5. POPULATION AND HUMAN HEALTH

5.1 Introduction

5.1.1 Chapter Scope

This chapter of the Environmental Impact Assessment Report (EIAR) identifies, describes and assesses the potential effects of the Proposed Development on population and human health and has been completed in accordance with the Environmental Impact Assessment (EIA) guidance and legislation set out in Chapter 1 of the EIAR.

The Proposed Development site which covers an area of 5.37 hectares (ha) will consist of a mix of residential units, open spaces, creche and all other site related infrastructure. The Proposed Development is a component of a larger residential development project (Proposed Project). The Proposed Project involves the construction of more than 500 residential units, and the development will require separate, individual planning applications for each part of the project.

This chapter of the EIAR provides baseline information on the Population Study Area as a whole (Proposed Project) with specific impact assessment sections relative to the Proposed Development site being contained in Section 5.5.

One of the principal concerns in the development process is that people, as individuals or communities, should experience no diminution in their quality of life from the direct or indirect effects arising from the construction and operation of a development. Ultimately, all the effects of a development impinge on human beings, directly and indirectly, positively and negatively. The key issues examined in this section of the EIAR include population, employment and economic activity, land-use, tourism, human health and vulnerability of the Proposed Development to natural disasters and major accidents.

5.1.2 Statement of Authority

This chapter of the EIAR has been prepared by Eileen Corley and reviewed by Tom Madden and Eoin O'Sullivan, all of MKO. Eileen Corley is an Environmental Scientist who has been working with MKO since September 2023. Eileen graduated from University of Galway and holds a BSc Environmental science where she focused her studies on environmental nature conservation and environmental legislation. Since taking up her position with MKO, Eileen has worked on Environmental Impact Assessment Screening Reports, Construction and Environmental Management Plan Reports, preparation of Environmental Impact Assessment Report Chapters, fee proposals for a wide range of projects such as wind energy, wastewater treatment plants, residential developments, quarries and QGIS mapping for a range of projects. Eileen is a graduate member of the Institute of Environmental Management and Assessment.

Tom is a Project Environmental Scientist and has over five years working in various Environmental Consultancies throughout Ireland. He holds a BSc (Hons) in Environmental Science from the University of Limerick. Eoin O'Sullivan is a Project Director at MKO with over 15 years of experience in the assessment of a wide range of energy and infrastructure related projects and working in the fields of environmental and human health risk assessment, waste management, waste policy and permitting. Eoin holds a BSc (Hons) in Environmental Science & Technology and a MSc in Environmental Engineering.

Eoin O'Sullivan is a Senior Environmental Consultant and Project Director at MKO with over 15 years of experience in the assessment of a wide range of energy and infrastructure related projects and working in the fields of environmental and human health risk assessment, waste management, waste policy and permitting. Eoin holds a BSc (Hons) in Environmental Science & Technology and a MSc in

Environmental Engineering. Eoin's key strengths include project strategy advice for a wide range and scale of projects, project management and liaising with the relevant local authorities, EPA and statutory consultees as well as coordinating the project teams and sub-contractors. Eoin is a Chartered Member of the Chartered Institute of Water and Environmental Management and Chartered Environmentalist with the Society of Environment.

5.1.3 Relevant Legislation

The population and human health section of this EIAR is carried out in accordance with legislation and guidance referred to in Chapter 1 of this EIAR.

5.1.4 Relevant Guidance

This chapter of this EIAR is carried out in accordance with Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification) as amended by Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (2014) (hereafter known as the EIA Directive) and has been prepared in accordance with guidance referred to in Chapter 1 of this EIAR.

In addition to the guidelines set out in the Environmental Protection Agency (EPA) *Guidelines on the information to be contained in the Environmental Impact Assessment Report*[1] and the EIA Directive, the following guidelines, plans and reports have been reviewed, considered, and applied in the preparation of this chapter:

- Department of Health – Health in Ireland: Key Trends 2024[2].
- European Commission (EC), Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report[3].
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports[1].
- Institute for Environmental Management and Assessment Health In Environmental Impact Assessment: *A Primer for a Proportionate Assessment*[4].
- Institute for Environmental Management and Assessment Determining Significance for Human Health in Environmental Impact Assessment[5]
- Fáilte Ireland Key Tourism Facts 2023[6]
- The World Health Organisation (WHO) Environmental Noise Guidelines for the European Region[7]

[1] Environmental Protection Agency (EPA) (2022) '*Guidelines on the information to be contained in Environmental Impact Assessment Reports*'. EPA. Ireland. Available at: https://www.epa.ie/publications/monitoring–assessment/assessment/guidelines-on-the-information-to-be-contained-in-environmental-impact-assessment.php

[2] Department of Health (2025) '*Health in Ireland Key* Trends 2024' . Department of Health. Ireland. Available at: https://www.gov.ie/en/department-of-health/collections/health-in-ireland-key-trends-2024/

[3] European Commission, Directorate-General for Environment, COWI, Milieu, McGuinn, J., Lukacova, Z., McNeill, A. et al. (2017) *Environmental impact assessment of projects : guidance on the preparation of the environmental impact assessment report (Directive 2011/92/EU as amended by 2014/52/EU).* European Union. Luxembourg Publications Office. https://data.europa.eu/doi/10.2779/41362

[4] Cave,B. et al. (2017) *'Health in Environmental Impact Assessment: A Primer for a Proportionate Approach.'* Ben Cave Associates Ltd, IEMA and the Faculty of Public Health. Lincoln, England. Available at: http://www.iema.net

[5] Institute of Environmental Management and Assessment (IEMA) (2022) *'Determining Significance for Human Health in Environmental Impact Assessment'*. IEMA. Available at: https://www.iema.net/media/vljb2nbs/iema-eia-guide-to-determining-significance-for-human-health-nov-2022.pdf

[6] Fáilte Ireland (2025) '*Key Tourism Facts 2023'.* Fáilte Ireland. Ireland. Available at: https://www.failteireland.ie/Research-Insights/National/Key-Tourism-Facts-2023-National-Summary.aspx

[7] WHO (2022) *'Environmental Noise Guidelines for the European Region'* Available at: https://www.who.int/

- Environmental Impact Assessment of National Road Schemes- A practical Guide[8]
- Health Impact Assessment Resource and Tool Compilation[9]
- Health Impact Assessment Guidance[10]
- Framework for Human Health Risk Assessment to Inform Decision Making[11]
- Department of Housing, Planning and Local Government (DoHPLG), Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018).[12]

5.1.5 Scoping and Consultation

The scope for this EIAR has been informed by consultation with statutory consultees, bodies with environmental responsibility and other interested parties. This consultation process is outlined in Chapter 2 of this EIAR.

A consultation response relating to population and human health was received from the Department of Transport. Matters were raised regarding the Proposed Project and policy developments which are relevant to accessible, integrated and sustainable transport.

