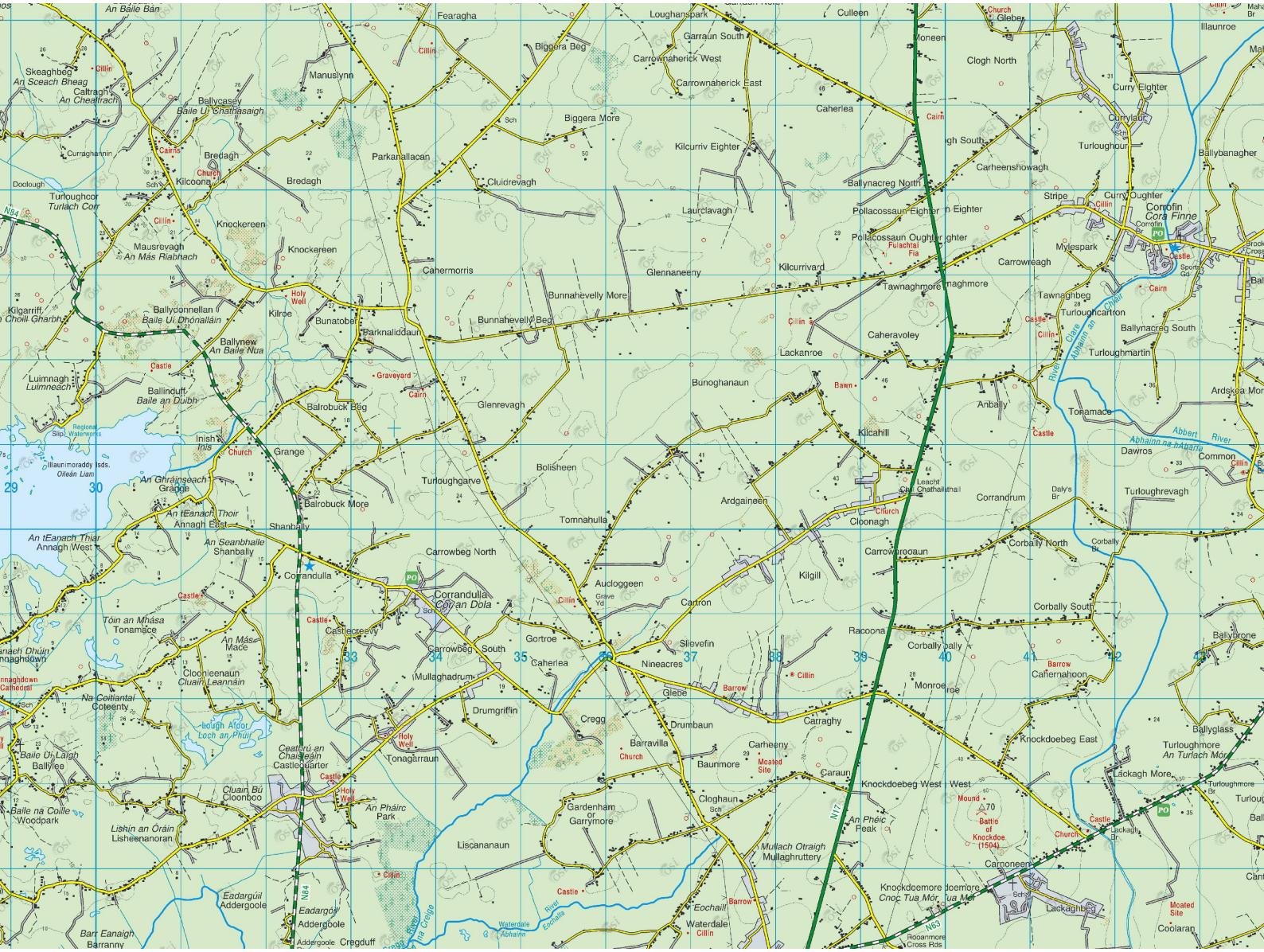
CHAPTER 5

POPULATION AND HUMAN HEALTH



QUARRY CONSULTING

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CHAPTER 5: Population and Human Health

Introduction

5.1 The purpose of this chapter is to evaluate the potential impact of the proposed development on population and human health.

5.2 Whilst there are a range of issues which may impact on human beings (including both population and human health), many of these have been evaluated separately within this Environmental Impact Assessment Report (EIAR) including Water (Chapter 8), Climate (Chapter 9), Air Quality (Chapter 10), Noise and Vibration (Chapter 11), Visual & Landscape (Chapter 12), Traffic (Chapter 13), and Material Assets (Chapter 15).

Professional Competence

5.3 Quarry Consulting undertook the impact assessment presented in this chapter on behalf of Harrington Concrete & Quarries.

5.4 This chapter and the associated assessment has been completed by Irene Curran who is a chartered town planning consultant (MRTPI) with over 20 years' experience. Irene's qualifications are as follows:

- BSc Environmental Science (Honours) – University of Limerick – 1997.
- MSc Town and Country Planning (Distinction) – Queens University Belfast – 2000.
- Dip Field Ecology - University College Cork – 2014.

Legislative and Policy Context

5.5 The introductory text to Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment makes it clear that the intention was that EIA would address human health impacts:

> "*Whereas the effects of a project on the environment must be assessed in order to take account of concerns to protect human health, to contribute by means of a better environment to the quality of life, to ensure maintenance of the diversity of species and to maintain the reproductive capacity of the ecosystem as a basic resource for life…".*

5.6 Directive 2011/92/EU (which was amended by Directive 2014/52/EU) *on the assessment of the effects of certain public and private projects on the environment* makes the requirement to consider population and human health explicit as it introduces into Article 3 'population and human health' as a factor to be considered in Environmental Impact Assessment (EIA):

> ***Article 3***
>
> *1. The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:*
>
> *(a) population and human health;….*

5.7 The EIA Directive does not define the term 'human health', however the 2017 EC Guidance on the preparation of the EIAR states:

> "*human health is a very broad factor that would be highly project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation and decommissioning of a Project in relation to workers on the Project and surrounding population*" (European Commission 2017).

5.8 The 2022 EPA Guidelines highlights that the term "human health" was used in the Strategic Environmental Assessment (SEA) Directive (2001/42/EC). The Commission's SEA Implementation Guidance states at paragraph 5.26:

> '*The notion of human health should be considered in the context of the other issues mentioned in paragraph (f*[1]*) and thus environmentally related health issues such as exposure to traffic noise or air pollutants are obvious aspects to study.'*

5.9 The 2002 EPA EIS Guidelines similarly advised that health be considered through assessment of the environmental pathways through which it could be affected, such as air, water or soil, namely:

> '*The evaluation of effects on these pathways (air, water, soil, etc) is carried out by reference to accepted standards (usually international) of safety in dose, exposure or risk. These standards are in turn based upon medical and scientific investigation of the direct effects on health of the individual substance, effect or risk. This practice of reliance upon limits, doses and thresholds for environmental pathways, such as air, water or soil, provides robust and reliable health protectors [protection criteria] for analysis relating to the environment*.' (EPA 2002)

5.10 In accordance with this approach this chapter addresses population and human health in the context of other factors addressed elsewhere in further detail within the EIAR. The potential direct and indirect effects of the proposed development on population and human health as a consequence of key environmental factors are also considered in the following chapters:

Chapter 7: Land, Soils and Geology.

Chapter 8: Water.

Chapter 9: Climate.

Chapter 10: Air Quality.

Chapter 11: Noise and Vibration.

Chapter 12: Visual & Landscape.

[1] *(f) the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors*. Directive (2001/42/EC).

Chapter 13: Traffic.

Chapter 15: Material Assets.

