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Environmental Impact Assessment Report (EIAR) Volume 1 Non-Technical Summary (NTS)

In respect of

**A Proposed Large-scale Residential
Development at Ratoath, Co. Meath**

On behalf of

Beo Properties Ltd.

June 2025

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1 Introduction

This is a Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) which has been prepared by KPMG Future Analytics (KPMG FA) of 1 Stokes Place, Dublin 2, on behalf of Beo Properties Ltd., Unit 6, Argus House, Greenmount Office Park, Harold's Cross Road, Dublin 6W ("the Applicant") in respect of a proposed Large-scale Residential Development (LRD) on lands at Jamestown and Commons, Ratoath, Co. Meath.

The proposed Large-scale Residential Development (LRD) on a site of 12.58ha at Jamestown and Commons, Ratoath Co. Meath consisting of 364 no. residential units including 250 no. houses and 114 no. apartment / duplex units along with a creche, retail unit and café unit **also includes the construction of a section of the Ratoath Outer Relief Road (RORR) from its current termination point to the existing Fairyhouse Road (R155)**. Please refer to the planning application form and statutory notices (newspaper and site notices) for a full and formal description of the proposed development

The subject site forms part of the wider Masterplan lands (MP 37), as identified in the consolidated Meath County Development Plan 2021-2027 (Variation 2). The site is located immediately to the south of the existing built area of Ratoath in County Meath within the townlands of Commons and Jamestown.

The purpose of the NTS is to summarise and explain in non-technical language the likely direct and indirect environmental impacts arising from the proposed development. The EIAR has been prepared in accordance with the requirements of Planning and Development Act (as amended) and the Planning and Development Regulations 2001(as amended) which adapts Environment Impact Assessments (EIA) regulations under EU Directives.

1.1 Requirement for an EIAR

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. Schedule 5 (Part 2) of the *Planning & Development Regulations* 2001 (as amended) set mandatory thresholds for each project class. Class 10(b) (i) and (iv) addresses 'Infrastructure Projects' and requires that the following class of project be subject to EIA:

(b) (i) Construction of more than 500 dwelling units.

Furthermore, Category 10(b)(iv) refers to:

'Urban development which would involve an area greater than 2 hectares in the case of business district, 10hectares in the case of other parts of a built-up area and 20 hectares elsewhere.'

The subject site area is 12.8 ha which exceeds threshold of 10 ha applicable to a development within a built-up area. Although the proposed development does not exceed the above threshold of 500 dwelling units, the inclusion of an Environmental Impact Assessment Report with this application was considered a prudent measure given the scale of development which includes LRD and RORR. This approach was supported by Meath County Council at Pre-Application stage, where the EIA was subject to informal screening.

1.2 Project Team

This EIAR has been prepared by KPMG Future Analytics (KPMG FA) and various competent specialist sub-consultants on behalf of Beo Properties Limited. The list below presents the subject matter experts who contributed to the preparation of the report and their qualifications:

Table 1: List of authors and qualifications

Environmental Aspect	Company Name	Person Responsible	Qualification
EIAR Manager	KPMG Future Analytics	Maria Rochford	BA (Hons) MRUP MIPI
EIAR Reviewer	KPMG Future Analytics	Stephen Purcell	BSc. (Hons) MRUP MSc. MIPI FSCSI FRICS
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Climate Factors	AWN	Dr. Avril Challoner	BEng (Hons) in Environmental Engineering HDip in Statistics PhD in Environmental Engineering (Air Quality) CEnv, CSci
Noise and Vibration	AWN	Alistair Maclaurin	BSc PgDip MIOA
Biodiversity	Altamar	Bryan Deegan Jeff Boyle	MSc Environmental Science BSc (Hons) Applied Marine Biology NCEA National Diploma in Applied Aquatic Science NCEA National Certificate in Science (Aquaculture) MCIEEM Member BSc (Hons) Environmental Management
Archaeological, Architectural & Cultural Heritage	ACSU	Donald Murphy Magda Lyne	M.A. (Archaeology)
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Water	OCSC	Mark Killian	CEng MSc BSc
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Material Assets - Utilities	BBSC	Barry O'Neill	Tech Eng. Dip. Eng. BEng. CEng. MCIBSE MIEI.

2 Background to the Scheme

2.1 Site Location and Context

The proposed development is situated on an irregular shaped site of 12.58ha located to the southern edge of the settlement of Ratoath, Co. Meath, within the townlands of Commons and Jamestown (Figure 2.1). The application site is a greenfield area c.1 km south of the centre of Ratoath and c.1km north of Fairyhouse racecourse. The lands are currently in use agricultural grassland. Mature hedgerows form the boundaries and define each field within the application area. There is a bridle path towards the eastern most end of the site which connects the lands directly north to those to the south. A drainage ditch within the north-west of the site. A row of single detached dwelling bound the site along Glascarn Lane to the north and northwestern boundary



Figure 2.1 Aerial view of the site and its environs (Source: Google Maps)

The site is generally bound to the north and north-east by Glascarn Lane along which there are several low-rise, one- to two-story detached homes with rear gardens towards north and western side (there is a linear plot behind some of these houses separating the application site from the rear of the Glascarn Lane properties). Carraig Na Gabhna and Cairn Court Developments are situated to the north-west. Directly north-east of the subject site, a scheme of 228no. homes, a creche and associated development is under construction (as permitted under planning reg. ref. SH305196). The eastern portion of the application lands is the intended location of the new Ratoath Outer Relief Road (hereafter referred to as 'RORR'). The remainder of the eastern boundary, southern and western boundary are adjoined primarily by neighbouring agricultural lands, interspersed with detached housing on Fairyhouse Road (R155). There is a bus stop located along the Fairyhouse Road and Ratoath College

Secondary school is located c.300m north-east of the site. There is a concentration of retail services and community facilities within Ratoath town centre approximately 1km to the north.

2.2 Cumulative Impacts

The cumulative impact assessment requires (1) assessment of relevant interacting elements of the project; and (2) the impact of the project in combination with other permitted plans and projects. Each Chapter of the EIAR includes a cumulative impact assessment of the proposed development with other existing, permitted, and planned projects in the immediate area.

The potential cumulative impacts primarily relate to traffic, dust, noise and other nuisances from the construction of the development, with other planned or existing projects, and each of the following EIAR chapters has regard to these in the assessment and mitigation measures proposed. A summary of cumulative impacts identified is provided in Table 2.2.

Table 2-1 Summary of Cumulative Impacts

No.	Chapter Title	Summary of Cumulative Impacts
5	Air Quality	Construction Phase: Short-term, negative and imperceptible. Operational Phase: Long-term, imperceptible and neutral impact
6	Climate	Cumulative impact of the proposed development in relation to GHG emissions is considered direct, long-term, negative and slight, which is overall not significant in EIA terms
7	Noise & Vibration	Construction Phase: Potential short term negative impacts. Operational Phase: Negative, imperceptible to not significant and long-term effect
8	Biodiversity	Construction Phase: Water quality - negative, imperceptible, unlikely Invasive species - neutral, imperceptible and unlikely. Habitat loss - neutral and not significant in the long-term Operational Phase: Water quality: negative, imperceptible and unlikely. Invasive species - neutral, imperceptible and unlikely. Habitat loss - neutral and not significant in the long-term
9	Archaeological & Cultural Heritage	No cumulative effects on the cultural heritage or archaeological resource.
10	Landscape & Visual	Construction Phase: short-term, moderate negative cumulative landscape and visual effects Operational Phase: Medium magnitude but positive cumulative effect
11	Land, Soils & Geology	Construction Phase: Negative, imperceptible, and permanent Operational Phase: Not significant, permanent negative impacts
12	Water	Construction Phase: Mostly moderate, imperceptible and Long-term Operational Phase: Cumulative impact of new developments in the vicinity of the subject development would likely have a moderate but sustainable impact on the receiving environment.
13	Population & Human Health	Construction Phase: Likely, adverse, slight and temporary. Operational Phase: Likely, positive, significant and permanent
14	Material Assets - Traffic & Transport	Construction Phase: Likely, adverse, moderate, and temporary. Operational Phase: Likely, positive, moderate, and permanent.
15	Material Assets - Waste Management	Construction Phase: Negative, not significant permanent residual impact. Operational Phase: Negative, imperceptible permanent residual impact.
16	Material Assets - Utilities	No significant cumulative impacts identified.

3 Description of Scheme

The Statutory Notice describing the proposed development is as set out below:

We, Beo Properties Limited, intend to apply to Meath County Council for a 7-year planning permission for a Large-scale Residential Development (LRD) at this site (12.58 ha) located on the southern edge of the settlement of Ratoath in County Meath, within the townlands of Commons and Jamestown. The subject site is generally bound to the north by Glascarn Lane, the rear of houses at Glascarn Lane, further existing residential dwellings and a permitted strategic housing development (SHD) scheme (Reg Ref: TA17/305196); to the east by the permitted SHD scheme (Reg Ref: TA17/305196); to the south by existing agricultural fields and by Glascarn Lane; and to the west by Fairyhouse Road (R155), the rear of houses on Fairyhouse Road, Cairn Court and Carraig na Gabhna, and existing agricultural fields.

The development will consist of the construction of 364 No. residential units, a Commercial Building (857.05 sq.m) containing a Creche, a Retail Unit and a Café and a section of the Ratoath Outer Relief Road (RORR) together with all associated ancillary accommodation, open space and site development works. The total overall gross floor area (GFA) of the development is 40,753.53 sq.m of which 39,881.14 sq.m is residential GFA and 872.39 sq.m is non-residential GFA.

The proposed development consists of 364 No. residential units including 250 No. houses and 114 No. apartment / duplex units.

The 250 No. houses will further consist of 38 No. 2-Bed, 151 No. 3-Bed, 50 No. 4-Bed and 11 No. 5-Bed units each with a private residential garden. In total, 500 No. car parking spaces are provided for the proposed houses. The proposed development consists of a mix of Detached, Semi-Detached and Mid-Terrace housing types ranging from 2- to 3-storeys in height.

