

Environmental Impact Assessment Report

Sky Castle Ltd. – Moygaddy
Mixed Use Scheme, Co.
Meath & Co. Kildare

**VOLUME 1: EIAR MAIN REPORT AND
NON-TECHNICAL SUMMARY**





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1. NON-TECHNICAL SUMMARY

1.1 Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared by MKO Planning & Environmental Consultants on behalf of Sky Castle Ltd, to accompany the six no. planning applications intended to be submitted as part of the proposed Moygaddy Mixed Use Development. Moygaddy is located within the northern Maynooth Environs, as set out in the Maynooth Environs Local Area Plan 2013-2019 (MLAP), which is incorporated into the Meath County Development Plan 2021-2027.

A comprehensive non-statutory Masterplan for the entire Moygaddy area in the Applicant's ownership has been developed, setting out proposals for buildings, open spaces and a movement and land-use strategy. The 'Proposed Development' for the purposes of this EIAR consists of six separate components of the overall Masterplan development of the applicant's landholding in Moygaddy. The Proposed Development lands are zoned for High Amenity, Community Infrastructure, Residential and Strategic Employment.

As part of the proposed Moygaddy Mixed Use Development, three planning applications will be submitted to Meath County Council as outlined below:

- **'Site A' – Strategic Employment Zone** which consists of three office buildings, public road widening and road realignment works, the delivery of approximately 365m of new public access road as part of the Maynooth Outer Orbital Road (MOOR) scheme, internal access road and associated pedestrian and cycle network, car parking and utility connection infrastructure;
- **'Site B' – Healthcare Facilities** which includes a nursing home and primary care centre as well public road widening and road realignment works, internal access road and associated car parking, pedestrian and cycle network and a pedestrian & cycle bridge.
- **The Maynooth Outer Orbital Road (MOOR)** which consists of approximately 1.5km of new distributor road, 2 no single span bridges, pedestrian and cycle improvement measures, 2 no. pedestrian and cycle bridges, upgrade works to existing road network and all associated utilities.

A planning application for a Strategic Housing Development (SHD) (**'Site C'**) will be submitted to An Bord Pleanála under the Strategic Housing Provisions of the Planning and Development (Housing) and Residential Tenancies Act, 2016:

- **'Site C' – Strategic Housing Development** will consist of 360 no. residential homes, a creche facility, scout den, internal access roads, approximately 500m of distributor road as part of the MOOR, 2 no. road bridges, pedestrian and cycle improvements, 2 no. pedestrian & cycle bridges, a public park, shared communal and private open space and all associated site development works.

Two planning applications will be submitted to Kildare County Council for infrastructure works required to connect the Proposed Development to services and utility infrastructure within Co. Kildare:

- The **Kildare Bridge** planning application includes road upgrade works to the existing R157 Regional Road, a proposed pedestrian / cycle bridge adjacent to the existing Kildare Bridge, as well as a proposed wastewater connection to the Maynooth Municipal Wastewater Pumping Station to the southeast of the Proposed Development.

- The **Moyglare Bridge** planning application includes for the provision of a new integral single span bridge over the Rye Water River with associated flood plain works and embankments, as well as services and utilities connections.

While these developments will be subject to separate planning applications, it was considered prudent to consider all six applications together under one EIAR, due to the proximity, construction timelines and shared infrastructure between the developments. The above proposed developments within the Site A, Site B, Site C, MOOR, Kildare Bridge and Moyglare Bridge applications are collectively referred to as the 'Proposed Development' in this EIAR.

MKO was appointed as planning and environmental consultants on the Proposed Development and commissioned to prepare this EIAR in accordance with the requirements of the Environmental Impact Assessment (EIA) Directive as amended by Directive 2014/52/EU. The EIAR provides information on the receiving environment and assesses the likely significant effects of the project and proposes mitigation measures to avoid or reduce these effects. The function of the EIAR is to provide information to allow the competent authority to conduct the EIA of the Proposed Development.

The EIAR project team comprises a multidisciplinary team of experts with extensive experience in the assessment of projects and in their relevant area of expertise. Each chapter of this EIAR has been prepared by a competent expert in the subject matter.

The classification of impacts in this EIAR follows the definitions provided in the Glossary of Impacts contained in the following guidance documents produced by the European Commission (EC) and the Environmental Protection Agency (EPA):

- *'Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report'* (EC, 2017)
- *'Guidelines on the Information to be contained in Environmental Impact Assessment Reports'* (EPA, 2022).

This EIAR and all associated documentation will also be available for viewing at the offices of An Bord Pleanála, Meath County Council and Kildare County Council. The EIAR may be inspected free of charge or purchased by any member of the public during normal office hours at these locations. The EIAR will also be available to view online via the Department of Planning, Housing and Local Government's EIA Portal, which will provide a link to the planning authority's website on which the application details are contained.

1.2 Background to the Proposed Development

This section of the EIAR presents information on the strategic planning context for the Proposed Development, a description of the proposed development site and planning history, the scoping and consultation exercise carried out as part of the EIAR preparation, and details regarding the cumulative impact assessment process.

The Proposed Development site is largely located within the administrative area of Co. Meath, with a partial area of the EIAR study area (comprising the R157 Road and Dunboyne Road extending west of the Dunboyne Road Roundabout from the Kildare Bridge to the Maynooth Municipal Wastewater Pumping Station) located within the administrative boundary of Co. Kildare. The Proposed Development site is located on the northern edge of Maynooth town, off the Dunboyne Road and adjacent to the Carton House Estate. The Proposed Development lands are part of the overall Maynooth Environs lands and form part of the Moygaddy Masterplan area owned by the Applicant, Sky Castle Ltd.

The Proposed Development site is bounded by the River Rye Water along the southern boundary and agricultural fields to the north and west, while Carton House Demesne (Demense Wall - RPS Ref:

91556) is located directly adjacent to the east. The Dunboyne Road (R157) and local road L2214-3/L6219 (included as part of the proposed Maynooth Outer Orbital Road (MOOR)) roads are located to the south-east and north/north-west respectively. Access to the site is currently from the Dunboyne Road (R157) and the local road L2214-3/L6219.

In terms of policy context, the National Planning Framework (2018) (NPF) is the Government’s high-level strategic plan for shaping the future growth and development of Ireland to the year 2040. The NPF includes ten National Strategic Outcomes implemented through the Strategic Investment Priorities, and includes:

- Compact Growth
- Enhanced Regional Accessibility
- Strengthened Rural Economics and Communities
- Sustainable Mobility
- A Strong Economy Supported by Enterprise, Innovation and Skills
- Sustainable Management of Water and Other Environmental Resources

The overview of the NPF set out in Section 2.2 states that it supports the sustainable growth of rural communities, to include development in rural areas and promotes new economic opportunities arising from digital connectivity and indigenous innovation. Section 3.2 of the NPF relates specifically to the Eastern and Midland Region, where it is stated that:

“managing the challenges of future growth is critical to this regional area. A more balanced and sustainable pattern of development, with a greater focus on addressing employment creation, local infrastructure needs and addressing the legacy of rapid growth, must be prioritised” (our emphasis added).