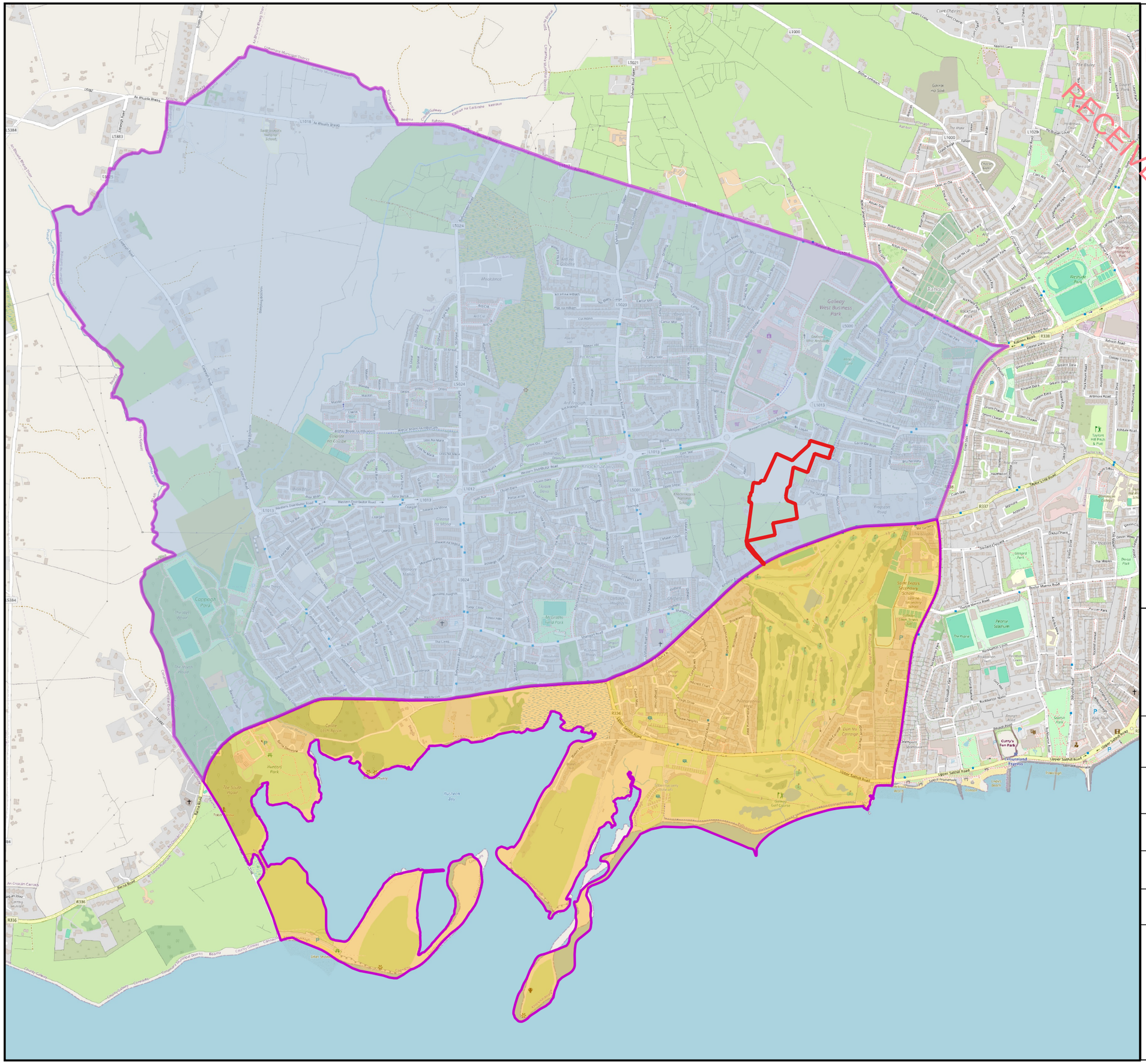
> *"To make public transport fully accessible to people with disabilities requires a* ***'whole journey approach****'. This refers to all elements that constitute a journey from the starting point to destination. Local Authorities are a key stakeholder by ensuring a universal design approach to the built environment'. This including footpaths, tactile paving, cycle paths, roads, pedestrian crossing points, town greenways and bus stops/shelters".*

These matters have been addressed in Appendix 15-5 Design Manual for Urban Roads and Streets (2019).

5.1.6 Limitations/Difficulties Encountered

No significant difficulties were encountered in the preparation of the Population and Human Health chapter of this EIAR.

[8] National Roads Authority (NTA) (2008) *'Environmental Impact Assessment of National Road Schemes- A practical Guide'*. Available at: https://www.tii.ie/media/joodyduf/environmental-impact-assessment-of-national-road-schemes-practical-guide.pdf
[9] United States Environmental Protection Agency (2016) *'The Health Impact Assessment (HIA) Resource and Tool Compilation'* Office of Research and Development National Exposure Research Laboratory. Available at: https://www.epa.gov/healthresearch/health-impact-assessment-hia-resource-and-tool-compilation
[10] Institute of Public Health Ireland (IPH) (2009) *'Health Impact Assessment Guidance'* IPH. Available at: https://www.publichealth.ie/sites/default/files/resources/Health%20Impact%20Assessment%20Guidance%202009.pdf
[11] United States Environmental Protection Agency (2014) *'Framework for human health risk assessment to inform decision making'*. Office of the Science Advisor Risk Assessment Forum. Available at: https://www.epa.gov/risk/framework-human-health-risk-assessment-inform-decision-making
[12] Government of Ireland (GOF) (2018) *'Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment'* Available at: https://assets.gov.ie/static/documents/guidelines-for-planning-authorities-and-an-bord-pleanala-on-carrying-out-environmental.pdf



Map Legend

- Planning Application (Red Line) Boundary
- Bearna ED
- Knocknacarragh ED

Drawing Title

Population Study Area

Project Title

Proposed Large-Scale Residential Development at Knocknacarra, Galway

Drawn By	Checked By
EC	TM/EOS
Project No.	**Drawing No.**
240142	Figure 5-1
Scale 1:15,000	**Date** 2025-10-13

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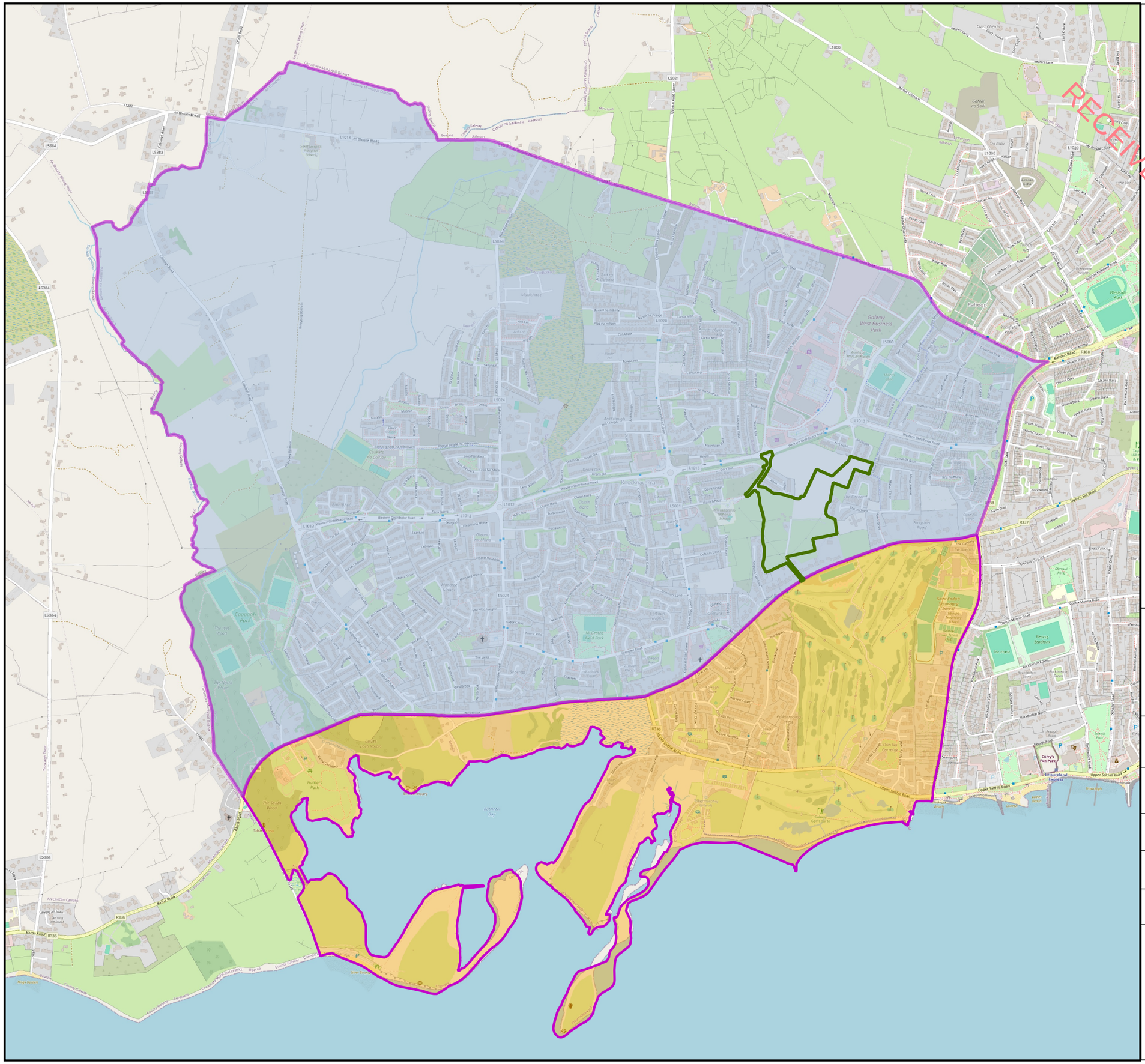

