Environmental Impact Assessment Report

Volume I - Non-Technical Summary

In respect of:

Strategic Housing Development

at Lissywollen, Athlone, County Westmeath

Prepared by:

Delphi Design

Architecture + Planning

On behalf of the applicant:

Alanna Roadbridge Developments Ltd.

February 2021

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1.0 Introduction

1.1 Introduction & Methodology

This "Non-Technical Summary" (hereafter NTS) relates to a strategic housing application to An Bord Pleanála for a proposed residential development of 576 no. dwellings, 2 no. creche's, community hub, and all associated site development and infrastructural works, on a site of circa 17.54 hectares, located in the townlands of Lissywollen, Kilnafaddoge & Retreat, and partially traversing the townlands of Curragh, Cloghanboy (Strain) & Cloghanboy (Homan), Athlone, County Westmeath.

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

A full description of the proposed development lands together with a description of the proposed development is provided in Chapter 3 of the accompanying EIAR document. The subject site, of 17.54 hectares, is bisected by the existing Brawny residential estate and is generally bounded to the north by the N6, to the south by the Old Rail Trial Greenway, to the west by Scoil na gCeithre Máistrí, and to the east by undeveloped lands, further east of which are ESB Regional Headquarters. Access to the development will be from the Ballymahon roundabout (on the R915 - to the west) and the Garrycastle roundabout (on the R916 - to the east).

The Lissywollen South Framework Plan 2014-2020, (hereafter LSFP) provides a development strategy for the proper planning and sustainable development of the Lissywollen South area and is guided by the overarching policies/objectives contained in both the 2014 Westmeath County Development Plan (CDP) and the 2014 Athlone Town Development Plan (ATDP). Consequently, the LSFP is consistent with the objectives and the provisions of both the CDP and ATDP and the core strategy contained therein.

1.2 Proposed Development

This project relates to a proposed mixed-use / residential development and the development to which this application relates is described as follows:

Alanna Roadbridge Developments Ltd. intends to apply to An Bord Pleanála for permission for a strategic housing development, on a site of circa 17.54 hectares, located in the townlands of Lissywollen, Kilnafaddoge & Retreat, and partially traversing the townlands of Curragh, Cloghanboy (Strain) & Cloghanboy (Homan), Athlone, County Westmeath. The application site is bisected by the existing Brawny residential estate and is generally bounded to the north by the N6, to the south by the Old Rail Trial Greenway, to the west by Scoil na gCeithre Máistrí, and to the east by undeveloped lands, further east of which are ESB Regional Headquarters. Access to the development will be from the Ballymahon roundabout (on the R915 - to the west) and the Garrycastle roundabout (on the R916 - to the east).

The development will consist of the following:

(1) Construction of 576 no. residential dwellings, comprised of 285 no. houses and 291 no. apartment and duplex units consisting of:

- 285 no. 2 storey detached, semi-detached & terraced houses (50 no. four beds, 200 no. three beds & 35 no. two beds)
- 8 no. apartments & duplexes (4 no. one beds & 4 no. three beds) in Block A (3 storeys);
- 8 no. apartments & duplexes (4 no. one beds & 4 no. three beds) in Block B (3 storeys);
- 15 no. apartments (15 no. two beds) in Block C (3 storeys);
- 16 no. apartments & duplexes (7 no. one beds, 5 no. two beds & 4 no. three beds) in Block D (3 storeys);
- 9 no. apartments & duplexes (5 no. one beds, 1 no. two bed & 3 no. three beds) in Block E (3 storeys);
- 8 no. apartments & duplexes (4 no. one beds & 4 no. three beds) in Block F (3 storeys);
- 4 no. apartments (4 no. one beds) in Block G (2 storeys);
- 12 no. apartments & duplexes (12 no. three beds) in Block H (3 storeys);
- 21 no. apartments (21 no. two beds) in Block K (3 storeys);
- 36 no. apartments (36 no. two beds) in Block L (5 storeys with 5th storey setback);
- 20 no. apartments & duplexes (6 no. one beds, 6 no. two beds & 8 no. three beds) in Block M (4 storeys with 4th storey setback);
- 27 no. apartments (27 no. two beds) in Block N (3 storeys);
- 43 no. apartments & duplexes (14 no. one beds, 24 no. two beds & 5 no. three beds) in Block O (2 to 4 storeys);
- 12 no. apartments (6 no. one beds & 6 no. 2 beds) in Block P (3 storeys);
- 8 no. apartments & duplexes (4 no. two beds & 4 no. three beds) in Block Q (3 storeys);
- 18 no. apartments (6 no. one beds & 12 no. two beds) in Block R (3 storeys);
- 12 no. apartments & duplexes (6 no. two beds & 6 no. three beds) in Block S (3 storeys);
- 14 no. apartments (4 no. one beds & 10 no. two beds) in Block T (3 storeys);

(2) Development of 2 no. crèche facilities *comprised* of a 2 storey crèche of circa 321m^2 located on the ground & first floors of Block C; & a 1 storey crèche of circa 448m^2 located on the ground floor of Block T.

(3) Development of 1 no. community hub facility of circa 101m^2 located on the ground floor of Block D.

(4) Construction of basement level car parking of circa 1,089m^2 forming part of Block L.

(5) Construction of an east-west access road through the application site from the Ballymahon roundabout (on the R915 - to the west) to the Garrycastle roundabout (on the R916 - to the east), which is to be delivered as part of the objectives for the Lissywollen South Framework Plan 2018-2024, and all associated road development works.

Provision of public open spaces, hard and soft landscaping, public lighting, car & bicycle parking, pedestrian and cyclist connections to Old Rail Trail Greenway, bin storage, 6 no. ESB sub-stations, drainage and attenuation, utility services etc. and all associated site development works.

It is envisaged that the construction of the scheme will take approximately 5 years to complete. An Outline Construction Management Plan (CMP) has been prepared and is included with the planning application documentation. Prior to commencement, this will be updated and a detailed CMP prepared by the appointed contractor(s).

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

Category 10(b)(iv) refers to '*Urban development which would involve an area greater than 2 hectares in the case of business district, 10 hectares in the case of other parts of a built up area and 20 hectares elsewhere.'*

The subject proposal comprises 576 no. dwellings and is greater than 10 hectares. Therefore, a mandatory EIA is required.

1.4 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.

1.5 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.

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 Westmeath County Council and also with An Bord Pleanàla (at SDH pre-application stage) 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 part for clarity. It consists of two volumes as follows:

• Volume I: Non-Technical Summary (this document).

• Volume II: Environmental Impact Assessment Report.

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.

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 the 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 the EIAR document. The structure of the EIAR Volume II document is set out in Table 1.1 over:

Chapter	Title
1	Introduction
2	Planning Policy Context
3	Description of Project and Alternatives
4	Population and Human Health
5	Biodiversity
6	Land, Soil and Geology
7	Water
8	Air Quality and Climate
9	Noise
10	Material Assets: Built Services
11	Material Assets: Transportation
12	Material Assets: Resource and Waste Management
13	Archaeology and Cultural Heritage
14	The Landscape
15	Identification of Significant Impacts / Interactions
16	Summary of EIA Mitigation and Monitoring Measures

Table 1.1 – Structure of EIAR – Volume II

1.7 Availability of EIAR Doc

A copy of the EIAR document and Non-Technical Summary of the EIAR document is available for purchase at the offices of An Bord Pleanála and Westmeath County Council (Planning Authority) at a fee not exceeding the reasonable cost of reproducing the document. It can also be viewed on the SHD website – www.lissywollenshd.ie. set up by the applicant.

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 Delphi Planning, who were responsible for the overall management and co-ordination of the document. The EIAR team is set out in Chapter 1, Table 1.3 of Volume II of the EIAR.

2.0 Description of Project and Alternatives

2.1 Information on the site location, design and size of the proposed development

The subject site is located within lands designated for the Lissywollen South Framework Plan, 2014-2020, (LSFP). The LSFP lands comprise approximately 78 hectares and are located north-east of Athlone town centre. The plan area is bounded to the north by the N6, Athlone Relief Road, to the west by the N55 (Ballymahon Road) and to the east by the R916. The plan lands are partially bisected along the south by the Old Rail Trail Greenway which forms a section of the Galway-Dublin National Cycle Network (NCN). South of the greenway are existing educational uses including for Athlone Community College and the Marist College. Other existing development in the plan lands include for Athlone Town stadium, the Regional Sports Cente, Pairc uí Chiarain GAA pitches to the west and ESB regional headquarters to the east.

Access to the Plan lands is currently limited to an existing distributor road serving the Brawny residential estate, the Regional Sports Centre and Athlone Football Club. To the east access has been created via a recently constructed roundabout at Garrycastle stores.

In the context of the LSFP, the subject site (i.e. the red line boundaries of application detailed on the drawings accompanying the application) measures c. 17.54 hectares. The subject site is comprised of lands zoned for residential development. The subject site is generally bounded to the north by the N6, Athlone Relief Road, to the south by the Old Rail Trial Greenway, to the west by Scoil na gCeithre Máistrí primary school and to the east by undeveloped lands, further east of which lie the ESB Regional Headquarters.

The subject site is currently undeveloped greenfield land, is generally flat, and bisected by the existing Brawny residential estate which comprises approximately 160 no. houses. The western section of the site, that to the west of the Brawny, is one of a largely non-descript landscape character while the eastern section, to the east of Brawny, has a typical rural landscape character consisting of fields defined by existing hedgerows.

The Site Layout Plan (Fig. 2.1) prepared by Delphi Design Architects illustrates the proposed development.

A summary of the proposed development includes the following works:

- Residential development (576 no. dwellings);
- Commercial / Community development (community hub & 2 no. childcare facilities);
- Public and private open spaces;
- Landscaping;
- Car / Bicycle parking and bin storage;
- Services infrastructure, utilities and public lighting;
- ESB Substations;
- Building and directional signage and
- All associated infrastructural and site development works.

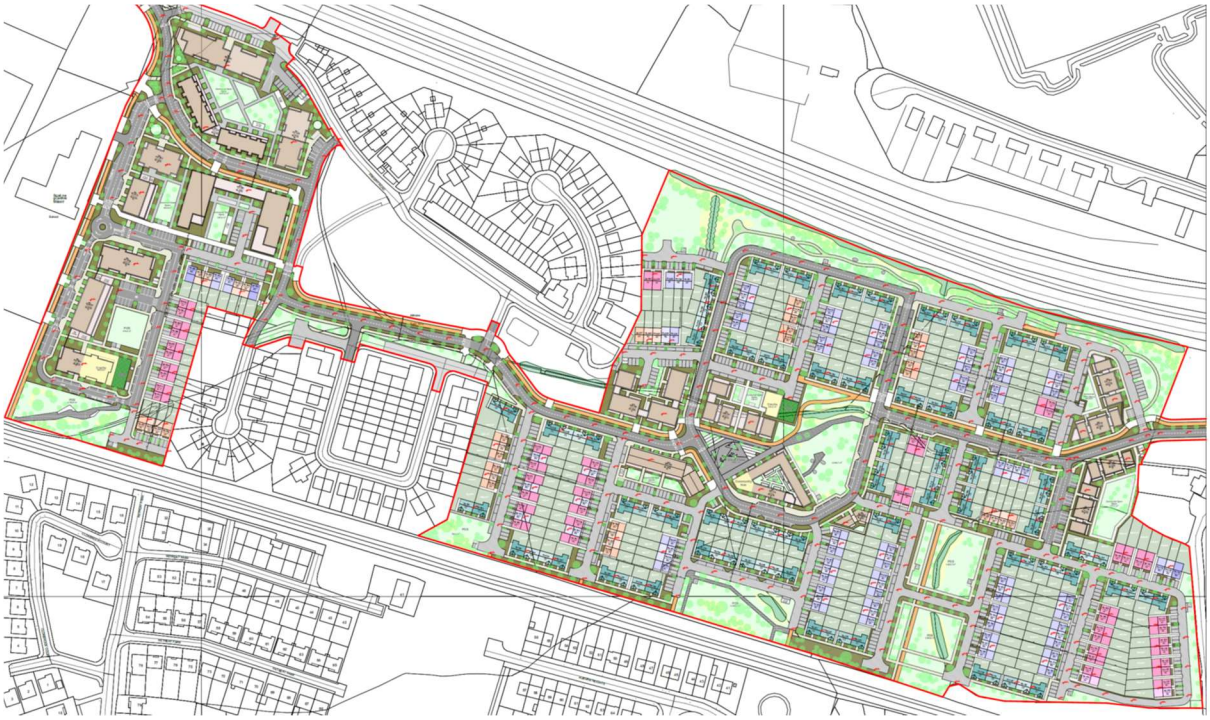

Fig. 2.1 - Site layout plan put forward for permission.

2.1.1 Demolition

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

2.2 Residential Development

In summary, the proposed development comprises the construction of 576 no. dwellings consisting of 285 no. houses, 246 no. apartments and 45 no. duplex units.

Unit Type	1 bed	2 bed	3 bed	4 bed	Total
Houses	-	35	200	50	**285**
Apartments	60	169	17	-	**246**
Duplex Units	-	8	37	-	**45**
Overall Mix	**10%**	**37%**	**44%**	**9%**	**576 (100%)**

Table 2.1 – Overall Residential Development Mix

A wide variety of dwelling typologies are included in the proposal, comprising 246 no. apartments in 1, 2 and 3 no. bedroom units in 18 no. apartment buildings along with 45 no. duplex units accommodated in 9 no. buildings, all dispersed throughout the proposed development. These apartment and duplex dwellings comprise c. 51% of the overall mix of units. In addition it is proposed to provide 285 no. 2, 3 and 4 bedroom houses in a range of typologies comprising terraces, semi-detached and detached configurations.

The design intent is to provide a range of housing typologies of different heights, which include apartment blocks strategically located throughout the site in order to achieve place making, fronting onto important roads and streets. In addition, variety is provided by way of building height and typology dispersed throughout the entire application site. This built form provides variety in the street scape and offers a wide range of housing mix.

2.3 Non-Residential Development

2.3.1 Proposed Community Hub

The development proposal includes for a 1 storey, double height, community hub measuring c. 107m^2 located within Block D of the proposed development. The proposed community hub is centrally located, fronting onto the proposed east-west avenue which traverses the development and urban open space adjacent. It is considered that the proposed community hub will form an important community space capable of catering for a number of potential functions and will offer focal point for future residents of the development.

2.3.2 Proposed Childcare Facilities

The development proposal includes for 2 no. childcare facilities, proposed in compliance with the standards recommended by the 2001 Childcare Facilities-Guidelines for Planning Authority.

The first of the proposed childcare facilities consists of a 2 storey crèche measuring circa 214m^2 located adjacent to proposed Block C. This facility has an associated outdoor play area of circa 243m^2 located on its eastern side. The proposed creche has a capacity for circa 62 no. children.

The second of the proposed childcare facilities consists of a 1 storey creche measuring circa 362m^2 located on the ground floor of the proposed Block T. This facility has an associated outdoor play area of circa 292m^2 located on its eastern side. The proposed creche has a capacity for circa 83 no. children.

2.4 Car Parking and Cycle Parking Provision

A total of 752 no. car parking spaces, including dedicated disabled, electric charging, visitor and car club spaces are provided within the development proposal to cater for the proposed houses, duplex units and apartments. The 752 no. car parking spaces (which includes the 11 no. car parking spaces allocated to the adjacent school during the day) comprise 718 no. car parking spaces at surface level and 34 no. car parking spaces at basement level (i.e. located beneath Block L).