The Regional Spatial Economic Strategy for the Eastern and Midland Region (RSES) 2019 - 2031 is the strategic plan and investment framework for the region and sets out the overarching regional policy objectives to help shape future growth. The regional policy objectives set down specifically for Maynooth in the RSES include the following:

“Support the continued development of Maynooth, co-ordinated with the delivery of strategic infrastructure including pedestrian and cycle linkages within the town and to the Royal Canal, DART expansion and road linkages forming part of the Maynooth Outer Orbital Route in a manner which supports future development and population growth and builds on synergies with Maynooth University promoting a knowledge-based economy” (RPO 4.33).

And

“Support Maynooth as a key town to act as an economic driver for north Kildare and provide for strategic employment at key locations to improve the economic base of the town and provide for an increased number of local jobs” (RPO 4.34).

It is specifically noted within the RSES, in relation to the Key Town of Maynooth, that:

“lands at Moygaddy within the Maynooth Environs of County Meath have also been identified for Science and Technology based employment”.

The policies and objectives of the Meath County Development Plan (CDP) 2021 - 2027 are, in principle, supportive of the proposed development. The site is located in the Maynooth Environs, and within the Dublin Metropolitan Area. Maynooth, which is located in Co. Kildare, on the Meath boundary, is noted as a Key Town in the Meath County Development Plan. The CDP advises that the population of the Maynooth environs located in Meath, where the Proposed Development site lies, is anticipated to grow to 1,000 persons by 2027 from 0 persons in 2016, with a household allocation of 500 units for this plan period. This Proposed Development which includes new healthcare and commercial

office uses goes hand in hand with this population growth, which will be met by lands adjacent to the subject site.

Part of the application site, relating to road, services and pedestrian infrastructure extends into the administrative boundary of County Kildare, south of the Maynooth Environs lands. The extant County Development Plan (CDP) for County Kildare covers the period 2017 – 2023. Objective SO 1 supports the sustainable long-term growth of Maynooth, among other towns in the county.

The relevant planning history of the proposed development site, the planning applications in the vicinity of the site along with other applications within the wider area are set out in Section 2.2 of this EIAR.

An informal scoping exercise was undertaken as part of the EIAR preparation process. Scoping is the process of determining the content, depth and extent of topics to be covered in the environmental information to be submitted to a competent authority for projects that are subject to an Environmental Impact Assessment (EIA). This process is conducted by contacting the relevant authorities and bodies with interest in the specific aspects of the environment likely to be affected by the proposal. These organisations are invited to submit comments on the scope of the EIAR and the specific standards of information they require. Comprehensive and timely scoping helps ensure that the EIAR refers to all relevant aspects of the proposed development and its potential effects on the environment. In this way, scoping not only informs the content and scope of the EIAR, it also provides a feedback mechanism for the proposed design itself.

A Scoping Document providing details of the application site and the Proposed Development, was prepared by MKO and circulated on 9th of August 2021 to the relevant agencies, NGOs and other relevant parties. A summary of all scoping and consultation works, including pre-planning meetings with Meath County Council and Kildare County Council, is provided in Section 2.9 of Chapter 2 of the EIAR. Copies of all scoping responses are provided in Appendix 2-1.

1.3 Consideration of Reasonable Alternatives

This section of the EIAR contains a description of the site selection criteria and the reasonable alternatives that were considered for the Proposed Development. This section also outlines the design considerations in relation to the Proposed Development and indicates the main reasons for selecting the chosen option with regards to environmental impacts.

It is important to acknowledge that although the consideration of alternatives is an effective means of avoiding environmental impacts, there are difficulties and limitations when considering alternatives. Indeed, as is clear from the provisions of the EIA Directive itself, the requirement is to consider “*reasonable alternatives*” which are relevant to the project and its characteristics. In general terms, issues such as hierarchy, non-environmental factors and certain site-specific issues (zoning, ownership, etc.) may also be relevant to the consideration of reasonable alternatives by the developer.

Local planning policy objectives and zoning, proximity to Maynooth town and delivery of the Maynooth Orbital Outer Relief (MOOR) Road were key facilitators in the selection of the Moygaddy site for the proposed Mixed-Use development. Alternative sites or locations on unzoned lands were therefore not considered for the Proposed Development.

The design of the Proposed Development has been an informed and collaborative process from the outset, involving the designers, developers, engineers, environmental, hydrological and geotechnical, archaeological specialists and traffic consultants. The aim being to reduce potential for environmental effects while designing a project capable of being constructed and viable.

Throughout the preparation of the EIAR, the layout of the Proposed Development has been revised and refined to take account of the findings of all site investigations, which have brought the design from

its first initial layout to the current proposed layout. The design process has also taken account of the recommendations and comments of the relevant statutory and non-statutory organisations and bodies as detailed in Section 2.9 of Chapter 2 in this EIAR.

The management of processes that affect the volumes and characteristics of emissions, residues, traffic and the use of natural resources has formed part of the consideration of reasonable alternatives through the project's development.

The construction works on the site will require the use of raw materials in the form of energy to supply plant and machinery, standard building materials including stone, metals, pipework, concrete, electrical, plumbing etc and raw materials are consumed to manufacture building materials. The use of these resources will be controlled by the employment of best practice construction techniques including waste management practices.

The processes to be employed during the construction of the Proposed Development, and described in Chapter 4 of this EIAR, are standard best practice for the construction industry in Ireland. There will be no novel processes or methods employed. Since the proposed processes represent industry standard best practice, alternative processes were not considered to be reasonable and were therefore not considered further in the EIAR.

Mitigation by avoidance has been a key aspect of the Proposed Development's evolution through the design process. Avoidance of the environmentally (including ecological, archaeological and hydrogeological) sensitive areas of the site limits the potential for environmental effects. The alternative to this approach is to encroach on the environmentally sensitive areas of the site and accept the potential environmental effects and risk associated with this.

The best practice design and mitigation measures set out in this EIAR will contribute to reducing any risks and have been designed to avoid any potential impacts on identified environmental receptors. The alternative is to either not propose these measures or propose measures which are not best practice and effective, neither of which are sustainable options.

1.4

Description of the Proposed Development

This section of the EIAR describes the development and its component parts (the 'Proposed Development') including a description of the site, proposed construction activities and methodologies as well as general construction and operational phase characteristics of the project.

Sky Castle Ltd. intends to submit to a total of six planning applications as part of the Moygaddy Mixed Use Development (henceforth referred to as the Proposed Development).

- A total of three planning applications will be submitted to Meath County Council as the relevant competent authority:
 - Of these three applications, one planning application seeks to provide for the first phase of a Strategic Employment Zone (referred to as **Site A**)
 - One planning application is for Healthcare Facilities which includes a Nursing Home and Primary Care Centre (referred to as **Site B**), and
 - One planning application is for the delivery of the proposed Maynooth Outer Orbital Road (**MOOR**).

- The planning application for the **Site C** - Strategic Housing Development (SHD) will be submitted to An Bord Pleanála under the Strategic Housing Provisions of the Planning and Development (Housing) and Residential Tenancies Act, 2016.

- There will also be two separate planning applications submitted to Kildare County Council for shared infrastructure, proposed services and utilities connections to Maynooth town in Co. Kildare:
 - One planning application includes a proposed pedestrian / cycle bridge adjacent to the existing **Kildare Bridge**, as well as a proposed wastewater connection to the Maynooth Municipal Wastewater Pumping Station to the southeast of the Proposed Development site.
 - The second planning application to be submitted to Kildare County Council is located to the southwest of Site C (SHD) for the provision of an integral single span bridge over the River Rye Water at **Moyglare Bridge**, with associated flood plain works and embankments.