Map Legend

- EIAR Study Area
- Barna ED
- Knocknacarragh ED

Drawing Title

Population Study Area

Project Title

Proposed Large-Scale Residential Development at Knocknacarra, Galway

Drawn By	Checked By
EC	TM/EOS
Project No. 240142	Drawing No. Figure 5-2
Scale 1:15,000	Date 2025-10-14

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5.2 Receiving Environment

5.2.1 General Site Description

The Proposed Project site which covers an area of 8.74 hectares (ha) will consist of residential units, open spaces, creche and all other site related infrastructure.

The Proposed Project site is located in Knocknacarra, Co. Galway. Irish Transverse Mercator (ITM) coordinates for the centre of the site are X 526721 Y 724694. The site is accessible via the Western Distributor Road to the north by the local road L-10111 and the R337 regional road to the south. Both of these roads are main arterial routes which provide connectivity to Galway City. Please refer to Figure 1-1 in Chapter 1 of the EIAR for the Site location.

5.2.2 Settlement and Land-use

The Proposed Project site is comprised of mixed agricultural grassland and areas of brownfield. The surrounding area is urban in character with a number of residential housing estates and commercial and industrial buildings being located in close proximity.

Other permitted and proposed developments are also located in the area surrounding the site and are listed in Chapter 2 of this EIAR. The nearest existing residential housing development is the An Logán which borders the northern boundary of the site.

The Proposed Project site is in a location which has been zoned within the classification of Enterprise, light industry and commercial use (CI) as well as residential (R) and Regeneration and Opportunity Sites within the Galway City Development Plan 2023-2029.

5.3 Population Assessment Methodology

The assessment of the receiving environment included an examination of the population and employment characteristics of the area. Information regarding population and general socio-economic data were sourced from the Central Statistics Office (CSO) (2022), the Galway City Development Plan 2023-2029, the Galway County Development Plan 2022-2028, and Fáilte Ireland. Information was also sourced from the Census of Ireland 2022, which is the most recent census for which a complete dataset is available, also the Census of Ireland 2016, the Census of Agriculture 2020 from the CSO website (ww.cso.ie). Census information is divided into State, County, City and Electoral Division (ED) level but may not be available for all levels. For the purposes of this section of the EIAR, ED level data was used wherever possible.

In order to assess the population in the vicinity of the Proposed Project site, the Population Study Area for the Population Section of this EIAR was defined in terms of the EDs where the Proposed Project site is located. The Proposed Project site and Proposed Development site lies primarily within the Knocknacarragh ED with a small portion located within the Bearna ED as shown in Figure 5-1 and Figure 5-2 above. The Knocknacarragh ED and Bearna ED and will be referred to hereafter as the Population Study Area for this chapter. The Population Study Area has a population of 18,032 persons and comprises a total land area of 900 hectares or 9 square kilometres (km^2) (Source: CSO Census of the Population 2022).

5.3.1 Population

5.3.1.1 Population Trends

In the six years between the 2016 and the 2022 Census, the population of the State increased by 8.1%. During this time, the population of Galway City grew by 7.3% to 84,414 persons. Other population statistics for the State and Galway County and City have been obtained from the CSO and are presented in Table 5-1.

Table 5-1 Population 2016 – 2022 (Source: CSO)

Area	Population Change		% Population Change
	2016	2022	2016 - 2022
State	4,761,865	5,149,139	8.1%
County Galway	179,390	193,323	7.8%
Galway City	78,668	84,414	7.3%
Population Study Area	16,675	18,032	8.1%

The data presented in Table 5-1 shows that the Population Study Area increased by 8.1% between 2016 and 2022. This rate of population growth is the same as that recorded at State level and similar to that of both County Galway and Galway City.

5.3.1.2 Population Density

The population densities recorded within the State, County Galway, Galway City and the Population Study Area during the 2016 and 2022 Census are shown in Table 5-2.

Table 5-2 Population Density in 2016 and 2022 (Source: CSO)

Area	Population Density (Persons per square kilometre)	
	2016	2022
State	67.8	73.3
County Galway	30.7	33.1
Galway City	1,573.4	1,688.3
Population Study Area	1,892	2,047

The population density of the Population Study Area recorded during the 2022 Census was 2,047 persons per square kilometre. This figure is significantly higher than the State and County Galway and higher than Galway City.

5.3.1.3 Household Statistics

The number of households and average household size recorded within the State, County Galway, Galway City and the Population Study Area during the 2016 and 2022 Census are shown in Table 5-3.

Table 5-3 Number of Household and Average Household Size 2016 – 2022 (Source: CSO)

Area	2016		2022	
	No. of House-holds	Avg. Size (persons)	No. of House-holds	Avg. Size (persons)
State	1,697,665	2.8	1,841,152	2.7
County Galway	63,040	2.8	68,021	2.8
Galway City	28,859	2.6	30,901	2.6
Population Study Area	6,142	2.7	6,662	2.7

In general, the figures in Table 5-3 show that the number of households in the State, County Galway, Galway City and the Population Study Area has increased from 2016 to 2022. The average size of households in the State, County Galway, Galway City and the Population Study Area have stayed much the same during the 2016 and 2022 Census.

5.3.1.4 Age Structure

Table 5-4 presents the percentages for the State, County Galway, Galway City and the Population Study Area within different age groups as defined by the CSO during the 2022 Census.

Table 5-4 Population per Age Category in 2022 (Source: CSO)

Area	Age Category				
	0 - 14	15 – 24	25 - 44	45 - 64	65 +
State	19.7%	12.5%	27.6%	25.1%	15.1%
County Galway	21.0%	11.6%	24.1%	26.7%	16.6%
Galway City	15.4%	17.7%	32.7%	21.5%	12.7%
Population Study Area	20.5%	13.1%	28.7%	26.6%	11.0%

The proportion of the Population Study Area population is generally similar to those recorded at State level, County Galway and Galway City for most categories. In general, older age categories are more sensitive to change whereas age categories within the 15 -44 age brackets would be considered to be less sensitive to change. Within the Study Area, the highest population percentage occurs within the 25 - 44 age category at 28.7%. This age category would be considered to be less sensitive to change.

