ENVIRONMENTAL IMPACT ASSESSMENT REPORT

VOLUME I NON-TECHNICAL SUMMARY

PROPOSED RESIDENTIAL DEVELOPMENT
AT
Belmount, Academy Street, Navan Co. Meath

On behalf of
Coindale Ltd

Prepared by

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November 2019

DOCUMENT CONTROL SHEET

Client:	**Coindale Ltd.**
Project Title:	**Belmount Academy Street, Navan Co. Meath**
Document Title:	**Environmental Impact Assessment Report Volume I**
Document No:	**17160EIARVol1F01**

Rev.	Status	Author(s)	Reviewed By	Approved By	Issue Date
D01	Draft	EIAR TEAM	RK	JS	22-10-2019
F01	FINAL	EIAR TEAM	RK	RK	18-11-2019

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

AA Appropriate Assessment

ABP An Bord Pleanála

CDP County Development Plan

CMP Construction Management Plan

CSO Central Statistics Office

DAHG Department of Arts, Heritage and the Gealtacht

DCENR Department of Communications, Energy and Natural Resources

DEHLG Department of Housing, Planning and Local Government

EIA Environmental Impact Assessment

EIAR Environmental Impact Assessment Report

EMP Environmental Management Plan

EPA Environmental Protection Agency

ESRI Economic and Social Research Institute

FMP Forest Management Plan

GDP Gross Domestic Product

GSI Geology Survey Ireland

IAA Irish Aviation Association

IEEM Institute of Ecology and Environmental Management

IFI Inland Fisheries Ireland

MCC Meath County Council

NHA/pNHA Natural Heritage Area / proposed Natural Heritage Area

NIAH National Archive of Architectural Heritage

NPWS	National Parks and Wildlife Service
NRA	National Roads Authority
NPF	National Planning Framework
OPW	Office of Public Works
RMP	Record of Monuments and Places
RPG	Regional Planning Guidelines
RPS	Record of Protected Structures
SAC	Special Area of Conservation
SMR	Sites and Monuments Record
SPA	Special Protection Area
SHD	Strategic Housing Development
SUDS	Sustainable Drainage System
TMP	Traffic Management Plan
WFD	Water Framework Directive

1.0 INTRODUCTION & METHODOLOGY

1.1 INTRODUCTION

This '*Non-Technical Summary'* (NTS) relates to a strategic housing application to An Bord Pleanála for a proposed residential development of 544 no. dwellings, provision of 3 no. access points to Academy Street, 2 no creches and open space.

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 2 Volume 2 of the EIAR document. The subject lands of. 15.1 hectares are which is bounded generally by Academy Street (and rear of dwellings on Dublin Road) to the east, Limekiln Wood to the west, Limekilnhall to the south and (future school(s) site to the north) on lands (within the townland of Limekilnhill) at Belmount, Academy Street, Navan Co. Meath. Belmount House (a protected structure), is located adjacent to the subject lands. The proposal includes works to the former access road to Belmount House (a protected structure) as well as landscaping works to associated woodland area.

The development will consist of the construction of a residential development of 544 no. dwellings, 2 no. creches and open space as follows:

A) 260 no. houses comprising; 18 no. 2 bedroom houses, 207 no. 3 bedroom houses, 35 no. 4 bedroom houses, [houses are provided with two car parking spaces and solar panels] – House Type F1 & F2, 3 storeys, House Type N8, N8A & N8B – include detached option all other house types 2 storey;

B) 198 no. apartments [with balconies] in 5 no. apartment buildings (Block A - 5 storeys with a 6 storey setback, Block B – 6 storeys, Block C – 5 storeys, fronting onto Academy Street, Block D – 3 and 4 storeys & Block E – 5 storeys along internal access road in northern portion of site) comprising 46 no. 1 bedroom apartments & 152 no. 2 bedroom apartments;

C) 15 no. 2 bedroom duplex apartments [with terraces or balconies] and 15 no. 3 bedroom duplex apartments in 3 no. 3 storey duplex buildings;

D) 8 no. 5 dwelling 3 storey corner blocks [with terraces or balconies] (each comprising, 1 no. 1 bedroom apartment, 1 no. 2 bedroom apartment & 2 no. houses);

E) 2 no. 8 dwelling 3 storey corner blocks (each comprising 4 no. 1 bedroom and 4 no. 2 bedroom units);

F) Provision of 2 no. creches (ground floor of Apartment Building C, approx. 195 sq. m), and a 2 storey creche of c. 443 sq. m beside internal access loop road, ESB kiosks, associated single storey bicycle storage and refuse storage buildings;

G) Provision of open space within the development (including playground areas and communal open space areas); all ancillary landscape works with public lighting, planting and boundary treatments including regrading/re-profiling of site where required as well as provision of footpaths;

H) Access to the subject site will be from 3 no. new junctions onto Academy Street, and a new pedestrian access onto the Dublin Road (R147) at the southern end of the site and includes new signalised junction and improvements on the Dublin Road (R147), as well as 875 no. car parking spaces and 581 no. cycle spaces (northern vehicular access to also facilitate future adjoining school site campus);

I) Surface water and underground attenuation systems as well as all ancillary site development works (reprofiling of site as required) as well as to drainage services;

J) Temporary marketing signage for a period of 3 years (located on Academy Street);

K) All associated site development and landscape works all on a site of c. 15.1 hectares;

1.2 Requirement for EIA (Screening)

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

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

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

The proposed development falls within 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 544 no. dwellings and is greater than 10 hectares. Therefore a mandatory EIA is required.

1.3 Purpose of This EIAR

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

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

1.4 Information to be contained in a non-technical summary

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

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 Meath 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.

1.5 Format and Structure of ThE EIAR

1.5.1 EIAR Structure

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

- Volume I: Non-Technical Summary (this document).
- Volume II: Environmental Impact Assessment Report.
- Volume III: Appendices.

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

1.5.2 EIAR Volume II Structure

The preparation of an EIAR requires the assimilation, co-ordination and presentation of a wide range of relevant information in order to allow for the overall assessment of a proposed development. For clarity and to allow for ease

of presentation and consistency when considering the various elements of the proposed development, a systematic structure is used for the main body of this EIAR document. The structure used in this EIAR document is a "*Grouped Format structure".* This structure examines each environmental topic in a separate chapter of this EIAR document. The structure of the EIAR Volume II document is set out in Table 1.1 below.

Table 1.1 – Structure of this EIAR

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

1.6 Availability of EIAR Doc

A copy of this EIAR document and Non-Technical Summary of the EIAR document is available for purchase at the offices of An Bord Pleanála and Meath 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.BelmountNavanSHD.ie set up by the applicant.

1.7 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.

1.8 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.

1.9 EIAR Study team

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

2.0 PROJECT DESCRIPTION AND ALTERNATIVES EXAMINED

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

The Site Layout Plan (figure 1.1) prepared by CCK Architects shows the overall layout in context.

The proposed development would provide 544 no. residential units, all associated access, car parking, open space, landscaping and 2 no. crèches. A new road branching west from Academy Street will be constructed to provide access to the western part of the site and also the new proposed primary school sites, (of 3.3 hectares), located to the north of the subject lands.

2.1.1 Demolition

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

2.1.2 Residential Development

In summary, the proposed development comprises the construction of 544 no. dwellings consisting of 260 no. houses, 198 no. apartments and 30 no. duplex units as well as 56 no. dwellings in a series of corner apartment buildings.

Table 2.1 – Overall Residential Development Mix

	1 bedroom	2 bedroom	3 bedroom	4 bedroom	Overall	
Houses		18	207	35	260	47.8%
Apartments	46	152			198	36.4%
Duplex Apartments		15	15		30	5.5%
Corner Buildings	16	24	16		56	10.3%
	62	209	238	35	544	
Overall Mix	11.4%	38.4%	43.8%	6.4%		

Source: CCK Schedule

A wide variety of dwelling typologies are included in the proposal, comprising 198 no. apartments in 1, 2 and 3 no. bedroom apartments in 5 no. apartment buildings along with 86 no. duplex units, in a series of buildings dispersed throughout the proposed development. These apartment dwellings comprise c. 52% of the overall mix of units. In addition it is proposed to provide 260 no. 2, 3 and 4 bedroom dwellings 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 fronting Academy Street, 2 storey dwellings (in a back to back arrangement) with Limekiln Wood located to the west, along with duplex dwelling buildings of 3 storeys and 2 no. apartment buildings of 4 storeys located opposite the school site, fronting Access 1 within the scheme layout. In addition, variety is provided with the inclusion of 3 storey corner blocks dispersed through the site. This built form provides variety in the street scape and offers a mix of townhouse style dwellings with apartments above.

2.1.3 Houses

The houses are designed as two and three storey family dwellings, in detached, semi-detached and terrace configurations. Individual plot layouts provide good separation to ensure privacy and minimise overlooking. The end-row and end terrace house types have been used to turn corners, with front doors and windows giving activity and passive supervision to the sides and avoiding large blank gables.

The variety of house types provides for a wide choice to suit all potential occupiers and many household types, as well as permitting a very efficient site layout. The mix of house type in any one row creates visual interest and contribute to the specific character of the development, both overall and in each street.

2.2 Apartments

The apartments will be located in two areas of the site, fronting Academy Street and fronting Access Road 1. 3 no. 6 storey apartment buildings (with setback) will be sited fronting Academy Street, forming a strong urban edge to the street, responding to the established existing built form on the adjacent site (Academy Square). 158 no. units will be accommodated within the 3 no. buildings (Blocks A, B and C) comprising 38 no. 1 bedroom and 120 no. 2 bedroom units.

The apartments are orientated east-west benefitting from morning and evening solar access. The apartments will directly overlook Academy Park and the surface parking area to the rear of the building, ensuring passive surveillance of the neighbourhood.

Figure 2.1 – Block B - Elevation

Source: CCK Architects

In addition, 2 no. 4 storey apartment buildings (Blocks D and E) are provided adjacent to Access Road 1 opposite the proposed school site. 8 no. 1 bedroom and 32 no. 2 bedroom units will be accommodated across the 2 no. buildings, providing 40 no. residential units within the buildings.

Blocks D and E overlook a communal open space area to the rear of the buildings offering passive surveillance of the residential amenity area. The buildings also front the surface carparking provision to the front of the buildings. Block D wraps around the corner of the site transitioning to duplex units on the southern elevation. This provides variety in the streetscape and breaks the massing of the building, providing a fine grain treatment of the streetscape as it transitions towards the terraced housing and creche. Block D and duplex units overlook open space area 0.12 hectares to the south-west.

Figure 2.2 – Block D - Apartments and Duplex Units

Source: CCK Architects

2.3 Duplex Units

It is proposed to provide 30 no. duplex units throughout the site in 3 no. duplex blocks. The units are located adjacent to apartment Blocks D and E and in the south-eastern corner of the site. 15 no. 2 bedroom and 15 no. 3 bedroom units are proposed. The units are accommodated in the 3 no. buildings with terraces and direct access to communal open spaces provided at ground level and a balcony or terrace provided at the upper levels.

