

ENVIRONMENTAL IMPACT ASSESSMENT REPORT
VOLUME I NON-TECHNICAL SUMMARY



PROPOSED RESIDENTIAL DEVELOPMENT
AT
Bridgeway, Rathgory & Mulladrillen,
Drogheda Road, Ardee, County Louth

Prepared by



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LIST OF ABBREVIATIONS

AA	Appropriate Assessment	IFI	Inland Fisheries Ireland
ABP	An Bord Pleanála	LCC	Louth County Council
CDP	County Development Plan	NHA/pNHA	Natural Heritage Area / proposed Natural Heritage Area
CEMP	Construction Environmental Management Plan	NIAH	National Archive of Architectural Heritage
CMP	Construction Management Plan	NPWS	National Parks and Wildlife Service
CSO	Central Statistics Office	NRA	National Roads Authority
DAHG	Department of Arts, Heritage and the Gealtacht	NPF	National Planning Framework
DCENR	Department of Communications, Energy and Natural Resources	OPW	Office of Public Works
DEHLG	Department of Housing, Planning and Local Government	RMP	Record of Monuments and Places
EIA	Environmental Impact Assessment	RPG	Regional Planning Guidelines
EIAR	Environmental Impact Assessment Report	RPS	Record of Protected Structures
EPA	Environmental Protection Agency	SAC	Special Area of Conservation
ESRI	Economic and Social Research Institute	SMR	Sites and Monuments Record
GDP	Gross Domestic Product	SPA	Special Protection Area
GSI	Geology Survey Ireland	SHD	Strategic Housing Development
IEEM	Institute of Ecology and Environmental Management	SUDS	Sustainable Drainage System
		TMP	Traffic Management Plan
		WFD	Water Framework Directive

1.0 INTRODUCTION & METHODOLOGY

1.1 INTRODUCTION

This 'Non-Technical Summary' (NTS) relates to a proposed development comprising 272 no. residential dwellings, crèche, community building, public park and series of public open spaces including a linear park and riparian corridor at the Rathgory Tributary, landscaping, access, parking and all associated infrastructure on a c. 13.03 ha site at Bridgewater, Rathgory & Mulladrillen, Drogheda Road, Ardee, County Louth.

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

A full description of the proposed development is provided in Chapter 2 of this EIAR document. In summary, the proposal comprises 272 no. residential dwellings (206 no. houses and 66 no. duplexes), crèche, community building, a public park (c. 3.6 ha) and public space throughout the scheme including a riparian corridor at the realigned Rathgory Tributary, car and bicycle parking and all access, drainage infrastructure and associated works to facilitate the development. Provision is made for road connection with lands to the east in accordance with Louth County Development Plan 2021-2027.

Phases 1-3 at Bridgewater was permitted under Reg. Ref.: 10/174; ABP Ref: PL15.238053 and subsequently amended under Reg. Refs.: 19336, 19353, 19549, 19875 and 211475. The development comprises 155 no. houses, crèche and community building, public park and all associated works and is currently under construction by the applicant.

The proposed development overlaps with and will supersede part of the permitted development including 31 no. dwellings as well as a crèche and community building to provide a total of 396 no. dwellings at the overall development at Bridgewater. An Environmental Impact Statement was submitted with the planning application for Phases 1-3 (Reg. Ref.: 10/174; ABP Ref: PL15.238053). This EIAR assesses the proposed development within the red line boundary. Previous phases at Bridgewater have been taken into account in the EIAR, where relevant.

1.2 Requirement for EIA (Screening)

Screening is the term used to describe the process for determining whether a proposed development requires an EIA by reference to mandatory legislative threshold requirements or by reference to the type and scale of the proposed development and the significance or the environmental sensitivity of the receiving baseline environment. Annex I of the EIA Directive 85/337/EC requires as mandatory the preparation of an EIA for all development projects listed therein.

Schedule 5 (Part 1) of the Planning & Development Regulations 2001 (as amended) transposes Annex 1 of the EIA Directive directly into Irish land use planning legislation. The Directive prescribes mandatory thresholds in respect to Annex 1 projects.

Annex II of the EIA Directive provides EU Member States discretion in determining the need for an EIA on a case-by-case basis for certain classes of project having regard to the overriding consideration that projects likely to have significant effects on the environment should be subject to EIA.

The proposed development falls within category 10(b)(iv) and category 13(a)(ii) of Part 2 of Schedule 5 of the Planning and Development Regulations 2001, as amended:

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.*'

Category 13(a)(ii) refers to '*Any change or extension of development which would:- (ii) result in an increase in size greater than 25%...*'

The gross site area is approximately 13.16 hectares and will form part of the Bridgewater development by The Ardee Partnership in Ardee. The initial phases of development are current under construction, comprising 158 no. residential units, a crèche, community building, public park, open space, access and all associated infrastructure.

The proposed meets the thresholds set out by Category 10(b)(iv) and Category 13(b)(ii) of Schedule 5 (Part 2) of the Planning & Development Regulations 2001 (as amended).

1.3 Purpose of This EIAR

The objective of this EIAR is to identify and predict the likely 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.

1.4 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 EIA Process Overview

One of the main purposes 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.

A new definition of environmental impact assessment is now contained in Section 170A of the Planning and Development Act, 2000, as amended which reflects to the process as described under Article 1(2)(g) 4 of Directive 2014/52/EU and goes on to say that it includes:

(i) an examination, analysis and evaluation, carried out by the planning authority or the Board, as the case may be, in accordance with this Part and regulations made thereunder, that identifies, describes and assesses, in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of the proposed development on the following:

(I) population and human health;

(II) biodiversity, with particular attention to species and habitats protected under the Habitats Directive and the Birds Directive;

(III) land, soil, water, air and climate;

(IV) material assets, cultural heritage and the landscape;

(V) the interaction between the factors mentioned in clauses (I) to (IV), and

(ii) as regards the factors mentioned in subparagraph (i)(I) to (V), such examination, analysis and evaluation of the expected direct and indirect significant effects on the environment derived from the vulnerability of the proposed development to risks of major accidents or disasters, or both major accidents and disasters, that are relevant to that development;

Several interacting steps typify are involve in the various stages of the EIA process, which may be referred to in outline as including:

- Screening;
- Scoping;
- Preparation of EIA Report;
- The examination by the Competent Authority (CA) of the information presented in the environmental impact assessment report;

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. Where

relevant, scoping requests were issued and the responses received have been considered as part of the compilation of the EIAR. The content of the EIAR has been informed by national guidelines, guidelines issued by the European Commission and other policy documents which are set out at Section 1.4 of the EIAR. In addition, pre-planning meetings with the various departments of Louth County Council all informed the EIAR.

Preparation of EIAR Report: The main elements in the preparation of an EIA Report relate to the consideration of alternatives, project description, description of the receiving environment, identification and assessment of impacts, monitoring and mitigation proposals.

The examination by the CA of the information presented in the environmental impact assessment report. The planning authority and An Bord Pleanála must consider each application for development consent on its own merits, taking into account all material considerations, including the reasoned conclusion in respect of EIA, before making its decision to grant, with or without conditions, or to refuse consent.

1.6 Format and Structure of the EIAR

1.6.1 EIAR Structure

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 document).
- Volume II: Environmental Impact Assessment Report.
- Volume III: Appendices.

Volume II is the main volume of the EIAR. It provides information on the location and scale of the proposed development, details on design and impacts on the environment (both positive and negative) as a result of the proposed development. Each of the environmental aspects as listed below are examined in terms of the existing or baseline environment, identification of potential construction and operational stage impacts and where necessary proposed mitigation measures are identified. Volume III: Technical Appendices (Volume III contains specialists' technical data and other related reports).

1.6.2 EIAR Volume II Structure

The preparation of an EIAR requires the assimilation, co-ordination and presentation of a wide range of relevant information in order to allow for the overall assessment of a proposed development. For clarity and to allow for ease of presentation and consistency when considering the various elements of the proposed development, a systematic structure is used for the main body of this EIAR document. The structure used in this EIAR document is a "*Grouped Format structure*". This structure examines each environmental topic in a separate chapter of this EIAR document. The structure of the EIAR Volume II document is set out in Table 1.1 below.

Table 1.1 – Structure of this EIAR

Chapter	Title
1	Introduction and Methodology
2	Project Description and Alternatives Examined
3	Population and Human Health
4	Biodiversity
5	Land and Soils
6	Water
7	Air Quality and Climate
8	Noise and Vibration
9	Landscape & Visual Impact
10	Material Assets - Traffic
11	Material Assets – Waste Management
12	Material Assets – Utilities
13	Archaeology and Architectural and Cultural Heritage
14	Risk Management for Major Accidents and / or disasters
15	Interactions of the Foregoing

Chapter	Title
16	Summary of EIA Mitigation and Monitoring Measures
17	Reference List

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 Louth County Council at a fee not exceeding the reasonable cost of reproducing the document.

1.8 Statement of Difficulties Encountered

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

1.9 Errors

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

1.10 EIAR Study team

The EIAR was prepared by a study team led by John Spain Associates, who were responsible for the overall management and co-ordination of the document. The EIAR team is set out in Chapter 1 of Volume II of the EIAR.

2.0 PROJECT DESCRIPTION AND ALTERNATIVES EXAMINED

2.1 Information on the site, Design and Size of the proposed development

This Strategic Housing Development (SHD) application relates to the provision of 272 no. residential dwellings, community building and crèche at a centralised location in the northern part of the site, a public park extending to c. 3.62 ha interconnecting with park to the west permitted under the parent permission at the site (Reg. Ref.: 10174; ABP Ref: PL15.238053), a total of c. 1.8 ha of public open space and all roads and services infrastructure to facilitate development. The Public Park is provided in accordance with ‘Spot Objective 4’ of the Louth County Development Plan 2021-2027 which requires the provision of a 12-acre (4.9 ha) park. This is achieved by the proposed park in combination with the permitted park to the west, equating to a c. 7.2 ha or c. 17.8 acres, considerably in excess of the zoning objective.

Figure 2.1 – Main Development Site



Source: Darmody Architecture

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 site area is approximately 13.03 hectares, including all roads, landscaping and public open space works. The proposal includes a single storey community building of c. 165 sqm and a crèche of c. 484 sqm, which has been designed to be of sufficient scale to cater for the overall development at Bridgegate (396 no. units).

Table 2.1 – Proposed Residential Mix

Proposed Units	1 bed	2 bed	3 bed	4 bed	5 bed	Overall	Percentage of Total
Duplex Apartments	17	24	25	0	0	66	24.3%
Houses	0	50	145	11	0	206	75.7%
Overall Total	17	74	170	11	0	272	
Percentage of Total	6.3%	27.2%	62.5%	4%	0%	100%	

Source: Darmody Architecture

2.1.2.1 Houses

The 206 no. houses proposed are located in the southern part of the site and south of the Rathgory Tributary. Houses are provided at a mix of 50 no. 2-bed, 145 no. 3-bed and 11 no. 4-bed units. All houses are 2 no. storeys with private amenity space in the form of a rear garden. Access to the rear of houses sited back-to-back allows the manoeuvre of bins to kerbside collection points. Dual frontage units are provided at corner locations to ensure active frontage and passive surveillance with all dwellings dual aspect. Dwellings are provided as a combined of semi-detached and terraced units. Individual plot layouts provide good separation to ensure privacy and minimise overlooking both within the proposed development and to the west at Cherrybrook.

The variety of house types provides for a wide choice to suit all potential occupiers and many household types, as well as permitting a very efficient site layout. The mix of house type in any one row creates visual interest and contribute to the specific character of the development, both overall and in each street. The overall provision of 6 no. house types adds positively to the variety for potential occupiers and contributes to a development which provides high quality family homes in a legible and efficient layout which is easily navigable.

2.1.2.2 Duplexes

The proposed development includes a total of 66 no. duplex units, comprising 17 no. 1-bedroom, 24 no. 2-bedroom and 25 no. 3-bedroom units. All duplexes are provided in 3 storey buildings, with 4 no. duplex blocks located to the north of Bridgewater Avenue at the base of Mulladrillen Hill, providing 48 no. units at this location. The remaining balance of 18 no. duplexes are distributed evenly throughout the southern part of the site marking corner locations, entrances to shared zones and contributing to legibility.

The 18 no. duplex units in southern part of the site benefit from private open space by way of rear garden serving the ground floor unit and private external terrace serving the upper units. South facing terraces are provided at upper level within the 68 no. units at Blocks A-D, with external terraces to the north and south of ground floor units. A total of 499 sqm of external communal space provided to the north of these units within 2 no. landscaped areas with seating and informal recreation. Shared bicycle and bin stores are located centrally between Blocks A and B and Blocks C and D, with a route to the public park to the north located between Blocks B and C. A total of 8 duplex house types are provided.