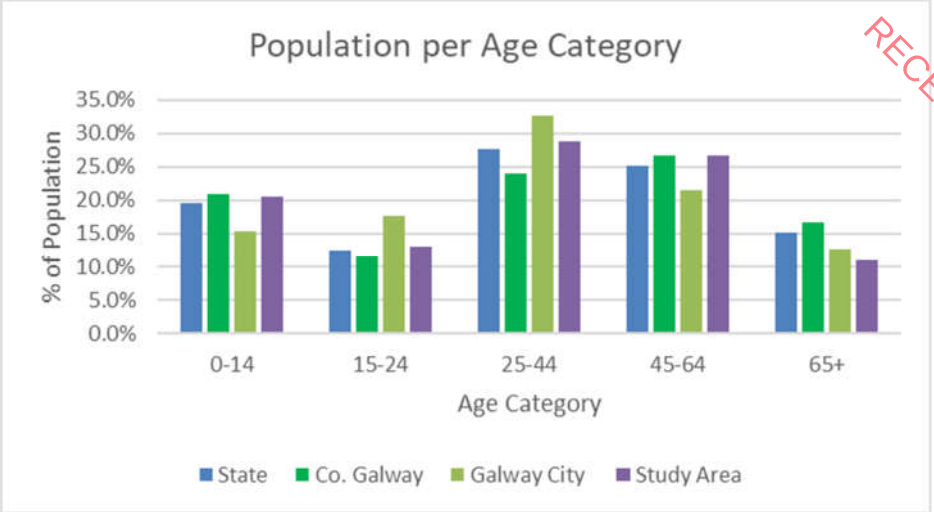

Figure 5-4 % of Population per Age Category in 2022 (Source: CSO)

5.3.2 Employment and Economic Activity

5.3.3 Economic Status of the Population Study Area

The labour force consists of those who are able to work, i.e. those who are aged 15+, out of full-time education and not performing duties that prevent them from working. In 2022, there were 2,531,099 persons in the labour force in the State during the 2022 Census. Table 5-5 shows the percentage of the total population aged 15+ who were in the labour force during the 2022 Census. This figure is further broken down into the percentages that were at work or unemployed. It also shows the percentage of the total population aged 15+ who were not in the labour force.

Table 5-5 Economic Status of the Total Population Aged 15+ in 2022 (Source: CSO)

Status		State	County Galway	Galway City	Population Study Area
% of population aged 15+ who are in the labour force		61.2%	60.0%	60.4%	64.6%%
% of which are:	At work	91.7%	95.1%	93.9%	92.4%
	First time job seeker	1.4%	1.1%	0.8%	1.3%
	Unemployed	7.0%	3.8%	2.1%	6.3%
% of population aged 15+ who are not in the labour force		38.8%	40.0%	39.6%	35.4%
% of which are:	Student	28.6%	27.7%	19.0%	37.1%
	Home duties	17.0%	16.8%	12.0%	15.1%
	Retired	41.0%	43.0%	34.2%	35.6%

Status		State	County Galway	Galway City	Population Study Area
	Unable to work	11.8%	10.8%	10.7%	10.3%
	Other	1.7%	1.7%	1.8%	1.9%

Overall, the principal economic status of those living in the Population Study Area is broadly similar to that recorded at State, County Galway and Galway City. During the 2022 Census, the percentage of people over the age of 15 who were in the labour force was similar across State, County Galway and Galway City. However, the Population Study Area had a higher rate, with 64.6%. Of those who were not in the labour force during 2022 Census, the highest percentage of the Population Study Area population were the 'Student' category, which is notably higher compared to both the State and Galway (City and County). This trend may reflect the proximity of the Population Study Area to Galway City, which offers convenient access to the local university.

5.3.3.1 Employment by Socio-Economic Group

Socio-economic grouping divides the population into categories depending on the level of skill or educational attainment required. The 'Higher Professional' category includes scientists, engineers, solicitors, town planners and psychologists. The 'Lower Professional' category includes teachers, lab technicians, nurses, journalists, actors and driving instructors. Skilled occupations are divided into manual skilled, such as bricklayers and building contractors; semi-skilled, e.g. roofers and Figure 5-4 shows the percentages of those employed in each socio-economic group in the State, County Galway, Galway City and the Population Study Area during the 2022 Census.

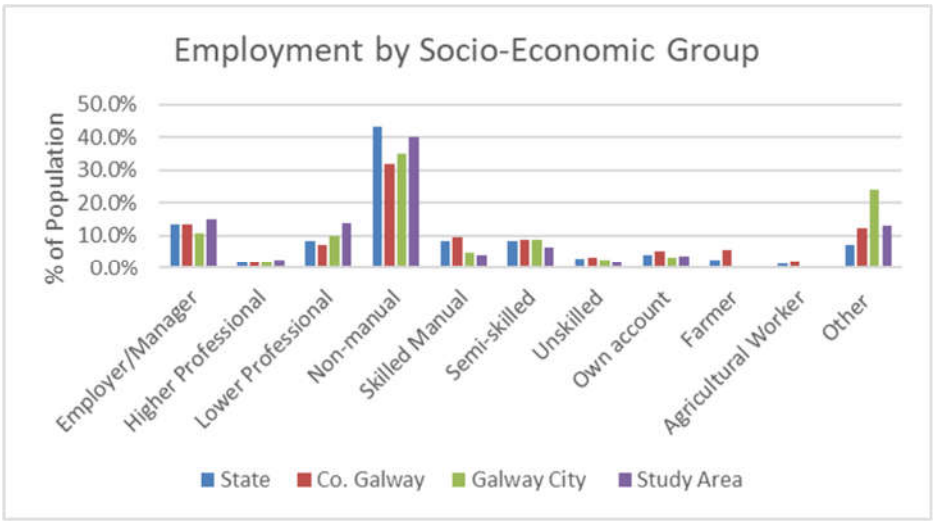

Figure 5-5 Employment by Socio-Economic Group in 2022 (Source: CSO)

The highest level of employment within the Population Study Area was recorded in the 'Non – Manual' category. Approximately 40% of those employed within the Population Study Area form part of this category, in comparison to 3.9% of Galway County population, 34.9% of Galway City and 43.2% at State level. After 'Non-Manual', the next highest levels of employment within the Population Study Area are 'Employer/Manager' and 'Other'. The categories in which the lowest percentage of the Population Study Area was recorded are 'Agricultural Worker' (0.1% of the Study Area population) and 'Farmer' (0.2% of the Study Area population).

The CSO figures for socio-economic grouping have a limitation of including the entire population, rather than just those who are in the labour force. It is likely that this is what gives rise to the high proportion of the population shown to be in the "Other" category in Figure 5-4.

5.3.4 Land Use

The Proposed Project involves replacing the low input agricultural grassland (southern section) and areas of infill and brownfield (northern section) with a mixture of residential buildings and landscaped areas and other components.

The Proposed Project site is zoned as 'Enterprise, Light Industry and Commercial' as well as 'Residential within the Galway City Development Plan 2023 – 2029. Lands bordering to the north have the same zoning, lands to the west are zoned 'Recreation and Amenity', to the east 'Residential' and to the south 'Residential/Recreation and Amenity'. Zoning for the site is shown in Figure 5-5.