The 114 No. apartment / duplex units will be provided within a total of 9 No. Blocks ranging from 2-4 storeys in height including 6 No. Apartment Blocks with a total of 91 No. apartments and 3 No. Duplex Blocks with a total of 23 No. duplex units. Each apartment / duplex unit will have a private balcony/terrace and access to communal open space totaling 0.118 ha.

The 114 No. apartment / duplex units will further consist of 32 No. 1-Bed units, 69 No. 2-Bed units and 13 No. 3-Bed units. Details of the Apartment and Duplex Blocks are provided on a block-by-block basis below:

Apartment Block 1 (3- & 4-Storey Building) will consist of 6 No.1-Bed units and 13 No. 2-Bed units

Apartment Block 2 (4-Storey Building) will consist of 2 No.1-Bed units and 10 No. 2-Bed units

Apartment Block 3 (4-Storey Building) will consist of 2 No.1-Bed units and 10 No. 2-Bed units

Apartment Block 4 (3-Storey Building) will consist of 5 No.1-Bed units and 10 No. 2-Bed units

Apartment Block 5 (4-Storey Building) will consist of 6 No.1-Bed units and 14 No. 2 Bed-units

Apartment Block 6 (2 & 3-Storey Building) will consist of 4 No.1-Bed units and 9 No. 2-Bed units

Duplex Block 1 (3-Storey Building) will consist of 2 No.1-Bed units, 1 No. 2-Bed unit and 4 No. 3-Beds units

Duplex Block 2 (3-Storey Building) will consist of 3 No.1 Bed-units, 1 No. 2 Bed-unit and 5 No. 3-Beds units

Duplex Block 3 (3-Storey Building) will consist of 2 No.1-Bed units, 1 No. 2-Bed unit and 4 No. 3-Beds units

In total, 152 No. car parking spaces are provided for the proposed apartment / duplex units comprised of 114 No. spaces for residents (including 25 No. EV spaces) and 38 No. spaces for visitors (including 7 No. EV spaces and 9 No. Accessible spaces). A total of 266 No. cycle parking spaces are provided for the apartment / duplex units including 209 No. spaces for

residents and 57 No. spaces for visitors. A total of 4 No. ancillary external bin stores (59.23 sq.m) are provided to serve the proposed apartment / duplex blocks.

The proposed development includes a 2-storey Commercial Building (857.05 sq.m) comprising of a Creche (total 692.8 sq.m) at ground level and first floor level with associated Creche outdoor play area at ground level (254.4 sq.m), a Retail Unit (93.5 sq.m) at ground level and a Café (63.13 sq.m) at ground level with associated outdoor seating area. In total, 24 No. car parking spaces are provided for the Commercial Building including 4 No. EV spaces, 1 No. Accessible space and 2 No. Set down spaces. A total of 8 No. cycle parking spaces are provided for the Commercial Building. 1 No. ancillary external bin store (15.34 sq.m) is provided to serve the proposed Commercial Building.

The proposed development will include the construction of the remaining section of the Ratoath Outer Relief Road (RORR) from its current temporary termination point to the east of the subject site to the existing Fairyhouse Road (R155) in the west. The proposed section of the RORR runs from a new proposed signalised junction on the R155, east along the southern boundary of the subject site for approximately 1.08km to the current RORR temporary termination point and for an additional 75m to put a new surface course on the adjoining constructed section of the RORR. A dedicated pedestrian path and a segregated two-way cycle path is proposed along the northern side of the proposed road. 2 No. bus stop laybys are proposed along the proposed section of the RORR with 1 No. on the northern side and 1 No. on the southern side of the proposed carriageway. A grass verge is proposed to the north of the RORR and a soft margin is proposed along the south side of the RORR. A toucan controlled crossing is proposed along the RORR to the west of the proposed bus stop laybys to allow for safe access from the pedestrian/cycle infrastructure on the northern side of the RORR to the bus stop and Glascarn Lane on the southern side of the RORR.

The proposed road will provide access to the subject site in the form of two priority junctions on the northern side of the RORR. 3 No. agricultural site entrances and a new junction with Glascarn Lane are proposed on the southern side of the RORR. Dedicated pedestrian and shared pedestrian/cycle path connections are provided from the subject site to Fairyhouse Road (R155) to the west, Glascarn Lane to the north, and the RORR and Glascarn Lane to the south.

The proposed development includes the realignment of an existing section of Glascarn Lane (c. 270m in total) to facilitate the construction of the proposed section of the RORR. To the north of the RORR, an existing section of Glascarn Lane (c. 75m) will have vehicular traffic removed from it and be repurposed as an active travel shared surface. To the south of the RORR, an existing section of Glascarn Lane will be upgraded to a 2-lane road (c. 187m) with a 40m footpath along the eastern side of the carriageway.

A total of 1.59 ha landscaped public open space comprising a central public park area of 0.4 ha and a series of pocket parks featuring formal and informal play and amenity areas are also proposed and distributed throughout the development. Planning permission is also sought for an extension to the foul water network, surface water and watermain along the RORR required to facilitate the development and for all associated site development and infrastructural works, services provision, foul and surface water drainage, internal roads and pathways, parking infrastructure, lighting, substations, hard and soft landscaping, boundary treatments, green and blue infrastructure and associated signage.

An Environmental Impact Assessment Report has been prepared in respect of the proposed development.

The application including Environmental Impact Assessment Report, may be inspected online at the following website setup by the applicant: www.ratoathlrd.ie

The planning application together with the Environmental Impact Assessment Report may be inspected or purchased **at a fee not exceeding the reasonable cost of making a copy**, at the offices of the Planning Authority during its public opening hours, and a submission or observation in relation to the application may be made in writing to the Planning Authority on payment of the prescribed fee (€20.00) within the period of 5 weeks beginning on the date of receipt by the Planning Authority of the application and such submissions or observations will be considered by the planning authority in making a decision on the application. The planning authority may grant permission subject to or without conditions or may refuse to grant permission.

4 Alternatives Considered

This chapter of the EIAR provides an outline of the reasonable alternatives examined throughout the design and consultation process under the following headings:

- Alternative Locations and Land-Uses
- Alternative Processes
- Do-Nothing' Alternative
- Alternative Layouts and Designs

Alternative Locations and Land-Uses

When considering where to locate this development, the current site was specifically chosen for several compelling reasons. The land is already zoned for residential development in the county development plan (with an A2 New Residential zoning objective), making it the most appropriate location for housing. The uses proposed as part of the LRD scheme are entirely appropriate for A2 zoned land. The site represents the largest available plot within the designated Masterplan (MP37) lands, which means it can accommodate a substantial number of homes efficiently. MP37 lands form a natural extension to the south of the built-up area of Ratoath Town and the subject site is the largest tract of residential-zoned land in the vicinity. Most crucially, this site is essential for completing the relief road, as the road corridor runs directly along the site boundary. The proposed project will complete the RORR and provide access to MP 33, as well as facilitate the development of designated future employment sites in the vicinity. The development will also help meet the county's ambitious housing targets of 803 new homes for Ratoath over the plan period. Given these strategic considerations, no other locations were deemed suitable for this particular development. As such, it was not deemed appropriate or necessary to consider alternative locations or land uses for the proposed development.

Alternative Processes

Alternative processes are not considered relevant to this Environmental Impact Assessment Report given the nature of the proposed development.

Do-Nothing Alternative

The first alternative considered was to leave the site completely undeveloped. However, this option would have significant negative consequences for both the local area and the wider county. It would prevent completion of the strategic masterplan for the area, which is a key planning objective. More importantly, it would block the construction of the important relief road that is needed to reduce traffic congestion in Ratoath town centre. The "do nothing" approach would also fail to meet local housing targets at a time when there is a critical housing shortage, and it would miss the opportunity to provide much-needed community facilities like parks and childcare services.

Alternative Layouts and Designs

The chosen layout was a result of the detailed design process, which included various design iterations and stages of detailed assessments. The design process went through several important stages of evolution. In 2022, a Strategic Housing Development (SHD) proposal for 452 homes on the same site was submitted but was refused planning permission. This earlier application was rejected due to conflicts with the zoning objectives for the lands, issues with the design quality, a reliance on apartments rather than family homes, inadequate open space for residents, and failure to integrate properly with the surrounding area.

The current proposal is to deliver an LRD entirely on lands zoned for residential development, with the RORR delivered across other appropriate zonings (RA, WL and A2 Zones). The total number of units has been reduced to a more appropriate 364 homes and there has been a significant improvement in the mix of houses and apartments available to appeal to a broader demographic and to families. The new design creates better-quality open spaces throughout the development and ensures proper integration with the existing community and landscape.

The layout went through three distinct design iterations, with each version improving on key aspects. The first version focused on creating connected green corridors and a central community park. The second iteration introduced a network of smaller pocket parks distributed throughout the neighbourhood while varying building heights along the main road. The third and final version further refined the mix of housing types, increased the number of adaptable homes for people with different needs, and enhanced the urban design along key frontages.

The chosen design incorporates a thoughtful variety of housing types to accommodate different family sizes and life stages. A central park serves as the heart of the community, complemented by smaller pocket parks scattered throughout the development. The central park has been designed to connect onto parkland on neighbouring MP37 lands, adjoining the site to the east. This can be achieved when the neighbouring lands are developed and will, at that time, result in the creation of a large, central park available for use by the wider community.

The proposed scheme layout prioritises safe pedestrian and cycling routes that connect to existing infrastructure and provide car-free movement options. Buildings are strategically positioned to overlook public spaces, creating natural surveillance that enhances security. Proper spacing between homes ensures privacy for residents while maintaining a sense of community. All homes are designed to be energy-efficient and adaptable to changing needs over time.

The final design was selected because it successfully addresses multiple important objectives simultaneously. It meets all local planning requirements and national guidelines for residential development while providing the substantial number of new homes needed for Ratoath's growing population. The design enables completion of the critical relief road infrastructure that will benefit the entire town by reducing traffic congestion. It creates attractive, safe, and sustainable living spaces that will enhance rather than detract from the existing community character. The layout protects the privacy and amenity of existing neighbours while supporting sustainable transport options through dedicated walking and cycling facilities. Finally, it delivers important community facilities including public parks and a crèche that will serve both new residents and the broader community.