Figure 2.2 – CGI of Duplex Unit at Neighbourhood Street



Source: Modelworks

2.1.3 Character areas

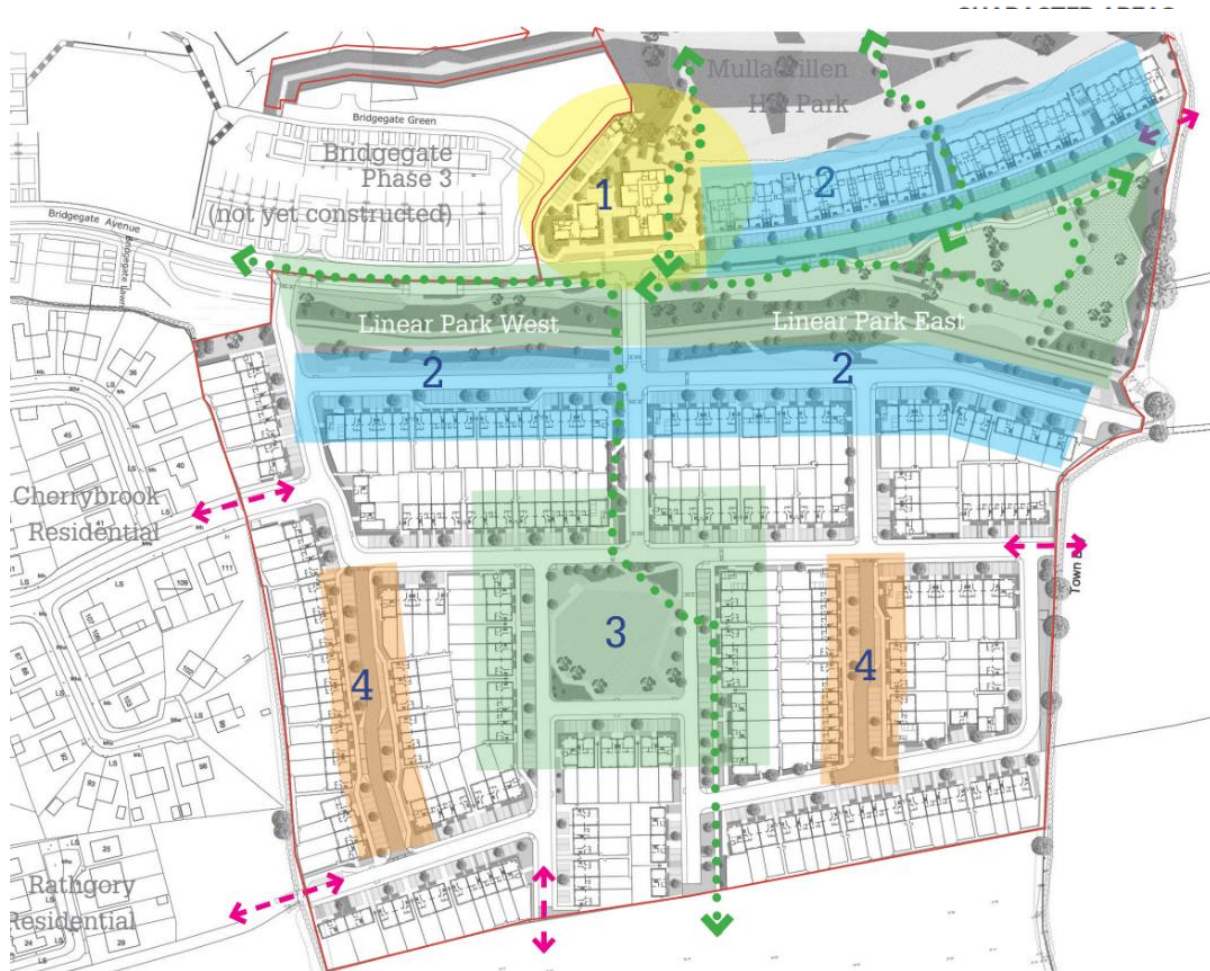
As set out in the Darmody Architecture Design Statement, (extract below) character areas are primarily defined by the community land use and areas of open space and its edge around the riparian corridor at the Rathgory Tributary. Character areas in the southern part of the site are informed by the central area of open space and shared neighbourhood streets.

Character Areas are noted as follows:

1. Community Hub & Hill Park Access
2. Linear Park Edge
3. Central Pocket Park
4. Neighbourhood Streets

The Darmody Architecture Design Statement notes that the creation of new character areas are an essential quality of the new urban form within the proposed development. It is considered that the scheme delivers a coherent urban network of streets and public realm spaces that respond to the existing context in terms of height, scale, uses and open space to integrate appropriately and provide continuity to the permitted initial phases of development at Bridgegate. A green riparian corridor and public open space along the Rathgory Tributary characterises the area south of the community hub and Bridgegate Avenue, with generous provision of open space throughout the site complementing the public park which occupies the northern part of the site.

Figure 2.3 – Character Areas



Source: Darmody Architecture

2.1.3.1 Community Hub & Hill Park Access

The entrance to the proposed development from Bridgegate Avenue is characterised by community use complemented by aspects of the linear park and riparian corridor to the south around Rathgory Tributary. This character area encompasses the crèche and community building as well as the landscaped, gateway access to the public park to the north, acting as a distinct transition zone moving east past the permitted semi-detached 2 storey dwellings to the west and the 3 no. duplex blocks to the east.

The buildings align with the lines permitted to the west and addresses the primary north-south vehicular axis that traverses the linear park opposite. The hub provides an element of legibility to the scheme and a focal point from which to access the public park to the north

2.1.3.2 Linear Park Edge

The character of this area is defined by the riparian corridor which is the central point of the linear park (comprising Public Open Space 01 and 02) based around the realigned Rathgory Tributary. The character area consists of two linear areas to the north and south of the watercourse and includes the 48 no. duplex units to the north and the dwellings overlooking the linear park to the south. The linear park and riparian corridor optimises the open watercourse and provides a generous area of public open space comprising hard and soft landscaping and range of passive and active recreation.

The landscaping is fully integrated with the sustainable drainage strategy for the site (discussed in greater detail later in the chapter) and provides a distinction from the community hub and 3 storey duplex blocks to the north and the prevalent 2 storey dwellings to the south. In the north, Bridgegate Avenue is extended to the eastern perimeter of the site with open agricultural lands adjacent, with a turning head at this location.

2.1.3.3 Central Pocket Park Enclosure

The third character area is defined by Public Open Space 03, extending to c. 0.29ha, located centrally within the south part of the development and surrounded on 4 sides by dwellings enjoying views across this area. The park has been strategically located to be within 150m of all dwellings south of the linear park. The north-eastern edge of the park is characterised by 2 no. 3 storey duplex units, with a mix of 2 storey dwellings providing variety in visual appearance adjacent to the area.

The eastern edge of the park is characterised by a tree lined route and shared surface which encourages low speeds and promotes walking and cycling. This forms part of a green corridor which links the 3 no. areas of public open space and extends to meet the southern perimeter. The central park is characterised by a large area of public green space alongside a nature-based play area, seating areas and passive recreation with tree-lined edges providing a sense of place and enclosure whilst benefitting from passive surveillance from adjacent dwellings.

2.1.3.4 Neighbourhood Streets

The development includes 2 no. areas of neighbourhood streets located within the southern part of the site. This concept provides residential streets which the road space is shared between motor vehicles and other users. Neighbourhood streets are located at the most westerly north-south link road, the and the adjacent parallel street to the east of the central park.

Neighbourhood streets prioritise people over vehicular movements and are characterised by surface finishes distinct to standard roads, making drivers aware of the change in environment. The areas are considered by Darmody Architecture to be more enclosed small scale urban spaces that are defined by 2/3 bedroom terraced and semi-detached housing row, providing a mix of wide and narrow plots with a continuous 2 storey eave and roofline to ensure visual continuity, with each zone presenting an individual character.

Figure 2.4 – Landing Zone CGI



Source: Darmody Architecture

2.1.4 Car Parking and Cycle Parking Provision

Car parking will be provided as follows, detailed further in the Traffic & Transport Assessment prepared by CS Consulting. Proposed car parking levels has been informed by the Louth County Development Plan 2021-2027.

- One (1) car parking space to each two-bedroom house;
- Two (2) car parking spaces to each three and four-bedroom house;
- One (1) car parking space for one-bedroom duplex units;
- 1.2 car parking spaces for two-bedroom duplex units;
- 1.5 car parking spaces for three-bedroom duplex units;
- 17 no. car parking spaces for the crèche;
- 6 no. car parking spaces for the community building; and

- 5 no. car parking spaces for the public park.

Resident parking will be provided in the form of curtilage and on-street 90-degree angled and parallel parking with community and public parking provided by perpendicular and parallel parking adjacent to the community hub.

Table 2.2 – Car Parking Schedule

CAR PARKING SCHEDULE	Number / Size	Car Parking
Duplex Units	66 no.	84
Houses	206 no.	362
Crèche	483 sqm	17
Community Building	165 sqm	6
Public Park & Visitor	3.6 ha	11
Total		480 spaces

Source: Darmody Architecture

A total of 446 no. car parking spaces are provided for the residential element of the development equating to 1.64 spaces per unit. As noted in the accompanying Traffic & Transport Assessment prepared by CS Consulting, parking has been allocated to dwellings based on the dwelling type and number of bedrooms. 2-bed houses have been allocated 1no. space while 3-bed and 4-bed houses have been allocated 2no. spaces. Parking for 1-bed duplex units has been provided at a rate of 1 no. space per unit while parking for 2-bed and 3-bed duplex units has been provided at a rate of 1.2 no. and 1.5 no. spaces per unit respectively.

The development also includes a bus stop on Bridgewater Avenue which can be utilised by a local service, with bicycle lanes also provided. A total of 23 no. spaces are located at the community hub, with 11 no. spaces provided for visitors / users of the public park. It is noted that 112 accessible spaces are provided.

Short and long stay bicycle parking is provided at the community building and crèche in the form of Sheffield stands, comprising 32 spaces. The 66 no. duplex units are served by 204 no. secure covered spaces with 80 visitor spaces (Sheffield stands) adjacent to the duplex units and the open spaces throughout the site. An additional 60 visitor bicycle parking spaces are provided throughout the site for public use and visitor use, with 32 serving the creche and community building. This provides a total of 296 no. spaces proposed, significantly in excess of the development plan standard and increased significantly to the 178 spaces proposed at pre-application stage.

Table 2.3 – Bicycle Parking Schedule

BICYCLE PARKING SCHEDULE	Number / Size	Bike Parking
Houses	206	Rear Gardens
Duplex Units	66 no.	204
Crèche	476 sqm	12
Community Building	165 sqm	20
Public Park & Visitor	3.6 ha	60
Total		296 spaces

Source: Darmody Architecture

In the case of the houses within the development, ample space for the secure storage of bicycles shall be available within the curtilage of each dwelling; this is considered to satisfy the bicycle parking development plan requirements.

2.2 Landscaping

2.2.1 Introduction

The design approach to the landscape architectural proposal is site-generated, with careful consideration given to the site's history, geology, ecology, microclimate, landscape and its context. Emphasis was placed on creativity and rigorous conceptual development in our search for robust design proposals, developed to imbue the site with distinct character.

The landscape design concept was developed from the site's existing levels and proposed road levels to site.

The landscape design is intended to create and heighten qualities and characteristics in the open spaces enjoyed in nature such as change, surprise, awareness of transition and movement; weather, seasonal change, use and maturing. Pockets of nature are created within the hard-landscaped open spaces of the development, which are surfaced in durable attractive and hard-wearing materials to give the external spaces textural character.

As noted within the accompanying Stephen Diamond Associates Landscape Report, landscape proposals for the site are intended to contribute towards:

- A unique sense of place;
- A site-specific design proposal generated from existing landscape elements and context;
- A high-quality environment;
- A permeable layout that assists ease of movement for pedestrians and vehicular traffic;
- A development that acknowledges the local landscape character and integrates well into the receiving environment.
- A development that promotes beneficial effects on biodiversity by providing new habitat.

Issues that have been considered throughout the landscape design are:

- Connection to the existing landscape, adjacent land use, proposed buildings, pedestrian and vehicular circulation, shared space;
- The appropriate selection of hard and soft landscape materials;
- Boundary treatments that are in keeping with the surrounding landscape;
- Mitigation of the proposed development, its buildings, access roads and associated services structures.
- Specification of native tree species and plants to enhance biodiversity and visual amenity.

Public Open Space is provided as follows:

- Public Park at Mulladrillen Hill (c. 3.6 ha) provided in accordance with Spot Objective 4 of the Louth CDP 2021-2027
- Public Open Space 01 (c. 1.05 ha) occupying the eastern part of the linear park
- Public Open Space 02 (c. 0.42 ha) occupying the western part of the linear park
- Public Open Space 03 (c. 0.29 ha) pocket park in the south part of the site

Excluding the Public Park at Mulladrillen Hill, the proposed development provides c. 18.6% of the site area as public open space in excess of the 15% required by the development plan.

Communal & Private Open Space

In addition to the generous provision of public open space, a total of 499 sqm of communal open space is provided to the north of the duplex blocks accessed from Bridgewater Avenue, with all residential units provided within private amenity space in the form of garden or terrace (at all duplex units).

The proposed development is therefore consistent with the development standards in relation to open space provision which contributes to a residential development characterised by open recreational space which reflects the site's edge of town location and provides a resource to the wider community in Ardee and the surrounding areas.