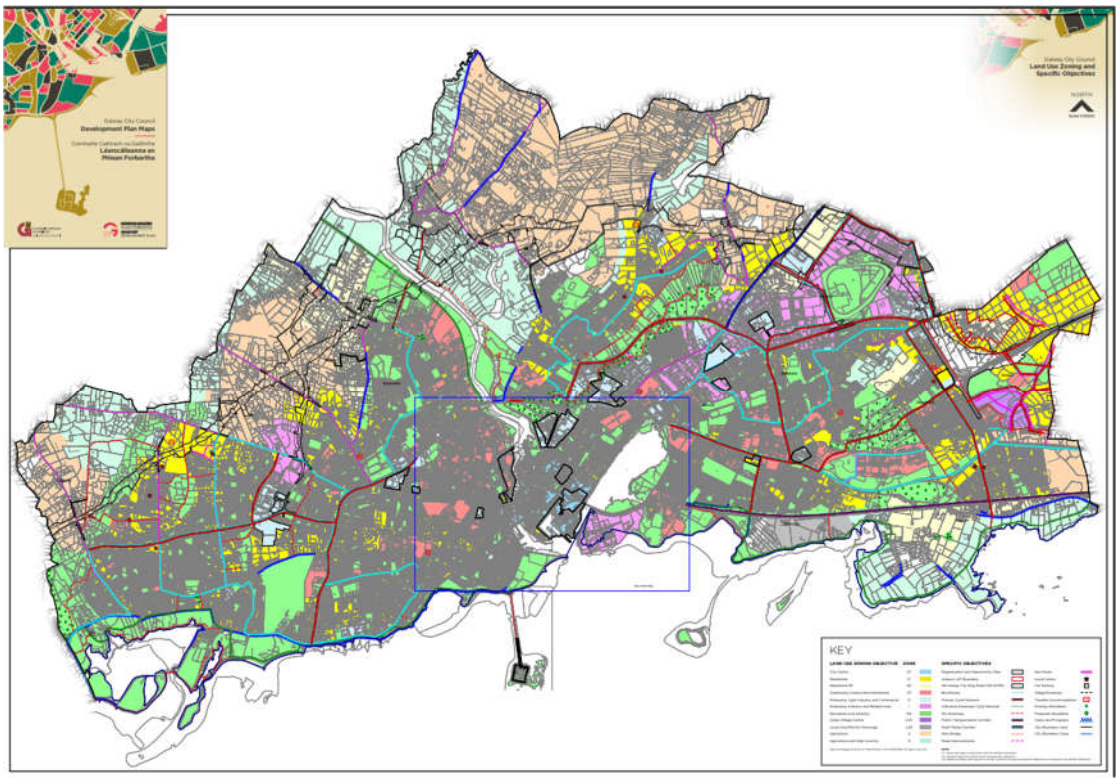

Figure 5-6 Galway City Development Plan – Land Use Zoning

5.3.5 Tourism

5.3.5.1 Tourist Numbers and Revenue

Tourism is one of the major contributors to the national economy and is a significant source of full time and seasonal employment. At the time of writing, the most recent publication of key tourism facts is the *Key Tourism Facts 2023*[13] published by Failte Ireland in 2025 for the year 2023 (Fáilte Ireland, 2025). During 2023, out-of-state (overseas and Northern Ireland) tourist expenditure amounted to €6 billion. With a further €970 million spent by overseas visitors on fares to Irish carriers, foreign exchange earnings were €7 billion. Domestic tourism expenditure amounted to €3.1 billion, making tourism a €10 billion industry.

[13] Fáilte Ireland (2025) '*Key Tourism Facts 2023*'. Fáilte Ireland. Ireland. Available at: https://www.failteireland.ie/Research-Insights/National/Key-Tourism-Facts-2023-National-Summary.aspx

Key Tourism Facts 2023 goes on to state that through an alternative method of estimating employment using PAYE tax data, Tourism Industries' employee headcount was estimated to be c.226,700 in Q3 2023.

Ireland is divided into seven tourism regions. Table 5-6 shows the total revenue and breakdown of overseas tourist numbers to each region in Ireland during 2023 (Fáilte Ireland, 2025).

Table 5-6 Out of State Tourists Revenue and Numbers 2023 (Source: Fáilte Ireland, 2025)

Region	Total Number of Out of State Tourists (000s)	% Total Number of Out of State Tourists	Total Revenue (€m) of Out of State Tourists	% Revenue of Out of State Tourists
Dublin	4,168	41.2%	2,379	39.8%
Mid-East/Midlands	991	9.8%	603	10.1%
South-East	543	5.4%	294	4.9%
South-West	1,377	13.6%	988	16.5%
Mid-West	739	7.3%	489	8.2%
West	**1,263**	**12.5%**	**774**	**12.9%**
Border	1,031	10.2%	455	7.6%
Total	**10,112**		**5,982**	

The West region, in which the Proposed Project site is located, comprises Counties Galway, Mayo and Roscommon. 25% of overseas tourists visited the west region. This region generated 12.9% of the total tourism revenue.

5.3.5.2 Tourist Attractions

There are no tourist attractions located in the immediate vicinity of the Proposed Project site. Key tourist attractions within the wider area of Galway City include University of Galway, a number of theatres, Sports facilities (Pearse Stadium, Eamon Deacy Park, The Sportsground, Galway Racecourse etc.). Bearna golf club is located approximately 4.5 km to the west of the Proposed Project site. The Proposed Project does not directly impact on any of these sites of existing tourism attractions. The nearby Twelve Hotel, Ardilaun Hotel, Rockbarton House Hotel and other tourist accommodations in the wider area will attract a significant number of tourists to stay. In addition, The Wild Atlantic Way, which passes the site approximately 1.1 km to the south, attracts large numbers of domestic and overseas tourists.

There are a number of large festivals and events held regularly in Galway City which attract a large number of visitors. These include the Galway Races, the Galway International Arts Festival, the Galway Oyster Festival, the Galway Comedy Festival, the Galway Food Festival, the Galway Film Fleadh, The Galway Christmas Market, Cuirt Literary Festival and many others. These festivals attract large crowds and can result in an increase in traffic volumes on main roads at certain times.

There are no protected views within the site boundary of the Proposed Project. The closest scenic viewpoint to the Proposed Project site is located directly south of the Site along the Kingston Road. The description of this Protected View states the view is of '*Seascape views of Galway Bay*', Galway Bay is located to the south of this road and therefore the designated views are not directed towards the Proposed Project. For further information on this view, see Chapter 14 of this EIAR.

The potential for visual impacts arising from the Proposed Project on the wider landscape and scenic roads is assessed in Chapter 13 of this EIAR.

5.3.6 Local Amenities

5.3.6.1 Education

The closest primary school to the Proposed Project site is St John the Apostle National School which is located approximately 115 metres west. There are 4 primary schools and 2 secondary schools within the Population Study Area for this Proposed Development.

The University of Galway (formerly National University of Ireland Galway) main campus is the nearest third level institute to the proposed site and is located approximately 2.82 kilometres to the north-east. It is estimated that approximately 37.1% of the Population Study Area are students.

5.3.6.2 Access and Public Transport

Within the surrounding vicinity of the Proposed Project site, there are many local transport links and amenities which are available to all residents in the local area.

Ceannt train station (Galway City centre) is located approximately 3.4 kilometres east of the site. The station provides train services to Dublin, Limerick and Cork and intervening stations.

There are a multitude of bus routes in the Population Study Area, routes for 412, 405 and 414 Bus services from Galway city centre include Galway city (east and north), NUIG, GMIT, Dublin, Dublin Airport, Cork (via Limerick), Ennis (via Co Clare), Donegal (via Sligo) and intervening stops.