Figure 2.3 – Duplex Block Elevation

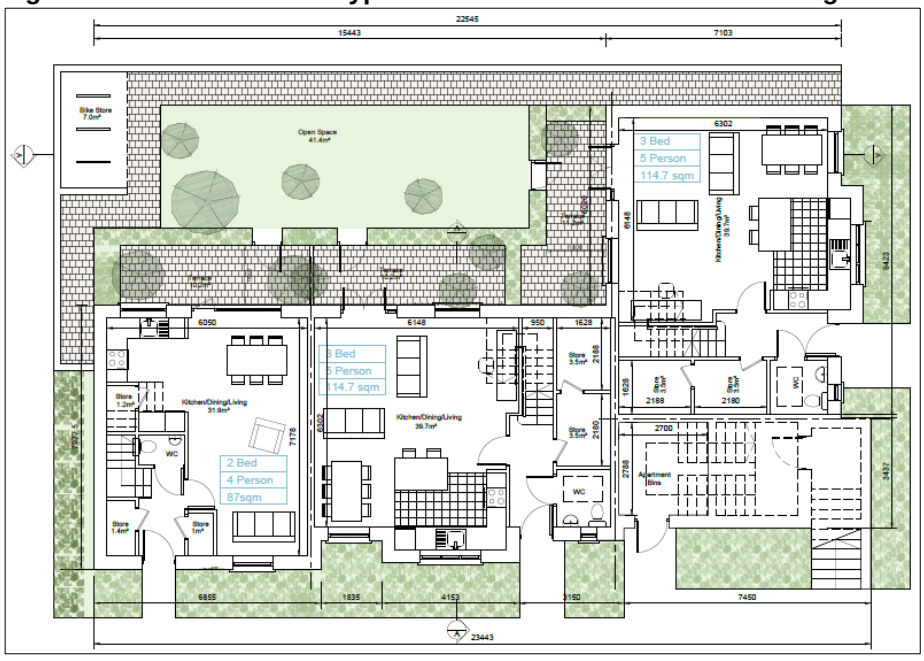
Source: CCK Architects

2.4 Corner Blocks

Corner blocks have been designed to wrap around the corners of the blocks where the development transitions from the main loop road towards the home zones to the west. The 3 storey corner block buildings have been designed to address both street frontages, providing passive surveillance on both sides.

Two different types of corner blocks have been designed and are dispersed throughout the site. 8 no. type CB5 corner blocks are included, providing communal open space to the rear, directly accessible from ground floor units. 8 no. 1 bedroom, 16 no. 2 bedroom and 16 no 3 bedroom units are provided within the 8 no. type CB5 buildings.

Figure 2.4 – Corner Block Type CB5 - Ground Floor Plan including communal open space



Source: CCK Architects

A second corner block building, type CB8 is also proposed. 2 no. type CB8 buildings are proposed at the centre of the site accommodating 16 no. units comprising 8 no. 1 bedroom and 8 no. 2 bedroom units. Similar to the L-shaped type CB5 buildings, type CB8 buildings are designed around an external courtyard communal open space, with direct access provided from ground floor units. Upper level units overlook the courtyard to the rear and include balconies fronting the street.

2.5 Creche Provision

It is proposed to provide 2 no. creches within the scheme. A 195 sq. m creche will be provided at ground floor level of Block C, providing space for c. 41 children. A second 443 sq. m detached creche building is proposed on Access Road 1 providing for c. 89 children. The creche within Block C will be accommodated with 30 no. dual usage car spaces. Visitors and parents/staff of the creche will have access to these 30 no. car parking spaces that will have limited stay restrictions and will be managed by the Management Company. 15 no. car parking spaces will be allocated to the detached creche.

2.5.1 Car Parking and Cycle Parking Provision

It is proposed to provide 502 no. car parking spaces for the houses along with 218 no. car parking spaces for the apartments (including the creche in Block C). In addition, it proposed to provide 140 no. car parking spaces for the duplex apartments. The overall number of car parking spaces is 875. It is also proposed to provide 382 no. cycle spaces for the apartments (including creche in Block C), 88 no spaces are provided for the duplex units, along with 8 no. cycle spaces for the creche beside unit no. 29.

	Car Parking	Cycle Parking
Houses	502	-
Apartments (including creche in Block C)	218	382
Creche (Access Road 1)	15	8
Duplex	140	88
Overall	875	581

Source: CCK Architects

2.6 Access

Four access points (3 no. vehicular and 1 pedestrian) are proposed to the site, connecting the future residents to Navan town centre, its services and facilities and the broader area.

Access No. 1: This vehicular access point will provide a secondary access point to the site connecting the future school site, the creche and the wider residential development. This road will loop through the site, traveling in a southerly direction and connecting to Academy Street and ultimately to the R147 Dublin Road, to the south.

Access No. 2: Primary access to the apartments will be provided off Academy Street via a priority-controlled junction at Access No. 2.

Access No. 3: The main access point to the site will be provided via Access No. 3 (shown on the figure below) from Academy Street. This will form the primary access to the housing component of the scheme and will be via a priority-controlled junction on Academy Street.

Access No. 4: This will provide pedestrian access to bus stops located on the R147 Dublin Road and through to the Boyne Walk. The walkway is overlooked by two dwellings adjacent to the walkway, ensuring passive surveillance. Pedestrian linkages will be provided to the local estates such as Woodlands and Lime Kiln Hill residential developments. Allowance have also been made for the inclusion of future pedestrian and cycle connections to the proposed future school.

Figure 2.5 – Northern Access to lands and Schools Site

Source: 3D Design Bureau

2.7 Landscaping

2.7.1 Introduction

The landscape strategy aims to integrate the new built development with the existing landscape and create a network of attractive and useable open spaces while contributing to the local biodiversity. The character of the landscape proposed is one of large trees, copses of native trees, formal clipped hedges, ornamental shrub and groundcover planting, woodland planting and native hedgerows. We refer the Board to the enclosed Landscape Design Statement and drawings, prepared by CSR – Landscape Architecture.

The landscape strategy for the site has been formed around the retention of the existing Belmount Woodland at the centre of the site. The woodland was connected with Belmount House and provides a unique opportunity to integrate a mature landscape with this new residential scheme, harnessing the character of the land.

The woodland park form the centre of the landscape strategy for the site. A series of smaller parks and ancillary open space are provided throughout the site, linked to the central woodland park.

The landscape strategy is cognisant of Belmont House (a protected structure) on the north-eastern perimeter of the site. The site is in private ownership and falls outside the red line development boundary. This has characterised and influenced the design and layout of the proposal, with existing woodland defining the perimeter of this property retained. Fencing and hedgerow planting will be used to define the development boundary with this property. In addition, the layout presents an attractive frontage to Belmont House.

A series of neighbourhood character areas are formed around public open spaces forming the centre of the neighbourhood character. 2 hectares of public open space is provided throughout the site with an additional 0.63ha provided within the open space zoned lands at Academy Park. The following park areas are proposed;

Academy park (0.63ha):

Academy Park is a linear urban park that runs parallel with Academy Street. The design reflects the linearity of the Boyne river valley. The park is directly overlooked by the apartments and offers pedestrians the opportunity to traverse the park taking a direct route to Navan town centre.

Figure 2.6 – Extract - Academy St Park

Source: CSR Landscape Architects

Belmount Hill Park (0.12ha):

This park is located close to one of the main entrances to the development and opposite the future school site. The park will be overlooked by the creche, duplex units and Block D. The park includes a community orchard offering a unique amenity space to school children and local residents alike. An informal play area will also be formed on top of the hill. The playarea and the park will be framed by large trees, in keeping with Belmount Woodland to the south.

Figure 2.7 – Extract - Belmount Hill Park

Source: CSR Landscape Architects

Belmount Woodland Gardens (1.34ha): This park area is on the key focal points of the development. This sensitively design park is set within the existing mature trees and strives to:

- Revive the historical woodland garden for inclusive access for all;
- Provide circulation throughout the woodland;
- Open the woodland up for use by new and existing communities
- Provide informal woodland play features and a large equipped playground

Figure 2.8 – Extract - Belmount Woodland Gardens

Source: CSR Landscape Architects

In addition to these larger feature parks, 4 no. local parks, totally 0.54ha, are proposed, creating the focal point for each neighbourhood character area. The parks have been design by CSR Landscaping to provide for the following features:

- Direct pedestrian access and permeability through the space
- New tree planting
- Focused areas of shrub/ornamental grasses planting to create a sense of enclosure or entry
- The parks provide a sense of identity and place to each character area.

2.8 Construction Management Strategy

is envisaged that the development of the lands will occur for up to approximately 5 years. Given the nature of the project and the need for flexibility to respond to market demand, the development phases are indicative. A Construction Management Plan and a Construction Traffic Management Plan are included with this SHD application. This EIAR presents proposed mitigation measures to ensure that the planned development of the lands does not generate significant adverse impacts for residential and working communities in the vicinity of the site.

2.9 Construction Management Plan

2.9.1 Construction Phase Mitigation

A site compound, visitor & contractor parking area will be established within the boundary of the subject lands - initially on Phase 3 lands.

The compound may be used as material staging areas, temporary car parking for construction workers, site offices and huts, welfare facilities for workers (including changing rooms & lockers), storage of plant and equipment, etc. The location of the temporary compound is indicated on the site layout. It is noted that the location is indicative, and may change as the scheme is built out.

Designated parking area is provided in the site car park. It is proposed to cater for up to 100 cars /vans in this area to minimise the disruption to the local amenities and parking facilities. There is a designated pedestrian walkway from the car park to the site compound and from the compound the construction works areas located away from the live construction site.

Parking is not permitted in the following areas:

- any other area of the site
- on the public roads
- Within local housing estates.

2.9.2 Hours of Working

Working hours will be strictly in accordance with the granted planning conditions with no works on Sundays or Bank Holidays. If work is required outside of these hours, written approval will be sought by the contractor from the Local Authority.