The proposed car parking is provided as follows:

- 455 no. spaces for 285 no. houses, equating to 1.6 spaces per house;
- 297 no. spaces for 246 no. apartments and 45 no. duplexes, equating to 1.02 spaces per unit;
- Underneath Block L, 34 no. car parking spaces are provided including 2 no. disabled spaces, which is part of the above mentioned overall figure of 297 no. spaces for the apartments and duplex units and not in addition to.
- The subject scheme proposals include 2 no. dedicated car club spaces. Managed by a specialised private operator (e.g. GoCar) all residents will have the option to become members of the car share service;
- Currently there are no car parking standards in the Development Plan for a creche facility. Nevertheless as detailed in Figure 5.3 of the enclosed Traffic & transport Assessment carried out by DBFL Consulting Engineers (TTA) the proposed development provides a parking / drop off area for the creche.

The proposed development includes for the provision of one on-street coach parking space and 11 no. car parking spaces immediately adjoining Scoil na gCeithre Máistrí as illustrated in Figure 5.4 of the enclosed TTA. This layout will replace the existing 6 no. car parking spaces and 1 no. bus space adjacent to the school. These proposed 11 on-street spaces could be assigned for school use Monday to Friday from 8am to 4pm. Outside of these hours, these parking spaces can be used for visitor parking by the residential development.

The quantum of proposed car parking has been developed with reference to the guidance outlined in both the Table 12.11 of the current Athlone Town Development Plan (2014-2020) which sets out the minimum parking guidance for residential developments and Chapter 4 of the Sustainable Urban Housing: Design Standards For New Apartments Guidelines For Planning Authorities, as published by the Department of Housing, Planning and Local Government (DHPLG) in March 2018. Considering the site's proximity to the town centre and the proposal extension of the bus route through the site, the proposed development could be identified as being "Intermediate Urban Location" in reference to the DHPLG guidance.

A total of 1,602 no. bicycle parking opportunities are proposed as part of the residential development scheme (comprising a mix of Sheffield stands and single / double stacked Cardiff Stands) which include a total of 328 no. short term and 1,274 no. long term bicycle parking stands / opportunities on site within the proposed development.

The 1,602 bicycle spaces are comprised of 1,574 no. residential and 28 no. creche cycle parking spaces. The 1,574 no. residential cycle parking spaces comprise 1,260 no. long term secured / sheltered spaces and 314 no. short term parking spaces. The 28 no. cycle parking spaces proposed for the creche facilities include 12 no. at the 321m² creche located in Block C and 16 no. at the 448m² creche located in Block T.

2.5 Access

The proposed development will also deliver a new east-west access route ('Lissywollen Avenue') through the LSFP lands, extending from the Ballymahon roundabout (on the R915) to the west, to the Garrycastle roundabout (on the R916) to the east.

Vehicular access to the subject site will be from the Ballymahon roundabout (on the R915) to the west and the Garrycastle roundabout (on the R916) to the east. The development proposal also provides for pedestrian and cyclist connectivity to Old Rail Trail Greenway to the south.

2.6 Construction Management Strategy

A Construction & Demolition Waste Management Plan (CDWMP) has been prepared for the proposed development and accompanies the planning application. Certain assumptions are made in the CDWMP based on the information available at this time and, for the avoidance of doubt, it is not proposed or intended that the applicant / contractor(s) are bound by these proposals which may change depending on the timing and circumstances pertaining at the time of construction.

On receipt of a grant of planning and prior to the commencement of works, a detailed final Construction Management Plan (CMP) will be prepared. The contractor will be required to comply with and implement the requirements and mitigation measures as set out in this EIAR and any conditions imposed as part of planning permission. An Outline/Preliminary CMP has been prepared for the proposed project and is included with the planning application documentation. In addition, a Mobility Management Plan (MMP) has also been prepared and is also included as part of this application. Certain assumptions are made in both the Outline CMP and MMP based on the information available at this time and, for the avoidance of doubt, it is not proposed or intended that the applicant / contractor(s) are bound by these proposals which may change depending on the timing and circumstances pertaining at the time of construction.

A Construction and Environmental Management Plan has been prepared by DBFL Consulting Engineers which addresses noise and vibration, traffic management, working hours, pollution control, dust control, road cleaning, compound/public health facilities and staff parking associated with the construction works, and is submitted as part of this SHD planning application.

2.6.1 Construction Programme / Phasing

It is estimated that construction of the development will take approximately five years to complete. The applicant has provided an indicative construction programme in the Outline CMP & CDWMP (submitted with the Planning Application documentation) which depicts the sub-areas only for development. A phasing plan also accompanies the planning application – refer to Delphi drawing no. D1408-19-PL07 which illustrates the indicative construction staging sequence. The intended sequence of development may change post grant of planning permission, as a detailed construction programme is dependent on contractor appointment, market and other considerations.

Phase 1 will occur in Sector 0: consisting of the delivery of the proposed east-west access route through the subject site.

Phase 2 will occur in Sector 1A: Development will commence at the eastern end of the site. Sector 1A is located to the north of the east-west access route. This first phase of development will see the delivery of Blocks A, B, C & D and house no.'s 17-88. Sector 1A will therefore deliver 47 no. duplex and apartment units and 72 no. houses totalling 119 no. dwellings. Sector 1A also includes for the delivery of the childcare facility adjacent to Block C (accommodating circa 62 no. children) and the community hub located in Block D, as wells as the urban plaza and other public open spaces.

Phase 3 will occur in Sector 1B: Sector 1B is located to the east of the site and south of the east-west access route. This phase of development will see the delivery of Blocks E & F and house no.'s 137 – 222. Sector 1B will therefore deliver 17 no. duplex and apartment units and 86 no. houses totalling 103 no. dwellings. Sector 1B also provides for public open spaces and connections to the Old Rail Trail Greenway to the south.

Phase 4 will occur in Sector 2A: Sector 2A is located to the east of the existing Brawny residential estate, west of Sector 1A and north of the proposed east-west access route. This phase of development will see the delivery of Block K and house no.'s 293 – 307. Sector 2A will therefore deliver 21 no. apartments and 15 no. houses totalling 36 no. dwellings.

Phase 5 will occur in Sector 2B: Sector 2B is located to the east of the existing Brawny residential estate, west of Sector 1B and south of the proposed east-west access route. This phase of development will see the delivery of Blocks G & H and house no.'s 227 – 264, 277-292 & 329-364. Sector 2B will therefore deliver 16 no. duplex and apartment units and 90 no. houses totalling 106 no. dwellings.

Phase 6 will occur in Sector 3A: Sector 3A is located to the northwest of the development site, west of the existing public open space at Brawny. This phase of development will see the delivery of Blocks L, M, N,O, P & Q. Sector 3A will therefore deliver 146 duplex and apartment units.

Phase 7 will occur in Sector 3B: – Sector 3B is located to the southwest of the development site. This phase of development will see the delivery of Blocks R,S & T and house no.'s 555-576. Sector 3B will therefore deliver 44 duplex and apartment units and 22 no. houses totalling 66 no. dwellings. Sector 3B also includes for the delivery of the childcare facility located on the ground floor of Block T (accommodating circa 83 no. children).

Sector	Phasing Sequence	No. of dwellings	Other
Sector 0	First Phase	0	-
Sector 1A	Second Phase	119	1 no. creche 1 no. community hub
Sector 1B	Third Phase	103	-
Sector 2A	Fourth Phase	36	-
Sector 2B	Fifth Phase	106	-
Sector 3A	Sixth Phase	146	-
Sector 3B	Seventh Phase	66	1 no. creche

Table 2.2 - Summary of phasing proposals

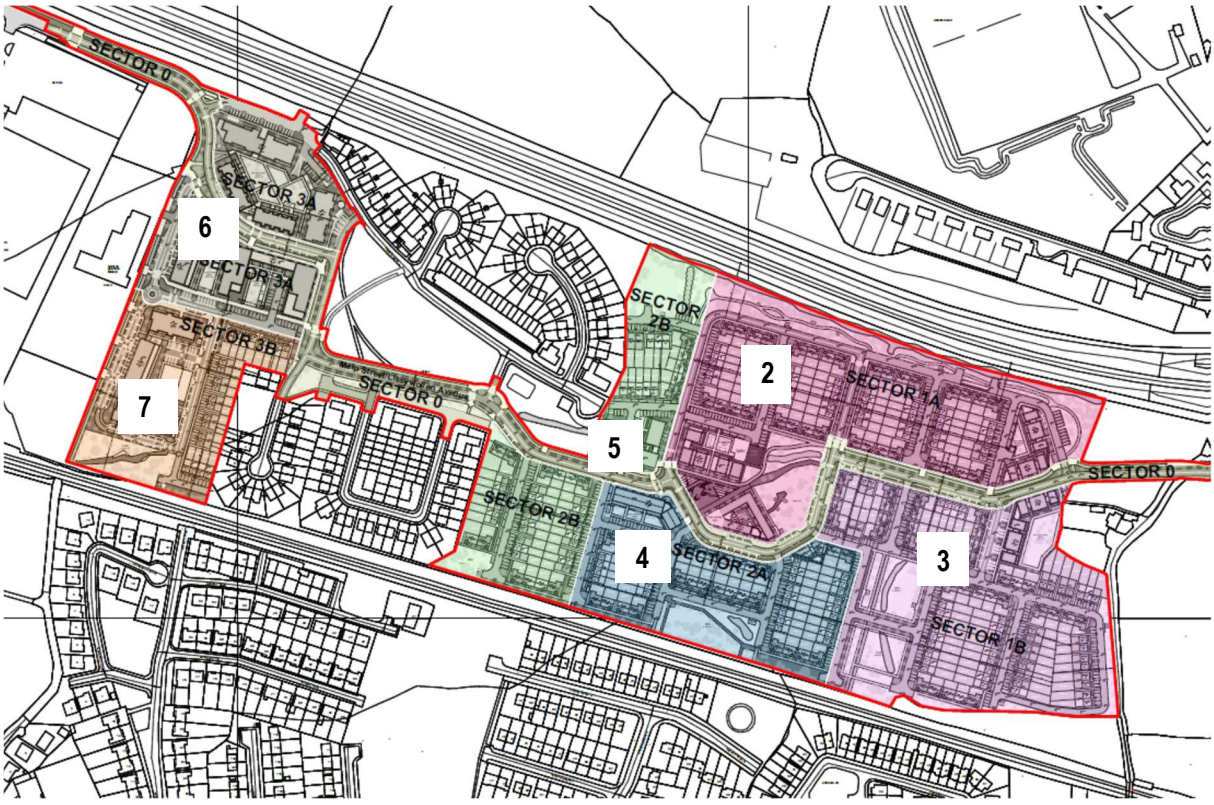

Fig. 2.2 – Proposed Phasing

2.6.2 Construction Activities

The construction works associated with the project will be contained within the application site boundary. These works will include excavation, earthworks, etc.

Some construction activity may take place off-site on lands within the control of the developer. These activities may include access and haul routes, site compound(s), storage of materials and soil/excavated material, screening and processing of existing materials for re-use within the development works, construction parking, staff welfare facilities etc. These areas will be identified in the detailed CMP.

Typically, construction will commence at 07.00 to 19.00 Mondays to Fridays inclusive, between 08.00 to 14.00 on Saturdays and not at all on Sundays and public holidays. During the construction period, due to exceptional circumstances, construction work may be necessary outside these standard hours. If necessary, this will be agreed in advance with WCC.

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.

The contractor will be guided by the CDWMP which accompanies the application with regard to re-use, recovery, recycle and disposal of waste produced during construction. Chapter 13 of this EIAR, Material Assets : Resource and Waste Management, also considered the re-use recovery, recycle and disposal of waste arising from the development.

2.7 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 4-15 which deal with *'Aspects of the Environment Considered'*. No significant adverse impact is predicted to arise from the use of natural resources.

2.8 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, where relevant, in the relevant in Chapters 4-15 which deal with '*Aspects of the Environment Considered'*. There will be no significant direct or indirect effects arising from these sources.

2.9 Forecasting Methods Used for Environmental Effects

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

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

2.10 Transboundary Impacts

Large-scale transboundary projects[1] are defined as projects which are implemented in at least two Member States or having at least two Parties of Origin, and which are likely to cause significant effects on the environment or significant adverse transboundary impact.

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

2.11 Alternatives Examined

Chapter 3 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.

2.11.1 Do Nothing Alternative

The site is zoned *'Proposed Residential'* & *'Open Space'* development under the Athlone Town Development Plan 2014-2020. To ensure coherent development of the town, the ATDP includes for individual Local Area Plans for specific and strategic local areas of the town. To this end, the application site is subject to a Local Area Plan known as the Lissywollen South Framework Plan 2018-2024. Lissywollen South is noted as an area to undergo comprehensive and significant development to ensure more integrated development forms and coordinated delivery of this strategic landbank. Taking these two plans into account, consideration of alternative sites is not necessary. In effect, an alternative location in this instance i.e., a *'do- nothing'* alternative for the subject site, would mean that these residential zoned lands would not be utilised for the purposes of meeting the need for new residential accommodation within Athlone. 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 strategically located residential zoned lands c. 2km from Athlone Town Centre. The suitability of the lands for development, as strategic site within the town development boundary infill development within Navan as a Tier I town in the Westmeath County Plan's hierarchy and the site's location adjacent to local services, is an important consideration, in this regard

2.11.2 Alternative Site Layouts

The proposed residential development has been prepared in accordance with the requirements of the National Planning Framework, the Regional Spatial and Economic Strategy for the Mid-East area as well as the relevant Section 28 Guidelines including those relating to Urban Development and Urban Heights 2018, the Apartment Guidelines 2018 and the Sustainable Residential Development in Urban Areas (2009) as well as, where relevant, the Westmeath County Development Plan 2014-2020, the Athlone

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

Town Development Plan 2014-2020 and the Lissywollen South Framework Plan 2014-2020 and the Navan Development Plan 2009-2015 and has been the subject of a number of pre-application meetings with the Planning Authority prior to lodgement of the SHD application with An Bord Pleanála.

Insofar as the EIA is concerned, a number of iterations of the site layout and alternative designs were prepared and considered for the project. This involved taking into account the various technical and environmental considerations which are addressed in the EIA and which informed the design of the proposed development.

The design process, having taken into consideration the discussions held with the WCC, local residents, individual consultants who inform the chapters of this EIAR, and the feedback received from An Bord Pleanála at the Pre-Application Consultations, has resulted in the layout now put forward for permission, which is illustrated in Fig. 2.1 above. It is considered that this layout represents the best utilization of these zoned lands, complies with the objectives for the lands contained in the LSFP and mitigates against significant environmental impacts.

