CHAPTER 5

POPULATION AND HUMAN HEALTH

JUNE 2025

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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 EIAR including Land, Soil and Geology (Chapter 7), Hydrology (Chapter 8), Climate (Chapter 9), Air Quality (Chapter 10), Noise and Vibration (Chapter 11), Visual and Landscape (Chapter 12), Traffic (Chapter 13), Heritage (Chapter 14) and Material Assets (Chapter 15).

Professional Competence

5.3 Quarry Consulting undertook the impact assessment presented in this chapter on behalf of Mortimer Quarries. The lead consultant for the study was Peter Kinghan (Chartered Mineral Surveyor), Post Graduate Diploma in Environmental Engineering. 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

5.4 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…".*

5.5 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;….*

5.6 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).

5.7 The 2022 EPA Guidelines highlight 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.*

5.8 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)

5.9 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 10: Air Quality

Chapter 11: Noise and Vibration

Chapter 12 Landscape and Visual Impact Assessment

Chapter 13: Traffic.

Chapter 15: Material Assets.

5.10 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

[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).

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

5.11 The effects of the proposed development on the human environment are assessed in compliance with the EIAR Guidelines as outlined in Chapter 2 (EIA 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

5.12 The site is within the Municipal District of Tuam, in the Tuam Local Electoral Area (LEA) and within ClareTuam Electoral Division (ED). The following Electoral Divisions (ED's) are within a 5km radius of the application site, these Electoral Divisions have been selected as the study area, unless stated otherwise in this chapter:

- ClareTuam
- Killower
- Cummer
- Tuam Rural
- Belclare
- Beaghmore
- Kilcoona

Sources of Information

5.13 The 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 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, a site visit and drone surveys of the site.

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

  - Fáilte Ireland website – https://www.failteireland.ie/.
  - 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.

- Site visits were also undertaken to appraise the location and potential impact upon human receptors by the proposed development.

- 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

5.14 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.

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

5.16 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.

5.17 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

Significance of Effects

5.18 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).