2.2.2 Mulladrillen Hill Public Park

The proposed landscaping scheme is focused on the Mulladrillen Hill Park in the northern part of the site extending to c. 3.6 ha which adjoins the permitted public park at the initial phases of Bridgegate to the west. Taken together, the combined park provides c. 7.2 ha or c. 17 acres of public open space, exceeding the requirement of 12 acres (4.9 ha) as set out by Spot Objective 4 of the Louth CDP 2021-2027.

This significant area of public recreation will contribute positively to the character of the development and provides a resource for the residents of Ardee and the surrounding hinterland. Pedestrian connections are made through the proposed park to the permitted park to the west via a pedestrian footpath to the north of Bridgegate Green, whilst also providing a pedestrian footpath to the northern perimeter at Hale Street. A proposed connection to the permitted public park to the west has been routed to the north of Bridgegate Green, as well as at the northwest perimeter of the site linking to the permitted internal road and footpath layout at Bridgegate Drive. The public park includes a range of activity areas such as a dog park, nature-based play area and areas of seating, together with a varied range of planting, lawns, meadows and tree lines, bisected by universally accessible pedestrian routes.

An indicative potential route is shown in the northern part of the site extending from the permitted road at Bridgegate Drive at the northwest perimeter of the subject site. The landscaping scheme identifies an indicative route extending across the site to meet the eastern perimeter. This a potential route and is indicative in nature. Bridgegate Avenue to the south of the public park extends to the eastern boundary of the site in accordance with Objective SS 42 of the Louth CDP 2021-2027 and provides the most efficient route through the site.

The public park is accessed via the main gateway located at the community hub between the crèche and western end of duplex Block A, with a secondary entrance located between duplex Blocks B and C. A footpath is provided to the northern perimeter adjacent to Hale Street. Connections are proposed to the adjoining public park permitted under the parent application at Phases 1-3 at Bridgegate, taken from the southwest corner of the park adjacent to Bridgegate Green and to the northwest at Bridgegate Drive. These routes have been chosen to connect with permitted paths on the lands to the west and enhance permeability through the area. This ensures connectivity throughout the wider public park which extends to c. 7.2 ha and potential links to adjoining lands. The area of the proposed public park excluding the indicative road reservation (occupying 0.225 ha) equates to c. 3.4 ha, with the total park area extending to c. 6.947 ha, in excess of the land zoning objective requirements.

Figure 2.5 –Landscape Drawing of Proposed Public Park



Source: Darmody Architecture

2.2.3 Linear Park (Public Open Space 01 & 02)

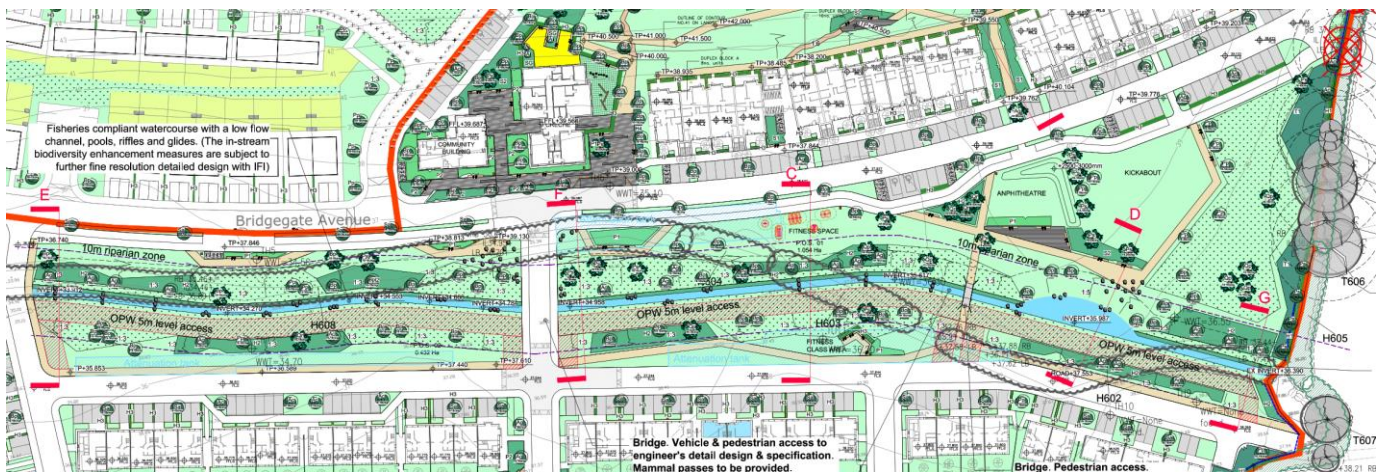
The proposed linear park is focused on the Rathgory Tributary watercourse which bisects the site flowing east to west. The planning application proposes works to realign the watercourse to provide a legible development area and a more efficient in-stream flow. The watercourse will be open in order to provide a high-quality landscaped feature which will provide a riparian corridor 10m either side of the watercourse contributing to biodiversity within the development.

Public Open Space 01 is located to the east of the central crossing point of the Rathgory Tributary which extends south from the community hub to the southern area of the site. The area includes a range of passive and active recreation including fix gym equipment, fitness class area, various elements of seating, an amphitheatre and cycle lanes running through the northern part of the area. An informal kickabout area is also provided in the northeast corner. The open space area contributes c. 1.05 ha to the total open space provided on site. A pedestrian crossing is included in the central part of the open space, with a network of pedestrian paths included. The area is bordered by car and bicycle parking at the northern perimeter with interspersed planting. The landscaping strategy comprises a range of semi-mature tree, hedgerow and shrub planting, as well as a wildflower meadow and retained boundary hedge at the eastern perimeter of the site consolidated by supplementary planting of hazel, blackthorn and holly.

Public Open Space 02 occupies the western part of the linear park and provides continuity in design in terms of the riparian corridor and permeable pedestrian and cycle links which extend through the area which provides c. 0.43 ha of public open space. The area is characterised by a footpath which follows the western perimeter and skirts the southern boundary of the site. Similarly, to POS1, a range of tree and shrub planting is included, primarily in the area north of the watercourse with element of staggered willow planting lining the southern bank. A bus stop is included at Bridgegate Avenue with seating positioned adjacent to this.

The combined linear park provides a focal point of the development for recreation and activity directly adjacent to proposed residential dwellings, also benefitting from passive surveillance. Taken in combination, the area provides c. 1.5 ha of public open space which represents almost 85% of the total serving the proposed development, excluding the public park to the north. Figure 2.11 notes the proposed realignment of the watercourse relative to this as currently existing.

Figure 2.6 – Linear Park



Source: SDA Landscape Architects

2.2.4 Pocket Park (Public Open Space 03)

The remaining area of public open space is provided in the southern part of the site and consists of a c. 0.29 ha square centrally located and within 150m of all dwellings proposed. The central link road extending south from the community hub provides a landscaped corridor which leads to the park, which is characterised by semi-mature tree planting along the northern and eastern edges, a pedestrian path which circumvents the central area of lawn and a nature-based play feature including natural stone boulders and street furniture in the eastern part of the site. Areas of seating are located at the northern edge of the park orientated south, with a mix of surface finishes including concrete block paving and hard compacted gravel as provided throughout the site. This is shown in Figure 2.9 above. All public open spaces within the development, benefit from good levels of passive surveillance from adjacent dwellings, promoting safe and inclusive use for family activity. The comprehensive landscaping scheme comprises

the planting of c. 446 new trees throughout the site which is considered to compensate adequately for the removal of some trees and hedgerows, resulting in a net increase in tree cover within the proposed development. Tree planting mainly consists of oak, willow, alder, silver and downy birch, mountain ash and Scot's pine, complemented by a range of ornamental shrub planter beds consisting of a range of flowering, evergreen and deciduous perennials selected due to suitability of site conditions.

In addition to the public open spaces distributed throughout the proposed development, a significant quantum of planting of trees and native hedgerow is proposed at site perimeters to consolidate existing mature hedgerows to the eastern and western boundaries and new hedgerow in the form of blackthorn, hazel, holly and hawthorn at southern site boundary alongside perimeter fencing.

2.2.5 Communal Open Space

The quantum of space for each duplex apartment has been designed in accordance with the DoHPLG Planning Guidelines for Design Standards for New Apartments 2020. The accompanying Schedule of Accommodation prepared by Darmody Architecture sets out the provision of communal open space as required to serve the 66 no. duplex apartments proposed.

The minimum requirement is set out as follows:

- 17 no. 1-bed apartments* 5 sqm = 85 sqm
- 24 no. 2-bed (4 person) apartments* 7 sqm = 168 sqm
- 25 no. 3-bed apartments* 9 sqm = 253 sqm

Total = 478sqm

Figure 2.7 – Communal Open Space

Communal Amenity Space - (478sqm minimum required)	
Duplex Communal Amenity Space	499 sqm
TOTAL	499 sqm

Source: Darmody Architecture

Communal open space is provided within 2 no. landscaped areas adjacent to the north of the 4 no. duplex blocks accessed from Bridgewater Avenue. The areas include lawns and pedestrian footpaths with seating and planting provided at central areas. This is in addition to the private amenity spaces provided at each duplex unit by way of external garden or terrace, in accordance with Appendix 1 of the Apartment Guidelines.

2.3 Access and Road Layout

The proposed development will be accessed from the N2 Drogheda Road via Bridgewater Avenue permitted in the initial Phases 1-3 of Bridgewater under Reg. Ref.: 10174, as amended. The proposed Phase 4 will extend Bridgewater Avenue as far as the eastern perimeter and will facilitate access to the southern part of the site via two crossings of the Rathgory Tributary.

The internal road network has been designed to prioritise legibility and ease of navigation whilst promoting sustainable modes of transport. A bus stop is proposed at the southern side of Bridgewater Avenue opposite the community hub which will facilitate a local service, enhancing accessibility and providing a link to Ardee town centre and beyond. #

The internal road layout of the proposed development comprises a network of local streets, connecting to a link street (Bridgewater Avenue) that traverses the development site along an east-west axis, extending from Phases 1-3 of the adjacent permitted development, Reg. Ref: 10174 which is currently under construction). This link street within the adjacent development in turn connects to the access junction on the N2 Drogheda Road, to the west which provides the vehicular access to the overall development from the public road network.

Figure 2.8 – DMURS Layout



Source: CS Consulting Engineers

Vehicular and pedestrian access to the development shall be via the internal roads of the adjacent permitted development to the northwest (Reg. Ref.: 10174), which is currently under construction. The adjacent development in turn has vehicular and pedestrian access onto the N2 Drogheda Road. Provision is also made for a potential future road link to Cherrybrook residential development to the west, as well as to adjoining lands to the south and east, with roads proposed to be constructed to site boundaries within the southern part of the site. We understand that Louth County Council are currently considering an application to take Cherrybrook in charge. The proposed development is not reliant on this for access.

Pedestrian permeability provided at the western boundary to link with Bridgeway Drive and Bridgeway Grove to connect with the public park permitted under Reg. Ref.: 10174, with a footpath meeting the northern perimeter of the site adjacent to Hale Street.

2.3.1 Pedestrians & Cyclists

Pedestrian and cyclist access to the proposed development shall initially be facilitated at 2 no. locations at the N2 Drogheda Road, via the access junction and internal road network of the adjacent permitted Bridgeway development to the north-west (currently under construction), with a pedestrian footpath provided to meet the northern perimeter at Hale Street. Provision is also made for a potential future additional access to the development via the existing adjacent Cherrybrook estate, to the west.

Raised footpaths are provided along all internal roads of the development. Further footpaths provide pedestrian connectivity between internal roads, as well as to the development's public open spaces and to the public park located at the centre of the development.

Cycle tracks are provided along the full length of Bridgeway Avenue, in order to provide suitable facilities for cyclists in the event that this forms part of an east-west connector road in the future. Marked pedestrian crossings of the internal roads are provided at several locations, with raised junctions, raised streets, and horizontal deflections to calm vehicular traffic. A total of 296 no. bicycle parking spaces are provided throughout the development as follows:

- 204 no. spaces serving duplexes
- 60 no. visitor spaces
- 32 no. non-residential spaces serving the community hub

Bicycle parking is provided by secure stores between duplex Blocks A and B and C and D, with visitor spaces conveniently located close to dwellings and interspersed with public open space, with those serving the community hub located within that area adjacent to buildings.

2.3.2 Proposed Bus Stop

A new bus stop is proposed to be constructed on the southern side of Bridgewater Avenue opposite the community hub at a location within 400 m of all dwellings within the site. This will facilitate the potential future provision of a local bus service through the subject development. The development's internal road layout permits a bus of the type typically used by Local Link services to follow a looped route through the development, servicing this bus stop. This will enhance access and connectivity of the development and provide an alternative to private car use, mitigating pressure on the local road network within Ardee.

2.3.3 Potential for Future Road Link to East

Policy SS 42 of the Louth County Development Plan 2021-2027 seeks to *'facilitate the provision of a new link road from Rathgory and Mulladrillen to Black Road'* through the application site. The proposed development is in compliance with this policy as it includes an extension of Bridgewater Avenue to meet the eastern perimeter and has therefore been designed to facilitate the provision of this road on the subject lands. In addition, an indicative road reserve route through the public park in the northern part of the site is provided for a potential future link. It is noted that the lands adjoining to the east are outside the ownership of the applicant and zoned 'L1 Strategic Reserve'.