In summary, the development proposal will, *inter alia*:

- Comply with the land-use zoning designation for the subject site;
- Provide appropriate accommodation which can cater for different life stages by delivering houses, apartments and duplex units in a mix of 1, 2, 3 and 4 bedroom dwelling units;
- Provide an appropriate density of development, which varies across the site and achieves the LSFP's vision to develop a new urban quarter in Athlone;
- Comply with the Planning Authority's detailed quantitative standards for residential development as set out in the existing Westmeath CDP and, where appropriate, Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities (2018);
- Provide a level of social housing with equates to circa 30% of the overall quantum of proposed dwellings;
- Deliver the east-west access road through the area plan lands as envisaged by the LSFP which is designed to support public transportation routes;
- Support sustainable transport modes via the creation of pedestrian and cycle connections to the Old Rail Trail Greenway to the south, which forms part of the Dublin -Galway National Cycle Network;
- Deliver 2 no. childcare facilities in compliance with the objectives of the LSFP;
- Protect the existing residential amenity enjoyed by the residents of the Brawny estate;
- Preserve, where feasible, the natural amenity characteristics of the site, and provide for new features where necessary in order to ensure that the visual impact of the development is minimised. This has been achieved by allocating areas of open space for recreation, all of which will be developed in accordance with the overall Landscape Masterplan for this proposed development.

2.11.3 Final Layout Alternative

With regard to the layout put forward for permission, the iterative process 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.

The final design now put forward for permission presents the most effective utilization of this significant site whilst also fulfilling the objectives of the Planning Authority and providing for long term, sustainable housing for which there is a considerable demand at present and providing for a use of material, architectural form and colour to create a high level of visual amenity.

An Bord Pleanála Opinion

During the course of the pre-application tripartite meeting with the Board, and within the Opinion of the Board, which was issued thereafter, a number of issues were raised which required further consideration and amendment to constitute a reasonable basis for an application for SHD.

In respect of environmental issues, the Board sought further consideration in relation to noise, surface water management, and ecology.

The proposed design consideration for the subject lands were the subject of 1 no. formal pre-application meeting with Westmeath County Council as well as two formal SHD meetings with An Bord Pleanála (which Westmeath County Council attended).

The environmental issues which most informed the design process related to tree removal (ecology), noise, water, and the potential impacts on existing and future traffic and transport in the area. These environmental considerations have informed the alternative layouts up to the submission of the current scheme as a Strategic Housing Development application to An Bord Pleanála.

Following the receipt of detailed feedback from An Board Pleanála during the course of the pre-application meeting, and following receipt of the opinion of the Board (as well as Westmeath County Council), which advised on further consideration relating to aspects of the proposed development, the applicant and design team have undertaken a number of significant changes to the development proposal which is reflected within the final development proposal submitted for permission as part of a SHD planning application.

As noted within the development description sections of this chapter, the scheme now comprises a quantum of residential development consisting of 576 no. dwellings, which has been varied form 555 no. initially and then reduced from 590 submitted at pre-application stage.

The key changes proposed related to:

- Increase in overall number of dwellings from an initial 555 to 576;
- Changes to the mix of dwelling types;
- Greater enclosure of streets through the location of buildings;
- Changes to the layout, distribution and function of open spaces;
- Alternative car parking arrangements/strategy.

Responses to each of these items have been provided as part of the SHD planning application pack, and the scheme has been updated and improved where necessary as a result.

The overall Masterplan of the proposed development takes into account all environmental effects raised with respect to the pre-application design submitted to An Bord Pleanála, and within the Board's Opinion, and provides for a sustainable development that has been optimised to emphasise positive environmental effects whilst reducing negative environmental impacts wherever possible.

The main environmental considerations has been to achieve a design solution for the preferred layout which would enable all of the functional and operational requirements of the scheme to be met, whilst also ensuring the sensitive siting of new elements within the site. Having established the quantum, type and mix of residential units, a series of alternatives were considered by the design team. This process has enabled the final proposal to evolve. The preservation of a sense of open space and the desire to ensure that the site layout plan and design of the east-west link road/Lissywollen Avenue is designed as a street and not as a distributor road, with an active and strong urban edge. The need to provide for an appropriate level of enclosure of streets and open spaces through the built form, in addition to landscaping, has driven the final layout form and design solution as proposed as part of the SHD planning application.

Alternative locations for the various built elements of the development were considered and examined at the design stage. The primary elements determining siting included natural site topography, the proximity of the site to the N6 and the Old Rail Trail Greenway in terms of noise and visual impact considerations.

3.0 Non-Technical Summary of EIAR Chapters

3.1 Population and Human Health

This Chapter, prepared by Delphi Planning, relates primarily to 'Human Beings'- the potential impacts of the development proposal on human beings, population, and human health within the vicinity of the application site and an assessment of these issues.

One of the principle concerns in the development process is that people, as individuals or communities, should experience no diminution in their quality of life from the direct or indirect impacts arising from the construction and operation of a development. Ultimately, all the impacts of a development impinge on human beings, directly and indirectly, positively and negatively.

3.1.1 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. The sector has grown strongly in recent years and this development will help to further enhance growth and reduce the increasing pressure on the housing market.

The construction phase of the proposed development will primarily consist of site clearance, excavation and construction works, which are likely to take place over 7 main phases, 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 environmental impacts will be avoided. Positive impacts are likely to arise out of an increase in employment and economic activity. 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 new east-west link road "Lissywollen Avenue" to facilitate the proposed development will require works to the public road will likely entail some localised impacts to residents at Brawny. The Construction Management Plan will ensure that disruption and nuisances will be kept to a minimum.

The proposed development will result in a generally positive alteration to the existing undeveloped site in terms of the provision of residential units to serve the growing residential and student population of the area in accordance with the objectives of the Westmeath County Development Plan and the Athlone Town Plan. Positive impacts on population and human health will include health benefits associated with the provision of a significant quantity of open space, pedestrian and cyclist routes, including direct connections to the Old Rail Trail Greenway, a highly permeable layout which connects the site to existing development to the east and west and delivers the objectives of the Athlone Town Plan as well as the framework set out in the Lissywollen South Framework Plan. The provision of 2 no. creche facilities on site, as well as a community hub, enhances the quality of the development and helps to create sustainable communities.

3.1.2 Mitigation

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.

Overall, subject to adherence to best practice and implementation of appropriate mitigation measures detailed in this EIAR, the overall temporary impacts associated with the construction phase (noise, dust, visual, traffic disruption) are considered to represent a slight / moderate negative impact for the population. In order to avoid and / or reduce impacts on the adjoining residents, a CMP will be put in place prior to the commencement of development.

3.2 Biodiversity

This chapter was prepared by Domhnall Finch of FGE Consulting and informed by the previous work completed for the proposed site by Andrew Torsney and Aoibheann Gaughran. A separate stand-alone Appropriate Assessment (AA) Screening Report is also included in the planning application documentation. Under Article 6(3) of the Habitats Directive a screening for '*appropriate assessment'* of projects must be carried out to determine if significant effects are likely to arise to Natura 2000 sites. This assessment is carried out by the competent authority, in this case An Bord Pleanála.

Chapter 5 of the EIAR (Volume II) assesses potential impacts that may arise from the proposed development on biodiversity within the receiving environment; in accordance with the following guidance documents:

- Environmental Protection Agency (2000). *Guidelines on Information to be contained in Environmental Impact Statements.*
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2016). *Guidelines for Ecological Impact Assessment*.
- Chartered Institute of Ecological and Environmental Management (CIEEM) (2012). *Preliminary Ecological Appraisal*.
- Fossitt JA (2000). *A Guide to Habitats in Ireland*.
- The Heritage Council (2011) Habitat Survey Guidelines: *A Standard Methodology for Habitat Survey and Mapping in Ireland.*

It aims to discuss the existing ecological environment, the potential impacts of the scheme and avoidance and mitigation measures in relation to habitats, flora and fauna in the zone of influence (ZOI) of the proposed development.

3.2.1 Consultation

Consultation was undertaken with Alanna Roadbridge Developments Ltd/Westmeath County Council with regard to the scope of works within the proposed project. The consultation with the NPWS identified concerns in relation to Molinia meadows which were highlighted to be present within 10km. They identified a '*species rich wetland area*' and '*green area with meadow species excellent for pollinators*' and suggested specific effort be made in relation to frog and newt investigations. The NPWS suggested that '*part of the wildflower area should be retained as a biodiversity area as a mitigation measure*'. Similarly, they suggested retaining all boundary hedgerows and supplementing where there are gaps be as a matter of priority to mitigate for the loss of a significant area of internal hedgerows and as a matter of adopting priority actions 17 and 18 of the Westmeath Biodiversity Action Plan 2014-2020. Additionally, it is noted that the consultation response indicated the requirement for suitably qualified ecologists to conduct various surveys. All of the other consultation resulted in an expression of no concern in relation to biodiversity related impacts due to the low ecological value of the receiving environment and the distance from protected sites.

3.2.2 Methodology

A desktop review was carried out to identify features of ecological importance within the proposed development site and the wider environment. Specific effort was put into the assessment of sensitive receptors of protected species/habitat features; as well as those of local or national importance. A source is any identifiable element of the Project proposal which is known to have interactions with ecological processes. Pathways are any connections or links between the source and the receptor. This report determines if direct, indirect or cumulative adverse effects will arise from the proposed development.

3.2.3 Field Survey Work

Data was collected after a walkover survey conducted on various dates between June 2018 and May 2019. This data covered the whole Lissywollen South site. An updated field survey was carried out in January 2021 where no changes to the habitat composition recorded during that site visit and ecological surveys when compared to the previous surveys conducted in 2018 and 2019.

A habitat survey of the site was conducted following standard guidelines set out in 'Best practice guidance for habitat surveys and mapping' developed by the Heritage Council of Ireland. Habitats were classified using habitat descriptions and codes published by the Heritage Council in 'A Guide to Habitat Types in Ireland'. Plant species nomenclature follows Rose's 'The Wild Flower Key: How to identify wild flowers, trees and shrubs in Britain and Ireland'. A list of the dominant and notable plant species was taken for each habitat type. Particular emphasis was given to the possible occurrence of rare or legally protected plant species (as listed in Flora Protection Order 1999) or Red-listed plant species (Curtis & McGough 1985, Wyse Jackson *et al.* 2016).

Observations were made for fauna species present or likely to occur on site. Emphasis was placed on mammals and birds, and especially for species listed in the respective Red lists, namely Colhoun and Cummins (2013), and Marnell et al. (2009). A focus was placed on assess the wetland area identified by the NPWS for suitable habitat for frog and newt species. For mammals, searches were focused on signs of their presence, such as tracks, feeding marks and droppings, as well as direct observations. For bats,

the main focus was on evaluation of suitable habitats to support roosting bats. Dedicated bat activity surveys were also undertaken in May and August 2019 to identify which species were present on site and characterise the habitat usage.

Three dedicated bird surveys were undertaken across the site following the lowland country breeding bird survey methodology; all birds were recorded by sight and sound. A single survey was undertaken in 2018 in the late season, followed by two subsequent surveys in 2019 in early and late April.

During all surveys, particular attention was given to assessing the presence of rare or protected species. Each species identified was assessed in term of the EU Habitat Directive (92/43/EEC), Bird Directive (2009/147/EC), the Wildlife Act (1976), the Wildlife Amendment Act (2000) and the Red Data Lists for threatened and protected species, published on the NPWS website (www.npws.ie).

In addition to the foregoing site visits / field surveys, an additional site visit was undertaken by Domhnall Finch on 28/01/2021 to conduct a habitat assessment, amphibian survey and mammal survey. This was completed to identify if any changes in habitat types may have occurred since the initial surveys outlined above.

The results are as follows:

Flora

There were no observed changes to habitat types found on site compared to those identified during the 2018 and 2019 surveys. None of the habitats on the site were found to contain Annex I type features; additionally, all of the habitats present on site were of low ecological importance at both landscape and local scales. Habitats recorded on site include Buildings and Artificial Surfaces (BL3), Re-colonised Bare Ground (ED3), Hedgerows (WL1) and Treelines (WL2), Agricultural Grassland (GA1), Amenity Grassland (GA2), Drainage Ditches (FW4), and Dry Meadow and Grassy Verge (GS2). There were no species identified on site which are invasive and subject to restrictions (Third Schedule) under Regulation 49 of the European Communities (Birds and Natural Habitats) Regulations, 2011. Due to the recent rainfall, some of the ditches previously identified as dry had some water in them.

Fauna

Mammals

There was evidence of fox (footprints) and rabbit activity (droppings and burrows) on site. There were no signs of any badger activity and no badger setts were identified. There were no bat roosts found on site, and no trees that were of sufficient size and architecture to be suitable roosts. The disused building along the eastern boundary of the site had no bat roost potential as it was too exposed.

(**Note:** a limitation to the field survey of 28/01/2021 is that due to the time of year no bat activity survey or breeding bird survey could be completed).

Amphibians

The fields to the west of the site have a notable wet flush area as indicated by the reeds (Juncus spp.) present (also identified by the NWPS consultation response). During the time of this site visit, parts of those fields had surface water present. No newts, frogs or frog spawn were identified on site at the time of the survey.

Conclusion to field survey January 2021

There were no changes to the habitat composition recorded during the current site visit and ecological surveys when compared to the previous surveys conducted in 2018 and 2019.

The habitats present on site are of low ecological value both at a local and landscape scale. There were no rare, protected or threatened species identified on site. Similarly, the site has limited potential to support a wide variety of biodiversity due to its nature and composition. There were no trees present on site with bat roosting potential, and the disused building adjacent to the site also had no potential. There were no signs of any badger activity found on site, and no setts were identified.

Due to no changes in habitat composition being observed and as a result of no protected species being identified on site, it is perceived that there would be no significant change in the species diversity or composition recorded on site now compared to the surveys undertaken in 2018 and 2019.

Summary of Ecological Evaluation

The habitats present on site are of low ecological value both at a local and landscape scale. There were no rare, protected or threatened species identified on site. Similarly, the site has limited potential to support a wide variety of biodiversity due to its nature and composition. There were no trees present on site with bat roosting potential, and the disused building adjacent to the site also had no potential. The treelines are suitable for commuting roots for bats, with the ED3 habitats providing potential suitable foraging habitat for bat species. However, very little bat activity was recorded. There were no signs of any badger activity found on site, and no setts were identified. Due to the nature and characteristics of the treelines present there is potential for nesting birds; the central hedgerow has the highest ecological value in this regard due to the semi mature nature and dense understory.

3.2.4 Potential Impacts

Taking the baseline ecological data, the extent, the scale and the characteristics of the proposed development into account, the following potential impacts have been identified:

- Hedgerow removal;
- Impacts on Surface Water;
- Earthworks – causing the mobilisation of particles;
- Noise and vibration.

These potential impacts are discussed in the following paragraphs.

Hedgerow removal

The removal of hedgerows could result in the loss of habitat connectivity and potential breeding bird habitat. This would result in moderate local scale impacts to biodiversity, if unmitigated.

Impacts on Surface Water

The operational phase elements of the project will be consistent with the urban context of the site and therefore, there are no long terms sources for impacts to surface water. The construction phase elements of the project could interact with water quality and therefore a CEMP is required, wich is included as part of this application. Further details on the hydrological interactions are detailed in Chapter 7 “Water”.

Earthworks

he existing site is agricultural and amenity grassland and there are no habitats present on site that are of high ecological value. The earthworks proposed within the project description will not have effects beyond the site boundary. Furthermore, the CEMP contains measures to reduce potential impacts in this regard.

Noise/Vibration

The construction phase and movement of heavy vehicles across the site could cause localised disturbance of breeding birds that may use the perimeter vegetation. Given the low levels of activity identified on site by birds impacts in this regard be very low. This would be expected to have a probable, short-term impact at a local level but there is likely to be an existing degree of habituation to regular traffic on the site so this impact may not be across the whole area. Bird species are particularly sensitive to disturbance effects due to increased noise and on-site activity. Full details of the noise pollution data can be found in Chapter 9 “Noise”.