5.19 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

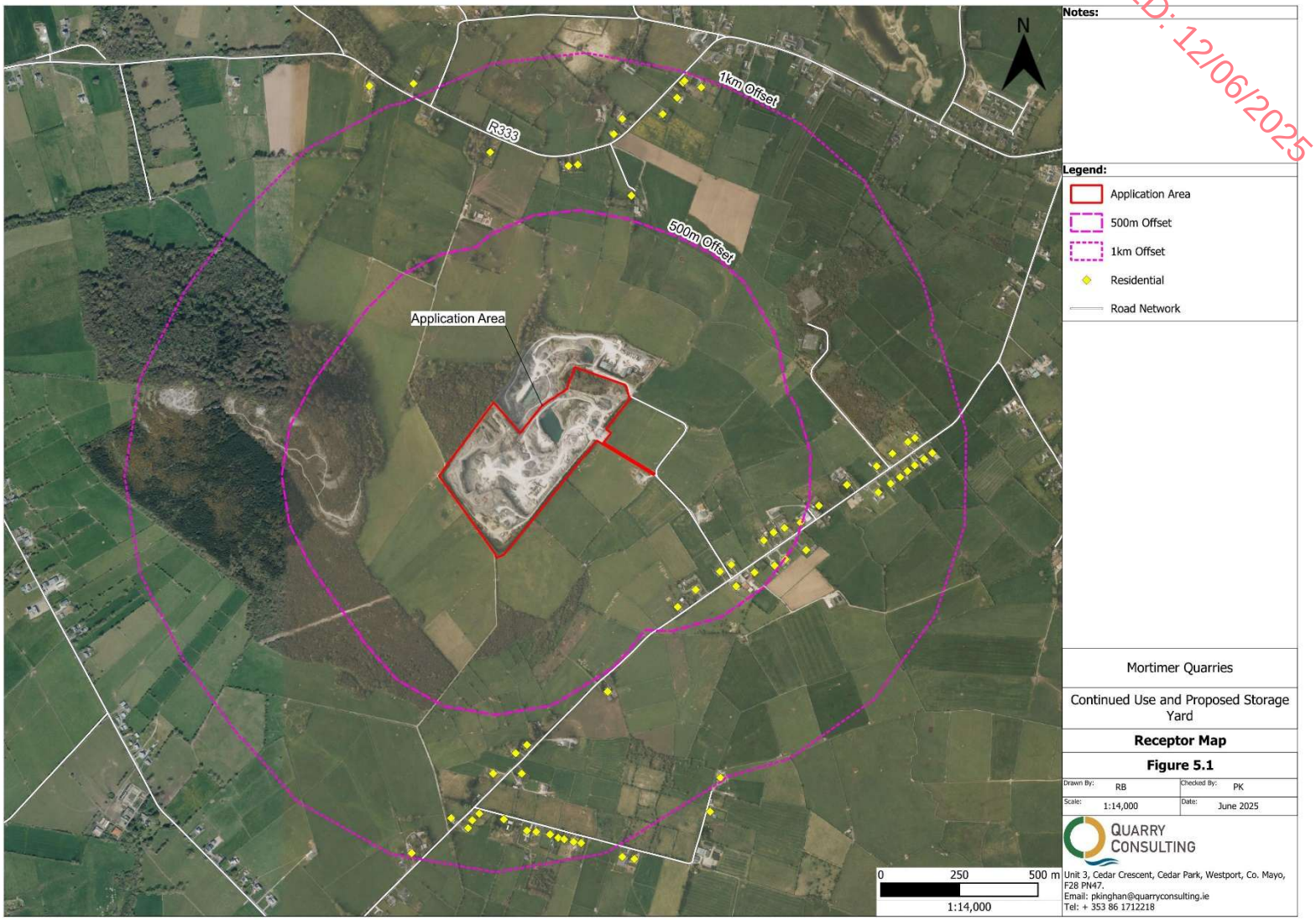
Land Use

5.20 The site is located in the townland of Cartron, Belcare, Co. Galway, situated approximately 5.6km south-west of Tuam and 10km north-east of Headford, while Galway is 20km south of the site (Figure 5.1). The site is located to the south of the R333 and north of the L2212 from which access is provided via an unnamed local road, approximately 600m in length. The site itself comprises an existing limestone quarry, with a planning history dating back to pre-1963.

5.21 Landuse in the vicinity of the site predominantly comprises agriculture with interspersed patches of woodland and scrub, most notably Knockma Wood immediately west of the site. There is a large area of cutaway bog located to the north of the site at Belclare. An existing quarry operated by McTigue Quarries adjoins the northern boundary of the site. Field boundaries in the surrounding area are marked by stone walls, though treelines and hedgerows are also noted.

5.22 Residences within the general area typically consist of one-off rural houses and ribbon development along the local road network. There are no properties within 400m of the extraction area, the nearest properties comprise a detached farm house approximately 590m to the north of the site and a series of dwellings on the L2212 south-west of the site. There are approximately 56 dwellings within 1km of the quarry (Figure 5.1). The closest settlement to the site is the village of Belclare, which is situated approximately 1.2km north of the site.

Figure 5.1: Local Receptors



Property Values

5.23 The 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 H54 Tuam. The CSO data for March 2025 show that the median price of residential properties sold across the area is c.€245,000. The national median house price is €362,500.

Population and Settlement Patterns

5.24 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 below provides information on the population figures for the seven Electoral Districts within the study area. The information largely paints a picture of an area experiencing population increase, with an overall increase of 8.5% in the population within the Clare Tuam ED since 2006. This increase is however well below both the county figure (19.88% increase) and the national figures (20.8% increase).

Table 5.3
Population Statistics

Area	Population 2006	Population 2011	Population 2016	Population 2022	Change 2006-2022	% Change 2006-2020
Ireland	4,239,848	4,588,252	4,761,865	5,149,139	883,688	20.8%
Galway County	231,670	250,653	258,058	277,737	46,067	19.88%
ClareTuam	1032	1030	1059	1120	88	8.5%
Killower	851	885	891	920	69	8.1%
Cummer	1079	1149	1151	1149	70	6.5%
Tuam Rural	5520	6033	6060	6590	1,070	19.4%
Belclare	794	750	753	797	3	0.3%
Beaghmore	331	369	366	398	67	20%
Kilcoona	619	663	649	661	42	6.7%

Source: https://data.cso.ie/

5.25 Information on population density for the area highlights that the population density in ClareTuam ED is almost half of the national average, however the adjoining ED (Tuam Rural) is significantly above the national average. This highlights the fact that the area is relatively unpopulated, but has easy access to centres of population.

Table 5.4
Population Density

Area	Population Density 2022 (Persons/Km^2)
ClareTuam	39
Killower	28
Cummer	75
Tuam Rural	187
Belclare	32
Beaghmore	21
Kilcoona	33
State	73

5.26 The age profile of people living in the ED is slightly above the national average and may reflect the out-migration of young people from rural areas to cities. Information from Central Statistics office (2021) indicates that the birth rate of 12.6 for the county has decreased dramatically since 2008 when it was 18.6. This follows the same pattern as has been recorded nationally where the rate has fallen from 17 in 2008 to 11.9 in 2021.

Table 5.5
Age Profile

Area	Average Age (2016)
State	37.4
ClareTuam	41
Killower	38
Cummer	38
Tuam Rural	36
Belclare	42
Beaghmore	39
Kilcoona	38

5.27 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.