The Strategic Employment Zone (**Site A**) will include 3 No. office blocks (Block A: 5 storeys, Block B: 3 storeys, Block C: 3 storeys) and associated parking, site roads and associated site works. The proposals for Site A also include road upgrade works including the provision of a signalised junction on the R157 Dunboyne Road and the construction of a section of the Maynooth Outer Orbital Route (MOOR) and provision of associated pedestrian and cycle infrastructure, as well as a realignment of a section of the R157.

The Healthcare Facilities (**Site B**) will include a new 2-storey Nursing Home of 156 no. bedrooms and a new three-storey Primary Care Centre, and associated parking, site roads and associated site works. The proposals for Site B also include upgrade works to a section of the R157 Regional Road from the new site entrance south to Kildare Bridge on the R157 (representing a portion of the MOOR).

The proposed Strategic Housing Development (**Site C**) includes the construction of 360 no. residential homes comprising the following:

- 196 no houses (including 19 no. 2 beds, 156 no. 3 beds and 21 no. 4 beds).
- 102 no. duplexes (including 51 no. 1 beds and 51 no. 2 beds) set out in 6 no. blocks.
- 62 no. apartments (including 26 no. 1 beds and 36 no. 2 beds) set out in 2 no. blocks.

Site C also encompasses a public park and playground, a two-storey creche facility, a single-storey Scout Den facility, and all associated site parking, site roads (including pedestrian and cycling network) and associated site works.

The proposed **MOOR** development encompasses road upgrades and new road construction, namely the provision of approximately 1,700m of new distributor road comprising of 7.0m carriageway with turning lane where required, footpaths, cycle tracks and grass verges.

A detailed description of the component parts of each of the above 6 No. planning applications is provided in Chapter 4 of the EIAR. Details are also provided in Chapter 4 regarding the proposed construction phase operations, including phasing and access arrangements. Design stage Construction and Environmental Management Plans (CEMPs) are provided in Volumes 3a, 3b & 3c(i) Appendix 4-3 and Volumes 3d, 3e & 3f Appendix 4-2 of this EIAR. The CEMPs will be in place throughout the construction phase and will take account of all requirements specified by the Planning Authority during the planning process.

Information on construction methodologies is provided in Chapter 4, including soil excavation and redistribution, construction of site roads, excavation and services installation, building construction, bridge construction, headwalls, directional drilling and landscaping works. Details are also provided regarding site management, including waste management, control of dust and noise emissions, road cleaning, water supply, wastewater management, movement of aggregates and other materials, and construction traffic and plant.

Chapter 4 of this EIAR also provides information in relation to the operational phase of the Proposed Development, including surface water drainage, wastewater infrastructure, water supply, access arrangements, and resource, waste management and energy use.

1.5 Population and Human Health

The key issues examined in this chapter of the EIAR include population trends, human health, employment and economic activity, land-use, residential amenity, community facilities and services, tourism, noise, and health and safety.

This socio-economic study of the receiving environment includes an examination of the population and employment characteristics of the area. Information regarding the population and general socio-economic data were sourced from the Central Statistics Office (CSO), the Meath County Development Plan 2021 - 2027, the Kildare County Development Plan 2017-2023, Fáilte Ireland and any other literature pertinent to the area.

The Proposed Development is a greenfield site, located in south County Meath and in the northeast environs of Maynooth town. The site of the Proposed Development lies predominately within the Rodanstown District Electoral Division (DED) while also lying partly in Maynooth DED. This Study Area (combined Rodanstown and Maynooth DEDs) has a population of 17,121 persons, as of 2016 and comprises a total land area of 63 km², (Source: CSO Census of the Population 2016). Rodanstown DED encompasses rural lands and so does not have any primary population centres. Maynooth DED includes a large town which acts as a primary population centre. Maynooth is classed under the Kildare County Development Plan 2017-2023 settlement hierarchy as a Large Growth II Smaller in scale but strong active growth town.

The population of the Study Area increased by 16.8% in the period between 2011 and 2016. This rate of population growth is significantly higher than that which was recorded at State level (3.8%), and at county level for both Co. Meath (5.9%) and Co. Kildare (5.8%) also.

Maynooth town, which is the closest urban area to the Proposed Development, possesses a number of amenities and community facilities, including GAA, Rugby and other sports clubs and recreational areas. There are a wide range of services available in the area, retail and personal services are centred in Maynooth town centre, with further industrial areas and business parks located in the environs of Maynooth town.

The closest primary school to the Proposed Development site is Gaelscoil Ruairi, which is located approximately 350m west of the proposed Moyglare Bridge. The nearest Secondary School, Maynooth Community College, is located approximately 150m west of the Proposed Development, close to the proposed Moyglare Bridge.

The area around the Proposed Development site has many opportunities for walking and cycling in the countryside. Carton House demesne is located directly adjacent to the east of the Proposed Development site, on the eastern side of the R157 Regional Road. Carton House demesne possesses 1,100 acres of woodland and walking trails. The Royal Canal Greenway runs 130 km from Maynooth to Longford. The Greenway is accessible from Maynooth Town Centre approximately 700m south of the Proposed Development site.

The closest significant tourist attraction to the Proposed Development is Moygaddy House, which is a protected structure. Moygaddy House is located directly adjacent to the north of Site C (SHD). Further to this, Moygaddy Castle Towerhouse is also located within the Proposed Development site, to the south of Moygaddy House within the area that is designated as a Public Park as part of the proposed Development. Moygaddy Castle is also a protected structure of cultural heritage and archaeological importance.

The likely significant effects of the Proposed Development on Population and Human Health have been assessed for the construction and operational phases. The potential impacts and associated mitigation measures are addressed under the headings of Health and Safety, Employment and Investment, Population, Tourism and Amenity, Noise, Dust and Air Quality, Traffic and Residential Amenity. Where any potential negative impacts were identified with regard to Population or Human Health, mitigation measures have been incorporated into the design of the proposed development or will be implemented during the relevant phase of the project to avoid, reduce or offset this impact. No significant negative environmental effects will therefore occur on Population or Human Health as a result of the Proposed Development. The project will have a significant positive effect in terms of providing additional facilities for Employment and Investment, Residential Amenity, and improved links to Maynooth town and the surrounding area, including significantly enhanced pedestrian and cycling infrastructure.

1.6 Biodiversity

This chapter assesses the likely significant effects (both alone and cumulatively with other projects) that the proposed development may have on Biodiversity, Flora and Fauna and sets out the mitigation measures proposed to avoid, reduce or offset any potential significant effects that are identified.

Multidisciplinary walkover surveys were carried out across multiple dates in July/August 2021 and July/August 2022. The multidisciplinary surveys undertaken fall within the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith et al., 2011). A comprehensive walkover of the entire site was completed. Habitats were classified in accordance with the Heritage Council's *'Guide to Habitats in Ireland'* (Fossitt, 2000). Habitat mapping was undertaken with regard to guidance set out in *'Best Practice Guidance for Habitat Survey and Mapping'* (Smith et al., 2011). Bat surveys were carried out in July/ August 2021 and August 2022, which falls within the optimum survey period for bat activity surveys, provided weather conditions are favourable (Collins, 2016).