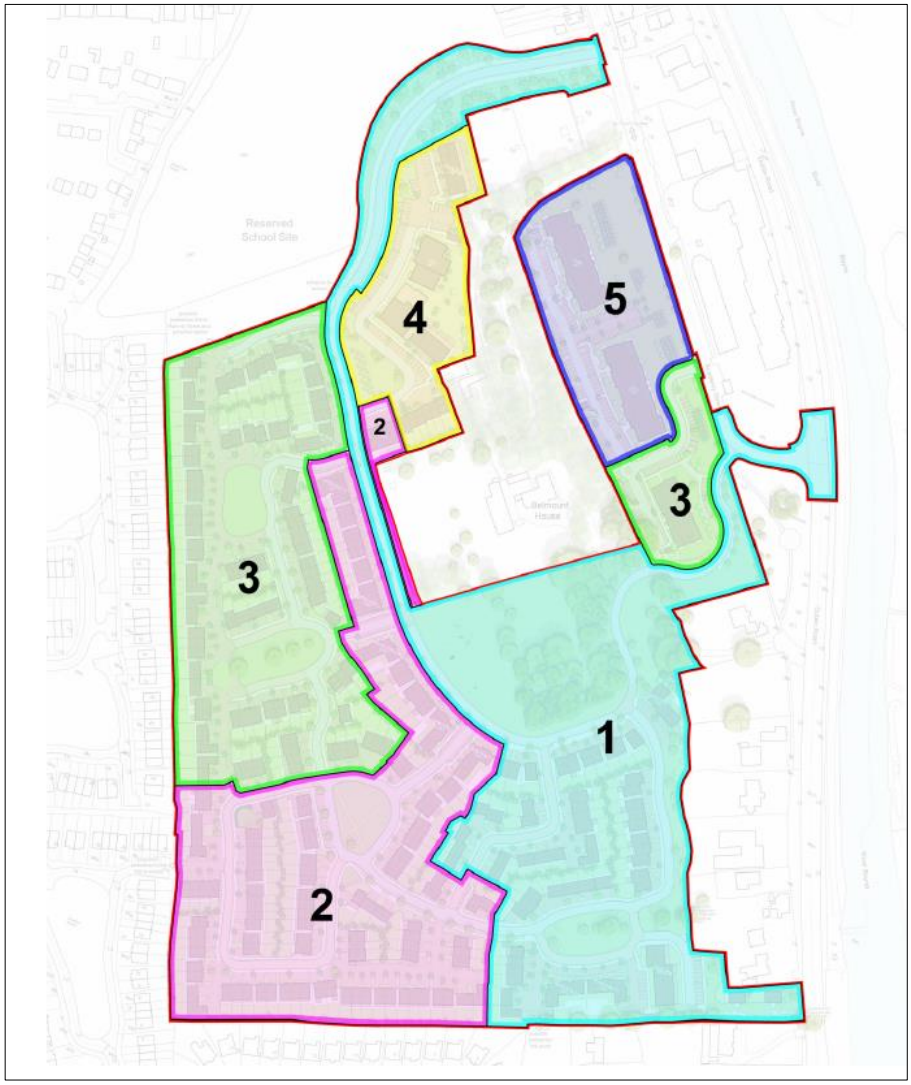
It is anticipated that normal working hours may be between the hours of 07:00 and 19:00, Monday to Friday, and 08:00 to 14:00 on Saturdays. There may be occasions where it is necessary to make certain deliveries outside these times, for example, where large loads are limited to road usage outside peak times.

Deliveries of material to site will be planned to avoid high volume periods. There may be occasions where it is necessary to have deliveries within these times. The Contractor will develop, agree and submit a detailed Traffic Management Plan for the project prior to commencement.

2.10 Construction Phasing

Drawing 1828 P110 prepared by CCK Architects illustrates the indicative construction staging sequence.

Figure 2.9 – Phasing



Phase 1 will comprise:

- Construction of the access and road to primary schools' site as well as internal spine road through the site;
- Woodland Park Area of c. 1.34 hectares & open space of 0.2 hectares;
- 80 dwellings comprising 27 no. duplex/corner blocks & 53 no. houses as follows:

  -1 no. duplex block – 12 no. units comprising (6 no. 2 bedroom duplex units & 6 no. 3 bedroom duplex units);
  -3 no. Corner blocks - 15 no. units comprising (3 no. 1 bedroom units, 6 no. 2 bedroom units & 6 no. 3 bedroom units)
  -1 no. 2 bedroom house, 47 no. 3 bedroom houses and 5 no. 4 bedroom houses.

Phase 2 will comprise:

- Creche 443 sq. m & open space of c. 0.12 hectares;
- 139 dwellings comprising 31 no. corner block dwellings & 108 no. houses as follows:
  - 3 no. 5 unit corner blocks & 2 no. 8 unit corner blocks comprising - 31 no. units comprising (11 no. 1 bedroom units, 14 no. 2 bedroom units & 6 no. 3 bedroom units);
  - 9 no. 2 bedroom houses, 96 no. 3 bedroom houses and 3 no. 4 bedroom houses.

Phase 3 will comprise:

- Creche 195 sq. m (ground floor of Block C)
- Open space of c. 0.23 hectares;
- 135 dwellings comprising 42 no. apartments and corner block dwellings & 93 no. houses as follows:
  - Apartments comprising 15 no. 1 bedroom apartments, 17 no. 2 bedroom apartments, 2 no. 1 bedroom, 4 no. 2 bedroom and 4 no. 3 bedroom corner block units;
  - 4 no. 2 bedroom houses, 82 no. 3 bedroom houses and 7 no. 4 bedroom houses.

Phase 4 will comprise:

- Open space of 0.12 hectares;
- 64 no. dwellings comprising 58 no. apartments/duplex apartments and 6 no. houses as follows:
  - 8 no. 1 bedroom apartments, 32 no. 2 bedroom apartments;
  - 9 no. 2 bedroom duplex apartments and 9 no. 3 bedroom duplex apartments;
  - 4 no. 2 bedroom houses and 2 no. 3 bedroom apartments;

Phase 5 will comprise:

- Open space of 0.63 hectares (zoned F1 lands)
- 126 no. apartments comprising 23 no. 1 bedroom apartments and 103 no. 2 bedroom apartments

Table 2.2 – Overall Phasing

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Houses	53	108	93	6	
Apartments			32	40	126
Duplex Apartments	12			18	
Corner Buildings	15	31	10		
	80	139	135	64	126
Overall Mix	14.7%	25.5%	24.8%	11.8%	23.2%

Source: CCK Site Layout Phasing

2.11 Direct and Indirect Effects Resulting from Use of Natural Resources

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

2.12 Direct and Indirect Effects Resulting From Emission of Pollutants, Creation of Nuisances and Elimination of Waste

Details of emissions arising from the development together with any direct and indirect effects resulting from same have been comprehensively assessed and are outlined in the relevant in Chapters 3-16 which deal with '*Aspects of the Environment Considered'*. There will be no significant direct or indirect effects arising from these sources.

2.13 Forecasting Methods Used for Environmental Effects

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

2.13 Alternatives Considered

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

Do-nothing Alternative

The site is zoned for residential and open space development under the Navan Town Development Plan 2009-2015 within the Coindale landholding and as such, consideration of alternative sites is not necessary. In effect, an alternative location in this instance i.e., a *'do- nothing'* alternative for the subject site, would mean that these residential zoned lands would not be utilised for the purposes of meeting the need for new residential accommodation within Navan. 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. 900m from Navan Town Centre. The suitability of the lands for development, as an infill development within Navan as a level I town in the Meath County Plan's hierarchy and the site's location adjacent to local services, is an important consideration, in this regard.

Alternative Designs

The proposed residential development has been prepared in accordance with the requirements of the National Planning Framework, the Regional Spatial and Economic Strategy for the Mid-East area as well as the relevant Section 28 Guidelines including 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 Meath County Development Plan 2013-2019 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.

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

- The need to achieve an appropriate density in the context of the Sustainable Residential Guidelines for Planning Authorities having regard to the location of the site close to the south of Navan town centre.
- The need to ensure any residential development provides a good mix of housing typologies which meet current market demand and which are deliverable in the short to medium term.
- The need to provide an appropriate level of housing provision on the residential zoned lands.
- Alternatives in relation to permeability.
- Alternative road junction design
- The need to deliver good quality open space in appropriate locations with a clear hierarchy
- To have regard to the site's topography and to ensure the design the residential development and associated infrastructure respects the existing features and limits the impacts on the land.

- Protection of existing trees and hedgerows where possible, particularly the protected woodland, (which although not specifically listed as individual trees to be preserved, the trees around the Belmount House are mapped as a "*Stand of Trees to be Preserved*" - Navan Development Plan 2009-2015 Variation No 2, which is to be incorporated in to a substantial public open space of c. 1.34 hectares to enhance the amenity of the area.
- The quality of the urban environment to be delivered and the associated positive impact on human health.
- The provision of 10% social housing on site.

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

The apartments on Academy Street were moved back within the residential zoning in order to comply with the development plan. Sites off the R147 along the Boyne, which were inaccessible from the upper lands, were left out of the site pending future access arrangements.

The proposals as noted within Alternative 1 above, demonstrate the progression of the scheme in design and layout terms, incorporating variations to landscaping and open space. The siting and layout of the dwellings and apartment buildings on site has been amended and modified to ensure greater legibility, provide a strong uniform frontage onto Academy Street.

2.13.1 Final Layout Alternative

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

An Bord Pleanàla 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 require further consideration and amendment to constitute a reasonable basis for an application for SHD.

As noted within the development description sections of this chapter, the scheme now comprises a greater overall quantum of residential development (544 no. dwellings) than previously submitted at pre-application stage (487 no. dwellings).

The key changes proposed related to:

- Increase in overall number of dwellings from 487 to 544 to now propose a density of 44.5 units per hectare;
- Broadening of mix;
- Increase in heights of buildings within subject site;
- Inclusion of apartment buildings to the rear of Academy Street;
- Provision of Corner blocks along key internal street intersections;

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

To conclude, 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 Pleanàla, 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.

Table 2.3 – Comparison of Environmental Effects

Criteria	Final (Preferred Alternative)	Layout Option 1	Layout Option 2
Population and Human Health	Neutral	Negative	Neutral
Biodiversity	Positive	Positive	Positive
Soils	Positive	Neutral	Neutral
Hydrology, Geology and Hydrogeology	Positive	Negative	Neutral
Air and Noise	Neutral	Neutral	Neutral
Climate	Neutral	Neutral	Neutral
Landscape and Visual	Positive	Negative	Neutral
Material Assets Transportation	Neutral	Neutral	Neutral
Risk Management	Neutral	Negative	Neutral
Cultural Heritage	Neutral	Neutral	Neutral

For Landscape and Visual, the comparison of environmental effects was considered to be positive through the introduction of variations in height across the preferred layout, providing an enhanced visual appearance and avoiding a monotype development.

With reference to the above, it is noted that the potential impacts to archaeology are broadly similar as the mitigation would be similar for all options.

For Material Assets, transportation, the impacts relate mainly to short term nuisances due to the construction of the development.

The Air and Noise impacts would be broadly similar for the different alternatives, albeit different localities would have the potential to experience some short term noise and dust emissions.

In accordance with the Board's request, a revised Archaeological Assessment Report (now forming part of the EIAR and a stand-alone report) has been prepared by John Cronin Associates and accompanies this submission. This reflects the comments provided by the Department of Culture, Heritage and the Gaeltacht which addresses the method of preservation of the archaeological sites by record.

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 new buildings deferred to adjoining properties has driven the final layout form and design solution as proposed.

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 adjoining properties, visual impact considerations.

3.0 NON TECHNICAL SUMMARY OF EIAR CHAPTERS

3.1 Population and Human Health

It should be noted that there are numerous inter-related environmental topics described throughout this EIAR document which are also of relevance to Population and Human Health. Issues such as the potential likely and significant impacts of the proposed development on landscape and visual impact, biodiversity, archaeology, architectural and cultural heritage, air quality and climate, noise and vibration, water, land and soils, material assets including traffic and transport impacts, residential amenity etc. are of intrinsic direct and indirect consequence to human health. The specific chapters of the EIAR (4-14) assess the environmental topics outlined in the EIA Directive.

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

The proposed development will result in a 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 Meath County Development Plan and the Navan 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, a highly permeable layout which connects to adjacent development and delivers the objectives of the Navan Town Plan. The provision of creche facilities on site enhances the quality of the development and helps to create sustainable communities.

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

3.2 Biodiversity

The assessment was carried out in accordance with the following best practice methodology: 'Guidelines for Information to be contained in Environmental Impact Assessment Report (EPA, 2017) and 'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland' by the Chartered Institute of Ecology and Environmental Management (IEEM, 2016).