Table 5.6
Tourism

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

5.28 Data from the 2023 Fáilte Ireland *Key Tourism Facts,* indicates that there were 14.3 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 25% 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 walking (54%).

5.29 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 Atlantaquaria – Ireland's National Aquarium in Galway City, which in 2022 attracted 118,500 visitors.

5.30 As stated above, 54% of domestic visitors to the country engage in walking. The county has an extensive network of trails which provide a recreational resource for both visitors and locals. Much of the trails are focused on the west of the County, including The Western Way and Connemara National Park, however the following trails and loop walks are noted in the study area.

- Knockma Nature Reserve.

5.31 Other recreational and community facilities and amenities are available in the towns of Tuam (6km west of the site) and Headford (10km west of the site). These include GAA clubs (Tuam Stars GAA, Caherlistrane GAA Club), shops, health centre, community hall and churches. Galway City is approximately 22km south of the site.

5.32 Public transportation in the area is very limited, however Bus Eireann operates bus service no. 438 from Galway City to Tuam via Headford, runs along the R333 north of the site. The bus Eireann service no. 428 runs between Galway and Tuam on the N83. The nearest train station is located in Galway City.

Education

5.33 The nearest national schools in the vicinity of the area are Scoil an Croi Ro Naofa in Belclare village approximately 1.3km north of the site. The nearest post-primary schools are located in Tuam and comprise Presentation College, St Jarlath's College and High Cross College.

5.34 The nearest third level campus is in Galway City (University of Galway and Atlantic Technological University), located approximately 22km south of the proposed development site.

Employment

5.35 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.

5.36 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 below the national rate.

Table 5.7
Unemployment and Participation Rates

Location	Unemployment Rate Q1 2024	Participation Rate Q4 2023
State	4.2%	65.4%
West	3.7%	65.1%

Table 5.8
Sectors of Work in ClareTuam and Co. Galway

	Clare Tuam 2022		Galway 2022	
Sector	No.	%	No.	%
Agriculture, forestry and fishing	29	5.49%	4,930	5.74%
Building and construction	37	7.01%	5,844	6.80%
Manufacturing industries	102	19.32%	14,519	16.90%
Commerce and trade	120	22.73%	16,536	19.25%
Transport and communications	35	6.63%	5,669	6.60%
Public administration	29	5.49%	4,399	5.12%
Professional services	136	25.7%	22,962	26.7%
Other	40	7.58%	11,042	12.85%
Total	528	100.00%	85,901	100.00%

5.37 The population in the ClareTuam ED is categorised by sector of employment as per table 5.8. This shows that the majority of individuals are employed in either professional occupations or commerce and manufacturing. Building and Construction accounts for 7% of the workforce, which is above the county and national percentage.

5.38 A breakdown of the principal economic status for western region in comparison to that of the state is provided at Table 5.9. The statistics are broadly similar with a notable exception being the percentage of retired people being nearly 2% above the national average.

Table 5.9
Principal economic status in Western region and Ireland

	West 2022		Ireland	
Status	**No.**	**%**	**No.**	**%**
Employer or own account worker	32,050	8.18%	308,675	7.46%
Employee	181,122	46.22%	2,008,774	48.56%
Assisting relative	292	0.07%	2,848	0.07%
Unemployed looking for first regular job	3,076	0.78%	34,526	0.83%
Unemployed having lost or given up previous job	16,053	4.10%	176,276	4.26%
Student or pupil	44,615	11.38%	459,275	11.10%
Looking after home/family	24,913	6.36%	272,318	6.58%
Retired	69,073	17.63%	657,790	15.90%
Unable to work due to permanent sickness or disability	17,810	4.54%	189,308	4.58%
Other economic status	2,897	0.74%	270,62	0.65%
Population aged 15 years and over	391,901		4,136,852	

Health & Safety

5.39 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.

5.40 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%.

- 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.

5.41 The 2022 census provides information on the percentage of the population that report their health as very good to very bad. Table 5.10 sets out those figures for the study area. These figures illustrate that fewer people in the study area report very bad health relative to the state figures, while the percentage that reported very good health is typically greater than the state figure (with the exception of Tuam Rural).

