown Road and a new pedestrian crossing located to the west of the main access road are also proposed.

In total 20 no. verified views were used in the LVIA analysis.

In order to evaluate the overall landscape and visual impacts of the proposed development, twenty verified views were assessed from points in the local domain where there is a potential for impact on key sensitive local receptors. Both short and long range views were considered for the purpose of the assessment. Viewpoints 6, 7, 8 and 20 represent locations from where the proposed development will be most visible. A substantial portion of the proposed built fabric of the development will be visible from these locations. From Viewpoint 8 the visual impact in the medium to long term will be moderate and adverse. This is as a result of the high aesthetic and ecological value attributed to the landscape setting. From Viewpoint 7 which represents the location of a 'View of Special Amenity Value of Special Interest', a large portion of soft landscaping to the northern public open space is visible. The visual impact during the construction stage will be very significant to significant and adverse but will reduce to moderate and neutral in the medium to long term when all planting has established. Viewpoint 20 represents a view taken from the public walk on Lovers Leap Lane. The visual effect is considered to be moderate and adverse during the construction stage of the project. Substantial mitigation measures are in place to ameliorate the visual effect in the form of prudent site planning in terms of the placement of the built elements on site and the substantial buffer zone given to soft landscape plantings. The plantings include a new native woodland area and wildflower meadow with tree copses, which will form a robust visual boundary along the southern boundary of the site. Visual screening will be greatest from late spring through to early Autumn when the trees and hedgerows are in leaf. The visual effect from Viewpoint 20 will therefore reduce to moderate and neutral in the medium to long term.

The visual impact from Viewpoint 3, 4 and 13 is considered to be moderate and adverse during the construction stage of the project, reducing to slight and neutral in the medium to long term. Other viewpoints representing views taken from the Cookstown Road and the R760 road include viewpoints 9, 10, 11, 12 and 14. It has been assessed that the visual effect from these viewpoint locations will be imperceptible and neutral as a result of intervening vegetation and boundary treatments acting to screen the proposed development from site. Viewpoints 15-19 represent views taken from within the nearby Powerscourt Estate. From each of these viewpoints the proposed development is not visible and therefore the visual effect will be imperceptible and neutral.

The overall visual impact of the proposed development is considered to be neutral in the medium to long term. The proposed development will result in a change which does not affect the quality of the environment and will allow for consolidation of the subject lands which are located within the 'Urban Area' landscape category. It is considered that the impact will alter the character of the environment in a manner that is consistent with existing and emerging trends. As shown in Verified Viewpoint 7, views of the Great Sugarloaf Mountain, the iconic summit, will be retained from the protected view listed within the Wicklow County Development Plan 2016-2022.

The cumulative impact of the separate approved residential development (Planning Reg. Ref. 19/871 – Powerscourt Residential Development) on agricultural lands located immediately adjacent to the west of the site has also been assessed. From viewpoints 1 and 2 located within the grounds of St. Patrick's Church of Ireland, the cumulative impact has been assessed to be slight to not significant and neutral, and moderate and neutral respectively. From viewpoint 3 it has been assessed that the cumulative impact will be moderate and adverse as a result of partial views of the Great Sugarloaf Mountain being screened. From viewpoints 4, 5, 12 and 13 which are located on key arterial routes surrounding the site, the cumulative impact is considered to be significant and adverse during the construction phase. This will reduce to moderate and neutral in the medium to long term during the operational phase and when all planting has established. From the remainder of the viewpoint locations, it has been assessed that there will be no cumulative visual impact over and above the impacts arising from the proposed development described above.

3.8 TRAFFIC AND TRANSPORTATION

The subject site is located on lands within the townland of Cookstown, Enniskerry, Co. Wicklow (on 2no. parcels of land [to facilitate footpath and lighting upgrades along Cookstown Road]).