An assessment of the project detail indicates the potential impacts to biodiversity are predominantly associated with construction phase works which are temporary. The site was found to have low ecological value following the CIEEM (2016) Ecological Impact Assessment Guidelines; informed by the results of both the desktop study and the field surveys. The operational phase elements of the project are thought to have negligible impacts given the low ecological value of the existing habitats. The potential operational phase activities are consistent with the existing land use of the receiving environment, the on-site land use is changing from agricultural to residential; residential impacts are low level and confined to the site boundary.

Potential Impacts on Designated Sites

The separate, enclosed Appropriate Assessment (AA) Screening Report sets out the likelihood and significance of any potential impacts on European designated sites. There are no significant adverse effects foreseen to be likely to affect the ecological integrity of any European sites. The closest SAC and SPA within the zone of influence of the project is the River Shannon Callows, which is also designated as an pNHA, and is located 1.49km from the proposed development. The closest NHA is Carrickynaghtran Bog which is located 3.56km from the proposed development. The proposed development is not hydrologically connected to this NHA, which is designated for raised bog. The targets and attributes of the River Shannon Callows conservation objectives relate to the maintenance of the structure and function of habitat and community dynamics. These habitat and community dynamics are vulnerable to direct interactions, and/or interactions with water quality and turbidity. The proposed works will have no direct interaction with the River Shannon Callows and there will be no direct effects to the targets or attributes of the site. The project is not directly hydrologically connected to the pNHA. However, chapter 7 of the EIAR (Volume II) provides a detailed hydrological assessment that shows the proposed works will have no effect on water quality. Additionally, the CEMP submitted as part of the project design details the best practice approach that will be undertaken during construction. These measures take account of possible interactions with water quality. There are no pathways for effects to any other pNHA or NHA sites.

Construction Phase

The following potential impacts are likely to occur during the construction phase in the absence of mitigation:

Habitat loss: agricultural grassland and disturbed ground habitats are to be lost along with approximately 990m of semi-mature hedgerows of varying quality.

The loss of habitat will result in local impacts to breeding birds, plants and animals. In the absence of mitigation, the effect of habitat loss is **likely, negative, significant** and **permanent**.

The direct mortality of species during land clearance or tree felling: This impact is especially acute during the bird nesting season, but can also affect small mammals and other fauna. Under the Wildlife Act 1976 (as amended, 2000) it is prohibited to removed 'uncultivated' vegetation between the months of March and July inclusive. Without mitigation, this effect is **likely, negative, significant** and **permanent**.

Operational Phase

The following potential impacts are likely to occur during the operation phase in the absence of mitigation:

Disturbance to species from increased human activity (lighting, etc.): Many of the species/habitats present on this site are not considered sensitive to disturbance from noise or general human activity, given that this is already present from nearby residential uses. In the absence of mitigation, this effect is **likely, negative, significant** and **permanent.**

Loss of ecological corridors: The removal of linear woodland habitats (i.e. hedgerows) will result in impacts to plant and animal species by disrupting movement corridors which are of value for feeding, resting, breeding and dispersal. The magnitude of this effect is dependant upon the species in question but bats are known to rely heavily on these corridors and can be considered a proxy for wider effects to biodiversity. However, the survey results indicated low levels of bat activity on the subject site. This effect is related to the installation of artificial lighting which can result in disruption to movement corridors for wildlife. This effect is **likely**, **negative**, **significant** and **permanent**.

Pollution from surface water: Surface water attenuation measures will comply with Local Authority standards. This will include on-site attenuation storage, detention basins and green roofs. This effect is **likely, neutral, imperceptible** and **permanent.**

Pollution of water from foul wastewater arising from the development: Foul wastewater from the development is to be treated at the Athlone wastewater treatment plant, which discharges treated effluent into the Shannon, and it is noted that there are two separate Irish Water projects to improve foul drainage infrastructure in Athlone and increase capacity at the Athlone wastewater treatment plant. The plant is licenced to discharge this effluent by the EPA (licence number D0007-01). The most recent annual environmental report by Irish Water on the plant, for 2019 (dated 05.03.2020), shows that the discharge from the wastewater treatment plant is not having an observable impact on water quality and does not have an observable negative impact on the Water Framework Directive Status. The plant discharges treated wastewater to the River Shannon and monitoring of the receiving environment shows that the

effluent "does not have an observable negative impact on the water quality". This effect is **likely, neutral, imperceptible** and **permanent.**

3.2.5 Mitigation:

Following the best practice management measures detailed in the project description and within the CEMP no specific mitigation measures are required to moderate the potential impact to the ecological integrity of any designated site (SACs, SPAs or NHAs).

Hedgerow Removal

The localised impacts related to hedgerow removal are minimised as some of the central hedgerow will be maintained and augmented planting will occur to the north of the site using native tree and plant species. Some of the central hedgerow will be maintained and augmented planting will occur to the north of the site using native tree and plant species. The central segment of the hedgerow will be maintained as it has a full canopy and complex understory. Connectivity to the wider landscape will be maintained to the north of the site and augmented supplementary planting of native trees will increase the condition of the existing hedgerow to the north. Overall, 36% of the available hedgerows will be lost due to the implementation of the project.

Where hedgerow removal is required, all works in that regard will be constrained to outside 1st March and the 31st August. Should hedgerow removal be required within this time then a relevant derogation licence must be sought. In addition to this an Ecological Clerk of Works (EcOW) will be appointed to monitor all hedgerow removal for disturbance to potential badger setts, bat roosts and/or bird nests. The EcOW will ensure that none of the hedgerows to be maintained, identified above, are interfered with in any way that impacts their ecological integrity throughout the implementation of the construction works.

Impacts on Surface Water

The CEMP details measures to prevent accidental spill offs and while Surface Water Urban Drainage System (SUDS) scheme is to be implemented across the site. Interactions with surface water are therefore thought to be minimal as there are no existing water courses across the site or in the immediate vicinity.

Earthworks

The CEMP dictates that a dust control strategy must be implemented for all construction works. The existing site is agricultural and amenity grassland and there are no habitats present on site that are of any ecological value. The earthworks proposed within the project description will not have effects beyond the site boundary.

Noise/Vibration

The construction phase and movement of heavy vehicles across the site could cause localised disturbance of breeding birds that may use the perimeter vegetation. Given the low quality of habitat available this is expected to be very low. This would be expected to have a probable, short-term impact at a local level but there is likely to be an existing degree of habituation to regular traffic on the site so this impact may not be across the whole area. Bird species are particularly sensitive to disturbance effects due to increased noise and on-site activity.

3.3 Land, Soil and Geology

This chapter was prepared by Shane Moynihan BEng(Hons) MSc DIC MEI of DBFL Consulting, Engineers and comprises of an assessment of the likely impact of the proposed development on the surrounding hydrogeological environments (including flood risk, surface water drainage, foul drainage and water supply), as well as identifying proposed mitigation measures to minimize any impacts.

The subject site is "Greenfield" and the primary hydrological feature in the vicinity of the site is the Shannon River (approx. 2km south-east of the site). The River Al is located approximately 1km to the south of the site. A number of trial pits were excavated on site up to depths of 2.4m. No ground water was encountered within these pits.

Both trial pits were dry and excavations were stable (no groundwater ingress noted).

A review of the Geological Survey of Ireland's (GSI) online mapping service ("Bedrock Geology") describes geology in the vicinity of the site as "Waulsortian Limestones". GSI have classified the site's groundwater vulnerability as "high" across the entire site. GSI also classified underlying bedrock aquifers as "locally important".

3.3.1 Potential Construction and Operational Phase Impacts

It is anticipated that the main construction activity impacting soils and geology will comprise the following:

Removal of the existing topsoil layer will be required. As noted previously, it is expected that all stripped topsoil will be reused on site (incorporated into landscaping of back gardens and public open spaces). Approx. 18,000m³ of topsoil will be stripped and reused on site.

Excavation of existing subsoil layers will be required in order to allow for basement excavation, drainage and utility installation and provision of underground attenuation of surface water. Underlying subsoil layers are sandy gravelly clay with occasional cobbles and are expected to be generally suitable for reuse as non-structural fill (e.g. build-up of back gardens areas or build-up of open spaces). Approx. 23,000m³ of subsoil will be stripped and reused as excavated material on site.

In the context of materials imported to site, these will be natural stones sourced from locally available quarries in accordance with the appropriate statutory guidelines, greenfield / inert soil imported under a Waste Permit issued by the local authority; or materials that have been approved as by-products by the EPA in accordance with the EPA's criteria for determining a material is a by-product. Imported materials will be granular in nature and used in the construction of road pavement foundations, drainage and utility bedding and surrounds. Imported fill will be required to raise the development to the required level for drainage.

Materials will be brought to site and placed in their final position in the shortest possible time. Any imported material will be kept separate from the indigenous arisings from the site. All excavation to accommodate imported material will be precisely co-ordinated to ensure no surplus material is brought to site beyond the engineering requirement. It is expected that the total amount of fill to be used on site is approx. 60,000m³ which will include:

- 24,000m³ of reused excavated material
- 18,000m³ of reused topsoil and
- 18,000m³ of imported fill.

Once the construction stage is complete and the development is in-situ and operational, the geology beneath the proposed site will remain unchanged. Subsoil will either be covered by surface hardstanding, building footprint or landscaped areas.

There will be no direct discharges to soil or groundwater during the operational phase of the proposed development. Foul effluent and surface water will be discharged to the Irish Water sewer and surface water drainage network following the required treatment measures.

3.3.2 Mitigation Measures

Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development. At any given time, the extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work areas.

Topsoil stockpiles will be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains.

Surface water runoff from areas stripped of topsoil will be directed to temporary on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.

On-site settlement ponds are to include geotextile liners and riprapped inlets and outlets to prevent scour and erosion.

Excavation of existing subsoil layers has been minimised as far as reasonably practicable. Cut type earthworks operations will not be required to achieve designed site levels, however, some cut type earthworks will be required to construct block basements and attenuation features. Cut material is considered likely to be suitable to be reused as non-structural fill elsewhere on site.

Disturbed subsoil layers will be stabilized as soon as practicable (e.g. backfill of service trenches, construction of road capping layers, construction of building foundations and completion of landscaping). The duration that subsoil layers are exposed is to be minimised in order to mitigate against weather effects.

Stockpiles of excavated subsoil material will be protected for the duration of the work and will be located separately from topsoil stockpiles.

Measures will be implemented to capture and treat sediment laden surface water runoff (e.g. sediment retention ponds, surface water inlet protection and earth bunding adjacent to open drainage ditches).

No large or long-term stockpiles of fill material will be held on the site. At any time, the extent of fill material held on site will be limited to that needed in the immediate vicinity of the active work area.

A construction traffic management plan will be developed and implemented in order to minimise the disturbance caused by large vehicles. This management plan shall include and detail:

- Predetermined haul routes for earthworks plant and vehicles delivering construction materials to site.
- Vehicle wheel wash facilities in the vicinity of any site entrances and road sweeping to maintain the road network in the immediate vicinity of the site.
- Dust suppression measures (e.g. dampening down)

Due to the presence of a locally important aquifer beneath the site, it will be necessary to employ mitigation measures at the construction site in order to prevent spillages to ground of fuels, and to prevent consequent soil or groundwater quality impacts.

3.4 Water

Chapter 7 the EIAR was drafted by Shane Moynihan BEng(Hons) MSc DIC MEI of DBFL Consulting, Engineers and comprises of an assessment of the likely impact of the proposed development on the surrounding hydrogeological environments (including flood risk, surface water drainage, foul drainage and water supply), as well as identifying proposed mitigation measures to minimize any impacts.

The primary hydrological feature in the vicinity of the site is the Shannon River (approx. 2km south-east of the site). The River Al is located approximately 1km to the south of the site. A number of trial pits were excavated on site up to depths of 2.4m. No ground water was encountered within these pits.

The Geological Survey Ireland (GSI) Online Data Services classifies the aquifer at the subject site as "Locally Important Aquifer – Bedrock which is Generally Moderately Productive in Local Zones". There is also a gravel aquifer overlaying the bedrock, which is classified as "Locally important gravel aquifer". GSI classifies the site's groundwater vulnerability as high across the site.

The site is a greenfield site and surface water currently discharges to ground. There is no surface water quality data available for the proposed development site.

A Site Specific Flood Risk Assessment of the proposed development has been carried out by DBFL Consulting Engineers and is submitted as a separate document to the EIAR, however, it confirms that it was determined that the site is within Flood Zone C as defined by the Guidelines and based on the ECFRAMS mapping. Therefore, the development of housing on the subject site is appropriate for the site's flood zone category and a justification test as outlined in the Guidelines is not required and that it is considered that the flood risk mitigation measures once fully implemented are sufficient to provide a suitable level of protection to the proposed development and will not cause an increased risk of flooding to external properties.

3.4.1 Potential Construction and Operational Phase Impacts

Potential impacts that may arise during the construction phase are:

- Surface water runoff during the construction phase may contain increased silt levels (e.g. runoff across areas stripped of hardstanding) or become polluted by construction activities.
- Discharge of rainwater pumped from excavations may also contain increased silt levels (potential impact on existing hydrology e.g. discharge to existing open drain).
- Accidental spills and leaks associated with storage of oils and fuels, leaks from construction machinery and spillage during refuelling and maintenance contaminating the surrounding surface water and hydrogeological environments.
- Concrete runoff, particularly discharge of wash water from concrete trucks (potential impact on existing hydrology e.g. infiltration to ground).
- Discharge of vehicle wheel wash water (potential impact on existing hydrology e.g. discharge to existing surface water drainage infrastructure).
- Improper discharge of foul drainage from contractor's compound (impact on existing hydrology e.g. cross-contamination of existing surface water drainage.).
- Cross contamination of potable water supply to construction compound.

Potential operational phase impacts are:

- Accidental hydrocarbon leaks and subsequent discharge into piped surface water drainage network (e.g. along roads and in driveway areas).
- Increased impermeable surface area will reduce local ground water recharge and potentially increase surface water runoff (if not attenuated to greenfield runoff rate).
- Increased discharge to foul drainage network (Daily Foul Discharge Volume = approx. 2134m³)
- Increased potable water consumption (Average Daily Domestic Demand = approx. 248.5m³)

Implementation of the mitigation measures described will prevent and minimize the potential impacts of this interaction.

3.4.2 Mitigation Measures

The following measures are proposed during the construction phase to mitigate against risks to the surrounding hydrological environment.

- A site-specific Construction Management Plan will be developed and implemented during the construction phase. Site inductions will include reference to the procedures and best practice as outlined in the Construction Management Plan.
- Rain water pumped from excavations is to be directed to on-site settlement ponds.
- Surface water runoff from areas stripped of hardstanding and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.
- Weather conditions and seasonal weather variations will also be taken account of when planning stripping the site and excavations, with an objective of minimizing soil erosion.
- In order to mitigate against spillages contaminating the surrounding surface water and hydrogeological environments, all oils, fuels, paints and other chemicals shall be stored in a secure bunded hardstand area. Refuelling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any surface water inlets (where not possible to carry out such activities off site).