Table 5.10
General Health in the Study Area

Area	Very Good	Good	Fair	Bad	Very Bad	Not stated
ClareTuam	55.92%	32.60%	7.60%	1.24%	0.27%	2.39%
Killower	56.00%	32.65%	7.68%	1.19%	0.32%	2.16%
Cummer	59.05%	27.93%	8.62%	1.21%	0.17%	3.02%
Tuam Rural	51.28%	29.94%	8.98%	1.74%	0.26%	7.79%
Belclare	55.81%	31.44%	8.96%	0.76%	0.25%	2.78%
Beaghmore	56.09%	28.43%	10.91%	1.27%	0.00%	3.30%
Kilcoona	56.95%	31.87%	6.34%	1.51%	0.15%	3.17%
State	53.22%	29.66%	8.67%	1.42%	0.33%	6.71%

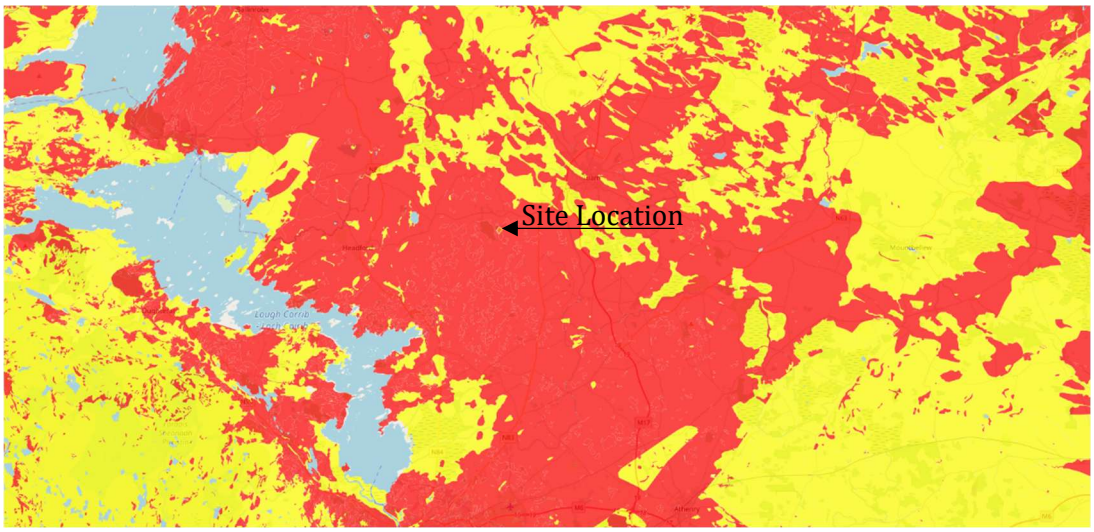
5.42 The 2022 census provides information on the age profile the population. Table 5.11 sets out the percentage of the population aged 65 and over in comparison to the state figures. The percentage of the population aged 65 and over within the study area is typically above the national figures with the exception of Tuam Rural.

Table 5.11
Percentage of Population Over 65

Area	% of Population over 65
ClareTuam	17.31
Killower	11.24
Cummer	13.88
Tuam Rural	10.81
Belclare	18.69
Beaghmore	16.75
Kilcoona	14.95
State	15.08

5.43 The application site falls within a High Radon Area. 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 5.2: Radon Map



Land-use & Property

Construction Stage Impacts

5.44 This stage examines the potential effects of the construction of the proposed storage yard only as all other elements of the development are already in situ and would not have a construction phase.

5.45 The construction of the proposed storage yard would result in the change of land-use from mixed scrubland to a storage yard. The change in land-use would be noticeable, but not incongruous with the present land-use of the site and/or the area.

Land-use	Quality	Negative
	Extent	Storage yard 1.09ha
	Probability	Likely
	Frequency	Daily – traffic, noise & atmospheric emissions – during operating hours.
	Duration	Short-term
	Reversibility	Reversible
	Direct/Indirect	1.09ha directly affected by the proposed storage yard. Use is however consistent with adjoining established uses at the site.
	Significance	Not significant - *an effect which causes noticeable changes in the character of the environment but without significant consequences.* The proposed development would not significantly alter the nature of the land-use at the site.

Table 5.12: EPA Description of Effects – Land-use, construction phase

Operational Stage Impacts

5.46 As the proposed development comprises the continuation of the existing quarry there would be no discernible change in land-use during the operational phase of the development.

5.47 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	16.3ha application site area.
	Probability	Likely
	Frequency	Daily – traffic, noise & atmospheric emissions – during operating hours.
	Duration	Long-term
	Reversibility	Reversible
	Direct/Indirect	16.3ha directly affected by quarry related land-uses. Use is however already established at the site.
	Significance	Not significant - *an effect which causes noticeable changes in the character of the environment but without significant consequences.* The proposed development would not significantly alter the nature of the land-use at the site.

Table 5.13: EPA Description of Effects – Land-use, operational phase

Post - Operational Stage Impacts

5.48 Following the cessation of operations, the application site will be restored to agricultural land and natural uses. This restoration will involve regrading and reseeding as necessary to support agricultural use with tree and shrub planting to achieve a variety of habitats.