The study area comprises primarily of Improved Agricultural Grassland (habitat code GA1) delineated by Treeline (WL2) and Hedgerow habitat (WL1). An area of Mixed Broadleaved Woodland (WD1) occurs within the centre of the site, adjacent to Moygaddy Castle. The Rye Water River flows along the southern boundary of the site and the Blackhall Little Stream flows through the centre of the site, merging with the Rye water River. Both watercourses are categorised as Eroding Upland Rivers (FW1). The Rye Water River to the east of Kildare Bridge is designated as part of the Rye Water Valley/Carlton Special Area of Conservation (SAC). The woodland area along with large section of treeline and hedgerow will be retained as part of the proposed development. Any treeline and hedgerow loss has been compensated for by an extensive replanting proposal, which is outlined in the landscaping masterplan accompanying this application.

One active badger sett was recorded within the site along a mature treeline within the centre of site. This has been avoided through the design of the proposed development. Evidence of fox, pine marten and otter were recorded within the site. In addition, bat surveys were undertaken in 2021 as part of the detailed baseline assessment. No evidence of populations of these species being significant at more than a local level was recorded. No signs of any additional protected fauna were recorded within the study area during the field surveys.

The proposed development will not result in significant effects on surface water quality, groundwater quality or aquatic faunal species and habitats during the construction or operational phase of the proposed development. Any potential pathway for pollution has been robustly blocked through project design and mitigation. The proposed development will not result in any significant effect on any European designated sites or nationally designated sites, including the Rye Water Valley/Carlton SAC. A Natura Impact Assessment has been prepared and will be submitted as part of the planning application.

Provided that the proposed development is constructed and operated in accordance with the design, best practice and mitigation that is described within this application, significant impacts on ecology are not anticipated.

1.7 Land, Soils and Geology

This chapter provides a baseline assessment of the environmental setting of the Proposed Development in terms of land, soils, and geology, and discusses the potential impacts that the construction and operation of the Proposed Development will have. Where required, appropriate mitigation measures to limit any identified potentially significant impacts to soils and geology are recommended and an assessment of residual impacts and significance of effects provided.

A desk study of the site and the surrounding study area was completed in advance of undertaking a site walkover survey. The desk study involved collecting all the relevant geological data for the Proposed Development site and study area.

Site Investigations were carried out by Site Investigations Ltd. (SIL) between June and July 2021. The scope of works included cable percussive boreholes, rotary coreholes, trial pits, dynamic probes and laboratory testing of field samples. All fieldwork was carried out in accordance with BS 5930:2015, Engineers Ireland GI Specification and Related Document 2nd Edition 2016 and Eurocode 7: Geotechnical Design. The results of all site investigations are presented in the Appendices of this EIAR.

A visual inspection of the Proposed Development site was also undertaken by MKO in August 2021 and August 2022. The purpose of the site inspection was to investigate the site for any surface indications of impacts to land, soils and geology resulting from current land use and confirm the baseline conditions. Particular attention was paid to identifying any potential areas of soil erosion that may have arisen from the operation of agricultural machinery on the site. No evidence of any residual impacts to land, soils and geology was observed.

According to Geological Survey of Ireland (GSI) mapping (www.gsi.ie), the Proposed Development site is predominantly underlain by soils which are largely derived from basic parent materials (surface water gleys/basic poorly drained mineral [BminPD] soils). There is a small section of the Proposed Development site which is underlain by mineral alluvial (AlluvMin) soils along the banks of the Rye Water River. There is no proposed infrastructure in this area except for drainage infrastructure and road widening and upgrade works along the existing R157 Regional Road.

The Teagasc soils map (www.gis.teagasc.ie/soils/map) identifies the soil association within the wider region of the site as fine loamy drift with limestones. These soils are generally well drained and well suited to pastoral agricultural systems. Site Investigations reported average soil depths of approximately 2.6m across the Proposed Development site.

Based on the GSI bedrock map of the region, the site is underlain by the Lucan Formation (Dark Limestone and Shale) formation (LU) which consists of dark grey to black, fine-grained, occasionally cherty limestones that weather paler, usually to pale grey. There are also rare dark coarser grained calcarenitic limestones, sometimes graded, and interbedded dark-grey calcar. This formation spreads both east and west, encompassing large areas of counties Meath, Dublin, Kildare Westmeath and Offaly.

The Lucan Formation is classified by the GSI as a Locally Important Aquifer – Bedrock which is Generally Moderately Productive only in Local Zones (LI). There are no Geological Heritage sites within or close to the Proposed Development.

The Proposed Development will require minor alteration of ground levels to ensure it is at an adequate level for the proposed surface water drainage and foul water drainage due to the relatively flat topography. Excavation of soil and subsoil will be required in preparation for the construction of building foundations, suitable sub-formation for road construction, trenching for foul and drainage water infrastructure and other services. The estimated amounts of excavations and earthworks required for the various components of the Proposed Development are described in the Construction & Environmental Management Plans appended to this EIAR.

Surface water management for the Proposed Development is designed to comply with the Greater Dublin Strategic Drainage Study (GSDSDS) policies and guidelines and the requirements of Meath County Council.

Due to the nature of the proposals for Sites A, B and C, there will be a substantial water requirement once operational, primarily for washing and plumbing facilities. The existing Irish Water (IW) Mains within the Study Area are reported as having their source as the Dunboyne Water Supply Zone (WSZ). Sites A, B and C are located entirely within the Liffey and Dublin Bay (09) Water Framework Directive (WFD) Catchment. The Proposed Development will be subject to a New Connection Agreement with Irish Water, in accordance with their requirements. There is no proposed extraction of groundwater at the site for drinking water purposes.

It is proposed to provide a Pumping Station constructed to IW standards and specifications to the west of the proposed nursing home building at Site B within the Proposed Development. Site A to the northeast, Site B to the east and Site C to the west of the proposed pumping station will drain by gravity to the Pumping Station where it will then be pumped to the existing Irish Water network along the L1013 Local Road in County Kildare, approximately 1km south of the proposed pumping station.

Further details regarding surface water drainage, water supply and wastewater treatment are provided in the Engineering Services Reports provided in Appendix 4-9 of the EIAR.

Due to the shallow nature of the excavations, the design and mitigation measures to reuse excavated materials onsite and the 'low' value of the soil and rock resource the magnitude of the effect is considered to be a negative, direct, slight, likely, permanent impact on topsoil, subsoils and bedrock. No significant effects on land, topsoil, subsoil or bedrock will occur as part of the Proposed Development during the construction or operational phases.

1.8 Hydrology and Hydrogeology

This chapter of the EIAR identifies, describes, and assesses the potential effects of the Proposed Development on the local hydrological and hydrogeological environment (surface water and ground water).

A desk study and preliminary hydrological assessment of the site of the Proposed Development and the surrounding area was completed in advance of the site walkover. This involved collection of all relevant geological, hydrological, hydrogeological and meteorological data for the area.

The entire site of the Proposed Development lies within the Eastern River Basin District (RBD). With respect to regional hydrology, under the Water Framework Directive (WFD), the Proposed Development is located entirely within the Liffey and Dublin Bay (09) surface water catchment.

There are no streams or rivers which pass through the site boundary of either Site A or Site B. However, Site B is bounded by the Rye Water River which is within the Liffey_SC_080 sub catchment. The Blackhall Little Stream runs through the centre of Site C, while the site is bounded by the Rye Water River to the south. The MOOR crosses the Rye Water River at 2 no. locations to the west and south east of the site, and crosses the Blackhall Little Stream at 2 no. locations at the centre and north east of the site. The Kildare Bridge and Moyglare Bridge applications crosses the Rye Water River.