- Concrete batching will take place off site and wash out of concrete trucks will take place off site (at authorized concrete batching plant in full compliance with relevant planning and environmental consents).
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds.
- Any groundwater pumped from excavations is to be directed to on-site settlement ponds.
- It is proposed to implement a programme for monitoring water quality at the outfall as part of the construction of this development, in agreement with the Planning Authority.
- The construction compound will include adequate staff welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the construction compound will be tankered off site to a licensed facility until a connection to the public foul drainage network has been established.
- The construction compound's potable water supply shall be protected from contamination by any construction activities or materials.

For the operational phase of the proposed development, the design of proposed site levels (roads, plaza, finished floor levels etc.) has been carried out in such a way as to replicate existing surface contours, break lines etc. as closely as reasonably practicable and avoid concentrating additional surface water flow in any particular location. However, some localised areas have been raised in order to enable gravity foul drainage and provide sufficient depth of cover. In these areas, the levels have been designed to provide overland flow paths have been designed to ensure that during exceedance events, runoff is directed away from buildings to soft landscaped areas.

Following the Site Specific Flood Risk Assessment, it has been determined that the entire site / zoned developable area is located in Flood Zone C as defined by the Guidelines (i.e. proposed development is considered to have the required level of flood protection up to and including the 1% AEP flood event.)

Surface water runoff from the site will be attenuated to the greenfield runoff rate as outlined in the Greater Dublin Strategic Drainage Study (GDSDS). Surface water discharge rates will be controlled by Hydrobrake type vortex control devices in conjunction with attenuation storage.

The following methodologies are being implemented as part of a SuDS surface water treatment train approach:

- Permeable paving in driveway areas.
- Surface water runoff from roofs will be routed to the proposed surface water pipe network via the porous aggregates beneath permeable paved driveways and filter drains in rear private gardens.
- Attenuation of the 30-year return period rainfall event and below will be contained below ground and 100-year return period return period event (plus 10% climate change) within below ground storage and surface level detention basins located in public open spaces.
- Installation of hydrobrakes limiting surface water discharge from the site to greenfield runoff rates.
- Surface water discharge to pass via a Class 1 bypass fuel / oil separator (sized in accordance with permitted discharge from the site).

A contract will be entered into with a suitably qualified contractor for maintenance of the attenuation system, Hydrobrake and by-pass fuel / oil separator noted above.

No specific mitigation measures are proposed in relation to foul drainage however, all new foul drainage lines will be designed, installed and tested in accordance with Irish Water Code of Practice. No specific mitigation measures are proposed in relation to water supply. However, all new watermain will be designed, installed and tested in accordance with the Irish Water Code of Practice.

3.5 Air Quality & Climate

Chapter 8 of the EIAR was undertaken by AECOM and is divided into two parts:

- Part A – Air Quality
- Part B - Climate

Part A is comprised of a road traffic and construction air quality assessment on sensitive receptors within the proposed residential development site. It details the results of a study to assess the impacts and resulting effects that development generated traffic flows and traffic reassignment from new highway infrastructure would have upon local air quality. The impact from the existing road network (the N6) has also been considered to ascertain whether there is any significant impact upon future residents. The impact has been assessed at a number of key receptors within the residential development site. The main impacts during the construction phase would typically be related to the airborne dust generated by construction activities.

Part B deals with the impact of the proposed development on climate. It should also be noted that a separate document entitled Climate/Sustainability Appraisal is submitted as part of the subject SHD planning application, which appraises the sustainability credentials of the proposed development and demonstrates that they are in line with national, regional and local planning policies – please refer to same for further detail.

The assessment includes a description of the existing air quality in the vicinity of the subject site, a description and assessment of how construction activities and the operation of the development may impact existing air quality, the mitigation measures that will be implemented to control and minimise the impact that the development may have on local ambient air quality and finally to demonstrate how the development shall be constructed and operated in an environmentally sustainable manner.

3.5.1 Potential Construction and Operational Phase Impacts

In terms of “Air Quality”, the construction phase of the development has the potential to generate short term intermittent fugitive dust emissions during ground preparation and enabling works, however, these emissions will be controlled by appropriate mitigation techniques and through the implementation of a construction phase air quality management and monitoring plan throughout the duration of the construction phase.

The operational phase of the proposed development will result in a slight impact on local air quality primarily as a result of the requirements of new buildings to be heated and with the increased traffic movements associated with the development.

Best practice mitigation measures are proposed for the construction phase of the proposed development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction of the proposed

development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of construction of the proposed development is likely to be negative, short-term and imperceptible with respect to human health.

In terms of "Climate", the potential impacts are that the building sector has high energy demand which includes the energy used during construction, embodied energy of materials used and in addition there is energy demand of the buildings once occupied. During the construction process waste is generated and efforts to reduce and recycle waste need to be incorporated. Changes in climate are being observed and these impacts are expected to continue and intensify into the future. DBFL's Flood Risk Assessment includes attenuation measures for no flooding for 1 in 100 years (plus 10% climate change) event. Energy demand of the occupied buildings can contribute to the climate change as at present majority of generated energy comes from carbon-based fuels. Carbon footprint of the occupiers can be based on the commuting and consumption patterns. Extreme weather patterns can pose higher risk of flooding which can cause high economical damage and disruption to the community. The flood risk deems the site to be outside the 1,000 year flood events (Zone C).

3.5.2 Mitigation Measures

The proposed mitigation measures in relation to Air Quality are:

Any activities associated with construction of the development, which are likely to give rise to dust emissions (e.g. construction activities, extractive industry) shall make suitable arrangements, and take precautionary measures, to suppress and control dust arising from the activity or the handling and transportation of materials. The deposition of dust on surrounding lands, or spillage onto public roads shall be prevented at all times. This would be particularly applicable to:

- residents around Brawney Road;
- the single dwelling to the west of ESB Networks;
- users of Athlone Town Football Club;
- Old Rail Trail Greenway users; and
- residents to the south of the greenway.

Negative air quality impacts can come from many sources during construction. Mitigation measures would be required so that construction works are carried out in such a manner that emissions of dust and other pollutants are limited, and that best practicable means are employed to minimise disruption, risks to human health, and to avoid unnecessary impacts on sensitive ecological habitats. The Contractor will be required to implement measures to minimise the amount of dust and emissions (including odour) produced during the Works. There will be a Duty of Care on the Contractor to ensure that dust-raising activities are located away from sensitive receptors (i.e. residents around Brawney Road) as much as feasibly possible and duration kept to a minimum when in proximity to a receptor. The Contractor shall prepare an Air Quality Management Plan (AQMP) and incorporate the relevant mitigation measures outlined below within; reflecting the requirements of best practicable means and level of risk. This shall be included as part of the CEMP.

No mitigation or monitoring is proposed as part of the Operational Phase of the Proposed Development due to negligible impacts outlined in Section 8.6 of the EIAR.

The proposed mitigation measures in relation to Climate are:

Construction Phase	
Extreme Rainfall, Flash Flood	Mitigation measure will consider changes / flexibility in construction / operations that allow for rising water levels and groundwater levels based on the masterplan design.
	Mitigation measure will consider design of provide adequate surface water drainage during construction phase based on the masterplan design.
Risk Reduction Mechanism	Mitigation measure will consider secure insurance for damage of assets / site incidents based on the masterplan design.
Storms and Winds	Mitigation measure will ensure construction activities can withstand increases in high winds and storms based on the masterplan design.
	Mitigation measure will ensure the choice of equipment is weather efficient based on the masterplan design.
Other concerns based on the design	In this section the mitigation measures will be considered on the design in the masterplan layout.

Operational Phase	
Extreme Rainfall, Flash Flood	Mitigation measure will consider changes / flexibility in construction / operations that allow for rising water levels and groundwater levels based on the masterplan design.
	Mitigation measure will consider design of provide adequate surface water drainage during construction phase based on the masterplan design.
Storms and Winds	Mitigation measure will ensure design can withstand increases in high winds and storms based on the masterplan design.
Heat	Mitigation measure will ensure building design for ventilation and cooling based on the masterplan design.
	Mitigation measure will ensure design of outdoor spaces to reduce urban heat island effect based on the masterplan design.
Drought	Mitigation measure will ensure design for droughts emergency based on the masterplan design.
Other concerns based on the design	In this section the mitigation measures will be considered on the design in the masterplan layout.

3.6 Noise

Chapter 9 of the EIAR provides an assessment of the likely noise and vibration impacts associated with the proposed development, and has been undertaken by SLR Consulting Ltd.

A baseline sound survey was completed on the 24th and 25th of June 2019 and the 20th and 21st of September 2020, at the four locations shown on Figure 3-1.

Fig. 3.1 - Noise Survey Locations

At Locations 1 and 2 the survey was completed in order to determine noise levels incident upon the Site from the adjacent road network and in particular noise from the N6.

In addition to the three-hour daytime measurement, at Location 1 a 60-minute measurement was completed between 06:00 and 07:00. The purpose of this survey was to obtain the L_{Amax} level from the adjacent road network during the night-time incident upon the Site.

The levels measured at Location 3 were to determine the noise impact of the adjacent school on the proposed development.

At Location 4 a one-hour measurement was undertaken during a Sunday daytime period and a Sunday night-time period. These levels were to determine the prevailing background (L_{A90}) sound levels at the existing and proposed residential properties located in the centre and the south of the development for use in the operational plant assessment.

3.6.1 Potential Construction and Operational Phase Impacts

At construction stage, the assessment finds that it is inevitable with any project of this nature that some disturbance would be caused to those living and working nearby during the works should appropriate mitigation not be employed. However, disruption due to construction is a localised phenomenon and is temporary and intermittent in nature.

The assessment assumes five phases of construction:

- Phase 1: Site Clearance and Enabling Works.
- Phase 2: Road Construction.
- Phase 3: Groundworks.
- Phase 4: Substructure Works.
- Phase 5: Superstructure Works.

During phases 1, 2 and 3, it has been assumed that most of the plant will be operating at ground level. During phases 4 and 5, superstructure works, some plant will be operating at increased heights.

- At the existing school there would be, at worst, a major effect due to the noise generated by construction operations;
- At the properties located on Bothar Bhreamhaine, there would be, at worst, a major effect due to the noise generated by construction operations;
- At the properties located on Brawney Drive/Square, there would be, at worst, a major effect due to the noise generated by construction operations;
- At the properties located on Lana Na Smear, there would be a negligible effect due to the noise generated by construction operations;
- At the properties located on Cuirt Chlluan Broc, there would be, at worst, a minor effect due to the noise generated by construction operations;
- At the properties located on Arda Auburn, there would be, at worst, a moderate effect due to the noise generated by construction operations;
- At the properties located on Ceide an Chatuin, there would be, at worst, a major effect due to the noise generated by construction operations; and
- At the bungalow located to the east of phase 3 there would be, at worst, a major effect due to the noise generated by construction operations.

In terms of vibration, it is inevitable with any project of this nature that some disturbance would be caused to those living and working nearby during the works should appropriate mitigation not be employed. However, disruption due to construction is a localised phenomenon and is temporary and intermittent in nature.

In order to determine the impacts at operational stage, and to determine the daytime and the night-time ambient noise environment across the Site, SLR has developed a noise model of the site using the noise modelling software package CadnaA. The ambient noise survey results collected at each location have been used to calibrate the noise model which contains the existing site contours. The model has been adjusted to ensure that the predicted ambient noise level at each location matches the surveyed daytime and night-time ambient noise levels measured.

3.6.2 Mitigation Measures

Construction Phase:

It is recommended that the precise mitigation measures to control noise from the works are agreed with the local authority prior to the works starting. The adoption of Best Practicable Means, as defined in the Control of Pollution Act 1974, is usually the most effective means of controlling noise from sites. Within the constraints of efficient site operations and the requirements of the relevant British Standards, the following is advisable:

- limit the use of particularly noise plant, i.e. do not use particularly noisy plant early in the morning;
- limit the number of plant items in use at any one time;
- plant maintenance operations should be undertaken as far away from noise-sensitive receptors as possible;
- phasing the works to maximise the benefit from perimeter structures;
- any compressors brought on to site should be silenced or sound reduced models fitted with acoustic enclosures
- reduce the speed of vehicle movements;
- all pneumatic tools should be fitted with silencers or mufflers;
- ensure that operations are designed to be undertaken with any directional noise emissions pointing away from noise-sensitive receptors where practicable;
- when replacing older plant, ensure that the quietest plant available is considered wherever possible; any deliveries/spoil removal vehicles should be programmed to arrive and depart during daytime hours only.
- drop heights must be minimised when loading vehicles with rubble.
- care should be taken when loading vehicles to minimise disturbance to local residents. Vehicles should be prohibited from waiting within the site with their engines running;
- all plant items should be properly maintained and operated according to the manufacturers' recommendations in such a manner as to avoid causing excessive noise. All plant should be sited so that the noise impact at nearby noise-sensitive properties is minimised
- local hoarding, screens or barriers should be erected as necessary to shield particularly noisy activities; and
- any problems concerning noise from construction works can sometimes be avoided by taking a considerate and neighbourly approach to relations with local residents. Works should not be undertaken outside of the hours agreed with the local authority.

Experience from other sites has shown that by implementing these measures, typical noise levels from construction works can be reduced by 5dB(A) or more. It is recommended that a Construction Environmental Management Plan ('CEMP') is drafted and implemented during the construction phase.

The CEMP would include input from the Local Planning Authority (LPA) regarding the levels of noise acceptable at the boundaries which may require a programme of noise monitoring at the start of each phase or for the entirety construction programme, it is envisaged that this noise monitoring scheme would be agreed in writing with LPA prior to the commencement of the construction works.

Operational Phase:

The external amenity space noise assessment has shown that in a number of the areas of the site moderate and high impacts have been predicted, therefore mitigation measures are considered necessary.

The installation of acoustic barriers around the relevant amenity areas would reduce the noise levels within the outdoor amenity spaces. Assuming the recommended barriers have been correctly installed there would be Negligible or Minor impacts in majority of the external amenity spaces.

It should be noted that from studying Google Earth images of the site it has been determined that barriers are located around the amenity area of the existing properties located close to the N6.

From an analysis of the available daytime and night-time ambient noise level predictions the highest glazing specification is required to meet the night-time maximum noise limit of 45dB(A) in a habitable room. The glazing requirements on each floor, of each proposed building to meet the internal limits, outlined below:

- An internal ambient daytime limit of 35dB(A) for living rooms; and
- An internal night-time maximum limit of 45dB(A) for bedrooms.

The night-time ambient glazing requirements have not been considered as the glazing requirements associated with the maximum noise levels are greater.

3.7 Material Assets: Built Services

This chapter of the EIAR was prepared by Tracy Armstrong, BA, MRUP, Dip EIA/SEA Mgmt, MIPI, MRTPI, Director of Delphi Design and assesses and evaluates the likely impact of the proposed development on existing surface water and foul drainage, and utility services in the vicinity of the site during both the construction and operational phases, as well as identifying the nature of any impacts and provide the necessary mitigation measures arising from the proposed development. The material assets considered in this chapter include Surface Water Drainage, Foul Drainage, Water Supply, Power, Gas and Telecommunications.

3.7.1 Potential Construction and Operational Phase Impacts

Construction Phase

Power and water would be required during construction activities and servicing of the temporary site compound. The development site would be connected to the local electricity grid network system and mains water supply. Given the scale and transient nature of construction works, the power and water demand on the local electricity and mains water systems would not be considered significant and would not be anticipated to impact upon local power or water supply.