Land-use	Quality	Positive
	Extent	16.3ha application site area.
	Probability	Likely
	Frequency	Daily – traffic, noise & atmospheric emissions – during operating hours.
	Duration	Long-term
	Reversibility	Reversible
	Direct/Indirect	16.3ha application site area directly affected.
	Significance	Not significant - *an effect which causes noticeable changes in the character of the environment but without significant consequences.* The proposed development would not significantly alter the nature of the land-use at the site. The use of the land would be altered following restoration with a return to agricultural and natural uses using imported material.

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

Population & Settlement Patterns

Construction Stage Impacts

5.49 During the construction phase there is very limited potential for impacts on the residential amenity of the local population. The overall effect is considered to be "not significant" due in part to the short-term duration of the construction, and the relatively small size of the area affected. The effects would be primarily relating to construction traffic causing noise, dust and traffic, however these are not anticipated to above significantly baseline levels and therefore not significant.

Population	Quality	Negative
	Extent	Storage yard 1.09ha
	Probability	Likely
	Frequency	Daily – traffic, noise & atmospheric emissions – during operating hours.
	Duration	Short-term
	Reversibility	Reversible
	Direct/Indirect	No direct effect on population and settlement patterns. Use is consistent with adjoining established uses at the site. Indirect affects associated with noise, vibration and dust are consistent with existing uses and although may extend beyond site boundaries, are unlikely to significantly increase baseline levels. No additional traffic movements associated with construction of the storage yard.
	Significance	Not significant - *an effect which causes noticeable changes in the character of the environment but without significant consequences.* The construction of the storage yard would not significantly alter the nature or extent of emissions from the application site above baseline levels.

Table 5.15: EPA Description of Effects – population - construction phase

Operational Stage Impacts

5.50 The continued operation of the quarry would not have any affect 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.

5.51 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 continuation 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".

5.52 A full assessment/review was carried out on the impact of traffic on the L2212 and R333 and their 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 both routes in all assessment years.

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

Population	Quality	Negative
	Extent	16.3ha 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.
	Probability	Likely
	Frequency	Daily – traffic, noise & atmospheric emissions. Vibration – 1 – 2 times 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 5.16: EPA Description of Effects – Population -operational phase

Post - Operational Stage Impacts

5.54 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 returning of the site to agricultural land and natural uses.

5.55 Following the cessation of the proposed works, the appearance of the application site will have been altered with a return of the landscape to the pre-extracted agricultural and natural uses.

Population	Quality	Positive
	Extent	16.3ha 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.
	Probability	Likely
	Frequency	Daily – traffic, noise & atmospheric emissions. Vibration – 1 – 2 times per month.
	Duration	Short-term
	Reversibility	Reversible
	Direct/Indirect	16.3ha 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 5.17: EPA Description of Effects – Population, post-operational phase

Tourism & Recreation

Construction Stage Impacts

5.56 It is not anticipated that the construction of the proposed storage yard would have any effect on tourist resources identified above. The site is distant from the majority of those resources however, the nearest recreational resource; Knockma woods is situated approximately 500m west of the proposed storage yard at its nearest point.

5.57 The experience of visitors to Knockma woods would be unaltered by the proposed storage yard. The majority of views from within Knockma woods are either internal or are focused to the south and therefore away from the application site.

Tourism & Recreation	Quality	Negative
	Extent	Storage yard 1.09ha
	Probability	Likely
	Frequency	Daily – traffic, noise & atmospheric emissions – during operating hours.
	Duration	Short-term
	Reversibility	Reversible
	Direct/Indirect	No direct effect on Tourism & Recreation. Use is consistent with adjoining established uses at the site. Indirect affects associated with noise, vibration and dust are consistent with existing uses and although may extend beyond site boundaries, are unlikely to significantly increase baseline levels. No additional traffic movements associated with construction of the storage yard.
	Significance	Not significant - *an effect which causes noticeable changes in the character of the environment but without significant consequences.* The construction of the storage yard would not significantly alter the nature or extent of emissions from the application site above baseline levels.

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

Operational Stage Impacts

5.58 As with the Construction Phase of the proposed development, It is not anticipated that the operation of the quarry would have any effect on tourist or recreational resources identified above. The site is distant from the majority of those resources however, the nearest recreational

resource; Knockma woods is situated approximately 200m west of the application site boundary. The existing quarry offers no value for recreational amenity as it comprises mainly private land and it does not contain any paths or recreational facilities.

5.59 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.

5.60 The application site would only be visible from very small parts Knockma Woods and existing trees and shrubs will further aid screening as they further mature over time. Noise associated with the continuation of the quarry would be heard from within Knockma Woods, however it is unlikely to be of a level that would detract from the visitor's experience.