2.4 Services

2.4.1 Foul Sewer

The proposed development will make optimal use of the in-situ drainage infrastructure permitted under Reg. Ref.: 10174 and as amended under Reg. Ref.: 19336 and 19353. The current site is not currently developed and as such no sewers are located on the subject lands. All effluent generated in Ardee is conveyed to the Regional Wastewater Treatment Plant (EPA Licence Number D0117/01). The Regional Treatment Plant has recently been upgraded and has expanded capacity from 5,000 PE (population equivalent) to 10,000 PE.

The development will require a new separate foul drainage network to collect and convey the effluent generated by the proposal, connecting to existing network on the N2 Drogheda Road. It is proposed to connect to the stormwater sewer permitted under Reg. Ref.: 10174 (as amended by Reg. Ref.: 19336 and 19353) adjoining to the west which is currently under construction. This permitted development's foul drainage network has been designed to cater for the flows from the subject site, in addition to its own.

Irish Water have confirmed acceptance of the proposed drainage strategy via a Letter of Design Acceptance having previously issued Confirmation of Feasibility that the development can connect to Irish Water infrastructure. The applicant acknowledges the commentary of Irish Water set out within the Confirmation of Feasibility on the upgrades required to the wastewater network to cater for the additional proposed load. It is understood that the upgrades do not require third party permission (or any other consents) and it will be under the remit and control of Irish Water to implement the upgrade works through the applicant's connection application process following any grant of planning permission. Please refer to the Engineering Services Report prepared by CS Consulting Engineers for details.

The drainage strategy has been designed in accordance with the Greater Dublin Strategic Drainage System Guidelines and has been accepted in principle by Louth County Council Infrastructure Services.

2.4.2 Surface Water Drainage & Attenuation/SuDs

At present the subject lands does not have any engineered drainage system in place. The open nature of the site and the natural existing gradients has led the majority of the site to drain to the south into the Rathgory Tributary watercourse.

In accordance with the requirements of Louth County Council, the proposed development shall incorporate Sustainable Drainage Systems (SuDS) principles. These require a two-fold approach to address storm water management on new developments.

The first aspect is to reduce any post development run-off to predevelopment discharge rates (i.e. greenfield runoff rates). The development is to retain storm water volumes predicted to be experienced during extreme rainfall events.

This is defined as the volume of storm water generated during a 1-in-100-year storm event, increased by 20% to account for the predicted effects of climate change.

The second aspect requires that storm water quality be improved before disposal and, where applicable, that storm water be permitted to infiltrate into the ground on site rather than discharging to the public drainage system or to watercourses. Infiltration testing has been carried out however it was found that the lands are not viable for infiltration. Surface water and runoff will be attenuated to 4 no. Stormtech storage units located beneath areas of public open space and subject to treatment before being discharged at greenfield rates by a hydrobrake control to the realigned Rathgory Tributary.

The objective of SUDS is to provide an effective system to mitigate the adverse effects of storm water runoff, through enhanced quality systems and on local infrastructure to aid in preventing downstream flooding. The features proposed are designed to reduce run-off volumes, pollution concentrations and enhance groundwater recharge and biodiversity. The proposed SUDS features within the subject development consist of:

- Low water usage sanitary appliances;
- Water butts to retain rainwater for re-use for landscaping and maintenance purposes; and
- Permeable paving for car-parking bays

2.4.3 Water Supply

The proposed watermain network system has been designed in accordance with the specifications and requirements of Irish Water. The subject development's potable water supply network has been designed to be connected into the adjacent permitted development (Reg. Ref.: 10174 amended by 19336 and 19353) to the west, which is currently under construction.

As per the Irish Water Confirmation of Feasibility letter, a connection to the existing water network can be facilitated, with the exact connection location and requirements to be agreed at connection application stage.

The water main layout and details are in accordance with the *'Irish Water Code of Practice for Water Infrastructure'* and the *'Irish Water Code of Practice for Wastewater Infrastructure'*.

2.4.4 ESB Supply

The proposed development site is greenfield and does not have a current connection into the local ESB network. The subject lands currently has a live ESB Electrical network supply to the west of the site.

The power supply infrastructure for the proposed development site will require an extension of the existing power supply infrastructure currently in place and under construction for the permitted residential development to the west of the site. ESB Networks have been contacted in preparation of this application.

There are existing ESB overground MV/LV line crossing through the northern area of the proposed site. This area of the site is a landscaped area, no residential development is proposed for this area as part of this application. There is no known existing ESB overground and underground infrastructure located in the area of the proposed residential development.

Two new ESB sub stations are required to cater for the electrical requirement of the residential development, the substations have been designed into the proposed residential scheme. A formal application to confirm the nature of the ESB supply is made once the formal address of the residential development is agreed with the Planning Authority

2.4.5 Telecommunications

The proposed development site is greenfield and does not have a current connection into the local Broadband EIR network. The proposed development currently has a live EIR network supply to the west of the site.

The telecommunication infrastructure for the proposed development site will require an extension of the existing infrastructure currently in place and under construction for the permitted residential development to the west of the site. EIR have been contacted in preparation of this application. There is no known existing EIR infrastructure located in the proposed residential development. Subject to formal agreement with EIR it is envisaged that EIR will provide a service through the link road to the proposed residential development, the EIR services shall be designed within the proposed residential scheme in accordance with EIR requirements for residential developments.

2.4.6 Gas

The proposed development site is greenfield and does not have a current connection into the local gas network. The proposed development currently has a live gas supply to the west of the site.

The gas supply infrastructure for the proposed development site will require an extension of the existing supply infrastructure currently in place and under construction for the permitted residential development to the west of the site. There is no known existing gas network infrastructure located in the area of the proposed residential development.

2.5 Construction Management Strategy

The proposed development site is greenfield and does not have a current connection into the local gas network. The proposed development currently has a live gas supply to the west of the site.

The gas supply infrastructure for the proposed development site will require an extension of the existing supply infrastructure currently in place and under construction for the permitted residential development to the west of the site. There is no known existing gas network infrastructure located in the area of the proposed residential development.

2.5.1 Construction Traffic

Access to the development site for construction traffic shall be from Bridgewater Avenue; this is the primary link street running through the southern section of the adjacent permitted development to the northwest (Reg. Ref.: 10174, as amended), which is currently under construction. The adjacent development in turn has vehicular access onto the N2 (Drogheda Road) to the west via a recently constructed simple priority junction. From the N2, construction traffic can access the M1 motorway, via the R170 and the N33, bypassing Ardee town centre.

A temporary priority-controlled junction will be created on Bridgewater Avenue, at the western corner of the subject development site which will be used by all construction traffic entering and exiting the site. Bridgewater Avenue is also to be continued eastward as part of the subject development, and this will form the public access to all completed phases of the subject development while construction works are ongoing in other phases.

2.5.2 Main Stages/phases of Construction

The applicant proposes to deliver the development in 6 no. phases.

Phase 1 will consist of the part of the crèche and community building, associated parking and infrastructure in the northern part of the site on Bridgewater Avenue, as well as the central spine branching to the south which provides a connection to the southern part of the site via the watercourse crossing. Dwellings extending across the southern boundary of the open space is included. This will include 40 no. dwellings, parking, landscaping, open space at POS1 and POS2, including pedestrian watercourse crossing, part of the crèche and community building and associated infrastructure. A total of 4 no. Part V units will be delivered in this phase.

Phase 2 will comprise public open space POS3, including 45 no. dwellings, parking, landscaping, access and associated infrastructure at the central part of the site. A total of 6 no. Part V units will be delivered in this phase.

Phase 3 will comprise the balance of the crèche (with cumulative demand arising in later phases to ensure the viability of the crèche when operational), Bridgewater Avenue extending east and the Public Park and communal open space to the north of the duplex blocks, including 48 no. dwellings, parking, landscaping, access, part crèche and public park and associated infrastructure. A total of 4 no. Part V units will be delivered in this phase.

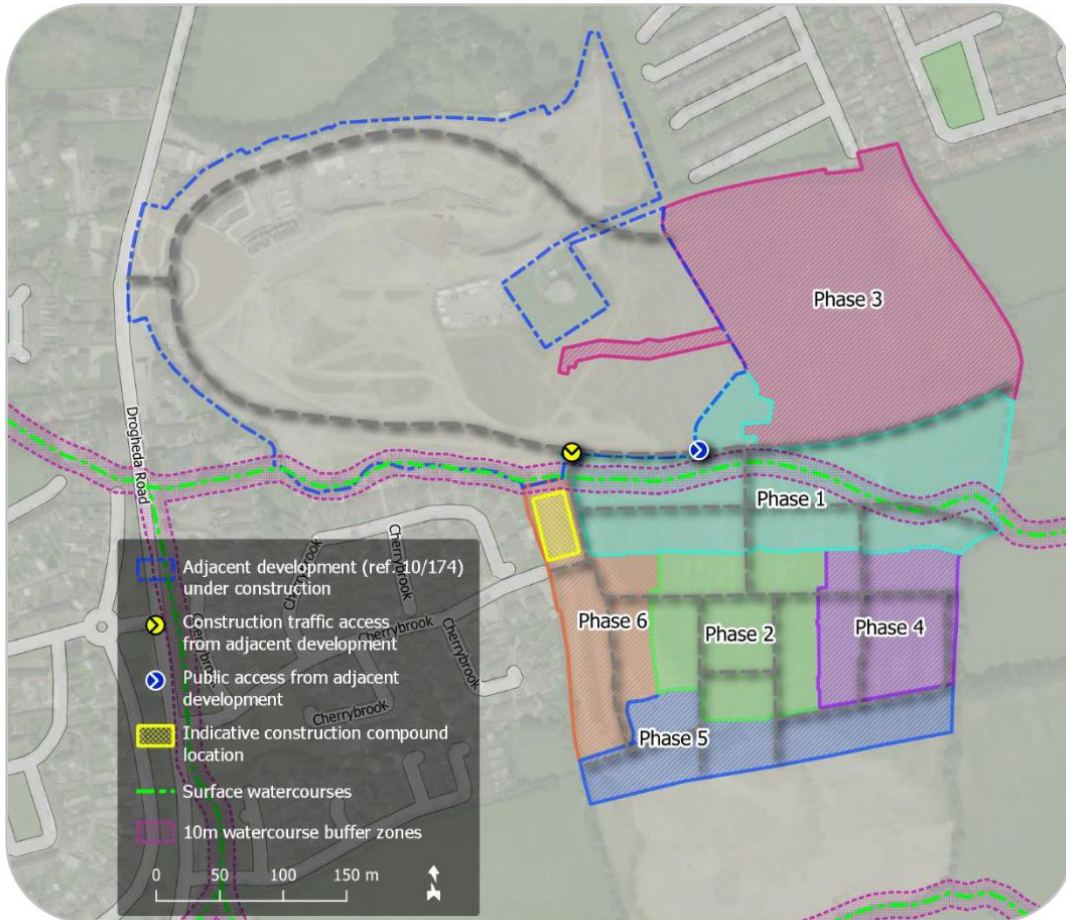
Phase 4 will comprise the eastern part of the proposed development including 49 no. dwellings, parking, landscaping, access and associated infrastructure. A total of 10 no. Part V units will be delivered in this phase.

Phase 5 will comprise 46 no. dwellings, parking, landscaping, access and associated infrastructure at the southern perimeter of the site. A total of 2 no. Part V units will be delivered in this phase.

Phase 6 will comprise the balance of 44 no. units at Bridgewater Way at the western part of the site, including parking, landscaping, access and associated infrastructure. A total of 2 no. Part V units will be delivered in this phase.

The 28 no. Part V units are distributed throughout the site and will be built out in accordance with each phase. Public open space and the community facilities will be constructed in development Phase 1, 2 and 3.

Figure 2.9 - Phasing



Source: CS Consulting

2.5.3 Hours of Working

It is anticipated that normal working hours may be 8am to 8pm Monday to Friday and 8am to 4pm on a Saturday. However, it may be necessary to work outside of these hours at night and at weekends during certain activities and stages of the development (e.g. concrete pouring) which will be subject to agreement with the Planning Authority.

Deliveries of material to site will be planned to avoid high volume periods. 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 for the project prior to commencement.

2.5.4 Construction Traffic Management Plan

A Construction Traffic Management Plan (CTMP) will be prepared by the main contractor and agreed with the Planning Authority prior to commencement of development in the event of a grant of permission. An outline CTMP, prepared by CS Consulting Engineers is included with the planning application forming part of the Outline Construction Management Plan and further detailed in Chapter 10 of the EIAR: Traffic.