5.11 In 2017, the Institute of Environmental Management and Assessment (IEMA) published the IEMA Primer. The IEMA document posits that human health spans environmental, social and economic aspects and does not merely represent an absence of disease. A broad understanding of human health is put forward, that should encompass factors such as local economy and community, rather than relying on a narrower focus on health. In this regard, the current chapter seeks to address population and human health in a wholistic manner, including consideration of economic factors, settlement patterns, landscape and visual impact, and land-use.

Assessment Methodology and Significance Criteria

5.12 The effects of the proposed development on the human environment are assessed in compliance with the EIAR Guidelines as outlined in Chapter 2 (Report Methodology). The evaluation of effects on employment, human health and amenity comprises a qualitative assessment based on the quantitative and qualitative analysis of potential effects on the environment undertaken in other chapters of this EIAR. The assessment also takes into account a review of relevant literature and professional judgement in relation to impact on population and human health.

Study Area

5.13 The site is within the Tuam Municipal District (MD). The site is situated in the Annaghdown Electoral Division (067010), though the following Electoral Divisions fall partially within a 3km radius of the application site, these Electoral Divisions have been selected as the study area, unless stated otherwise in this chapter:

- Annaghdown Electoral Division (067010).
- Kilmoylan Electoral Division (067144).
- Liscananaun Electoral Division (067165).
- Annaghdown Electoral Division (067009).
- Cummer Electoral Division (067075).

Sources of Information

5.14 A desk-top study of the available data was undertaken to identify the populations of interest and characterise them in terms of their size, socio-economic status and existing health risks. The purpose was to build up a baseline understanding of the environmental and social issues and the characteristics of the communities affected. This information could then inform the assessment of the proposed development to determine whether the existing conditions would be affected (positively or negatively) by the proposed development. The following sources of information informed the desk-top study.

- Spatial statistical data relating to the population within the study area has been obtained from the Central Statistics Office (CSO), including information from the 2016

and 2011 Census and associated data. Data was captured on an Electoral District (ED) basis. Where information is available from the 2022 Census, it has been utilised.

- Information on health profiles and health research have also been obtained from publicly available sources, including those produced by Lenus – *The Irish Health Repository* – a central source for open access health research in Ireland, the Health Service Executive (HSE) and the Institute of Public Health (IPH).

- Information on landuses and zoning were obtained using the Galway County Development Plan 2022 – 2028, Myplan.ie, Ordnance Survey mapping, aerial photography and drone surveys of the site followed up by a site visit in December 2023.

- Additional information on tourist attractions and initiatives in the area were obtained from the following sources:

    - Fáilte Ireland website – https://www.failteireland.ie/.
    - Ireland's Wild Atlantic Way website - https://www.thewildatlanticway.com/
    - Walking trails - https://www.sportireland.ie/outdoors and http://trails.ie/index.php

- Baseline data from the assessments of other Chapters in this EIAR as well as the design drawings for the proposed development, were also reviewed and informed the impact assessment.

- Information was also obtained from the following sources:

    - Environmental Protection Agency (www.epa.ie).
    - Geohive (http://map.geohive.ie/mapviewer.html).
    - Health and Safety Authority (http://www.hsa.ie/eng/).
    - Pobal (https://maps.pobal.ie/WebApps/DeprivationIndices/index.html).
    - All-Island Research Observatory (AIRO) (https://airo.maynoothuniversity.ie/).
    - https://www.heritagemaps.ie/.

Identification and Description of Potential Effects

5.15 The characteristics of the proposed development were considered and the changes occurring as a result of aspects of the construction and operation of the proposed development were identified. The effect of these impacts on and population and health outcomes (beneficial and adverse) were consequently identified and assessed.

5.16 The assessment of the proposed development focused on those potential impacts most likely to be influenced by the proposed development, namely water, air quality, noise and risk of a major accident.

5.17 The population and human health assessment addresses effects at a community level rather than for individuals or identifiable properties, although impacts for individual properties are

discussed where these are significant or located within proximity to the proposed development, as appropriate.

5.18 The criteria used to describe the predicted effects across land use, social and health considerations are adapted from Table 3.4 of the EPA Guidelines (EPA, 2022).

Table 5.1
Description of Effects

Description of Effects		
Quality of Effects	Positive Effects	A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral Effects	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative/Adverse Effects	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).
Extent and Context of Effects	Extent	Describe the size of the area, the number of sites and the proportion of a population affected by an effect.
	Context	Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Probability of Effects	Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Duration & Frequency	Momentary Effects	Effects lasting from seconds to minutes.
	Brief Effects	Effects lasting less than a day.
	Temporary Effects	Effects lasting less than a year.
	Short-term Effects	Effects lasting one to seven years.
	Medium-term Effects	Effects lasting seven to fifteen years.
	Long-term Effects	Effects lasting fifteen to sixty years.
	Permanent Effects	Effects lasting over sixty years.
	Reversible Effects	Effects that can be undone, for example through remediation or restoration.
	Frequency of Effects	Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).
Direct/Indirect	Direct Effects	Effects that are result directly from the proposed development or project.
	Indirect Effects	Defined by the EC as 'Impacts on the environment, which are not a direct result of the project, often produced away from (the site) or as a result of a complex pathway.'
Cumulative Effects	Cumulative Effects	The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects

5.19 The assessment process evaluates how the proposed development impacts on baseline environmental and social factors and considers whether the effects that are associated with positive or negative population and health outcomes. The significance of an effect is informed by the description of the effects (table 5.1 above).

5.20 The significance of an effect can be described as follows (based on Table 3.4 of the EPA Guidelines (EPA, 2022)):

Table 5.2
Significance Criteria

Description of Significance of Effects		
Significance	Imperceptible	An effect capable of measurement but without significant consequences.
	Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant Effects	An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
	Very Significant	An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
	Profound	An effect which obliterates sensitive characteristics.

Baseline Conditions

Land Use & Property

Land Use

5.21 The application site is located in the townland of Ardgaineen, Claregalway, Co. Galway, which is situated approximately 8 km to the northeast of Claregalway. The site is approximately 12 km southwest of Tuam and 17 km northwest of Athenry.

5.22 Access to the quarry is achieved through a paved quarry road that extends over 200 meters, linking the quarry to the L6182local road. The L6182 road connects to the N83 National Primary route (formerly N17) approximately 1.3 kilometres east of the quarry entrance.

5.23 The existing limestone quarry extends to 10.55 ha quarry and is operated by Harrington Concrete and Quarries. To the south of the existing extraction area there is a small office building, with a weighbridge and wheelwash near the entrance to the quarry. Lands to the northwest of the office building accommodate a garage and maintenance area. Existing manufacturing activities at the quarry include an asphalt plant and concrete (readymix and blocks) plant.