Telecommunications requirements during the construction phase would be provided using mobile phones / broadband. There would be no anticipated impacts to the local telecommunications system.

Foul water from staff welfare facilities generated during the construction phase would be collected on site in designated waste holding containers / port-a-loo units and emptied on a regular basis by a licenced waste contractor.

The construction works contractor would liaise with the relevant utilities provider prior to works commencing, with ongoing consultation throughout the proposed development. Where new services would be required, the construction works contractor would apply to the relevant utility provider and adhere to the requirements outlined in the connection permit / licence.

Operational Phase

Potential operational phase impacts on the water infrastructure are:

- Accidental hydrocarbon leaks and subsequent discharge into piped surface water drainage network (e.g. along roads and in driveway areas);
- Increased impermeable surface area will reduce local ground water recharge and potentially increase surface water runoff (if not attenuated to greenfield runoff rate);
- Increased discharge to foul drainage network (Daily Foul Discharge Volume = approx. 2134m³);
- Increased potable water consumption (Average Daily Domestic Demand = approx. 248.5m³).

Implementation of the mitigation measures described will prevent and minimize the potential impacts of this interaction.

3.7.2 Mitigation Measures

The construction works contractor shall liaise with the relevant utilities provider prior to works commencing, with on-going consultation throughout the proposed development. Where new services would be required, the construction works contractor shall apply to the relevant utility provider and adhere to the requirements outlined in the connection permit / licence.

The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services unless this has been agreed in advance with the relevant service provider.

All works in the vicinity of utilities apparatus will be carried out in ongoing consultation with the relevant utility company or local authority and will be in compliance with any requirements or guidelines they may have.

Where new services or diversions to existing services are proposed, the Contractor will apply to the relevant utility company for a connection permit where appropriate, and will adhere to their requirements.

Mitigation measures proposed in relation to the drainage and water infrastructure include the following:

A detailed *"Construction Management Plan"* will be developed and implemented during the construction phase. Site inductions will include reference to the procedures and best practice as outlined in the "Construction Management Plan".

Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.

In the event of groundwater being encountered during the construction phase, mitigation measures will include dewatering by pumping to an appropriate treatment facility prior to discharge. Other measures

would include excluding contaminating materials such as fuels and hydrocarbons from sensitive parts of the site i.e. highly vulnerable groundwater areas.

In order to reduce the risk of defective or leaking sewers, all new sewers should be laid in accordance with Irish Water standards, pressure tested and CCTV surveyed to ascertain any possible defects.

The construction compound will include adequate staff welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the construction compound will be removed off site to a licensed facility until a connection to the public foul drainage network has been established.

The construction compound's potable water supply shall be protected from contamination by any construction activities or materials.

Connections to the existing gas and telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors.

For the operational stage of the proposed development, the mitigation measures would include:

Water conservation methods such as the use of low flush toilets and low flow taps should be incorporated into dwellings to reduce water volumes and related treatment and abstraction costs of the development.

Similarly, water conservation methods would reduce the loading on the foul sewer network. As part of the development, a number of different SuDS measures are proposed to minimise the impact on water quality and quantity of the runoff and maximise the amenity and biodiversity opportunities within the site.

The proposed SuDS measures will include a combination of Source Control, Site Control and Regional Control measures as part of a Management Train whereby the surface water is managed locally in small sub-catchments rather than being conveyed to and managed in large systems further down the catchment. The combination of the SuDS measures will maximise the potential for surface water infiltration to the subsoil, reducing the impact on the existing surface water drainage network. The proposed techniques will offer a high level of treatment processes and nutrient removal of the turnoff, particularly during the "first flush".

On completion of the construction phase no further mitigation measures are proposed in relation to the electrical, gas and telecommunications infrastructure.

The proposed development is located within an area designated for the type of development proposed. As such the services pertaining to the development are required to facilitate the proposed scheme. It is not possible to not provide the services required. Notwithstanding this, the potable water, foul and stormwater services have all been designed in accordance with the requirements of the various stake holders, notable Irish Water for the foul potable water utilities and Westmeath County Council for the surface water services.

ESB have been engaged at an early stage to ensure an potential issues with utility connections are reviewed and mitigated as early in the process as possible. ESB will not engage with design process until such time as planning has been approved and scheme name and numbering is approved.

The proximity to the existing ESB sub-station at Brawny ensures access to the network which avoids the need for extensive network upgrades and infrastructure. In addition, 6 no. sub-stations are proposed as part of the current application.

3.8 Material Assets: Transportation

This chapter of the EIAR has been prepared by Thomas Jennings of DBFL Consulting Engineers assesses and evaluates the likely impact of the proposed development on the existing transportation system in the vicinity of the site, as well as identifying proposed mitigation measures to minimise any identified impacts arising from the development at Lissywollen, Athlone, Westmeath.

3.8.1 Existing Transport Infrastructure

The main arterial road in vicinity of the subject sites are R915 west of the subject site, which links the site to Athlone town centre, in addition to N6 and N55, and R916 east of the subject site that links the site to N6, N55 and N62. The proposed development site will be accessed via Brawney Road which forms a roundabout junction with the R915, N55 and One Mile Round west of the development site. Brawney Road is approximately 6m wide two-way single lane carriageway with a 50kph speed limit. The subject site will be also access Garrycastle roundabout (on R916) east of the development site. The subject site can be easily accessed by road from a number of directions including:

(i) From the North via N55;
(ii) From the south via N62; and
(iii) From the east and west via N6/M6

In the immediate vicinity of the site, pedestrians benefit from good quality footways and speed calming measures along the Brawney Road which provides access to the subject development site, whilst other surrounding streets have footways provided on both sides of the carriageway. Dedicated pedestrian crossing facilities and footways are provided on all approaches to the Brawney Road / R915 / N55 / One Mile Round roundabout junction, as located at the western extent of Brawney Road. Pedestrians can also benefit from the Old Rail Trail Greenway which is located to the south of the proposed development lands and operates in and East-West direction adjacent to the disused rail line.

In terms of existing cycling facilities surrounding the site, cyclists benefit from sharing road surface with other road users along the Brawney Road. Cycle facilities are provided on all approaches to the Brawney Road / R915 / N55 / One Mile Round roundabout junction located west of the subject site and Garrycastle roundabout with the site access and R916 east of the subject site. Cyclists also benefit from the Old Rail Trail Greenway which is located to the south of the proposed development.

The site is highly accessible by Bus as Bus Eireann operates 2 no. town services (A1 and A2) between Monksland and Greggan but along different routes. Both services are within walking distance of the subject site with the nearest interchanges located approximately 600m (A2) and 750m (A1) from the development site. Furthermore, 3 no. 'local link' services are accessible at Athlone Institute of Technology as located approximately 1.6km from the subject site. These 'local link' services provide access to destinations including Moate, Roscrea, Shannonbridge, Pollagh and Kilcormac. Also, three no. regional bus services serve Athlone including Bus Eireann services 70 and 73 which is accessible at Athlone Bus Station (2km from subject site) and Citylink service 763 as accessible at AIT (1.6km from subject site). Bus Eireann route 70 operates between Galway and Dundalk whilst route 73 operates between Waterford / Carlow and Longford. The Citylink 763 service operates between Galway and Dublin Airport.

The proposed development site also has excellent links to the Railway Line, with the closest stop (Athlone Train station) being located approximately 2km from the subject site via the R915 (by all modes) and 1.4km away via the Old rail Trail Greenway (pedestrian / cyclists). The railway line provides excellent linkages to major national destinations including Dublin Heuston, Galway, Westport, Ballina and local stations en-route.

3.8.2 Proposed Transport Infrastructure

It is an objective of the Athlone Town Development Plan 2014-2020 (O-WC16) *"To provide a walking/cycling route from the Athlone Mullingar railway line in Athlone, to the River Shannon, via a new bridge over the Shannon to the west bank and onwards to the Roscommon County boundary, with the potential to connect to Athlone Castle and southwards around the town".*

The Westmeath County Council proposed extension of the Old Rail Trail Greenway as far as the River Shannon is expected to be operational within the next 12 months (i.e. by August 2020). The future pedestrian / cycle bridge over the River Shannon within the next 3-4 years (funded by the NTA).

Another objective of the Development Plan is *"To provide north-south pedestrian and cycle linkages between Curragh-Lissywollen and Lissywollen South/Retreat, to overcome barriers to access and movement created by the N6 and rail lines".*

The subject development proposals include 6 no. new formal cycle / pedestrian access points between the masterplan lands and the adjoining Old Rail Trail Greenway to the south of the development site, subsequently ensuring excellent cycle / pedestrian accessibility. The proposals also include dedicated pedestrian/cycle paths throughout the development site with TOUCAN controlled crossing along the new east-west spine road (Lissywollen Avenue) each located on key pedestrian / cycle travel desire routes.

The Development Plan highlights the potential for the reopening of the rail link between Athlone and Mullingar and acknowledges that *"would serve to further strengthen public transport interconnectivity by connecting the Galway/Mayo rail line with the Sligo rail line and potentially provide an additional line option for the Galway-Dublin service. This would also facilitate greater accessibility to Athlone and connectivity within the county and also on a national level providing improved cross linkages, with services to the two main stations in the capital and enabling increases on the Galway Dublin rail line. The Councils are committed to supporting and facilitating the re-opening of the Athlone to Mullingar rail line".*

Bus services are considered a *"key player in offering an alternative to the private car"* within the Development Plan. The provision of a Quality Bus Corridor (QBC) is considered to be a possibility within Athlone Town in the future. The subject scheme layout has been designed to facilitate the existing local bus route A2 to extend eastwards into the subject development lands beyond its existing extents at Athlone Regional Sports Centre.

A new link road is proposed to the east of Athlone Town known as the Loughandonning Link Road and will provide a local road link between The Creggan LAP lands and Athlone Town Centre. The Westmeath County Council proposed North / South link between Brawney Road and Retreat Road, once implemented sometime in the future, will *"give priority to buses, cyclists and pedestrians and shall be sited so as not to adversely impact upon the landscape setting of the Marist School".*

3.8.3 Potential Construction and Operational Phase Impacts

Construction Phase

Construction traffic will only be generated on weekdays (07:00-19:00 subject to planning conditions) and will consist of the following two principal categories:

- Private vehicles owned and driven by site construction staff and by full time supervisory staff.
- Excavation plant, dumper trucks and delivery vehicles involved in site development works and material delivery vehicles for the following: granular fill materials, concrete pipes, manholes, reinforcement steel, ready-mix concrete and mortar, concrete blocks, miscellaneous building materials, etc.

On-site employees will generally arrive before 08:00, thus avoiding the morning peak hour traffic. These employees will generally depart after 17:00. It should be noted that a large proportion of construction workers are anticipated to arrive in shared transport. Considering the sensitivity of the site, opportunities for remote off-site compound parking will be explored. Deliveries will be actively controlled and subsequently arrive at a dispersed rate during the course of the working day.

Based upon the experience of similar developments, a development of this type and scale would at a maximum necessitate approximately 20 staff on site at any one time, subsequently generating no more than 15 two-way vehicle trips during the peak AM and PM periods over the period of the phased construction works.

It is anticipated that the proposed development would be constructed over a period of approximately 5 years. Following the completion of the initial site clearance works, the generation of HGV movements during the build period will be evenly spread throughout the day and as such will not impact significantly during the peak traffic periods. For this scale of development, we do not expect HGV vehicle movements to exceed 4 vehicles per hour during the busiest period of construction '*build*' works.

Based on a preliminary review of the existing survey data and proposed site levels, we estimate that approximately 42,000m³ of material will require excavation consisting of 18,000m³ stripped topsoil and 24,000m³ excavated subsoil as part of the scheme proposals. All topsoil and subsoil materials will be re-used as part of the permanent works.

It is estimated that a total of 60,000m³ of fill materials are required. A total of 42,000m³ excavation topsoil/subsoil materials will be re-used as fill materials. As a result, a total of 18,000m³ materials are required to be imported to the subject site. The estimated 18,000m³ equates to between 2,069 and 2,308 truckloads depending upon vehicle characteristics. At 3 loads per hour and 10 hours per day this equates to 69 days of arriving fill materials as part of the adopted worst-case assessment to import the estimated quantum of materials. Considering the programme and volume of this importation , the effect on the local road network is considered negligible.

An appropriate control and routing strategy for HGVs can also be implemented for the duration of site works as part of the Construction Traffic Management Plan (CTMP). It is not proposed to utilise any roads with weight/height restrictions as part of the routing of HGVs during the construction phase. HGVs will be directed to use Brawney Road when accessing/egressing the site from the wider strategic network.

A significant benefit of the subject development site's characteristics is that all construction traffic vehicle parking demands can be accommodated on-site thereby minimising the impact upon the operational performance and safety levels of the adjacent public road network.

Considering the site's proximity to the strategic road network and following the implementation of an appropriately detailed CTMP, it is concluded that construction traffic will not give rise to any significant traffic concerns or impede the operational performance of the local road network and its surrounding junctions.

Operational Phase

Whilst the vast majority of person trips to/from the proposed development will be undertaken by sustainable modes of travel, the specific impact of the subject scheme will be predominantly influenced by the number of additional vehicle movements that the scheme could potentially generate.

It is assumed that 100 houses will be completed and occupied by 2021 whereas the full development will be completed by 2026. Therefore, the Table 3.8.1 below outlines vehicle trip generation during 2021 opening year and 2026+ years.

Lissywollen Development	AM Peak Hour			PM Peak Hour		
	Arr	Dep	Total	Arr	Dep	Total
Vehicle Trips (2021)	17	30	47	35	20	55
Service Traffic (2026&2036)	72	127	198	152	96	249
Total	**72**	**127**	**198**	**152**	**96**	**249**

Table 3.1: Proposed Development Vehicle Trips

The TII document '*Guidelines for Traffic Impact Assessments*' states that the impact of any specific development upon the local road network is considered material when the level of traffic it generates surpasses 10% and 5% on normal and congested networks respectively. When such levels of impact are generated a more detailed assessment should be undertaken to ascertain the specific impact upon the networks operational performance. An assessment was therefore undertaken for the relevant links surrounding the site, to determine the percentage level of impact generated by the proposed development, which is presented in Table 11.3 of the EIAR (Volume II).

It was determined that with the exception of the R916 / Moydrum Road Roundabout, the proposals will generate a subthreshold (under 5%) impact upon all off-site junctions during the AM and PM peak hours in each of the three adopted design years, i.e. 2021, 2026 and 2036 (e.g. Opening Year plus 5 &15 years). The AM and PM peak hour impact recorded at the R916 / Moydrum Road Roundabout are over the 5% threshold for congested networks with 8.59% and 8.81% respectfully in the 2036 Future Design Year. Accordingly, this junction and junction 3 due to proximity to the subject site have been further analysed.