A detailed Flood Risk Assessment has been prepared by JBA Consulting included as Appendix 8-1 to this EIAR. The Flood Risk Assessment identifies that there is a negligible risk of flooding at the Proposed Development.

Based on the GSI bedrock map of the region, the site is underlain by the Lucan Formation (Dark Limestone and Shale) formation (LU) which consists of dark grey to black, fine-grained, occasionally cherty limestones that weather paler, usually to pale grey. There are also rare dark coarser grained calcarenitic limestones, sometimes graded, and interbedded dark-grey calcar. This formation spreads both east and west, encompassing large areas of counties Meath, Dublin, Kildare Westmeath and Offaly.

Site Investigations were carried out by Site Investigations Ltd. (SIL) between June and July 2021. The scope of works included cable percussive boreholes, rotary coreholes, trial pits, dynamic probes and laboratory testing of field samples. All fieldwork was carried out in accordance with BS 5930:2015, Engineers Ireland GI Specification and Related Document 2nd Edition 2016 and Eurocode 7: Geotechnical Design. The results of all site investigations are presented in the Appendices of this EIAR.

Due to the nature of the Proposed Development, being near surface construction activities, combined with the nature of the hydrological regime and bedrock aquifer type, impacts on groundwater are generally negligible and surface water is generally the main sensitive receptor assessed during the impact assessment.

Due to the nature of the proposals for Sites A, B and C, there will be a substantial water requirement once operational, primarily for washing and plumbing facilities. The existing Irish Water (IW) Mains within the Study Area are reported as having their source as the Dunboyne Water Supply Zone (WSZ). Sites A, B and C are located entirely within the Liffey and Dublin Bay (09) Water Framework Directive (WFD) Catchment. The Proposed Development will be subject to a New Connection Agreement with Irish Water, in accordance with their requirements. There is no proposed extraction of groundwater at the site for drinking water purposes.

It is proposed to provide a Pumping Station constructed to IW standards and specifications to the west of the proposed nursing home building at Site B within the Proposed Development. Site A to the northeast, Site B to the east and Site C to the west of the proposed pumping station will drain by gravity to the Pumping Station where it will then be pumped to the existing Irish Water network along the L1013 Local Road in County Kildare, approximately 1km south of the proposed pumping station.

Further details regarding surface water drainage, water supply and wastewater treatment are provided in the Engineering Services Reports provided in Volumes 3a, 3b & 3c Appendix 4-9 of the EIAR.

The impact of the proposed road bridge and pedestrian / cycle bridge structure was further assessed by JBA Consulting, as part of a wider flood study of the Moygaddy Environs, with the conclusions indicating that the proposed bridge structures will have 'no impact on flood following its construction'.

Measures will be in place throughout the construction and operational phases, including implementation of a Construction and Environmental Management Plan (CEMP), to ensure there will be no significant effects to hydrology or hydrogeology. Design stage CEMPs are included in Appendix 4-3 of this EIAR. The CEMPs will be updated prior to the commencement of construction to incorporate all requirements of the Planning Authority.

1.9 Air and Climate

This chapter of the EIAR identifies, describes and assesses the potential significant direct and indirect effects on air quality and climate arising from the construction and operation of the Proposed Development. The Proposed Development site is currently a greenfield site, with small scale agriculture as the primary land-use.

Air Quality

The Environmental Protection Agency (EPA) has designated four Air Quality Zones for Ireland:

- Zone A: Dublin City and environs
- Zone B: Cork City and environs
- Zone C: 16 urban areas (cities and large towns) with population greater than 15,000
- Zone D: Remainder of the country.

These zones were defined to meet the criteria for air quality monitoring, assessment and management described in the Air Framework Directive and Daughter Directives. The Proposed Development site lies within Zone D, which represents rural areas located away from large population centres. The EPA publishes Air Monitoring Station Reports for monitoring locations in all four Air Quality Zones. The most recent report on air quality in Ireland, '*Air Quality in Ireland 2020*' was published by the EPA in 2021. The air quality in the vicinity of the Proposed Development site is typical of that of rural areas in the east of Ireland, i.e., Zone D.

There are no statutory limits for dust deposition in Ireland. The German TA-Luft standard for dust deposition sets a maximum permissible emission level for dust deposition of 350 mg/m²/day. Recommendations from the Department of the Environment, Health & Local Government apply the Bergerhoff limit of 350 mg/m²/day to the site boundary of quarries. This limit value can also be implemented with regard to dust impacts from construction activities associated with the Proposed Development.

Measures, including a Construction and Environmental Management Plan, will be in place to ensure there will be no significant direct or indirect effects on air quality due to dust or exhaust emissions during the construction stage.

Climate

Ireland has a temperate, oceanic climate, resulting in mild winters and cool summers. The Met Éireann weather station at Casement, Co. Dublin, is the nearest weather and climate monitoring station to the Proposed Development site that has meteorological data recorded for the 30-year period from 1981 – 2010. The monitoring station is located approximately 19.3 km southeast of the Proposed Development site.

Meteorological data recorded at Casement over the 30-year period from 1981 – 2010 shows that the wettest months are October, November and January, with July being the driest month. July was also shown to be the hottest month with a mean temperature of 15.7 degrees Celsius. The mean annual wind speed at the station is 10.7 metres per second. The 30-year annual average rainfall is 754.2 mm/yr. this is considered to be slightly above average when compared to the annual average rainfall for Dublin (Merrion Square) which recorded annual average rainfall of 730 mm/yr over the same period.

The construction of foundations and buildings, site roads and associated infrastructure will require the operation of construction vehicles and plant on-site. Greenhouse gas emission, e.g., carbon dioxide (CO₂), carbon monoxide and nitrogen oxides associated with vehicles and plant will arise as a result of the construction activities. This potential impact will be slight, given the insignificant quantity of greenhouse gases that will be emitted, and will be restricted to the duration of the construction phase. Measures, including a Construction and Environmental Management Plan, will be in place to ensure there will be no significant direct or indirect effects on air quality or climate due to greenhouse gas emissions during the construction stage.

The proposed development has been designed to comply with the relevant Building Regulations, including thermal performance and energy saving measures. Solar PV panels will be located on the roof of buildings to offset any dependency and overuse of fossil fuel. The Proposed Development includes for the upgrade and provision of additional cycling and pedestrian infrastructure and bicycle

parking facilities. The improved pedestrian and cycling infrastructure will provide alternative modes of transport for those living and working locally, which will reduce the dependency on vehicular transport and associated greenhouse gas emissions.

1.10 Noise and Vibration

The noise and vibration section of this EIAR has been compiled by Damian Brosnan of Damian Brosnan Acoustics. Potential noise and vibration impacts may be divided into the following categories:

- Construction phase noise impacts on surrounding receptors.
- Construction phase vibration impacts on surrounding receptors.
- Operational phase noise impacts on surrounding receptors.
- Noise impacts within the completed/operational development from external sources ('inward impacts').

Typical ambient noise levels across the local area were measured, and these were used to identify appropriate construction phase noise criteria. Likely construction plant were identified, and their noise emissions data used to predict likely noise levels at surrounding receptors. Predicted levels were assessed in the context of identified criteria, and mitigation measures identified where required. Potential sources of vibration during the construction phase were identified, and impacts assessed by reference to commonly applied criteria.