In summary, the access to the development site for construction traffic shall be from Bridgeway Avenue; this is the primary link street running through the southern section of the adjacent permitted development to the northwest (planning ref. 10174), which is currently under construction. The adjacent development in turn has vehicular access onto the N2 (Drogheda Road) to the west via a recently constructed simple priority junction (see Figure 13 of the CS Consulting TTA). From the N2, construction traffic may access the M1 motorway, via the R170 and the N33, bypassing Ardee town centre. A temporary priority-controlled junction will be created on Bridgeway Avenue, at the north-west corner of the subject development site; this junction will be used by all construction traffic entering and

exiting the site. Bridgewater Avenue is also to be continued eastward as part of the subject development, and this shall form the public access to all

2.6 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 3-14 which deal with '*Aspects of the Environment Considered*'. No significant adverse impact is predicted to arise from the use of natural resources.

2.7 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 Chapters 3-14 which deal with '*Aspects of the Environment Considered*'. There will be no significant direct or indirect effects arising from these sources.

2.8 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.

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.

Do-nothing Alternative

The site is zoned 'A2 New Residential Phase 1' lands park in the Louth County Development Plan 2021-2027 and as such, consideration of alternative sites is not pertinent. Spot Objective 4 seeks to provide a public park also retained at the lands. The applicant is currently on site at Phases 1-3 of Bridgewater (Reg. Ref.: 10174) which is under construction.

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 and a public park in Ardee. 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 residential zoned lands. The suitability of the lands for development, is an important consideration, in this regard.

Alternative Designs

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 the Apartment Guidelines 2018 and the Sustainable Residential Development in Urban Areas (2009) as well as where relevant the Louth County Development Plan 2021-2027 and has been the subject of a number of pre-application meetings with the Planning Authority and An Bord Pleanála prior to lodgement of the planning application.

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 Development in Urban Areas Guidelines for Planning Authorities (2009) having regard to the location of the site.

- The need to ensure any residential development provides a broad and sustainable 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 requirement to provide a future connector link road to the lands to the east in accordance with Objective SS 42 of the Louth County Development Plan 2021-2027.
- The requirement to provide part of a 12-acre Public Park in accordance with Spot Objective 4 of the Louth County Development Plan 2021-2027.
- The need to include an open watercourse and riparian corridor within the linear park around the Rathgory Tributary to enhance biodiversity on site.
- 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 and consolidate boundaries through significant additional planting to enhance the amenity of the area.
- The quality of the urban environment to be delivered and the associated impact on human health.
- The need to provide 10% social housing on site.

Alternative site layouts and siting progressed throughout the design process in order to minimise the impact on the receiving environment at the earliest opportunity. The initial stage involved a constraints analysis of the land within the proposed development site to identify all high-level constraints and aggregate them against the site to allow a suitable layout to be developed.

2.13.1 Final Layout Alternative

With regard to the submitted layout, the iterative process set out above, which included alternative site layouts that were considered with the objective of submitting an overall high-quality designed scheme which has undergone a robust consideration of relevant alternatives in reference to the comparison of environmental effects and meets the requirements of the EIA Directive, based on the multidisciplinary review across all environmental topics.

3.0 NON-TECHNICAL SUMMARY OF EIAR CHAPTERS

3.1 Population and Human Health

It should be noted that there are numerous inter-related environmental topics described throughout this EIAR document which are also of relevance to Population and Human Health. Issues such as the potential likely and significant impacts of the proposed development on landscape and visual impact, biodiversity, archaeology and cultural heritage, air quality and climate, noise and vibration, water, land and soils, material assets including traffic and transport impacts, residential amenity etc. are of intrinsic direct and indirect consequence to human health. For detailed reference to particular environmental topics please refer to the corresponding chapter of the EIAR.

The subject site is located c.1km south of Ardee town centre, to the east of the N2 Drogheda Road. The subject site is located to the east of the N2 Drogheda Road and adjoining the existing residential developments at Cherrybrook and Bridgegate.

Potential Construction and Operational Phase Impacts

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. It is anticipated that up to c. 80 staff will be working at the site at all times during the construction period.

The construction phase will also have secondary and indirect 'spin-off' impacts on ancillary support services in the construction phase of the proposed development will primarily consist of site clearance, excavation and construction works, which are likely to take place over the 7 year duration of the planning permission which is sought, which will

be largely confined to the proposed development site. Notwithstanding the implementation of remedial and mitigation measures there will be some minor temporary residual impacts on population (human beings) and human health most likely with respect to nuisance caused by construction activities.

It is anticipated that subject to the careful implementation of the remedial and mitigation measures proposed throughout this EIAR document any adverse likely and significant population and human health 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. As outlined above, the construction phase will have both direct and secondary positive economic impacts in this regard.

The overall predicted likely and significant impact of the construction phase will be short-term, temporary and likely to be neutral.

The construction of the sewerage connection to facilitate the proposed development will require works to the public road will likely entail some localised impacts to residents. The Construction Management Plan will ensure that disruption and nuisances will be kept to a minimum.

The proposed development will result in a positive alteration to the existing undeveloped site in terms of the provision of residential units, community building and a childcare facility to serve the overall development at Bridgewater, as well as a c. 3.6 ha public park (as part of a wider c. 7.2 ha park) in the northern part of the site with pedestrian links provided to Hale Street at the northeast perimeter.

Positive impacts on population and human health will include health benefits associated with the provision of a significant quantity of open space, a highly permeable layout which encourages walking and cycling, amenity and recreational facilities as well as facilitating a future connector link road to Jumping Church Road / Black Road in accordance with Objective SS 42 of the Louth CDP through the extension of Bridgewater Avenue to the eastern perimeter.

The implementation of the range of remedial and mitigation measures included throughout this EIAR document is expected to have the impact of limiting any adverse significant and likely environmental impacts of the operational phase of the proposed development on population and human health.

3.2 Biodiversity

The biodiversity assessment has been undertaken by Altemar Limited. It assesses the biodiversity value of the proposed development area and the potential impacts of the development on the ecology of the surrounding area and within the potential zone of influence (ZOI).

Study Methodology

A pre-survey biodiversity data search was carried out. This included examining records and data from the National Parks and Wildlife Service (NPWS), National Biological Data Centre (NBDC) and the Environmental Protection Agency (EPA), in addition to aerial, 6-inch maps and satellite imagery. This assessment was carried out in accordance with best practice methodology as per EPA 2017 Guidelines and EC Guidance on EIAR, The European Commission's "Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment" (2013) and the Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report, European Commission, 2017. A habitat survey of the site was undertaken within the appropriate seasonal timeframe for terrestrial fieldwork. Field surveys were carried out as outlined in Table 4.1. All surveys were carried out in the appropriate seasons with the exception of mammal surveys. However, site is open habitat and good access was possible to all areas on site additional mammal surveys were not deemed to be required due to the lack of features on site which would form resting or breeding places for mammals.

Table 3.1: Field Surveys

Area	Surveyors	Survey Dates
<i>Terrestrial Ecology</i>	Bryan Deegan (MCIEEM) of Altemar	23 rd July 2020 & 7 th June 2021
<i>Bat Fauna</i>	Bryan Deegan (MCIEEM) of Altemar	23 rd July 2020 & 7 th June 2021
<i>Aquatic Ecology</i>	Bryan Deegan (MCIEEM) of Altemar	23 rd July 2020 & 7 th June 2021
Wintering Birds	Brian Keeley B.Sc. (Hons)	20, 28, November 2020 17, 29 December 2020 7, 21 January, 2020 10 February, 2020

		1, 15, 29 March, 2020
Breeding birds	Brian Keeley B.Sc. (Hons)	4, 26 May 2021

Desk studies were carried out to obtain relevant existing biodiversity information within the ZOI. As outlined in CIEEM (2018) The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries.' Best Practice In line with best practice guidance an initial zone of influence be set at a radius of 2km for non-linear projects (IEA, 1995). However, there is a watercourse within the proposed development site and it is proposed to provide a fisheries compliant diversion as part of the proposed development. As a result, the potential ZOI extends beyond the site, with the potential for downstream impacts to extend the ZOI beyond the site outline via the watercourse. In relation to the ZOI as a result of the watercourse works this was extended to 15km.

Potential Impacts

Designated Sites

There are no Natura 2000 sites (SAC & SPA) within 5km and no National conservation sites within one kilometre of the proposed development site. However, it should be noted that Dundalk Bay (SAC, SPA and pNHA) are 12.1km downstream from the proposed works. It is important to note that the nearest Natura 2000 site with a direct hydrological pathway downstream is a minimum of 12.1 Km within Dundalk Bay. Significant settlement, dilution and mixing would occur within the Rathgory Tributary and in the River Dee catchment prior to reaching these designated sites. However, mitigation measures will need to be in place to protect local biodiversity and to ensure compliance with Water Pollution Acts and that the proposed works do not impact on the integrity of designated sites.

Figure 3.1 - Watercourses (watercourse in the site (Rathgory Tributary) is a tributary of the River Dee).



Project: Ardee
Location: Ardee, Co. Louth
Date: 3rd November, 2021
Drawn By: Bryan Deegan (Altamar)

ALTEMAR
Marine & Environmental Consultancy

Species and Habitats on site

No species of conservation importance were noted on site, based on NPWS and NBDC records as fine resolution. The closest species recorded by NPWS to the site was otter (*Lutra lutra*) at 1.1km north west of the site (on the River Dee) and two separate common frog (*Rana temporaria*) sightings 2.3 and 2.5 km to the south of the site. No species of conservation importance have been noted on site by NPWS.

The proposed development site is primarily a series of neglected arable fields that have seen recent disturbance. The watercourse (acting as a biodiversity corridor), hedgerows and treelines would be seen as the most important habitats on site, not because of the species noted but by the linear nature of the elements providing biodiversity corridors to the surrounding areas. Habitats on site included Cultivated Land, Recolonising Bare Ground, Depositing/lowland river, Spoil and Bare ground, Hedgerows, and Treelines. No terrestrial animals or plants of conservation importance were noted on site. However, bats were observed foraging in the vicinity of the hedgerows along the watercourse. It should be noted that there is potential for downstream impacts which could impact on species of conservation importance including otter (*Lutra lutra*) and Atlantic salmon (*Salmo salar*). In relation to bird species on site the breeding bird survey noted that *“Many of the species noted are very common in Ireland. However, there were red-listed and amber-listed species that would merit greater consideration for their protection due to modifications to this site (see * below for clarification of these categories). One red listed species was noted nesting within the site. There were two displaying Meadow pipits in the field north of the east-west hedge. One red list species may have been nesting within adjoining hedgerow (or potentially within the eastern boundary of the site. There was a single singing yellowhammer in the hedge running east from the north-eastern edge of the site. Herring gulls (amber listed) were feeding both in winter and early summer but do not nest within the site. No amber listed species were breeding within the site based on the surveys on May 4th and 26th 2021.”*

In addition, in relation to Wintering birds. *“Yellowhammers were present during all winter and spring visits and their numbers were highest between the late December and January visits when both their number and the number of lesser redpolls were high. Yellowhammers were greatly reduced in May 2021, with one male noted on the eastern edge of the site.” ...“Within the site, the lands directly north of the west-east hedge were the favoured feeding area. The field south of the hedge has been greatly altered by soil movement and there was less established crop here. Another species, the tree sparrow that was present in very low numbers (3 individuals were present on 21st January 2021). This Amber listed species (for breeding birds only) is rather local in Ireland, especially in the west and south. Similar to the yellowhammer, it is largely associated with cereal production. Tree sparrows are primarily sedentary but young birds may disperse to new areas. Snipe were occasionally encountered feeding within the site, with a maximum of 2 in late January 2021. These are not likely to be nesting within the site given the level of disturbance.”*

No invasive plant species that could hinder removal of soil from the site during groundworks, such as Japanese knotweed, giant rhubarb, Himalayan balsam or giant hogweed were noted on site.

Construction Impacts

The construction of the proposed development would potentially impact on the existing ecology of the site and the surrounding area. These potential construction impacts would include impacts that may arise during the site clearance, re-profiling of the site and the building phases of the proposed development. Construction phase mitigation measures are required on site particularly as significant reprofiling of the site is proposed which will remove all existing terrestrial habitats and can lead to silt laden and contaminated runoff. In addition, the Rathgory Tributary is located in the centre of the site running from east to west. It is also proposed install new culverts and realign the course of the existing stream. There is potential for silt laden runoff and contamination to enter the watercourse with potential for downstream impacts. It should be noted that the proposed development site is on the Rathgory Tributary and the nearest Natura 2000 sites with a hydrological pathway are the Dundalk Bay SPA and the Dundalk Bay SAC both located downstream of the proposed development site. The River Dee is a salmonid river Atlantic salmon (*Salmo salar*). The Rathgory Tributary has no instream faunal biodiversity and is heavily tunnelled by trees and has a paucity of instream vegetation.

During the site visits no flora, bird or terrestrial mammal species of conservation importance were recorded on site or in NPWS or NBDC records. An Arboricultural Impact Assessment was carried out by Charles McCorkell. It states that *“The removal of eight trees and seven hedgerows is required to facilitate the proposed development. These losses will have an insignificant impact on the character and appearance of the local area due to their low quality or limited public amenity value within the surrounding landscape.”* In addition as outlined in the bird survey report *“There will be a reduction in the vegetation cover and removal of the scrub and some of the mature trees that offer nest sites for the bird species noted within the site. Trees that are retained will be under considerable pressure from disturbance for the duration of construction and from human presence into the future. This will arise from the level of noise and*

lighting associated with construction and following this from lighting associated with residents. This will be a long-term moderate negative impact as there will be a loss in established vegetation.”