This careful and thorough consideration of alternatives ensures that the final development will provide genuine benefits for both new residents and the existing Ratoath community while meeting critical infrastructure and housing needs in a sustainable and well-designed manner.

5 Air quality (Chapter 5)

AWN Consulting Limited has been commissioned to assess the likely impact associated with the proposed residential development and RORR at Ratoath, Co. Meath, on air quality during the construction phase and operational phase of the proposed Development.

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

Impacts to air quality can occur during both the construction and operational phases of the proposed development. Regarding the construction stage, the greatest potential for air quality impacts is from fugitive dust emissions impacting nearby sensitive receptors. In terms of the operational stage air quality impacts will predominantly occur as a result of the change in traffic flows on the local roads associated with the proposed development.

The UK Institute of Air Quality Management guidance was used to assign a high level of sensitivity to dust soiling impacts to the area in the immediate vicinity of the proposed development. The local area is considered of low sensitivity to human health impacts from dust emissions. The scale and nature of the construction works were reviewed, and it was determined that a high level of dust control was required for the construction phase of the proposed development. Once the dust mitigation measures outlined in Section 5.7 of Chapter 5 are implemented, dust emissions are predicted to be short-term, negative and imperceptible and will not cause a nuisance at nearby sensitive receptors. Construction phase traffic can also impact air quality, particularly due to the number of HGVs accessing the site. Construction phase traffic levels were reviewed, and it was found that the change in traffic was not of the magnitude to require a detailed assessment, therefore the impact is considered short-term, imperceptible, neutral, and not significant.

The TII guidance PE-ENV-01106 details a methodology for determining air quality impact significance criteria for TII road schemes and infrastructure projects however, this significance criteria can be applied to any development that causes a change in traffic. The potential impact of the proposed development on ambient air quality in the operational stage when compared to the EU limit values is considered long-term, direct, localised, neutral, imperceptible and not significant.

There is no ecology in proximity to the site, the potential for impact is scoped out, in accordance with PE-ENV-01106 guidance.

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

6 Climate Factors (Chapter 6)

AWN Consulting Limited has been commissioned to assess the likely impact on climate associated with the proposed residential development and RORR at Ratoath, Co. Meath.

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC). The EPA state that Ireland had total GHG emissions of 60.6 2Mt CO₂e in 2023. This is 2.27 Mt CO₂e higher than Ireland's annual target for emissions in 2023. EPA projections indicate that Ireland has used 63.9% of the 295 Mt CO₂e Carbon Budget for the five-year period 2021-2025. Further reduction measures are required in order to stay within the budget requirements.

The potential impacts on climate have been assessed through a greenhouse gas assessment (GHGA) and a climate change risk assessment (CCRA). The GHGA quantifies the GHG emissions from a project over its lifetime and compares these emissions to relevant carbon budgets, targets and policy to contextualise magnitude. The CCRA considers a project's vulnerability to climate change and identifies adaptation measures to increase project resilience.

GHG emissions associated with the proposed development are predicted to be a small fraction of the relevant sectoral 2030 emissions ceilings. The proposed development will incorporate some mitigation measures which will aim to reduce climate impacts during construction and once the development is operational. At a minimum these include the Nearly Zero Energy Building (NZEB) compliance and targeting a Building Energy Ratio (BER) in line with the NZEB requirements.

GHG emissions during the operational phase due to road traffic were assessed. The changes in traffic volumes associated with the operational phase of the development were substantial enough to meet the assessment criteria requiring a detailed climate modelling assessment, as per Transport Infrastructure Ireland (TII) 2022 guidance "PE-ENV-01104: Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document". There will be a slight increase in the traffic on the local road network as well as changes to the network flows due to the opening of the final section of the RORR, which will result in some minor increases in CO₂ emissions. These have been assessed as a negligible fraction of Ireland's transport sector 2030 emissions ceiling. Several sustainability measures have been incorporated into the design of the development to ensure impacts to climate are reduced. These include cycling and public transport infrastructure which aid to assist future modal shift away from private vehicles.

A CCRA was conducted to consider the vulnerability of the proposed development to climate change, as per the TII 2022 PE-ENV-01104 guidance. This involves an analysis of the sensitivity and exposure of the development to future climate hazards which together provide a measure of vulnerability. The hazards assessed included flooding (coastal, pluvial, fluvial); extreme heat; extreme cold; drought; extreme wind; lightning; hail; fog; wildfire and landslides. The proposed development is predicted to have at most low vulnerabilities to the identified climate hazards provided detailed design includes for the impact of climate change under RCP4.5 up to 2100. There remains some medium risk in RCP8.5 due to an increased exposure to extreme rainfall events, high temperatures, droughts and high windspeeds in this scenario. This residual medium risk will be further considered during detailed design to further add resilience into the design.

Several best practice mitigation measures are proposed for the construction phase of the proposed development to ensure that impacts to climate are minimised. During detailed design, the proposed development is committing to implement additional mitigation measures to ensure the embodied and operational carbon will be a key consideration for the entire LRD including the portion of the RORR to be constructed under this planning application. The principals from Guidance documents including IEMA (IEMA, 2020b) and LETI (LETI, 2020) will be put in place to ensure that the project's GHG impacts are mitigated through 'good practice' measures. In addition, the proposed development design will be reviewed to ensure it complies with existing and emerging policy requirements with respect to GHG emissions. Design mitigation has been considered when assessing the vulnerability of the development to future climate change.

The impact to climate as a result of a proposed development must be assessed as a whole for all phases. The proposed development will result in some impacts to climate through the release of GHGs. TII reference the IEMA guidance which states that the crux of assessing significance is "*not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory*

towards net zero by 2050". The proposed development has been designed to reduce the impact on climate where possible during operation. The proposed development has incorporated some mitigation measures to reduce climate change impacts. Once mitigation measures are put in place, the effect of the proposed development in relation to GHG emissions is considered direct, long-term, negative and slight which is not significant in EIA terms.

With respect to the requirement for a cumulative assessment PE-ENV-01104 states that "the identified receptor for the GHG Assessment is the global climate and impacts on the receptor from a project are not geographically constrained, the normal approach for cumulative assessment in EIA is not considered applicable. By presenting the GHG impact of a project in the context of its alignment to Ireland's trajectory of net zero and any sectoral carbon budgets, this assessment will demonstrate the potential for the project to affect Ireland's ability to meet its national carbon reduction target. This assessment approach is considered to be inherently cumulative". As a result, the cumulative impact of the proposed development in relation to GHG emissions is considered direct, long-term, negative and slight, which is overall not significant in EIA terms.

7 Noise and Vibration (Chapter 7)

This section assesses the likely noise & vibration impacts associated with the proposed Ratoath development at Ratoath, Co. Meath, which includes the Ratoath Outer Relief Road.

The noise impact assessment has focused on the potential outward impacts associated with the construction and operational phases of the proposed development on its surrounding environment, as well as the inward impact of noise on the proposed residential dwellings.

During the main construction phase there is the potential for some temporary moderate to significant noise impacts when works are undertaken within 20m of the receptor locations. However, these occurrences will only be temporary, and the vast majority of the construction works will take place at distances from the receptors where no significant impacts are predicted, and the construction criteria will be complied with. A schedule of noise mitigation measures including, noise limits and screening will all be employed to ensure any noise and vibration impacts during this phase will be reduced as far as is reasonably practicable. At distances greater than 20m the effect will be negative, slight to moderate and short-term.

During the construction of the Ratoath Outer Relief Road it is predicted that when construction works take place at less than 50m distance to the receptors a moderate to significant, temporary effect will occur. At distances greater than 50m from the site works the effect is considered slight to moderate and temporary.

During the operational phase, the outward noise impact to the surrounding environment will be limited to any additional traffic on the existing surrounding roads, the operation of the new Ratoath Outer Relief Road and any potential plant noise associated with the development.

The impact assessment has concluded that the impact from additional traffic on existing roads due to the proposed development, as well as the operation of the new Ratoath Outer Relief Road will be Not Significant. The resulting impact is of negative, not significant and long-term.

The operational plant noise from the development will be designed to ensure the prevailing background noise environment is not exceeded by plant noise such that potential adverse noise impacts are avoided. Once noise emissions from operational plant and activities are designed in accordance with BS 4142 Methods for Rating and Assessing Industrial and Commercial Sound, resultant residual noise impact from this source will be of negative, not significant, long-term impact.

The potential for inward noise impact on the proposed development has also been assessed. The assessment was carried out with reference to the guidance contained in Professional Practice Guidance

on Planning & Noise (ProPG), BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings (BSI); and the local and national Noise Action Plans relevant to the area. The assessment has identified facades where upgraded acoustic glazing will be required.

External amenity noise levels within the development are predicted to meet the guidance noise levels outlined in ProPG. The inward noise impacts will be negative, not significant and long-term.

8 Biodiversity (Chapter 8)

The potential impacts on biodiversity that the development may have on the receiving environment, during the construction and operational phases of the project have been assessed.

The site is consisting of undeveloped agricultural grassland, treelines and hedgerows. Desk studies have been carried out which included examining records and data from the National Parks and Wildlife Service (NPWS), National Biological Data Centre (NBDC) and the EPA, in addition to aerial, 6-inch maps and satellite imagery. Habitat and field surveys of the site were undertaken within the appropriate seasonal timeframe for terrestrial fieldwork. Evidence of Badger (*Meles meles*) activity was noted within and surrounding the site outline. No setts were noted on site or in the immediate vicinity of the site. Minor bat foraging activity was observed within the site, and there is a confirmed bat roost within a tree onsite, which is to be retained. No protected plant species or habitats of conservation importance were found on site.