In the westbound direction, Cookstown Road accesses directly onto the R760 (Church Hill), which is a two-way regional road. In the eastbound direction, Cookstown Road accesses directly onto the R117 (Bray Road), which is a

2-way regional road, which then accesses 200m directly onto the northbound carriageway of the N11. Access to the site is proposed along the Cookstown Road with an excerpt from the Barrett Mahony Consulting Engineers drawing C1011.

There is an existing footpath on the northern side of the Cookstown Road (L1020), which connects the existing Enniskerry Demesne residential development with Enniskerry Village to the west. The pedestrian footpath terminates at the eastern edge of the estate. There are no pedestrian facilities on the southern (site-side) of the Cookstown Road at present

There are no existing cycling facilities in the vicinity of the site, with cyclists needing to use the Cookstown Road (L1020) and share the road with vehicular traffic. The footpath, which serves the residential estate opposite the site, is dedicated for pedestrian use only and is approx. 1.2m wide.

A Traffic and Transport Assessment has been prepared by Barrett Mahony as part of this SHD planning application, on foot of the comprehensive analysis in that report, it was deemed that due to the capacity of Junction 3 (N11 / R117), and the negligible increase in cars from the development on the subject site, no further analysis was required at this junction.

The remaining 2no. junctions (L1020 / R760) and (L1020 / R117) have been analysed. The existing traffic status of these junctions is measured using the 'RFC' (ratio of flow to capacity) method. This provides a percentage usage of the junction, by comparing the capacity of the junction against the flow of cars through the junction.

The Design Manual for Roads and Bridges document 'TA 79/99 – *Traffic Capacity of Urban Roads*' provides information on the capacity of urban roads based on classification and road width.

There is a new site connection proposed to the Cookstown Road (L1020) from the development. As part of these works, there will be minimal reinstatement works required for the Cookstown Road (L1020). To preserve existing mature trees, there are no road widening works to the Cookstown Road (L1020) proposed as part of the new development. There is already an existing road network which provides good connection to the nearby recreational, retail and educational services in the area.

The internal estate roads have been designed to comply with DMURS as required by the Wicklow County Development Plan. The internal roads are generally 5.5m wide. The homezone / shared surface cul-de-sacs are 7.2m wide overall and consist of a 4.8m roadway and 2no. 1.2m pedestrianized zones.

One of the key principles of a residential development such as this, is the sufficient provision of car parking spaces within the development so as to avoid the need for excessive on-street parking in the vicinity of the site. A balanced approach is required which provides a compromise between a sufficient number of spaces and the need to promote greater usage of public transport and to encourage walking and cycling trips.

As part of the proposed development works, a new pedestrian footpath is proposed along the southern side of the Cookstown Road which will extend west along Cookstown Road to the existing uncontrolled crossing at the adjacent national school. There will also be a new pedestrian crossing at the site to the existing footpath on the northside of the Cookstown Road (L1020). Public lighting will also be installed along Cookstown Road (L1020) from the site to the junction of R760 to improve pedestrian access from the site to Enniskerry Village.

Provided the above mitigation measures and management procedures are incorporated during the construction phase, the residual impact upon the local receiving environment is predicted to be temporary in nature and slight in terms of effect.

There will be an increase in road network usage by private vehicles, although this addition will be minimal in comparison to the current usage and will be imperceptible based on the existing capacity of the surrounding network.

3.9 MATERIAL ASSETS – WASTE MANAGEMENT

The construction and operation of the proposed residential development will introduce new volumes of waste in terms of the short-term generation of construction waste and the longer-term generation of domestic waste when the development is occupied.

There are a number of recycling centres in the local Wicklow area at Enniskerry and Bray with bring banks located in Enniskerry village and in the town centre. Currently Oxygen and Thorntons and AES provide domestic and commercial waste collection services in the Enniskerry area.

The Construction Phase Waste Management Plan prepared by Byrne Environmental (included with the SHD application) specifically addresses the following aspects:

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

The management of wastes generated during the construction of the proposed development will be in accordance with a Construction Phase Waste Management Plan (CWMP). Provided the construction is completed in accordance with the CWMP it is envisaged that the impact of the construction (excavation and construction waste) phase will be short-term and not significant.