Site visits were carried out on the 7th of March 2018 and April 24th 2019. The site was surveyed in accordance with the Heritage Council's Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2010). Habitats were identified in accordance with Fossitt's Guide to Habitats in Ireland (Fossitt, 2000).

April lies within the optimal survey period for general habitat surveys (Smith et al., 2010) and so a full characterisation of habitats was possible. March is within the optimal period for mammal surveying (with the exception of bats) as tracks and other field signs can easily be read. Both March and April are within the season for surveying breeding bird activity and amphibians. It was possible to classify all habitats on the site to Fossitt level 3.

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

River Boyne	International importance - A
Higher significance Hedgerows – WL1 and Treelines – WL1 with or without Drainage Ditches – FW4 Mixed broadleaved woodland – WD1	Local importance (higher value - D)
Dry meadow – GS2 Scrub – WS1 Lower significance Hedgerow – WL1	Local importance (lower level - E)
Arable crops – BC1 Buildings and artificial surfaces – BL3	Negligible value

The construction phase will see the clearance of crop land and grassland as well as sections of hedgerow/treeline habitats.

A new surface water drainage system will be installed and will be fully complaint with sustainable drainage principles. Wastewater will be delivered via the mains sewer network to the municipal treatment plant at Navan. Freshwater is supplied from the mains network, which originates from an abstraction point from the Boyne upstream of the town. Post-construction, the site will be landscaped.

New landscaping will include areas of open space and the planting of a range of native and non-native trees.

3.2.1 Mitigation Measures Construction and Operational Phase

The following mitigation measures are proposed for the development

Recommendation 1: The loss of mature trees or hedgerows has been avoided to the greatest extent possible. Where the road passes through the woodland this route has been designed to minimise the loss of trees (19 in total). Acknowledging this, the landscaping scheme has been designed to compensate for the loss of habitat. This includes biodiversity friendly planting of natural meadow areas and clusters of native trees. Species have been chosen to be pollinator and wildlife friendly. There will be approximately 1,250m of new hedgerow and linear woodland in addition to trees and shrubs scattered throughout the development and areas of meadow grassland. These features can be seen in figure 4.3. Although direct replacement of lost habitat is not possible, in time these new features will mature and will provide habitat for much of the biodiversity which is on site at present. The retention of hedgerows and establishment of new meadow areas may allow for Yellowhammer to remain on the site.

Recommendation 2: The removal of vegetation should not take place between March and July as per section 40 of the Wildlife Act. Where this cannot be avoided, vegetation must first be inspected by a suitably qualified ecologist for signs of nesting. Where no nesting is observed, vegetation can be removed within 48 hours. Where nesting is underway, vegetation cannot be removed unless under licence from the NPWS.

The following measure is taken from the bat survey report:

“Where possible, trees, which are to be removed, should be felled on mild days during the autumn months of September, October or November or Spring months of February and March (felling during the spring or autumn months avoids the periods when the bats are most active).

An assessment of trees according to their PBR [potential bat roost] value determines the methodology of felling. Trees with PBR Category 1 are highly suitable for roosting bats and require more intensive procedures prior to felling.”

Recommendation 3: A Construction Management Plan has been prepared as part of the planning application with regard to guidelines on the protection of fish habitat from Inland Fisheries Ireland. This include detailed measures for the prevention of pollution. In particular this will include measures to prevent silt from entering the River Boyne. Under no circumstances should silt-laden water enter the River Boyne. Water leaving the site must first pass through suitably

designed silt traps or settlement ponds. These shall be inspected on at least a daily basis, and more frequently during periods of heavy rainfall. The site manager shall be responsible for ensuring that pollution does not occur.

Recommendation 4: The following measures are taken from the bat report:

"The following principles will be followed especially in relation to the general residential area and will also be implemented for the greenway and the active open area: - Artificial lights shining on bat roosts, their access points and the flight paths away from the roost must always be avoided. This includes alternative roosting sites such as bat boxes.
- Lighting design should be flexible and be able to fully take into account the presence of protected species. Therefore, appropriate lighting should be used within a proposed development and adjacent areas with more sensitive lighting regimes deployed in wildlife sensitive areas.
- Dark buffer zones can be used as a good way to separate habitats or features from lighting by forming a dark perimeter around them. This should be used for habitat features noted as foraging areas for bats.
- Buffer zones can be used to protect Dark buffer zones and rely on ensuring light levels (levels of illuminance measured in lux) within a certain distance of a feature do not exceed certain defined limits. The buffer zone can be further subdivided in to zones of increasing illuminance limit radiating away from the feature or habitat that requires to be protected.
- Luminaire design is extremely important to achieve an appropriate lighting regime. Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires. This is taken from the most recent BCT Lighting Guidelines (BCT, 2018).

o All luminaires used will lack UV/IR elements to reduce impact.
o LED luminaires will be used due to the fact that they are highly directional, lower intensity, good colour rendition and dimming capability.
o A warm white spectrum (<2700 Kelvins will be used to reduce the blue light component of the LED spectrum).
o Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
o Column heights should be carefully considered to minimise light spill. The shortest column height allowed should be used where possible.
o Only luminaires with an upward light ratio of 0% and with good optical control will be used.
o Luminaires will be mounted on the horizontal, i.e. no upward tilt.
o Any external security lighting will be set on motion-sensors and short (1min) timers.
o As a last resort, accessories such as baffles, hoods or louvres will be used to reduce light spill and direct it only to where it is needed.
Planting of screening will also be effectively used to prevent lighting spillage areas where bat foraging is recorded. In particular, lighting will not shine onto important commuting and foraging areas identified for local bat populations."

Recommendation 5: Disruption to ecological corridors

The landscaping design has maintained ecological connectivity by establishing/strengthening native woodland/hedgerows along external boundaries (see figure 4.3). This will take time to mature but will ensure continued foraging/commuting ability by biodiversity through and across the site.

3.2.2 Residual Impacts

Table 3.2 shows the assessment of impacts when mitigation is fully implemented.

Table 3.2 – Significance level of likely impacts after mitigation

Impact		Significance
Construction phase		
1	Habitat loss of features of local value (hedgerows/woodland) including impacts to Yellowhammer	likely, negative, moderate and permanent
2	Mortality to animals during construction	likely, negative, imperceptible and permanent

3	Pollution of water during construction phase	likely, negative, imperceptible and medium-term
4	Disturbance from lighting	likely, negative, imperceptible and permanent
5	Disruption to ecological corridors	likely, negative, moderate and permanent
6	Surface water pollution	likely, neutral, imperceptible and permanent
7	Wastewater	likely, neutral, imperceptible and permanent
8	River Boyne and River Blackwater SAC	likely, negative, not significant and medium-term

3.3 Land and Soils

The site is generally 'green field'. Provisional site investigation results have been obtained from on-site geotechnical works, indicates 300mm of top soil underlain with 1.1m of firm brown clay underlain with stiff dark clay. Based on the Teagasc data base the top soil has been defined as: Fine loamy drift with limestone. A review of the GSI database for the subject lands gives the bedrock classification a Dark Limestone & Shale 'Calp', which forms part of the LUCAN formation.

The hydrogeological characteristics can be expressed as a Locally Important Aquifer with a generally productive bedrock in a moderately productive zone. The vulnerability classification is given as high. There are no active boreholes or wells on site.

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:

- Approximately 39,000m3 (approximately 0.3m depth of topsoil across the site) of topsoil shall be excavated from the existing ground level in order to form a building platform for the new houses and associated roads infrastructure. This will result in the exposure of the subsoil to various elements including weather and construction traffic. Therefore, the impact may be characterised as a likely, short term, slight, adverse impact on the natural strength of the subsoil and subsequently resulting in deeper foundations being required.
- Rutting and deterioration of the topsoil layer and any exposed subsoil layers or bedrock by earthworks plant and construction traffic. As such, the impact may be characterised as likely, short term, moderate, adverse impact on subsoil, the consequence of which will be erosion and generation of sediment laden runoff.
- Earthworks are required in the open space areas to accommodate underground and overground surface water storage systems and detention basins and other SuDS features. This landscaping activity will likely have a moderate, positive, permanent, impact on the soil and ground profile. Earthworks to road infrastructure is also required due to the existing steep topography of the site for access.
- During the construction period, large machinery and associated fuel and fuel storage will be present on site. As a result, accidental spills and leaks (e.g. storage of oils and fuels on site), use of cement and concrete during construction works are inevitable during the construction phase. Therefore, the unlikely impact may be characterised as a likely, short term, moderate, slight impact on subsoil and ground water.
- Approximately 20,000m3 of fill (generally comprising normal stone used in the construction of roads, footpaths and buildings) will be required across the development, with some of this material originating from cut material on site. Therefore, the likely impact may be characterised as, permanent, slight impact on subsoil and ground water.

3.3.2 Mitigation Summary

A Construction Management Plan (CMP) (prepared by CS Consulting) is included in the SHD application material. The CMP will be put in place by the Contractor to implement the mitigation measures and will be prepared and submitted to the planning authority and will be maintained by the contractor during the construction phase. The CMP includes a range of site-specific measures.

3.3.3 Residual Impacts

The proposed development will alter the current land use from agricultural to a residential development and associated public open space and landscape areas. The impact on land, soil, geology and hydrogeology from accidental spillages of fuel and lubricants used during the construction phase of the development is predicted to be minimal when stored and used in a responsible manner. After implementation of the mitigation measures recommended above for the construction phase, the proposed development will not give rise to any significant long term adverse impact. Moderate negative impacts during the construction phase will be short term only in duration. Implementation of the measures outlined in Section 5.6 will ensure that the potential impacts of the development on soils and the geological environment are minimised during the construction phase and that any residual impacts will be short term.

Residual Impacts such as loss of agricultural land / earthworks haulage & the risk of contamination of groundwater are deemed to be of minor risk, as the proposal for apartment type residential accommodation would not be seen as a potential high-risk development post construction.

3.4 Water

The subject lands currently falls from west to east, with an average topographical level varying from 50.50mAOD down to 32.50mAOD, (refer to CS Consulting drawing D061/010 for a detailed topographical survey). The lands falls away to the east and ties in with Academy St.. The subject lands are currently undeveloped and have been used for agricultural purposes. While the subject lands has no watercourses traversing same there are local drainage ditches which have served the subject lands. These land drains ultimately outfalled into the River Boyne via a storm culvert under the Dublin Road.

The OPW's Eastern Catchment Flood Risk Assessment & Management Study & Meath County Councils Strategic Flood Risk Assessment which forms part of the Development Plan all indicate that the majority of the subject site (all the proposed residential housing units) has no history of flooding and based on the current flood maps is located in Flood Zone 'C'. The proposed apartment blocks adjacent to Academy Street have an element of the proposed car parking located in Flood Zone 'B', all of the apartment blocks footprints are located in Flood Zone 'C'.

The proposed development will require that the aforementioned local land drains be removed as the site is developed. The sites proposed storm water drainage system has been designed to drain into the existing storm water infrastructure along Academy Street. As per the requirements of the Greater Dublin Strategic Drainage Study all new developments are to limit the run-off from post development sites to pre-development rates. In addition, storm water flows being restricted provision must be made through the use of sustainable urban drainage systems to provide sufficient capacity to retain on site the predicated storm water flows generated by an extreme storm event, (a 1-in-100 year storm event increased by 10% for the predicted effects of climate change).