The ZOI of the proposed project would be seen to be restricted to the site outline, with potential for minor localised noise and lighting impacts during construction which do not extend significantly beyond the site outline nor are they likely to have any significant effects on any European sites. There is no direct or indirect hydrological pathway or biodiversity corridor from the proposed development site to any Natura 2000 site. The potential impacts from the proposed development on European sites is assessed in the accompanying AA Screening which concluded that: *“There is no possibility of significant impacts on European sites, features of interest or site-specific conservation objectives. A Natura Impact Statement is not required.”*

The construction of the proposed development would impact on the existing ecology of the site and the surrounding area. These potential construction impacts would include impacts that may arise during site clearance, re-profiling of the site, and the building phases of the proposed project. The development will result in the removal of most internal hedgerows & treelines, in addition to some perimeter hedgerows which would form nesting and foraging habitats, and drainage ditches for local biodiversity. Landscaping of the development will result in tree planting across the site, but connectivity of biodiversity corridors will be reduced. This would result in a reduction in foraging areas for bats and badgers. Clearance, reprofiling and construction of the site will result in the loss of nesting habitat in addition to foraging habitat for birds.

The successful implementation of the mitigation measures outlined in this chapter of the EIAR would be seen as essential elements to the successful mitigation of the loss of biodiversity on-site, in addition to ensuring that works do not impact on downstream aquatic ecology. The application of the mitigation measures outlined in this EIAR will help reduce the impact on biodiversity and ecology so that such significant impacts do not arise. It is considered that, where possible, biodiversity enhancement measures have been incorporated into the design for the benefit of the overall biodiversity value of the site and offset the loss of biodiversity on site. The overall residual impact of the proposed Project on biodiversity will be a **minor adverse, long-term, site, not significant impact**. This is primarily as a result of the loss of terrestrial habitats on-site, supported by the creation of additional terrestrial biodiversity features, mitigation measures and landscaping strategy.

9 Archaeology & Cultural Heritage (Chapter 9)

An Archaeology and Cultural Heritage assessment on the site of the proposed development of lands at Ratoath, Co. Meath was prepared Donald Murphy and Magda Lyne, Archaeological Consultancy Services Unit Ltd. Archaeological Impact Assessment was undertaken to identify and describe known and potential archaeological and cultural heritage constraints within the proposed development area and its environs and to offer recommendations for the mitigation of such potential impacts. The site was subject to several archaeological assessments carried out in relation to the site, both invasive and non-invasive. These include Geophysical Survey (20R0026; Russell, Breen, 2020), with a portion of the site measuring 10.3ha subject to test trenching (21E0511; Cosgrove, 2021). More recently, an Archaeological Impact Assessment (Collins, Lyne, 2025) was carried out.

The assessments were successful in identifying archaeological features on the site. Archaeological test trenching identified three areas of archaeological activity: one in Field 1 (Area 1) and two in Field 5 (Area 2 and 3). The features exposed comprise ploughed out pits, post-holes and spreads, likely associated with a prehistoric activity. Areas 4 and 5 (Field 4) and Fields 7-9 were not subject to archaeological investigation at that time. Furthermore, four Cultural Heritage Areas (CHA) were identified; one is a site of vernacular structure (CHA1; Area 4), while the remaining three are townland boundaries (CHA 2-4).

The proposed development site contains no Recorded Monuments listed within the Record of Monuments and Places for County Meath. The nearest recorded monument to the site, an enclosure (ME045-066) located c. 180m to the east. There are no Protected Structures listed in the Meath County Development Plan 2021-2027 nor sites listed within the National Inventory of Architectural Heritage (NIAH). The closest such structure is Ratoath Manor (RPS ID 91453; NIAH Reg. No. 14336002) located c. 1km to the north of the site. Recently, excavations were carried out to the northeast of the site, identifying The National Museum of Ireland Topographical Files were reviewed and list no finds for the townlands of Commons or Jamestown that the site is located within.

The proposed development will have a permanent direct negative/adverse profound effect on three areas of archaeological activity (Areas 1-3) and CHA 1-4. The development has the potential to impact upon unknown, buried archaeological remains if such are present within Areas 4 (CHA1) and 5/Field4 and Fields 7-9.

The following mitigation measures will be carried out subject to the approval of the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage (DHLGH), and further mitigation may be sought by the NMS:

- 3no. areas of archaeological activity (Areas 1-3) identified during test trenching (21E0511) will be preserved by record (excavated). At the locations of the features identified, in Field 1 an area measuring 37m by 27m and in Field 5 two areas measuring 25m by 25m and 20m by 20m will be stripped of topsoil (Figure 9.5-9.7), features identified including any features associated that might be exposed, will be preserved by record. This will be carried out under licence from the National Monuments Service of the DHLGH by a suitably qualified archaeologist. The appointed archaeologist shall consult with the Licensing Section of the NMS regarding the methodology to be employed in the resolution of all sites. This will be carried out prior to construction works commencing.
- Prior to the development of the site, an area measuring 20m by 25m around the location of Cultural Heritage Area CHA1 shall be stripped of topsoil to establish if any remains of the structure are present (Figure 9.5). Further archaeological investigation may be required depending on the results, including a full archaeological excavation of any features and deposits

identified by a licensed archaeologist in accordance with a methodology to be agreed with the National Monuments Service.

- Archaeological test trenching of Area 5/Field 4 and Field 7 (Figure 9.5) within the northeast portion of the site will be carried out prior to construction. Should archaeological features be identified, further mitigation, including preservation in situ (if feasible) or by record (excavation), will be required. This will be carried out under licence from the National Monuments Service of the DHLGH by a suitably qualified archaeologist. The appointed archaeologist shall consult with the Licensing Section of the NMS regarding the methodology to be employed in the resolution of all sites. This will be carried out prior to construction works commencing.
- Prior to the development of the site, a photographic and measured survey (including written description, photographic record) will be carried out of Cultural Heritage Area CHA2 – townland boundary between Commons and Jamestown, as well as CHA3 and CHA4 townland boundaries between Commons and Ratoath (Figure 9.5).
- Adequate time and resources will be provided by the developer for the resolution of any archaeology identified within the development site, which will be directly impacted by groundworks. Time and resources will also be allowed for any post-excavation work and specialist analysis necessary following any archaeological excavation that takes place.
- A full report including all post-excavation analysis will be submitted to the relevant authorities within 12 months of the completion of the archaeological excavations.

If these recommendations are implemented, the potential effects on archaeological and built heritage material will be sufficiently mitigated.

10 Landscape & Visual (Chapter 10)

Purser has been commissioned to assess the likely significant landscape and visual effects of the proposed residential development at Ratoath, Co. Meath during its construction and operational phases. The analysis covers changes to landscape character and impacts on visual receptors (residents and visitors). Mitigation and monitoring measures embedded in the project design and potential cumulative impacts are also discussed.

The methodology for the Landscape and Visual Impact Assessment (LVIA) aligns with the Environmental Protection Agency (EPA) guidelines and the “Guidelines for Landscape and Visual Impact Assessment, Third Edition” (GLVIA3). The assessment involved:

- Desktop reviews of landscape character, visual sensitivity, and designated scenic routes.
- Fieldwork to verify baseline conditions and capture visual perspectives.
- Use of photomontages to evaluate visual impacts from selected viewpoints.

The subject site is located on the southern edge of Ratoath, County Meath, and forms part of the town’s designated development lands. It comprises approximately 12.56 hectares of generally flat, agricultural grassland defined by mature field and roadside hedgerows. The site forms part of a transitional landscape between the established urban fabric of Ratoath to the north and a predominantly rural landscape to the south.

The surrounding area presents a mixed character. To the north, the site adjoins existing residential areas, including Carraig na Gabhna, Cairn Court, and residential properties along Glascarn Lane, as well as Ratoath College. To the south, east, and west, the context becomes increasingly rural, comprising agricultural lands interspersed with scattered one-off dwellings, and local commercial

enterprises along Glascarn Lane. The site also lies adjacent to the permitted Jamestown Large Residential Development (LRD), which is currently under phased construction. The proposed Ratoath Outer Relief Road (RORR) defines the southern site boundary and forms part of a wider strategic infrastructure corridor envisaged in the Meath County Development Plan 2021–2027.

The site consists of multiple agricultural fields bounded by established hedgerows and tree lines. Vegetation on site primarily comprises Hawthorn hedgerows with understorey Bramble and Dogrose. Tree species include Ash (many showing signs of dieback), Sycamore, Crab Apple, and occasional Poplar. An arboricultural assessment has classified the majority of trees and hedgerows as Category 'C' (low quality/value), with only one tree rated Category 'B' (moderate quality/value). The hedgerow network contributes to local visual screening and biodiversity value, despite its declining condition.

The visual envelope is relatively constrained due to the site's flat topography and the enclosing pattern of mature hedgerows. Views into the site are generally limited to short-range glimpses from adjoining residential properties and local roads (e.g., R155 Fairyhouse Road and Glascarn Lane). The most sensitive visual receptors include adjacent residential dwellings, particularly those that directly adjoin the site. In general, the broader landscape offers limited intervisibility with the site.

The proposed layout has been thoughtfully crafted to respond to the site's context, adhere to planning policy, and incorporate feedback from pre-planning discussions with Meath County Council. It embodies an integrated approach that harmonizes residential density with permeability, high-quality open spaces, and robust place-making principles.

The design features a well-structured network of streets and spaces, organized around a hierarchical movement system with clear connections to neighbouring areas, including the Jamestown LRD and the Ratoath Outer Relief Road (RORR). A green spine traverses the site, linking a series of public and communal open spaces that serve as hubs for recreation and community interaction.

The development provides prominent frontage along the RORR, while also featuring shared surface streets and pedestrian-priority zones that encourage walkability and enrich the neighbourhood's character. The overall layout promotes visual and physical permeability, fosters passive surveillance, and encourages social interaction among residents.

The construction phase will result in a short-term, medium magnitude change to the site and its immediate setting. The following landscape effects are anticipated:

- Loss of existing agricultural character, including removal of internal hedgerows (in accordance with plans and particulars) and associated vegetation to accommodate development platforms, roads, and services.
- Introduction of construction-related features, such as site hoarding, site compounds, temporary fencing, stockpiles, plant and machinery, haul roads, and traffic management infrastructure.
- Disruption of landscape continuity, as green field parcels are temporarily replaced by hard infrastructure and construction activity.
- Disturbance to landscape features, including regrading, soil stripping, and localised clearance works to facilitate construction and road realignment (notably the completion of the Ratoath Outer Relief Road).