With regard to how it has been demonstrated how domestic wastes during the operational phase will be managed through design, management and waste reduction and recycling initiatives, it is predicted that the impact of the development on the receiving environment, existing material assets and local waste management services will be long-term and not significant.

It is predicted that there will be significant available capacity within existing the Regional waste management infrastructure to manage construction and operational wastes associated with the proposed development.

3.10 MATERIAL ASSETS - UTILITIES

Irish Water maps indicate that there is an existing 450mm diameter surface water pipe running beneath the Enniskerry Road (R760) to the west of the site, approximately 500m from the nearest site boundary. It is at a higher level than the north end of the subject site and cannot be reached by a gravity drain from the site. There are no other potential connections within the area.

There is an existing 225mm diameter foul drain that runs from Powerscourt National School to the foul sewer on the Enniskerry Road (R760) at its junction with the Cookstown Road. The existing Enniskerry Demesne housing estate opposite the development is served by a foul pumping station. This station pumps up to the foul sewer on the R760 at its junction with the Cookstown Road. A new pumping station is included in the application which can cater for adjoining development. It is proposed to connect to the existing foul services to the R760 to the east along the public road and existing verge, where possible.

There is an existing 180mm HDPE running beneath the northern side of the Cookstown Road, and a 100mm uPVC watermain beneath the south side. Both mains are relatively new, having been installed in 2005 and 2004 respectively. It is proposed to connect into the adjoining watermain on the Cookstown Road.

The potential impacts on the local and regional foul drainage system are that the proposed development would reduce capacity in the sewer connected to and the capacity in the local Wastewater Treatment Plant (WWTP) in Enniskerry. Notwithstanding same, the lands are zoned for residential development and up-grades have been carried out to the Enniskerry WWTP. Irish Water have provided a Confirmation of Feasibility Letter in response to the Pre-Connection Enquiry to them for the site.

The potential impacts for the local public potable water are that the proposed development will reduce the capacity in the public main. Irish Water have provided a Confirmation of Feasibility Letter in response to the Pre-Connection Enquiry to them for the site.

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

The demand on power supply and telecommunications supply will all increase due to the development of the lands. The total increase in the capacity of the local electrical infrastructure as a result of the proposed development will be approximately 1.5MW. The development of the lands will be constructed in phases, with the final phase being due

for completion circa 2023. The ESB infrastructure networks in the immediate vicinity of the site is adequate to meet these anticipated demands and there will be no adverse effect on the ability of the ESB network to meet the existing demands in the areas surrounding the site.

3.11 CULTURAL HERITAGE

The proposed development area is located within the townland of Cookstown within the parish of Powerscourt and half barony of Rathdown. The site is located within lands that are zoned for residential development within the Bray Municipal District Local Area Plan 2018-2024. There are no recorded monuments located within 200m of the proposed development area.

There are six recorded built heritage located within the wider landscape surrounding the proposed development and the site is not situated within an Architectural Conservation Area. The nearest structure listed on the Record of Protected Structures for Wicklow is a former hotel now occupied as three houses and which is some 180m from the nearest point of the site. St Patrick's Church and the gateway to Powerscourt have also been considered in this assessment in view of their importance, though they are at distances of 350m and 270m respectively. Three houses in the vicinity of the site that are not protected structures are included in the NIAH survey and the potential impact on these houses has been assessed. In all of these cases the structures are well screened by trees, and in some cases by topography, such that there will be no adverse impact on their character or setting arising from the proposed development.

Three demesnes or former demesnes have also been assessed to determine whether the proposed development would have any impact on their character and it has been concluded that there would be no adverse impact.

In 2019 geophysical survey was carried out across the proposed development area under licence 19R0234. The possible remains of a sub-circular enclosure were identified, which most likely represent a ditched feature such as a barrow measuring c. 14.5m in diameter. Areas of magnetic disturbance were also identified, possibly representing spreads of burnt material. Several faint curvilinear and linear trends were identified as likely to be of archaeological interest.