5.24 The proposed quarry extension lands currently comprise:

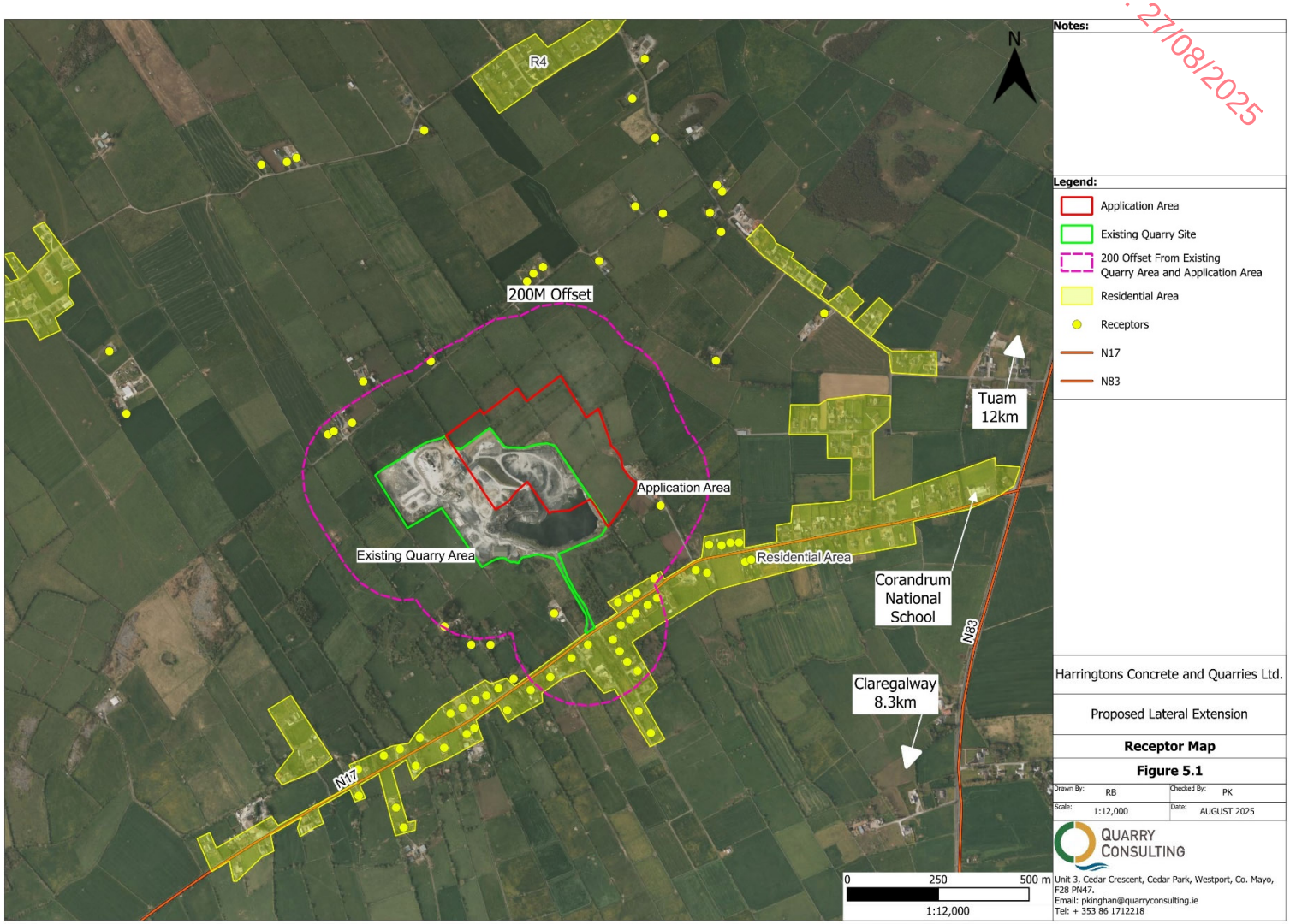
- 4.35 hectares which was previously subject to rock extraction.
- A lateral extension of the existing permitted quarry area over c.6.1 ha. area to the east and north of the existing quarry.

5.25 This existing agricultural land consists of several rectangular fields of gently sloping pasture land, enclosed by hedgerows. Beyond this to the north, east and west is further agricultural land, interspersed with some residential development.

5.26 Residences within the general area consist of a one-off rural houses, typically arranged as ribbon development along the local road network. This is particularly apparent along the L6182 to the south of the site which has a long history of this form of development evident on the Historic 6 inch and 25 inch maps. There are also examples of more dispersed dwellings and farmsteads in the vicinity of the site, including along the local road to the west and north of the site.

5.27 The nearest dwelling to the proposed extension is a detached house (uninhabited and within the land interest of the applicant), approximately 80m to the east, beyond which are several further dwellings located along the local road network. There are 3 properties within 200m of the application area and there approx. 23 properties within 200m of the existing quarry site and the application area – refer to Figure 5.1. There are approximately 33 detached dwellings, including farmsteads, situated within a 400-meter radius of existing quarry site and the application area.

Figure 5.1 Local Receptors (© Google Maps)



5.28 Data available from the CSO on property values is presented in terms of Eircode Routing Key areas. The proposed development is located within Eircode Routing Key H91: Galway. The CSO data for the year to May 2025 show that the median price of residential properties sold across the area is €387,500. The national median house price is €370,000.

Population and Settlement Patterns

5.29 The demographic information for the area has been sourced from the 2006 – 2022 census data, which is available from the Central Statistics Office. Table 5.3 provides information on the population figures for the five Electoral Districts within the study area. The information largely paints a picture of an area experiencing population increase, with an overall increase of 16.64% in the population within the study area since 2006. This increase is even more in line with the national rate (17% increase), but slightly below the county level (19.88% increase).

Table 5.3
Population Statistics

Area	Population 2006	Population 2011	Population 2016	Population 2022	Change 2006 - 2022	% Change 2006 - 2022
Ireland	4,239,848	4,588,252	4,761,865	5,123,536	883,688	20.84%
Galway County	231,670	250,653	258,058	277,737	46,067	19.88%
Annaghdown (067010)	1,244	1,381	1,372	1451	207	16.64%
Kilmoylan (067144)	896	1,040	1,072	1171	275	30.69%
Liscananaun (067165)	1,348	1,432	1,539	1601	253	18.77%
Cummer (067075)	936	1,079	1,151	1,160	226	23.93%
Annaghdown (067009)	729	851	891	925	196	26.89%
Study Area	5153	5783	6025	6307	1154	22.39%

5.30 Information on the population density for the study area indicates that this is a moderately populated area, with a population density higher than the average for County Galway as a whole, but below the national average (73 persons/km^2).

Table 5.4
Population Density

Area	Population Density 2022 (Persons/Km^2)
Galway County	42.04
Annaghdown (067010)	65

Kilmoylan (067144)	52
Liscananaun (067165)	75
Cummer (067075)	75
Annaghdown (067009)	28
Study Area	59

5.31 The age profile of people living is on average 38 years old and is similar to other parts of the state (38.8 national average). Similarly, information from Lenus (2015)[2] indicates that the birth rate of 11.9 is higher than the national rate of 11.3 but represents a decline compared to the 2008 rate for the county which was 18.6.

Table 5.5
Age Profile

Area	Average Age
Galway County	39.7
State	38.8
Annaghdown (067010)	38
Kilmoylan (067144)	38
Liscananaun (067165)	39
Cummer (067075)	38
Annaghdown (067009)	38
Study Area	38

Tourism and recreation

5.32 The National Tourism Development Authority (Fáilte Ireland) periodically collates statistics on overseas visitors to Ireland and regions within the country. Table 5.6 sets out the most recent overseas tourism statistics from 2018 and 2019 for the country and the West region, which includes County Galway. Fáilte Ireland's *Topline Performance by Region* (2017) indicates that that County Galway attracted 1,673,000 overseas visitors making the county the 2nd most popular county for overseas visitors and generating a revenue within the county of €589 million.

[2] Lenus Is a group made up of the Health Service Executive (HSE) and the Irish Health Repository (IHP).

Table 5.6
Tourism

Travel Destination	No. of Tourists	Revenue Generated
Ireland (2023)	7.9 million	€5.95 billion
Ireland (2019)	9.7million	€5.6 billion
Ireland (2018)	9.6 million	€5.6 billion
West Region (2018)	1.96 million	€727 million

5.33 Data from the 2022 Fáilte Ireland Key Tourism Facts, indicates that there were 13.3 million domestic trips in 2018,. The majority of these domestic trips were recorded as short (1-3 days) holiday trips with trips to visit friends/relatives reported at 34% of all domestic trips. Most of these trips are shown to occur in the late summer period (July – September) with the majority of domestic holidaymakers engaging in hiking/walking (54%). Fáilte Ireland's *Topline Performance by Region* (2017) indicates that that County Galway attracted 1,024,000 domestic trips in that year, with revenue generated of €247 million.