Tourism & Recreation	Quality	Negative
	Extent	16.3ha 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.
	Probability	Likely
	Frequency	Daily – traffic, noise & atmospheric emissions. Vibration – 1 – 2 times per month.
	Duration	Long-term
	Reversibility	Reversible
	Direct/Indirect	No direct effect on Tourism & Recreation. 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 perceptive above the baseline levels. The nature or extent of emissions from the application site would not be altered above baseline levels.

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

Post - Operational Stage Impacts

5.61 Following the cessation of the proposed works, the appearance of the application site will have altered. These changes will include the removal of any infrastructure and restoring the site to its original agricultural landscape. This restoration will ensure that the site visually integrates with the surrounding landscape, maintaining consistency with adjacent land uses. 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. The outlook of visitors to Knockma would improve at the small section of the walking track along which the application site is visible.

Tourism & Recreation	Quality	Positive
	Extent	16.3ha 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.
	Probability	Likely
	Frequency	Daily – traffic, noise & atmospheric emissions. Vibration: 1-2/month.
	Duration	Short-term
	Reversibility	Reversible
	Direct/Indirect	16.3ha 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 5.20: EPA Description of Effects – Tourism & Recreation, post-operational phase

Education & Employment

Construction Stage Impacts

5.62 The construction of the proposed storage yard would not require any additional employees than are currently employed on site as existing employees will be re-deployed to this area of the site for the short-term duration of the construction works.

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

Operational Stage Impacts

5.63 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 will have greater significance in this area relative to other parts of the country given the relative importance of the construction sector in this area.

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 5.22: EPA Description of Effects – Education & Employment, operational phase

Post - Operational Stage Impacts

5.64 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 5.23: EPA Description of Effects – Education & Employment, post-operational phase

Human Health

Construction Stage Impacts

5.65 The construction of the proposed storage yard would result in a short term generation of noise and dust associated with the construction activities. The levels of noise and dust generated would however not be significant as the duration of the construction phase would be short term and the activities would be consistent with the existing activities occurring on the site with measures already in place to manage emissions.

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	Daily – traffic, noise & atmospheric emissions – during operating hours.
	Duration	Short-term
	Reversibility	Reversible
	Direct/Indirect	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.* The construction of the storage yard would not significantly alter the nature or extent of emissions from the application site above baseline levels.

Table 5.24: EPA Description of Effects – Health & Safety, construction phase

Operational Stage Impacts

5.66 The operational phase of the development relates to the continued extraction and processing of limestone within the 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.

5.67 Thresholds for the existing development are established via conditions attached to the existing planning permission (06/2275: for quarrying of limestone. Conditional 22/03/2007. Appealed (*An Bord Pleanála reference PL.07.222783)* 10/04/2007. Approved 7/05/2008) and the subsequent applications that have been approved for the site:

21442: Provision of a steel frame and cladding to cover existing aggregate stock bays for environmental purposed.2. the provision of a steel frame and cladding around the existing fixed plant (including lime crusher) for environmental purposed. The proposed development is ancillary to the main quarry which was previously approved under planning reference 06/2275 and An Bord Pleanála reference PL.07.222783. Conditional 17/05/2021

20419: For the construction of a Concrete Batching Plant on and adjacent to a Quarry site previously approved under Planning Reference 06/2275 and An Bord Pleanála Reference PL.07.222783. The proposed development is ancillary to the main Quarry and it will include the following; Washdown/Surface Water Collection System and Washwater Recovery Tanks. Concrete Block Making and Storage Facility and all Associated Ancillary Site Services. The Planning Application is accompanied by a Natura Impact Statement (NIS). Conditional 08/07/2020. Appealed 04/08/202. Approved 08/02/2021.

191964: For development consisting of the installation of a substation building comprising of an ESB supply room and 2 no. switch rooms (c. 70 sq.m) within a planning application area of c.0.007 Ha. Gross floor space of proposed works: 70 sqm. Granted (Conditional) 30/03/2020.

177083: To construct a concrete batching plant on and adjacent to a quarry site previously approved under planning reference 06/2275 and An Bord Pleanála reference PL.07.222783. The proposed development is ancillary to the main quarry and it will include the following: washdown/surface water collection system and washwater recovery tanks; aggregate storage bins; concrete block-making and storage facilities and all ancillary services. Conditional 20/07/2017.

17512: For the removal of an existing office and staff facilities building and the replacement of same with a single storey prefabricated modular building (to be used for staff facilities building) and for the provision of a staff and visitors carpark to serve the existing quarry. The development will connect to the existing treatment plant constructed under quarry planning references 06/2275 (An Bord Pleanála reference PL.07.222783). Gross floor space of proposed work: 173.1sqm). Conditional 12/06/2017.