Operational Impacts

Once constructed all onsite drainage will be connected to separate foul and surface water systems. Surface water runoff will comply with SUDS. The biodiversity value of the site would be expected to improve as the landscaping matures. It would be expected that the ecological impacts in the long term would be positive once landscaping has established due to the implementation of a fisheries compliant realignment and a reduction in tunnelling which would encourage instream biodiversity. The development will comply with LCC drainage requirements and the Water Pollution Acts. Mitigation measures will be in place to offset the short term nesting resource.

Avoidance, Remedial & Mitigation Measures

Mitigation measures will be incorporated into the proposed development to minimise the potential negative impacts on the ecology within the ZOI. These measures are outlined within the EIAR and incorporate elements outlined in the CEMP. An ecologist will be appointed to supervise works on site. In addition, standard construction and operational controls will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the Zone of Influence (Zoi) including the Rathgory Tributary and River Dee. The mitigation has been designed to ensure that the project will comply with the Water Pollution Acts, Wildlife Acts and standard LCC and IFI Conditions. All construction and operational phase controls outlined in the CEMP will be followed. All works in the riparian corridor will be carried out in consultation with and to the satisfaction of IFI and the project ecologist, following the best practice guidelines for construction in the vicinity of watercourses. Mitigation measures in relation to the diversion of the stream and culvert installation are outlined and all instream works will be in compliance and in consultation with Inland Fisheries Ireland.

Adverse Effects likely to occur from the project (post mitigation)

Construction and operational mitigation measures are proposed. These would ensure that water entering the Rathgory Tributary, is clean and uncontaminated. However, given the proximity of numerous sensitive receptors and the watercourse leading to the Natura 2000 sites, it should be noted that the early implementation of ecological supervision on site and consultation with IFI at initial mobilisation and enabling works is seen as an important element to the project, particularly in relation to the implementation of surface water runoff mitigation.

With the successful implementation of standard mitigation measures to limit surface water impacts on the Rathgory Tributary, biodiversity mitigation/supervision and the successful installation and initiation of the foul treatment system, no significant impacts are foreseen from the construction or operation of the proposed project. Residual impacts of the proposed project will be localised to the immediate vicinity of the proposed works. Positive impacts would be seen through the implementation of an improved riparian corridor with greater potential for biodiversity than currently exists on site. There will be a reduction in green space that will reduce feeding for birds. The impact of this will be reduced by a planting regime that encourages insect diversity but there is potential for a long-term slight negative impact due to the loss of cereal crop availability and hedgerow loss.

Residual Impacts Conclusion

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on the sensitive receptors through the application the standard construction and operational phase controls. The overall impact on the ecology of the proposed development will result in a long term slight positive residual impact on the ecology of the area and locality overall. This is primarily as a result of the loss of terrestrial habitats on site, supported by the creation of an improved biodiversity focused riparian corridor, additional biodiversity features, standard construction and operational controls and a sensitive native landscaping strategy. The implementation of SUDS drainage on site and riparian features in consultation with IFI would be seen as beneficial to the Rathgory Tributary.

3.3 Land and Soils

The assessment of the subject development's impact on land and soils is contained within Chapter 5 of this EIAR.

This section of the EIAR has been prepared by Cronin and Sutton Consulting and describes the existing Land, Soil & Geology aspects on the proposed development site. An assessment is made of the likely impact arising during the construction and operational phases of the development on these elements, as well as the cumulative impacts arising.

Existing Environment

The site is located in the administrative jurisdiction of Louth County Council and has a total area of approximately 13.03ha. The subject site has not previously been developed and has been used as agricultural land. The subject lands is bisected by a water course, a tributary of the Rathgory River. There is evidence of previous use of the lands for quarrying of material. Historical mapping calling up 'gravel pits' within the subject lands. There is no evidence that quarrying has been carried out on site for a considerable amount of time. There is no groundwater abstraction wells on site.

Impact Assessment

The "Do Nothing Impact" assesses the environmental impact of not redeveloping the proposed development site in respect of the existing impacts to land and soils, at the proposed site. Under the "Do Nothing Scenario" there would be no change in the current land use of the site and therefore the soil and bedrock geology environments would remain in their current state. There is no predicted long-term impact on the soil, geology and hydrogeology environments associated with the operation phase of the proposed development.

Mitigation

Mitigation measures for the demolition phase will be as outlined in the *Outline Construction & Demolition Management Plan*, submitted as part of this application. The main impacts are associated with the Construction Phase of the proposed development. Following construction there will be no long-term significant impacts with respect to soils and geology of the site.

Residual Impact Assessment

The assessment concluded that the residual impacts would be minor in nature & would not cause off site issues pertaining to the sites geological setting.

Monitoring

It is recommended that the following are monitored in relation to the soil and geological environments during the demolition and construction stage:

- Testing and monitoring of soil and made ground that will be excavated for any potentially contaminated material to ensure adequate classification and disposal.
- Monitoring of the retaining wall using for example, inclinometers and monitoring of water movements either seepages or through control points.
- Monitoring of neighbouring structures immediate to the development site for the effects of any vibration, movement and settlement arising from the excavation works based on condition surveys carried out by the Contractor prior to the works.
- Monitoring of interrelated impacts such as noise and vibration levels, groundwater levels, dust emissions etc. are dealt with in their other chapters in this EIAR.
- Testing and monitoring of water and gas during excavation works.
- Monitoring of water movements either seepages or through control points.

3.4 Water

The assessment for the proposed development considered the potential impacts on the hydrology, surface water, foul water and potable environments during the proposed construction & operational phases.

The main water body relevant to the proposed development is a tributary of the Rathgory River. The assessment also takes into account Louth County Councils Development Plan, in particular the requirement to implement Sustainable Drainage Systems into the proposed design to ensure that surface water quality is enhanced prior to ultimate discharge into the local water course. The proposed stormwater drainage system has been designed in accordance with Dublin City Council's Regional Code of Practice for Drainage Works and the Greater Dublin Strategic Drainage Study, (both relevant for County Louth).

The subject lands were also reviewed against Louth County Council & national guidelines for potential flooding from a variety of sources. These included an assessment of potential flooding sources such as tidal, fluvial, pluvial, groundwater, and infrastructure failure. The site's current designation is that the majority of the subject lands are in

Flood Zone 'C', with a small proportion in Flood Zone 'B', an area which will not be developed for housing, as such the proposed development is considered appropriate.

All aspects of the proposed development contained within the Water Chapter were also analysed with regard to the potential impacts of climate change. A climate change factor of 20% was applied to the rainfall data to ensure that the proposed development is in accordance with Louth County Council's development policy and is fit for purpose in the future. The inclusion of Sustainable Drainage Systems (SuDS) measures will ensure a greater overall surface water quality discharge from the development post construction. The inclusion of an attenuation system on site to restrict the volumes of storm water generated during extreme storm events has been designed to Louth County Councils requirements and will limit the storm water discharge rates post development to the un-developed green field discharge rate. The onsite storage proposed has been designed to accommodate the predicted storm water volumes expected during a 1-in-100-year storm event, increased by 20% for the predicted influence of climate change.

The scheme assessment reviewed the proposed development to ensure that what has been proposed will not impede or be adversely affected by the predicted future climate change challenges. The receptors looked at the local water course crossing the subject lands and the potential to affect the overall water quality of same, during construction and operational phases.

The magnitude and significance of the potential impacts for the proposed development were deemed to be long term and slight. Upon completion of the development, Louth County Council will have responsibility for the monitoring and maintenance of the public storm water system, and Irish Water will have responsibility for the foul & potable water infrastructure. The residual impacts of the proposed development are neutral, slight, and long term. Cumulative effects have been considered, with no additional significant residual effects predicted following the implementation of mitigation measures.

3.5 Air Quality and Climate

AWN Consulting Limited has been commissioned to conduct an assessment of the likely impact on air quality and climate associated with the proposed residential development at Bridgegate, Ardee, Co. Louth. The proposed development will involve construction of residential units, a crèche, community building, public open space and all associated infrastructure. The total gross site area comprises a c.13-hectare greenfield site.

In terms of the existing air quality environment, baseline data and data available from similar environments indicates that levels of nitrogen dioxide, particulate matter less than 10 microns and less than 2.5 microns are generally well below the National and European Union (EU) ambient air quality standards.

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC). The EPA estimate that Ireland had total GHG emissions of 59.90 Mt CO₂eq in 2019. This 6.98 Mt CO₂eq higher than Ireland's annual target for emissions in 2019. Emissions are predicted to continue to exceed the targets in future years.

The greatest impact to air quality during the construction phase of the proposed development is from dust emissions. There are a number of sensitive receptors in close proximity to the site, to the direct north and west site boundary. Provided the dust mitigation measures outlined in Appendix 7.3 of Chapter 7 are implemented, dust emissions are predicted to be short-term, negative and imperceptible and will not cause a nuisance at nearby sensitive receptors. The best practice dust mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of construction of the proposed development is likely to be short-term, localised, negative and imperceptible with respect to human health.

Potential impacts to air quality and climate during the operational phase of the proposed development are as a result of increased traffic volumes on the local road network. The changes in traffic flows were assessed against the UK Design Manual for Roads and Bridges (DMRB) screening criteria for an air quality and climate assessment. The operational phase air quality and climate modelling assessments determined that there is no potential for significant impacts as a result of traffic related to the proposed development. It can therefore be determined that the impact to air quality and climate as a result of increased traffic volumes during the operational phase of the proposed development is localised, negative, imperceptible and long-term. In addition, the proposed development has been designed to reduce the impact to climate where possible.

As the National and EU standards for air quality are based on the protection of human health, and concentrations of pollutants in the operational stage of the proposed development are predicted to be significantly below these standards, the impact to human health is predicted to be imperceptible, negative and long term.

No significant impacts to either air quality or climate are predicted during the construction or operational phases of the proposed development.

3.6 Noise and Vibration

The baseline noise environment in the vicinity of the proposed development site has been defined by field surveys. AWN Consulting Limited has been commissioned to assess likely noise and vibration impacts associated with the proposed residential development on a c. 13.03 hectare site at Bridgegate, Rathgory & Mulladrillen, Drogheda Road, Ardee, County Louth. The proposed development will involve the construction of 272 no. residential units, a crèche and playground, a single storey community building and all associated infrastructure.

The existing noise climate in the vicinity of the proposed development has been surveyed. Prevailing noise levels are primarily from road traffic noise on the surrounding road network.

When considering developments of this nature, the potential noise and vibration impact on the surrounding environment must be considered for each of two distinct stages: the short-term impact of the construction phase and the long-term impact of the operational phase.

During the construction phase it is expected that there will be some temporary and short-term impacts on the nearest noise sensitive locations (NSL's) due to noise. The likely construction noise impacts are not expected to be significant, however, best practice mitigation measures have been recommended to minimise the significance of any potential impacts associated with construction activities. The application of binding hours of operation, along with implementation of noise monitoring and appropriate noise and vibration control measures, shall ensure that the noise and vibration impacts are controlled to be within acceptable standards.

During the operational phase, potential causes of disturbance are primarily limited to the additional vehicles on the existing road network. It has been predicted that any additional traffic due to the development will not increase the existing noise climate. Other potential sources of noise associated with the operational phase are from building services and an outdoor play area of the creche, the potential impact of each has been assessed and found to be not significant.

No significant sources of vibration are expected to arise during the operational phase of the development. It is expected that activities during the operational phase of the development will not increase the existing noise climate sufficiently or with such frequency to cause any noise and vibration impacts at noise sensitive locations.

3.7 Landscape and Visual

Introduction

This section comprises an assessment of the likely effects on the landscape and visual environment of the proposed construction of the residential development at Bridgegate, Ardee Co. Louth. It comprises of a c. 13ha greenfield site in the southern part of Ardee as an extension to the permitted residential development at Bridgegate.

The proposed development will consist of the construction of 272 no. residential units comprising a mix of 206 no. 2, 3- and 4-bedroom houses (2 and 3 storeys) and 66 no. 1, 2- and 3-bedroom duplex units (3 storeys). creche, community centre & c. 3.6ha public park on the northern part of the site.

A series of photomontages have been prepared to illustrate the physical and visual character of the proposed development as viewed from surrounding receptor points or locations.

Existing Receiving Environment

The development site is located south of Ardee town centre. The site is currently zoned in the Louth County Development Plan 2021-2027 as 'A2 New Residential Phase 1' lands, with a Spot Objective to implement a 12-acre (4.9 ha) public park in the northern part of the lands.

The site is adjacent to the three housing developments to the west and north. To the east is further land zoned as for future residential development. There is an existing stream that cuts through the site with native planting. The existing vegetation to the western boundary comprises of Ash trees (*Fraxinus Excelsior*) native hedgerows including Common Hawthorn (*Crataegus monogyna*), Common Ivy (*Hedera Helix*), (Blackberry/Bramble) *Rubus fruticosus* s. & Sambucus nigra (*Elder*).

There are further native hedgerows to the northern boundary along with a Whitebeam (*Sorbus aria*) & Prunus cerasifera 'Nigra' (*Purple Cherry Plum*).