5.34 The Failte Ireland *Visitors to Attractions Dashboard* provides an overview of visitor numbers to various attractions throughout the country. The nearest attraction included in the survey to the site is the Athenry castle, which in 2022 attracted 12,534 visitors. Connemara Celtic Crystal Visitor Centre the next nearest attraction had 10.760 visitors in 2022. Athenry castle is located approx. 16.9km southeast of the proposed development and Brigit's Garden is located 19.6km west of the proposed development.

5.35 As stated above, 54% of domestic visitors to the country engage in hiking/walking. The county has an extensive network of trails which provide a recreational resource for both visitors and locals. Much of the hiking trails are focused on the west of the County, including The Western Way and Connemara National Park. There are no designated trails within the study area.

5.36 Other recreational and community facilities and amenities are available in the towns of Claregalway (8km south of the site) and Tuam (12km north of the site). These include GAA clubs (Tuam Stars GAA Club & Claregalway Gaa Club), shops, health centre, community hall and churches.

5.37 Public transportation in the area is relatively limited, however Bus Eireann operates bus service no. 428 from Galway City to Tuam which runs along the N83 east of the site. The nearest train station is located in Galway City.

Education & Employment

Education

5.38 The nearest primary school situated 1.1km to the east at Corandrum National School. The nearest post-primary school is Claregalway College, approx. 8.2km to the south of the site.

5.39 The nearest third level campus's are ATU Galway and The University of Galway located 15.7 and 17km respectively, southeast of the proposed development site in Galway City.

Employment

5.40 Employment is an important indicator of the economic standing of an area. The Labour Force Survey undertaken by the CSO provides details of unemployment on a regional level. Galway is located in the Western Region.

5.41 Table 5.7 illustrates the findings from the Labour Force Survey published by the CSO. The participation rate in the region is very slightly below the national rate, while the unemployment rate is also above the national rate.

Table 5.7
Unemployment and Participation Rates

Location	Unemployment Rate Q1 2025	Participation Rate Q1 2025
State	4.3%	65.8%
Northern & Western Region	4.6%	63%

5.42 The CSO also publishes figures relating to the Live Register. These figures are not strictly a measure of unemployment as they include persons who are legitimately working part-time and signing on part-time. However, the Register can be used to provide an overall trend within an area.

5.43 The figures in table 5.8 illustrates that over the period of August 2018 – August 2022, and July 2025 there was a 175% decrease in the number of persons on the Live Register in the State as a whole and a 34.21% decrease in the number of persons on the Live Register in the West Region. This overall trend indicates a need for further employment in the West Region including County Galway.

Table 5.8
Live Register

Location	August 2018	August 2019	August 2020	August 2021	August 2022	August 2023	August 2024	July 2025
State	225,158	199,093	169,400	179,761	197,125	186,117	177,868	185,627
West Region	22,020	19,579	20,154	16,276	18,680	17,398	16,345	14,487

5.44 For the study area there is a higher household median gross income than the national average, as illustrated in table 5.9 below.

Table 5.9
Household Income

Location	2022 Census
State	60,123
Annaghdown (067010)	**71,202**

Kilmoylan (067144)	75,542
Liscananaun (067165)	75,876
Cummer (067075)	74,317
Annaghdown (067009)	67,163
Study Area	72,820

Table 5.10
Sectors of Work in Annaghdown and Ireland

	Annaghdown 2022		Ireland 2022	
Sector	No.	%	No.	%
Agriculture, forestry and fishing	29	4.31%	82,228	3.54%
Building and construction	53	7.88%	134,482	5.80%
Manufacturing industries	158	23.48%	273,102	11.77%
Commerce and trade	134	19.91%	552,642	23.82%
Transport and communications	53	7.88%	212,383	9.15%
Public administration	29	4.31%	131,639	5.67%
Professional services	139	20.65%	568,105	24.48%
Other	78	11.59%	365,716	15.76%
Total	673	100.00%	2,320,297	100.00%

5.45 The population in the Annaghdown Electoral Division (ED) is categorised by sector of employment in Table 5.10 above. The data shows that the largest proportion of the workforce in Annaghdown is employed in manufacturing (23.48%), followed by professional services (20.65%) and commerce and trade (19.91%).

5.46 The proportion of workers in building and construction in Annaghdown is 7.88%, which is above the national average of 5.80%. Similarly, agriculture, forestry and fishing is more prominent locally (4.31%) compared to the national figure (3.54%), reflecting the rural nature of the area. Conversely, sectors such as transport and communications and, commerce and trade are notably lower in Annaghdown than national averages, again reflecting indicative of the rural location.

5.47 A breakdown of the principal economic status for Annaghdown in comparison to that of the state is provided at Table 5.9. The statistics are broadly similar.

Table 5.11
Principal economic status in Annaghdown and Ireland

	Annaghdown 2022		Ireland	
Status	No.	%	No.	%
At Work	673	58.93%	2,320,297	56.09%
Looking for first regular job	3	0.26%	34,526	0.83%
Short term unemployed	13	1.14%	70,217	1.70%
Long term unemployed	23	2.01%	106,059	2.56%
Student	146	12.78%	459,275	11.10%
Looking after home/family	82	7.18%	272,318	6.58%
Retired	150	13.13%	657,790	15.90%
Unable to work due to permanent sickness or disability	44	3.85%	189,308	4.58%
Other economic status	8	0.70%	27,062	0.65%
Total Population aged 15 years and over	1142	100.00%	4,136,852	100.00%

5.48 Additional information on the socio-economic profile of the area has been sourced from Lenus3, which published County Health Profiles in 2015:

- Galway has the third lowest dependency ratio nationally of 23.4% (i.e., the number of people aged 0-14 and over 65 as a percentage of the number of persons aged 15-64). The national ratio is 49.3%).
- Galway has high percentage of people with third level education with 41.6% having a third level qualification.

Health & Safety

5.49 Health data for individuals is confidential however information from Lenus has been used to establish the baseline health profile of the study area. Lenus has published separate health profiles for the Local Authorities areas in Ireland. The most recent County Health Profiles published date from 2015 and have been used to establish a community health profile for the County Galway area in which the proposed development is situated.

5.50 Key health facts for County Galway include:

- Is the tenth most affluent local authority area nationally
- The Traveller population of 1.4% is above the national rate of 0.7%

[3] Lenus is a group made up of the Health Service Executive (HSE) and the Irish Health Repository (IHP).

- Has a low lone parent rate of 9.3% (national 10.9%)
- Has a low birth rate for mothers under 20 years of age at 7.0% (national 12.3%)
- Has the highest incidence rate of male malignant melanoma nationally, but is below average for female malignant melanoma, breast cancer, female colorectal cancer, and male and female lung cancer (City and County data)
- Has average or below average mortality for the four main causes of mortality and for all mortalities (City and County data)
- Is below average for male and female deliberate self-harm.

5.51 The 2022 census provides information on the percentage of the population that report their health as being fair, bad or very bad. Table 5.12 sets out those figures for the study area.

Table 5.12
Population Health

Area	General Health % fair, bad or very bad
Annaghdown (067010)	8.5
Kilmoylan (067144)	10.2
Liscananaun (067165)	8.6
Cummer (067075)	10
Annaghdown (067009)	9

5.52 The 2022 census provides information on the age profile the population. Table 5.13 sets out the percentage of the population aged 65 and over in comparison to the state figures. The percentage of the population aged 65 and over within the study area is typically below the national figure.