15104: For the construction of an Asphalt Batching Plant within the quarry site previously approved under planning reference 06/2275 and An Bord Pleanála reference PL.07.222783. The proposed development will be ancillary to the main quarry and it will provide the following: 2 weigh bridges and associated single storey weigh station office, 1 single bay open aggregate bay, 1 five-bay open aggregate bay and 1 three-bay covered aggregate storage bay. The asphalt plant will consist of all fixed and mobile plant-associated with the following system; cold feed system, drying and heating system, dust collection system, mixing tower, hot mix storage system, filter feed system, bitumen supply system and a control cabin. There will be a 30.0m high stack associated with the plant. The plant will be located on the existing quarry floor level. There will also be advanced warning signs on the public access road (gross floor space 8sqm). Conditional 01/04/2015.

141295: For the construction of a shed within the existing quarry site for the purpose of maintaining plant associated with the operation of the quarry. The development will also consist o the provision of a concrete apron around the proposed shed, incorporating a surface water collection system and an oil interceptor. Previous planning reference 06/2275 and 06/2275 An Bord Pleanála reference PL.07.222783 refer to the quarry. Groos floor space 263.4sqm. Conditional 29/01/2015

5.68 The potential effects of continuing 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 quarterly. The site has consistently demonstrated compliance with planning conditions.

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. Vibration – 1 – 2 times 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 5.25: EPA Description of Effects – Health & Safety, operational phase

Radon gas

5.69 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/m^3. 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.

5.70 The proposed development does not include any internal spaces and the quarry itself is open-cast. 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".

5.71 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 5.26: EPA Description of Effects – Radon gas, operational phase

Silica Dust

5.72 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.

5.73 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.

5.74 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.

5.75 Effective dust prevention, protection and control techniques are already in place at the site, including wheel-washing, dust suppression, enclosure of conveyors, buildings used to store aggregate where necessary, and requirements for PPE. The potential effects on the health of employees working at the site as a result of silica dust is therefore likely to be not significant.

5.76 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 nature of the dust (low silica content)
	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 5.27: EPA Description of Effects – Radon Gas, operational phase

Unplanned Events

5.77 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)".

5.78 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.

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

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

5.80 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, following implementation of the CEMP the overall effects are expected to be imperceptible on health and safety in terms of the EIA Regulations

5.81 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. Given the history of the quarry operations, there has been no previous oil or fuel spills with the current fuel storage and refuelling practises in place. Given the scale of the operation and the current practises in place, the probability of spillages occurring is very low.

5.82 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 employment, 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.

5.83 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 5.28: EPA Description of Effects – Unplanned events, operational phase

Post - Operational Stage Impacts

5.84 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. The restoration of the site would not have any effect on human health, including silica dust, radon gas and unplanned events.

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

Cumulative Effects / Synergistic Effects

5.85 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. Developments that were already constructed have been excluded 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. The following developments were short-listed as having the potential to result in cumulative effects:

- 2460013: *For the development of a quarry for the extraction of sand in a phased basis over an area of c. 6.2 ha by an average depth of 3m from existing ground levels. The development will consist of: i. Installation of a processing plant and associated components; ii. Stockpiling of topsoil removed during quarrying for future implementation of a restoration plan; iii. Construction of a refuelling area; iv. Installation of a site office (30 sqm); v. Installation of a wastewater holding tank (63.6 sqm); vi. Installation of a weighbridge and wheel wash; vii. Installation of a new site entrance along with road reprofiling works on the L2232; viii. Installation of a groundwater well; ix. Provision of drainage infrastructure including a new hydrocarbon interceptor and surface drains on hardstanding; x. All associated site development and operational works; and xi. Site restoration following the cessation of sand extraction works. Permission is sought for an operational lifetime of 10 years. The Planning Application is accompanied by an Environmental Impact Assessment Report and Natura Impact Statement.* Granted (Conditional) 12/09/2024. Appealed 09/10/2024.
- 2461190 for an amendment planning application to the previously granted permission under planning reference 19/1315 (ABP-306685-20). The proposed amendments to the previously consented planning application will comprise the following: Reconfiguration

and reduction in the overall length of internal access roads, reduction and relocation in the number of transformer stations, reduction and reconfiguration in the number of solar PV modules to optimise layout, provision of a spare parts container. Amendments to the consented 38kV on-site substation control building & compound, relocation of consented site access by circa 440 metres at the southern portion of the site, amendments to the consented grid connection for the completion and installation of 180 metres of 38kV underground electricity cables, and ducts through ESB land to the Cloon 110kV substationGranted (Conditional) 10/01/2025.