Although these effects will be perceptible during construction, the landscape context is already transitional and influenced by recent and ongoing development, including the adjacent Jamestown LRD.

The site is enclosed by existing boundary hedgerows and development, limiting landscape exposure beyond the immediate vicinity.

The construction phase will result in temporary and moderate adverse effects on local landscape character due to the transformation of the site and loss of internal field structures. However, these effects are short-term and will be mitigated through the implementation of a comprehensive landscape scheme, aligned with the long-term planning objectives for the area and delivered in tandem with phased construction.

The construction process will include the removal of internal hedgerows and boundary vegetation, clearance of grassland, regrading of ground levels, earthworks, and the progressive introduction of construction-related infrastructure, including perimeter hoarding, scaffolding, cranes, temporary stockpiles, and on-site plant. Temporary lighting may also be in place during early mornings or winter working hours, although usage will be managed to minimise light spill.

During the construction period, temporary hoarding and fencing will enclose active areas of the site. The use of cranes, diggers, and scaffolding will result in elevated visual elements, particularly during the early stages of each phase. These will be visible from adjoining roads and residential properties, especially during Phases 1, 3, and 4, which are adjacent to existing homes along Glascarn Lane, Cairn Court, and Fairyhouse Road. In these areas, visual effects will be more pronounced due to proximity and partial visibility over or through existing boundaries.

As construction progresses, visual impacts will diminish significantly. By the final stages, most structural elements will be completed, and tall temporary structures like cranes will be removed. Remaining construction-related items, such as fencing and machinery, will have low visual impact and will be gradually phased out as each stage is completed and landscaping is developed. The visual effects during construction are considered short-term and moderately impactful, mainly affecting nearby areas. These effects will fluctuate based on construction phases, locations, and activities.

The proposed development will result in a clear and deliberate transformation of landscape character—from semi-rural grassland to a well-structured urban extension incorporating housing, public open space, and the final section of the Ratoath Outer Relief Road (RORR). This transformation is not unexpected or out of context: it is fully supported by the zoning designation (A2 – New Residential) and strategic planning policies aimed at compact growth, consolidation of urban edges, and coordinated infrastructure delivery.

The proposed development, while marking a significant change in land use, is thoughtfully designed to harmonize with the local landscape. It features graduated massing, with taller structures centrally positioned and lower heights near existing residential areas, ensuring a smooth transition between the suburban edge and the new project. The use of materials such as red and buff brick, render, metal cladding, and slate-effect roofing captures both traditional and contemporary local architectural styles, with a simple, neutral colour palette that visually anchors the development in its suburban fringe context. The operational phase will lead to a permanent, medium-scale transformation of the landscape, introducing new structures and public spaces to a previously undeveloped agricultural site at Ratoath's southern edge.

Visual screening through site hoarding and retention of existing hedgerows where possible will screen some of the construction works on site. Trees, hedgerows, and mature vegetation will be retained wherever possible. A detailed Tree Protection Plan will be implemented to safeguard vegetation identified for retention, in accordance with best arboricultural practice.

Other mitigation measures include:

- The site compound and contractor parking will be located in the northeastern portion of the site, away from existing residential boundaries and outside the root protection areas of trees to be retained. The compound will be removed at the earliest practicable stage following completion of main construction activities.
- The location of any on-site batching plants or temporary disposal areas will be determined by the contractor, but will be positioned away from sensitive receptors, including existing dwellings.
- Site hoarding and temporary fencing will be installed to provide both security and visual screening of construction activities. These will be maintained to a high standard throughout the construction period and relocated as necessary to suit phasing and progress.
- Construction traffic will primarily access the site from the south via Fairyhouse Road (R155) and the M3 motorway, reducing potential disruption to residents along Glascarn Lane and the existing built-up area of Ratoath.

No additional LVIA-specific mitigation is required during the operational phase of the development. The design of the proposed residential dwellings and inclusion of a comprehensive landscaping scheme will help to assimilate the proposed development into its environment. The design team have worked to ensure that the proposed development sits comfortably within the surrounding area. This has been achieved using locally appropriate materials for the buildings. The proposals also include a comprehensive landscaping scheme which draws inspiration from the surrounding landscape and seeks to embed the development with the area.

During the construction phase visual impacts such as the soil stripping, removal of sections of hedgerows and individual trees, tall construction elements such as cranes and site hoarding will be the most prominent elements.

Measures such as the installation of hoarding along the perimeter of the site will assist in mitigating some of the visual impacts of the construction phase. However, it is acknowledged that due to the proximity of nearby residential receptors there will be some visual impacts. The residual impact of the construction phase is medium magnitude, negative, short term.

The development will create localised visual impacts for adjoining residential properties. However, the proposals will not be out of character for the area due to adjacent residential development taking place to the northeast of the site as part of the Jamestown Large Residential Development, including the completion of the first stage of the Ratoath Outer Relief Road. The proposed development will be perceived visually within the wider landscape, however use of materials seen within the local area and a comprehensive landscaping scheme will assist in mitigating some of the visual impacts.

The completion of the proposed development at this location will create further changes in the landscape character of the area, which is in the process of becoming a more residential/urban fringe location. This change has been initiated by the permitted and part constructed Jamestown residential development and the initial stages of the Ratoath Outer Relief Road. The design and layout of the proposed development along with the completion of the Ratoath Outer Relief Road will assist in the scheme being successfully integrated this new and changing character area. The residual impact of the operation phase is medium, positive, long term, significant.

The landscape and visual impacts of the proposed scheme will mainly interact with:

- **Population and Human Health:** The development is designed to integrate seamlessly with its surroundings, offering a well-scaled, contemporary residential scheme enhanced by high-quality landscaping. These design features will reduce negative visual impacts, ensuring any effects on nearby residents' perception and well-being are minimal and localized.
- **Material Assets:** The development's visual impact on nearby material assets, such as the Ratoath Outer Relief Road and urban infrastructure, is minor. Positioned within a serviced and zoned area with a developing urban character, the interaction with these assets is minimal.
- **Cultural Heritage:** The site does not border any designated archaeological or architectural heritage features. Due to the lack of sensitive heritage sites and limited long-range visibility, the interaction between the development's visual effects and cultural heritage is negligible.

An assessment considered nearby developments within a 2.5 km radius, focusing on their potential cumulative landscape and visual impacts alongside the proposed project. Projects were screened based on shared visibility, proximity, or sequential experience in the landscape, with much of the surrounding development being small-scale residential projects. The Jamestown Large Residential Development, currently under construction northeast of the site, may contribute some cumulative construction traffic impacts, mitigated by a comprehensive traffic management plan. Cumulative visual impacts from the Jamestown development and the proposed scheme are anticipated to be low, due to embedded design and landscape mitigation measures. Temporary construction phase effects will be limited to the immediate areas of the sites. In the operational phase, the developments will form a cohesive urban layout along Ratoath's southern edge, resulting in a medium magnitude yet positive impact on local landscape character, enhancing the area's transition into a residential neighbourhood within an established urban boundary.

Landscape and visual mitigation measures will be monitored during the construction stage. This will include siting of the construction compound; protection of trees / hedgerows to be retained; stripping and storage of topsoil; reinstatement of landscape / soil areas; and completion of landscape works. All landscape areas disturbed by construction works will be reinstated prior to the completion of construction works. Any materials or plants which fail within a twelve-month post-construction aftercare period will be replaced. No monitoring other than management of landscape areas will be required during the operational stage. Any landscape materials, plants or areas which fail during the on-going operational stage will be replaced.

11 Land Soils & Geology (Chapter 11)

The proposed development for a Large-scale Residential Development (LRD) on a site of 12.58ha at Jamestown and Commons, Ratoath Co. Meath consisting of 364 no. residential units including 250 no. houses and 108 no. apartment / duplex units along with a creche, retail unit and café unit. The proposed development also includes the construction of a section of the Ratoath Outer Relief Road (RORR) from its current termination point to the existing Fairyhouse Road (R155). Please refer to the planning application form and statutory notices (newspaper and site notices) for a full and formal description of the proposed development.

The site is currently greenfield land used for agricultural purposes and can be accessed from Glascarn Lane to the east and Fairyhouse Road to the west of the site. Ground levels across the site fall generally from south-west to north-east towards Glascarn Lane. Levels along the public road forming the south-western boundary of the site are approximately 94.5 mAOD and fall to approximately 90.5 mAOD along the north-eastern boundaries of the site. There are two local high points of 92.8 mAOD in a small area in the centre of the site surrounded by a plateau area at 92.8 mAOD.

The assessment discusses potential impacts of the proposed project on the existing soils, geology, and land and was carried out using data collected from a detailed desk study and site-specific assessments.

The aquifer beneath the Site is classified as a locally important bedrock aquifer that is moderately productive only in local zones in the site. The groundwater vulnerability beneath the proposed Site is variable and includes areas of low vulnerability. The Swords GWB which underlies the Site is presently of "Good status". The Swords GWB is "Not at risk" of not achieving good status by 2027.

Based on the GSI website, the effective rainfall for the Site ranges from 377.6 to 405.8 mm/year. The recharge coefficient for the site is low variable, ranging from 8.0 to 20.0%. Recharge values are low to very low in the majority of the Site except along portions of the northeastern and northwestern Site boundaries where they range from very low to very high, depending on the permeability of the soil and subsoil and the presence of shallow bedrock.

A soil investigation was undertaken in 2020. The investigation indicated the presence of topsoil to a maximum depth of 0.2m; overlying firm to stiff, brown gravelly CLAY in 6 trial pits; Stiff to very stiff, grey-black gravelly CLAY was present from approximately 2 mbGL to approximately 8.1 mbGL. Cobbles and the occasional boulders were encountered. Recovery below the gravelly clay layer was limited, but returns were identified as grey-black, sandy, cobbly gravel. From 10.00 to 16.50 mbGL alternating layers of gravel and sand were noted with some adverse 'blowing' noted in the fine sand layers. No groundwater was encountered during the course of the borehole investigation, although a minor water seepage was noted at 2.20 meters in one trial pit. No fall water was recorded in the first test cycle of the infiltration testing. In-Situ CBR by Plate Bearing Testing was carried out at 0.50 mbGL. The CBR at Load Cycle from the 15 locations ranged from 3.0 to 21.5%; the CBR at Re-Load ranged from 4.4 to 45.1%.