Table 5.13
Percentage Over 65

Area	% of Population over 65
State	15
Annaghdown (067010)	13.4
Kilmoylan (067144)	14.2
Liscananaun (067165)	15.6
Cummer (067075)	13.9
Annaghdown (067009)	15.7

5.53 The Lenus County Health Profiles (2015) also indicate that Galway experiences a moderate deprivation level of -3.5, in comparison to the national level of -3.6. This is supported by the more recent Trinity National Deprivation Index 2016 (2019), which ranks Galway 9th out of 34 in terms of deprivation in the county council's in Ireland, however Figure 5.2 below (extracted from Figure 4 of the Trinity National Deprivation Index), indicates low levels of deprivation in the vicinity of the application site.

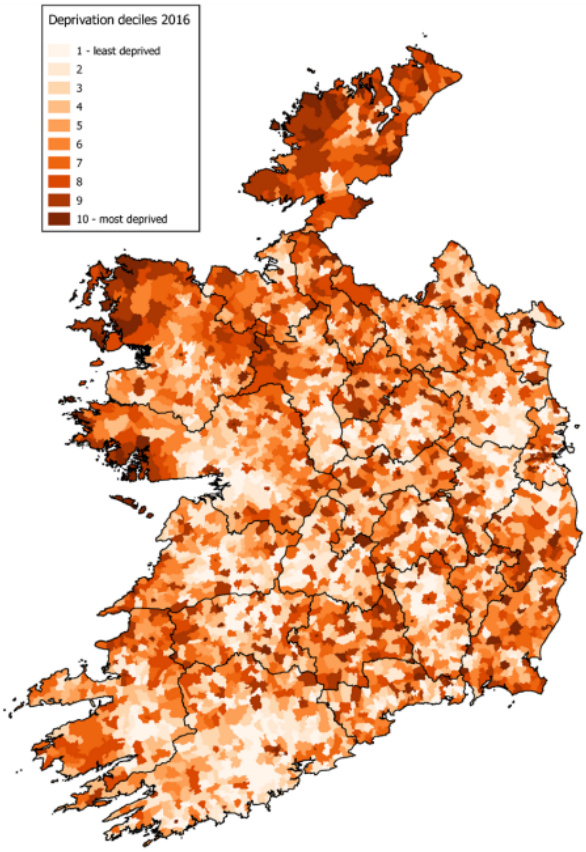


Figure 5.2: Deprivation

5.54 Analysis based on the Census characteristics of persons that died in the 12 month period after Census Day on 24 April 2016 shows the difference in life expectancy between different groups in society. The life expectancy at birth of males living in the most deprived areas of Ireland was five years less than the life expectancy at birth for males living in the most affluent areas (79.4 years compared with 84.4 years). Similarly, for women, the difference in life expectancy at birth was 4.5 years less for those living in the most deprived areas compared to those in the most affluent areas (83.2 years compared to 87.7 years) (CSO 2019a). The differential between male and female life expectancy was greatest in the most deprived areas with women living 3.8 years longer than men (CSO 2019a).

5.55 Deprived communities are known to carry a disproportionate burden of health problems compared to the average population, although it should be noted that there will be sensitive individuals in all communities whose health may be disproportionately affected by changes in the environment and social conditions that may arise.

5.56 Disability also has a large influence on life expectancy at a population level. In Ireland, during the year 2016 to 2017, a 35 year old with a disability had a life expectancy of 13.7 years less than a 35 year old without a disability (CSO 2019a). Table 5.12 shows the percentage of population with a disability.

Table 5.14
Percentage of Population with Disability

Area	% Population with Disability
Annaghdown (067010)	250
Kilmoylan (067144)	212
Liscananaun (067165)	328
Cummer (067075)	239
Annaghdown (067009)	377

Radon

5.57 The application site falls within a High Radon Area (refer to figure 5.3). Radioactivity from radon is measured in becquerels per cubic metre (Bq/m^3). The reference level for radon in homes is 200 Bq/m^3. In a High Radon Area more than 10% of homes may have more than the reference level of radioactivity. The acceptable level, or Reference Level, for workplaces in Ireland is 300 Bq/m^3.

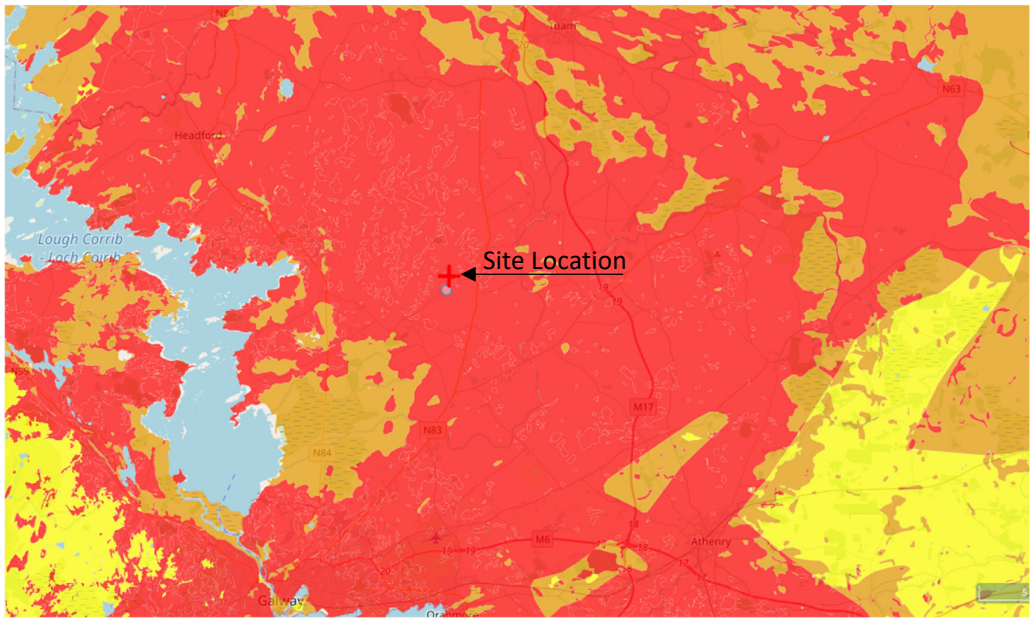


Figure 5.3: Radon Map

Impact Assessment

5.58 The following assessment considers the operational and post-operational stage effects only as there will be no construction phase associated with the proposed development.

5.59 The operational phase considers effects associated with excavation of limestone from within the red-line area.

5.60 The post-operational phase considers the effects associated with decommissioning the quarry and restoring it to natural habitat uses

Land-use & Property

Operational Stage Impacts

5.61 The proposed development includes an extension into agricultural land to the north and east of the existing quarry. This change in use from agriculture to quarry will be notable from within the site boundaries and from a short stretch of the local road to the north of the site. This existing quarry already has a visual influence over this stretch of road.

5.62 The proposed development is not predicted to have any impact on the local property values as the area has a long association with quarrying and the quarry is well screened from the majority of residential properties in the area.

Land-use	Quality	Negative
	Extent	6.1ha of agricultural land converted to quarry.
	Probability	Likely
	Frequency	Constant
	Duration	Long-term
	Reversibility	Reversible
	Direct/Indirect	Direct effect on landuse.
	Significance	Slight Effects: An effect which causes noticeable changes in the character of the environment without affecting its sensitivities. The proposed development would change the nature of the land-use, however this land has a strong visual association with the existing quarry.