3.4.1 Potential Construction and Operational Phase Impact Summary

Potential impacts that may arise during the construction phase are noted below:

- Surface water runoff during the construction phase may contain increased silt levels (e.g. runoff across areas stripped of topsoil) or become polluted by construction activities.
- Discharge of rainwater pumped from excavations.
- 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.
- Discharge of vehicle wheel wash water.
- Infiltration of groundwater into excavations.

Accidental pollution of water from plant, machinery or temporary storage areas is possible, due to the nature of construction. This likely but brief impact would be imperceptible in nature as any potential pollution would be indirect as it would percolate through the soil, prior to reaching the local groundwater. Excavation works are required, to strip the site's topsoil and for the installation of proposed drainage infrastructure.
Once the development is completed the operational impacts on the water & hydrology aspects of the site would be minimal. The biggest risk item is cross contamination of surface water from the operational phase of the development from accidental oil spillages, refer to the Mitigation section below for proposed remedial issues. A positive impact from the development will be the reduction in storm water runoff experienced during extreme storm events, as the flow from the development will be restricted. The downstream water course will be at a reduced risk from flooding during extreme storm events.

During the operational phase of the development the following potential risks to surface water have been identified:

- Increased impermeable surface area will reduce local groundwater recharge and potentially increase surface water runoff (if not attenuated to greenfield runoff rate).
- Accidental hydrocarbon leaks and subsequent discharge into piped surface water drainage network (e.g. along roads and in driveway areas).
- Foul waste and surface water discharging to ground through leakage in the drainage systems.
- Contamination risks arising from development use / leaking pipes / contaminated surface water runoff.

3.4.2 Mitigation Measures

The proposed development and planning drawings submitted have taken into account potential contamination issues and upon completion the development has a system in place to ensure rainwater runoff from the site passes through an oil separator prior to outfalling into the proposed storm water drainage system.

Mitigation measures follow the principles of avoidance, reduction and remedy. The most effective measure of avoidance is dealt with during the site selection and design stage, by ensuring that the development does not traverse or come in close proximity to sensitive hydrological attributes.
The following mitigation measures are recommended for the construction phase of the development:

- Works will be in accordance with the requirements of the Office of Public Works (OPW) and Inland Fisheries Ireland (IFI).
- Pollution prevention measures in accordance with guidance from Inland Fisheries Ireland (2016) or as otherwise agreed with the IFI. This will include the installation of sediment traps and culverting of drainage ditches 'in the dry', where required.
- No direct discharges made to waters where there is potential for cement or residues in discharge;
- Designated impermeable cement washout areas must be provided;
- Any in-situ concrete work to be lined and areas bunded (where possible) to stop any accidental spillage
- Any spoil or waste material generated from the construction process is to be temporarily stored at an approved location on site, before being removed to an accepting licensed waste disposal facility;
- All new infrastructure is to be installed and constructed to the relevant codes of practice and guidelines;
- All surface water infrastructure are to be pressure tested by an approved method during the construction phase and prior to connection to the public networks, all in accordance with Local Authority Requirements;
- Connections to the public network are be carried out to the approval and / or under the supervision of the Local Authority prior to commissioning;
- All new sewers are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase;
- Care will be required for the environmental management of the site to ensure that no potential contamination issues are experienced which may impact on the overall surface water quality.
- Potential issues can be mitigated against by ensuring that the developments environmental management plan is adhered to prevent accidental onsite oil spillages and the regular maintenance of onsite plant to eliminate potential risks. As outlined in the Construction Management Plan submitted with the planning application.
- Implement best practice construction methods and practices complying with relevant legislation to avoid or reduce the risk of contamination of watercourses or groundwater.

- A Site Specific Construction and Environment 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 and Environment 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.
- Weather conditions and seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations, with an objective of minimizing soil erosion.
- The extent of sub-soil and topsoil stripping to be minimised to reduce the rate and volume of the run-off during construction until the topsoil and vegetation are replaced.
- Precast concrete units fabricated off site will be specified for culvert and bridging structures with cast in-site requirements minimised.
- Concrete batching will take place off site or in a designed area with an impermeable surface.
- Concrete wash down and wash out of concrete trucks will take place off site or in an appropriate facility.
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds.
- Oil and fuel stored on site for construction should be stored in designated areas. These areas shall be bunded and should be located away from surface water drainage and features.
- Refuelling of construction machinery shall be undertaken in designated areas away from surface water drainage in order to minimise potential contamination of the water environment. Spill kits shall be kept in these areas in the event of spillages.
- Hazardous construction materials shall be stored appropriately to prevent contamination of watercourses or groundwater.
- Spill kits should be kept in designated areas for re-fuelling of construction machinery.
- Dewatering measures should only be employed where necessary.

3.4.3 Operational Phase

Upon completion of the Construction Phase of the proposed scheme, issues pertaining to the development would in general be issues such as accidental pollution incidents into the storm water system.

Sustainable Drainage Systems will be incorporated, where practicable, in order to improve the quality of the surface water discharging from site and reduce the runoff volume and rate; thus providing a positive impact on the receiving surface water network and downstream waterbody. The surface water drainage design, for this development, was designed in accordance with the Local Authority requirements. All SuDS measures will be provided in accordance with the Greater Dublin Strategic Drainage Study Regional Drainage Policy Volume 2 - New Development (GDSDS-RDP Volume 2). Specific design requirements for SuDS systems are established by the Construction Industry Research and Information Association's publication CIRIA C753 – The SuDS Manual.

Following best practice, the potential for the storm water to become polluted via oil spills will be reduced as far as is practical by the use of an oil separator to take run off from carparking areas and passing through same prior to disposal.

Irish Water would maintain the foul & potable water systems while Meath County Council will maintain the storm water network.

As such this type of development would not increase the risk to surface water or downstream flooding. As the site is provided with a new storm sewer to replace the existing water course and all storm water generated on site will now be attenuated to ensure that the runoff from the site is kept to green field rates down stream lands would not be flooded when an extreme storm is experienced. The overall storm water quality will also be enhanced as SuDs features are included in the proposed development and all surface waters are to pass through an oil separator prior to outfalling into the proposed new storm sewer.

3.4.4 Residual Impacts

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

3.4.5 Impact on Climate

The proposed development is likely to have a positive impact on the climate, due to the designed reduction in rainfall runoff rate entering the public surface water drainage network and the improvement in water quality discharging from site as a result of the proposed SuDS measures.

Further, the surface water drainage network has been designed to allow for an increase in rainfall intensity of 10%; to account for adverse future conditions due to climate change.

3.5 Air Quality and Climate

Byrne Environmental Consulting Ltd have assessed the potential air quality and climatic impacts that the Belmount development may have on the receiving environment during the construction and operational phases of the project. The assessment includes a comprehensive 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.

The development area is located within a zone which includes sources of existing transportation related air emissions principally from local road infrastructure and sources of domestic, retail and commercial building heating. It is noted that there are no other major sources of industrial air emissions within 5km of the site.
The M3 Dublin to Kells Motorway is located approximately 3km west of the site.

3.5.1 Potential Construction and Operational Phase Impacts

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.

3.5.2 Mitigation Measures Construction and Operational Phases

In order to ensure that adverse air quality impacts are minimised during the construction phase and that the potential for soiling of property and amenity and local public roads is minimised, the following mitigation measures shall be implemented during the course of all construction activities (as part of the Construction Management Plan):

- Avoid unnecessary vehicle movements and manoeuvring, and limit speeds on site so as to minimise the generation of airborne dust.
- Use of rubble chutes and receptor skips during construction activities.
- During dry periods, dust emissions from heavily trafficked locations (on and off site) will be controlled by spraying surfaces with water and wetting agents.
- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic only.
- Re-suspension in the air of spillages material from trucks entering or leaving the site will be prevented by limiting the speed of vehicles within the site to 10kmh and by use of a mechanical road sweeper.

- The overloading of tipper trucks exiting the site shall not be permitted.
- Aggregates will be transported to and from the site in covered trucks.
- Where the likelihood of windblown fugitive dust emissions is high and during dry weather conditions, dusty site surfaces will be sprayed by a mobile tanker bowser.
- Wetting agents shall be utilised to provide a more effective surface wetting procedure.
- Exhaust emissions from vehicles operating within the construction site, including trucks, excavators, diesel generators or other plant equipment, will be controlled by the contractor by ensuring that emissions from vehicles are minimised by routine servicing of vehicles and plant, rather than just following breakdowns; the positioning of exhausts at a height to ensure adequate local dispersal of emissions, the avoidance of engines running unnecessarily and the use of low emission fuels.
- All plant not in operation shall be turned off and idling engines shall not be permitted for excessive periods.
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.
- Material stockpiles containing fine or dusty elements including top soils shall be covered with tarpaulins.
- Where drilling or pavement cutting, grinding or similar types of stone finishing operations are taking place, measures to control dust emissions will be used to prevent unnecessary dust emissions by the erection of wind breaks or barriers. All concrete cutting equipment shall be fitted with a water dampening system.
- A programme of air quality monitoring shall be implemented at the site boundaries for the duration of construction phase activities to ensure that the air quality standards relating to dust deposition and PM10 are not exceeded. Where levels exceed specified air quality limit values, dust generating activities shall immediately cease and alternative working methods shall be implemented.
- A complaints log shall be maintained by the construction site manager and in the event of a complaint relating to dust nuisance, an investigation shall be initiated.

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

The operational phase includes mitigation measures relating to the design of the development to minimise the impact of the operational phase of the development on air quality and climate.

3.6 Noise and Vibration

Byrne Environmental Consulting Ltd have assessed the potential noise and vibrational impacts that the proposed development may have on the receiving environment during the construction and operational phases of the proposed development. The assessment includes a comprehensive description of the existing ambient baseline noise climate in the vicinity of the subject site, a description of how construction activities may impact the ambient noise climate and finally, the mitigation measures that shall be implemented to control and minimise the impact that the development may have on existing ambient noise levels.

The southwestern, western northern and north-eastern aspects of the site are bordered by existing residential development. The R147 Dublin to Navan Road Is located further east of the site and Academy Street is located to the east and northeast of the site. The Springfield Glen road is located to the south of the site which gives access to the existing residential estates located adjacent to the southern, western and northern site boundaries. Lands adjoining the northern site boundary are reserved for future school development.

The most dominant noise source in the local area has been identified during the baseline noise monitoring periods to be road traffic on the R147 Dublin to Navan Road which is located approximately 60m at the closest point to the development. Road traffic noise is not considered to be intrusive at the Belmount site.

Baseline noise data in the vicinity of the closest residential receptors to the proposed development site boundaries has been obtained from noise monitoring surveys conducted by Byrne Environmental Consulting Ltd during May 2018 and July 2019.

3.6.1 Potential Construction and Operational Phase Impacts

During the construction phase there will be extensive site works, involving construction machinery, construction activities on site, and construction traffic, which will all generate noise. The highest noise levels will be generated during the general construction activities. The construction noise levels will be of relatively short term duration and will only occur during daytime hours which will serve to minimise the noise impacts at local existing receptors.