- PA07.319307: Proposed no 8 wind turbines and associated works. Laurclavagh and adjacent townlands, Co. Galway. Lodged15/03/2024

Land Use & Property

5.86 Planning application 24/60013 is situated over 17km from the application site. If permitted these developments would result in the alteration of the existing land-use however, given the distance between the proposals, it is not anticipated that any cumulative effects would occur as a result of the construction or operation of these developments.

5.87 Planning application 24/61190 is situated approximately 7km from the application site, separated by the N83 and M18 motorway. If permitted these developments would result in the alteration of the existing land-use however, given the distance between the proposals, it is not anticipated that any cumulative effects would occur as a result of the construction or operation of these developments.

5.88 Planning application PA07.319307 is situated over 3km from the application site. If permitted these developments would result in the alteration of the existing land-use however, given the distance between the proposals, it is not anticipated that any cumulative effects would occur as a result of the construction or operation of these developments.

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

Population and Settlement Patterns

5.90 As stated above the above planning applications are distant from the application site. There would therefore be no potential for cumulative effects on residential amenity. Population and settlement patterns would also not be altered if all developments were progressed. Due to the distance between the sites, they would not utilise the same local road network. It is therefore not anticipated that any cumulative effects would occur as a result of the construction or operation of these developments.

Tourism & Recreation

5.91 No significant adverse cumulative effects on tourism or recreation are anticipated due to the construction or operation of the above developments as they are distant from each other.

Education & Employment

5.92 No significant adverse cumulative effects education & employment are anticipated due to the construction or operation of the above developments as they are distant from each other. Each

of the developments identified has the potential to make a contribution towards employment in the area.

Health & Safety

5.93 No significant adverse cumulative effects on health & safety are anticipated due to the construction or operation of the above developments as they are distant from each other.

Do Nothing Scenario

5.94 Under the 'do-nothing' scenario, Mortimers Quarry would continue to operate the quarry as permitted under *06/2275 An Bord Pleanála reference PL.07.222783*. As required under Condition no. 2 of that grant of permission, operations at the quarry would cease on 7th May 2028 and the site would be restored to agricultural land.

5.95 In the short-term period (up to May 2028), 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 and 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.

5.96 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, less suitable locations being proposed for quarries to address this short-fall in supply.

Transboundary Impacts

5.97 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

5.98 It is not anticipated that the effects of the proposed development on population and human health would interact significantly with other impacts. This chapter has made reference to other chapters within this EIAR including Chapter 10 Air Quality, Chapter 11 Noise, Chapter 13 Traffic. Reference should also be made to Chapter 16: Interactions.

Mitigation Measures

Construction & Operational Stage Impacts

5.99 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.

Chapter 12: Landscape.

Chapter 13: Traffic.

Chapter 15: Material Assets.

5.100 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

5.101 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

Construction Stage Impacts

5.102 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 construction phase of the development.

Operational Stage Impacts

5.103 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.

Post-Operational Stage Impacts

5.104 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

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

Environmental Monitoring Programme

5.106 Monitoring will continue to be carried out on a regular basis, to demonstrate that the development is not having an adverse impact on the surrounding environment.

Dust Monitoring

5.107 Dust deposition monitoring will be 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 continue to be submitted to Galway County Council on a regular basis for review and record purposes.

Noise & Vibration Monitoring

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

Water Monitoring

5.109 The site will continue to operate an Environmental Management System (EMS), which will include surface water and groundwater sampling.

5.110 With respect to groundwater monitoring, there is routine monitoring of Groundwater Quality and Levels and Quality on a Quarterly basis for the on-site Supply Well and that will continue.

5.111 Monitoring measures will continue as usual and they verify whether the development is impacting on the hydrological and/or hydrogeological, and that the mitigation measures are effective.

Difficulties Encountered

5.112 No significant difficulties were encountered.

References

Diego Diegues Francisca,Wilson Siguemasa Iramina , Anna Luiza Marques Ayres da Silva * and Giorgio de Tomi; *New Evaluation Method of Exposure to Radon Gas in Mining Environments* (June 2023). Minerals. 2023, 13, 897.

Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment

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)

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

Guidance on the preparation of the environmental impact assessment report (Directive 2011/92/EU as amended by 2014/52/EU) (2017)

Guidelines on the information to be contained in Environmental Impact Assessment Reports, EPA, 2022

Guidelines on the information to be contained in environmental impact statements, EPA 2002.

IEMA Primer, Institute of Environmental Management and Assessment (IEMA) (2017)

Fáilte Ireland website – https://www.failteireland.ie/.
Walking trails https://www.sportireland.ie/outdoors and http://trails.ie/index.php

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/.

Failte Ireland *Visitors to Attractions Dashboard*

Fáilte Ireland *Key Tourism Facts* 2023