According to the GSI database, there are two wells potentially located on the site. The nearest SPZ is the Dunshaughlin Public Water Scheme, which is located 4.6km northwest of the site. As such, fuel and chemical storage and use on the site is unlikely to pose a risk to water of groundwater contamination within this SPZ. However, the risks to groundwater and surface water will be minimised via engineering design and construction in line with best practice. Contractors will prepare and implement a site-specific CEMP which will address the mitigation of risks to groundwater.

The site is primarily a greenfield site with no potential contamination sources. A detailed assessment of potential soil contamination and a waste classification has not been carried out for the Site. However, laboratory analysis of two soil samples from the site shows low levels of metals and inorganic and organic compounds.

No significant sources of potential contamination are anticipated to be present on the Site during the operational phase of the development. However, fuel storage requirements associated with items such as generators are not known at this time.

The potential effects of the proposed development on the Land, Soils, and Geology include:

Construction Phase:

- Erosion of disturbed soils by site vehicles, wind, or rain leading to run-off with high suspended solid content.
- Cut and fill activities and the import and export of materials to and from the Site which will alter topography and may influence groundwater recharge rates.
- Contamination or cross-contamination while moving and stockpiling potentially impacted soils on Site.
- Pollution of groundwater/ soils by accidental spillage of pollutants associated with construction activity.
- Effects associated with possible dewatering requirements and discharge of this water.

Operational Phase:

- Accidental spills on land and soils.
- Effects on the hydrogeological regime associated with structures founded within shallow perched or bedrock groundwater.

Suitable waste soils management will be implemented to avoid contamination and cross-contamination of any impacted waste soils that may be identified prior to or during site works. All fill and aggregate for the project will be sourced from reputable suppliers as per the project Contract and Procurement Procedures.

The CEMP will be implemented during the construction phase to avoid accidental spills and risk of groundwater/watercourses/ surface water network pollution.

The 'reduce, reuse, and recycle' principles will guide the approach on Site during all times, especially with regard to reusable soils where feasible.

Some activities from the construction phase might pose a risk of negative impact on the Site and its surrounding land, soils, and hydrogeology if the protective/ avoidance/mitigation measurements are not implemented. However, assuming all protective/ avoidance/mitigation measurements are implemented as per EPA guidance and the CEMP, the proposed development is not likely to give rise to any significant impacts. The residual impacts from the construction phase consist of land take/change of use and the removal of soil to facilitate the development which are assessed to be *slight, negative, and permanent*. However, if any contaminated soils are identified and removed from the Site, there will be a *slight, positive, permanent* impact.

Based on the implementation of the mitigation measures discussed above, the potential for residual impacts on the environment due to site operations is *negligible*.

11.1.1 Interactions

During the construction phase, possible interactions of land, soils, and hydrogeology may interact with other following aspects:

- **Biodiversity:** The cut and fill and other predicted excavation activities with the Site will result in the loss of some permanent habitat and the disturbance to some species during construction.
- **Water/Hydrology:** Site preparatory works (i.e., site clearance, re-profiling, etc.) can potentially lead to elevated silt/sediment or other contaminant loading due to construction site runoff. Dewatering of excavations during the construction phase can result in water with elevated silt and possible chemical contaminants requiring discharge to the local drainage system. Construction stage works can potentially impact water and hydrology due to the risk of accidental spills, cross-contamination due to incorrect waste soils management, use of contaminated material as fill, etc.
- **Air Quality and Climatic Factors:** Dust generated during site clearance, reprofiling, excavation, and soil reinstatement works can lead to temporarily diminished air quality.
- **Noise and Vibration:** Excavation of soils and extraction of bedrock can lead to temporary noise and vibration within the Site.
- **Landscape & Visual:** The proposed cut and fill activities on the Site will alter the topography of the Site, and the subsequent construction within the Site will significantly alter the local landscape.
- **Material Assets (Traffic and Transport):** Removal of waste soil and stone from the Site and the importation of aggregate fill material will temporarily impact on local traffic volume.
- **Material Assets (Built Services):** The construction of built services will require the excavation of soils within the Site.
- **Material Assets (Waste Management):** Removal from Site of a net excess of soil and stone to that required for cut and fill purposes will be required during the construction phase.

- **Population and Human Health:** Potential chemical contaminants in Site soils and/or groundwater may pose a risk to human health. This will be assessed through a GQRA prior to commencement of construction.

The impact of activities related to land, soils, and hydrogeology on the aforementioned aspects of the Site during the construction phase are anticipated to generally be short-term to permanent, neutral to negative in terms of quality, and not significant based upon the implementation of appropriate mitigation measures.

The impact of activities related to land, soils, and hydrogeology on the aforementioned aspects of the Site during the operational phase is anticipated to be long-term, neutral in terms of quality, and not significant given the implementation of appropriate mitigation measures.

12 Water (Chapter 12)

The Site lies within the Fingal East Meath district hydrometric area (HA) which is part of the Eastern River Basin District (ERBD). The Fingal East Meath HA is drained the Rivers Nanny and Delvin and by all streams that enter tidal water between Mornington Point and Sea Mount, Co. Dublin. The Nanny-Delvin catchment encompasses 711 km².

The Site is located within three sub-basins of the Fingal East Meath HA: Ratoath Stream, Fairyhouse Stream, and the Broadmeadow River. The Broadmeadow River is part of the Broadmeadow sub-catchment (Broadmeadow_SC_010) that discharges to the Swords Broadmeadow Estuary.

The Broadmeadow sub-catchment has a Poor 2013-2018 ecological status with elevated orthophosphate and ammonia. The Ratoath and Fairyhouse streams have 'Poor' ecological status and impacted supporting nutrient conditions with elevated orthophosphate. Ammonia is also elevated in Ratoath Stream, and dissolved oxygen levels fail for the Fairyhouse Stream (WFD Application a, 2018). The 2013 to 2018 WFD reports for Ratoath Stream, Fairyhouse Stream, and Broadmeadow River classify the overall status of these water bodies as 'poor' with an objective to obtain good status by 2027. In addition, these three water bodies are currently 'at risk' of not achieving a good status by 2027 due to significant pressure of nutrients and diffuse urban sources of pollution.

Based on the GSI website, the aquifer beneath the Site is 'Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones'. The groundwater vulnerability beneath the proposed Site is Low.

The effective rainfall in the vicinity of the Ratoath site is 377.600mm/year. The GSI has calculated the recharge coefficient in the immediate area of the Site at 7.50% and has modelled the total recharge to be equivalent to approximately 28 mm/year.

Fairyhouse Stream is located 0.6km south of the Site, Bradystown Stream is 0.3km west of the Site, Ratoath Stream is 1km north of the Site, and Tankardstown stream is over 1km to the east. There are no watercourses within or adjacent to the site boundary; however, there is an existing drainage ditch within the site.

The catchment area for the surface water network is 14.8 ha which includes the subject development and additional land to the west. The site is located within two surface water catchment areas with all surface water runoff on the Site currently draining to onsite drainage ditches. The two catchment areas within the Site are separated by a surface water drain. The northern catchment drains in a northerly direction. The southern catchment drains to the ditch which forms the catchment boundary. From there

it flows to the west under Fairyhouse Road and toward Ratoath Stream. The Site is not located in an area which benefits from an Office of Public Works Arterial Scheme.

The site and its vicinity are located in Flood Zone C and are not at risk of fluvial flooding. There have been no records of flooding found for the site vicinity (Meath County Council, 2019). There are no flooding issues within the site and its immediately surrounding area, but Bradystown Stream to the west of the site is located in a flood Zone B, while Ratoath Stream to the north is located in a flood zone A (OPW, 2016). A flood relief scheme is in place in Ratoath along the Broadmeadow River.

The existing site is currently greenfield with no wastewater discharge to the local wastewater infrastructure. New wastewater and surface water drains will be constructed within the proposed development and connected to the existing 300mm foul sewer, and a 450mm surface water sewer located on the Ratoath Outer Relief Road, along with an existing agricultural ditch at the western part of the site that drains to the Ratoath Stream. The wastewater effluent will ultimately be treated at the Ringsend Wastewater Treatment.

The potential effects of the proposed development on the water environment include:

- Risk of groundwater/watercourses/surface water network pollution by accidental wastewater effluent spillage when connecting to live sewers and by suspended solids during site preparatory and construction phase works such as excavation.
- Pollution of groundwater/watercourses/soils by accidental spillage of oils/diesel from temporary storage areas and construction equipment maintenance and refueling.
- Accidental spills or contaminated run-off discharged to sewer during daily activities.
- The proposed development will result in an increase in water demand on the public water distribution network.

Proper maintenance of the drainage system will be implemented in accordance with the MCC County Development Plan, CIRIA 753, The SUDS Manual, to reduce any risk of human or mechanical error causing flood risk from blockages.

As part of the proposed development, new surface water and wastewater networks will be constructed and are designed to comply with the Greater Dublin Strategic Drainage Strategy (GDSDS) requirements.

Suitable waste soils management to be implemented to avoid contamination and cross-contamination of waste soils.

The Resource Waste Management and Construction Environmental Management Plan reports will be followed during the construction phase to avoid accidental spills and risk of groundwater/watercourses/surface water network pollution.

Based on the implementation of the mitigation measures discussed above, the potential for residual impacts on the environment due to site operations is negligible. An independent surface water and wastewater network will be provided for this development and will connect to those on the Ratoath Outer Relief Road.