It is predicted that the construction phases shall result in a short term increase in noise levels in the area as well as introducing tonal and impulsive noise as a result of construction activities such as pneumatic breaking, cutting, excavating, vehicle movements and general manual construction activities.

Due to the phased nature of the development which will occur over an approximate 3-5 year period, there will be slight to moderate impacts on the existing residential estates and houses located opposite the site boundaries.

An independent acoustic consultant shall be engaged by the contractor prior to the commencement of site activities to ensure that all noise mitigation measures as specified in this Section of the EIAR are implemented and to prepare a site specific *Construction Phase Noise Management Plan.* The Plan shall include all relevant noise and vibration control measures as specified in this Chapter of the EIAR. The Plan shall be submitted to Meath County Council for approval as required.

The nominated contractor shall appoint a designated person to manage all environmental complaints including noise and vibration.

A noise complaint procedure shall be implemented in which the details of any noise related complaint are logged, investigated and where required, measures are taken to ameliorate the source of the noise complaint.

Appropriate signage shall be erected on all access roads in the vicinity of the site to inform HGV drivers that engines shall not be left idling for prolonged periods and that the use of horns shall be banned at all times.

3.6.2 Residual Impacts

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

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

During the construction phase there is the potential for minor impacts on nearby noise sensitive properties due to noise generated by construction site activities. The implementation of the construction phase noise and vibration mitigation measures and a continuous noise monitoring programme as detailed in Section 8.7 above and Section 8.9 below, will minimise the potential noise and vibration impact on the receiving environment including existing residential receptors.

3.7 Landscape and Visual

3.7.1 Introduction

The subject lands are approximately 15.1 hectares in size and are located on Academy Street, Navan close to Navan town centre and to the west of the Dublin Road. The site exists on lands surrounding the 19th century Belmount House and comprises three distinct landscape types which are;

- **Agricultural fields** (7 in total). These are small to medium in size and are divided by hedgerow lined ditches. The hedgerows range in condition and contain a few scattered distinctive hedgerow trees.

- **Belmount woodland.** A mature and characterful woodland containing some distinctive native and non-native trees, remnants of historic paths and two well defined laneways. There is a clearing within the woods and a few attractive views through the trees to Belmount House.
- **Seminatural grassland.** This enclosed area lies between Academy Street and the woodland of Belmount House. The lands slope gradually towards the woods. The slope inclines more steeply to the SW.

The site is located on the southern fringe of Navan town centre although the immediate landscape context of the subject lands is peri-urban and includes housing estates, the Boyne River and associated habitats. The three proposed vehicular site entrances are located between 750m and 1km away from Market Square on Academy Street.

The proposed development is described in Chapter 2 of the EIAR. The proposed landscape characteristics are defined by:

- Neighbourhoods that are focussed around and draw their identity from their relationship with open space
- A new urban park named 'Academy Park' along Academy Street
- A new woodland park in and amongst the existing woodland currently associated with Belmount House and gardens
- Wildlife corridors connected through and around the development
- A sweeping avenue leading through the development
- Direct pedestrian connections through a range of interesting and varied parks, streets and squares.
- A hierarchy of spaces which become more local to the west
- A strong network of proposed street and garden trees

3.7.2 Potential Landscape Impacts

The potential construction impacts on the landscape include the:

- Retention and safeguarding of existing trees and boundary vegetation
- Removal of the omission of selected mature trees, small groups of young trees and all internal hedgerows
- Extensive change of the landscape from agricultural lands to a construction site and the resultant change in landscape character
- Movement of soil and storage of materials

3.7.3 Potential Impacts on Views

The potential construction impacts on views include the:

- Gradual erection of buildings and all engineering, building and landscape works required with associated site infrastructure, fencing and plant.
- Visibility of site plant and machinery, which will be both still and moving. Cranes will be visible over the roofs of existing buildings.
- Removal of ground layer vegetation as it is stripped and stock-piled. Bare earth will be visible.
- Omission of selected mature trees, small groups of young trees and all internal hedgerows in views.
- Retention and protection of the majority of the trees on site which will continue to screen and soften some views towards and within the site.

3.7.4 Operational Phase

Potential Landscape Impacts

The potential construction impacts on the landscape include the:

- Change in character from agricultural lands to a residential development and series of parks
- Preservation of ecological habitats

Potential Impact on Views

The potential operational impacts on views include the:

- Introduction of new residential buildings into the view
- Introduction of new movement infrastructure – roads, cycle paths and pedestrian paths into the view
- Potential change in the skyline
- Potential screening of more expansive views
- Introduction of a more designed landscape
- Removal of overhead power lines
- Screening of the electricity sub-station
- Retention of the mature trees and woodland as elements within the view
- Gradual establishment of new vegetation and planting in the streets, open spaces, gardens and along sections of the site boundary including around the existing electricity substation.

3.7.5 Potential Cumulative Impacts

The proposed development is part of the wider expansion of Navan town. For some visual receptors this will mean the visibility of further development occurring adjacent to this proposal, including the proposed school site to the north of this application. Cumulatively this is transformative of this medium-quality rural landscape in accordance with local policy. New development needs to seek to maintain Green Infrastructure networks, landscape structure – trees and woods – and a consistent materiality, particularly to ensure the site's landscape potential is achieved and to ensure the protection of views from designated locations/routes. These recommendations have been accommodated within the masterplan submitted.

3.7.6 Conclusions

The LVIA has assessed the impact of the proposed residential development at the application site on Academy Street, Navan, County Meath. The subject lands are zoned for housing and the proposed application meets that need. A high-quality proposal has been submitted that adheres to local planning policy and has been developed with the aim of the provision of an excellent place to live. The design process has incorporated into it a number of mitigative measures (see section **Error! Reference source not found.** of EIAR Volume II) that have contributed towards the positive conclusions reached within the assessments included in sections **Error! Reference source not found.**and **Error! Reference source not found.** of EIAR Volume II.

3.7.7 Summary of Visual Effects

Table 3.3 – Summary of Visual Assessment

No.	Location	Sensitivity	Degree of Change	Significance, Term and Quality		
				Short	Medium	Long
Immediate Environs						
VP A	NE Academy Street	*Medium*	*Medium*	*Moderate, Beneficial*	*Significant, Beneficial*	
VP B	Academy Street	*Medium*	*Medium*	*Moderate, Neutral*	*Moderate, Beneficial*	
VP C	Welcome to Navan sculpture / public open space	*High*	*Medium*	*Significant, Beneficial*		
VP D	Academy Street / Dublin Road junction	*Medium*	*Medium*	*Moderate, Adverse*	*Moderate, Neutral-Beneficial*	
VP E	Along Academy Street from the Dublin Road	*High*	*Negligible*	*Slight-Not Significant, Neutral*		
VP F	Bus stop on the Dublin Road	*Medium*	*Medium*	*Moderate, Neutral*		

No.	Location	Sensitivity	Degree of Change	Significance, Term and Quality		
				Short	Medium	Long
VP G	St Martha's Bridge	*Medium*	*Low*	*Slight, Adverse*		*Slight, Neutral*
VP H	Meath City Council Offices	*Low*	*Low*	*Not Significant, Adverse*		*Not Significant, Neutral*
VP I	Cul-de-sac on Limekiln Wood	*Medium*	*Medium*	*Moderate, Adverse*		
VP J	Limekiln Wood	*High*	*Low*	*Moderate-Slight, Neutral*		
VP K	St. Columbus Crescent	*Low*	*Low*	*Not Significant, Neutral*		
VP L	Belmount House	*High*	*Low*	*Moderate-Slight, Adverse*	*Moderate-Slight, Neutral*	
Site Context / Middle distance						
VP M	Athlumney Castle Cemetery	*High*	*Negligible*	*Slight-Not Significant, Neutral*		
VP N	Gate on Convent Road	*Medium*	*Negligible*	*Not Significant, Neutral*		
VP O	Convent Lane inbetween residential properties.	*High*	Low	*Moderate-Slight, Adverse*	*Moderate-Slight, Neutral*	

Summary

Close proximity views from Academy Street will change substantially to include the three proposed apartment blocks with Academy Park to the fore. These changes respond positively to development planning and are in keeping with the characteristics of an expanding town and have been generally assessed as beneficial. Landscape features are retained such as the extent of Belmount Woodland and the its presence on the horizon. The sense of openness created by the existing semi-natural grassland on Academy Street is replicated through the proposed location of Academy Park, which incorporates elements of semi-natural grassland are incorporated into its design. That said, the assessment has found that the continuity of the park and sense of openness could be improved by reducing the presence of carparking to the fore of the apartment blocks and increasing the distance between the main access to the development and the secondary access to the apartments.

The effect on views from Belmount House will be complimentary to its character and will introduce more movement and interest into the view -albeit by reducing the sense of wilderness currently experienced.

The vast majority of views available from receptors located to the north, south and west of the site are from the rear elevations of properties. These views will be partially screened by existing boundary walls and garden vegetation. The proposal is for backs of gardens to mirror backs of gardens therefore proposed garden vegetation will add to this screening effect and the proposal extends existing townscape character. However, people experiencing this view from cul-de-sacs or from upper stories of existing homes will experience a reduced sense of openness and an adverse change in the character of the view.

Middle distance views of the site from Athlumney Cemetery and the detached proprieties along Convent Road are not expected to alter significantly and have been mitigated by the proposed planting within the scheme.

3.7.8 Summary

The predicted landscape effects on both Meath County Council's Landscape Character Area 5 (Boyne Valley") and the subject lands themselves have been assessed as 'Neutral' at operation in the long-term once the landscape

proposals have matured. See section **Error! Reference source not found.Error! Reference source not found.** (of EIAR Volume II) for a summary table of the predicted landscape effects.

Visual effects on the 15 views identified for assessment led to the following conclusions;

- The are no views of the development site from Athlumney Castle.
- The Protected Stand of Trees at Belmount House will remain as a woodland block and a visual feature in the landscape even though select trees from within the woodland will be lost and replaced to build the proposed access road.
- Three views, all located along Academy Street, will receive a long-term beneficial effect
- Nine views will receive a long-term Neutral impact
- One close-proximity receptor, representing the changing views from properties flanking the south-west and south-east will receive a long-term Adverse effect of a Moderate significance and is associated with a loss of openness experienced from adjacent properties once the fields within the subject lands are developed. It should be noted that this assessment has taken account of susceptibility to change, which is high for this particular receptor given its proximity to zoned lands which are recognised in Policy as a high priority for development.
- The proposed development is in keeping with its zoning status and the emerging trends of development proposed in the vicinity.

3.8 Material Assets – Traffic

The application site is located within Meath County Council approximately 900m south of Navan Town Centre, immediately west of the Boyne River. The site is bounded to the north by Academy Street; the R147 Dublin Road to the west; and residential developments to the south and east.

The road network surrounding the site provides a variety of movement functions. Academy Street provides access to Navan town centre. The R147 Dublin Road provides access to Dublin via the M3 motorway. Academy street is the primary access point which then links to the R147 Dublin Road.

The upgrade works to junction onto the Dublin Road will include the signalisation of the Academy Street/Dublin Road. This new signalised junction will be linked to the Dublin Road/Bothar Sion/Springfield Glen which will facilitate the construction of the bus gate proposed under Navan 2030.