Noise sources associated with the operational phase of the Proposed Development were reviewed, and potential impacts assessed. Such impacts relate chiefly to traffic. An assessment of inward noise impacts was undertaken, and the requirement for enhanced façade treatments was assessed. Although this is typically only relevant to residential developments, it is also of benefit to the healthcare and office settings, particularly given that the proposed nursing home will accommodate elderly persons. The assessment was undertaken having regard to guidance set out in *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (Environmental Protection Agency, 2022).

There are two dwellings on the development site. The first of these is Moygaddy House, a vacant period dwelling with extensive outbuildings located near the L2214-L6219 junction. This will be retained as part of the development. The second is a small dwelling located nearby, 90m north of the junction. Although currently occupied, it is understood that the resident intends to vacate the dwelling prior to the commencement of construction. Neither of the dwellings on the site is therefore a noise sensitive receptor.

Offsite, receptors exist in several directions, particularly to the south and southwest at the fringes of Maynooth. Apart from the Carton House Hotel to the east, all identified receptors within 500m consist of residential dwellings. No other receptors such as creches, schools, care centres or nursing homes have been identified.

A baseline noise survey was carried out at the Proposed Development site. The main noise source audible at the measurement positions was distant traffic on the wider road network, which was continuously audible at all times in the background throughout daytime, evening and night-time periods.

Predictive noise modelling of expected construction noise sources associated with Site A, Site B, Site C, the MOOR, Kildare Bridge and Moyglare Bridge indicates that construction noise emissions will not exceed relevant criteria set out in *British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise (2014)* and the then National Roads Authority document *Good practice guidance for the treatment of noise during the planning of national road schemes (2014)*. Construction phase noise impacts will be imperceptible to not significant

(increasing to slight to moderate at two dwellings adjacent to Kildare Bridge works), and will be temporary. Construction phase traffic noise impacts will be imperceptible. No construction vibration impacts are expected at offsite receptors.

Following completion, noise emissions arising within the completed development will be identical in character to emissions arising across the nearby fringes of Maynooth. Emissions will be urban-residential in character, and will not give rise to offsite impacts.

Noise impacts at offsite receptors attributable to vehicle movements on roadways within the completed site will be imperceptible. While increases in traffic on the surrounding road network will arise as a result of the development, much of the increase will be attributable to traffic using the proposed MOOR which will benefit the wider town. Increases associated with onsite traffic directly will be less than 2 dB, resulting in noise impacts at nearby receptors which are imperceptible. Increases associated with the MOOR will be approximately 3 dB at most, resulting in noise impacts at nearby receptors which are imperceptible to not significant.

At the completed development, inward noise emissions will arise from the surrounding road network, including the MOOR. The future noise risk is low across most of the site when assessed using ProPG guidance, increasing to medium at units directly fronting the MOOR road and the L6219 road. These properties will benefit from moderately enhanced glazing on units facing these roads. Road-facing facades at the primary care centre will also benefit from moderately enhanced glazing in order to attenuate night-time levels due to passing traffic.

Noise levels in amenity areas and at the proposed creche will be lower than relevant criteria. Apartment residents will benefit from onsite green spaces, thus offsetting traffic noise levels on balconies facing roadways.

Cumulative noise impacts resulting from a combination of Site A, Site B, Site C, the MOOR, Kildare Bridge and Moyglare Bridge, as well as offsite sources, will be imperceptible.

1.11 Landscape and Visual

This chapter of the Environmental Impact Assessment Report (EIAR) addresses the potential landscape and visual impacts of the Proposed Development. The emphasis in this chapter is on the likely significant direct and indirect effects of the Proposed Development. The chapter includes the Landscape and Visual Impact Assessment (LVIA) methodology, a description of the existing landscape, as well as landscape policy and relevant guidance. It includes a description of Meath and Kildare County Council's landscape policy and relevant policy contained in the Maynooth Local Area Plan pertaining to the landscape setting in which the Proposed Development is located.

The landscape of the site and wider area is described in terms of its existing character, which includes a description of landscape value, the susceptibility of the landscape to change and a determination of landscape sensitivity. The landscape and visual impact assessment of the Proposed Development uses representative viewpoints and photomontages. Photomontages are photorealistic visualisations that superimpose an image of the Proposed Development upon a photograph or series of photographs. Photomontages are displayed in the photomontage booklet which forms Volume 2 of this EIAR. The potential impacts in both landscape and visual terms are then assessed, including cumulative impacts.

A Landscape Masterplan has been created for all lands within the Maynooth Environs which form the wider Moygaddy Masterplan Site. There is an objective to retain (where possible) existing field boundaries and mature native woodland, as well as provide additional planting of native species within the individual site boundaries.

The Landscape Plan aims to increase the recreational capacity of the lands at Moygaddy through the provision of pedestrian/cycle access routes which will link various areas of the wider Masterplan site, as

well as along the MOOR. These safe access pathways will facilitate recreational amenity at various features within the Masterplan site, such as local watercourses (Rye Water and Blackhall Little) and Moygaddy Castle ruins.

The Proposed Development is located within a greenfield site which currently comprises a rural agricultural landscape as part of Moygaddy Stud Farm. Predominant landcover is improved grassland of open grazing pasture used for sheep and cattle, as well as horses in the northern fields of Moygaddy farm. The entirety of the Moygaddy Masterplan Area (as defined in the Maynooth Environs Written Statement) comprises 13 No. fields. Field cells are bounded by stone walls, wooden fencing and well-established vegetation in the form of mature hedgerows, scrub, gorse and mixed woodland. Mature broadleaf trees (e.g. Oak, Ash, Alder, Beech) are a common feature of the site, particularly along local watercourses, along field boundaries and at the centre of the site where Moygaddy house and the ruins of Moygaddy Castle are enclosed by mature woodland.

The remnants of Moygaddy castle, including the tower and other elements such as a well and old stone wall boundaries, are sensitive cultural heritage features within the site. The area containing these features is parkland surrounded by mature woodland. These lands are designated as H1 High amenity Areas in the Maynooth Environs Written Statement.

Although the wider landscape of Maynooth and its surrounding farmlands are generally very flat, the Proposed Development site comprises rolling pasture with localised topographical undulations. The River Rye Water flows easterly along the south-western perimeter of the Masterplan area. A steep embankment exists along the southern margins of the site as the landform rises and extends away from the Rye Water to the north-east.

This is a modified and managed working landscape, influenced by the ongoing livestock grazing at the Moygaddy Stud Farm. Other human influences include grid infrastructure such as metal pylons and overhead lines which cross the north-eastern extent of the Masterplan area, as well as a communication mast at Moygaddy House.

During the construction phase, potential landscape and visual effects will result as the site changes from an area of agricultural land to a construction site of considerable size. This is expected to be carried out across a period of approximately 3.5 years. Potential landscape effects include vegetation removal, earthworks and a subsequent change in character. These effects will include permanent negative effects, where vegetation is removed, and the land is re-graded, and short-term effects such as the activities of machinery, resulting in noise and dust in the landscape. Construction phase visual effects include potential negative effects on the nearby visual receptors as a result of the vegetation removal, earthworks and operation of machinery. These visual effects will be most pronounced in the immediate vicinity of the site. Cranes may be required to facilitate construction of the taller buildings of the Proposed Development (e.g. Office Block A – 5 storeys); these are likely to be visible from greater distances than other components of the construction phase and are accounted for in the determination of visual effects. The construction phase effects will be short term in duration.