Within the Proposed Project site, pedestrian and cycle infrastructure will be provided, ensuring connectivity with adjoining routes and off-site networks.

5.3.6.3 Amenities and Community Facilities

Most of the amenities and community facilities, including GAA and other sports clubs, youth clubs and recreational areas, are available in the areas surrounding the site (i.e. Bearna, Knocknacarra and Furbo), as well as in the wider Galway area. The nearest churches to the site are the Galway City Baptist Church and St John the Apostle Catholic Church which are located approximately 339 m and 1.33 km to the south-west respectively.

There are a wide range of services available in the area. Retail and services are found in close proximity to the site with Capones and Tesco found in close proximity to the site. There are also numerous retail outlets within Galway City Centre. The closest library is operated by Galway City council and is located approximately 2 km northeast. The Knocknacarra Medical Centre provides primary care services from a location approximately 0.5 kilometres northwest of the site. University Hospital Galway is located approximately 3 kilometres northeast of the site.

5.4 Human Health Impact Assessment Methodology

The IEMA Working Group 2022 published Determining Significance For Human Health In Environmental Impact Assessment in response to gaps and inconsistencies across existing guidance documents as to how health is assessed in EIA, particularly with regard to significance. The aim of this report is to assist and streamline discussions for consultants producing the assessments and for the decision makers who are reviewing the assessments. The report states that an EIA must identify,

describe and assess the direct and indirect significant effects in an appropriate manner of a Proposed Development on human health. It must include the information that may reasonably be required for reaching a reasoned conclusion on the significant effects, taking into account current knowledge and methods of assessment.

The Proposed Development is not a recognised source of pollution. It is not an activity which requires EPA licensing under the Environmental Protection Agency Act 1992, as amended. In this context, and aligned with the above noted IEMA Guidance, this EIAR provides sufficient information that may reasonably be required for reaching a reasoned conclusion on the significance of effects, without providing the level of detail, for example through the use of the significance matrix set out in the IEMA Guidance, which might be required for an assessment of effects on human health arising from a type of development with a potential for emissions-related human health effects.

5.4.1 Assessment of Effects on Human Health

As set out in the Department of Housing, Planning, Community and Local Government *'Key Issues Consultation Paper on the Transposition of the EIA Directive 2017'* and the guidance listed in Section 1.7.2 of Chapter 1: Introduction, the consideration of the effects on populations and on human health should focus on health issues and environmental hazards arising from the other environmental factors, for example water contamination, air pollution, noise, accidents and disasters.

The human health analysis section was assessed using guidelines set out in Section 5.1.4 above and that in Appendix 5-1 Human Health Assessment Guidelines of this Chapter.

The factors with the potential for environmental effects leading to human health effects as a result of the Proposed Development are assessed in this chapter. These are:

- Construction Health and Safety
- Construction Noise
- Construction Air Quality and Dust
- Climate
- Hydrology and Hydrogeology
- Operational Health and Safety

The consideration of potential impacts on human health are examined in detail in the Air, Climate, Noise & Vibration, Geology and Soils, Hydrology & Hydrogeology and Traffic Sections of this EIAR. These sections should be consulted for detailed information on potential impacts; however, a brief summary of the key information is provided in Section 5.5 below. Potential issues relating to health and safety, and amenity concerns are also discussed below in Section 5.5.

5.5 Likely and Significant Impacts and Associated Mitigation Measures

5.5.1 Potential Effects

This section of the assessment of effects is structured as follows:

- Assessment of 'Do nothing' Effect.
- Assessment of effects in relation to the Construction Phase.
- Assessment of effects in relation to the Operational Phase
- Assessment of effects in relation to the Cumulative Effects

5.5.2 Do-Nothing Effects

If the Proposed Development were not to proceed, there would be no change to the existing environment. The potential for additional investment and employment in the area in relation to the construction and operation of the proposed site would be lost.

5.5.3 Construction Phase

5.5.3.1 Health and Safety

During the construction phase, the operation of machinery, increased construction traffic and risk to health from onsite spillages, dust and noise; pose a potential health and safety risk to the employees of the Proposed Development.

The presence and operation of heavy machinery and traffic entering and leaving the subject site also poses a potential risk to members of the public that make use of the surrounding access roads.

These are considered to be short term potential significant negative impacts.

Mitigation

- A site-specific Health and Safety Plan will be in place for the proposed site. All site staff will be made aware of and adhere to the Health and Safety Plan.
- Operate a Site Induction Process for all site staff,
- Ensure all site staff will have current Construction Skills Certification Scheme (CSCS) training or 'Safe Pass' cards,
- Site hoarding will include Health and Safety warnings at appropriate intervals.
- Fire extinguishers and first aid supplies to be available in the work area.
- All adjacent roadways will be maintained in clean condition at all times.
- Appropriate Personal Protective Equipment (PPE) to be worn at all times.
- Biometric turnstiles will be used at the site to prevent unauthorised access to the site.

Residual Effects

With the implementation of the above mitigation measures, there will be a Short-term, slight, and of Negative effect.

Significance of Effects

Based on the assessment above there will be No Significant effects.

5.5.3.2 Employment and Investment

There will be an improvement in employment in the area of the Proposed Development, as it is anticipated that there will be an increase in job opportunities for those working within the construction sector, building services and supplies, as well as in local businesses. Those to be employed at the Proposed Development will be likely from the local area so any increased revenue from this employment returns directly to the local community. The Proposed Development will result in a short-term, slight positive effect on employment and investment during the construction phase.

5.5.3.3 Population

During the construction phase of the Proposed Development, there will be no negative impact on population, as it is predicted that the majority of staff and construction workers on site will be from the local or regional area.

5.5.3.4 Tourism

During the construction phase of the Proposed Development, there will be no direct negative impacts on tourism, as there are no tourist attractions on, or immediately adjacent to, the site. There is potential for short term, indirect, slight negative effects on local tourism as a result of increased traffic associated with the construction phase of the Proposed Development. Traffic impacts associated with the Proposed Development are discussed in detail in Section 16 of this EIAR and in Section 5.3.3.8 below.

5.5.3.5 Land-use

The Proposed Development during the construction phase will involve a change of land-use from an undeveloped greenfield and brownfield site to a construction site. Whilst there will be a change of land use to facilitate the development, this is an acceptable and unavoidable part of the Proposed Development.

5.5.3.6 Noise and Vibration

There will be an increase in noise levels in the vicinity of the Proposed Development site during the construction phase, as a result of heavy vehicles and building operations. The potential noise impacts that will occur during the construction phase of the Proposed Development are further considered in Chapter 11 of this EIAR. Pre-mitigation, potential effects may be slight to moderate in nature. Mitigation measures are outlined in Chapter 11 and the CEMP (Appendix 4-1) and are summarised below. These will ensure that any potential impacts will be imperceptible to slight.

Mitigation

The following measures are included in the CEMP and will be enforced to ensure construction phase noise impacts during the construction phase is minimised:

- Construction operations will in general be confined to the periods Monday-Friday 0800-1800 h and Saturday 0900-1300 h.
- Hooting will be prohibited onsite. Drivers of plant and vehicles will be instructed to avoiding hooting at all times.
- Plant used onsite during the construction phase will be maintained in a satisfactory condition and in accordance with manufacturer recommendations. In particular, exhaust

silencers will be fitted and operating correctly at all times. Defective silencers will be immediately replaced.
- Queuing of trucks on public roads will be prohibited.
- Machinery not in active use will be shut down.
- A site representative will be appointed as a liaison officer with the local community.
- Any complaints of noise received during the construction phase will be logged in a register, and investigated immediately. Details of follow-up action will be included in the register.
- Where it is proposed to import potentially noisy plant to the site, the potential impact of noise emissions will be assessed in advance.
- Guidance set out in BS 5228-1:2009 with respect to noise control will be applied throughout the construction phase.
- Advance notification will be given to residents immediately outside the site boundary when works are proposed within 50m of their dwellings.