The eastern boundary has further native hedgerows along with Ash trees (*Fraxinus Excelsior*) and White Willow (*Salix Alba*).

The stream that cuts through the site consists of native hedgerows including Common Hawthorn (*Crataegus monogyna*), Common Ivy (*Hedera Helix*), (Blackberry/Bramble) *Rubus fruticosus* s., Sambucus nigra (*Elder*) & Goat Willow/Great Sallow (*Salix caprea*)

The existing stream is the lowest point of the site with the land rising to the north towards the water tower and south. There is approximately 10 meters in level difference between the lowest point of the site and the highest point.

Characteristics of the Proposed Development

The proposed development will consist of the construction of 272 no. residential units comprising a mix of 206 no. 2, 3- and 4-bedroom houses (2 and 3 storeys) and 66 no. 1, 2 and 3 bedroom duplex units (3 storeys).

An internal street and roads network has been developed in accordance with best practice DMURS principals. There is a clear hierarchy of local street which are local street link, local street & neighbourhood streets.

These neighbourhood streets will provide their own distinctive character separate from external circulation. The proposed development will facilitate a future link, subject to agreement with adjoining owners, with the existing Cherrybrook residential development to allow connectivity between the neighbourhoods.

The landscape plan for the proposed residential development utilises a simple but effective palette of naturalised native and ornamental species which are chosen for their visual qualities, ease of establishment and their capacity to provide habitats.

Perennial mixes in particular are one area where a multitude of species can be specified. These linear landscape elements should be viewed as green corridors - in essence they are biodiversity links which provide connections to separate habitats. With this concept to the fore, a mix of perennials and single species have been chosen.

Potential Impact of the Proposed Development

The development will involve the construction of a significant new residential development, including roads, open spaces and supporting infrastructure on currently undeveloped greenfield site south of Ardee town.

Potential landscape and visual effects arise from:

- Site establishment, provision of site compounds, hoarding, etc.; removal of trees, hedgerows and vegetation; loss of existing open landscape / visual character; realignment of stream
- Soil stripping, stockpiling and earthworks; materials import and export and general construction traffic movement on site;
- General construction activity on a sub-phase by sub-phase basis over a period of years.
- Provision of services and infrastructure, and surface water attenuation;
- Emergence of new residential development, completion and occupation of the development on a phased basis
- Provision of lighting, footpaths and cycleways, and provision of landscape measures and planting.

Avoidance, Remedial and Mitigation Measures

Significant thought has been given to avoiding landscape and visual effects in the design and layout of the scheme as a whole, including in the approach to the architectural and landscape layouts. As such, the scheme includes for significant landscape and visual mitigation inherent within the proposed development. This includes allocating c. 12 ha - of the site area as high-quality open space, and the provision of significant additional planting throughout the site.

The EIA Report includes for specific landscape and visual mitigation measures in relation to:

- Protection of Trees and Hedgerows during construction
- Provision of Planting Plans
- Protection of Open Space during construction
- Provision of Open Space, Play and Landscape Proposals
- Protection of existing stream during construction
- Maintenance

Predicted Impacts of the Proposed Development

The predicted impact of the proposed development has been assessed by describing certain viewpoints within its zone of visual influence and assessing the impacts which the development will have upon these viewpoints. The proposed changes arising from the construction stage will have a locally nil to moderate impact on the surrounding environment.

Post construction the scheme as a whole will make a significant and positive contribution to the emerging residential character of the wider area. In particular, the proposed open space network with connections to surrounding area such as Cherrybrook neighbourhood and to the proposed public park will make a significant and positive contribution to the emerging landscape character and to amenity and recreational opportunities in the area.

The landscape plan for the proposed residential development utilises a simple but effective palette of naturalised native and ornamental species which are chosen for their visual qualities, ease of establishment and their capacity to provide habitats.

Perennial mixes in particular are one area where a multitude of species can be specified. These linear landscape elements should be viewed as green corridors - in essence they are biodiversity links which provide connections to separate habitats. With this concept to the fore, a mix of perennials and single species have been chosen.

LANDSCAPE IMPACT ASSESSMENT

The major landscape impacts will be the removal of existing trees to facilitate the development & the re-alignment of the existing watercourse running east west through the site and also the groundworks required to achieve part M compliant footpaths throughout the site.

A total of 7 trees and 7 hedgerows have been proposed for removal. The impact of the removal of these trees have been supplemented with semi mature tree planting to achieve a sense of maturity immediately within the development. A mix of native trees have been proposed inspired by the species of tree currently found on the site, and suitability of the tree to the location.

There will be a significant alteration to the character of site at the site location. The largest change will be the transformation of a previously greenfield open space into a largely built-up area with a suburban character. It should be noted that while some trees require removal to facilitate the development the majority of existing hedgerows forming site boundaries are proposed to be retained and integrated into the development, with a net increase of 446 trees on site as a result of a comprehensive landscaping strategy.

The magnitude of landscape change is considered moderate; An effect that alters the character of the landscape in a manner that is consistent with existing and emerging trends. There are minor changes over some of the area (up to 30%) or moderate changes in a localised area.

The resulting landscape significance is moderate neutral. Neutral meaning it neither detracts from nor enhances the landscape of the receiving environment or view.

Residual Impacts

With the incorporation of the mitigation measures and with establishment of the emerging high-quality development, including the proposed public park and realignment of existing stream, it is considered that the proposed development will have a positive residual effect on the landscape and visual environment of the area.

In particular, the nature and extent of the proposed open space network and its integration with the re-alignment of the existing stream and riparian zone that cuts west east through the site is significant and positive. Given the network of connections to both planned and proposed open spaces (with nature-based play opportunities), the development will make a significant contribution to realising both development opportunities, local amenity and recreational objectives in the area.

Monitoring

Monitoring of landscape-related works is an integral aspect of the proposed scheme, this includes monitoring of site development works; construction works, tree and hedgerow protection, landscape finishing and implementation, and aftercare of landscape measures.

A detailed maintenance plan should be agreed with a landscape contractor so that an attractive landscape setting is created and maintained for the occupiers and the public. A management and maintenance plan for this development would need to be focused by the original design intent of the landscape proposal.

This development has a significant public aspect with important landscape qualities and opportunities. Planned management and maintenance strategies should be put in place for both 'soft' planted and 'hard' paved spaces, which may need to change over time as the planting matures and the needs of the development evolve.

This plan should cover hard landscaped areas; special design features; planting establishment periods; ornamental shrub areas; hedges and mass planting; grass and herb layers and trees.

3.8 Material Assets – Traffic

The assessment of Traffic and Transport impacts is contained within Chapter 10 of this EIAR. This evaluates the subject development's likely effects on the operation of the surrounding road network, as well as identifying proposed mitigation measures to minimise such impacts.

Methodology

The methodology employed for the assessment of these impacts comprised:

- an appraisal of the receiving environment;
- a traffic survey conducted at 2no. junction locations on the surrounding road network;
- the calculation of predicted future traffic flows based on background growth factors and the trip generation of the subject development, as well as traffic to be generated by known nearby interim and future committed developments; and
- the modelling of 2no. key junctions on the surrounding road network using industry standard TRANSYT and PICADY software.

Existing Receiving Environment (Baseline Situation)

The existing junction of the N2 (Drogheda Road and Bridge Street) with John Street and William Street currently slightly exceeds effective capacity on its northern approach during the AM peak hour but operates within effective capacity on all other approaches during both the AM and PM peak hour periods, with minor vehicle queues and delays

Potential Impact of the Proposed Development

The proposed development shall generate regular vehicular trips on the surrounding road network, during both construction and operation, with the potential to increase traffic flows at nearby existing and proposed junctions. Should the resultant total traffic flows at these junctions become too high, the junctions may cease to function efficiently. The impact of construction traffic on the operation of the surrounding road network shall be less significant than the impact of operational traffic.

'Do Nothing' Impact

The development's 'Do-Nothing' impact is represented by the performance of the surrounding road network in the design year 2039, without the inclusion of traffic generated by the subject development itself. Under this scenario, the new Bridgewater access junction shall continue to operate well within effective capacity on all junction approaches in the design year 2039, during both the AM and PM peak hour periods, with negligible vehicle queueing and moderate delays. At the N2/R170/John St junction, however, ultimate capacity shall be exceeded on all but the southern junction approach during the AM peak hour.

Avoidance, Remedial & Mitigation Measures

During the development's construction phase, the lead contractor appointed for the construction of the development shall be required to prepare a detailed project-specific Traffic Management Plan. Construction traffic, and in particular large deliveries, shall be coordinated to ensure that movements during the background peak hours are avoided as much as possible. Construction-related vehicle movements will be minimized through efficient coordination of deliveries, storage and use of materials, and the promotion of public transport use by construction personnel.

The development shall incorporate several design elements intended to mitigate the impact of the development on the surrounding road network during its operational phase. These include:

- an appropriate car parking provision, which shall discourage higher vehicle ownership rates and excessive vehicular trips to the development (by residents and visitors); and
- a high provision of secure bicycle parking, which shall serve to encourage bicycle journeys by both development occupants and visitors.

Predicted Impact of the Proposed Development

With the inclusion of traffic generated by the subject development, assessment of junction performance in the design year shows that the new Bridgewater access junction shall continue to operate within effective capacity on all junction approaches in the design year 2039, during both the AM and PM peak hour periods, with minimal vehicle queueing and acceptable delays. As under the 'Do-Nothing' scenario, however, ultimate capacity shall be exceeded at the N2/R170/John St junction on all but the southern junction approach during the AM peak hour. In addition, effective capacity shall be exceeded at the N2/R170/John St junction on the western approach during the AM peak hour and on all but the western approach during the PM peak hour.

During its operational phase, the subject development is therefore likely to result in a long-term significant adverse impact on the operational efficiency of the N2/R170/John St junction, in comparison to the Do-Nothing Scenario, resulting in maximum increases of:

- 64 PCU in mean maximum vehicle queue length during the AM peak hour and 6 PCU during the PM peak hour; and
- 188 seconds in mean delay per PCU during the AM peak hour and 35 seconds during the PM peak hour.

Detailed assessment of traffic impact, in the form of junction performance modelling, has not been conducted in respect of the construction phase.

Monitoring

A Visual Condition Survey (VCS) will be carried out of all surrounding streets prior to any site works commencing. During the development's construction phase, the lead contractor will liaise with the Infrastructure Section of Louth County Council to agree any changes to load restrictions and construction access routes for the site. Measures will be put in place as required to facilitate construction traffic whilst simultaneously protecting the built environment. Post-development monitoring of the surrounding road network's performance is not required or proposed in this case.

Reinstatement

No reinstatement works of relevance to traffic and transport are proposed as part of the subject development, with the exception of any repair works made necessary by the passage of construction traffic.

Interactions

The vehicular traffic flows that shall be generated by the subject development may result in corresponding changes to air quality and noise levels in the vicinity of the surrounding road network. The natures, extents, and consequences of these changes are examined in Chapters 7 and 8 of this EIAR.

3.9 Material Assets – Waste Management

AWN Consulting Ltd. carried out an assessment of the potential impacts associated with waste management during the construction and operational phases of the proposed development. The receiving environment is largely defined by Louth County Council as the local authority responsible for setting and administering waste management activities in the area through regional and development zone specific policies and regulations.

During the demolition and construction phases, typical C&D waste materials will be generated which will be source segregated on-site into appropriate skips/containers, where practical and removed from site by suitably permitted waste contractors to authorised waste facilities. Where possible, materials will be reused on-site to minimise raw material consumption. Source segregation of waste materials will improve the re-use opportunities of recyclable materials off-site. Soils and stones will require excavation to facilitate site preparation, construction of the building foundations, access roads and the installation of underground services. The project engineers, CS Consulting, have estimated that c. 42,096m³ of soils and stones will be generated from the excavations. It is anticipated that 34,230m³ surplus excavated material will require removal from site for offsite reuse, recovery, recycling and/or disposal. The remaining balance will be reused onsite as construction fill or for landscaping.

A carefully planned approach to waste management and adherence to the site-specific Construction and Demolition Waste Management Plan (Appendix 11.1) during the construction phase will ensure that the effect on the environment will be short-term, neutral and imperceptible.

During the operation phase, waste will be generated from the residents as well as the crèche tenants. Two dedicated waste storage areas have been allocated for the duplex blocks at the northern end of the site, while the houses will store their three bins to the rear of their properties where there is external access. When there is no external access to the rear yard houses will have a dedicated screen space to the front of their units for storage of their three bins (i.e. bins for organic, dry mixed recyclable waste and non-recyclable waste). The waste storage areas have been appropriately sized to accommodate the estimated waste arisings. The crèche tenants will also have their own dedicated waste storage areas. The waste storage areas have been allocated to ensure a convenient and efficient management strategy with source segregation a priority. Waste will be collected directly from the waste storage areas for the duplexes and commercial units and from the front of the houses by permitted waste contractors and removed off-site for re-use, recycling, recovery and/or disposal at permitted/licenced facilities.