The operational phase commences following completion of construction works. Mitigation, remedial and avoidance measures have been integral in the design of the Proposed Development. Strategic siting and design of infrastructure components reduce the potential landscape and visual effects of the Proposed Development and are therefore factored into the assessments of the Proposed Development. The Proposed Development has been designed with the intention of becoming a lasting benefit to the local area, and in this regard, all operational effects will be long-term.

A dedicated landscape design is included as part of the Proposed Development and is included in Volumes 3a, 3b 3c(i) Appendix 4-7 and Volumes 3d, 3e & 3f Appendix 4-5. An overriding principle of the proposed scheme's landscape design philosophy is to retain, where possible, the existing trees, hedgerows and field boundaries present on the site, creating a high-quality external setting. Retention of these trees and hedgerows will allow continued function as wildlife corridors for the area. As well as conserving important biodiversity corridors and providing visual screening from visual receptors,

retention of existing field boundary vegetation will enable the site to retain some of its existing rural landscape character. Provision of pedestrian pathways and cycleways are also an important element of the landscape design. The implementation of these safe public access routes enhances the recreational value of the landscape (e.g. access to the Rye Water and Moygaddy Castle Ruins) as well as providing a platform to connect with Maynooth Town.

The designated landscape plan also includes planting of trees, shrubs and other vegetation. The planting will naturally mitigate the effects of the Proposed Development through replacement of green spaces and biodiversity which will be lost during the construction phase, as well as providing some additional visual screening of the Proposed Development from visual receptors. It is noted that this mitigation will improve over time as vegetation establishes following the commencement of the operational phase.

1.12 Cultural Heritage

The Cultural Heritage section of this EIAR has been prepared by Aegis Archaeology. This chapter comprises an assessment of the potential impact of the proposed development on the Cultural Heritage resource. Cultural heritage includes archaeology, architectural built heritage and any other tangible assets.

A desktop analysis of all baseline data and a comprehensive programme of field inspection of the Proposed Development site was undertaken. The assessment was based on GIS-based mapping, historic mapping, and available LiDAR imagery, to assist with an assessment of impacts.

One no. recorded monument is located within the Proposed Development site boundary, and 2 no. protected structures lie immediately adjacent to the Proposed Development site (less than 10m), while 34 recorded monuments and 55 protected structures are situated within 2km of the Proposed Development site boundary. This is not considered to be a relatively high density of monuments and the relative proximity of the historic centre of Maynooth to the site affects this perceived density.

Of those monuments located within or immediately adjacent to the site boundary, none is predicted to be directly impacted by the development proposals. Any potential negative impacts to the potential archaeological features that may lie subsurface and are currently identified as anomalies in the geophysical survey undertaken as part of this EIAR, are ameliorated by a number of mitigation measures. These measures will include pre-development targeted archaeological testing followed by excavation by hand should features prove archaeological in nature, and construction stage monitoring.

Indirect effects on the setting of recorded monuments (RMPs) within 2km, and Record of Protected Structure (RPS) / National Inventory of Architectural Heritage (NIAH) features within 2km were included in order to assess impacts on setting in the wider landscape. Potential visual effects on recorded monuments, RPS and NIAH structures within 2km of the PDS are regarded as Slight-Not Significant.

An assessment of cumulative impacts was also undertaken taking into consideration projects within the vicinity of the Proposed Development site. This included other development projects listed in Chapter 2 of this EIAR. No direct cumulative impacts are predicted to occur.

1.13 Material Assets

This chapter of the EIAR takes into the account the details and findings of the following reports and assessments, which are presented in the Appendices of the EIAR:

- Volumes 3a, 3b 3c(i) Appendix 4-1: Mobility Management Plans, prepared by O'Connor Sutton Cronin Consulting Engineers;

- Volumes 3a, 3b, 3c(i) Appendix 4-3 and Volumes 3d, 3e 3f Appendix 4-2: Construction and Environmental Management Plans (including Construction Traffic), prepared by O'Connor Sutton Cronin Consulting Engineers;
- Volumes 3a, 3b 3c(i) Appendix 4-4 and Volumes 3d, 3e 3f Appendix 4-3: Construction and Demolition Waste Management Plans, prepared by O'Connor Sutton Cronin Consulting Engineers;
- Volumes 3a, 3b 3c(i) Appendix 4-5: Operational Waste Management Plans, prepared by Byrne Environmental;
- Volumes 3a, 3b 3c(i) Appendix 4-9: Engineering Services Reports, prepared by O'Connor Sutton Cronin Consulting Engineers;
- Volumes 3a, 3b 3c(i) 3d Appendix 13-1: Traffic Impact Assessments, prepared by O'Connor Sutton Cronin Consulting Engineers;
- Volumes 3a, 3b 3c(i) Appendix 13-2: Road Safety Audits, prepared by Bruton Consulting Engineers.

Traffic

Site A (the Strategic Employment Zone) is located on the southernmost extent of Co. Meath, aligning with the county boundary to Co. Kildare. It is approximately 2km north of the town of Maynooth, Co. Kildare, and forms part of the larger strategic landbank on zoned lands known as Maynooth Environs. The site is immediately bound by:

- R157 Maynooth – Dunboyne Regional Road, to the east;
- Agricultural lands to the north and south; and
- Moygaddy Stream to the west.

Site B (the Healthcare Facilities) is located on the southernmost extent of Co. Meath, aligning with the county boundary to Co. Kildare. It is approximately 1.5km north of the town of Maynooth, Co. Kildare, and forms part of a larger strategic landbank on zoned lands known as Maynooth Environs. The site is immediately bound by:

- R157 Maynooth – Dunboyne Regional Road, to the east;
- Agricultural lands to the north and west; and
- River Rye Water, to the south.

Site C (the Strategic Housing Development, SHD) is located on the southernmost extent of Co. Meath, aligning with the county boundary to Co. Kildare, and is approximately 1.5km north of the town of Maynooth, Co. Kildare, and is immediately bound by:

- Agricultural lands to the east, north and west;
- River Rye Water to the south.

The planning application for the Maynooth Outer Orbital Road (MOOR) includes for the construction of c1.5km of new distributor road linking the existing R157 Regional Road, located to the east of Site B, to the Moyglare Hall road in Mariavilla, located southwest of the SHD (Site C) site. The distributor road will comprise of 7.0m carriageway with turning lanes where required, footpaths, cycle tracks and grass verges. Road upgrade works will also be required to facilitate the delivery of the MOOR, including approximately 750m section of proposed road upgrade works along the existing R157 Regional Road from the existing Kildare Bridge up to the new proposed signalised junction with the MOOR.

Access to the proposed MOOR will be via the R157 Regional Road to the south and east, with access also being provided from the L2214 and L6219 Local Roads to the north and west of the site. Access will also be provided to the MOOR via the proposed Moyglare Bridge to the south.

The road network associated with the Kildare Bridge planning application can be broken-up in two distinct elements, mainly:

1. *Approximately 115m section of proposed road upgrade works along the existing R157 Regional Road between the existing Kildare Bridge and the Dunboyne Roundabout in County Kildare; and*
2. *Installation of new standalone pedestrian and cycle link adjacent to the Kildare Bridge.*

The main access to the Kildare Bridge site will be via the R157 Regional Road (Dunboyne Road).