Residual Effect

With the implementation of the above mitigation measures, there will be a short-term, imperceptible, negative effect on population and human health in terms of Noise during the construction phase.

Significance of Effects

Based on the assessment above there will be No Significant effects.

5.5.3.7 Dust and Air Quality

Potential dust and vehicle emission sources during the construction phase of the Proposed Development include the use of machinery and plant and on-site vehicular traffic. The entry and exit of vehicles from the site may result in the transfer of dust to the public road, particularly if the weather is wet. This may cause nuisance to residents and other road users, thereby creating a short-term slight negative impact. The potential impacts that will occur during the construction phase of the Proposed Development are further considered in Chapter 9 of this EIAR. Dust emissions resulting from the construction of the Proposed Development, if uncontrolled have the potential to have a short term, slight, negative impact on human health.

Mitigation

The following measures are included in the Chapter 9 of this EIAR and the CEMP (Appendix 4-1) and will be enforced to ensure that dust and vehicle emission nuisance during the construction phase beyond the site boundary is minimised:

- All vehicles to switch off engines when not in use;
- No idling vehicles;
- On-road vehicles to comply to set emission standards;
- Any site roads with the potential to give rise to dust will be regularly watered, as required, during dry and/or windy conditions
- The designated public roads outside the site and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness, and cleaned as necessary
- Material handling systems and material storage areas will be designed and laid out to minimise exposure to wind
- Water misting or bowsers will operate on-site as required to mitigate dust in dry weather conditions

- The transport of soils or other material, which has significant potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary
- All vehicles leaving the construction areas of the site will rinse their wheels at a designated wheel wash area prior to entering the local road network.
- All construction related traffic will have speed restrictions on un-surfaced roads to 15 kph
- Daily inspection of construction sites to examine dust measures and their effectiveness.
- If deemed necessary, sections of the approach road will be swept using a truck mounted vacuum sweeper.

Residual Effect

With the implementation of the above mitigation measures, there will be a short-term, slight, negative effect in terms of dust and air quality during the construction phase.

Significance of Effects

Based on the assessment above there will be No Significant effects.

5.5.3.8 Traffic

During the construction phase, the increase in vehicle numbers to the area may lead will lead to an increase in traffic. However, the Traffic and Transport Assessment, as presented in Chapter 15 of the EIAR and in Appendix 15-1, establishes that the relatively low volumes of additional traffic that will be generated by the Proposed Development, will be accommodated with minimal impacts on the surrounding road network.

Mitigation

The following mitigation measures will be implemented during the construction phase at the Proposed Development site:

- A detailed haulage plan will be put in place to ensure minimal impact on the surrounding road network. Spoil removal from site will be kept to a minimum with a detailed site survey completed to ascertain where spoil can be distributed on the site.
- All deliveries and removals will be subject to stringent site rules governing the loading / off-loading times, location of loading / off loading, covering of loads and cleaning of vehicles exiting the site, etc.
- Delivery loads to and from the site and management of large deliveries on site to occur outside of peak periods.
- No vehicle will be allowed to stop or park on the access road to the Proposed Development site.
- Ample parking will be provided within the site to cater for the staff and visitors during the construction phases of the Proposed Development.
- Construction traffic will be managed and scheduled to ensure no queueing occurs on either the internal road system or the main approach roads. The provision of an on-site vehicle staging area will facilitate waiting vehicles.
- Routine sweeping/cleaning of the road and footpaths in front of the site; and
- No uncontrolled runoff to the public road from dewatering/pumping carried out during construction activity.

Residual Effect

The Proposed Development will have a Short-term, slight, negative effect in terms of traffic during the construction phase.

Significance of Effects

Based on the assessment above there will be No Significant effects.

5.5.3.9 Human Health

Dust emissions resulting from the construction of the Proposed Development, if uncontrolled have the potential to have a short term, slight, negative impact on human health. Likewise, there will be an increase in noise levels in the vicinity of the Proposed Development site during the construction phase, as a result of heavy vehicles and building operations. In the absence of mitigation, there is potential for short term, slight, negative impacts on human health as a result of noise.

However, following the implementation of the associated mitigation measures for both dust and noise, effects will be short term and imperceptible for dust and slight for noise. It should be noted that potential noise emissions will be brief or temporary in nature as work progresses at the site.

The Geo-environmental Interpretive Report in Appendix 7-3, Section 7.2 states that the measured concentrations for the determinants analysed in the samples from the Proposed Development site are below the assessment criteria and therefore are not considered to present an unacceptable risk to human health based on residential (without private gardens) and residential (with private gardens) land use scenarios. A low risk to future users is associated with the concentrations of methane and carbon dioxide recorded. The potential residual impacts associated with soil or ground contamination and subsequent health effects are imperceptible.

5.5.4 Operational Phase

5.5.4.1 Population

Once the site has been developed and is fully operational, there will be a change to the population of the Population Study Area, where an increase in housing will cause an influx of new residents into the area. This will allow for changes in population trends, population density, household size and age structure in a manner that has been planned for and provided for in the Galway City Development Plan 2023-2027, RSES and NPF.

5.5.4.2 Tourism

During the operational phase of the Proposed Development, there will be no negative impact on tourism. The increase in number of residents within the local or regional area, will have a slight long-term positive impact on tourism.

Potential landscape and visual effects of the Proposed Development are assessed in detail in Chapter 13 of this EIAR

The assessment determined that there will be no impact on any ‘High’ or ‘Very High’ sensitivity visual receptors or views of high sensitivity. A designated protected view and prospect (V11) in the GCDP is located directly south of the Proposed Development site on Kingston Road The protected views from V11 are described in the GCDP as ‘Seascape views of Galway Bay’ which are directed to the south from Kingston Road, in the opposite direction from the Proposed Development, which is located to the north. The Proposed Development therefore does not impact the sensitive scenic amenity and protected views from V11.

5.5.4.1 Amenity

The provision of a public open space will have a positive impact in terms of amenities available. The proposed open space will not be limited to residents of the Proposed Development.

5.5.4.2 Land-use

The site is currently comprised of areas of greenfield (in the form of agricultural grassland) and brownfield site. The Proposed Development will result in a permanent change in land-use to residential use and amenity use. Whilst there will be a change of land use to facilitate the development, this is an acceptable and unavoidable part of the Proposed Development.

5.5.4.3 Noise

There will be an imperceptible increase in noise levels in the vicinity of the Proposed Development site once the development has been built, as a result of increased population and increased vehicles making use of the development. The potential noise impacts that will occur during the operational phase of the Proposed Development are further described in Chapter 11 of this EIAR.

5.5.4.4 Dust and Air Quality

The potential dust emissions that will occur during the operational phase of the Proposed Development are further described in Chapter 9 of this EIAR.

Mitigation

No mitigation will be required on site as the impact is assessed as being imperceptible and will not be noticed within the area which already contains many residential developments.

Residual Effect

There will be a permanent, imperceptible, neutral impact in terms of dust and air quality, and human health, during the operational phase.

Significance of Effect

Based on the assessment above there will be **No Significant negative effects.**

5.5.4.5 Traffic

During the operational phase of the Proposed Development, access to the Proposed Development is to be facilitated via new and existing road infrastructure.