Table 5.15: EPA Description of Effects – Land-use, operational phase

Post - Operational Stage Impacts

5.63 Following the cessation of operations, the application site will be restored, with the focus of the restoration plan being to allow the quarry sides to revegetate naturally and allowing the quarry void to flood. This would result in the introduction of a variety of habitats into the site and achieve a biodiversity net gain at this site. In land-use terms, the long term effect would be the change from baseline agricultural use to more diverse habitats.

Land-use	Quality	Positive
	Extent	6.1ha of agricultural land converted to quarry.
	Probability	Likely
	Frequency	Constant
	Duration	Long-term
	Reversibility	Reversible

	Direct/Indirect	Direct effect on landuse.
	Significance	Not significant - *an effect which causes noticeable changes in the character of the environment but without significant consequences. The use of the land would be altered, however it would remain as a post-quarried use and allowed to vegetate and the void to fill with water. This would offer significant biodiversity net gain.*

Table 5.14: EPA Description of Effects – Land-use, post-operational phase

Population & Settlement Patterns

Operational Stage Impacts

5.64 The extension of the quarry would not have any effect on the distribution of population within the study area as it does not include a housing element and the number of individuals employed would not be altered.

5.65 Key pathways for potential effects on residential amenity in this instance are air, traffic and noise & vibration. As with potential effects on human health, these pathways (other than traffic) are controlled by thresholds established by planning conditions and continuously monitored at the site. These pathways have also been assessed in the respective chapters of this EIA and it has been determined that there would be no magnitude of change associated with the extension of the existing quarry. The combined effect of these potential effects on amenity is therefore anticipated to be negligible. Given that human beings are considered to be a high sensitivity receptor, it is determined that the overall effect would be "not significant".

5.66 A full assessment/review was carried out on the impact of traffic on the L6182 and its link capacity (Link Capacity is the assessment of the available carrying capacity of a road based on its characteristics). The assessment concluded that there is significant spare capacity on the route in all assessment years.

5.67 There are no proposals to increase the number of employees and hence all staff parking shall continue to be accommodated within the quarry site.

5.68 Chapter 12 assesses the landscape effect as no greater than **not significant** with visual impacts evaluated as being no greater than **imperceptible.** Chapters 10 and 11 provide additional information in respect of the potential effects on Air and Noise, which have the potential to undermine the residential amenity of neighbouring properties which could in turn affect property values. These chapters indicated that the associated effects of the proposed extension would not be significant

Population	Quality	Negative
	Extent	6.1ha of agricultural land converted to quarry. Potential effects on noise and atmosphere may extend beyond site boundaries. Traffic effects would affect the site access and local road network.
	Probability	Likely
	Frequency	Daily – traffic, noise & atmospheric emissions. Blasting: 1-3 days per month.
	Duration	Long-term
	Reversibility	Reversible
	Direct/Indirect	No direct effect on population and settlement patterns. Potential effects on noise and atmosphere may extend beyond site boundaries. Traffic effects would affect the site access and local road network.

	Significance	Not significant - *an effect which causes noticeable changes in the character of the environment but without significant consequences.* Changes would not be significantly above the baseline levels. The nature or extent of emissions from the application site would not be significantly altered above baseline levels.

Table 5.15: EPA Description of Effects – Population -operational phase

Post - Operational Stage Impacts

5.69 Following restoration, the potential effects on air, noise, and traffic would cease owing to the cessation of extraction and restoration operations, the cessation of machinery operation and the growth of vegetation.

5.70 Following the cessation of the proposed works, the appearance of the application site will have been altered. The effects of the restored quarry on population and settlement patterns will not be significant.

Population	Quality	Positive
	Extent	Total application site area 12ha directly affected. Potential effects on noise and atmosphere may extend beyond site boundaries. Traffic effects would affect the site access and local road network.
	Probability	Likely
	Frequency	Rarely
	Duration	Short-term
	Reversibility	Reversible
	Direct/Indirect	12ha application site area directly affected. Potential effects on noise and atmosphere may extend beyond site boundaries. Traffic effects would affect the site access and local road network.
	Significance	Not significant - *an effect which causes noticeable changes in the character of the environment but without significant consequences.*

Table 5.16: EPA Description of Effects – Population, post-operational phase

Tourism & Recreation

Operational Stage Impacts

5.71 It is not anticipated that the operation of the quarry would have any effect on tourist resources identified above. The existing quarry offers no value for recreational amenity as it comprises private land and it does not contain any paths or recreational facilities.

5.72 The effects of the proposed development would be long-term due to the design life of the proposed development, however the quarrying activity is a long established land use in the area and has not impacted on the tourist amenity of the study area.

5.73 The experience of visitors to tourist and recreational facilities would be unaltered by the proposed development as the site is not visible from and noise would not reach any such facilities and noise.

Tourism &	Quality	Negative
	Extent	Total application site area 12ha directly affected. Potential effects on noise and atmosphere may extend beyond site boundaries.
	Probability	Likely
	Frequency	Daily – traffic, noise & atmospheric emissions. Blasting: 1-3 days per month.

	Duration	Long-term
	Reversibility	Reversible
	Direct/Indirect	Total 12ha application area directly affected. Potential effects on noise and atmosphere may extend beyond site boundaries.
	Significance	Not significant - an effect which causes noticeable changes in the character of the environment but without significant consequences.

Table 5.18: EPA Description of Effects – Tourism & Recreation, construction phase

Post - Operational Stage Impacts

5.74 Following the cessation of the proposed works, the appearance of the application site will have altered to include matured vegetation. The restoration would however have no effect on tourism and recreation as the site would remain in private ownership and not open to the public.

Tourism & Recreation	Quality	Neutral
	Extent	No effect
	Probability	Unlikely
	Frequency	No effect
	Duration	No effect
	Reversibility	No effect
	Direct/Indirect	No effect
	Significance	Imperceptible - An effect capable of measurement but without significant consequences.

Table 5.19: EPA Description of Effects – Tourism & Recreation, post-operational phase

Education & Employment

Operational Stage Impacts

5.75 The proposed development will continue to provide employment for up to 30 people directly on-site, in addition to a number of indirect employees including hauliers, sub-contractors, materials suppliers and maintenance contractors. In addition, the proposed development will contribute indirectly to sustaining and developing the local and regional economy through the supply of construction aggregates. This is a long-term and positive impact that would not have significant effects.

5.76 The proposed development would not have any significant effects on education resources within the study area. The nearest primary school (Corandrum National School) is situated 1.1km to the east, which is considered to be beyond the scope of any potential effects from noise, dust or vibration. Traffic from the quarry would use the L6182 on which the school is situated, however the proposed development does not seek to achieve a higher extraction rate and consequently no additional traffic movements are anticipated. The potential effects on road safety as a result of the proposed extension is therefore likely to be not significant.

Employment	Quality	Positive
	Extent	30 people's employment sustained by the proposed development.
	Probability	Likely
	Frequency	Constant
	Duration	Long-term
	Reversibility	Reversible

	Direct/Indirect	30 people's direct employment sustained by the proposed development.
	Significance	Imperceptible - An effect capable of measurement but without significant consequences.

Table 5.20: EPA Description of Effects – Education & Employment, construction phase

Post - Operational Stage Impacts

5.77 Following the cessation of operations, the application site will be restored. This would result in the loss of jobs within the quarry and related operations. Some short-term employment would be provided in relation to the aftercare of the restored site.

Employment	Quality	Negative
	Extent	30 people's employment lost following cessation of operations.
	Probability	Likely
	Frequency	Constant
	Duration	Long-term
	Reversibility	Reversible
	Direct/Indirect	Direct & indirect
	Significance	Slight - An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.