Subsequent archaeological testing (under license 20E0027) identified six areas of archaeological potential across the eastern field of the proposed development area, which appear to be prehistoric in date (AA1-6). The pottery recovered from AA6 dates to the Neolithic period while the material contained within some of the pits in AA2-5 is representative of burnt mound activity, which generally dates to the Bronze Age although Neolithic burnt mound sites have also been recorded. The circular enclosure in AA1 may represent a ring-barrow, which generally date to the Bronze Age but may also be Iron Age in date.

An inspection of the cartographic sources revealed that the proposed development area occupied a rural landscape throughout the post-medieval period. Analysis of the aerial photographic coverage of the site failed to identify any previously unrecorded sites. A field inspection has been carried out as part of this assessment. No previously unrecorded areas of archaeological potential were noted during the course of the inspection.

The archaeological and architectural features discussed above also constitute as cultural heritage features. The townland boundary between Cookstown and Tinnehinch forms a short section of the south-western limit of the site and has been extant since Rocque's map of 1760. There are no other cultural heritage sites within the study area.

Following implementation of mitigation measures, no impacts are predicted upon the archaeological, architectural, or cultural heritage resource during the construction phase.

There are no impacts predicted upon the archaeological, architectural or cultural heritage resource as a result of the operation of the proposed development.

3.12 RISK MANAGEMENT

The surrounding land usage consists of a mix of residential and agricultural. 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.

The construction phase of the proposed development may give rise to short-term impacts associated with construction traffic, migration of surface contaminants, dust, noise, and littering. Secondary impacts may include resulting increased traffic arising from hauling building materials to and from the proposed development site which are likely to affect population and human health distant from the proposed development site, including adjacent to aggregate sources and landfill sites. Potential spillage (diesel and petrol) has the potential to occur.

Construction impacts are likely to be short term and are dealt with separately in the relevant chapters of this EIAR document and will be subject to control through the Outline Construction & Environmental Management Plan. The construction methods employed, and the hours of construction proposed will be designed to minimise potential impacts. The development will comply with all Health & Safety Regulations during the construction of the project. Where possible, potential risks will be omitted from the design so that the impact on the construction phase will be reduced.

The main risk identified during operation is the risk of fire. It should be noted that the proposed uses are considered normal hazard fire risks as would be encountered in most residential developments and do not include any hazards which would be regarded as presenting an exceptional environmental fire hazard.

The Outline Construction & Environmental Management Plan and the Health and Safety Plan, in addition to good housekeeping practices, will limit the risk of accidents during construction. Fire safety will be dealt with under the Fire Safety Code at design and construction stage.

The proposed development will involve the ground works to facilitate the proposed development. A site investigation has been carried out and has not identified any hazardous material. Further testing will be carried out prior to construction to inform the detailed design. In the event that any hazardous material is identified the appropriate measures will be taken in accordance with the requirements of the EPA. The excavation and movement of soil from the site will be undertaken by a registered specialist contractor and removed to a licensed facility.

The main risks arise during the construction period. Consequences may be limited but severe for the individuals concerned. Geographical widespread environmental consequences are not anticipated.

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 lead to significant residual impacts or environmental effects.

Works on the public road and the laying of underground pipes would be carried out on behalf of the relevant statutory undertakers and would be subject to separate construction management plans.

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 (e.g. adjacent to the north).

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.

Table 5.1 – Matrix of interactions between the environmental factors

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

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 were 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 primary interactions can be summarised as follows:

- Engineering with biodiversity and archaeology;
- Landscape design, engineering services with biodiversity and archaeology;
- Visual impact with biodiversity;
- Biodiversity with water and soils;
- Noise and vibration and traffic; and
- Air quality and climate and traffic.

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.

6.0 SUMMARY OF EIA MITIGATION AND MONITORING MEASURES

Chapter 16 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 the Board and all other interested parties.