3.8.1 Potential Construction and Operational Phase Impacts

Construction Phase

The likely impact of the construction works will be short-term in nature. The number of staff on site will fluctuate over the implementation of the subject scheme. Nevertheless, based upon the experience of similar projects, it would be expected that c. 50 will be on site at any one time, subsequently generating low levels of two-way vehicle trips during the peak AM and PM periods over the period of the construction works. Were possible, construction workers will use shared transport.

A cut and fill model has been produced by Cronin Sutton Consulting Engineers which estimates that there will be a net export (net cut) of 22,000 m^3 from the site. This equates to c. 740 HGV trips.
The construction traffic impacts of the proposed development are dependent on the capacity of the local road network to facilitate access to the development by HGV's and heavy construction machinery associated with the construction phase. The ability to accommodate temporary parking for contractors and storage of materials on site is another key consideration.

Operational Phase

The potential impact during the construction phase with all the above considered would have a short-term effect on the surrounding road network, however, with the measures outlined Construction Traffic Management Plan, this will have imperceptible effect in Navan Town Centre, along the R147, the M3 and key traffic corridors within the town.

The Trip Rate Information Computer System [TRICS] database has been interrogated to derive trip rates commensurate with developments of the character proposed in this case, notably a 544-unit residential development.

A full review was undertaken of the apartment trip rates. To that end, TRICS was interrogated to determine the total peak hour trip rate (the sum of the arrivals/departures for the AM peak and PM Peak) that would produce the largest trip rate to/from the development.

The sites selected for these calculations include sites in Dundalk and Drogheda. Dundalk and Drogheda have similar population levels, public transport accessibility, car ownership levels, etc making them comparable to Navan in terms of site selection.

The trip rates for the proposed development are outlined in Table 3.2 below.

Table 3.4 – Peak Hour Trip Rates

Peak Hour Trip Rates					
Trip Generation from TRICS		**Weekday AM 08:00-09:00**		**Weekday PM 17:00-18:00**	
Usage	Units	Arrivals	Departures	Arrivals	Departures
Houses – Privately Owned	Per Bed	0.202	0.635	0.380	0.202
Apartments – Privately Owned	Per Bed	0.055	0.176	0.202	0.097
School	Per pupil	0.176	0.094	0.022	0.019

The trip rates outlined above in conjunction with the proposed schedule of accommodation to determine the resultant total trips generated by the proposed development.

For the proposed development, these figures can be seen in Table 3.3 below.

Table 3.5 – Peak Hour Trips

Peak Hour Trips					
Trip Generation from TRICS		**Weekday AM 08:00-09:00**		**Weekday PM 17:00-18:00**	
Usage	Units	Arrivals	Departures	Arrivals	Departures
Houses – Privately Owned	260	16	50	57	28
Apartments/Duplex– Privately Owned	284	53	165	99	53
School	234	100	54	13	11
Creche*	-	-	-	-	-
Peak Total		168	269	169	92
Two Way Total		437		261	

3.8.2 Mitigation Measures Construction and Operational Phase

The Construction Management Plan incorporates a range of integrated control measures and associated management initiatives with the objective of mitigating the impact of the proposed developments on-site construction activities.

minimise disruption to the surrounding environment, the following mitigation measures will be implemented:

- During the pre-construction phase, the site will be securely fenced off from adjacent properties, public footpaths and roads.
- All road works will be adequately signposted and enclosed to ensure the safety of all road users and construction personnel.

- A dedicated 'construction' site access / egress junction will be provided during all construction phases.
- Provision of sufficient on-site parking and compounding to ensure no potential overflow of construction generated traffic onto the local network.
- Site offices and compound will be located within the site boundary. The site will be able to accommodate employee and visitor parking throughout the construction period through the construction of temporary hardstanding areas.
- A material storage zone will also be provided in the compound area. This storage zone will include material recycling areas and facilities.
- A series of '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 the local authority prior to the commencement of constructions activities on-site.
- Truck wheel washes will be installed at construction entrances if deemed necessary and any specific recommendations with regard to construction traffic management made by the Local Authority will be adhered to.
- On completion of the works all construction materials, debris, temporary hardstands etc. from the site compound will be removed off site and the site compound area reinstated in full on completion of the works.

All construction related parking will be provided on site. Construction traffic 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 and dumper trucks 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.

It is anticipated that the generation of HGV's during the construction period will be evenly spread throughout the day and as such will not impact significantly during the peak traffic periods.

3.8.3 Operational phase

- The local area provides suitable infrastructure and transport services for travel by sustainable modes. A key barrier to modal shift towards sustainable modes of travel is often a lack of information about potential alternatives to the car. As such, it is proposed that residents and visitors of the proposed development are made aware of potential alternatives including information on walking, cycle routes and public transport.
- A number of walking and cycling connection points are proposed within the development. These connection points will provide access for pedestrians and cyclists onto Academy Street and the R147 Dublin Road, which is proposed to become a public transport gate under the Navan 2030 proposals.
- These facilities will provide attractive, convenient and safe routes for residents. Therefore, there are good links proposed for residents to travel by more sustainable modes.
- As part of the remedial or reductive measures for the site, it is proposed to upgrade the R147 Dublin Road/Academy Street junction to a signal-controlled junction. Introducing a signal control at this location, including measures to provide the maximum degree of safety and convenience for all road users including pedestrians, can enhance efficiency by reducing congestion and conflict between different vehicle movements, within the available road space.

3.8.4 Residual Impacts

A total of 875 parking spaces will be provided for the development. Parking will be provided within the curtilage of each house. On street surface car parking will be provided for the apartments, duplexs, creches and visitor car parking spaces. A total of 581 cycle spaces will be provided.

The development plan standard suggests a total of 297 spaces for the Apartment Block A-E. This is based on a mix of 1 and 2 apartments and a creche. Without car parking dominating the proposal and taking into account the guidance set out in publications like DMURS and 'Sustainable Urban Housing – Design Standards for New Apartments' it was proposed to provide 170 spaces including 4 car club spaces for Apartment Block A-C and 48 spaces for Apartment Block D & E.

The proposed development has been designed such that service vehicles, including fire tenders and refuse vehicles, can circulate internally throughout the development For the scale and type of development proposed, it is expected the total vehicle movements generated will be 168 arrivals and 269 departures in the AM peak (two-way total of 437). The total number of vehicle movements in the PM peak hour will be 169 arrivals and 92 departures (two-way total of 261).

The results of the junction analysis undertaken demonstrates that traffic from the proposed development can be accommodated on the surrounding road network and is within reasonable limits having regard to the prevailing road conditions and development location.
The traffic assessment has confirmed that the proposed access arrangements would adequately accommodate anticipated levels of traffic visitation and that as such the traffic generated by the development would have no material adverse impact on the operation of all junctions modelled.

It has been shown by the application of recognised assessment techniques that there is a slight increase in traffic levels arising from the development and the distribution of resultant flows around the adjacent road.
The results in terms of flows and movements can be accommodated by the neighbouring junctions with an anticipated slight uplift in congestion and delays at these locations.

This assessment has also considered the transportation aspects of the internal arrangements of the development and has concluded that the proposals would provide enhanced facilities and improved accessibility for all users of the site.

Where applicable, the proposed development is also fully compliant with DMURS.

Accordingly, there are no reasons in relation to traffic and transportation aspects why this scheme should not be granted planning permission.

3.9 Material Assets – Waste Management

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

The Meath County Development Plan 2013 – 2019 has a Waste Management Strategy, the purpose of which is to promote and facilitate best practice in prevention, re-use, recovery, recycling and disposal of all waste and environmental emissions produced in the County.

3.9.1 Potential Construction and Operational Phase Impacts

Construction waste will arise during the construction phase. Operational phase waste generation will comprise domestic waste from the residential units and commercial waste from the creche's.

The Waste Management Plan shall be implemented throughout the construction phase and operational stage of the development to ensure the following:

- That all site activities are effectively managed to minimise the generation of waste and to maximise the opportunities for on-site reuse and recycling of waste materials.

- To ensure that all waste materials generated by site activities are removed from site by appropriately permitted waste haulage contractors and that all wastes are disposed of at approved waste licensed / permitted facilities in compliance with the Waste Management Act 1996 and all associated Waste Management Regulations.

- The Waste Management Plan for the Operational Phase of the development which will ensure that users of the development are provided with sufficient facilities to store, segregate and recycle waste.

3.9.2 Mitigation Measures Construction and Operational Phase

A Construction Phase Waste Management Plan prepared by Byrne Environmental (included with the SHD application) includes a series of measures to reduce the impact of the construction on waste generation.

An Operational Phase Waste Management Plan (OWMP) has been prepared as a stand-alone report to accompany this planning application. The OWMP has been prepared to demonstrate how the required infrastructure will be incorporated into the design and operational management of the development to ensure that domestic wastes will be managed and monitored with the objective of maximizing the quantity of waste segregated at source and maximizing the volume of clean recyclable materials generated by the residents of the development.

The Goal of the OWMP is to achieve a compliance with *The Eastern-Midlands Region Waste Management Plan* 2015-2021.

3.9.3 Residual Impacts Construction and Operational Phase

The management of wastes generated during the construction of the proposed development will be in accordance with a Construction Phase Waste Management Phase (which is included with the SHD application). As long as the construction is completed in accordance with the plan it is envisaged that the impact of the construction (excavation and construction waste) phase will be temporary and slight.

With regard to how it has been demonstrated how construction and domestic wastes will be managed through design, management and waste reduction and recycling initiatives at the proposed development, it is predicted that the impact of the development on the receiving environment, existing material assets and local waste management services will be minor.

With the implementation of the proposed mitigation measures:

The predicted impact of operational waste will be long term, moderate and negative.

There is likely to be significant available capacity within existing Irish waste management infrastructure to manage operational phase wastes from the proposed development.

The development shall be designed to provide adequate domestic waste storage areas for common residential areas (apartments), duplex units and individual houses. This will promote the appropriate segregation at source of domestic generated waste from all residential units at the development.

3.10 Material Assets – Utilities

Public storm water infrastructure in Navan is under the administrative control of Meath County Council. A review of the publicly available records indicate a number of existing storm water sewers in the area. These will be utilized for the ultimate attenuated disposal of stormwater from the development.

3.10.1 Existing Foul Water Infrastructure

All public foul sewerage infrastructure is under the administrative control of Irish Water. A review of their records indicate a number of foul sewers in the vicinity of the subject lands. Irish Water records indicate an existing 300mm foul sewer located to the north east of the subject lands on Dublin Road. This sewer drains to the north west into an existing Irish Water foul pumping station before ultimate treatment at the regional Wastewater treatment plant in Navan.

Furthermore, Irish Water records indicate an existing 225mm foul sewer north west of the subject site which drains north toward the above mentioned 300mm foul sewer on the Dublin Road. Refer to CS Consulting Drawing **D061/012** and **D061/013** for details of same.

3.10.2 Existing Potable Water Infrastructure

As with the Foul infrastructure, potable water services are under the administrative control of Irish Water. A review of the available records indicate a 250mm OD PE100 SDR 11 main to the north east of the subject lands.

3.10.3 Mitigation Measures Construction and Operational Phase

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.