The proposed Development located in Newtown, Ratoath, Co. Meath is a greenfield site in agricultural use. Some activities from the construction phase may pose a risk of negative impact on the Site and

surrounding hydrology and hydrogeology if the protective/ avoidance/mitigation measurements are not implemented. However, assuming all protective/ avoidance/mitigation measurements are implemented as per relevant guidance and the Waste and Construction Environmental Management Plan, the proposed development will not give rise to any significant impacts.

The project impact on the local water environment will be insignificant, and permanent.

13 Population & Human Health (Chapter 13)

This chapter examines how the proposed residential development may affect the local population and human health. The assessment considers both the short-term construction phase impacts and the long-term effects once the development is completed and occupied.

The study focuses on a 2km area around the proposed development site, primarily covering Ratoath Electoral Division. Currently, this area has 11,894 residents (2022 Census), representing a 7.3% increase from 2016. The population shows:

- A balanced gender split (51% female, 49% male)
- High employment rates (63.2% of adults are working)
- Well-educated residents (52% have third-level qualifications)
- Predominantly family households (47% are married couples with children)
- Generally good health status (62.6% report "very good" health)

Existing Services and Facilities

The area is well-served with:

- Education: 3 primary schools, 1 secondary school, 8 childcare facilities
- Healthcare: 13 facilities including medical centres, pharmacies, and specialist clinics
- Recreation: 17 sports and recreation facilities
- Transport: Good bus connections and access to major roads

During the construction phase, temporary effects are expected across several areas. The local population may experience minor inconvenience from construction traffic and activities, resulting in a slight negative but temporary impact. However, the construction phase will provide significant benefits for employment and the economy through job creation in construction and related industries, along with increased spending in local businesses. This represents a moderate positive temporary impact.

Education and childcare facilities will experience minimal impact due to their distance from the town centre, resulting in a neutral temporary effect. Health and environmental considerations include temporary increases in construction noise, dust, and traffic, but all impacts will be managed through best practice construction methods and controlled through appropriate mitigation measures.

During the operational phase, substantial long-term benefits are anticipated. The development will provide accommodation for in the region of 1,000 plus residents (at full occupancy), addressing housing demand in a well-connected location and delivering a positive permanent impact on population and housing.

For employment and the economy, new working residents will contribute to the local economy, with new jobs created in the proposed crèche, retail and cafe facilities. The increased spending power will support local businesses, representing a moderate positive permanent impact.

Regarding education and childcare, the new on-site crèche facility will meet the development's needs while providing additional capacity for the wider community. The development is estimated to generate in the region of 128 primary school children and 92 secondary school children. However, this level of demand will not be instant given the phasing plan proposed. It is expected that the primary and post primary school facilities in proximity of the Proposed Development will sufficiently absorb the school going population generated by the development, based on a schools capacity audit undertaken for this application.

Health and wellbeing benefits include the creation of a safe, well-designed residential environment with high-quality public open spaces that promote active lifestyles. No adverse health impacts are anticipated, leading to a moderate positive permanent impact.

Recreation and amenities will be significantly enhanced through 1.59 hectares of new public open space include a new central park, improved pedestrian and cycling connections, and enhanced community facilities. This represents a significant positive permanent impact.

The development provides much-needed housing supply in a sustainable location while generating economic growth through job creation and increased local spending power. New community facilities including the crèche and retail services will serve both residents and the wider area. Substantial new public recreational areas will enhance quality of life, while improved walking and cycling routes will boost connectivity. The continuation of the Ratoath Outer Relief Road represents important infrastructure development for the region.

To minimise any negative impacts, construction activities will follow best practice guidelines with appropriate noise and dust controls during the building phase. Traffic management plans will be implemented along with environmental monitoring and compliance with health and safety regulations throughout the construction period.

When considered alongside other planned developments in the area, the overall impact is positive. The development contributes to the balanced growth of Ratoath by providing a critical mass of population to support local services, enhancing the viability of community facilities, and delivering improved infrastructure for the wider area.

The proposed development will have overwhelmingly positive effects on population and human health. While there will be some temporary inconvenience during construction, the long-term benefits significantly outweigh any short-term impacts. The development provides needed housing, creates employment, enhances community facilities, and contributes to the sustainable development of Ratoath while maintaining and improving the health and wellbeing of both new and existing residents.

14 Material Assets – Traffic & Transport (Chapter 14)

This assessment has been carried out in accordance with relevant guidelines from the Chartered Institution of Highways and Transportation, Transport Infrastructure Ireland (TII), and the EPA Guidelines for Environmental Impact Assessment Reports (2022). Full details of the assessment carried out can be found in the Traffic & Transportation Assessment submitted under separate cover in support of this application.

The assessment was carried out based on existing traffic conditions on the local study area which were established through a number of bespoke surveys carried out during September and October 2023, which included junction turning counts, automatic traffic counts, queue length surveys and origin-destination surveys at six junctions and four road links.

Additional traffic allowed for as part of the assessment included natural background traffic growth from the base year in accordance with TII medium-range growth factors and additional traffic from the proposed development and committed developments in the area. The development traffic was

estimated using data from the TRICS database, which uses real world survey data at similar development types to provide estimates and is an industry standard tool.

The local road network was assessed using guidance from the Design Manual for Roads and Bridges (DMRB), TII standards, and Junctions 9 and Transyt 15 traffic modelling software.

The receiving environment is urban in nature. The main transportation arteries in the study area are Fairyhouse Road, Meadowbank Hill, The Avenue, R155 and Main Street (R125) with the proposed Ratoath Outer Relief Road (RORR) acting as a key link for the area and facilitating access to the proposed development. The key aspects of the proposed development with respect to transportation are summarised as follows:

- The lands are generally bound by Glascarn Lane to the north, existing agricultural fields to the east and south, and Fairyhouse Road (R155) to the west.
- The site will be accessible by a variety of sustainable transport options with bus services (Routes 105, 105X, 109A, 103, and 194), and planned improvements to cycle lanes and pedestrian infrastructure in the area through the Ratoath Pedestrian and Cycle Scheme;
- The quantum of car parking provided at the development (676 spaces total) is in line with Meath County Development Plan standards, while also ensuring adequate provision. Additional to this, comprehensive cycle parking spaces will be provided (209 long-stay and 57 short-stay spaces) in order to promote sustainable travel and reduce private car usage;
- The development is to be served by two vehicular entrances which will connect to the new section of the RORR, accessed via a new signalised junction with Fairyhouse Road.

The overall impact of the proposed development is summarised following. It is noted that the assessment has considered the build-out of the proposed development and the committed developments including Planning Ref. 2460487 (141 residential units), ABP318557 Jamestown LRD (228 residential units), and Planning Ref. 2460676 (90 residential units).

Construction Stage

The peak traffic hours have been defined as 08:00-09:00 and 17:00-18:00 based on the results of the traffic surveys combined with the trip generation estimates for the proposed development. The normal permitted construction working hours are typically outside these peak periods. As a result, staff travelling in private vehicles will generally arrive and depart the site outside of the peak traffic hours;

- Limited on-site parking will be provided to encourage staff to car share and to travel by sustainable transport options. However, the provision will be adequate to prevent overspill parking in the local area;
- Heavy vehicles will facilitate the movement of materials to and from the site including excavated material and deliveries. The potential for construction staff to be brought to the site in vans/minibuses will be investigated. Furthermore, heavy vehicles travelling to and from the site will be spread across the course of the working day with efforts made to limit the number of arrivals and departures during the peak traffic hours where possible;
- The majority of contractor vehicles are expected to arrive and depart before and after the peak hours respectively, with deliveries spread across the working day;
- Adequate on-site compounding will be provided to prevent any potential overflow onto the local transport network.

Mitigation measures proposed include the provision and implementation of a Construction Traffic Management Plan agreed with Meath County Council prior to commencement of construction.

It is considered that the impact of the construction phase on Traffic and Transport will be *likely* and *adverse* but *moderate* and *short-term*.

Operational Stage

The impact of the operational stage was considered in the following context:

- **Do Nothing** – no proposed development taking place in the local area and only allowance for natural background traffic growth and the committed developments for the opening and design years;
- **Do Something** – natural background traffic growth, committed developments and the additional traffic estimated to be generated by the proposed development.

These scenarios were assessed for Base Year (2023), Opening Year (2029), and Design Year (2044).

The Do Something analysis shows that the completion of the RORR will lead to beneficial traffic redistribution, with 80 vehicles during the morning peak hour and 75 vehicles during the afternoon peak hour being redistributed from the town centre roads to the RORR. Only Junction 3 (Fairyhouse Road/Meadowbank Hill) required detailed analysis due to receiving more than 5% additional traffic, and this junction will continue to operate effectively with the RORR providing improved performance.

The new Fairyhouse Road/RORR signalised junction and the two development access junctions on the RORR will operate with sufficient capacity through the Design Year. The junction analysis shows Degree of Saturation values remaining below 70% and Ratio of Flow to Capacity values below 12% for the access junctions.

The link capacities for the study area road network will continue to operate within acceptable limits for all scenarios assessed, with Main Street reaching a maximum of 89% capacity by the Design Year, which remains within acceptable engineering guidelines.

Mitigation measures as part of the proposed development include appropriate car parking provision to encourage sustainable transport, high rate of cycle parking provision exceeding Development Plan standards, completion of the RORR providing improved connectivity and traffic redistribution, comprehensive pedestrian and cycle infrastructure, and implementation of a bespoke Mobility Management Plan at the development.

The assessment demonstrates that with the completion of the RORR, there will be a *positive* impact on the local road network through traffic redistribution away from the town centre, whilst the development traffic will have a *negligible* impact on junction performance.

It is considered that the impact of the operational phase on Traffic and Transport will be *likely, neutral, slight, and permanent*.

15 Material Assets – Waste Management (Chapter 15)

This assessment has been carried out in accordance with the relevant guidelines and with reference to the requirements of National Waste Management Guidelines. The assessment is carried out with reference to the existing site conditions and the proposed development design and operational usage phase.

The assessment discusses potential impacts on Resource and Waste Management was carried out using data collected from a detailed desk study and site-specific assessments.