Table 5.21: EPA Description of Effects – Education & Employment, post-operational phase

Human Health & Safety

Operational Stage Impacts

5.78 The operational phase of the development relates to the extraction of limestone within the extended quarry area using conventional methods. The key pathways for potential effects on human health in this instance are therefore air, noise, water and soil. Baseline information and predictions of future emissions in relation the key pathways associated with the day to day operations of the existing and proposed development have been used as part of the assessment. These can be compared to various thresholds relevant to each element. The threshold is the level below which no detrimental health effects are expected.

5.79 Thresholds for the existing development are established via conditions attached to the original planning permission 24002 and the subsequent applications and Section 261 quarry registration process.

5.80 The potential effects of extending the existing quarry on land, soils & geology, water, air quality and noise and vibration are set out in chapters 7, 8, 10 and 11 respectively. In addition, each of those potential pathways are monitored at the site and the results are submitted to Galway County Council. The site has consistently demonstrated compliance with planning conditions. The assessments in this EIAR have concluded that the extension of the quarry would not result in any significant adverse effects.

5.81 The property boundary is currently secured with a combination of ditches, screening berms, post-and-wire fencing, walls, and hedgerows. Boundary fencing is installed in line with Health and Safety Authority (HSA) guidelines to prevent unauthorised access and ensure public safety. Child-proof fencing has been used for areas accessible to the public to prevent

accidental entry, while stock-proof fencing is in place for areas less accessible to the public to effectively secure the site perimeter.

5.82 Routine inspections are conducted to assess the integrity of fencing, with immediate repairs made if any breaches or weaknesses are identified. This proactive approach ensures the fencing remains fit for purpose, minimising risks to the public and nearby livestock, and aligning with HSA standards.

5.83 This comprehensive approach demonstrates a commitment to protecting human health and safety throughout the operational phase, maintaining secure site boundaries to the highest standards.

Health & Safety	Quality	Negative
	Extent	30 people employed on site. Potential effects on noise and atmosphere may extend beyond site boundaries. Traffic effects would affect the site access and local road network.
	Probability	Likely
	Frequency	Frequently – traffic, noise & atmospheric emissions. Blasting: 1-3 days per month.
	Duration	Long-term
	Reversibility	Reversible
	Direct/Indirect	30 people employed on site. Potential effects on noise and atmosphere may extend beyond site boundaries. Traffic effects would affect the site access and local road network. Direct effects related to health & safety issues – all employees are required to hold a safe pass certificate to operate at the site. The workforce is a skilled workforce. Indirect effects associated with occupational exposure to dust & noise mitigated by operating procedures at the site, including Personal Protective Equipment
	Significance	Not significant - *an effect which causes noticeable changes in the character of the environment but without significant consequences.*

Table 5.22: EPA Description of Effects – Health & Safety, operational phase

Radon gas

5.84 The application site falls within a High Radon Area. Statutory Instrument No.30 (2019) requires employers located in High Radon Areas to test their premises for radon. The acceptable level, or Reference Level, for workplaces in Ireland is 300 Bq/m3. The EPA protocol for testing workplaces states:

- A workplace is tested by placing one small detector in each occupied room on the ground floor and in the basement.
- Only rooms where a worker spends more than 100 hours per year need to be tested.
- No need to test bathrooms, corridors, storage areas etc.

5.85 Francisa et al (2023) investigated radon concentration in open cast mining work environments and concluded that "*in outdoor workplaces, radon can be considered a low risk to employees' health. The average exposure to radon gas, even in cases where exposure to mineral dust is continuous, did not exceed unsafe values considered by international standards during the measurements*".

5.86 The potential effects on the health of employees working at the site as a result of radon emissions is therefore likely to be not significant.

Radon Gas	Quality	Negative
	Extent	30 employees directly affected.
	Probability	Unlikely
	Frequency	Rarely – due to nature of the outside working space at the site.
	Duration	Long-term
	Reversibility	Irreversible
	Direct/Indirect	30 employees directly affected.
	Significance	Not significant - *an effect which causes noticeable changes in the character of the environment but without significant consequences.*

Table 5.23: EPA Description of Effects – Radon gas, operational phase

Silica Dust

5.87 When rocks containing crystalline silica are cut, crushed, ground, drilled or used in similar industrial processes, dust particles are produced. Some of these particles are very fine – known as respirable crystalline silica or RCS. If high quantities of this very fine RCS dust are inhaled on a regular basis over many years, there is a potential risk that the cumulative effects can cause a lung disease known as silicosis. It is now also accepted that prolonged and intense RCS exposure can cause lung cancer.

5.88 Material that is extracted at the application site comprises Limestone rock, which is then used as aggregates for concrete, blocks, hardcore, farm drainage, earthworks and fill, with the majority of materials produced being used in roadbuilding and in the construction sector. The typical crystalline silica content of Limestone is less than 5%, as calcium carbonate is the primary chemical compound in the rock and not silica.

5.89 The quarry operator has a legal responsibility to adhere to the HSA Safe Quarry Guidelines to Section 26(b)(ii) of the Safety Health and Welfare at Work (Quarries) Regulations 2008 and the EU Directive on Carcinogens and Mutagens in the Workplace - 2017/2398/EC. This latter legalisation sets an occupational exposure limit of 100 µg/m^3 RCS in industrial workplaces.

5.90 Effective dust prevention, protection and control techniques are already in place at the site, including wheel-washing, spraying and requirements for PPE. The potential effects on the health of employees working at the site as a result of silica dust is likely to be not significant.

5.91 RCS disperses very rapidly (within 1-10m of origin) and therefore concentrations return to background or near background levels very quickly. As a consequence RCS is only a risk to people working directly at the source and without proper PPE and dust management techniques. RCS does not therefore present a risk to the health of the sensitive receptors in the vicinity of the application site.

Silica Dust	Quality	Negative
	Extent	30 employees directly affected.
	Probability	Unlikely
	Frequency	Rarely – due to existing measures in place at the site.
	Duration	Long-term
	Reversibility	Irreversible
	Direct/Indirect	30 employees directly affected.
	Significance	Not significant - *an effect which causes noticeable changes in the character of the environment but without significant consequences.*

Table 5.24: EPA Description of Effects – Silica Dust, operational phase

Unplanned Events

5.92 According to the EPA guidelines, unplanned events, such as accidents, can include "spill from traffic accidents, floods or land-slides affecting the site, fire, collapse or equipment failure on the site". The 2014 EIA directive refers to "major accidents, and/or natural disasters (such as flooding, sea level rise, or earthquakes)".

5.93 In this instance, the vulnerability of the proposed development to accidents, unplanned events or natural disasters is relatively limited owing to the relatively simple nature of the development works, the established nature of the techniques, regulations and procedures to be followed, the material to be handled on site and the relatively rural location of the proposed works.

5.94 Unplanned events in relation to the proposed development could potentially relate to:

- instability following the extraction of limestone;
- spill from traffic accidents;
- flooding.

5.95 Adhering to the HSA Safe Quarry Guidelines to the Safety Health and Welfare at Work (Quarries) Regulations 2008 should limit the potential for unplanned events in the form of instability in the pit faces. In any event, instability following the extraction of limestone would be unlikely to have any significant impacts on human health beyond the site as there is no public access to the quarry. Therefore, the overall effects are expected to be imperceptible on health and safety in terms of the EIA Regulations

5.96 Chapter 7 (Land Soil and Geology) and Chapter 8 (Water) note that accidental spillages or leaks of fuels or chemicals during site activities could happen without proper control and supervision. The probability of spillages occurring is however very low as procedures are already in place to prevent such occurrences.