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”.

In accordance with the Greater Dublin Regional Code of Practice for Drainage Works, all sites are required to develop a drainage system which separates storm & foul water on site.

The proposed restriction of storm water flows from the site during extreme weather events will increase the capacity of the existing infrastructure to convey storm flows.

All foul water infrastructure is under the control of Irish Water. The proposed development will be serviced by a new separate internal foul network for the proposed development. The proposed development will have two connection locations from the development to the existing foul drainage infrastructure.

As required by the SHD process, Irish Water are required to review the schemes foul drainage proposal & to issue a letter of Design Acceptance, this has been received by the design team and is included as an appendix in the CS Consulting Engineering Service Report accompanying this submission.

3.10.4 Residual Impacts Construction and Operational Phase

The predicated impacts are that the use of an attenuation system to restrict storm water flow from extreme storm events will aid in the freeing up of hydraulic capacity in the existing sewer during extreme storm water events. By reducing the storm water run-off during extreme storm events will increase the capacity in the existing sewer. The use of SuDs sytems will also have the effect in removing polluting matter from the first flush of rainfall event, which will improve the overall storm water quality leaving the site.

The proposed development will reduce the overall capacity of the Regional Waste Water Treatment Plant in Navan. Notwithstanding, the WwTP Plant has hydraulic & qualitive capacity. The proposed effluent treatment requirement has been assessed by Irish Water and sufficient capacity in the local network is in place to facilitate the proposed development.

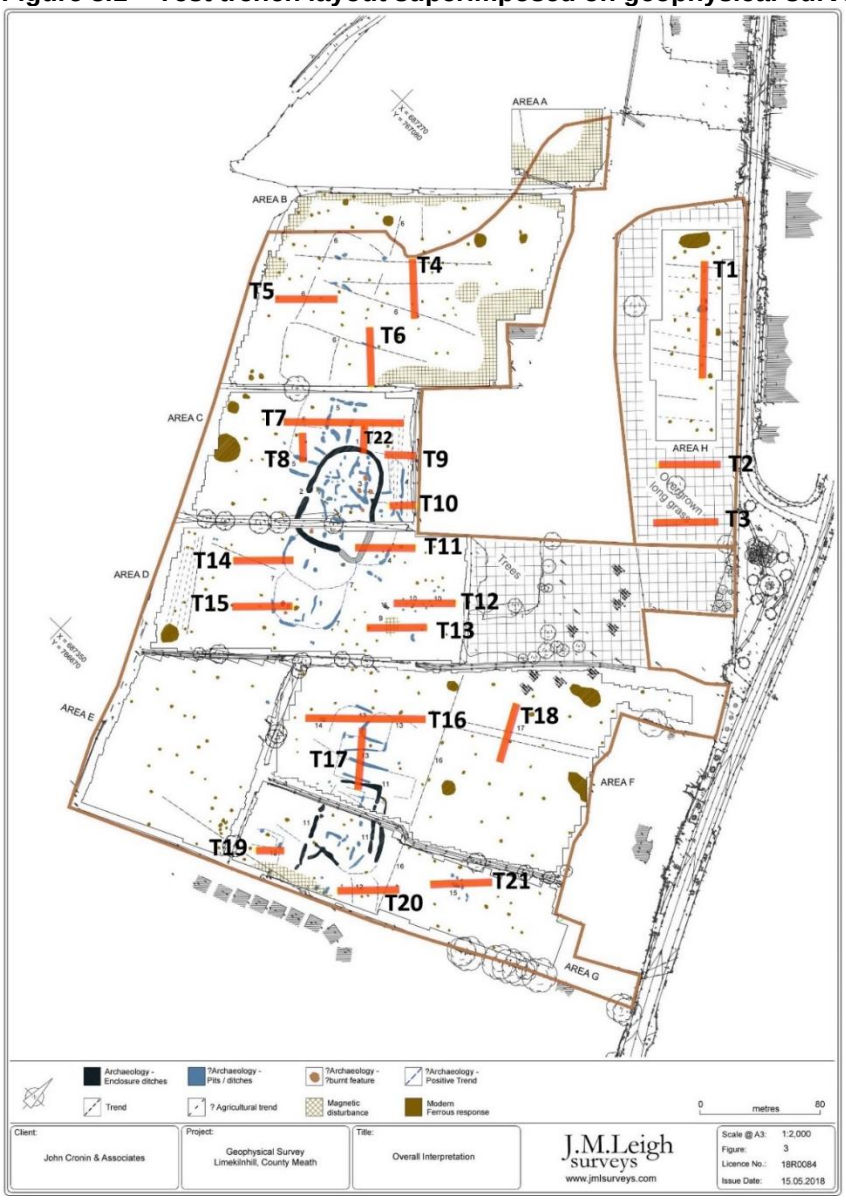
The proposed development will reduce the spare capacity in the local network, but as with the waste water requirement, Irish Water has assessed the requirement and have determined that sufficient capacity is in place and the proposed development can be accommodated.

3.11 Archaeology, Architecture and Cultural Heritage

The geophysical survey was undertaken by J. M. Leigh (Licence 18R0084) in May 2018 within all areas of the proposed development site apart from a small wooded area to the south of Belmount House and an overgrown area in the field to the east of the house. The survey identified two archaeological enclosures and potential associated external features within the ploughed fields to the west of the house.

The archaeological test trench investigations were carried out by Tony Cummins (John Cronin and Associates) under a licence issued by the National Monuments Service (18E0499) and a detection licence for the use of a metal-detector was also obtained in order to assist in artefact retrieval (18R0171). A total of eighteen test trenches were excavated within the proposed development site.

Figure 3.1 – Test trench layout superimposed on geophysical survey results



The trench layout was designed to concentrate preliminary investigations of the geophysical anomalies within the areas outside the enclosures that have been identified as being of archaeological potential (annexes, field systems, pits, etc.).

3.11.1 Potential Impacts Construction and Operational Phase

The RMP and SMR do not list any archaeological sites within 250m of the proposed development site and the construction phase will, therefore, have no predicted impacts on the recorded archaeological resource located within the surrounding study area.

The ground works required for housing construction within the proposed development site will have a permanent, direct, significant, negative impact on the entirety of the two previously unrecorded, sub-surface archaeological

enclosures and associated external features identified within the site boundary during the geophysical and test trenching investigations undertaken as part of this assessment.
There are no designated or undesignated architectural heritage buildings located within the proposed development site while there are a number of examples located in adjoining private properties. No access to these neighbouring properties will occur during the construction phase and there are, therefore, no predicted impacts during this phase.

Belmount House is a protected structure (Reg. No NT025-177) that sits within a land parcel that is largely surrounded by the proposed development scheme. The majority of the proposed development will be accommodated on farmland rather than former parkland or woodland associated with the house;

The impact on the other buildings or features of architectural heritage within the environs of the development is also considered to be *negligible*. Protected structures such as Russell's B & B and the former entrance gates at Dublin Road along with the NIAH-recorded farm complex to the north-west of Belmount House will be unaffected by the development works.

Following the successful implementation of the archaeological mitigation measures it is predicted that no further direct impacts on the identified archaeological sites within the proposed development site will arise during the operational phase.

3.11.2 Mitigation Measures Construction and Operational Phase

The geophysical survey and test trenching investigations undertaken as part of this assessment have identified two archaeological enclosures, with associated external features, within the proposed development site. It is proposed these enclosures will be preserved in record by a full systematic archaeological excavation under licence from the National Monuments Service. The extent, phasing and methodology of these excavations, and subsequent post-excavation specialist analyses, will be agreed in advance with the National Monuments Service and will be clearly detailed in a method statement submitted as part of the licence application process. A programme of licensed archaeological monitoring will be undertaken within all other areas of the proposed development site during the construction phase. In the event that any archaeological sites or features are uncovered, ground works will halt in that area, the sites/features will be cordoned off and recorded and the NMS will be consulted to determine appropriate mitigation measures.

There a number of obligatory processes to be undertaken as part of archaeological licence applications for excavation projects and these will allow for monitoring of the successful implementation of the archaeological mitigation measures. All archaeological excavations will be carried out under licence issued by the National Monuments Service following the approval of a submitted detailed method statement outlining all proposed archaeological strategies. A preliminary report presenting a summary of results will be compiled and submitted to the National Monuments Service and National Museum of Ireland within one month of the completion of the excavations. This will include details on all proposed specialist post-excavation analyses. A final detailed report, which will include the results of specialist post-excavation analyses, will be submitted within twelve months of the completion of excavations.

No architectural heritage mitigation measures are required during the construction phase.

3.12 Residual Impacts

Archaeology

Construction stage impacts identified on the archaeological resource shall be mitigated by the measures outlined in Section 13.7.1. Preservation by record of the identified archaeological sites within the proposed development area shall result in a high magnitude of impact, albeit ameliorated by the creation of a full and detailed archaeological record, the results of which shall be publicly disseminated. This shall result in a slight/moderate significance of effect in the context of residual impact on the archaeological resource.

Architectural heritage

No residual impacts on architectural heritage resources are expected.

3.13 Risk Management

The Construction Management Plan, submitted with the SHD application, as well as good housekeeping practices will limit the risk of accidents during construction. Fire safety will be dealt with under the Fire Safety Code at design and construction stage. The estate management company will have responsibility for fire safety during operations. In relation to falls these have been dealt with during design.

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

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

3.13.1 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 6-15 which deal with 'Aspects of the Environment Considered'. No significant adverse impact is predicted to arise from the use of natural resources.

3.13.2 Direct and Indirect Effects Resulting From Emission of Pollutants, Creation of Nuisances and Elimination of Waste

Details of emissions arising from the development together with any direct and indirect effects resulting from same have been comprehensively assessed and are outlined in the relevant in Chapters 6-16 which deal with *'Aspects of the Environment Considered'.* There will be no significant direct or indirect effects arising from these sources.

3.13.3 Forecasting Methods Used for Environmental Effects

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

3.13.4 Technical Difficulties Encountered in compiling any specified information

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

4.0 CUMULATIVE IMPACTS

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

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

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

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

Some separate Irish Water upgrade works may be needed to facilitate development in general in Navan, including the subject lands, but do not form part of this application. The location of these works is shown on drawing no. D061-069, prepared by CS Consulting Engineers.

The works will require road opening licence under Section 254 of the Planning and Development Acts 2000-(as amended) from Meath County Council. As part of the road opening licence, it is anticipated that a Construction Traffic Management Plan would be agreed with Meath County Council, by the contractor. The objective of which is to minimise the short term disruption to local residents.

There will be some short term impacts during the construction phase as the pipes are laid, particularly in respect of traffic management with regards to sensitive receptors. This may cause local short term inconvenience and disturbance to residents and business in the vicinity of the works. However the works would normally be undertaken in sections on a phased/rolling programme so that the number of persons experiencing local inconveniences at any one time is kept to a minimum.

5.0 INTERACTIONS BETWEEN ENVIRONMENTAL FACTORS

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

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

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

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

6.0 SUMMARY OF EIA MITIGATION AND MONITORING MEASURES

Chapter 16 of the EIAR (Volume II) provides a summary of all the mitigation and monitoring measures proposed throughout the EIAR document for ease of reference for the Board and all other interested parties.