Most of the waste arising during the Construction Phase will comprise soil and stone material associated with basement, foundations and the surface water outfall route. There will be some construction waste associated with the tying in of the proposed services and road to their respective networks as shown on the drawings, noting specifically the tie-in to the existing R155, the tie-in to the RORR and the foul and potable water connections.

Preliminary site investigations indicate that the material to be excavated is clean inert material (waste that does not undergo any significant physical, chemical or biological transformations) which may be suitable for on and off-site reuse. Due to the cut fill balance of the scheme, it is envisaged that most soil excavated on site will be reused in the development.

The typical wastes that will be generated during the Operational Phase of the Proposed Development will include the following:

- Dry Mixed Recyclables (DMR) - includes wastepaper (including newspapers, magazines, brochures, catalogues, leaflets), cardboard and plastic packaging, metal cans, plastic bottles, aluminium cans, tins and Tetra Pak cartons. These materials could potentially catch fire, and this would be a significant local effect with a short-term impact. Mitigation noted in Mitigation Section.
- Organic waste – food waste and green waste generated from internal plants / flowers. These materials could attract vermin if it is not appropriately stored, and the stores maintained. Mitigation noted in Mitigation Section.
- Glass: No significant environmental concerns have been identified for the storage of domestic glass waste at the Proposed Development.
- Mixed Non-Recyclable (MNR) / General Waste. These materials could attract vermin if it is not appropriately stored, and the stores maintained. Mitigation noted in Mitigation Section.

The estimated waste generation in cubic metres per week is contained in the Table 15-9 in Chapter 15. It is noted that small amounts of other wastes would also likely be produced during the operational phase of the development and this is discussed in the Chapter 15 of the EIAR and in the Operational Waste Management Plan.

As outlined in the Construction Environmental Management Plan (CEMP) for the Site, it is proposed to ensure the highest possible levels of waste reduction, waste reuse and waste recycling are achieved for the Proposed Development. Specifically, the CEMP aims to achieve waste prevention, maximum recycling and recovery of waste. The plan has as a central tenet, the diversion of waste from landfill wherever possible.

The CEMP and the Resource Waste Management Plan (RWMP) provide context of the applicable legal and policy framework for C&D waste management in Ireland, they also estimate the category and quantity of waste generated by the Proposed Development and makes recommendations for the bespoke management of the various waste streams. The CEMP also provides guidance on collection and transport of waste to prevent issues associated with litter or more serious environmental pollution (e.g., contamination of soil or water resources).

The Operational Waste Management Plan provides context of the applicable legal and policy framework for operational waste management in Ireland, it also estimates the category and quantity of waste generated by the Proposed Development and makes recommendations for the appropriate management of the various waste streams.

It is considered that once the mitigation measures discussed above are employed, there will be a slight negative imperceptible, permanent impact since the development will require some material to be taken off-site to an appropriate waste facility and there will be waste generated on an ongoing basis through the operational phase. However, it is noted that the lands are zoned for residential and as such an alternative development would be provided for on the subject site in the future.

It is considered that once the mitigation measures discussed in the chapter are employed, there will not be significant residual impacts on the environment in relation to waste as a result of the Proposed Development. The residual impact is assessed to be a slight negative, imperceptible, permanent impact.

16 Material Assets – Utilities (Chapter 16)

This chapter of the EIAR assesses the likely impact of the proposed development on the material assets serving the subject lands relating to electricity, gas and telecommunications.

Gas Networks Ireland maps show that there are existing gas pipes in the vicinity of the site in the form of medium pressure (4bar) mains pipework. There are no existing services with the footprint of the proposed site. The main form of heating to be employed is electrically driven air to water heat pumps, all cooking will be electrical in nature, and therefore Gas is not expected to be provided to the proposed development.

Communications, the area Ratoath is mature, well serviced by all three providers, Eir, Siro and Virgin Media. There are extensive existing networks to the estates to the North of the development within the current footprint of the Ratoath environs on the R155, to the West, Glencairn Lane and Cairn Court to the North, Broadmeadow Vale Development to the Northeast and the RORR to the East. There are existing services on the Fairyhouse road, R155, and on Glencairn Lane, both the R155 and Glencairn Lane is serviced by Virgin Media, Eir and Siro. The Cairn court estate has ducted services, Glascarn Lane and the R155 has overhead wiring. The Broadmeadow Vale development has ducted communication services.

Electrical Services, the area of Ratoath is mature, well services by the ESB with 10/20KV lines feeding transformers, pole top transformers and unit substation transformers.

The existing ESB networks feeds the existing properties on the Fairyhouse Road, R155, which are feed from the ESB 10/20KV overhead lines by means of pole mounted transformers, a proposed ESB unit substation transformer on the RORR is to be provided to service the RORR and the existing units on the R155. Power to the RORR will be ducted, with ducts running to the Poles currently feeding the properties on the R155.

The properties to the north of the development are currently, feed from ESB unit substation transformer located in the Cairn Housing Estate. The properties are pole feed with ESB overhead lines, with below ground ducting running to the poles in the Cairn Estate. The proposed solution is to connect these to the proposed developments unit substation transformer with below ground ducting being routed to the poles to feed the existing developments in an orderly fashion.

The properties to the Southwest of the development, these are pole feed with ESB overhead lines and pole top transformers, these will be feed from the proposed ESB unit substation transformer with ducting running to the poles feeding the existing developments.

The proposed development has existing ESB overhead lines of 10/20KV and these are in general, to be diverted to underground ducting. In addition to ensuring the reasonable supply and continuity of power to the existing developments and to ensure bi-directional support of power flow, the high voltage power (10,000/20,000Volts) currently routed on poles overhead is to be diverted to underground services and connected to the existing power grids at the development's intersection with Glencairn Lane, and the RORR. Power within the proposed development running from ESB unit substation transformers will be connected with 10/20KV lines. All power from the ESB unit substation transformers

to the dwellings, apartment blocks, EV Car charging, retail and commercial units will be by means of ESB dedicated below ground ducting, running to meter positions.

There is a risk to all services during the construction phase of the project. Appropriate mitigation measures such as scanning for all services during excavation to prevent a strike of services must be implemented during the construction stage to ensure both continuity of supply and the health and safety of all persons.

During the operational stage, there will be an increased demand for all the services which can be accommodated by the service provider.

Due to the proposed mitigation measures in both construction and operational phase, the impact on the utilities is considered not significant.

17 Interrelationships, Interactions and Indirect Effects

This chapter deals with likely interactions between effects predicted as a result of the proposed development. The chapter has been prepared by KPMG Future Analytics in accordance with the requirements set out within the Planning and Development Regulations 2001 to 2020 and the EPA's Guidelines on Information to be Contained in Environmental Impact Assessment Reports (2022) to summarise the interactions and interrelationships between key factors identified and assessed.

Impact interactions and inter-relationships have been considered throughout in the preparation of the individual, topic specific chapters of this EIAR so that it can consider the broader picture of how the proposed scheme may affect the various environmental media. All environmental topics are interlinked to a degree such that interrelationships exist on numerous levels. It is general practice, to evaluate interaction of effects as a matrix between effects and key factors assessed, accompanied by brief text describing the interactions identified. This chapter has been compiled to list in one location of all the interactions identified in the assessment of impacts set out in Chapters 5 to 16. The likely significant interactions between factors arising from the proposed development are set out in the matrix provided as Table 17.1 below.

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Some interaction ✓ No interaction x	Air Quality		Climate		Noise & Vibration		Biodiversity		Archaeology & Cultural Heritage		Landscape & Visual		Land & Soils		Water		Population & Human Health		Traffic & Transport		Waste Mngt		Utilities	
	Con.	Ope.	Con.	Ope.	Ope.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.
Air Quality			✓	✓	x	x	x	x	x	x	x	x	✓	x	x	x	✓	x	✓	✓	x	x	x	x
Climate	✓	✓			x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	✓	x	x	x
Noise & Vibration	x	x	x	x			x	x	x	x	x	x	✓	x	x	x	✓	✓	✓	✓	x	x	x	x
Biodiversity	✓	x	x	x	x	x			x	x	x	x	✓	✓	✓	✓	x	x	x	x	✓	✓	x	x
Architectural & Cultural	x	x	x	x	x	x	x	x			✓	✓	x	x	x	x	x	x	x	x	x	x	x	x
Landscape & Visual	x	x	x	x	x	x	x	x	x	x			✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓
Land & Soils	✓	x	x	x	x	x	✓	✓	x	x	x	x			✓	x	x	x	✓	✓	x	x	x	x
Water	x	x	x	x	x	x	✓	✓	x	x	x	x	✓	x			x	x	x	x	x	x	✓	✓
Population & Human Health	✓	✓	x	x	✓	x	x	x	x	x	✓	✓	✓	✓	x	x			✓	✓	✓	✓	x	x
Traffic & Transport	✓	✓	✓	x	✓	✓	x	x	x	x	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	x	x
Waste Management	x	x	✓	x	x	x	✓	✓	x	x	✓	✓	✓	x	✓	✓	✓	✓	✓	✓			x	x
Utilities	x	x	x	x	x	x	x	x	x	x	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓		

Table 17.1 Table showing interaction between key factors assessed

18 Summary of Mitigation Measures and Residual Impacts

This chapter provides a complete summary of mitigation measures and predicted residual impacts on the environment proposed in Chapters 5 to 16. The appointed contractor is required to adhere to the mitigation measures provided here to avoid or reduce significant effects and ensure sustainable development.

The EPA Guidelines on information to be contained in EIARs (2022) established four main strategies for mitigation of effects avoidance, prevention, reduction, and offsetting. Residual Impacts, according to the EPA Guidelines (2022, pg.62) are: -

“The residual effects are the final predicted or intended effects which occur after the proposed mitigation measures have been implemented.”

This chapter provides a detailed assessment of the mitigation measures and predicted residual impacts as follows:

- Air Quality
- Climatic Factors
- Noise and Vibration
- Biodiversity
- Archaeological, Architectural and Cultural Heritage
- Landscape and Visual
- Land, Soils and Geology
- Water
- Population and Human Health
- Material Assets – Traffic and Transport
- Material Assets – Waste Management
- Material Assets – Utilities