3.8.4 Mitigation Measures

Construction Phase

An Outline Construction Management Plan will be prepared as part of the planning application with an associated Construction Traffic Management Plan (CTMP) which will incorporate a range of integrated control measures and associated management activities with the objective of minimising the construction activities associated with the development. The following initiatives will be implemented to avoid, minimise and/or mitigate against the anticipated construction period impacts:

- During the pre-construction phase, the site will be securely fenced off from adjacent properties, public footpaths and roads;
- Appropriate on-site parking and compound area will be provided to prevent overflow onto the local network;
- It is likely that some numbers of the construction team will be brought to/from the site in vans/minibuses, which will serve to reduce the trip generation potential;
- Delivery vehicles to and from the site will be spread across the course of the working day, therefore, the number of HGVs travelling during the peak hours will be relatively low;
- Truck wheel washes will be installed at construction entrances and any specific recommendations with regard to construction traffic management made by Westmeath County Council will be adhered to;
- Potential localised traffic disruptions during the construction phase will be mitigated through the implementation of industry standard traffic management measures. These traffic management measures shall be designed and implemented in accordance with the Department of Transport's Traffic Signs Manual "*Chapter 8 Temporary Traffic Measures and Signs for Roadworks*" and "*Guidance for the Control and Management of Traffic at Roads Works – 2nd Edition*" (2010); and
- Site entrance point/s from the public highway will be constructed with a bound, durable surface capable of withstanding heavy loads and with a sealed joint between the access and public highway. This durable bound surface will be constructed for a distance of 10m from the public highway.
- Material storage zone will be established in the compound area and will include material recycling areas and facilities;
- 'Way finding' signage will be provided to route staff / deliveries into the site and to designated compound / construction areas;
- Dedicated construction haul routes will be identified and agreed with Westmeath County Council prior to commencement of activities on-site; and
- On completion of the works, all construction materials, debris, temporary hardstands etc. form the site compound will be removed off-site and the site compound area reinstated in full on completion of the works.

During the construction stage, the following monitoring exercises are proposed:

- Compliance with construction vehicle routing practices;
- Compliance with construction vehicle parking practices;
- Internal and external road conditions; and

Timing of construction activities.

Operational Phase

A package of integrated mitigation measures has been identified to off-set the additional local demand that the proposed residential development at the subject site could potentially generate as a result of the forecast increase in vehicle movements by residents of the scheme. The identified measures and associated timescale for their implementation are summarised below:

Management – A Mobility Management (MMP) has been compiled by DBFL with the aim of guiding the delivery and management of coordinated initiatives by the scheme promotor to be implemented upon occupation of the site, and is submitted as a separate document as part of the subject SHD planning application. The MMP will ultimately seek to encourage sustainable travel practices for all journeys to and from the proposed development.

Car Parking Management Strategy - A management regime will be implemented by the development's management company to control and actively manage the availability of on-site car parking for residents. The signing of a rental agreement for one of the proposed residential apartments will NOT include access to a designated on-site parking space. All potential residents (prior to signing rental agreement) will be notified that the proposed scheme is a 'low car allocation' development with no access (or guarantee thereof) to either (i) the limited on-site residents car parking provision or (ii) apply to Westmeath County Council for a residents parking permit (to park on-street in one of the neighbouring streets). Nevertheless, all residents of the proposed residential apartment scheme will have the opportunity to apply to the on-site management company for both a (i) residents car parking permit (updated weekly, fortnightly, monthly, quarterly or annually) and subsequently access to a dedicated (assigned) on-site basement car parking space or (ii) a visitor's car parking permit for a short period of time. A charge will be applied to obtain a permit with the objective of covering the associated management costs and discouraging long term usage of the car parking space.

Infrastructure – Infrastructure measures identified to reduce reliance of private vehicles include the provision of ample secure cycle parking on site and ensuring a design which promotes permeability for pedestrians and cyclists to, through and from the development. The level of parking provision for the development will also act as a powerful mobility management measure, ensuring against an overprovision of parking and a resultant over reliance on the private vehicle.

The development proposes the provision of dedicated pedestrian footpaths and cycle paths throughout the development site.

Car Sharing – The provision of 2 no. dedicated car share (GoCar) spaces in the basement parking facility for the sole use of the scheme's residents. The availability of these on-site provide a viable alternative to residents owning private vehicles whilst still having access to a car when required.

As part of the MMP process, bi-annual post occupancy surveys are to be carried out in order to determine the success of the measures and initiatives as set out in the proposed MMP document. The information obtained from the monitoring surveys will be used to identify ways in which the MMP measures and initiatives should be taken forward in order to maintain and further encourage sustainable travel characteristics

3.9 Material Assets: Resource and Waste Management

Chapter 13 of the EIAR was prepared by prepared by Tracy Armstrong, BA, MRUP, Dip EIA/SEA Mgmt, MIPI, MRTPI, Director of Delphi Design. The resource and waste management impacts associated with the project assessed including the potential impacts from the construction phase as well as the operational phase of the development. The principle objective of sustainable resource and waste management procedures is to ensure efficient consumption of resources, to promote the minimisation of waste generation and, where this is not possible, to encourage reuse, recycling and recovery of waste to minimise the quantity of waste requiring disposal.

3.9.1 Potential Construction and Operational Phase Impacts

Construction Phase

During the construction phase, materials will be generated from excavation of topsoil and subsoils across the site. This will primarily comprise soil and stones. Project engineers have estimated that there will be approximately 42,000m³ of material will require excavation consisting of 18,000m³ stripped topsoil and 24,000m³ excavated subsoil as part of the scheme proposals. All topsoil and subsoil materials will be re-used as part of the permanent works, such as landscaping and foundations.

The project will generate a range of non-hazardous and hazardous waste materials during construction. Construction activities will inevitably generate quantities of waste where materials are oversupplied, incorrect materials delivered or materials are cut to size on-site. General housekeeping and packaging will also generate waste materials as well as typical municipal wastes generated by construction employees including food waste.

As the project progresses, waste materials will be required to be temporarily stored on site pending collection by a waste contractor. Dedicated areas for waste skips and bins will need to be identified across the site. These areas will need to be easily accessible to waste collection vehicles who it's anticipated will need to collected waste on a near-daily basis during peak construction.

Construction wastes will need to be taken to suitably permitted waste facilities for processing and segregation. There are numerous licensed waste facilities in the region that can accept hazardous and non-hazardous waste materials and acceptance of waste from the proposed development would be in line with daily activities at the facilities. Recovery and recycling of construction waste has a positive impact on sustainable resource consumption, for example where waste timber is mulched into a landscaping product or waste asphalt is recycled for use in new pavements. The use of recycled materials, where suitable, reduces the consumption of natural resources.

There is a quantity of soil and stone which will need to be excavated to facilitate the proposed development. Where possible, this material will be retained on site for reuse but in the event that unsuitable (or contaminated) material is encountered, this will need to be removed off-site. Being a greenfield site it is unlikely that any significant contamination will be identified during the excavation works, however, correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

Reuse of excavated material onsite will reduce consumption of natural quarry resources where infilling is required. Material not suitable for reuse will be deposited at soil recovery facilities/landfills in accordance with the conditions of the licenced facility to ensure there is no negative impact on the soil or groundwater

environment at the facility. The impact of construction waste generated from the project is expected to be slight, negative and short-term. The opportunities for waste materials to be reused off-site will provide positive impacts in the resourcing of materials for other developments and reduce the requirement for raw material extraction.

Operational Phase

The proposed development is planned to accommodate a large number of residents. The presence of residents within the development means the generation of waste materials during the operational phase is an unavoidable impact. Networks of waste collection, treatment, recovery and disposal infrastructure are in place in the region to manage waste efficiently from this type of development. Waste which is not suitable for recycling is typically sent for energy recovery. There are also facilities in the region for segregation of municipal recyclables which is typically exported for conversion in recycled products (e.g. paper mills and glass recycling).

The impact of operational waste generation from the development is expected to be moderate, neutral and permanent.

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3.9.2 Mitigation:

Construction Phase

A Construction & Demolition Waste management Plan (C&DWMP) has been prepared in line with the requirements of the guidance document issued by the DEHLG. Adherence to the high level strategy presented in this C&DWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the construction phase of the project.

The enclosed Outline / Preliminary CMP sets out the overall project construction strategy and identifies the need for storage areas for waste skips. Prior to commencement of construction, the contractor(s) will be required to ensure that both of these documents detail specific measures to minimise waste generation and resource consumption. It is estimated that all of the excavated material generated is expected to be suitable for reuse within the proposed development. This will be required to be investigated and verified by the contractor(s) subject to appropriate testing to ensure the material is suitable for its proposed end use. If for some reason excavation material cannot be reused within the site, the contractor(s) will endeavour to ensure that material is reused or recovered off-site insofar as is reasonably practicable.

In addition, the following mitigation measures will be implemented:

- Building materials will be chosen with an aim to ‘design out waste’;

- Maximum segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling and recovery – it is anticipated that the following waste types, at a minimum, will be segregated:
  - Concrete rubble (including ceramics, tiles and bricks);
  - Plasterboard;
  - Metals;
  - Glass; and
  - Timber.

- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated;

- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site. The waste storage area(s) will be assigned and all construction staff provided with training regarding the waste management procedures on commencement of the project;

- Left over materials (e.g. timber off-cuts, broken concrete blocks/bricks) and any suitable construction materials shall be re-used on-site where possible;
- A waste manager will be appointed by the main contractor(s) to ensure effective management of waste during the excavation and construction works;

- All waste leaving site will be reused, recycled or recovered where possible to avoid material designated for disposal;

- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably
- registered, permitted or licenced facilities; and

- All waste leaving the site will be recorded and copies of relevant documentation maintained.

Operational Phase

A Waste Management Plan will be prepared and submitted to the Planning Authority for agreement prior to commencement of development, to outline the strategy for management of waste from the operational phase of the proposed development. A strategy and the estimates of waste generation have been used to identify storage and equipment requirements for residential waste, which has been incorporated into the development design.

In addition the following mitigation measures will be implemented:

- On-site segregation of all waste materials into appropriate categories including (but not limited to):
  - Dry Mixed Recyclables;
  - Organic/catering waste (including garden waste from landscaping activities).
  - Mixed Non-Recyclable Waste;
  - Glass;
  - Textiles;
  - Batteries (non-hazardous and hazardous)
  - Waste electrical and electronic equipment (WEEE) including computers, printers and other ICT equipment;
  - Cleaning chemicals (solvents, pesticides, paints, adhesives, resins, detergents, etc.); and
  - Fluorescent bulb tubes and other mercury containing waste (if arising).

- All waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials;

- All waste collected from the development will be reused, recycled or recovered where possible, with the exception of those waste streams where appropriate facilities are currently not available;

- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

These mitigation measures will ensure the waste arising from the development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations, the Litter Pollution Act 1997 and the EMR Waste Management Plan (2015 - 2021). It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.

3.10 Archaeology and Cultural Heritage

John Purcell Archaeological Consultancy undertook Chapter 13 of the EIAR which assesses the impact of the development on the Cultural Heritage of the site and its environs. The report includes a desktop study and a site inspection. The desktop section of the report was compiled using: The Records of Monuments and Places; buildings of Ireland, Excavations Bulletin; historic maps; aerial photographs; place names and historic books and journals.

Field walking and archaeological testing was undertaken in July 2019. John Purcell Archaeological Consultancy undertook this chapter and archaeological testing at the site. This was undertaken under licence to the D.C.H.G. (Licence number 19E0330).

Field walking and archaeological testing was undertaken in July 2019. This did not reveal any surface remains or sub surface remains of unrecorded archaeological monuments. A series of 17 test trenches were excavated across the site, these were excavated to the natural boulder clay. No features or finds indicative of archaeological remains were recorded.

The proposed development will have no impact on the archaeological landscape or on any recorded monuments. No recorded monuments exist in the environs of the site and none will be affected by its development. The closest monuments are 50m and 60m to the south. The visual amenity of the wider cultural heritage landscape will be unaffected by the proposed development due to the existence of mature hedgerows surrounding the area and the low visibility of the site in the wider landscape.

The site does not include any archaeological remains and none were recorded during field walking or archaeological testing. The potential for remains to exist within the site are not significant.

The study area does not include any upstanding structures and is not adjacent to any structures listed in the Buildings of Ireland website. Jabla House is located 450m to the southwest and is the closest listed site. No impact on this structure is predicted during the construction or operational phase of the development.

3.10.1 Potential Construction and Operational Phase Impacts

Archaeological testing has already been undertake at the site. No remains were identified within the site and no registered monuments are located in its vicinity. As a result there are no pre construction measures required.

Land improvements works have taken place at the site in the form of hedgerow removals and drainage works. Archaeological testing has been undertaken and no remains were identified. No registered monuments are located within the area. As a result the impact on the cultural heritage landscape is not significant.

No operational impacts are predicted upon the cultural heritage resource. The development will not be visible from any of the recorded archaeological monuments or listed architectural remains.

The proposed development is surrounded by mature hedgerows that will be maintained as part of the development. The Athlone railway green line forms the southern boundary of the site, this is delineated by mature trees and removes any visual impact of the development on the identified remains closest to the study area.

3.10.2 Mitigation

There are no further mitigation required at construction stage and no mitigation strategies are required for the operational stage.

3.11 The Landscape

This Landscape and Visual Impact Assessment (hereafter LVIA), prepared by Ronan MacDiarmada & Associates Ltd (RMDA), was informed by a desktop study, and a survey of the site and receiving environment in June 2020. The assessment is in accordance with the methodology prescribed in the Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA) published by the UK Landscape Institute and the Institute for Environmental Management and Assessment.

This report identifies and discusses the landscape and visual constraints effects in relation to the proposed development at Lissywollen South, Athlone, Co. Westmeath. RMDA has been commissioned by the applicant, Alanna Roadbridge Developments Ltd,. to prepare a Landscape and Visual Impact Assessment to accompany a Strategic Housing Development (SHD) planning application on a site measuring circa 17.64 hectares within the lands designated for the Lissywollen South Framework Plan 2018-2024 at Lissywollen, Athlone, County Westmeath. The site is bisected by the existing Brawny residential estate and bounded to the north by the N6, Athlone Relief Road, to the south by the Old Rail Trial Greenway, to the west by Scoil na gCeithre Máistrí and to the east by undeveloped lands, further east of which are the ESB Regional Headquarters.

The Lissywollen lands (of which the current proposal forms part) comprises some 78 hectares of lands located east of Athlone Town. The lands are located between the N6 National Primary Route to the north, with existing suburban and other development to the south east and west, as well as the Old Rail Trail Greenway abutting the southern boundary of the subject site.

Fig. 3.2 - General Site Location and Study Area Outlined in Red

To the west, is a leisure and amenity hub comprising Athlone Town Football Club's ground and Leisure Centre. Towards the centre of the lands is the existing Brawny housing development which is a well-established housing development. East of Brawny, the lands are made up of a number of fields bounded by hedgerows of varying condition. The boundary with the Old Rail Trail comprises good quality hedgerows on both sides of the trail. The eastern extents of the lands terminate at Garrycastle and the proposed Lissywollen Avenue links to the existing road network at this location where an ESB depot and convenience store are located.

The subject development is bounded by an existing lane, known locally as Blackberry Lane. Lands east of Blackberry Lane are earmarked for other commercial and education uses in the Lissywollen South Framework Plan. A derelict house is also located on this lane (outside the current study area / application site).

The proposed development site is approximately 17.64 hectares, the subject lands were originally used for agricultural purposes. However, at present it is unkempt with the hedgerows encroaching onto the open spaces, rubbish and litter in the hedgerows, deposits of spoil and other material in the open spaces and horses roaming the area.

It is located adjacent to the existing Brawny residential estate, bounded to the north by the N6, Athlone Relief Road, to the south by the Old Rail Trial Greenway, to the west by Scoil na gCeithre Máistrí and to the east by undeveloped lands, further east of which are the ESB Regional Headquarters.