The road network associated with the Moyglare Bridge planning application can be broken-up in two distinct elements, mainly:

1. *Installation of 2 no. new single span bridge over the River Rye and Blackhall Little Stream to facilitate the delivery of the MOOR; and*
2. *Construction of approximately 160m section of new access road linking the existing Moyglare Hall Road to the south of the site to the proposed single span bridge crossing the River Rye.*

The main access to the Moyglare Bridge Planning Application site will be via the existing Moyglare Hall Road to the south of the site.

The construction phase of the proposed development will have a short-term slight negative effect on the surrounding transport network. There will be no significant effects on the network. Traffic control measures will be in place throughout the construction phase, including a Construction and Environmental Management Plan (CEMP), which will be finalised upon agreement with the relevant Planning Authorities in advance of the commencement of construction.

Traffic modelling for the operational phase of the proposed development has been completed as part of the Traffic Impact Assessments in Volumes 3a, 3b, 3c(i) & 3d Appendix 13-1 of this EIAR. The traffic modelling results include the following key findings:

- Potential trip redistribution through Kilcloon / L2214 local road is negligible.
- Upgrade of the L6219 and R157 road junction will allow for redistribution of traffic away from Maynooth town.
- All key junctions within the study area have been modelled and found to have adequate capacity for the proposed development without any significant delays. Where some congestion or delays were identified during morning or afternoon peaks, this will be addressed by way of the junction upgrades and additional road capacity to be provided as part of the proposed development.

Upgrades will include new signalised junctions, road improvements, and provision of extensive new pedestrian and cycling facilities. Operation of the proposed development will be carried out in a phased manner initially.

The following benefits to the Maynooth Transport Strategy are expected as part of the proposed MOOR development:

- Improvements to the connectivity in the area of the development;
- Increase in capacity of roads and junctions in the immediate vicinity;
- Provision of dedicated pedestrian and cycle infrastructure, enabling a strong modal shift towards sustainable transport;
- The proposed development will also allow the BusConnects proposal to take account of the new infrastructure and further service the Maynooth area.

Utilities and Services

This section of the EIAR sets out the impact assessment of the proposed development with regard to utilities and services, including electricity, telecommunications, gas, water supply, sewage, land-use and waste management.

The construction methodology detailed in Chapter 4: Section 4.4 of this EIAR describes the manner in which the Proposed Development will be constructed, including any excavations and installations of services. Prior to works, the area where excavations are planned will be surveyed and all existing services will be identified. All relevant bodies i.e., ESB, Bord Gáis, EirGrid, Irish Water, Meath County Council, Kildare County Council, etc. will be contacted and all drawings contacted and drawings for all existing services sought.

Any underground services encountered during the works will be surveyed for level and where possible will be left in place. If there is a requirement to move the service, then the appropriate body (ESB, Gas Networks Ireland, Irish Water, etc.) will be contacted, and the appropriate procedure put in place. Backfill around any utility services will be with dead sand/pea shingle where appropriate. All works will be in compliance with required specifications. Further details are provided in Section 4.4 of this EIAR and in the Engineering Services Reports in Volumes 3a, 3b, 3c Appendix 4-9.

Design stage Construction and Environmental Management Plans and Waste Management Plans have been prepared and will be updated prior to the commencement of construction works, to take account of all requirements of the Planning Authority. The waste hierarchy will always be employed to ensure that the least possible amount of waste is produced during the construction phase, through reuse, recovering and recycling.

During construction, water will be supplied on site by water tankers for general use. Unless a temporary water supply is secured from Irish Water, potable water will be provided in the form of bottled water for staff use during the construction phase (prior to connections to the municipal water supply).

Portable toilets will be provided for those working on the construction sites throughout the Proposed Development. Wastewater arising on-site from these toilets is stored in a sealed tank located within the portable toilets, and these will be emptied periodically (as required) by permitted waste contractors and transported to municipal wastewater treatment plants for treatment.

The Engineering Services Reports in Volumes 3a, 3b & 3c(i) Appendix 4-9 of this EIAR present the proposals for the proposed development with regard to Surface Water Drainage, Wastewater Drainage and Potable Water Supply. These elements have been taken into consideration throughout the design of the proposed development and will be implemented in line with all required legislation and relevant best-practice guidelines.

An operational phase Waste Management Plan has been prepared and will be updated prior to operation to take account of all requirements of the Planning Authority.

The project has received a confirmation of feasibility for connection to Irish Water assets. There is currently no existing wastewater infrastructure in the immediate vicinity of the site. The nearest public wastewater infrastructure is Maynooth's public Wastewater Pumping Station (WWPS).

Solar PV panels have been incorporated into building design throughout the development where appropriate, to facilitate the supply of renewable electricity for the energy demands of the buildings.

1.14 Interaction of Effects

Chapters 5 to 13 of this Environmental Impact Assessment Report (EIAR) identify the potential significant environmental effects that may occur in terms of Population and Human Health,

Biodiversity, Land, Soils and Geology, Water (Hydrology and Hydrogeology), Air and Climate, Noise and Vibration, Landscape and Visual, Cultural Heritage (Archaeological, Architectural and Cultural Heritage) and Material Assets, as a result of the Proposed Development. However, for any development with the potential for significant environmental effects there is also the potential for interaction between these effects. The result of interactive effects may exacerbate the magnitude of the effects or improve them or have a neutral effect.

A matrix is presented in Chapter 14 to identify potential interactions of effects between the various aspects of the environment already assessed in this EIAR. The matrix highlights the potential for the occurrence of positive, neutral or negative effects during both the construction (C) and operational (O) phases. The matrix is symmetric, with each environmental component addressed in the chapters of this EIAR being placed on both axes of a matrix, and therefore, each potential interaction is identified twice.

The potential for interaction of effects has been assessed throughout this EIAR, as part of the impact assessment process. While the work on all parts of the EIAR was not carried out by MKO, the entire project and all the work of all sub-consultants was managed and coordinated by the company. This EIAR was edited and collated by MKO as an integrated report of findings from the impact assessment process, by all relevant experts, and effects that potentially interact have been assessed in detail in the individual chapters of the EIAR and summarised in Chapter 14.

Where any potential negative impacts have been identified during the assessment process, these impacts have been avoided or reduced by design and the proposed mitigation measures, as presented throughout the EIAR and highlighted in Chapter 15.

1.15 Schedule of Mitigation Measures

All mitigation measures relating to the construction and operational phases of the Proposed Development are set out in the relevant chapters of this EIAR. Chapter 15 of the EIAR presents a compilation of these measures, grouped according to environmental field/topic. The mitigation proposals are presented in Chapter 15 in a format which provides an easy to audit list that can be reviewed and reported on during the future phases of the project. The proposals for site inspections and environmental audits are set out in the Construction and Environmental Management Plans (CEMP) which are included as Appendix 4-3 of this EIAR. The tabular format in which the information is presented in Chapter 15, can be further expanded upon during the course of future project phases to provide a reporting template for site compliance audits.

It is intended that the CEMPs will be updated where required prior to the commencement of construction to include all mitigations and monitoring measures, conditions and or alterations to the EIAR and application documents should they emerge during the course of the planning process and would be submitted to the relevant Planning Authority for written approval prior to their adoption and implementation.