5.97 The traffic and transport assessment, carried out as part of the EIAR (Chapter 13), indicates that existing road network can continue to accommodate the proposed development. It is considered that the risk of an accident resulting in a spillage from development traffic would be no greater in relation to this development than it is for any other form of development that relies on the transportation of goods and materials by HGVs. The potential for significant impacts on human health in the wider population or amenity as a result of a road spillage is likely to be low and any such effects would be temporary.

5.98 On this basis, it is considered that there would be no likely significant temporary or permanent effects on human health during the operational stage.

Unplanned Events	Quality	Negative
	Extent	30 employees. Traffic effects would affect the site access and local road network.
	Probability	Unlikely
	Frequency	Rarely – due to existing procedures in place.
	Duration	Long-term
	Reversibility	Reversible
	Direct/Indirect	30 employees directly affected. Traffic effects would affect the site access and local road network.
	Significance	Not significant - *an effect which causes noticeable changes in the character of the environment but without significant consequences.*

Table 5.25: EPA Description of Effects – Unplanned events, operational phase

5.99 Following restoration, the potential effects on human health associated with emissions from the site would cease and the site would be restored. Following restoration, the site would remain in private ownership and existing security fencing would be maintained to prevent accidental or deliberate access to the site.

Health & Safety	Quality	Neutral
	Extent	No effect
	Probability	Unlikely
	Frequency	No effect
	Duration	No effect
	Reversibility	No effect
	Direct/Indirect	No effect
	Significance	Imperceptible

Table 5.26: EPA Description of Effects – Health & Safety, post-operational phase

Cumulative Effects / Synergistic Effects

5.100 In the assessment of cumulative effects other permitted and proposed developments in the surrounding area have been considered where they have the potential to generate cumulative effects with the proposed development. Chapter 2 sets out the methodology for identifying those developments which have the potential to cause cumulative effects. It excluded developments that were already constructed as these are already assessed as part of the baseline. Also excluded were small scale developments that would not have the potential to cause cumulative effects.

5.101 The following online resources, datasets and databases were consulted in order to identify other projects located within the study area:

- Local Authority Planning Search:

  2560052: *for the proposed development within County Galway will comprise: •the replacement ("restringing") of the existing OHL circuit conductor wires with a new higher capacity conductor; •Replace tower in situ at 1no. location;•Retain towers at 3no. locations including foundation strengthening with bar member replacement at 2 locations;•Replace polesets at 15no. locations;•the replacement of insulating and ancillary hardware at structures;•all associated temporary site development works to gain access*. Granted (Conditional) 13/03/2025

- An Coimisiún Pleanála:

  319307: *SID: Proposed no 8 wind turbines and associated works.*

- EIA Portal:

  No additional EIA developments identified within the study area.

- Environmental Protection Agency:

  W193/89 Section 4 Discharge – Michale Hayden, Carrowbeg, Corandulla, Galway (Nursing Home).

  W354/02: Section 4 Discharge Section 4 Discharge - HNM Property development: Gort na Carraig, Corrandulla, Galway

- DAFM: Forestry Plans and Projects:

  CN87075: 1.36ha broadleaf, planted, Corrandrum, Galway

Land Use & Property

5.102 There are no potential cumulative effects of the proposed development with other developments on property. The ownership of the above developments would not be affected by the above developments.

Population and Settlement Patterns

5.103 There are no additional cumulative effects of the proposed development with other developments on property. The ownership of each of the above respective developments would not be affected by the proposed development.

Tourism & Recreation

5.104 No significant adverse cumulative effects on recreation and amenity are anticipated due to the operation of the above developments as it comprises an existing operation.

Education & Employment

5.105 No significant adverse cumulative effects education & employment are anticipated due to the construction or operation of the above developments. The development identified has the potential to make a contribution towards employment in the area.

Health & Safety

5.106 No significant adverse cumulative effects on health & safety are anticipated due to the construction or operation of the above developments.

Transboundary Impacts

5.107 It is not anticipated that the impacts of the proposed development would have any significant transboundary effects on population and human health.

Interaction with Other Impacts

5.108 It is not anticipated that the effects of the proposed development on population and human health would interact significantly with other impacts.

'Do-nothing Scenario'

5.109 Under the 'do-nothing' scenario, the quarry would continue to operate the quarry as permitted.

5.110 In the short-term period there would be no change in the operations at the site and consequently no changes in emissions to soil, water, air or noise and vibration. In the medium term the quarry would be forced to close as material at the existing quarry runs out. There would be a reduction in emissions associated with the operation of the quarry, which would correspondingly result in a reduction in any potential effects on human receptors.

5.111 However the opportunities for local employment and the associated revenue within the local economy would not be realised. Furthermore, there would be a reduction in the volume of material available to the construction sector locally. The do-nothing scenario could result in pressure for alternative, potentially less suitable locations being proposed for quarries to address this short-fall in supply.

Mitigation Measures

5.112 The following additional mitigation measures are proposed:

- Barriers will be installed along the site boundary to prevent to trespass or accidental entry to the site. Warning signs will be installed at intervals along the boundary. Barriers should be retained in the post-operational phase of the proposed development.

5.113 Reference should be made to the following chapters of this EIAR for detailed mitigation measures to address the potential pathways for effects on population and human health.

Chapter 7:Land, Soils and Geology.

Chapter 8: Water.

Chapter 9: Climate.

Chapter 10: Air Quality.

Chapter 11: Noise & Vibration.

Chapter 12: Visual & Landscape.

Chapter 13: Traffic.

Chapter 15: Material Assets

Chapter 17: Mitigation and monitoring.

5.114 The following additional mitigation measures are proposed:

Radon

- Periodic workplace testing will be undertaken in accordance with the guidelines set out in the Protocol for Measurement of Radon in Homes & Workplaces, EPA, 2019.

Silica Dust

- Existing health and safety policies and procedures will continue to be reviewed and updated to ensure it is in keeping with best practice and current legislation.

Unplanned Events

- Existing emergency procedures will continue to be reviewed and updated to ensure it is in keeping with best practice and current legislation.

Post - Operational Stage Impacts

5.115 The majority of effects of the proposed development will diminish or cease following the cessation of operations. No specific mitigation measures are proposed in relation to the post operational phase.

Residual Impact Assessment

Operational Stage Impacts

5.116 Following the implementation of mitigation measures identified above and in other chapters of this report, no residual impacts on population and human health are anticipated in the operational phase of the development.

5.117 Following the implementation of mitigation measures identified above and in other chapters of this report, no residual impacts on population and human health are anticipated in the post-operational phase of the development.

Monitoring

5.118 As outlined in chapters 3 (description of the development), 8 (water), 10 (air) and 11 (noise and vibrations), monitoring in relation to the proposed development will be undertaken in respect of water, noise, air and vibration. On this basis, no specific monitoring is required in relation to population and human health.

Dust Monitoring

5.119 Dust deposition monitoring is carried out at the application site – refer to Chapter 10. Dust monitoring locations shall be reviewed and revised where necessary. The results of the dust monitoring will be submitted to Galway County Council on a regular basis for review and record purposes.

Noise Monitoring

5.120 Noise monitoring is carried out at the application site – refer to EIAR Chapter 11. Noise monitoring locations shall be reviewed and revised where necessary. The results of the noise monitoring will be submitted to Galway County Council on a regular basis for review and record purposes.

Water Monitoring

5.121 Water monitoring at the quarry site will continue in line with the water discharge licence (w/502/22) for the site.

Vibration

5.122 Monitoring of blasts (both for groundborne vibration and air overpressure) have been and will continue to be carried out at the site - refer to EIAR Chapter 11. The blast monitoring results will continue to be submitted on a regular basis to Galway County Council for record purposes.

Difficulties Encountered

5.123 No significant difficulties were encountered.

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