Athlone town is an area characterised by expanding developments on the banks of the River Shannon. Most of the town's development lies on the east bank of the river with a variety of amenities. There are many hotels, shops, public houses, sports facilities, and housing developments surrounding the subject lands.

There are several amenities in the area, Athlone Town Centre Golden Island Shopping Centre, Athlone IT, River Shannon, Athlone GAA Club, Athlone Town Football Club, golf courses, and Lough Ree. The town of Athlone is expanding to the east along the N6, Athlone Relief Road. The development is located close to the centre of the county 89km east of Galway City and 119km west of Dublin City.

Situated east of the Town Centre, the subject lands are relatively flat with the level of the lands between 42m and 45m OD above sea level. The lands in question are considerably screened from both the north and south by existing hedgerows and trees that are being retained.

3.11.1 Potential Construction and Operational Phase Impacts

Construction Phase

During the construction of the development, the area shall be changed from a field to a housing development. The introduction of the built structures, driveways boundaries and landscape will be carried out while maintaining the existing hedge and trees along the centre of the site. Tree protection measures shall be provided to retain the character of the existing trees and hedgerows.

The development shall be carried out in an organised basis, thus reducing the visual impact upon the environment; however, the impact on the initial area of construction shall be moderate to significant.

The retention of the hedgerows surrounding the site combined with maintaining of the most significant hedgerow in the centre of the site shall reduce the visual impact of the proposal during construction.

As the development increases and phasing continues, the improvement in terms of landscape elements, trees etc., growth shall reduce the visual impact and in the long term be positive, as other developments and Athlone town grows to meet this area.

The greatest impact shall be the views through the site as they will become determined by the existing landscape elements of residential units, walls, trees and hedges which will be augmented by the introduction of new trees and planting. The predicted impact during construction shall be moderate in the short term depending on the length of time on site.

Operational Phase

Initially, on completion of the development, the introduced shrubs will be at early stages of establishment and the trees shall be semi-mature at planting. As time progresses the plants and trees will grow and stabilise in their new environment creating better defined avenues and spaces.

The number and quality of landscape elements shall be an addition to the built environment of Lissywollen providing quality amenity for the residents.

The extensive development of the external spaces shall provide an improvement on the existing landscape. The ordered design shall be visually positive and long term. The visual impact on the surrounding landscape shall be slight and moderate in the short term and with maturity of the trees, hedges and plants it shall be neutral to positive in the long term.

Potential Visual Impact

The proposed development respects the natural attributes of the site, retaining the existing hedgerows, notably the hedgerows surrounding the site. This hedgerow shall form an important visual barrier to the surrounding roads, so the development sits into the landscape.

The existing trees and hedgerows shall be retained to the boundaries as much as possible. Any hedgerows being removed are to facilitate both roads and residential units but the loss of these will be offset with native hedgerow species, a range of semi mature trees and whips across the site in the open spaces.

In terms of development, this proposal respects the natural hedgerows and trees and provides a Positive impact to the area. There shall be 576 no. dwellings, a community hub and 2 no. crèches within the landscape scheme, both hard and soft, accompanying them to provide a highly developed and coherent design. The proposed buildings and planting shall be clearly identified and developed in an organised manner.

The potential visual impact shall be negative in the short term and shall change to neutral / positive development for the long term, as the newly designed landscape matures and assimilates with eh receiving environs.

The development shall therefore be a maturing site, becoming increasingly knitted to the fabric of the landscape in this area, which in isolation has a suburban feel but increasingly urban to the west.

The retention of existing hedgerows and the planting of trees and shrubs shall mitigate the impact of the buildings providing an organised and well-developed scheme in the landscape. The planting shall provide visual relief and add to the amenity of the current landscape. It shall have a negative impact in the short term on the surrounding landscape.

However, as the development matures over a significant period, the upgrade and improvement of the external spaces shall have a positive impact on the landscape and reduce the visual impact upon the rural feel of the location.

Visual Impacts due to introduction of new structures & buildings

The introduction of the proposed buildings shall be the vertical elements of the proposal. However, existing trees and hedgerows shall reduce the visual impact as it has established vertical elements, i.e. trees. The main visual impact shall be the mass of the proposed structures. The new structures and associated works will reduce the amount of current open space and remove several trees and hedgerows internally.

The proposed development will require little regrading of the site, which will generate limited impacts to the existing topography. In the short term and long term, the visual impact of the development will be moderate, due to the level topography of the site and the proposed extensive landscape development, utilising existing vegetation and proposed new trees and planting.

Visual Impacts due to access road

The internal roads are deliberately designed so that straights and bends are incorporated into them to reduce a visual line to the uses and shall have tree planting either side in order to provide a comfortable human scale to the development.

Internally there shall be one main link road for vehicle access and internally, a series of secondary and tertiary roads to access the dwellings/units and carparking – these shall be heavily planted with semi mature trees and hedges, reducing the impact of the road on the environment. Pedestrian footpaths are offset from the kerb lines where possible to create a planted green verge and become more pedestrian friendly. A palette of different surface materials will also be used to vary the experiences within the development.

Visual Impact of Landscaping Proposals

The landscape proposals shall consist of retention of much of the existing planting, new planting of a variety of tree species, including native trees, being introduced along with shrubs in specified areas. These proposals shall enhance the landscape character of the development. The site will change from an agricultural use to a completed residential development with an associated landscape scheme.

The landscape scheme shall impact on the development in a positive way, working with the landscape through the use of and retention of trees and hedging to create an environment maintaining desirable aspects of the existing landscape and accentuating them through introduction of new elements.

Where existing hedgerows are removed to accommodate the roads and units, new native planting shall be planted to establish a new hedgerow. The development of an augmented hedgerow on the northern boundary will create a stronger visual barrier to the N6 and also add the biodiversity of the scheme while creating an interesting linear open space.

There shall be an increase in the species and varieties of plants, notably trees on the existing landscape which was primarily a monoculture of grass. The landscape proposals shall include for a range of pollinator plants, trees, hedges, and shrub planting. The flowering of these plants shall enable bees to flourish but also increase the texture and colour in the landscape. This shall be a positive and long-term visual impact.

3.11.2 Mitigation

Construction Phase

During the construction of the development, the area shall be changed from agricultural use lands to a residential development with a community hub and 2 no. crèches. The introduction of the built structures, roads, carparking and landscaped open spaces will be carried out while maintaining most of the existing hedges and trees of the site. During construction there will be a change to the landscape and there will be negative visual impacts for residents and visitors to the areas adjacent to the site associated with construction activity.

Tree protection shall be provided to retain the character of the existing trees and hedgerows.

The development shall be carried out in an organised basis, thus reducing the visual impact upon the environment; however, the impact on the initial area of construction shall be moderate to significant. The remedial measures proposed include the implementation of appropriate site management procedures – such as the control of site lighting, storage of materials, placement of compounds, delivery of materials, car parking, etc. Visual impact during the construction phase will be mitigated somewhat through appropriate site management measures and work practices to ensure the site is kept tidy, dust is kept to a minimum, and that public areas are kept free from building material and site rubbish.

Site hoarding will be appropriately scaled, finished and maintained for the period of construction of each section of the works as appropriate. To reduce the potential negative impacts during the construction phase, good site management and housekeeping practices will be adhered to. The visual impact of the site compound, and scaffolding visible during the construction phase are of a temporary to short term nature only and therefore it is expected that this will require no remedial action other than as already stated.

The retention of the hedgerows surrounding the site combined shall reduce the visual impact of the proposal during construction.

As the development increases and phasing continues, the improvement in terms of landscape elements, trees etc., growth shall reduce the visual impact and in the long term be positive, as other developments in the area grow.

The greatest impact shall be the views through the site as they will become determined by the existing landscape elements of trees and hedges. As these are being retained and augmented by the introduction of new trees and planting. The predicted impact during construction shall be moderate in the short term depending on the length of time on site.

Operational Phase

The mitigation measures, including measures taken during the design stage, which have evolved throughout the design process, that have been adopted in the proposed scheme and are detailed in the Landscape Plan, are as follows:

- The retention or replacement of some of the existing landscape structure of field boundaries, where possible, as well as boundary trees and an area of wet woodland to the north-west corner. A large, cohesive area of open space has been provided consistent with that set out in the LAP.

- The architectural layout aims to address visual impacts by proposing variety in scale, massing and elevational treatment of buildings and by creating positive frontage onto the proposed Lissywollen Avenue and the Old Rail Trail Greenway.

- The extensive planting of additional trees and shrubs throughout the site and on the site boundaries in keeping with the wider landscape character, will over time, reduce the visual mass of the buildings, soften the development over time from various viewpoints and assist in integrating the development into the landscape.

- Native and pollinator species (as per The All Ireland Pollinator Plan 2015 – 2020) planting for biodiversity has been incorporated into the scheme and this includes a native tree belt / woodland wetland area, wildflower meadows and semi natural grassland.

- It is proposed that the topsoil from the calcareous grassland to the south of the site is retained, stored appropriately and re-spread and allowed to recolonise naturally to form the semi-natural grassland and meadow areas denoted in the Landscape Plan. This is to retain the existing species on site.

- Several connected public open spaces have been designed as part of an overall design strategy that focuses on creating a distinctive 'sense of place' and individual character for the development area. The design of public open space that forms part of a network of spaces that includes areas for passive and active recreation, social / community interaction and play facilities catering for all ages. This area of open space corresponds to that as indicated in the LSFP.

- The hedgerows that are to be removed shall and reinstated with additional native tree planting and a replacement stone wall re-using existing stone will be provided.

- Connections to the Greenway to the south of the proposed development forms an integral part of the landscape proposals, with formal links and piers to announce the access points.

Application of best practice horticultural methods to ensure that mitigation measures establish and grow appropriately.

Landscape works are proposed to reduce and offset any adverse impacts generated due to the proposed development, where possible. The planting of substantial numbers of new trees and other planting in the open spaces the site boundaries and internal roads, both native and ornamental varieties, will enhance the overall appearance of the new development and compensate for the removal of hedgerows and trees where needed for the construction works, and increase the overall landscape capacity of the site to accommodate development.

4.0 Identification of Significant Impacts / Interactions

Chapter 15 of the EIAR (Volume II) provides detail on the interaction and interdependencies in the existing environment. Delphi Planning, in preparing and co-ordinating this EIAR, ensured that each of the specialist consultants liaised with each other and dealt with the likely interactions between effects predicted as a result of the proposed development during the preparation of the proposals for the subject site and this ensures that mitigation measures are incorporated into the design process.

This approach is considered to meet with the requirements of Part X of the Planning and Development Act 2000, as amended, and Part 10, and schedules 5, 6 and 7 of the Planning and Development Regulations 2001-2018. The detail in relation to interactions between environmental factors is covered in each chapter of the EIAR.

All environmental factors are interlinked to a degree such that interrelationships exist on numerous levels. Interactions within the study area can be one-way interactions, two-way interactions and multiple-phase interactions which can be influenced by the proposed development. As this EIAR document has been prepared by a number of specialist consultants, an important aspect of the EIA process is to ensure that interactions between the various disciplines have been taken into consideration. This chapter of the EIAR was prepared by Tracy Armstrong, BA, MRUP, Dip EIA/SEA Mgmt, MIPI, MRTPI, Director of Delphi Design.

All of the potential significant effects of the proposed development and the measures proposed to mitigate them have been outlined in the preceding chapters of this EIAR. However, for any development with the potential for significant environmental effects, there is also the potential for interaction amongst these potential significant effects. The result of interactive effects may exacerbate the magnitude of the effects or ameliorate them, or have a neutral effect.

The purpose of this requirement of an EIAR is to draw attention to significant interaction and interrelationships in the existing environment. Delphi Design Architects and Planners, 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 and ensuring that appropriate mitigation measures are incorporated into the design process.

Having regard to the approach taken, the aspects of the environment likely to be significantly affected by the proposed development, during both the construction and operational phases, have been considered in detail in the relevant Chapters of this EIAR document. In addition, likely interactions between one topic and another have been discussed, where relevant, by the relevant specialist consultant(s).

The primary interactions can be summarised as follows:

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

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

4.1 Other Impacts

4.1.1 Direct and Indirect Effects Resulting from the Use of Natural Resources

Schedule 6 Item 2(c) of the Planning and Development Regulations, 2001 - 2015 requires that an EIAR contains a description of the likely significant effects (including direct, indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative) of the proposed development on the environment resulting from the use of natural resources. No likely significant effects (including direct, indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative) of the proposed development on the environment are expected to arise from the use of natural resources.

4.1.2 Direct and Indirect Effects Resulting from Emission of Pollutants, Creation of Nuisances and Elimination of Waste

Schedule 6 Item 2(c) of the Planning and Development Regulations, 2001 - 2015 requires that an EIAR contains a description of the likely significant effects (including direct, indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative) of the proposed development on the environment resulting from the emission of pollutants, the creation of nuisances and the elimination of waste. No likely significant effects on the environment are expected to arise from the emission of pollutants, the creation of nuisances or the elimination of waste.

4.2 Residual Impacts and Cumulative Impacts

Residual impacts can be defined as the final impacts that occur after proposed mitigation measures have taken effect. Many of the findings of the EIA have been incorporated into the design of the development and have contributed to the reduction or amelioration of potential impacts. Where residual impacts arise, they are detailed in the relevant chapters and further mitigation measures detailed where necessary.

Cumulative impacts are defined as: *"The addition of many small impacts to create one larger, more significant, impact"* (EPA 2002). Cumulatively, these impacts may be significant if they occur close together in terms of location and time. The cumulative impact of the proposed development is categorised as neutral and moderate.

As outlined in Chapter 3 the EIAR (Volume II), where relevant, the EIAR also takes account of other development(s) within the area. These impacts have been addressed in the relevant chapters of the EIAR.

To determine traffic impacts in Chapter 11, the traffic generated by the proposed development is combined with the baseline traffic generated by the traffic on the road network in the area. The potential traffic impacts from other developments were also considered in the assessment (e.g. primary school - adjacent to the site).

For the noise impact assessment in Chapter 9, the potential noise emissions arising from the proposed development during construction and operation are combined (using cumulative AAWT figures from Traffic chapter) with background noise levels (predominantly road traffic) were assessed.

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

4.3 Environmental Commitments and Mitigation Measures

Mitigation measures to be adopted during the construction and operational phases of the proposed development are detailed within each chapter. These measures should be implemented through planning conditions imposed by the planning authority / An Bord Pleanála.

Mitigation measures will be managed by the contractor(s) as part of the Construction Management Plan and by the developer/ landowners thereafter.

4.4 Conclusion

The EIAR (Volume II) has regard to and builds on the Strategic Environmental Assessment prepared with the Westmeath County Development Plan 2014-2020 and the Strategic Environmental Assessment prepared with the Athlone Town Development Plan 2014-2020.

The EIAR has considered the likely, significant, adverse effects of the proposed project on the receiving environment.

Mitigation measures are included, to avoid and / or reduce impacts on the environment where considered necessary. This includes mitigation measures incorporated into the design of the proposed development.

The EIAR concludes that there are no material or significant environmental issues arising which were not anticipated by both the Westmeath County Development Plan 2014-2020 and the Athlone Town Development Plan 2014-2020 and considered in their Strategic Environmental Assessments.

5.0 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.