TRICS data for the Proposed Development was obtained in order to inform the trip rate associated with such a development. It is anticipated that a total of 231 trip movements in the AM peak and a total of 227 trip movements in the PM peak will result from the Proposed Development.

It is estimated that creche trips will predominately be self-contained within the Proposed Development site, with most of the creche users walking from within the development site.

It was envisaged the Proposed Development trip distribution matches the existing traffic distribution observed during the traffic surveys conducted at each of the junctions.

Chapter 15 states that it is considered that in general, the traffic generated by the Proposed Development in Knocknacarra, Co. Galway will be adequately accommodated on the local highway network in the vicinity. The junctions are predicted to operate below capacity without the development traffic in the future design years. The analysis predicts that the inclusion of the Proposed Development traffic will result in a slight increase in the degree of saturation for the junctions, however all junctions are forecast to continue to operate below capacity.

Further details on the traffic and transportation impact assessment are presented in Chapter 15 of this EIAR and Appendix 15-1.

Mitigation

Mitigation measures proposed during the operational phase are as follows:

- Provision of "STOP" road markings at the access junctions in accordance with Figure 7.35 of the Traffic Signs Manual (TII, 2019).
- Suitable Lighting of all junctions with lighting columns being positioned at the back of the footways.
- It is proposed to provide advanced warning signs on the Altan Road as it approaches the site entrance. The signage will be in accordance with Chapter 6 of the Traffic Signs Manual (TSM) for road users travelling in the northern and southern direction towards the entrance to the development.
- The connection of the Proposed Development footpaths and cycle lane to the existing infrastructure on the Western Distributor Road. This will allow connectivity to the existing Bus Stops in Knocknacarra.
- The provision of bicycle stands and dedicated cycle routes through the development to encourage cycling.
- Charging points for electric vehicles are being provided
- A Mobility Management Chapter has been included within the Traffic and Transport Assessment and is submitted as part of this application. This outlines the mobility strategy for the Proposed Development and includes measures for guiding the delivery and management of coordinated mobility management initiatives by the scheme promotor

Residual Effect

With the implementation of the above mitigation measures, there will be a long-term, not significant, negative effect in terms of traffic during the operational phase.

Significance of Effect

Based on the assessment above there will be **No Significant negative effects.**

5.5.4.6 Vulnerability of the Proposed Development to Natural Disaster

A residential development is not a recognised source of pollution. Should a major accident or natural disaster occur the potential sources of pollution onsite during the operational phase is limited. Sources of pollution at the Proposed Development with the potential to cause significant environmental pollution and associated negative effects on health such as storage of wastes etc. are limited.

Ireland is a geologically stable country with a mild temperate climate. The potential natural disasters that may occur are therefore limited to flooding, extreme wind events and fire. The risk of flooding is addressed in Chapter 8 of this EIAR. It is considered that the risk of significant fire occurring, affecting the Proposed Development site and causing the site to have significant environmental effects is limited.

Mitigation

The risk of pluvial and or fluvial flooding is minimised by the incorporation of a properly designed surface drainage and gravity sewer network, underground attenuation tanks and permeable paving and permeable car parking spaces for drainage management. The management of surface water for the Proposed Development has been designed to comply with the policies and guidelines outlined in the Greater Dublin Strategic Drainage Study (GDSDS) and with requirements of Galway City Council.

Proposed site drainage is described in detail in the Civil Design Report attached in Appendix 4-4 of this EIAR.

Residual Effect

With the implementation of the above mitigation measures, there will be an Unlikely Imperceptible Temporary Negative Impact in terms of vulnerability to natural disasters during the operational phase.

Significance of Effect

Based on the assessment above there will be **No Significant negative effects.**

5.5.5 Cumulative and In-Combination Effects

The interaction of the various elements of the Proposed Development was considered and assessed in this EIAR with regards population and human health. The potential for each individual element of the Proposed Development on its own to result in significant effects on human beings was considered in the impact assessment. The entire project including the interactions between all its elements was also considered and assessed for its potential to result in significant effects on population and human health in the impact assessment presented.

All interactions between the various elements of the project were considered and assessed both individually and cumulatively within this chapter. Where necessary, mitigation was employed to ensure that no cumulative effects will arise as a result of the interaction of the various elements of the development with one another.

5.5.6 Cumulative In-Combination Effects

The potential cumulative effects of the Proposed Development in combination with the other projects described in Chapter 2 of this EIAR have been considered in terms of impacts on Population and Human Health.

As outlined in Section 2.6, this EIAR considers the full range of projects that could potentially have a cumulative effect with the current Proposed Development within the identified cumulative study area. The planning register has been reviewed and all relevant general development planning applications/permissions and projects in the vicinity of the Proposed Development site have been noted and considered, as well as other existing projects. A search was also undertaken of the Environmental Protection Agency's licensing facilities to examine if there were any facilities located within the set study areas. An additional search was undertaken to examine An Coimisiún Pleanála's mapped planning applications for comprehensive examination of existing and permitted developments.

The cumulative impact assessments carried out in each of the subsequent chapters of this EIAR consider all potential significant cumulative effects arising from relevant projects and land uses within the cumulative study area and within the vicinity of the Proposed Development.

Overall, the Proposed Development has been designed to mitigate impacts on the environment and particularly water, and a suite of mitigation measures is set out within the EIAR. The mitigation

measures set out in this EIAR have been developed to ensure that significant cumulative affects do not arise during the continued operational or decommissioning phases of the Proposed Development. Additional detail in relation to the potential significant cumulative effects arising and, where appropriate, the specific suite of relevant mitigation measures proposed are set out within each of the relevant chapters of this EIAR

For a full list of Planning Applications within 1km of the Proposed Development see Appendix 2-1 which accompanies this application. Health and Safety

Any potential cumulative effects between the Proposed Development and the other projects in terms of health and safety will be mitigated by the requirement for all projects to adhere to Health & Safety legislation. There will therefore be no significant cumulative effects in terms of health and safety.

5.5.6.1 Employment and Investment

In terms of employment and investment during the construction phase, there will be a short-term slight positive impact due to the construction workers being sourced locally, thereby helping to sustain employment in the construction trade. During the operational phase, there will be a long-term moderate positive impact on employment and investment which will contribute to the local economy.

The injection of money in the form of salaries and wages to those employed during the construction and operational phase of the Proposed Development has the potential to result in an increase in household spending and demand for goods and services in the local area. This would result in local retailers and businesses experiencing a long-term positive effect on their cash flow.

5.5.6.2 Population

During the construction phase, those working for the Proposed Development will travel daily to the Site. The Proposed Development will result in a change to the Population Study Area, where an increase in housing will cause an influx of new residents into the area. However, the changes in population trends, population density, household size and age structure will be planned for in a way that is in line with the Galway City Development Plan, RSES and NPF. Therefore, the potential for cumulative impacts with other projects does not exist.

5.5.6.3 Tourism and Amenity

The Proposed Development, considered in combination with other projects in the area will have long term, significant, positive effect on tourism. There are no cumulative effects on tourism anticipated between the Proposed Development and other projects.

5.5.6.4 Land-use

The surrounding land-uses of residential and commercial will continue during the operational phase of the Proposed Development.

The Proposed Development will have a positive impact on the surrounding area. There is therefore no potential for cumulative negative impacts on land-use.

5.5.6.5 Dust and Noise

Potential cumulative effects associated with dust and noise are addressed in Chapter 9(Air Quality) and Chapter 11 (Noise & Vibration) of this EIAR respectively and conclude that there will be no significant effects on local population or human health in terms of air quality or noise.