An Operational Waste Management Plan has been prepared which provides a strategy for segregation (at source), storage and collection of wastes generated within the development during the operational phase including dry mixed recyclables, organic waste and mixed non-recyclable waste as well as providing a strategy for management of waste glass, batteries, WEEE, printer/toner cartridges, chemicals, textiles, waste cooking oil and furniture (Appendix 11.2). The Plan complies with all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the development.

Provided the mitigation measures outlined in Chapter 11 are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the operational phase on the environment will be long-term, neutral and imperceptible.

3.10 Material Assets – Utilities

This chapter of the EIA Report evaluates the impacts, if any, which the Proposed Development may have on built services and infrastructure. The EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports Draft August 2017 state that material assets are now taken to mean built services and infrastructure, roads and traffic and waste management. The Draft EPA Advice notes also give the following examples of material assets; assimilative capacity of air, ownership and access and tourism. In the EIA Report, the impacts on the various material assets described above have been considered in the following chapters of this EIA Report as follows:

- Chapter 3 Population and Human Health;
- Chapter 7 Air & Climate;
- Chapter 10 Material Assets - Traffic; and
- Chapter 11 Material Assets - Waste Management.

Ownership and Access

The site of the proposed development as described in Chapter 2 (Project Description and Alternatives Examined) is owned by the Earlstone DAC. A letter of consent, enabling the Applicant to apply for development on the lands owned by Earlstone DAC, is included with the planning application.

The main access to the site will be northwest of the proposed development site, via Phases 1-3 of Bridgeway currently under construction (LCC Refs. 10174, 19336 and 19353).

During construction the proposed development will be accessed through Drogheda Road (N2), via the residential R086 Construction Management Plan site that is currently under construction northwest of the site. All vehicular access routes during the construction phase will be laid out in accordance with the requirements of Chapter 8 of the Traffic Signs Manual.

Security personnel will be present at the site entrance/exit to ensure that all traffic exiting the construction site does so safely. A wheel wash will be installed at the exit from the site, to prevent excess dirt being carried out into the public road. If necessary, a road sweeper will be used to keep the public road around the site clean.

Power and Electrical Supply

The proposed development site is greenfield and does not have a current connection into the local ESB network. The proposed development currently has a live ESB Electrical network supply to the west of the site.

There are existing ESB overground MV/LV line crossing through the northern area of the proposed development site. This area of the site is a landscaped area, and no residential development is proposed for this area as part of this application. There is no known existing ESB overground and underground infrastructure located in the area of the proposed residential development

Two new ESB sub stations are required to cater for the electrical requirement of the residential development, the substations have been designed into the proposed residential scheme. A formal application to confirm the nature of the ESB supply is made once the formal address of the residential development is agreed with LCC.

The power supply infrastructure for the proposed development site will require an extension of the existing power supply infrastructure currently in place and under construction for the permitted residential development to the west of the site.

As per the *Preliminary Energy Report* prepared by MANDE Consulting Engineers, which has been submitted with the documents for the planning application, the proposed development will be constructed to the high building standards and will provide a sustainable, energy efficient development for future occupants.

Telecommunications

The proposed development site is greenfield and does not have a current connection into the local telecommunications network. The proposed development currently has a live telecommunications network supply to the west of the site.

The telecommunication infrastructure for the proposed development site will require an extension of the existing infrastructure currently in place and under construction for the permitted residential development to the west of the site.

Surface Water Infrastructure

The proposed development site is greenfield and does not currently have any engineered surface water drainage system in place. The open nature of the site and the natural existing gradients has led the majority of the site to drain to the south into a tributary of the River Dee. As noted, the site does have an existing water course through the centre of the site (refer to drawing ARDEE-CSC-00-XX-DR-C-1000 Topographical Survey submitted with the planning application for the existing topographical survey of the site). It is proposed to re-align this water course to aid in the most sustainable use of the site to provide the required housing densities for the subject site area. The stream's hydraulic conveyance will be maintained and OPW hydraulic requirements (Section 9 Application) applied for post planning.

Surface water will be collected in newly constructed storm water drainage network. The proposed development is to retain storm water volumes predicted to be experienced during extreme rainfall events, which will be collected in 4 no. Stormtech attenuation systems in different areas of the development. Please refer to CS Consulting Drawing ARDEE-CSC-00-XX-DR-C-1002 Drainage Layout, submitted with the planning application, for drainage details. Discharge of attenuated surface water will be restricted to pre-development (greenfield) run-off rates. The equivalent greenfield runoff rate has been calculated by CS Consulting as 2.07 l/s/ha.

Foul Drainage Infrastructure

The proposed development site is greenfield and does not currently have any foul drainage infrastructure in place. The proposed development will require a new separate foul drainage network to collect and convey the effluent generated by the proposed development. The proposed foul network drainage system has been designed to drain into the granted foul drainage network associated with the adjacent permitted developments (LCC Refs. 10174 as amended), located to the west of the proposed development site. All effluent generated in Ardee, including that from the proposed development, is conveyed to the Regional Wastewater Treatment Plant (EPA Licence Number D0117/01). The Regional Treatment Plant has recently been upgraded and has expanded capacity from 5000 PE (population equivalent) to 10,000 PE. The project engineers, CS Consulting, have calculated that the daily wastewater discharge for the proposed development once operational will be 1.404 litres per second (l/s) average flow and 8.424l/s peak flow, with a total wastewater discharge from the proposed development of 121.31m³ per day.

A pre-connection enquiry (PCE) form was submitted to Irish Water (IW) which addressed the proposed wastewater discharges (and water demand) for the proposed development. IW provided a confirmation of feasibility (CoF; IW Reference CDS20003735) for the development on 22 September 2020. The CoF also specifies that upgrades are required to the existing foul drainage network to which the proposed development will discharge, stating:

“The existing wastewater network will require upgrades to cater for the additional proposed load. The upgrade will involve upsizing of between 300 and 1000 meters of existing 225mm sewer along the public road. It is not expected that 3rd party permissions will be required outside the requirements for a road opening licence. The exact details of this upgrade can be agreed at connection application stage.”

The Applicant acknowledges the commentary on the upgrades required. It will be under the remit and control of Irish Water to implement the upgrade works as part of the Applicant's connection application process, and as such, the CoF does not preclude the lodgement of this SHD planning application to An Bord Pleanála. A Statement of Design Acceptance has also been received from IW.

Water Supply Infrastructure

The current site is not developed and as such it does not have a positive connection into the local watermain network. The site is located adjacent to the regional Irish Water reservoir which currently supplies Ardee.

The proposed watermain network system has been designed in accordance with the specifications and requirements of Irish Water. The subject development's potable water supply network has been designed to be connected into that of the adjacent permitted development (LCC Refs. 10174 as amended) to the west, which is currently under construction. The design requires a peak water demand of up to 6.375l/s. The proposed watermain infrastructure and routing plan is shown on ARDEECSC-00-XX-DR-C-1003 Watermain Layout included with the planning application documents.

Mitigation measures are also discussed in Sections 12.9.1 and 12.9.2 to offset any construction or operational impacts associated with the Proposed Development.

The overall predicted residual impact of the proposed development can be classed as long-term and not significant with respect to material assets.

3.11 Archaeology, Architecture and Cultural Heritage

A Cultural Heritage, Archaeological and Architectural assessment, which comprised an Archaeological Impact Assessment (desktop study) and fieldwork (site inspection and geophysical survey), was undertaken in order to identify and describe known and potential archaeological and cultural heritage constraints within the proposed development area and its environs and to offer recommendations for the mitigation of such potential impacts.

The proposed development site contains no Recorded Monuments listed within the Record of Monuments and Places for County Louth. There are two monuments in the immediate environs of the site. These include Souterrain LH017-011----, located c. 115m to the west of the site, and earthwork LH017-094---- located 235m to the west. The latter is marked as a fort on the estate map of 1810. It is now destroyed and under the residential development at Cherrybrook. The site of the souterrain is contained within the area currently being developed under Planning Ref. No. 10/174 (ABP 15.238053) and has had a protective buffer established around it.

The site contains no Protected Structures listed in the Louth County Development Plan 2021-2027 or structures listed within the National Inventory of Architectural Heritage (NIAH). The nearest such structure is the Convent of Mercy Church Chapel (PRS ID LHS01-033F, NIAH Reg. Nr. 13823020), located c. 265m to the northwest of the site.

A Geophysical Survey of a part of the site was conducted by Donald Murphy and Robert Breen of Archaeological Consultancy Services Unit Ltd (ACSU) in August 2020 under licence No. 20R0153. The aim of the survey was to establish the presence/absence of a potential enclosure identified as a cropmark from satellite imagery (Google Earth – 27.05.19). The potential enclosure had no surface expression and was located in low lying arable land. The geophysical survey was conducted in the northeast corner of the large open field at the south end of the development area. This geophysical survey failed to confirm the presence of any potential enclosure, and no clear indication of archaeological activity was identified.

A number of assessments took place in an area adjacent to and northwest of the site. These were carried out in relation to a neighbouring residential development under licence Nos. 09E0510, 18E0171 and in advance of a proposed roadway under Licence No. 00E0361. The latter exposed nothing of archaeological interest. However, archaeology was identified during excavations in relation to a residential development Planning Ref 10/174 (ABP 15.238053). This monitoring was carried out under licence No. 18E0171, and four areas of archaeological significance were identified (Areas 1-4) spanning from the prehistoric period through to the post medieval period. The resolved features included a metallised trackway, mill race, several pits, a figure-of-eight shaped cereal drying kiln, a burnt mound and a post-medieval ditch.

Overall, an examination of the recorded monuments and previous excavations located in the environs of the site and the surrounding townlands shows that the broader landscape contains both evidence of significant prehistoric activity and medieval ecclesiastical sites, suggesting that there is potential for buried archaeological deposits to exist on the site.

There will be no impacts on known archaeological and cultural heritage. The site is located within two fields; the north field is located within the townland of Mulladrillen, whereas the south field is located in Rathgory townland; consequently, a townland boundary that traverses the site is a standing feature. It is represented by mature trees, a hedgerow and a stream. The proposed development will have a direct impact upon the townland boundary and will result in its removal.

The development has the potential to impact on previously unknown, buried features of an archaeological nature should they exist. The development has the potential to directly negatively impact any sub-surface archaeology that may be identified. This would result in its destruction. The potential impact significance on any such features prior to mitigation should therefore be considered to be profound.

Where archaeological material/features are shown to be present on-site, mitigation should either involve preservation in situ (avoidance) or preservation by record (excavation). The site of the proposed development shall be archaeologically assessed in advance of the development.

In order to mitigate the potential impact of the proposed development on potential archaeological remains and the townland boundary, the following measures shall be adhered to:

- An additional geophysical survey shall be carried out within the north field of the proposed development. Due to significant quantities of soil having been introduced to the site, and historic quarrying, further geophysical survey within the south field is not recommended.
- This shall be followed by an intensive testing programme of the entire site, targeting anomalies identified, and is required prior to any works in order to mitigate any potential impact on possible archaeology. It should be carried out by a licence eligible archaeologist in consultation with and under licence from the National Monuments Service of the Department of Housing, Local Government and Heritage.
- Wherever possible, the preservation in situ of any identified archaeological remains is the preferable option, however where this is not possible preservation by record in advance of construction is recommended. Should any archaeological remains be uncovered during test trenching, the appointed archaeologist shall

consult with the Licensing Section of the NMS, and methodologies shall be agreed regarding their resolution/avoidance.

- Full provisions should be made for the resolution (full excavation) of any archaeological features/deposits that may be discovered in the course of the assessment, should that be deemed the most appropriate course of action.
- Adequate time and resources will be provided by the developer for the resolution of any archaeology identified within the development site, which will be directly impacted by ground works. Time and resources will also be allowed for any post-excavation work and specialist analysis necessary following any archaeological excavation that takes place.
- A report shall be compiled on completion of the archaeological excavation and submitted to the relevant authorities.
- The townland boundary that traverses the proposed development shall be recorded by photograph and written description prior to any development proceeding.

If the recommended mitigation measures are implemented, the residual impacts of the proposed development on the cultural heritage, including archaeology, are likely to be moderate to imperceptible.

3.12 Risk Management

The Outline Construction Management Plan, submitted with the application, as well as 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 estate management company will have responsibility for fire safety during operations. In relation to falls these have been dealt with during design.

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.

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

Works on the public road required to facilitate development would be subject to separate construction management plans to mitigate potential impacts.

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 3-14 which deal with '*Aspects of the Environment Considered*'. No significant adverse impact is predicted to arise from the use of natural resources.

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 3-14 which deal with '*Aspects of the Environment Considered*'. There will be no significant direct or indirect effects arising from these sources.

Forecasting Methods Used for Environmental Effects

The methods employed to forecast the 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.

Technical Difficulties Encountered in compiling any specified information

No particular difficulties, such as technical deficiencies or lack of knowledge, were encountered in compiling any of the specified information contained in this report such as that a prediction of impact has not been possible.

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.

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 drainage and roads infrastructure is implemented and the realignment of Rathgory Tributary undertaken with site traffic managed in accordance with construction management plans with regards to sensitive receptors. This may cause local short-term inconvenience and disturbance to residents in the vicinity of the works.

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, as amended. The detail in relation to interactions between environmental factors is covered in each chapter of the EIAR.

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

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

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.